

# WESTERN ELECTRIC COMPANY



TELEPHONIC  
APPARATUS

AND  
SUPPLIES





# WESTERN ELECTRIC COMPANY

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## ATLANTA—

230 LEE STREET,  
ATLANTA, GEORGIA.

## NEW YORK—

463 WEST STREET,  
NEW YORK.

## CHICAGO—

259 SO. CLINTON STREET,  
CHICAGO, ILLINOIS.

## OMAHA—

802 FARNUM STREET,  
OMAHA, NEBRASKA.

## CINCINNATI—

113 WEST THIRD STREET,  
CINCINNATI, OHIO.

## PHILADELPHIA—

11TH AND YORK STREETS,  
PHILADELPHIA, PENNA.

## DALLAS—

DALLAS,  
TEXAS.

## PITTSBURG—

910 RIVER AVENUE,  
ALLEGHENY, PENNA.

## DENVER—

1516 CURTIS STREET,  
DENVER, COLORADO.

## SAINT LOUIS—

810 SPRUCE STREET,  
ST. LOUIS, MISSOURI.

## DES MOINES—

COR. THIRD AND DEPOT STREETS,  
DES MOINES, IOWA.

## SAINT PAUL—

235-237 EAST 6TH STREET,  
ST. PAUL, MINN.

## INDIANAPOLIS—

MAJESTIC BUILDING,  
INDIANAPOLIS, INDIANA.

## SALT LAKE CITY—

445 SOUTH THIRD WEST STREET,  
SALT LAKE CITY, UTAH.

## KANSAS CITY—

611-613 WYANDOTTE STREET,  
KANSAS CITY, MISSOURI.

## SAN FRANCISCO—

642 FOLSOM STREET,  
SAN FRANCISCO, CAL.

## LOS ANGELES—

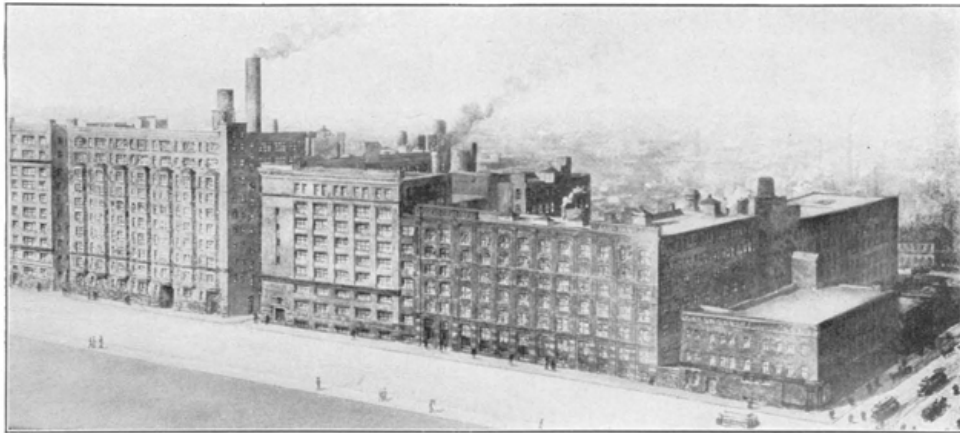
117 EAST SEVENTH STREET,  
LOS ANGELES, CALIFORNIA.

## SEATTLE—

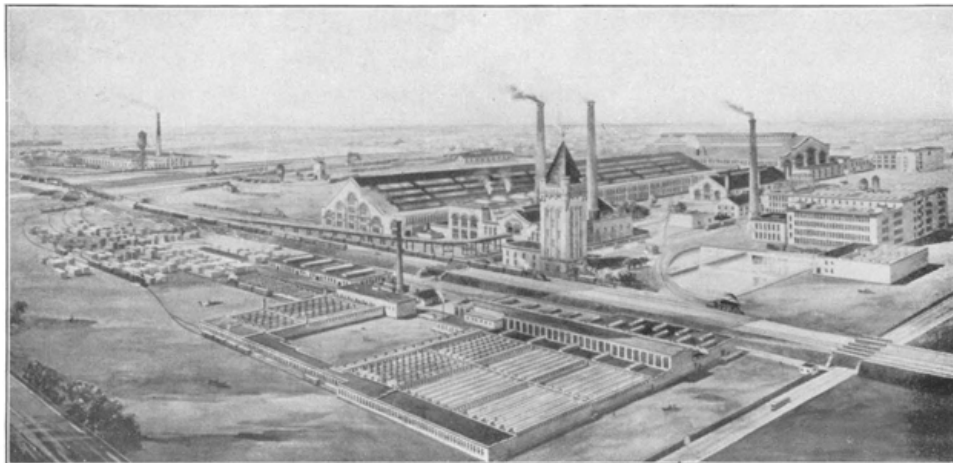
1518 FIRST AVENUE, SOUTH,  
SEATTLE, WASHINGTON.

NORTHERN ELECTRIC & MANUFACTURING COMPANY, Limited,  
MONTREAL. WINNIPEG.





CHICAGO



HAWTHORNE





NEW YORK





St. Louis

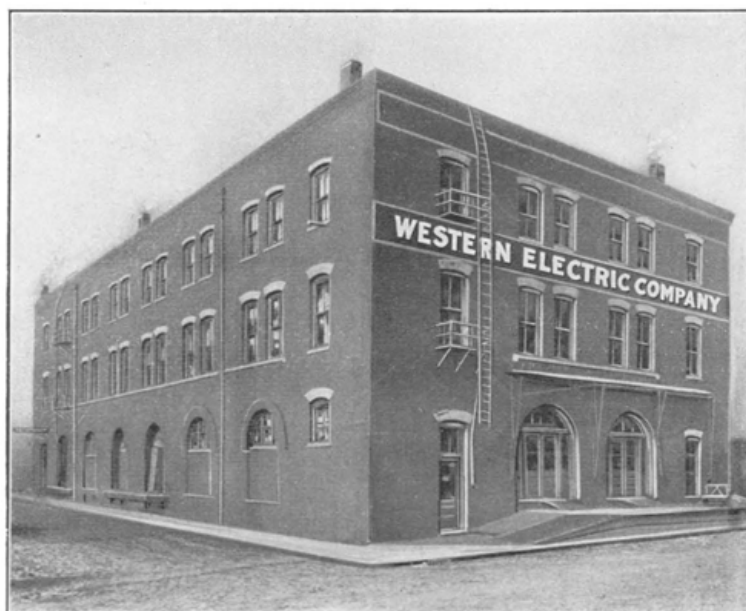


INDIANAPOLIS

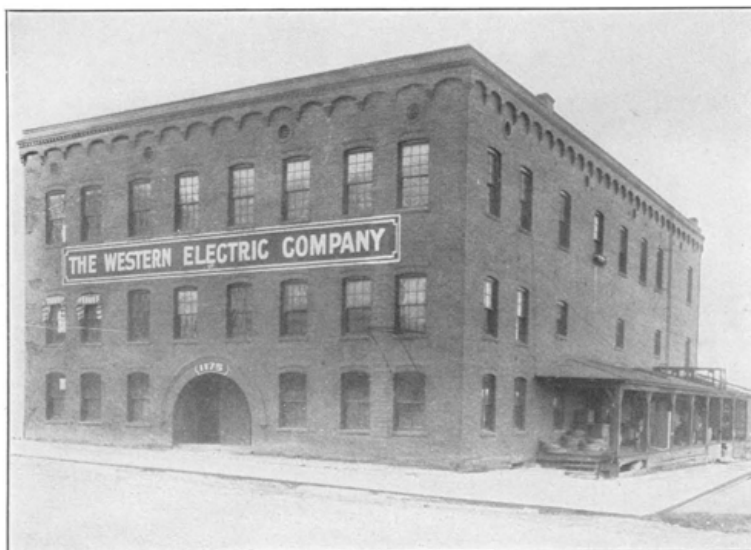




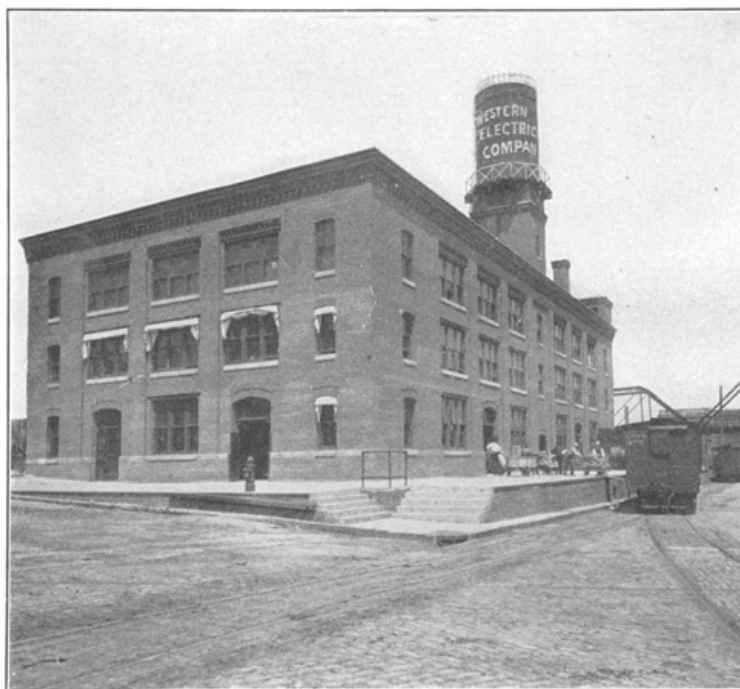
LOS ANGELES



DES MOINES



DENVER



OMAHA





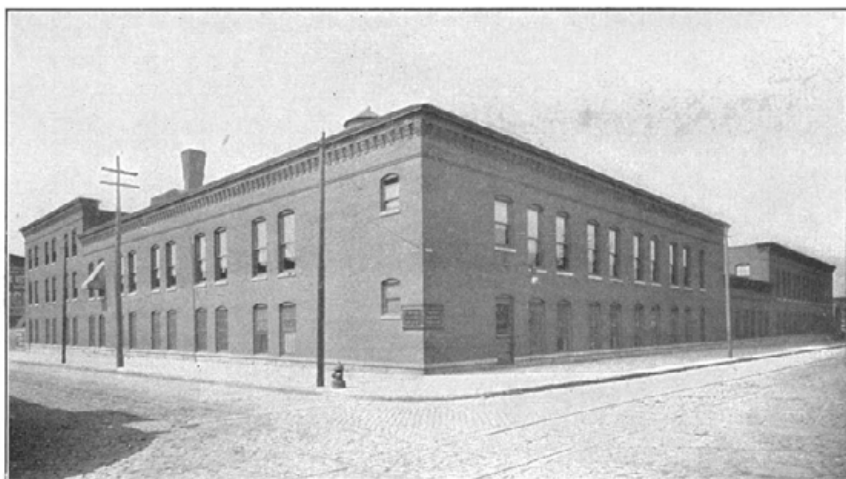
ST. PAUL



SAN FRANCISCO

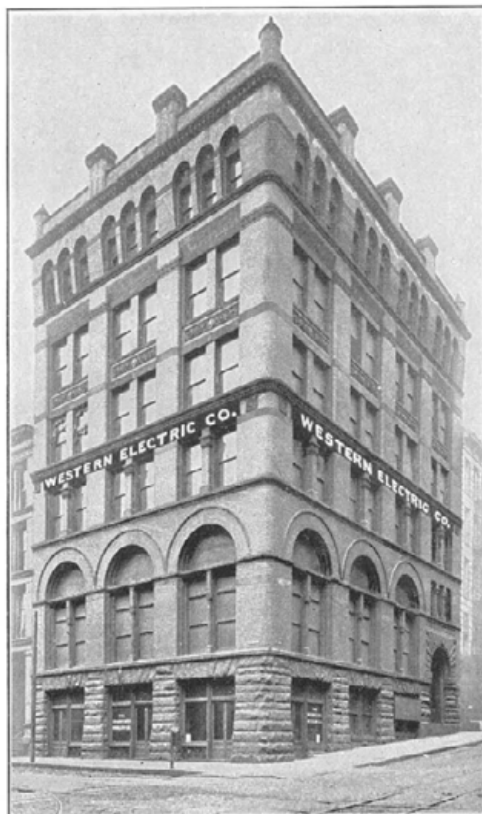


SEATTLE



PHILADELPHIA

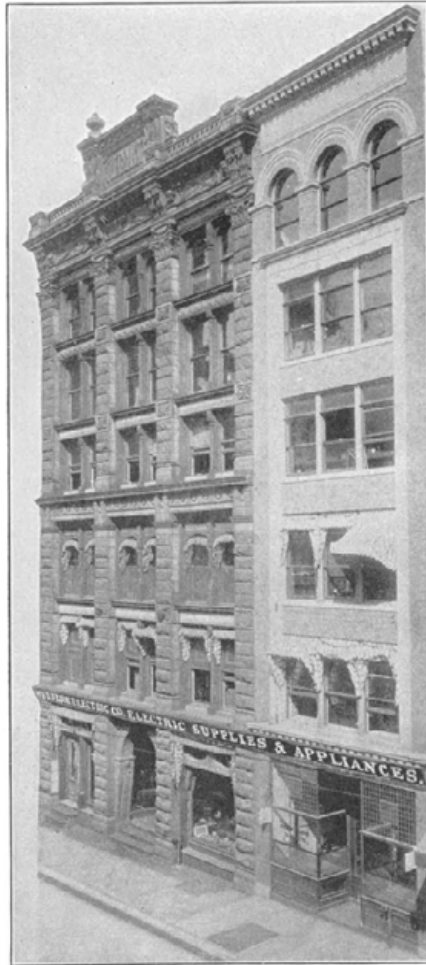




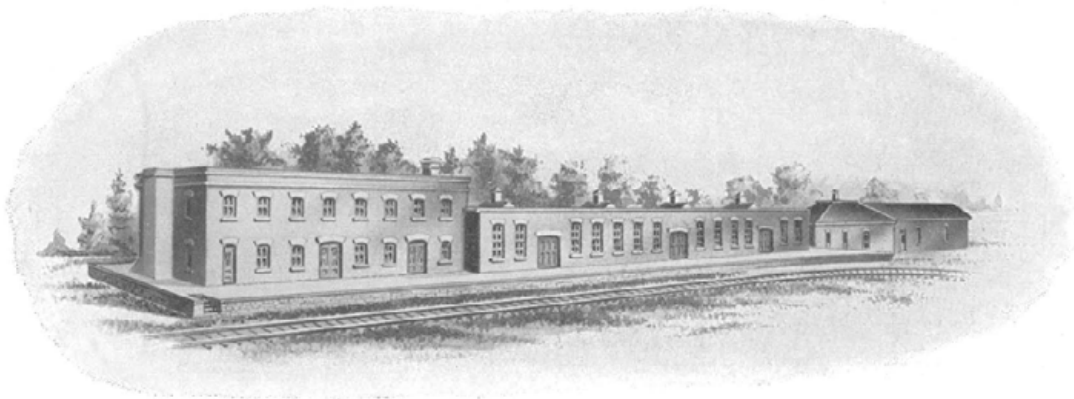
CINCINNATI



ATLANTA

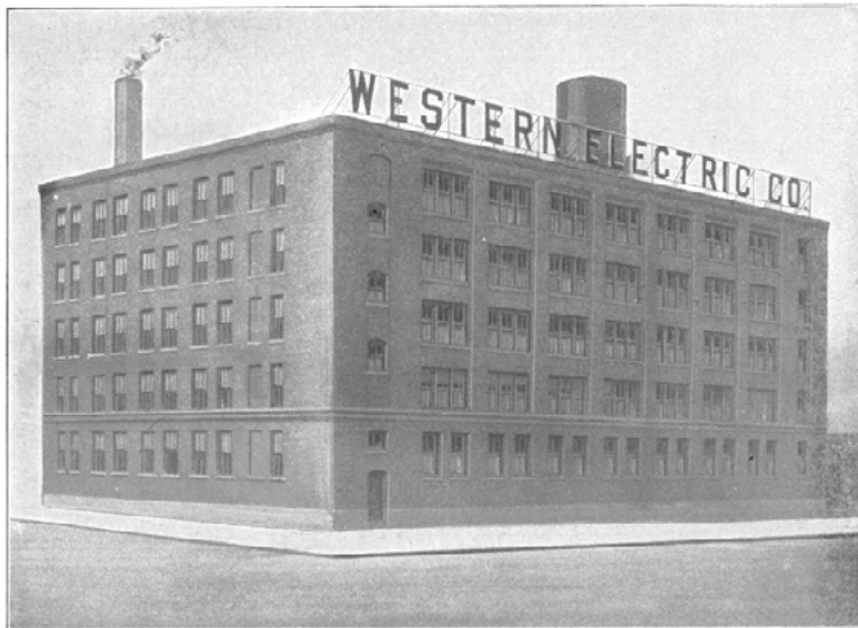


KANSAS CITY



SALT LAKE CITY





PITTSBURG

## **INTRODUCTION**

This catalogue has been prepared for the assistance and guidance of purchasers of telephone apparatus and supplies. It lists only the types of apparatus and supplies which are in common use. Material for which there is very little demand or which is furnished only with complex exchange equipments is not included in this catalogue.

The common uses of the apparatus are given so far as possible for the guidance of the purchaser and it should be understood that the apparatus is not necessarily restricted to these uses.

All parts are interchangeable and we are prepared to furnish renewals and additions to existing equipments at any time. If the code number is not known when ordering it is advisable to send us the old parts to insure prompt and proper filling of the order.

We carry at all our houses a complete line of apparatus and supplies in general use. At every house are experts who will be glad to furnish any desired information or advice, if you will write stating your requirements.

**WESTERN ELECTRIC COMPANY**



## TELEGRAPH CODE

To accommodate our largely increased correspondence we have arranged a code of carefully compiled words, each representing a business phrase, and customers are requested to make use of these words when ordering goods, requesting quotation, or seeking information relative to the shipment of orders by telegraph. A little ingenuity in arranging a message in code will result in a comprehensive order being placed or a request for information being transmitted at a comparatively small cost.

### ORDERS

|                  |  |                    |  |
|------------------|--|--------------------|--|
| <b>Leaking</b>   | Add to our order of.                                       | <b>Lease</b>       | Ship immediately.                                    |
| <b>Leaky</b>     | Cancel our order of.                                       | <b>Leased</b>      | Ship as soon as possible.                            |
| <b>Lean</b>      | Change our order of.                                       | <b>Leasehold</b>   | Ship by express.                                     |
| <b>Leaned</b>    | Hurry forward goods on our order of.                       | <b>Leaseholder</b> | Ship by fast freight.                                |
| <b>Leaning</b>   | Have you shipped goods on our order? If not when will you? | <b>Leash</b>       | Ship quickest route.                                 |
| <b>Leanness</b>  | Enter order if you can ship in.                            | <b>Leaven</b>      | Ship cheapest route.                                 |
| <b>Leaped</b>    | Hold for instructions our order of.                        | <b>Leavened</b>    | Send tracer immediately for shipment of.             |
| <b>Leaping</b>   | If you cannot ship in time named, advise by telegraph.     | <b>Leavening</b>   | Wait receipt of letter before proceeding with order. |
| <b>Learn</b>     | Instructions by mail.                                      | <b>Lecture</b>     | Change order for.                                    |
| <b>Learned</b>   | Prepay freight.  | <b>Legacy</b>      | Hold subject to our order.                           |
| <b>Lectured</b>  | Send C. O. D. by express.                                  | <b>Legal</b>       | Hold until further orders.                           |
| <b>Lecturing</b> | What quantity can you ship per day?                        | <b>Legalize</b>    | Send us immediately.                                 |
| <b>Ledge</b>     | Do not delay.  | <b>Legally</b>     | This is very important.                              |
| <b>Leeward</b>   | Duplicate our order.                                       | <b>Legate</b>      | Send tracer on shipment—goods not here.              |
| <b>Leeway</b>    | Can you furnish?   |                    |  |
| <b>Learning</b>  | Shipping instructions will be sent you.                    |                    |  |

### ANSWERS

|                     |   |                  |  |
|---------------------|---|------------------|--|
| <b>Legislature</b>  | Please specify quantities and trade number.                         | <b>Lent</b>      | Have entered order and will ship.  |
| <b>Legitimate</b>   | Unable to give better price.  | <b>Leonard</b>   | Have sent tracer as requested.   |
| <b>Legitimately</b> | We quote.   | <b>Leonine</b>   | Have suspended work as requested.  |
| <b>Legitimist</b>   | We quote for immediate acceptance.                                  | <b>Leonora</b>   | Too late to cancel order.  |
| <b>Legless</b>      | We quote in reply to your inquiry of.                               | <b>Leopard</b>   | Unable to ship goods at time promised.   |
| <b>Leisure</b>      | We quote shipment from stock.                                       | <b>Leopold's</b> | We ship you to-day.  |
| <b>Leisurely</b>    | We quote shipment in.   | <b>Leper</b>     | We expect to ship.   |
| <b>Leming</b>       | We cannot accept at the price.                                      | <b>Leprosy</b>   | We will complete your order.   |
| <b>Lemon</b>        | We will accept your order.  | <b>Leprous</b>   | We will ship.  |
| <b>Lemonade</b>     | We do not make the article.   | <b>Lessen</b>    | We have shipped.   |
| <b>Lender</b>       | Can ship at once from stock if advised immediately.                 | <b>Lessened</b>  | We have completed your order and shipped same.   |
| <b>Lending</b>      | Can ship at once on receipt of order.                               | <b>Lessening</b> | We have entered order.   |
| <b>Lengthen</b>     | Can ship in.  | <b>Lethargy</b>  | Telegraph shipping instructions for your order of.   |
| <b>Lengthened</b>   | Can begin shipping at once, and complete in.                        | <b>Lettuce</b>   | Can deliver part of your order at once. Shall we ship portion, or hold till we can make one complete shipment? |
| <b>Lengthening</b>  | Can ship within one week from receipt of order if advised at once.  | <b>Levant</b>    | Do not understand your order. Send duplicate with full details.  |
| <b>Lengthily</b>    | Can ship within two weeks from receipt of order if advised at once. | <b>Levelness</b> | Send us official order confirming your telegram.   |
| <b>Leniency</b>     | Have none in stock.   |                  |  |
| <b>Lenient</b>      | First shipment will be made.  |                  |  |

## CODE IN GENERAL

|                   |  |                   |  |
|-------------------|--|-------------------|--|
| <b>Lapwing</b>    | Answer by mail.  | <b>Latent</b>     | Will greatly accommodate us if you will.   |
| <b>Larboard</b>   | Referring to our letter of.  | <b>Latently</b>   | According to contract.   |
| <b>Larceny</b>    | Referring to your letter of.   | <b>Lateral</b>    | Not according to contract.   |
| <b>Larch</b>      | We write you fully to-day.   | <b>Lather</b>     | To which add the cost of.  |
| <b>Largeness</b>  | We have no letter from you.  | <b>Lathered</b>   | In addition to.  |
| <b>Largess</b>    | Will write you fully in a day or so.   | <b>Lathering</b>  | How did you address?   |
| <b>Lariat</b>     | Write giving full particulars.   | <b>Latin</b>      | Was addressed to.  |
| <b>Lark</b>       | Answer by telegraph—day message.   | <b>Latinize</b>   | Please note an advance of.   |
| <b>Larva</b>      | Answer by telegraph—night message.   | <b>Latitude</b>   | Would you advise?  |
| <b>Larynx</b>     | Referring to our telegram of.  | <b>Latterally</b> | Would advise you to.   |
| <b>Lascar</b>     | Referring to your telegram of.   | <b>Latterly</b>   | Would not advise you to.   |
| <b>Lash</b>       | Telegraph immediately.   | <b>Lattice</b>    | Unless otherwise advised will assume that.   |
| <b>Lashed</b>     | Telegraph reply soon as possible.  | <b>Laud</b>       | Will you agree to?   |
| <b>Lashing</b>    | We have no telegram from you.  | <b>Laudable</b>   | Will agree to.   |
| <b>Lass</b>       | Why do you not telegraph?  | <b>Laudably</b>   | Must have answer by.   |
| <b>Lasting</b>    | Shall we?  | <b>Laudation</b>  | Will be in.  |
| <b>Latch</b>      | Will you?  | <b>Laudative</b>  | Will be here.  |
| <b>Laugh</b>      | Utmost care must be used.  | <b>Lawrence</b>   | What have you done about?  |
| <b>Laughable</b>  | Cash on delivery.  | <b>Lax</b>        | Will deposit sight draft on you to-day, unless advised to the contrary, for . . . . . dollars. |
| <b>Laughed</b>    | Cash in 30 days.   | <b>Laxative</b>   | Please accept our draft for . . . . . dollars.   |
| <b>Laughter</b>   | Will not allow any commission.   | <b>Laxity</b>     | Send duplicate copy of invoice dated.  |
| <b>Laughing</b>   | Commission will be allowed.  | <b>Laxness</b>    | Have examined very carefully and find.   |
| <b>Launch</b>     | Your financial standing being unknown, we will send goods C. O. D. unless otherwise instructed.                              | <b>Laymen</b>     | Expenses to be paid by.  |
| <b>Launched</b>   | Kindly send us references as to your financial standing, or shall we ship via freight with draft attached to bill of lading? | <b>Lazily</b>     | Do not fail to.  |
| <b>Laundress</b>  | Will you agree to the conditions?  | <b>Laziness</b>   | Have figured as close as possible.   |
| <b>Laundry</b>    | Contract awarded.  | <b>Lazy</b>       | Freight must be prepaid.   |
| <b>Laura</b>      | Contract will be awarded.  | <b>Leach</b>      | Freight rate per hundred pounds to destination.  |
| <b>Laurate</b>    | Will you extend credit?  | <b>Leaden</b>     | What is freight rate per hundred pounds?   |
| <b>Laurel</b>     | Have you decided?  | <b>Leader</b>     | Guarantee the account.   |
| <b>Lava</b>       | Have not decided.  | <b>Leading</b>    | Hold subject to your order.  |
| <b>Lavation</b>   | Have decided.  | <b>Leafage</b>    | Does not include.  |
| <b>Lavatory</b>   | Will guarantee delivery by the.  | <b>Leafing</b>    | Must be included.  |
| <b>Lavender</b>   | Cannot guarantee delivery before the.  | <b>Leafless</b>   | Will keep you fully informed.  |
| <b>Lawfully</b>   | The diameter is.   | <b>Leafy</b>      | Insist upon.   |
| <b>Lawfulness</b> | Will do the best we possibly can.  | <b>League</b>     | Await instructions.  |
| <b>Lawgiver</b>   | Do the best you possibly can.  | <b>Leagued</b>    | Letter in transit with full particulars.   |
| <b>Lawgiving</b>  | Shall we do so?  | <b>Leak</b>       | Shall we deliver goods on verbal order of your Mr. . . . . ?                                   |
| <b>Lawless</b>    | Do so.   | <b>Leakage</b>    | Advisable for you to place order at once, prices tending to advance.                           |
| <b>Lawn</b>       | Can do nothing until.  |                   |  |
| <b>Lateen</b>     | Will you accept?   |                   |  |
| <b>Lateness</b>   | Wire at once if accepted or not.   |                   |  |

## QUESTIONS

|                  |   |                    |  |
|------------------|---|--------------------|--|
| <b>Legatee</b>   | At what price could you furnish?                                  | <b>Legibly</b>     | Can you ship immediately?                                    |
| <b>Legation</b>  | Quote us by telegraph.  | <b>Legion</b>      | Can you ship in?   |
| <b>Legend</b>    | Quote us by next mail.  | <b>Legislate</b>   | Have you in stock?   |
| <b>Legendary</b> | Quote lowest price by telegraph F. O. B. New York.                | <b>Legislated</b>  | Have you in stock? If not how soon can ship?                 |
| <b>Legging</b>   | Quote lowest prices by mail F. O. B. New York.                    | <b>Legislating</b> | How soon can you ship?                                       |
| <b>Legible</b>   | Telegraph lowest price, F. O. B. New York, and how soon can ship. | <b>Legislative</b> | How soon can you make first shipment and how fast remainder? |
|                  |   | <b>Legislator</b>  | What substitution can you make?                              |

## **TERMS**

Terms are thirty days net. All bills are due on the 15th of the following month. Payments may be made by bank draft, post office or express money order or registered letter. We are not responsible for remittances lost in the mails.

## **REFERENCES**

New customers, unless satisfactorily rated by the commercial agencies, should send references with their first order and brief statement of their financial condition. This will enable us to ship promptly.

## **C. O. D. SHIPMENTS**

To avoid the slight delay necessarily occasioned by our taking time to make the usual inquiries of references, we are always glad to ship by express C. O. D. if a remittance sufficient to pay express charges both ways accompanies the order, or by freight subject to sight draft against bill-of-lading.

## **PRICES**

The prices as given in this catalogue are f.o.b. warehouse unless otherwise specified, and are subject to change without notice. Net prices quoted upon request. Please state quantities desired.

## **SHIPMENTS**

We request customers to give shipping directions with their orders, but if not given will use our best judgment in making selection of route. As experienced packers are employed we are not responsible for breakages after having obtained "in good order" receipt from the transportation company. Goods ordered to be shipped by mail will be sent only at purchaser's risk.



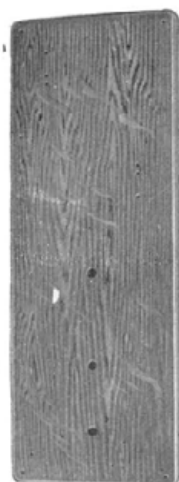
# TELEPHONE APPARATUS



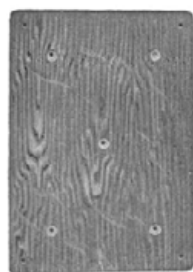
No. 111-C



No. 132-A



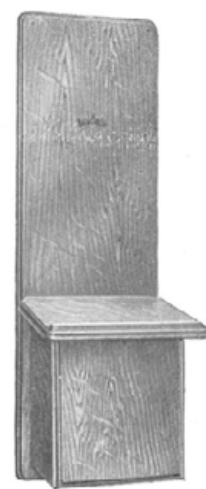
No. 133-A



No. 134-A



No. 138-A



No. 136-B

## APPARATUS BLANKS

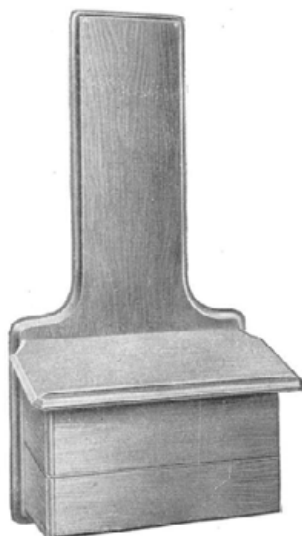
A complete line of apparatus blanks is manufactured. These are suitable for covering the drillings for any of our apparatus which is not provided.

## BACKBOARDS

Regularly furnished in oak or walnut

| Code No. | Style                       | Used with   | Dimensions inches                                  | List Price each |
|----------|-----------------------------|---|--|-----------------|
| 111-C    | Battery Box for 3 dry cells | Nos. 1240-A and 1240-E telephone sets. Included as part of set            | 33 $\frac{1}{8}$ x8 $\frac{1}{8}$ x7 $\frac{1}{4}$ |                 |
|          |                             | Walnut.....   |  | \$1.60          |
|          |                             | Oak.....  |  | 1.50            |
| 132-A    | Writing Shelf               | Nos. 1293-A, 1293-Y and 1296-A telephone sets.....                        | 22 $\frac{1}{4}$ x7 $\frac{1}{2}$ x7 $\frac{1}{4}$ | 1.05            |
| 133-A    | Plain                       | No. 1293-J telephone set. Included as part of set.....                    | 21x7 $\frac{1}{2}$                                 | .53             |
| 133-B    | Plain                       | Special No. 1293-J telephone set when No. 7-E coin collector is used..... | 24 $\frac{1}{2}$ x7 $\frac{1}{2}$                  | .57             |
| 134-A    | Plain                       | Nos. 1293-A and 1293-Y telephone sets.....                                | 9 $\frac{1}{2}$ x6 $\frac{1}{2}$                   | .24             |
| 136-B    | Battery Box for 3 dry cells | No. 1293-Y telephone set  | 26x8 $\frac{1}{8}$ x7 $\frac{1}{4}$                |                 |
|          |                             | Walnut.....   |  | 1.50            |
|          |                             | Oak.....  |  | 1.45            |
| 138-A    | Battery Box for 3 dry cells | No. 1298-A telephone set. Included as part of set                         | 30 $\frac{1}{4}$ x8 $\frac{1}{8}$ x7 $\frac{1}{4}$ |                 |
|          |                             | Walnut.....   |  | 1.60            |
|          |                             | Oak.....  |  | 1.50            |

WRITE FOR LIBERAL DISCOUNTS



No. S-7296

## Backboards—Continued

| Code No. | Style                          | Used with  | Dimensions<br>inches | List Price<br>each |
|----------|--------------------------------|--|----------------------|--------------------|
| S-7296   | Battery Box for<br>3 wet cells | Not drilled but suit-<br>able for Nos. 1240,<br>1293 and 1298<br>telephone sets. | 35x16x8              | \$2.70             |

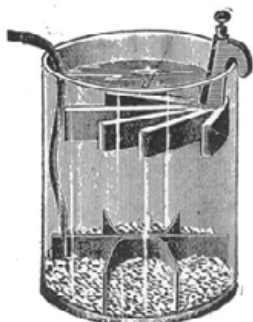


No. 1-A

## BATTERY BOXES

Made of sheet steel, with black japan finish and lined with pressboard.

| Code No. | Used for                  | Dimensions<br>inches                                   | List Price<br>each |
|----------|---------------------------|--|--------------------|
| 1-A      | 3 standard size dry cells | $8\frac{3}{4} \times 3\frac{7}{8} \times 7\frac{5}{8}$ | \$0.75             |



No. 10255

## PRIMARY BATTERIES

## GRAVITY BATTERY

|           |          | 5x7            |
|-----------|----------|----------------|
| Code Word | List No. |                |
| Deerfield | 10250    | Cell, complete |
| Defiance  | 10251    | Jar, glass 5x7 |
| Delanco   | 10252    | Zinc           |
| Deland    | 10253    | Copper         |
|           |          | 6x8            |
| Delano    | 10255    | Cell, complete |
| Delaware  | 10256    | Jar, glass 6x8 |
| Delevan   | 10257    | Zinc           |
| Delhi     | 10258    | Copper         |



No. 10130

## STANDARD FULLER BATTERY

|          |       |                 |
|----------|-------|-----------------|
| Colville | 10130 | Cell, complete  |
| Comanche | 10126 | Jar, glass, 6x8 |
| Comillah | 10132 | Cover for jar   |
| Comines  | 10133 | Carbon          |
| Como     | 10134 | Porous cup      |
| Compton  | 10135 | Zinc            |

WRITE FOR LIBERAL DISCOUNTS



## Primary Batteries—Continued



No. 10000

## LECLANCHE BATTERY

| Code Word | List No. |                       |
|-----------|----------|-----------------------|
| Ceredo    | 10000    | Cell, complete        |
| Ceretto   | 10002    | Porous cup            |
| Ceylon    | 10003    | Jar                   |
| Ceylones  | 10004    | Zinc, amalgamated     |
| Chase     | 10005    | Sal-ammoniac, package |

## GLADSTONE-LALANDE BATTERIES

Model G-10 Vitriified Porcelain Jar and Cover

Size over all, 4½ inches x 6¾ inches

Capacity, 100 ampere hours

| Code Word | List No. |                              |
|-----------|----------|------------------------------|
| Kniesboog | G-10     | Complete battery with charge |

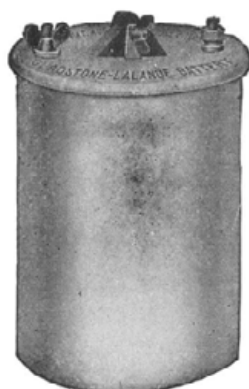
## Renewal Charges

|           |      |                  |
|-----------|------|------------------|
| Kniedicht | G-11 | Complete renewal |
|-----------|------|------------------|

## Separate Renewal Parts

|            |      |                          |
|------------|------|--------------------------|
| Kniefall   | G-12 | One oxide plate          |
| Kniefalles | G-13 | One double zinc plate    |
| Kniegurt   | G-14 | One can caustic soda     |
| Kniegurtes | G-15 | One bottle paraffine oil |

These renewal charges can also be used in Lalande cells, types BB and Z.



G-20 with Jar

Model G-20 Vitriified Porcelain Jar and Cover

Size over all, 5¾ inches x 8¾ inches

Capacity, 150 ampere hours

| Code Word | List No. |                              |
|-----------|----------|------------------------------|
| Kniesebel | G-20     | Complete battery with charge |

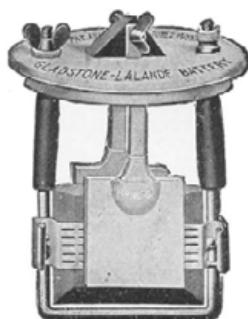
## Renewal Charges

|          |      |                  |
|----------|------|------------------|
| Kniesieb | G-21 | Complete renewal |
|----------|------|------------------|

## Separate Renewal Parts

|             |      |                          |
|-------------|------|--------------------------|
| Knieshout   | G-22 | One oxide plate          |
| Knieshouten | G-23 | Two zinc plates          |
| Knieskappe  | G-24 | One can caustic soda     |
| Knieslap    | G-25 | One bottle paraffine oil |

These renewal charges can also be used in Lalande cells, type Q.



G-20 without Jar

PRICES ON REQUEST

## Primary Batteries—Continued

## Model G-50 Vitrified Porcelain Jar and Cover

Size over all, 7 $\frac{3}{4}$  inches x 10 $\frac{1}{2}$  inches

Capacity, 300 ampere hours

These batteries are largely used for central station telephone transmitter work and in operating interrupters for subscribers' ringing.

| Code Word         | List No.    |                               |
|-------------------|-------------|-------------------------------|
| <b>Knievormig</b> | <b>G-50</b> | Complete battery with charge  |
|                   |             | <b>Renewal Charges</b>        |
| <b>Kniewele</b>   | <b>G-51</b> | Complete renewal              |
|                   |             | <b>Separate Renewal Parts</b> |
| <b>Knoflook</b>   | <b>G-52</b> | One oxide plate               |
| <b>Kniffes</b>    | <b>G-53</b> | Two zinc plates               |
| <b>Knokkels</b>   | <b>G-54</b> | One can caustic soda          |
| <b>Knolkool</b>   | <b>G-55</b> | One bottle paraffine oil      |

These renewal charges can also be used in Lalande cells, types R and RR.

## Permanent Parts of Gladstone-Lalande Batteries

|                   |              |   |
|-------------------|--------------|---|
| <b>Orsippes</b>   | <b>G-110</b> | Porcelain jar for G-10 cell   |
| <b>Orsodagna</b>  | <b>G-120</b> | Porcelain jar for G-20 cell   |
| <b>Ortalidi</b>   | <b>G-150</b> | Porcelain jar for G-50 cell   |
| <b>Orthodoxal</b> | <b>G-111</b> | Porcelain jar for G-10 cell   |
| <b>Orthodoxe</b>  | <b>G-121</b> | Porcelain jar for G-20 cell   |
| <b>Orthogamy</b>  | <b>G-151</b> | Porcelain jar for G-50 cell   |
| <b>Orthogonos</b> | <b>G-112</b> | Copper hanger with clamp and nuts for G-10 cells  |
| <b>Orthogonun</b> | <b>G-122</b> | Copper hanger with clamp and nuts for G-20 cells  |
| <b>Orthonyx</b>   | <b>G-152</b> | Copper hanger with clamp and nuts for G-50 cells  |
| <b>Orthosias</b>  | <b>G-155</b> | Double threaded screw with two wing nuts and one jam nut for holding zines in G-20 and G-50 cells |



No. 106028

| Code Word         | List No.     |   |
|-------------------|--------------|---|
| <b>Orthostade</b> | <b>G-113</b> | Hard rubber insulators for G-10 cells   |
| <b>Orthostyle</b> | <b>G-123</b> | Hard rubber insulators for G-20 cells   |
| <b>Orthotone</b>  | <b>G-153</b> | Hard rubber insulators for G-50 cells   |
| <b>Ortigaban</b>  | <b>G-154</b> | Wire connections for all sizes of cells |

## DRY BATTERIES

## BLUE BELL

The Blue Bell dry battery has been developed to meet the exacting requirements of telephone work. Comparative tests have been applied to the different dry cells now on sale, and show conclusively that the Blue Bell is the best dry cell on the market for light service, such as would be required of a primary battery for use in connection with a high resistance transmitter at local battery telephone sets. Size 2 $\frac{3}{8}$  in. x 6 $\frac{3}{4}$  in. Packed in barrels containing 125 each.



No. 23939

| Code Word         | List No.      |
|-------------------|---------------|
| <b>Maststueck</b> | <b>100028</b> |

## LIBERTY

It is especially adapted to telephone work, and is highly efficient. It has a voltage of 1.5 and is one of the best dry batteries for intermittent service.

| Code Word         | List No.     |
|-------------------|--------------|
| <b>Originally</b> | <b>23939</b> |

PRICES ON REQUEST

## Dry Batteries—Continued



No. 100029

## COLUMBIA

This battery has been found satisfactory for telephonic work as well as for general use.

|           |          |            |
|-----------|----------|------------|
| Code Word | List No. |            |
| Mastuerzo | 100029   | No. 6 cell |



No. 4129

## 1900

This battery is manufactured expressly for telephone service.

|           |          |                          |
|-----------|----------|--------------------------|
| Code Word | List No. |                          |
| Ossiforme | 4129     | Standard, 2½ in. x 6 in. |
| Foolish   | 4449     | Type C, 2 in. x 5 in.    |
| Foolcracy | 4450     | Type B, 1¾ in. x 4½ in.  |



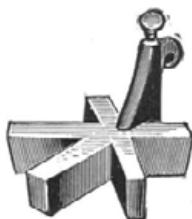
No. 10135



No. 10004



No. 10453



No. 10252

## BATTERY SUPPLIES

## ZINCS

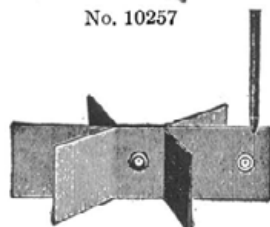
|           |          |                      |                     |
|-----------|----------|----------------------|---------------------|
| Code Word | List No. |                      |                     |
| Ceylones  | 10004    | Leclanche            | Square, amalgamated |
| Devereux  | 10453    | Leclanche            | Round, amalgamated  |
| Compton   | 10135    | Standard Fuller      | Weight, 1½ lbs.     |
| Delanco   | 10252    | Crowfoot for 5x7 jar | Weight, 1¾ lbs.     |

PRICES ON REQUEST





No. 10257



No. 10253



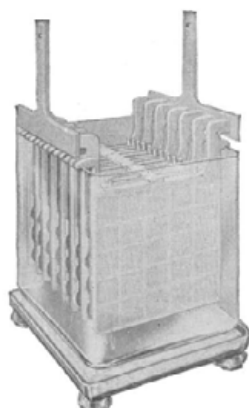
No. 10490



No. 10497



No. 10498



Type "E"

## Battery Supplies—Continued

## ZINCS

| Code Word | List No.                                   |
|-----------|--|
| Delevan   | 10257 Crowfoot for 6x8 jar, weight, 3 lbs. |

## COPPERS

|        |                   |
|--------|-------------------|
| Deland | 10253 For 5x7 jar |
| Delhi  | 10258 For 6x8 jar |

## SAL-AMMONIAC

|        |                              |
|--------|------------------------------|
| Dundee | 10500 Imported over 99% pure |
|--------|------------------------------|

## BLUE VITRIOL

|          |       |
|----------|-------|
| Dunellen | 10502 |
|----------|-------|

## BATTERY UTENSILS

| Code Word | List No.                                  |
|-----------|---|
| Dumont    | 10490 Battery syringe No. 6, solid piston |
| Duncan    | 10497 Battery brush                       |
| Duncannon | 10498 Battery knife                       |

## STORAGE BATTERIES

## ELEMENT OF TYPE "E"

Size of Plates,  $7\frac{3}{4}$  inches by  $7\frac{3}{4}$  inches  
" Chloride Accumulator "

| Number of plates.....                                |                         | 5                | 7                | 9                | 11               | 13               | 15               |
|--|-------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  | For                     |                  |                  |                  |                  |                  |                  |
| Discharge in amperes.....                            | 8 hours.....            | 10               | 15               | 20               | 25               | 30               | 35               |
|  | 5 hours.....            | 14               | 21               | 28               | 35               | 42               | 49               |
|  | 3 hours.....            | 20               | 30               | 40               | 50               | 60               | 70               |
|  | 1 hour.....             | 40               | 60               | 80               | 100              | 120              | 140              |
| Normal charge rate.....                              |                         | 10               | 15               | 20               | 25               | 30               | 35               |
| Outside measurement of glass jar, in inches:         | Length.....             | 5 $\frac{1}{2}$  | 6 $\frac{3}{4}$  | 8                | 8 $\frac{5}{8}$  | 11               | 11               |
|  | Width.....              | 9 $\frac{1}{8}$  | 9 $\frac{1}{8}$  | 9 $\frac{1}{8}$  | 9 $\frac{1}{8}$  | 9 $\frac{1}{8}$  | 9 $\frac{1}{8}$  |
|  | Height.....             | 11 $\frac{3}{8}$ | 11 $\frac{3}{8}$ | 11 $\frac{3}{8}$ | 11 $\frac{3}{8}$ | 11 $\frac{3}{8}$ | 11 $\frac{3}{8}$ |
| Outside measurement of rubber jar, in inches:        | Length.....             | 2 $\frac{7}{8}$  | 3 $\frac{7}{8}$  | 5                | 6 $\frac{1}{8}$  | 8 $\frac{1}{8}$  | 8 $\frac{1}{8}$  |
|  | Width.....              | 8 $\frac{1}{2}$  | 8 $\frac{1}{2}$  | 8 $\frac{1}{2}$  | 8 $\frac{1}{2}$  | 8 $\frac{1}{2}$  | 8 $\frac{1}{2}$  |
|  | Height.....             | 11               | 11               | 11               | 11               | 11               | 11               |
| Outside measurement of all metal tanks, in inches:   | Length.....             | 8 $\frac{3}{4}$  | 9 $\frac{3}{4}$  | 11 $\frac{1}{8}$ | 12 $\frac{3}{8}$ | 13 $\frac{3}{8}$ | 15 $\frac{1}{8}$ |
|  | Width.....              | 11               | 11               | 11               | 11               | 11               | 11               |
|  | Height.....             | 12 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 12 $\frac{1}{4}$ |
| Weight of electrolyte, in pounds:                    | In glass.....           | 18 $\frac{1}{2}$ | 20               | 24 $\frac{1}{2}$ | 26               | 35               | 34               |
|  | In rubber....           | 5 $\frac{1}{2}$  | 8                | 10 $\frac{1}{2}$ | 12               | 17               | 18 $\frac{1}{2}$ |
|  | In all metal tanks..... | 27 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 36               | 40               | 44 $\frac{1}{2}$ | 49               |
| Weight of cell complete with electrolyte, in pounds: | In glass.....           | 49               | 60               | 74               | 86 $\frac{1}{2}$ | 104              | 112              |
|  | In rubber....           | 29 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 52               | 63               | 77               | 87               |
|  | In all metal tanks..... | 85               | 104              | 124              | 136              | 161              | 180              |

PRICES ON REQUEST

## Elements of Type "E"—Continued

Size of Plates,  $7\frac{3}{4}$  inches by  $7\frac{3}{4}$  inches

"Chloride Accumulator"

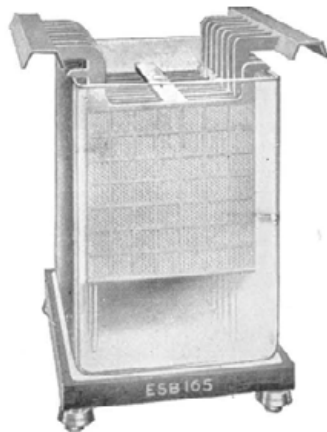
|  |         |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|---------|
| Number of plates.....                        | 5       | 7       | 9       | 11      | 13      | 15      |
| Height of cell to top of lug, in inches:     |         |         |         |         |         |         |
| In glass.....                                | 20      | 20      | 20      | 20      | 20      | 20      |
| In rubber....                                | 12½     | 12½     | 12½     | 12½     | 12½     | 12½     |
| In all metal tanks.....                      | 16      | 16      | 16      | 16      | 16      | 16      |
| List Price, element only.....                | \$ 8.25 | \$11.75 | \$15.25 | \$18.75 | \$22.25 | \$25.75 |
| List Price, glass jar, extra.....            | 1.50    | 1.70    | 1.85    | 2.05    | 2.90    | 2.90    |
| List Price, rubber jar and cover, extra..... | 2.90    | 3.25    | 3.75    | 5.05    | 5.75    | 6.10    |
| List Price, all metal tank, extra.....       | 10.30   | 11.35   | 12.40   | 13.45   | 14.50   | 15.55   |

N. B.—In ordering Elements, or parts thereof, specify whether intended for glass or rubber jars or tanks.

## ELEMENTS OF TYPE "F"

Size of Plates, 11 inches by  $10\frac{1}{2}$  inches

"Chloride Accumulator"



Type "F"

|  |                         |       |       |       |       |   |       |       |       |       |     |
|--|-------------------------|-------|-------|-------|-------|---|-------|-------|-------|-------|-----|
| Number of plates.....  |                         | 9     | 11    | 13    | 15    | 17  | 19    | 21    | 23    | 25    | 27  |
|  | For                     |       |       |       |       |   |       |       |       |       |     |
| Discharge in amperes:  | 8 hours....             | 40    | 50    | 60    | 70    | 80  | 90    | 100   | 110   | 120   | 130 |
|  | 5 hours....             | 56    | 70    | 84    | 98    | 112   | 126   | 140   | 154   | 168   | 182 |
|  | 3 hours....             | 80    | 100   | 120   | 140   | 160   | 180   | 200   | 220   | 240   | 260 |
|  | 1 hour....              | 160   | 200   | 240   | 280   | 320   | 360   | 400   | 440   | 480   | 520 |
| Normal charge rate.....  |                         | 40    | 50    | 60    | 70    | 80  | 90    | 100   | 110   | 120   | 130 |
| Outside measurements of glass jar, in inches:  | Length....              | 9     | 10½   | 10½   | 12    | Old type jars 15½ inches high can be furnished for renewals |       |       |       |       |     |
|  | Width....               | 12½   | 12½   | 12½   | 12½   |   |       |       |       |       |     |
|  | Height....              | 17    | 17    | 17    | 17    |   |       |       |       |       |     |
| Outside measurements of glass tanks, in inches:  | Length....              |       |       | 14½   |       | 17½   |       | 20½   |       |       |     |
|  | Width....               |       |       | 13½   |       | 13½   |       | 13½   |       |       |     |
|  | Height....              |       |       | 18½   |       | 18½   |       | 18½   |       |       |     |
| Clearance between glass tanks, 2½ and 3½ inches  |                         |       |       |       |       |   |       |       |       |       |     |
| Outside measurements of all metal tanks, in inches:  | Length....              | 13½   | 14½   | 16½   | 18½   | 19½   | 21½   | 23½   | 24½   | 26½   | 28½ |
|  | Width....               | 15    | 15    | 15    | 15    | 15  | 15    | 15    | 15    | 15    | 15  |
|  | Height....              | 17½   | 17½   | 17½   | 17½   | 17½   | 17½   | 17½   | 17½   | 17½   | 17½ |
| Clearance between metal tanks, 2 inches  |                         |       |       |       |       |   |       |       |       |       |     |
| Outside measurements of lead-lined wood tanks, in inches:  | Length....              | 13½   | 15½   | 16½   | 18½   | 20  | 21½   | 23½   | 25    | 26½   | 28½ |
|  | Width....               | 15    | 15    | 15    | 15    | 15  | 15    | 15    | 15    | 15    | 15  |
|  | Height....              | 20½   | 20½   | 20½   | 20½   | 20½   | 20½   | 20½   | 20½   | 20½   | 20½ |
| Clearance between wood tanks, 2 inches   |                         |       |       |       |       |   |       |       |       |       |     |
| Weight of electrolyte, in lbs.:  | In glass jars...        | 63    | 69    | 67    | 79    |   |       |       |       |       |     |
|  | In glass tanks.....     |       |       | 97    |       | 121   |       | 143   |       |       |     |
|  | In all metal tanks..... | 95    | 108   | 121   | 134   | 146   | 160   | 172   | 185   | 198   | 212 |
|  | In wood tanks.....      | 86    | 99    | 111   | 123   | 133   | 145   | 156   | 168   | 180   | 191 |
| Weight of cell complete with electrolyte, in lbs.:   | In glass jars...        | 174½  | 206   | 227   | 260   |   |       |       |       |       |     |
|  | In glass tanks.....     |       |       | 279   |       | 352   |       | 422   |       |       |     |
|  | In all metal tanks..... | 256   | 297   | 337   | 377   | 416   | 457   | 497   | 537   | 577   | 618 |
|  | In wood tanks.....      | 250   | 292   | 332   | 372   | 411   | 452   | 492   | 532   | 573   | 615 |
| bottom of insulator to top of lug, in  | {                       | 29½   | 29½   | 29½   | 29½   |   |       |       |       |       |     |
| bottom of insulators to top of bus bar, {  |                         |       |       | 23½   |       | 23½   |       | 23½   |       |       |     |
| from floor to top of bus bar, double {   |                         | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½ |
| floor to top of bus bar, double insula- {  |                         | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½   | 33½ |
|  |                         | 9     | 11    | 13    | 15    | 17  | 19    | 21    | 23    | 25    | 27  |
|  | \$30.00                 | 37.50 | 45.00 | 52.50 | 60.00 | 67.50   | 75.00 | 82.50 | 90.00 | 97.50 |     |
|  | 4.40                    | 5.05  | 5.05  | 6.25  |       |   |       |       |       |       |     |
|  |                         |       | 6.75  |       | 7.75  |   | 11.50 |       |       |       |     |
|  | 15.55                   | 16.70 | 17.85 | 19.00 | 20.15 | 21.30   | 22.45 | 23.60 | 24.75 | 25.90 |     |
| extra...   | 13.00                   | 13.85 | 14.70 | 15.55 | 16.40 | 17.25   | 18.10 | 18.95 | 19.80 | 20.65 |     |
| Parts thereof, specify whether intended for glass jars, glass tanks, all metal tanks, or wood tanks. |                         |       |       |       |       |   |       |       |       |       |     |

N. B.—In ordering Elements, or parts thereof, specify whether intended for glass jars, glass tanks, all metal tanks, or wood tanks.

WRITE FOR LIBERAL DISCOUNTS

## ELEMENTS OF TYPE "G"

Sizes of Plates,  $15\frac{5}{16}$  inches by  $15\frac{5}{16}$  inches. Clearance between tanks, 2 inches

"Chloride Accumulator"

|   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Number of plates.....   | 11               | 13               | 15               | 17               | 19               | 21               | 23               | 25               | 27               | 29               | 31               | 33               | 35               | 37               | 39               | 41               | 43               |
| For   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| 8 hours.....  | 100              | 120              | 140              | 160              | 180              | 200              | 220              | 240              | 260              | 280              | 300              | 320              | 340              | 360              | 380              | 400              | 420              |
| Discharge in amperes:   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| 5 hours.....  | 140              | 168              | 196              | 224              | 252              | 280              | 308              | 336              | 364              | 392              | 420              | 448              | 476              | 504              | 532              | 560              | 588              |
| 3 hours.....  | 200              | 240              | 280              | 320              | 360              | 400              | 440              | 480              | 520              | 560              | 600              | 640              | 680              | 720              | 760              | 800              | 840              |
| 1 hour.....   | 400              | 480              | 560              | 640              | 720              | 800              | 880              | 960              | 1040             | 1120             | 1200             | 1280             | 1360             | 1440             | 1520             | 1600             | 1680             |
| Normal charge rate.....   | 100              | 120              | 140              | 160              | 180              | 200              | 220              | 240              | 260              | 280              | 300              | 320              | 340              | 360              | 380              | 400              | 420              |
| Outside measurement of tank in in.  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Length.....   | 15 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 20               | 22 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 26               | 27 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 31               | 32 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | 36               | 37 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 42 $\frac{1}{2}$ |
| Width.....  | 19 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ |
| Height.....   | 26               | 26               | 26               | 26               | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ |
| Weight of electrolyte, in pounds.....   | 188              | 210              | 231              | 253              | 274              | 296              | 317              | 338              | 360              | 381              | 403              | 424              | 446              | 467              | 489              | 510              | 532              |
| Weight of cell, complete, with electrolyte, in lead-lined wood tank, in pounds..... | 568              | 645              | 719              | 798              | 925              | 1006             | 1085             | 1165             | 1266             | 1347             | 1427             | 1507             | 1588             | 1668             | 1748             | 1841             | 1922             |
| Height of cell from floor to top of bus-bar, for double insulation, in inches.....  | 38 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ |
| List Price, element only.....   | \$ 75 00         | 90 00            | 105 00           | 120 00           | 135 00           | 150 00           | 165 00           | 180 00           | 195 00           | 210 00           | 225 00           | 240 00           | 255 00           | 270 00           | 285 00           | 300 00           | 315 00           |
| List Price, lead-lined wood tank, extra.....  | \$ 18 70         | 19 55            | 20 40            | 21 25            | 22 55            | 23 00            | 26 15            | 27 30            | 28 45            | 29 60            | 30 75            | 31 90            | 33 05            | 34 20            | 35 35            | 36 50            | 37 65            |

|   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Number of plates.....   | 45               | 47               | 49               | 51               | 53               | 55               | 57               | 59               | 61               | 63               | 65               | 67               | 69               | 71               | 73               | 75               |
| For   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| 8 hours.....  | 440              | 460              | 480              | 500              | 520              | 540              | 560              | 580              | 600              | 620              | 640              | 660              | 680              | 700              | 720              | 740              |
| Discharge in amperes:   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| 5 hours.....  | 616              | 644              | 672              | 700              | 728              | 756              | 784              | 812              | 840              | 868              | 896              | 924              | 952              | 980              | 1008             | 1036             |
| 3 hours.....  | 880              | 920              | 960              | 1000             | 1040             | 1080             | 1120             | 1160             | 1200             | 1240             | 1280             | 1320             | 1360             | 1400             | 1440             | 1480             |
| 1 hour.....   | 1760             | 1840             | 1920             | 2000             | 2080             | 2160             | 2240             | 2320             | 2400             | 2480             | 2560             | 2640             | 2720             | 2800             | 2880             | 2960             |
| Normal charge rate.....   | 440              | 460              | 480              | 500              | 520              | 540              | 560              | 580              | 600              | 620              | 640              | 660              | 680              | 700              | 720              | 740              |
| Outside measurement of tank in inches:  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Length.....   | 44 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 47 $\frac{1}{2}$ | 49 $\frac{1}{2}$ | 51 $\frac{1}{2}$ | 53 $\frac{1}{2}$ | 54 $\frac{1}{2}$ | 56 $\frac{1}{2}$ | 58 $\frac{1}{2}$ | 59 $\frac{1}{2}$ | 61 $\frac{1}{2}$ | 63 $\frac{1}{2}$ | 64 $\frac{1}{2}$ | 66 $\frac{1}{2}$ | 68 $\frac{1}{2}$ | 69 $\frac{1}{2}$ |
| Width.....  | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 21 $\frac{1}{2}$ |
| Height.....   | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 27 $\frac{1}{2}$ |
| Weight of electrolyte, in pounds.....   | 553              | 575              | 596              | 618              | 639              | 661              | 682              | 704              | 725              | 747              | 768              | 790              | 811              | 833              | 854              | 876              |
| Weight of cell, complete, with electrolyte, in lead-lined wood tank, in pounds..... | 2005             | 2086             | 2165             | 2249             | 2393             | 2475             | 2557             | 2641             | 2724             | 2805             | 2889             | 2971             | 3053             | 3135             | 3217             | 3300             |
| Height of cell from floor to top of bus-bar, for double insulation, in inches.....  | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 41 $\frac{1}{2}$ |
| List Price, element only.....   | \$ 330 00        | 345 00           | 360 00           | 375 00           | 390 00           | 405 00           | 420 00           | 435 00           | 450 00           | 465 00           | 480 00           | 495 00           | 510 00           | 525 00           | 540 00           | 555 00           |
| List Price, lead-lined wood tank, extra.....  | \$ 38 80         | 39 95            | 41 10            | 42 25            | 43 70            | 45 15            | 46 30            | 47 45            | 48 60            | 49 75            | 50 90            | 52 05            | 53 20            | 54 35            | 55 50            | 56 65            |

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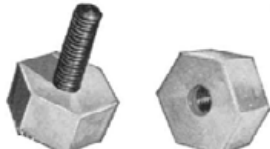





## COUNTER ELECTRO-MOTIVE FORCE CELLS

These are similar to the regular storage cells, except that the plates are merely grids without the filling. Two are used in the primary circuit of the battery driven ringing machines when 4-party selective ringing is given.

|  | List Price<br>Elements Only<br>each |
|--|-------------------------------------|
| Type E-5: Same size as the regular E-5 cell, used with 75-watt battery driven ringing machines         | \$ 4.125                            |
| Type E-7: Same size as the regular E-7 cell, used with 150-watt battery driven ringing machines        | 5.875                               |
| Type E-11: Same size as the regular E-11 cell, used with 300-watt battery driven ringing machines..... | 7.625                               |

## STORAGE BATTERY ACCESSORIES




|   | Acid             | See Electrolyte  | List Price |
|---|------------------|--|------------|
|   | Battery Covers   | Glass plates about $\frac{3}{16}$ in. thick used for covering the individual storage battery cells of Electric Storage Battery Company's manufacture. Made for types "E," "F" and "G" cells. Orders should specify the type of cell, and whether the bus bars are plain or have terminal cups.....   | On request |
|  |                  |  |            |
|  | Bolt Connectors  | For bolting together the connecting straps of type "E" or type "F" elements in glass jars, each.....   | \$ 0.20    |
|  |                  |  |            |
|  | Bus Bars         | Two types are made, plain and reinforced. The plain bars are for joining together the elements of two adjacent cells. The reinforced bars are for the last cell in a row and the orders for them should state the number of cups on each, together with the size of wire for which each cup is to be drilled.....  | On request |
|  | Displacing Tanks | Used in the pilot cell of batteries of types "F" and "G" cells to fill vacant space of partially equipped tank so that the variation of density of electrolyte between charge and discharge will be a maximum. In ordering the displacing tanks it is necessary to state the type of tank and the number of plates which it is intended to displace..... | On request |

Reinforced Bus Bar  
and Terminal Cups.

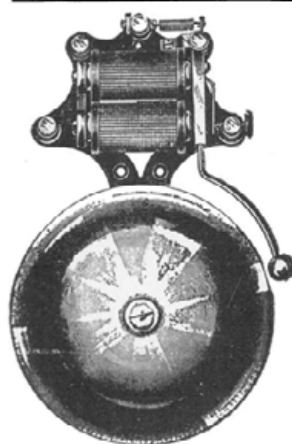
WRITE FOR LIBERAL DISCOUNTS



## Storage Battery Accessories—Continued

|   |                           | List Price  |
|---|---------------------------|---|
|   | Electrolyte               | Sulphuric acid having a specific gravity of 1.200. Delivered in carboys which are charged for, but which are credited when returned in good order. Per hundred pounds ..... \$3.00  |
|    | Hydrometer                | Type "E" for type "E" cells, each..... 1.50   |
| Type "E"  |                           | Type "H" for types "F" and "G" cells, each..... 1.50  |
|    | Hydrometer (Compensating) | For the pilot cell of batteries composed of types "F" and "G" cells, each..... 6.00   |
| Compensating  |                           |   |
|   | Insulators                | These are made of glass. Type "F" is used under sand trays. Type "G" is used under type "F" and "G" tanks and under stringers used in connection with tanks up to and including type G-17. Type "H" glass insulators are used under stringers for tanks larger than G-17. |
|   |                           | Type "F," each..... .04   |
|   |                           | Type "G," each..... .225  |
|   |                           | Type "H," each..... .26   |
|   | Sand Trays                | Wooden trays intended to be filled with sand, on which glass jars are placed. In ordering specify size of jar..... On request   |
|   | Terminal Cups             | To be specified with the reinforced bus bars.   |
|   |                           | For 1,000,000 circular mil cable, each ..... \$2.93   |
|   |                           | For 750,000 circular mil cable, each ..... 2.55   |
|   |                           | For 500,000 circular mil cable, each..... 2.06  |
|   |                           | For No. 0000 B. & S. gauge cable, each ..... 1.76   |
|   | Terminal Lugs             | For connecting power wires to types "E" or "F" elements in glass jars. Type "E" has ½ in. hole for wire. Special type "F" has three holes drilled for the sizes of wire specified in the order.   |
|  |                           | Type "E," each..... .85   |
| Type "E"  |                           | Special type "F," each..... 1.50  |
|   | Vitrified Bricks          | Used under battery racks and stands, size 8½ in. x 2½ in., each..... .045   |

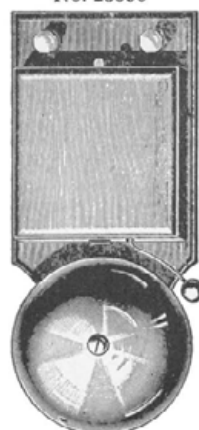
WRITE FOR LIBERAL DISCOUNTS



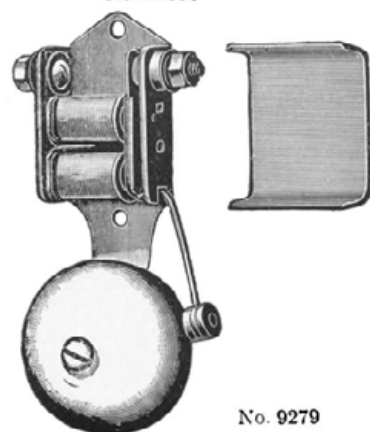
No. 90538



No. 23590



No. 23596



No. 9279

## BELLS

### FOR DIRECT CURRENT

#### Skeleton Bell

| Code Word  | List No. | Standard Sizes<br>of Gong<br>inches |
|------------|----------|-------------------------------------|
| Orbiana    | 90535    | 3                                   |
| Orbical    | 90536    | 4                                   |
| Orbicello  | 90537    | 5                                   |
| Orbicles   | 90538    | 6                                   |
| Orbicular  | 90539    | 7                                   |
| Orbiculato | 90540    | 8                                   |
| Orbiculina | 90541    | 10                                  |
| Orbiculos  | 90542    | 12                                  |

#### Iron Box Bell

|            |       |    |
|------------|-------|----|
| Orbificabo | 23590 | 2½ |
| Orbificata | 23591 | 3  |
| Orbificavi | 23592 | 4  |

#### Wood Box Bell

|           |       |    |
|-----------|-------|----|
| Orbitatem | 23596 | 2½ |
| Orbitatis | 23597 | 3  |
| Orbitele  | 23598 | 4  |

#### The Eco Bell

No adjustment screws to be displaced. Will operate equally well on one or ten cells of battery. Contact points are platinized. Hammer rod and armature in one piece. Is practically dust and insect proof.

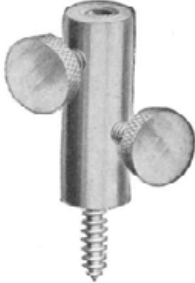


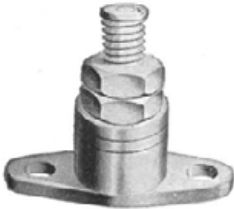
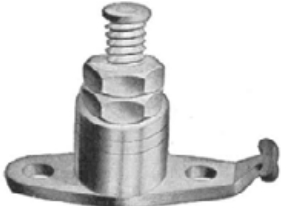

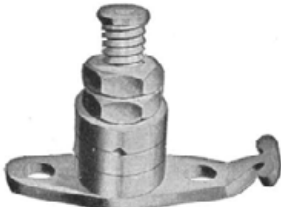
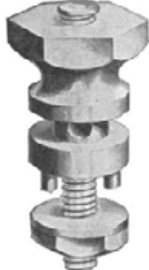
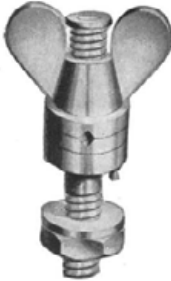

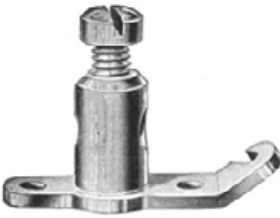
Gongs are stamped brass heavily nicked.

| Code Word | List No. | Standard Sizes<br>of Gong<br>inches |
|-----------|----------|-------------------------------------|
| Factive   | 2460     | 1                                   |
| Annawan   | 9275     | 1¾                                  |
| Anniston  | 9276     | 2                                   |
| Annville  | 9277     | 2½                                  |
| Anserated | 9279     | 3                                   |
| Anserine  | 9280     | 4                                   |

No. 2460 is nickel plated. Other sizes are japanned.

PRICES ON REQUEST

## BINDING POSTS

|   |          | Code No. | Finish            | List Price<br>each |
|---|----------|----------|-------------------|--------------------|
|    | No. 1-A  | 1-A      | Brass.....        | \$0.15             |
|    | No. 1-B  | 1-B      | Brass.....        | .12                |
|    | No. 2-A  | 2-A      | Nickel plate..... | .06                |
|    | No. 2-D  | 2-D      | Nickel plate..... | .06                |
|   | No. 2-E  | 2-E      | Brass.....        | .075               |
|   | No. 3-A  | 3-A      | Nickel plate..... | .09                |
|  | No. 3-E  | 3-E      | Nickel plate..... | .105               |
|  | No. 9-A  | 9-A      | Brass.....        | .2025              |
|  | No. 9-B  | 9-B      | Brass.....        | .225               |
|  | No. 16-A | 16-A     | Nickel plate..... | .0425              |
|  | No. 20-C | 20-C     | Nickel dip.....   | .0825              |

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## BUZZERS

## FOR ALTERNATING CURRENT



No. 1-A

The No. 1 type is made from a standard ringer, the gongs, gong posts and clapper wire being omitted.

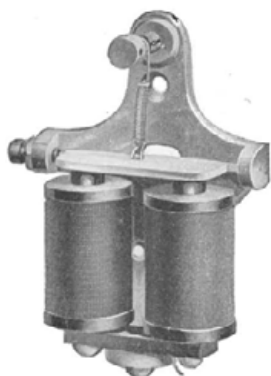
The No. 2 type has an armature spring and screw adjustment.

| Code No. | Resistance<br>ohms | Used in             | List Price<br>each |
|----------|--------------------|---------------------|--------------------|
| 1-A      | 1000               | Telephone sets..... | \$ 1.35            |
| 1-B      | 2500               | Telephone sets..... | 1.55               |



No. 2-A

|     |     |  |     |
|-----|-----|--|-----|
| 2-A | 100 | Nos. 1006-A, 1006-C, 1006-D, 1006-E test sets..... | .70 |
| 2-B | 250 | No. 1006-B test set.....                           | .70 |



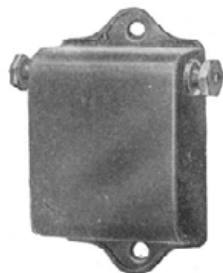
No. 2-D

|     |      |                          |     |
|-----|------|--------------------------|-----|
| 2-C | 1000 | .....                    | .90 |
| 2-D | 100  | No. 1017-A test set..... | .70 |

## FOR DIRECT CURRENT

## The Eco Buzzer

Needs no adjusting. Will operate equally well on one or ten cells of battery. There are no adjustment screws to be displaced. Contact points are platinized. The ribbed edges over the cover spring tightly over the base, making this buzzer absolutely dust and insect proof.



No. 2633

| Code Word  | List No. | Size<br>inches |
|------------|----------|----------------|
| Ashcraft   | 9344     | 1½ x ¾         |
| Falcon     | 2632     | 2 x 1          |
| Falconette | 2633     | 2½ x 1½        |
| Falconer   | 2634     | 2¾ x 1¾        |
| Falcones   | 2635     | 3¼ x 1¾        |

No. 9344 is full nickeled. Other sizes japanned.

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## CABLES FOR SWITCHBOARDS

The cables listed in the following tables are adapted for interior use; but should not be used where there is excessive dampness, since they are not provided with waterproof covering.

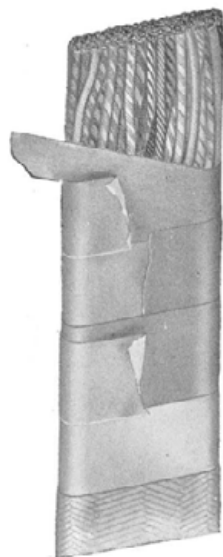
The conductors are provided with double silk and single cotton insulation which is colored in such a way that each pair and each single wire can be identified. The cable is protected from injury by a layer of lead tape and a heavy braiding which enclose the conductors. The cable is given a heavy coat of gray fireproofing paint.

The sizes of conductors are given in Brown and Sharpe gauge. No. 19 gauge wire in cables is used for the central office wiring of toll talking circuits, and No. 14 or No. 16 wire for supplying battery current to cord circuits, operator positions, lamp signals, etc.

The conductors in excess of the numbers mentioned in the columns for pairs and singles are provided as spares to be used in case some of the regular wires in the cable are accidentally cut.



No. 16



No. 84

### Cable with Dry Core

| Code No. | Number of Conductors | Number of Pairs            | Number of Singles         | Size Inches                          | Shape | List Price Per Foot |
|----------|----------------------|----------------------------|---------------------------|--------------------------------------|-------|---------------------|
| 16       | 64                   | 20-No. 22                  | 20-No. 22                 | $\frac{3}{16} \times \frac{7}{16}$   | Oval  | \$ 0.22             |
| 24       | 43                   | 20-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .15                 |
| 35       | 53                   | 25-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .19                 |
| 50       | 34                   | 10-No. 22                  | 10-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .13                 |
| 59       | 71                   | 34-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .24                 |
| 60       | 75                   | 36-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .25                 |
| 62       | 63                   | 30-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .22                 |
| 63       | 105                  | 51-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Round | .34                 |
| 65       | 53                   | 25-No. 19                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .235                |
| 66       | 103                  | 50-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Round | .34                 |
| 70       | 83                   | 40-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .28                 |
| 72       | 11                   |                            | 10-No. 19                 | $\frac{1}{8} \times \frac{11}{16}$   | Round | .07                 |
| 74       | 21                   |                            | 20-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Round | .085                |
| 79       | 23                   | 10-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .09                 |
| 81       | 13                   | 6-No. 22                   |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .06                 |
| 84       | 64                   | 20-No. 22                  | 20-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .265                |
| 87       | 35                   | 16-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .135                |
| 96       | 100                  | 32-No. 22                  | 32-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .325                |
| 97       | 132                  | 64-No. 22                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .42                 |
| 98       | 166                  | 64-No. 22                  | 32-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .525                |
| 100      | 84                   | 40-No. 24                  |                           | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .24                 |
| 105      | 64                   | 20-No. 24                  | 20-No. 24                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .19                 |
| 106      | 103                  | 40-No. 22                  | 20-No. 22                 | $\frac{1}{8} \times \frac{11}{16}$   | Oval  | .33                 |
| 107      | 102                  | 39-No. 22                  | 19-No. 22 }<br>4-No. 16 } | $1\frac{1}{2} \times \frac{9}{16}$   | Oval  | .36                 |
| 108      | 94                   | 36-No. 22                  | 19-No. 22                 | $1 \times \frac{1}{2}$               | Oval  | .31                 |
| 115      | 64                   | 20-No. 19                  | 20-No. 22                 | $\frac{15}{16} \times \frac{11}{16}$ | Oval  | .285                |
| 116      | 43                   | 20-No. 19                  |                           | $\frac{7}{8} \times \frac{3}{8}$     | Oval  | .225                |
| 117      | 83                   | 20-No. 19 }<br>20-No. 22 } |                           | $\frac{31}{32} \times \frac{1}{2}$   | Oval  | .345                |
| 119      | 103                  | 50-No. 19                  |                           | $\frac{3}{4} \times 1\frac{1}{16}$   | Oval  | .52                 |
| 120      | 64                   | 20-No. 24                  | 20-No. 24                 | $\frac{3}{4} \times \frac{11}{16}$   | Oval  | .19                 |
| 121      | 53                   | 10-No. 19 }<br>10-No. 22 } | 10-No. 22                 | $\frac{7}{16} \times \frac{3}{4}$    | Oval  | .22                 |
| 122      | 25                   | 10-No. 22 }<br>1-No. 14 }  |                           | $\frac{7}{16}$                       | Round | .12                 |
| 123      | 45                   | 20-No. 22 }<br>1-No. 14 }  |                           | $\frac{17}{32}$                      | Round | .19                 |
| 124      | 65                   | 30-No. 22 }<br>1-No. 14 }  |                           | $\frac{5}{8}$                        | Round | .25                 |
| 125      | 23                   | 10-No. 19                  |                           | $\frac{11}{32} \times \frac{9}{16}$  | Oval  | .13                 |
| 126      | 43                   | 10-No. 19 }<br>10-No. 22 } |                           | $\frac{3}{8} \times \frac{3}{4}$     | Oval  | .19                 |
| 127      | 33                   | 10-No. 19                  | 10-No. 22                 | $\frac{3}{8} \times \frac{21}{32}$   | Oval  | .16                 |

### Cable with Beeswaxed Core

|     |     |                            |           |                                      |      |      |
|-----|-----|----------------------------|-----------|--------------------------------------|------|------|
| 39  | 35  | 16-No. 22                  |           | $\frac{13}{32} \times \frac{11}{16}$ | Oval | .135 |
| 118 | 154 | 20-No. 19 }<br>40-No. 22 } | 28-No. 22 | $\frac{11}{16} \times \frac{13}{16}$ | Oval | .60  |

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**CABLES****LEAD COVERED**

Cable having conductors insulated with a single paper wrapping is standard for aerial and underground construction, but double wrapping can be furnished if desired. These have a lead sheath with 3% tin in preference to one of pure lead, on account of its greater strength and durability. A pure lead sheath can be furnished if desired at a somewhat lower cost.

For interior construction, cable having its conductors insulated with double wool, or silk and cotton is generally used. These are seldom employed for outside construction on account of their high cost. The former have a pure lead sheath, but one of composition can be furnished if desired.

**TYPE "A" CABLE****For Aerial or Underground Use**

Conductors No. 22 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .069 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

| Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet | Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet |
|----------|-----------------|----------------------------|------------------------------|----------|-----------------|----------------------------|------------------------------|
| A-5      | 5               | $\frac{1}{16}$             | 3000                         | A-125    | 125             | $\frac{3}{32}$             | 1500                         |
| A-10     | 10              | $\frac{1}{16}$             | 3000                         | A-150    | 150             | $\frac{3}{32}$             | 1250                         |
| A-15     | 15              | $\frac{1}{16}$             | 3000                         | A-175    | 175             | $\frac{3}{32}$             | 1000                         |
| A-20     | 20              | $\frac{1}{16}$             | 2500                         | A-180    | 180             | $\frac{3}{32}$             | 1000                         |
| A-25     | 25              | $\frac{1}{16}$             | 2500                         | A-200    | 200             | $\frac{1}{8}$              | 1000                         |
| A-30     | 30              | $\frac{1}{16}$             | 2500                         | A-225    | 225             | $\frac{1}{8}$              | 1000                         |
| A-40     | 40              | $\frac{1}{16}$             | 2250                         | A-240    | 240             | $\frac{1}{8}$              | 900                          |
| A-50     | 50              | $\frac{1}{16}$             | 2000                         | A-250    | 250             | $\frac{1}{8}$              | 900                          |
| A-60     | 60              | $\frac{1}{16}$             | 2000                         | A-275    | 275             | $\frac{1}{8}$              | 850                          |
| A-75     | 75              | $\frac{1}{16}$             | 1750                         | A-300    | 300             | $\frac{1}{8}$              | 800                          |
| A-90     | 90              | $\frac{1}{16}$             | 1500                         | A-350    | 350             | $\frac{1}{8}$              | 750                          |
| A-100    | 100             | $\frac{3}{32}$             | 1500                         | A-375    | 375             | $\frac{1}{8}$              | 725                          |
| A-120    | 120             | $\frac{3}{32}$             | 1500                         | A-400    | 400             | $\frac{1}{8}$              | 700                          |

**TYPE "B" CABLE****For Aerial or Underground Use**

Conductors No. 19 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .054 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

| Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet | Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet |
|----------|-----------------|----------------------------|------------------------------|----------|-----------------|----------------------------|------------------------------|
| B-5      | 5               | $\frac{1}{16}$             | 3000                         | B-50     | 50              | $\frac{3}{32}$             | 1500                         |
| B-10     | 10              | $\frac{1}{16}$             | 2500                         | B-60     | 60              | $\frac{3}{32}$             | 1500                         |
| B-15     | 15              | $\frac{1}{16}$             | 2000                         | B-75     | 75              | $\frac{3}{32}$             | 1000                         |
| B-20     | 20              | $\frac{1}{16}$             | 2000                         | B-100    | 100             | $\frac{1}{8}$              | 1000                         |
| B-25     | 25              | $\frac{1}{16}$             | 2000                         | B-120    | 120             | $\frac{1}{8}$              | 900                          |
| B-30     | 30              | $\frac{1}{16}$             | 1800                         | B-150    | 150             | $\frac{1}{8}$              | 800                          |
| B-40     | 40              | $\frac{1}{16}$             | 1600                         |          |                 |                            |                              |

**TYPE "C" CABLE****For Aerial or Underground Use**

Conductors No. 19 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .080 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

| Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet | Code No. | Number of Pairs | Thickness of Sheath inches | Maximum Length per Reel feet |
|----------|-----------------|----------------------------|------------------------------|----------|-----------------|----------------------------|------------------------------|
| C-5      | 5               | $\frac{1}{16}$             | 3000                         | C-75     | 75              | $\frac{3}{32}$             | 1000                         |
| C-10     | 10              | $\frac{1}{16}$             | 2500                         | C-100    | 100             | $\frac{1}{8}$              | 1000                         |
| C-15     | 15              | $\frac{1}{16}$             | 2000                         | C-120    | 120             | $\frac{1}{8}$              | 900                          |
| C-20     | 20              | $\frac{1}{16}$             | 2000                         | C-150    | 150             | $\frac{1}{8}$              | 800                          |
| C-25     | 25              | $\frac{1}{16}$             | 2000                         | C-180    | 180             | $\frac{1}{8}$              | 800                          |
| C-30     | 30              | $\frac{1}{16}$             | 1800                         | C-200    | 200             | $\frac{1}{8}$              | 750                          |
| C-50     | 50              | $\frac{3}{32}$             | 1500                         | C-240    | 240             | $\frac{1}{8}$              | 700                          |
| C-60     | 60              | $\frac{3}{32}$             | 1500                         | C-300    | 300             | $\frac{1}{8}$              | 700                          |

PRICES ON REQUEST

## Cables—Continued

## TYPE "D" CABLE

## For Inside Construction

Conductors No. 22 B. & S. gauge, double wool insulation, covering on pair colored white and red white.  
 Characteristics per mile of cable,

Insulation resistance.....100 megohms.  
 Sheath of pure lead.

| Code No. | Number of Pairs | Thickness of Sheath inches | Code No. | Number of Pairs | Thickness of Sheath inches |
|----------|-----------------|----------------------------|----------|-----------------|----------------------------|
| D-5      | 5               | $\frac{1}{8}$              | D-140    | 140             | $\frac{3}{8}$              |
| D-10     | 10              | $\frac{1}{8}$              | D-150    | 150             | $\frac{3}{8}$              |
| D-15     | 15              | $\frac{1}{8}$              | D-180    | 180             | $\frac{3}{8}$              |
| D-20     | 20              | $\frac{1}{8}$              | D-200    | 200             | $\frac{3}{8}$              |
| D-25     | 25              | $\frac{1}{8}$              | D-220    | 220             | $\frac{3}{8}$              |
| D-30     | 30              | $\frac{1}{8}$              | D-225    | 225             | $\frac{3}{8}$              |
| D-50     | 50              | $\frac{1}{8}$              | D-240    | 240             | $\frac{3}{8}$              |
| D-60     | 60              | $\frac{1}{8}$              | D-250    | 250             | $\frac{3}{8}$              |
| D-75     | 75              | $\frac{1}{8}$              | D-300    | 300             | $\frac{3}{8}$              |
| D-100    | 100             | $\frac{3}{8}$              | D-360    | 360             | $\frac{3}{8}$              |
| D-110    | 110             | $\frac{3}{8}$              | D-400    | 400             | $\frac{3}{8}$              |
| D-120    | 120             | $\frac{3}{8}$              | D-480    | 480             | $\frac{3}{8}$              |
| D-125    | 125             | $\frac{3}{8}$              |          |                 |                            |

## TYPE "E" CABLE

## For Inside Construction

Conductors No. 19 B. & S. gauge, double wool insulation, covering on pair colored white and red white.  
 Characteristics per mile of cable,

Insulation resistance.....100 megohms.  
 Sheath of pure lead.

| Code No. | Number of Pairs | Thickness of Sheath inches | Code No. | Number of Pairs | Thickness of Sheath inches |
|----------|-----------------|----------------------------|----------|-----------------|----------------------------|
| E-10     | 10              | $\frac{1}{8}$              | E-120    | 120             | $\frac{3}{8}$              |
| E-15     | 15              | $\frac{1}{8}$              | E-125    | 125             | $\frac{3}{8}$              |
| E-20     | 20              | $\frac{1}{8}$              | E-150    | 150             | $\frac{3}{8}$              |
| E-25     | 25              | $\frac{1}{8}$              | E-160    | 160             | $\frac{3}{8}$              |
| E-30     | 30              | $\frac{1}{8}$              | E-180    | 180             | $\frac{3}{8}$              |
| E-40     | 40              | $\frac{1}{8}$              | E-200    | 200             | $\frac{3}{8}$              |
| E-50     | 50              | $\frac{3}{8}$              | E-225    | 225             | $\frac{1}{2}$              |
| E-60     | 60              | $\frac{3}{8}$              | E-240    | 240             | $\frac{1}{2}$              |
| E-70     | 70              | $\frac{3}{8}$              | E-250    | 250             | $\frac{1}{2}$              |
| E-75     | 75              | $\frac{3}{8}$              | E-300    | 300             | $\frac{1}{2}$              |
| E-100    | 100             | $\frac{3}{8}$              | E-325    | 325             | $\frac{1}{2}$              |

## TYPE "F" CABLE

## For Interior Construction

Conductors No. 22 B. & S. gauge, double silk and single cotton insulation, covering on pair colored white and red white.

Characteristics per mile of cable,

Insulation resistance.....100 megohms.  
 Composition lead sheath with 3% tin.

| Code No. | Number of Pairs | Thickness of Sheath inches | Code No. | Number of Pairs | Thickness of Sheath inches |
|----------|-----------------|----------------------------|----------|-----------------|----------------------------|
| F-5      | 5               | $\frac{3}{4}$              | F-60     | 60              | $\frac{1}{2}$              |
| F-10     | 10              | $\frac{3}{4}$              | F-75     | 75              | $\frac{1}{2}$              |
| F-15     | 15              | $\frac{3}{4}$              | F-100    | 100             | $\frac{1}{2}$              |
| F-20     | 20              | $\frac{3}{4}$              | F-120    | 120             | $\frac{1}{2}$              |
| F-25     | 25              | $\frac{3}{4}$              | F-150    | 150             | $\frac{1}{2}$              |
| F-30     | 30              | $\frac{3}{4}$              | F-200    | 200             | $\frac{1}{2}$              |
| F-40     | 40              | $\frac{3}{4}$              | F-240    | 240             | $\frac{1}{2}$              |
| F-50     | 50              | $\frac{1}{2}$              |          |                 |                            |

PRICES ON REQUEST



## CABLE TERMINALS

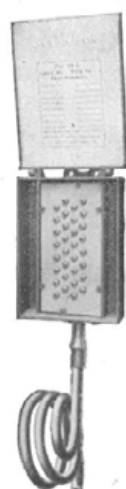


No. 8—Open

These are for open wire distribution from lead covered aerial cable and are arranged for attaching to poles. No arrangement is made for protective devices. The code number does not include a cable stub, but it is recommended that they be ordered with 6 ft. of No. 22 B. & S. gauge cable attached.

## Prices are f. o. b. New York

| Code No. | Capacity pairs | Height of Hood inches | Diameter of Hood inches | Number in Standard package | Approx. Weight of Standard Package lbs. | List Price each with 6 ft. No. 22 B. & S. cable attached |
|----------|----------------|-----------------------|-------------------------|----------------------------|---|--|
| 8-A      | 10             | 14½                   | 6¼                      | 10                         | 250                                     | \$ 3.75  |
| 8-B      | 16             | 14½                   | 6¼                      | 10                         | 250                                     | 4.20   |
| 8-C      | 26             | 19                    | 6¼                      | 10                         | 280                                     | 5.85   |
| 8-D      | 31             | 19                    | 6¼                      | 10                         | 280                                     | 6.75   |
| 8-E      | 51             | 28                    | 6¼                      | 8                          | 350                                     | 9.60   |
| 8-F      | 61             | 28                    | 6¼                      | 8                          | 385                                     | 11.25  |



No. 14—Open

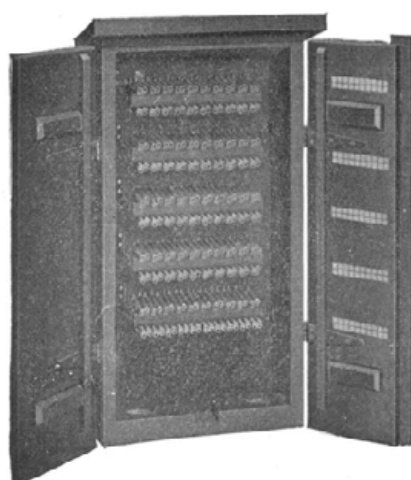


No. 14 closed

These are for open wire distribution from lead covered aerial cable and are intended to be mounted on poles or buildings. No arrangement is made for protective devices. The code number does not include a cable stub, but it is recommended that they be ordered with 6 ft. of No. 22 B. & S. gauge cable attached.

## Prices are f. o. b. New York

| Code No. | Capacity pairs | Height of Cover inches | Width of Cover inches | Number in Standard package | Approx. Weight of Standard Package lbs. | List Price each with 6 ft. No. 22 B. & S. cable attached |
|----------|----------------|------------------------|-----------------------|----------------------------|---|--|
| 14-A     | 10             | 7½                     | 7½                    | 8                          | 210                                     | \$ 4.40  |
| 14-B     | 11             | 7½                     | 7½                    | 8                          | 210                                     | 4.45   |
| 14-C     | 16             | 9½                     | 7½                    | 8                          | 230                                     | 5.50   |
| 14-D     | 26             | 14½                    | 7½                    | 8                          | 300                                     | 8.05   |
| 14-E     | 21             | 12½                    | 7½                    | 8                          | 280                                     | 7.15   |



No. 15—Open, with Protectors

These are for joining aerial and underground cables. No. 77-A protectors, consisting of 6 ampere fuses, 40 per strip, can be mounted in them, but are not furnished unless ordered. No provision is made for open space cutouts.

They are for mounting on poles and are not conspicuous on account of their narrow width.

## Prices are f. o. b. New York

| Code No. | Capacity pairs | Dimensions inches<br>Height Width Depth | Approx. Weight of one box crated lbs. | List Price each without protectors |
|----------|----------------|---|---------------------------------------|------------------------------------|
| 15-A     | 100            | 38 20 9½                                | 70                                    | \$ 8.25                            |
| 15-B     | 200            | 63 22 9½                                | 113                                   | 11.25                              |

In ordering specify the code number and number of pairs (in groups of 20) of protectors desired.



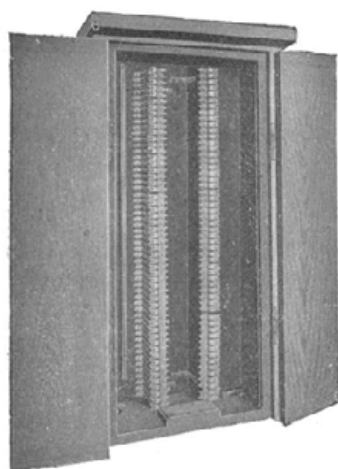
No. 15—Closed

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## Cable Terminals—Continued

Prices are f. o. b. New York

SH 5108—Open, with  
Protectors

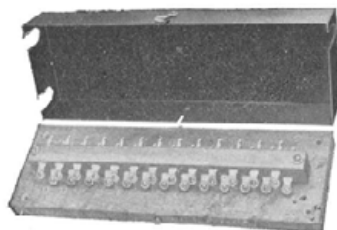
These are for joining aerial and underground cables or for open wire distribution. No. 7-A protectors consisting of 6 ampere fuses or No. 61-A protectors consisting of 6 ampere fuses and carbon open-space cutouts can be mounted in them, but are not furnished unless ordered.

Boxes up to 100 pairs are arranged to mount the protectors in two strips; larger ones are arranged for four strips.

They are for mounting on poles.

| Code No.              | Dimensions inches |       |       | Approx.<br>Weight of one<br>box crated<br>lbs. | List Price<br>each<br>without<br>protectors |
|-----------------------|-------------------|-------|-------|--|---|
|                       | Height            | Width | Depth |  |   |
| SH-5108 for 25 pairs  | 25½               | 20¾   | 8¾    | 38   | \$ 6.75                                     |
| SH-5108 for 30 pairs  | 29                | 20¾   | 8¾    | 46   | 6.90  |
| SH-5108 for 50 pairs  | 42½               | 20¾   | 8¾    | 55   | 7.20  |
| SH-5108 for 55 pairs  | 46                | 20¾   | 8¾    | 59   | 7.35  |
| SH-5108 for 60 pairs  | 49½               | 20¾   | 8¾    | 67   | 7.35  |
| SH-5108 for 100 pairs | 77                | 20¾   | 8¾    | 94   | 8.80  |
| SH-5109 for 110 pairs | 46                | 37½   | 9     | 97   | 9.45  |
| SH-5109 for 120 pairs | 49½               | 37½   | 9     | 104  | 9.45  |
| SH-5109 for 150 pairs | 60½               | 37½   | 9     | 122  | 9.90  |
| SH-5109 for 200 pairs | 77                | 37½   | 9     | 145  | 10.50                                       |

In ordering specify code number and capacity of box, together with number of pairs and kind of protector desired.



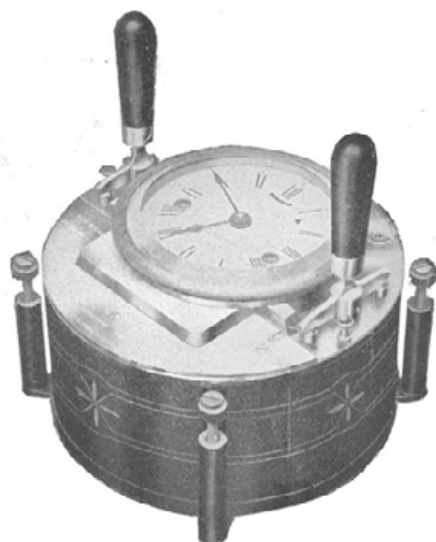
No. 12-A

These are provided with a cover and are convenient in cross-connecting cables for inter-communicating systems.

| Code No. | Capacity<br>pairs | Length | Dimensions inches |       | List Price<br>each |
|----------|-------------------|--------|-------------------|-------|--------------------|
|          |                   |        | Width             | Depth |                    |
| 12-A     | 10                | 12     | 4                 | 1¾    | \$ 1.00            |
| 12-B     | 20                | 12     | 4                 | 2¾    | 1.30               |
| 12-C     | 30                | 12     | 4                 | 3¾    | 1.65               |

## CALCULAGRAPH

The calculagraph is the most convenient and accurate means of recording a telephone conversation. It is furnished suitable for mounting either directly in the keyboard of the switchboard, or on a pedestal which may be placed beside the operator. It may be furnished with or without a visible dial. The instrument has two handles, one of which is pulled for recording the beginning of the conversation and the other for ending. It records the time at which the conversation is begun and computes the elapsed time in minutes and quarter minutes.



No. 52041

| Code Word | List No.               | List Price<br>each |
|-----------|------------------------|--------------------|
| Hygram    | 52041 Model No. 6..... | \$ 100.00          |

Has visible dial and is arranged for mounting in keyshelf.

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## CHAIRS

For telephone switchboard operators. The chairs are furnished in birch with a mahogany finish. They can be furnished with leather over cane, and with castors or rubber tips.

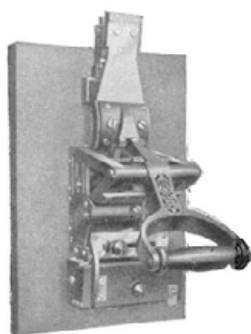
The first measurement indicates the distance of seat from the floor when the seat is in its lowest position while the second indicates the highest.

| Code Word | List No. | Height<br>inches |
|-----------|----------|------------------|
| Hygeist   | 52032    | 18 to 22         |
| Hygia     | 52033    | 24 to 31         |
| Hygicam   | 52034    | 28 to 35         |

Prices on request.

## CIRCUIT BREAKERS

Cutter overload circuit breaker with auxiliary shunt tripping coil for 30 volts, for use with our No. 154 type relay to protect the storage battery and charging generators from excessive or reverse currents.



Type NX

| Type | Capacity<br>Amperes | Calibration<br>Volts | List Price<br>each |
|------|---------------------|----------------------|--------------------|
| EL   | 30                  | 25 to 45             | \$ 41.00           |
| EL   | 60                  | 45 to 90             | 45.00              |
| EL   | 100                 | 75 to 150            | 48.00              |
| EL   | 200                 | 150 to 300           | 52.00              |
| EL   | 300                 | 225 to 450           | 55.00              |
| NX   | 400                 | 300 to 600           | 92.00              |
| NX   | 600                 | 450 to 900           | 100.00             |
| NX   | 800                 | 600 to 1200          | 110.00             |
| NX   | 1000                | 800 to 1500          | 125.00             |

Order should read:—1 Cutter . . . . ampere overload circuit breaker type . . . . with auxiliary shunt tripping coil for 30 volts, with terminal lugs drilled for . . . . circular mil cable.

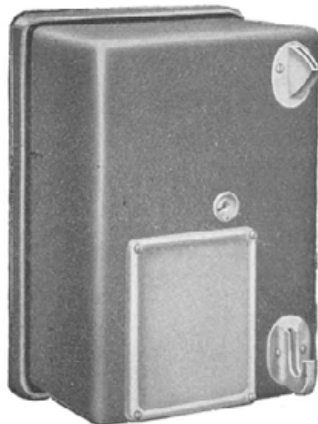
### CUTTER UNDERLOAD CIRCUIT BREAKER

| Type | Capacity<br>Amperes | Calibration<br>Volts | List Price<br>each |
|------|---------------------|----------------------|--------------------|
| EL   | 30                  | 25 to 45             | \$ 28.00           |
| EL   | 60                  | 45 to 90             | 32.00              |
| EL   | 100                 | 75 to 150            | 35.00              |
| EL   | 200                 | 150 to 300           | 39.00              |
| EL   | 300                 | 225 to 450           | 42.00              |

Orders should read:—1 Cutter . . . . ampere underload circuit breaker, type EL with lugs drilled for . . . . circular mil cable.

## COIN COLLECTORS

### FOR CENTRAL BATTERY TELEPHONES



No. 7-A.

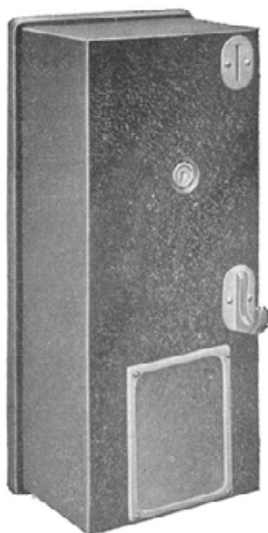
These are arranged so that a coin placed in the coin chute remains under control of the central office operator, who may refund or deposit it into the coin box. The coin collector is ordinarily connected to the telephone line so that it is necessary to drop a coin of the proper denomination into the box to signal central office. This saves considerable time on the part of the operator. It may be wired so that the coin need not be deposited until the operator requests it.

All electrical circuits are insulated from the case. The case has a heavy black japanned finish.

On the front of each of these coin collectors is mounted a small metal frame which holds an instruction card. Over the card is placed a piece of glass for protecting the card from dirt and injury.

| Code No. | Arranged<br>for | Length          | Dimensions inches<br>Width | Depth           | List Price<br>each |
|----------|-----------------|-----------------|----------------------------|-----------------|--------------------|
| 7-A      | Nickels         | 7 $\frac{3}{4}$ | 5 $\frac{1}{4}$            | 3 $\frac{7}{8}$ | \$ 5.25            |
| 7-C      | Dimes           | 7 $\frac{3}{4}$ | 5 $\frac{1}{4}$            | 3 $\frac{1}{8}$ | 5.55               |

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No. 7-E

## Coin Collectors—Continued

| Code No.   | Arranged for | Length | Dimensions inches<br>Width | Depth | List Price each |
|------------|--------------|--------|----------------------------|-------|-----------------|
| <b>7-E</b> | Nickels      | 11½    | 5¼                         | 3½    | <b>\$ 6.40</b>  |

The No. 7-E has a larger coin box than the No. 7-A.



No. 13-A

## FOR CENTRAL BATTERY OR MAGNETO TELEPHONES

This is arranged so that any coin dropped into the chute falls directly into the coin box when the lever is rotated. It has but a single coin slot into which may be inserted, one at a time, nickels, dimes or quarters. It is necessary for the operator to listen on the line while the coins are being deposited, since the signal is given on a gong, a nickel giving one, a dime two and a quarter three strokes.

| Code No.    | Arranged for                | Length | Dimensions inches<br>Width | Depth | List Price each |
|-------------|-----------------------------|--------|----------------------------|-------|-----------------|
| <b>13-A</b> | Nickels, dimes and quarters | 9¾     | 4¾                         | 4     | <b>\$ 9.75</b>  |

## CONDENSERS

These are of small size and made of selected material. Except as noted in the list, they are designed to withstand a potential of 500 volts direct current, and are rated at the minimum capacity.

They may be mounted in any desired position by means of a condenser strap (P-43065) and two wood screws. The No. 21-E is usually mounted by means of strap WM-2381.



No. 21-D

| Code No.    | Capacity micro-farads | Style of terminal | Size of case inches | Use  | List Price each |
|-------------|-----------------------|-------------------|---------------------|--|-----------------|
| <b>21-D</b> | 2                     | Bent              | 4½ x 1½ x 1½        | For telephone sets .....   | <b>\$ 1.15</b>  |
| <b>21-E</b> | 2                     | Straight          | 4½ x 1½ x 1½        | For switchboards and for general use .....   | <b>1.15</b>     |
| <b>21-F</b> | 1                     | Bent              | 4½ x 1½ x 1½        | For telephone sets .....   | <b>.70</b>      |
| <b>21-H</b> | 0.1                   | Bent              | 4½ x 1½ x 1½        | For No. 84 type interrupter—designed to stand 1000 volts alternating current. .... | <b>.60</b>      |

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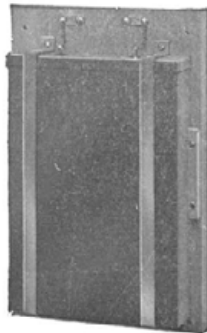
Condensers—Continued



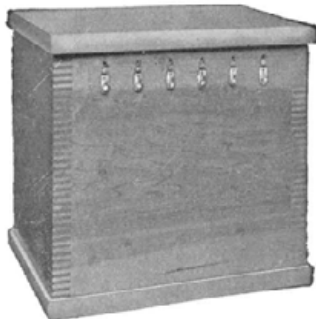
No. 21-J



No. 21-U



No. 27-B



No. 28-B



No. 33-A

| Code No. | Capacity micro-farads | Style of terminal | Size of case inches   | Use   | List Price each |
|----------|-----------------------|-------------------|-----------------------|---|-----------------|
| 21-J     | 0.3                   |                   |                       |   |                 |
|          | 0.3                   | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | Designed to stand 750 volts direct current—3 terminals                                      | \$0.75          |
| 21-K     | 1                     | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For general use   | .70             |
| 21-L     | 2                     | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For mounting on coil racks  | 1.15            |
| 21-M     | 1                     | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For mounting on coil racks  | .70             |
| 21-N     | 1.0                   |                   |                       |   |                 |
|          | 0.5                   | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For mounting on coil racks —3 terminals.....  | 1.05            |
| 21-R     | 0.1                   | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For general use .....   | .40             |
| 21-S     | 0.125                 |                   |                       |   |                 |
|          | 0.250                 |                   |                       |   |                 |
|          | 0.500                 | Straight          | 4 1/2 x 1 1/4 x 1 1/8 | For telegraph work—4 terminals.....   | 1.05            |
| 21-U     | .05                   | Bent              | 4 1/2 x 1 1/4 x 1 1/8 | For railway composite telephone set, designed to stand 1200 volts alternating current ..... | .45             |
| 31-A     | .05                   |                   |                       |   |                 |
|          | .05                   | Wire              | 4 1/2 x 1 1/8 x 1 1/2 | For general use—4 terminals   | .75             |

These are used in connection with telegraph and telephone stations on railway composite systems.

| Code No. | Capacity micro-farads | Size of case inches    | Use  | List Price each |
|----------|-----------------------|------------------------|--|-----------------|
| 23-A     | 1                     | 8 3/4 x 6 1/4 x 1 1/2  | For railway composite system; designed to stand 1000 volts alternating current.....  | \$3.75          |
| 27-B     | 1                     | 10 7/8 x 7 1/8 x 2 1/8 | For intermediate telegraph stations on railway composite system; a No. 23-A condenser on a maple base; designed to stand 1000 volts alternating current.....   | 4.35            |
| 28-B     | 1                     | 10 1/2 x 11 x 8 1/8    | For terminal telephone stations on railway composite system; comprises 1 No. 23-A condenser and 1 No. 5-L retardation coil mounted in a maple box; designed to stand 1000 volts alternating current..... | 16.95           |

These are designed for mounting on the coil rack, either on the same shelves with the repeating coils, or grouped on shelves by themselves, and consist of No. 21 type condensers mounted on a wood base 10 1/4 in. long by 1 1/8 in. wide.

| Code No. | Condensers Used | Capacity of each No. 21 Type Condenser microfarads | List Price each |
|----------|-----------------|--|-----------------|
| 33-A     | 2 No. 21-L      | 2  | \$2.50          |
| 33-B     | 1 No. 21-L      | 2  | 1.35            |
| 33-C     | 2 No. 21-M      | 1  | 1.60            |
| 33-D     | 1 No. 21-M      | 1  | .90             |
| 33-E     | 2 No. 21-N      | 1.0  | 2.35            |
|          |                 | 0.5  |                 |

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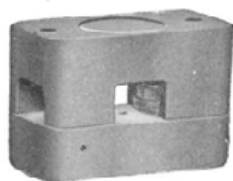




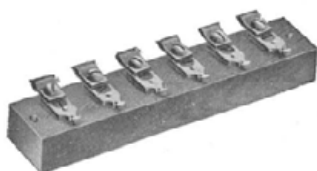
No. 1-A—Connecting Block



No. 6-D—Connecting Block



No. 7-A—Connecting Block



No. 8-A—Connecting Block

## CONDENSER STRAPS

| Code No. |   | List Price each |
|----------|---|-----------------|
| WM-2381  | Bent iron strap for use with No. 21-E condenser. Dimensions over all $5\frac{3}{8}$ in. x $1\frac{7}{8}$ in. x $\frac{9}{16}$ in., inside $4\frac{9}{16}$ in. x $1\frac{3}{8}$ in. .... | \$ 0.045        |
| P-43065  | Straight iron strap for use with No. 21 type condensers. Dimensions $4\frac{1}{8}$ in. x $\frac{1}{2}$ in. ....   | .012            |

## CONNECTING BLOCKS

| Code No. | Number of Binding Posts | Style        | Size inches                                 | Base             | List Price each |
|----------|-------------------------|--------------|---|------------------|-----------------|
| 1-A      | 3                       | Lock nut.... | $2\frac{1}{8}$ x $\frac{3}{8}$              | Electrose.....   | \$ 0.12         |
| 6-A      | 7 pairs                 | Lock nut.... | $5\frac{5}{8}$ x $1\frac{7}{8}$             | Electrose.....   | .53             |
| 6-B      | 11 pairs                | Lock nut.... | $8\frac{3}{8}$ x $1\frac{7}{8}$             | Electrose.....   | .71             |
| 6-C      | 16 pairs                | Lock nut.... | $12\frac{3}{8}$ x $1\frac{7}{8}$            | Electrose.....   | .98             |
| 6-D      | 21 pairs                | Lock nut.... | $16\frac{1}{8}$ x $1\frac{7}{8}$            | Electrose.....   | 1.35            |
| 6-E      | 26 pairs                | Lock nut.... | $19\frac{7}{8}$ x $1\frac{7}{8}$            | Electrose.....   | 1.65            |
| 7-A      | 2                       | Lock nut.... | $2\frac{1}{8}$ x 1 with cover.              | Electrose.....   | .14             |
| 8-A      | 6                       | For cord tip | 5x1   | Ebonized Wood... | .23             |
| 8-B      | 3                       | For cord tip | $2\frac{1}{8}$ x 1                          | Ebonized Wood... | .15             |
| 9-A      | 3                       | Lock nut.... | $2\frac{1}{8}$ x $1\frac{1}{8}$ with cover. | Electrose.....   | .15             |

## CORDS

## FOR CENTRAL OFFICES

It is customary to use 4 ft. switchboard and 6 ft. operator's telephone cords on small magneto and private exchanges and 6 ft. switchboard and operator's telephone cords on other boards.

These lengths are carried in stock but others will be furnished on request. The switchboard cords, Nos. 152, 155, 156, 236, 244, and 249 are regularly made in three colors, red, white and green. The white cords are furnished unless the color is specified. The steel cords are more substantial than the tinsel but have a higher resistance. It is accordingly customary to use steel cords for local positions and tinsel for toll.

In ordering specify the code number, length, color, and, if plugs are to be attached, give the code number of the plugs. No extra charge is made for attaching plugs to cords.

| Code No. | Description  | Used with   | Standard Length feet | List Price each |
|----------|--|---|----------------------|-----------------|
| 10       | 2 conductor tinsel cord, green silk covering.                          | Operator's head telephone when connected to binding posts.....  | 6                    | \$ 0.31         |
| 26       | Single conductor stranded copper and tinsel cord, green silk covering. | Suspended switchboard transmitter and No 7 transmitter arm.....   | 6                    | .12             |
| 30       | 2 conductor tinsel cord, green silk covering.                          | Operator's head telephone when connected to No. 85 plug.....  | 6                    | .36             |
| 87       | 4 conductor tinsel cord, green silk covering.                          | Operator's head telephone and chest transmitter when attached to No. 103 or 112 plug .....  | 6                    | .75             |
| 129      | 4 conductor stranded copper cord, green glazed cotton covering.        | Neither end equipped with tips, but there may be connected to one end a No. 124, 128 or 132 plug, for testing on protectors or terminal strips... | 10                   | .765            |

WRITE FOR LIBERAL DISCOUNTS

## Cords—Continued



No. 152

| Code No. | Description   | Used with   | Standard Length | List Price each |
|----------|---|---|-----------------|-----------------|
| 152      | 3 conductor steel switchboard cord, glazed cotton covering.     | No. 110 plug.....   | 6 ft.           | \$ 0.75         |
| 153      | 4 conductor stranded copper cord, green glazed cotton covering. | No. 124, 128 or 132 plug....                                    | 10 ft.          | .78             |
| 155      | 3 conductor steel switchboard cord, glazed cotton covering.     | No. 109 plug.....   | 6 ft.           | .75             |
| 156      | 2 conductor steel switchboard cord, glazed cotton covering.     | No. 47 plug.....  | 4 ft.<br>6 ft.  | .425<br>.53     |
| 236      | 2 conductor tinsel switchboard cord, glazed cotton covering.    | No. 47 plug.....  | 4 ft.<br>6 ft.  | .29<br>.38      |
| 244      | 3 conductor tinsel switchboard cord, glazed cotton covering.    | No. 109 plug.....   | 6 ft.           | .60             |
| 249      | 3 conductor tinsel switchboard cord, glazed cotton covering.    | No. 110 plug.....   | 6 ft.           | .53             |
| 254      | 2 conductor tinsel cord, green silk covering.                   | Operator's head telephone, when connected to No. 103 plug ..... | 6 ft.           | .36             |

| Code No. | Description   | Used with  | Standard Length | List Price each |
|----------|---|--|-----------------|-----------------|
| 264      | 2 conductor stranded copper cord, green glazed cotton covering.   | One end equipped with spring clips for testing on terminal strips..... | 6 ft.           | .66             |
| 265      | Single conductor tinsel switchboard cord, glazed cotton covering. | No. 116 plug.....  | 4 ft.           | .24             |
| 338      | Single conductor stranded copper cord, rubber covered.            | For connecting dry cells.....  | 4 in.           | .0375           |

## FOR TELEPHONE SETS

Note:—The length of all cords, except combination cords, should be specified on the order.

|     |   |  |                                     |               |
|-----|---|--|-------------------------------------|---------------|
| 10  | 2 conductor tinsel cord, green silk covering.                 | Receiver on wall set.....  | 3 ft.                               | .195          |
| 15  | 2 conductor stranded copper cord, red worsted covering.       | Receiver on No. 1006 test set (included with No. 125-W receiver) ..... | 3 ft.                               | .225          |
| 92  | 2 conductor tinsel cord, red and blue worsted covering.       | Receiver on wall set.....  | 3 ft.                               | .13           |
| 175 | 4 conductor tinsel cord, green silk covering.                 | Desk stand as extension cord.....                                      | 6 ft.                               | .57           |
| 178 | 2 conductor tinsel cord, green silk covering.                 | Receiver on desk stand or transmitter arm.....                         | 2½ ft.<br>3 ft.                     | .18125<br>.20 |
| 179 | Single conductor tinsel cord, green silk and cotton covering. | Transmitter on desk stand or transmitter arm.....                      | 5½ in.<br>8 in.<br>9½ in.<br>12 in. | .045          |
| 180 | 3 conductor tinsel cord, green silk covering.                 | Desk stand or transmitter arm as extension cord.....                   | 6 ft.                               | .45           |
| 196 | 2 conductor tinsel cord, green silk covering.                 | Receiver on metal wall box and part of No. 293 cord.                   | 3 ft.                               | .20           |
| 202 | 3 conductor tinsel cord, green silk covering.                 | Metal wall box as extension cord....                                   | 6 ft.                               | .45           |
| 231 | 4 conductor tinsel cord, green silk covering.                 | Desk stand as extension cord.....                                      | 6 ft.                               | .57           |
| 232 | Combination of 6 ft. 231; 3 ft. 178; 8 in. 179.               | No. 1020-F desk stands.....  |                                     | .81           |
| 234 | Combination of 6 ft. 180; 3 ft. 178; 9½ in. 179.              | Nos. 1020-B, 1020-M and 1020-S desk stands.....                        |                                     | .69           |
| 242 | 4 conductor steel cord, glazed cotton covering.               | No. 1278 telephone set.....  | 18 in.                              | .50           |
| 243 | Single conductor tinsel cord, green silk and cotton covering. | Nos. 1278 and 1280 telephone sets....                                  | 8 in.                               | .04125        |

WRITE FOR LIBERAL DISCOUNTS

## Cords—Continued

| Code No. | Description   | Used with  | Standard Length              | List Price each |
|----------|---|--|------------------------------|-----------------|
| 247      | Single conductor copper cord, green cotton covering.                                      | No. 250-W transmitters.....                                | 10 $\frac{3}{16}$ in.        | \$ 0.045        |
| 267      | Single conductor stranded steel cord, blue linen covering.                                | No. 1314 telephone set to connect rail clamp .....         | 10 ft.                       | .3875           |
| 268      | Single conductor stranded steel cord, blue linen covering.                                | No. 1314 telephone set to connect set to line.....         | 104 ft.                      | 1.50            |
| 285      | 3 conductor steel cord, glazed cotton covering.   | No. 1280 telephone set.....                                | 18 in.                       | .39             |
| 287      | 6 conductor tinsel cord, green silk covering.   | No. 1020-H desk stand.....                                 | 6 ft.                        | .87             |
| 289      | Combination of 6 ft. 287; 3 ft. 196; 9 $\frac{1}{2}$ in. 179.                             | No. 1020-H desk stand.....                                 |                              | 1.11            |
| 293      | Combination of 6 ft. 175; 3 ft. 196; 12 in. 179.  | No. 1020-C desk stand.....                                 |                              | .83             |
| 308      | Combination of 6 ft. 313; 2 $\frac{1}{2}$ ft. 178; 8 in. 179.                             | No. 1040 transmitter arm.....                              |                              | .67             |
| 309      | 3 conductor steel cord, beeswaxed cotton covering.  | Nos. 1280-A and 1302-A telephone sets to No. 126 plug..... | 15 ft.                       | 1.02            |
| 310      | Combination of 8 $\frac{1}{2}$ ft. 180; 2 $\frac{1}{2}$ ft. 178; 11 in. 179.              | No. 1020-A transmitter arm.....                            |                              | .84             |
| 311      | 2 conductor steel cord, glazed cotton covering.   | Receiver on Nos. 1302-A and 1314-A telephone sets.....     | 3 ft.                        | .34             |
| 313      | 3 conductor tinsel cord, green silk covering.   | Transmitter arm as extension cord.. Part of No. 308 cord.  | 6 ft.                        | .45             |
| 317      | Single conductor tinsel cord, green silk and cotton covering.                             | No. 1002-A hand set..... Part of No. 319 cord.             | 9 $\frac{1}{2}$ in.          | .06             |
| 318      | 3 conductor tinsel cord, green silk covering.   | No. 1002-A hand set..... Part of No. 319 cord.             | 4 $\frac{1}{2}$ ft.          | .39             |
| 319      | Combination of 4 $\frac{1}{2}$ in. 336; 9 $\frac{1}{2}$ in. 317; 4 $\frac{1}{2}$ ft. 318. | No. 1002-A hand set.....                                   |                              | .50             |
| 325      | 5 conductor tinsel cord, green silk covering.   | No. 1020-F desk stand..... Part of No. 326 cord.           | 6 ft.                        | .69             |
| 326      | Combination of 6 ft. 325; 3 ft. 178; 8 in. 179.   | No. 1020-F desk stand.....                                 |                              | .93             |
| 329      | Single conductor tinsel cord, green silk and cotton covering.                             | Telephone sets..... No. 1020-P desk stand.....             | 5 $\frac{1}{2}$ in.<br>9 in. | .045<br>.045    |
| 330      | Single conductor tinsel cord, green silk and cotton covering.                             | No. 1020-P desk stand.....                                 | 9 $\frac{1}{2}$ in.          | .045            |
| 331      | Combination of 3 ft. 178; 6 ft. 180; 9 in. 329; 9 $\frac{1}{2}$ in. 330.                  | No. 1020-P desk stand.....                                 |                              | .74             |
| 336      | Single conductor tinsel cord, green silk and cotton covering.                             | No. 1002-A hand set.....                                   | 4 $\frac{1}{2}$ in.          | .06             |
| 337      | 2 conductor steel cord, glazed cotton covering.   | No. 1017-A test set for receiver...                        | 24 in.                       | .32             |
| 338      | Single conductor cord, rubber covering.   | Dry cells for connecting batteries...                      | 4 in.                        | .0375           |
| 348      | 2 conductor with testing clips.   | No. 1001 hand set.....                                     | 3 ft.                        | .7875           |

## CORD FASTENERS



No. 9

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 9        | Used on cord shelves with all types of switchboard cords..... | \$ 0.03         |

WRITE FOR LIBERAL DISCOUNTS





No. 3—Cord Hook



No. 7—Cord Hook

## CORD HOOKS

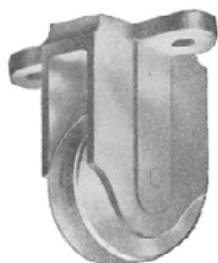
The two types of cord hooks shown will meet all requirements. The No. 3 is the screw hook type, and can be mounted in any desired location. The No. 7 is designed for placing on the rear edge of cordshelves, and consists of a flat strip of brass  $\frac{1}{8}$  in. thick by  $\frac{3}{4}$  in. wide, the hooks being punched out at various spacings as listed in the following table. Hooks of this type are strong and efficient, present a neat appearance and occupy a minimum amount of space.



No. 103



No. 105



No. 106



No. 111

| Code No. | Number<br>per Strip | Spacing<br>inches | Length<br>inches | List Price<br>each        |
|----------|---------------------|-------------------|------------------|---------------------------|
| <b>3</b> | single              |                   |                  | <b>\$ 0.375 per gross</b> |
| 7-A      | 9                   | $\frac{27}{32}$   | $7\frac{17}{32}$ | .27                       |
| 7-B      | 10                  | $\frac{1}{2}$     | $4\frac{15}{16}$ | .24                       |
| 7-C      | 10                  | $\frac{3}{4}$     | $7\frac{7}{16}$  | .29                       |
| 7-D      | 18                  | $\frac{13}{32}$   | $7\frac{5}{16}$  | .27                       |
| 7-E      | 11                  | $\frac{5}{8}$     | $6\frac{7}{8}$   | .27                       |
| 7-F      | 18                  | $\frac{7}{16}$    | $7\frac{7}{8}$   | .29                       |
| 7-G      | 19                  | $\frac{17}{32}$   | 10               | .30                       |
| 7-H      | 8                   | $1\frac{1}{8}$    | 9                | .27                       |
| 7-J      | 10                  | $\frac{3}{8}$     | $3\frac{3}{4}$   | .23                       |
| 7-K      | 7                   | $\frac{3}{4}$     | $5\frac{1}{4}$   | .23                       |
| 7-L      | 3                   | $\frac{3}{4}$     | $2\frac{9}{16}$  | .14                       |

## CORD PULLEYS

These have brass wheels about  $\frac{3}{8}$  in. wide and are for use with our standard switchboard or telephone cords as the case may require.

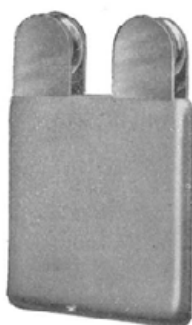
| Code No. | Width<br>inches | List Price<br>each |
|----------|-----------------|--------------------|
| 103      | $\frac{19}{32}$ | <b>\$ 0.24</b>     |
| 105      | $\frac{9}{16}$  | .21                |
| 106      | $1\frac{3}{16}$ | .15                |
| 111      | $\frac{3}{8}$   | .41                |

WRITE FOR LIBERAL DISCOUNTS





No. 103



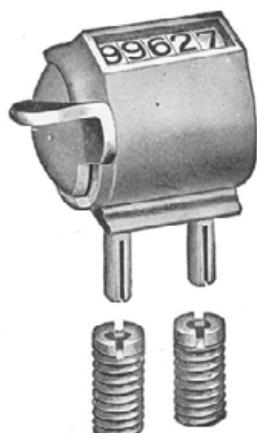
No. 108

## CORD WEIGHTS

| Code No. | Style        | Used with   | List Price each |
|----------|--------------|---|-----------------|
| 103      | Brass 14 oz. | Suspended transmitter and No. 7 transmitter arm.....                                      | \$ 0.60         |
| 108      | Lead 28 oz.  | Switchboard cords when cord pulley is used.....   | .55             |
| 111      | Lead 10 oz.  | Switchboard cords on No. 49 jack switchboard and magneto switchboards except No. 105..... | .25             |
| 112      | Lead 8 oz.   | Switchboard cords on No. 92 jack switchboard and No. 105 switchboard.....                 | .25             |



No. 111



No. 1880

## COUNTER

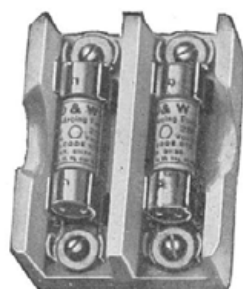
For counting the number of telephone calls handled at an operator's position; the sockets are permanently placed, and the counter may be mounted or removed at will.

| Code Word | List No. |
|-----------|----------|
| Placando  | 18880    |

## CUT-OUTS

Made in single, double and triple pole styles, for D. & W. fuses, 3 to 60 amperes, 250 volts.

Orders should state number of poles, voltage and capacity of fuses which will be used.



D. &amp; W. Cut-out



No. 1-A

## DESIGNATION STRIPS

These consist of a wooden mounting with a No. 8 type designation strip mounted on the face, and are for use in designating outgoing trunk jacks, etc.

The No. 6-B and No. 6-F are the same as the No. 6-A and No. 6-E, respectively, except that they mount flush with the face of the jack mountings, while the No. 6-A and No. 6-B project slightly.

| Code No. | Width inches   | Finish       | Used with Switchboard | List Price each |
|----------|----------------|--------------|-----------------------|-----------------|
| 1-A      | $\frac{7}{16}$ | Nickel plate | No. 49 jack, No. 1    | \$ 0.23         |
| 1-B      | $\frac{7}{16}$ | Nickel plate | No. 49 jack, No. 1    | .23             |
| 1-C      | $\frac{7}{16}$ | Black        | No. 49 jack, No. 1    | .23             |
| 1-D      | $\frac{7}{16}$ | Black        | No. 49 jack, No. 1    | .23             |
| 6-A      | $\frac{7}{16}$ | Nickel plate | No. 92 jack, No. 1    | .23             |
| 6-B      | $\frac{7}{16}$ | Nickel plate | No. 92 jack, No. 1    | .23             |
| 6-E      | $\frac{7}{16}$ | Black        | No. 92 jack, No. 1    | .23             |
| 6-F      | $\frac{7}{16}$ | Black        | No. 92 jack, No. 1    | .23             |
| 10-B     | $\frac{7}{16}$ | Nickel plate | No. 9                 | .23             |
| 10-C     | $\frac{7}{16}$ | Nickel plate | No. 9                 | .23             |

WRITE FOR LIBERAL DISCOUNTS

## Designation Strips—Continued

These are of the same type as the No. 1, except that in place of a No. 8 type designation strip a hard rubber face milled out and drilled for 20 No. 4 or No. 31 number plates is used.



No. 2-C

| Code No. | Width inches   | Finish | Used with Switchboard | List Price each |
|----------|----------------|--------|-----------------------|-----------------|
| 2-C      | $\frac{7}{16}$ | Black  | No. 49 jack, No. 1    | \$ 0.90         |
| 50-A     | $\frac{7}{16}$ | Black  | No. 10                | .98             |



No. 7-A

These are of the same type as the No. 1, except that in place of a card holder a strip of printed figures is held in place by a transparent celluloid face fastened to the base by nickel plated screws.

| Code No. | Width inches   | Finish         | Used with Switchboard | List Price each |
|----------|----------------|----------------|-----------------------|-----------------|
| 7-A      | $\frac{7}{16}$ | Celluloid face | No. 49 jack, No. 1    | \$ 0.20         |
| 7-B      | $\frac{1}{4}$  | Celluloid face | No. 49 jack, No. 1    | .20             |
| 7-D      | $\frac{3}{8}$  | Celluloid face | No. 49 jack, No. 1    | .20             |
| 13-A     | $\frac{3}{8}$  | Celluloid face | No. 92 jack, No. 1    | .20             |
| 48-A     | $\frac{7}{16}$ | Celluloid face | No. 10                | .23             |



No. 8

These consist of a metal card holder and a thin transparent celluloid strip for protecting a strip of printed paper.

| Code No. | Width inches   | Length inches  | Finish       | Used for                                       | List Price per foot |
|----------|----------------|----------------|--------------|--|---------------------|
| 8-A      | $\frac{7}{16}$ | As specified   | Nickel plate | Keyshelf and miscellaneous numbering . . . . . | \$ 0.18             |
| 8-B      | $\frac{3}{8}$  | As specified   | Nickel plate | Keyshelf and miscellaneous numbering . . . . . | .18                 |
| 8-D      | $\frac{1}{4}$  | As specified   | Nickel plate | Keyshelf and miscellaneous numbering . . . . . | .18                 |
| 8-E      | $\frac{1}{4}$  | As specified   | Black        | Keyshelf and miscellaneous numbering . . . . . | .18                 |
| 43-A     | $\frac{7}{16}$ | $1\frac{1}{2}$ | Black        | Test boards . . . . .                          | .09 each            |
| 43-B     | $\frac{3}{8}$  | $1\frac{1}{2}$ | Black        | Test boards . . . . .                          | .075 each           |
| 43-C     | $\frac{3}{8}$  | $1\frac{1}{4}$ | Black        | Test boards . . . . .                          | .075 each           |

## DESK STANDS

## WITH TRANSMITTERS, RECEIVERS AND CORDS

The No. 122-W receiver and standard high resistance transmitter are furnished with these desk stands, as specified below. Others will be furnished if ordered.



No. 1020-B

| Code Co. | Description  | Finish       | List Price each |
|----------|--|--------------|-----------------|
| 1020-B   | For regular local battery bridging or central battery service.<br>Includes: 1 No. 20-B desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 234 cord. | Nickel plate | \$ 6.90         |
| 1020-C   | For operator's telephone set with cordless private exchange.<br>Includes: 1 No. 20-C desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 293 cord    | Nickel plate | 7.15            |

WRITE FOR LIBERAL DISCOUNTS

## Desk Stands—Continued

| Code No. | Description   | Finish       | List Price each |
|----------|---|--------------|-----------------|
| 1020-F   | For central battery service, used with No. 7 type coin collector.<br>Includes: 1 No. 20-F desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 232 cord.   | Nickel plate | \$ 7.05         |
| 1020-H   | For intercommunicating service.<br>Includes: 1 No. 20-H desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 239 cord.   | Nickel plate | 7.60            |
| 1020-J   | For operator's telephone set, using No. 128-W receiver. No switchhook.<br>Includes: 1 No. 20-J desk stand.<br>1 No. 229-W transmitter.<br>1 No. 128-W receiver.<br>1 6 ft. No. 178 cord.<br>1 6 ft. No. 10 cord.<br>1 9 in. No. 179 cord. | Nickel plate | 6.90            |
| 1020-M   | For central battery service using transmitter cutout button.<br>Includes: 1 No. 20-M desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 234 cord.  | Nickel plate | 7.15            |
| 1020-P   | For local battery bridging or central battery service, using insulated transmitter.<br>Includes: 1 No. 20-P desk stand.<br>1 No. 271-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 331 cord.   | Nickel plate | 7.05            |
| 1020-S   | For regular local battery bridging or central battery service.<br>Includes: 1 No. 20-S desk stand.<br>1 No. 229-W transmitter.<br>1 No. 122-W receiver.<br>1 No. 234 cord.  | Black enamel | 6.90            |



No. 1020-M

## WITHOUT TRANSMITTERS, RECEIVERS OR CORDS

These are similar to those listed above except that the transmitters, receivers and cords are omitted

| Code No. | Service   | Finish       | List Price each |
|----------|---|--------------|-----------------|
| 20-B     | Regular local battery bridging, or central battery                  | Nickel plate | \$ 2.25         |
| 20-C     | Operator's telephone set, cordless private exchange                 | Nickel plate | 2.35            |
| 20-F     | Central battery for use with No. 7 coin collector                   | Nickel plate | 2.55            |
| 20-H     | Intercommunicating systems  | Nickel plate | 2.50            |
| 20-J     | Operator's telephone set without switch hook                        | Nickel plate | 1.75            |
| 20-M     | Central battery with transmitter cut-out button                     | Nickel plate | 2.50            |
| 20-P     | Local battery bridging or central battery for insulated transmitter | Nickel plate | 2.35            |
| 20-S     | Regular local battery bridging, or central battery                  | Black enamel | 2.25            |



No. 1



No. 3

## DISTRIBUTING RINGS

These are made from a steel rod covered with vulcanized rubber tubing which is very substantial.

| Code No. | Inside Diameter inches | Used for  | List Price each |
|----------|------------------------|---|-----------------|
| 1        | 2 1/8                  | Main and intermediate distributing frames. . . . .          | \$ 0.27         |
| 3        | 3                      | Intermediate distributing frame No. 10 switchboard. . . . . | .27             |

WRITE FOR LIBERAL DISCOUNTS



## DROPS

In the following list the Nos. 3 and 4 types of drops are equipped with two electro-magnet spools each. The Nos. 19, 22, 35, 56 and 57 are single spool drops with tubular iron shells and are cross-talk proof. The No. 19 type is employed especially on long bridging lines, toll lines, cord circuits, etc.

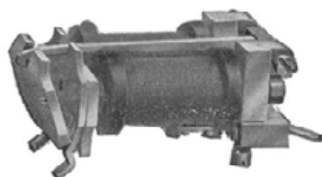
All drops are equipped with night bell contacts. The contact of the No. 19-F is made only while the drop is energized by the ringing current. In all the other drops listed below, the night bell contact remains closed until the drop is restored.

All drops except the No. 57-A will operate on alternating ringing current. The No. 57-A is used particularly for selective central office signalling on rural lines and will operate only on pulsating or direct current.

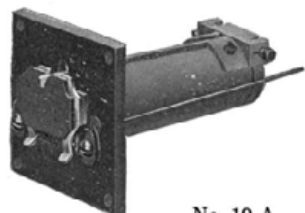
The No. 22 type drop is equipped with an extra winding for restoring the shutter when the call is answered.

The No. 35 type drop is equipped with two windings, one front and one back, and is adapted for selective central office signalling by grounding the middle of the winding and one side of the calling generator.

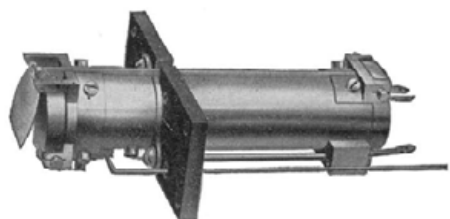
The Nos. 55 and 56 drops are similar to the No. 19, except that they are arranged to mount on  $1\frac{1}{8}$  and 1 in. centers respectively instead of  $1\frac{3}{8}$  in.



No. 4-A



No. 19-A



No. 22-A



No. 57-A



No. 58

| Code No. | Total Resistance<br>ohms  | List Price<br>each |
|----------|---------------------------|--------------------|
| 3-A      | 80                        | \$ 1.05            |
| 3-B      | 500                       | 1.15               |
| 3-C      | 1,000                     | 1.20               |
| 4-A      | 80                        | .85                |
| 4-B      | 100                       | .90                |
| 4-C      | 1,000                     | 1.20               |
| 4-D      | 500                       | 1.05               |
| 19-A     | 525                       | 1.45               |
| 19-B     | 600                       | 1.50               |
| 19-C     | 1,000                     | 1.65               |
| 19-D     | 800                       | 1.60               |
| 19-E     | 10                        | 1.30               |
| 19-F     | 500                       | 1.65               |
| 35-A     | 300-300                   | 1.75               |
| 35-B     | 500-500                   | 1.80               |
| 55-B     | 600                       | 1.50               |
| 56-A     | 500                       | 1.45               |
| 56-B     | 600                       | 1.50               |
| 56-C     | 1,000                     | 1.65               |
| 22-A     | Line 600, restoring 45    | 3.70               |
| 22-B     | Line 1,000, restoring 450 | 4.05               |
| 22-D     | Line 1,000, restoring 45  | 3.90               |
| 57-A     | 1,750                     | 3.70               |

## DROP MOUNTINGS

| Code No. | Number<br>per<br>Strip | Centers<br>inches | Size of<br>Plate<br>inches          | For<br>Drops<br>number | Used on<br>Switchboards<br>number | List Price<br>each |
|----------|------------------------|-------------------|-------------------------------------|------------------------|-----------------------------------|--------------------|
| 2        | 10                     | $1\frac{3}{8}$    | 15 x 1                              | 4, 19, 35              | 101, 102, 1006, 1010, 1011        | \$ 0.60            |
| 54       | 3                      | $1\frac{3}{8}$    | $4\frac{1}{8} \times 1$             | 19                     | Cordless private exchange         | .18                |
| 56       | 20                     | $1\frac{1}{8}$    | $24\frac{9}{16} \times 1$           | 55, 56                 | 9                                 | 1.20               |
| 57       | 15                     | $1\frac{3}{8}$    | $24\frac{9}{16} \times 1$           | 4, 19, 35              | 1102                              | .90                |
| 58       | 15                     | $1\frac{3}{8}$    | $21\frac{3}{4} \times 1$            | 4, 19, 35              | 105, 1005                         | .85                |
| 59       | 12                     | $1\frac{3}{8}$    | $21\frac{3}{4} \times 1$            | 4, 19, 35              | 105, 1005                         | .75                |
| 64       | 5                      | $1\frac{1}{2}$    | $8\frac{1}{16} \times 1$            | 4, 19, 35              | 106                               | .40                |
| 65       | 5                      | $1\frac{1}{2}$    | $8\frac{1}{16} \times 1\frac{1}{2}$ | 4, 19, 35, 57          | 106, 1101                         | .40                |
| 69       | 10                     | 1                 | $11\frac{3}{16} \times 1$           | 56                     | 10                                | 1.30               |

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## FUSES



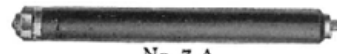
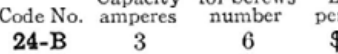
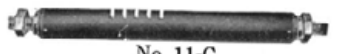
No. 46-A

No. 24-A

These will blow on 50 per cent. increase in current above rating. In ordering specify the code number and ampere rating.

## PLAIN MICA FUSES


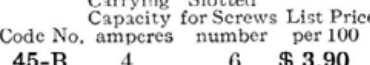
Will Mount on 1 Inch Centers

|   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per hundred |   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per hundred |
|---|----------|------------------------------|---------------------------------|---------------------------|---|----------|------------------------------|---------------------------------|---------------------------|
|  | 24-A     | 1½                           | 10                              | \$ 1.15                   |  | 24-B     | 3                            | 6                               | \$ 1.15                   |
|   | 24-B     | ½                            | 6                               | 1.15                      |   | 24-B     | 4                            | 6                               | 1.15                      |
|  | 24-B     | 1½                           | 6                               | 1.15                      |   | 24-B     | 5                            | 6                               | 1.15                      |
|   | 24-B     | 2                            | 6                               | 1.15                      |   | 24-C     | 2                            | 10                              | 1.15                      |

## ALARM FUSES

Will Mount on 1¼ in. Centers


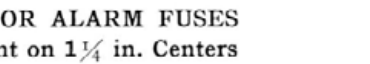
These have a spring which makes contact with an auxiliary bus bar and gives a signal when the fuse blows.

|   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per 100 |   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per 100 |
|---|----------|------------------------------|---------------------------------|-----------------------|---|----------|------------------------------|---------------------------------|-----------------------|
|  | 45-A     | 1½                           | 10                              | \$ 3.90               |  | 45-B     | 4                            | 6                               | \$ 3.90               |
|   | 45-B     | 1½                           | 6                               | 3.90                  |   | 45-B     | 5                            | 6                               | 3.90                  |
|   | 45-B     | 2                            | 6                               | 3.90                  |   | 45-C     | 2                            | 10                              | 3.90                  |
|   | 45-B     | 3                            | 6                               | 3.90                  |   |          |                              |                                 |                       |

## INDICATOR ALARM FUSES

Will Mount on 1¼ in. Centers

These are similar to the alarm type but in addition have a bead which gives a prominent visual signal when a fuse operates.

|   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per hundred |   | Code No. | Carrying Capacity<br>amperes | Slotted<br>for Screws<br>number | List Price<br>per hundred |
|---|----------|------------------------------|---------------------------------|---------------------------|---|----------|------------------------------|---------------------------------|---------------------------|
|  | 46-A     | 1½                           | 10                              | \$ 5.25                   |  | 46-B     | 4                            | 6                               | \$ 5.25                   |
|   | 46-B     | 1½                           | 6                               | 5.25                      |   | 46-B     | 5                            | 6                               | 5.25                      |
|   | 46-B     | 2                            | 6                               | 5.25                      |   | 46-C     | 2                            | 10                              | 5.25                      |
|   | 46-B     | 3                            | 6                               | 5.25                      |   |          |                              |                                 |                           |

D. &amp; W. Ferrule



## TUBULAR FUSES

With Fibre Shell

These are made in 1, 2, 3, 4, 5, 6, 7, and 8 amperes capacity.

The No. 7 fuse is furnished in 6 amperes capacity, and the No. 11 fuse and No. 12 fuse in 7 amperes capacity, unless otherwise specified. The No. 12 fuse contains a heat coil.

| Code No. | Used with Protectors number | List Price<br>each |
|----------|-----------------------------|--------------------|
| 7-A      | 7-A, 7-D, 61-A, 77-A        | \$ 0.09            |
| 11-C     | 58-A, 58-B, 59-A, 79-A      | .135               |
| 12-A     | 12-A                        | .30                |

D. &amp; W. Knife Blade



## TUBULAR FUSES

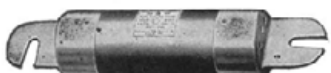
With Porcelain Shell

| Code No. | Capacity<br>amperes | Used  | List Price<br>each |
|----------|---------------------|---|--------------------|
| 47-A     | 7                   | At telephone stations as an outside fuse in connection with No. 60-A protector. . . . . | \$ 0.105           |
| 47-B     | 14                  | At telephone stations as an outside fuse in connection with No. 79-A protector. . . . . | .105               |

## FUSES D. &amp; W.

For power panels; the ferrule and knife blade contacts conform to the rules of the National Board of Fire Underwriters; the type "A" or screw clamp type of contact is used only on battery panels. The fuses are made for two voltages, 250 and 600.

Orders must state the capacity in amperes, the voltage and style of contact.

D. & W. Type A  
Middle Contact

| Style of Contact        | For Fuses<br>amperes |
|-------------------------|----------------------|
| Ferrule                 | 3 to 60              |
| Knife blade             | 61 to 600            |
| Type "A" contact        | 4 to 125             |
| Type "A" middle contact | 126 to 500           |

WRITE FOR LIBERAL DISCOUNTS

## FUSE POSTS

These are furnished with two sizes of fuse screw. The larger screw is furnished with small capacity fuses and the smaller screw for those of large capacity. This is to guard against using a fuse of high capacity in a circuit designed for one of low capacity. The only exception to this rule is in the case of the No. 24-C, No. 45-C and No. 46-C fuses (2 amperes), which with the No. 5-B post are to be used only in the service meter circuits. To further guard against using the wrong fuse, the post and fuse terminal designed for  $1\frac{1}{2}$  ampere capacity circuits are nickel plated and tinned respectively, while those for circuits above  $1\frac{1}{2}$  ampere capacity are copper plated.

In replacing a fuse it should therefore be noted that the finish of the fuse terminals and post is similar.



No. 2



No. 7-B



No. 5-A



No. 11



No. 94013



No. 94016



No. 94027



No. 94023

| Code No. | Finish       | Screw number | Used with Fuse number    | List Price each |
|----------|--------------|--------------|--------------------------|-----------------|
| 2        | Nickel plate | 10           | 24-A                     | \$ 0.105        |
| 3        | Brass plate  | 6            | 24-B                     | .105            |
| 5-A      | Nickel plate | 10           | 24-A, 45-A, 46-A         | .085            |
| 5-B      | Copper plate | 10           | 24-C, 45-C, 46-C         | .085            |
| 6        | Copper plate | 6            | 24-B, 45-B, 46-B         | .085            |
| 7-B      | Nickel plate | 10           | 46-A, No. 10 switchboard | .07             |
| 7-C      | Copper plate | 6            | 46-B, No. 10 switchboard | .07             |

For mounting fuses on power panels.

### For D. & W. Fuses with Screw Clamp Contact—(Type A)

| Code No. | Capacity amperes | Volts | Stud                        | List Price each |
|----------|------------------|-------|-----------------------------|-----------------|
| 8        | 3 to 15          | 250   | No. 10-32.....              | \$ 0.375        |
| 9        | 18 to 30         | 250   | $\frac{5}{16}$ in.-24 ..... | .45             |
|          | or               |       |                             |                 |
| 10       | 3 to 25          | 500   | $\frac{5}{16}$ in.-24 ..... | .525            |
|          | 35 to 60         | 250   |                             |                 |
|          | or               |       |                             |                 |
| 11       | 30 to 50         | 500   | $\frac{1}{2}$ in.-18.....   | .75             |
| 12       | 65 to 125        | 250   | $\frac{1}{2}$ in.-18.....   | 1.45            |
| 13       | 150 to 300       | 250   | $\frac{3}{4}$ in.-18.....   | 2.10            |
| 14       | 350 to 500       | 250   | $\frac{3}{4}$ in.-18.....   | 2.80            |
| 15       | 500 to 600       | 250   | $\frac{7}{8}$ in.-14.....   | 4.20            |

### For D. & W. Fuses, National Electrical Code Standard

|       |            |          |                             |
|-------|------------|----------|-----------------------------|
| 94022 | 3 to 30    | 250      | No. 12-24.....              |
| 94023 | 31 to 60   | 250      | $\frac{5}{16}$ in.-24.....  |
|       | or         |          |                             |
| 94024 | 3 to 30    | 600      | $\frac{5}{16}$ in.-24.....  |
| 94025 | 31 to 60   | 600      | $\frac{1}{2}$ in.-18.....   |
| 94026 | 61 to 100  | 0 to 600 | $\frac{3}{4}$ in.-18.....   |
| 94027 | 101 to 200 | 0 to 600 | 1 in.-14.....               |
| 94028 | 201 to 400 | 0 to 600 | 1 $\frac{1}{4}$ in.-14..... |
|       | 201 to 600 | 0 to 600 |                             |

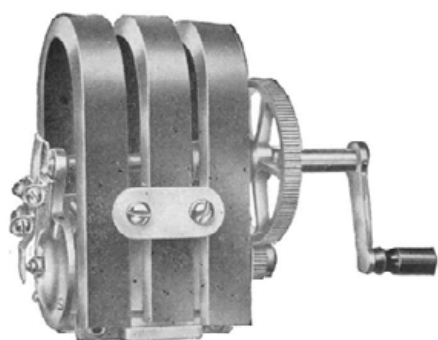
## FUSE CLIPS

For use with D. & W. fuses; for mounting on bus bars; they conform to the rules of the National Board of Fire Underwriters.

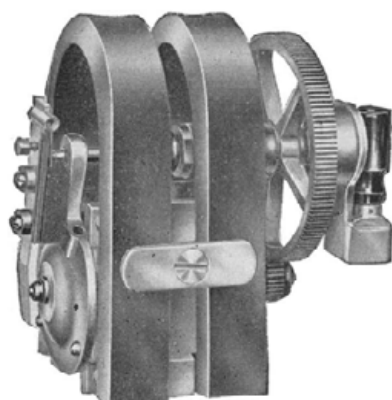
| Code No. | Amperes    | Used with Fuse | Volts    |
|----------|------------|----------------|----------|
| 94013    | 3 to 30    |                | 250      |
| 94015    | 31 to 60   |                | 250      |
|          | or         |                |          |
| 94016    | 3 to 30    |                | 600      |
| 94018    | 31 to 60   |                | 600      |
| 94019    | 61 to 100  |                | 0 to 600 |
| 94020    | 101 to 200 |                | 0 to 600 |
| 94021    | 201 to 400 |                | 0 to 600 |
|          | 401 to 600 |                | 250      |

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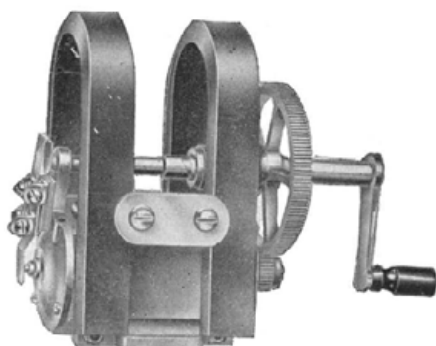
## HAND GENERATORS



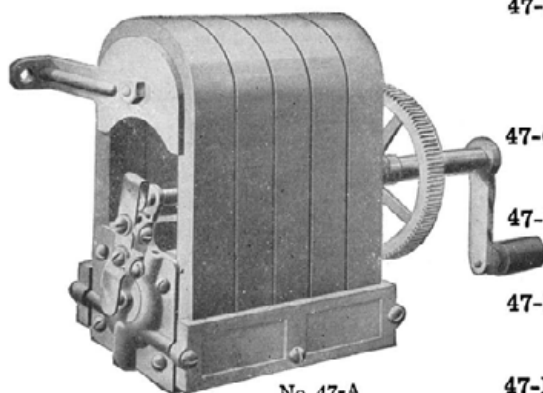
No. 22-A



No. 29-A



No. 22-E



No. 47-A

| Code Number | No. of Bars | Current                   | Open or Closed Circuit | Used in   | List Price each |
|-------------|-------------|---------------------------|------------------------|---|-----------------|
| 22-A        | 3           | Alternating               | Open                   | Magneto telephone sets and switchboards.....                  | \$ 3.15         |
| 22-B        | 3           | Alternating               | Closed                 | 1006-D and 1006-E test sets.....                              | 3.15            |
| 22-D        | 3           | Pulsating                 | Open or Closed         | Magneto telephone sets and switchboards.....                  | 3.15            |
| 22-K        | 3           | Alternating               | Closed                 | 90510 and 90530 test sets.....                                | 3.15            |
| 22-N        | 3           | Alternating               | Closed                 | 90511 and 90512 test sets.....                                | 3.15            |
| 43-B        | 3           | Alternating               | Open                   | 1302-A telephone set .....                                    | 4.50            |
| 29-A        | 2           | Alternating               | Open                   | 1006-A, 1006-B, 1006-C and 1017-A test sets                   | 3.00            |
| 22-E        | 2           | Alternating               | Open                   | Magneto telephone sets .....                                  | 3.15            |
| 20-B        | 5           | Alternating               | Open                   | 1280-A telephone set.....                                     | 5.65            |
| 47-A        | 5           | Alternating               | Open                   | Magneto telephone sets and switchboards 1101, 1102, 1006..... | 6.00            |
| 47-B        | 5           | Pulsating and alternating | Open                   | Magneto telephone sets and switchboards 1101, 1102, 1006..... | 7.00            |
| 47-C        | 5           | Alternating               | Open                   | Switchboards 1005 1010, 1011.....                             | 6.00            |
| 47-D        | 5           | Pulsating and alternating | Open                   | Switchboards 105, 1005.....                                   | 7.00            |
| 47-E        | 5           | Pulsating and alternating | Open                   | Switchboard 106   | 7.00            |
| 47-F        | 5           | Alternating               | Open                   | Switchboard 1012  | 6.00            |

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No. 1



No. 3



No. 6



No. 10



No. 16



No. 3

## GONGS

### FOR RINGERS

The Nos. 1 and 16 may be placed on the regular ringers without any change in the mounting. The others, however, require different gong mountings and gong nuts, as listed under Gong Mountings.

| Code No. | Description                  | Diameter inches | Height inches | Finish            | List Price each |
|----------|------------------------------|-----------------|---------------|-------------------|-----------------|
| 1        | Telephone set gong.          | 2½              | ¾             | Nickel plate..... | \$ 0.07         |
| 3        | Cow gong.                    | 2x1½            | 1½            | Nickel plate..... | .21             |
| 6        | Large sleigh gong.           | 1½              | 1½            | Nickel plate..... | .30             |
| 10       | Large tea gong.              | 2½              | 1½            | Nickel plate..... | .45             |
| 16       | Standard telephone set gong. | 2½              | ¾             | Nickel plate..... | .07             |

### GONG MOUNTINGS

Each of the code numbers in the following list includes a pair of gong mountings and No. 2 includes also the necessary screws for fastening the gongs to the mountings. The gong nuts listed below must be ordered separately, for example:

- 1-No. 3 gong mounting  
2-P-19097 gong nuts

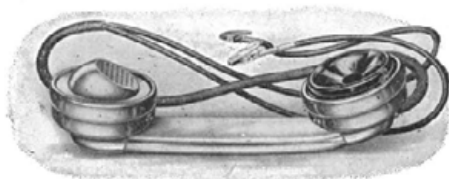
| Code No. | Length of Post inches | Used with Gongs | Gong Nuts | Finish            | List Price each |
|----------|-----------------------|-----------------|-----------|-------------------|-----------------|
| 2        | ¾                     | No. 6.          |           | Nickel plate..... | \$ 0.15         |
| 3        | 1½                    | Nos. 3 and 10.  | P-19097   | Nickel plate..... | .165            |

### GONG NUTS

P-19097

\$ 0.0275

## HAND SETS



No. 1001

| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 1001     | Includes No. 1 hand set handle, No. 244-W transmitter, No. 131-W receiver and 3 ft. two conductor cord, code No. 348 which has two spring clips for lineman's testing..... | \$ 7.50         |

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## Hand Sets—Continued



No. 1002-A

Code No.  
1002-A

Description  
For use in place of a regular local battery bridging or central battery desk stand or transmitter arm. Includes No. 141-W receiver, No. 267-W transmitter and No. 319 cord .....

List Price  
each

\$ 6.35

## HAND SET HANDLES



No. 1

Code No.  
1

Description  
For use with street railway telephone sets and line-man's hand set No. 1001. It is suitable for the No. 244-W transmitter and No. 131-W receiver.....

List Price  
each

\$ 1.50

## HEAT COILS



No. 4-A

Code No.  
4-A

Description  
Black shell for magneto equipments.

Used with Protectors  
numbers

4-A, 65-A, 78-A, 84-A

List Price  
each

\$ 0.105

41

Red shell for central battery equipments.

4-C 65-B, 78-B, 84-B

.105



No. 66

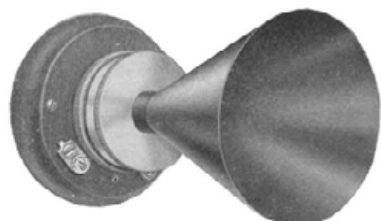
66

Brass dummy.

4-A, 4-C, 65-A, 65-B,  
78-A, 78-B, 84-A, 84-B

.0075

## HOWLER



No. 1-A

Used in place of a bell for railway composite systems when signalling is accomplished by means of a high frequency interrupter.

Code No.

Description

List Price  
each

1-A Mounted on wood base for use with No. 1312-A telephone set .....

\$ 9.40

1-B With iron bracket for mounting in No. 1314-A telephone set .....

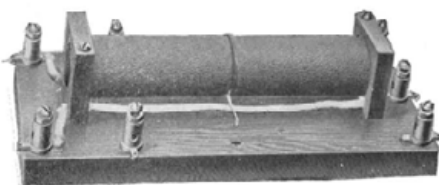
9.10

## INDUCTION COILS



No. 5

The Nos. 10, 23 and 24 induction coils are mounted on wooden bases, the others are unmounted, unless otherwise specified.



No. 10

Code No.  
5Size  
inches  
4 1/4 x 1 3/8Used with  
Nos. 1312-A and 1314-A railway composite telephone setsList Price  
each

\$ 1.50

10

8 1/2 x 3 1/2

Operator's telephone sets in the following switchboards:  
Nos. 105, 1005, 1006, 1010, 1011, 1101, 1102.....

2.00

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No. 13

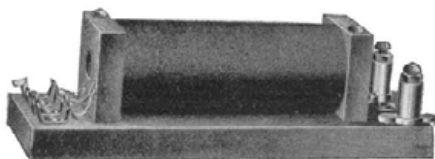
## Induction Coils—Continued

| Code No. | Size inches        | Used with                   | List Price each |
|----------|--------------------|-----------------------------|-----------------|
| 13       | 3 $\frac{1}{4}$ x1 | Magneto telephone sets..... | \$ 0.47         |



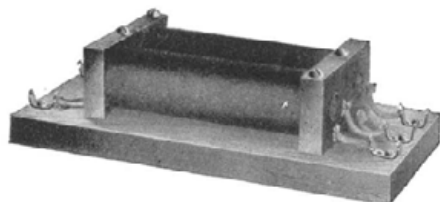
No. 20

|    |                                  |                                |     |
|----|----------------------------------|--------------------------------|-----|
| 20 | 4 $\frac{1}{4}$ x1 $\frac{3}{8}$ | Central battery telephone sets | .70 |
|----|----------------------------------|--------------------------------|-----|



No. 23

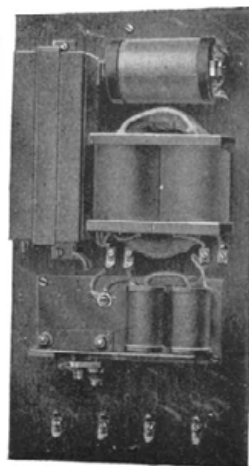
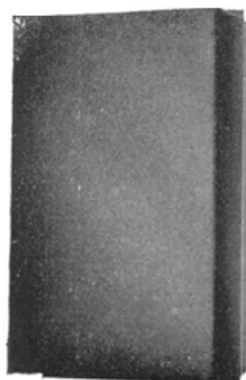
|    |                    |   |      |
|----|--------------------|---|------|
| 23 | 6 $\frac{1}{4}$ x2 | Operator's telephone sets in the following switchboards: Nos. 9, 10, 106, 1012, and in Nos. 4, 101, 102 private exchanges. .... | 1.10 |
|----|--------------------|---|------|



No. 24

|    |                                  |  |      |
|----|----------------------------------|--|------|
| 24 | 6 $\frac{3}{4}$ x3 $\frac{1}{4}$ | Operator's telephone sets in No. 1 switchboards..... | 1.50 |
|----|----------------------------------|--|------|

## INTERRUPTERS



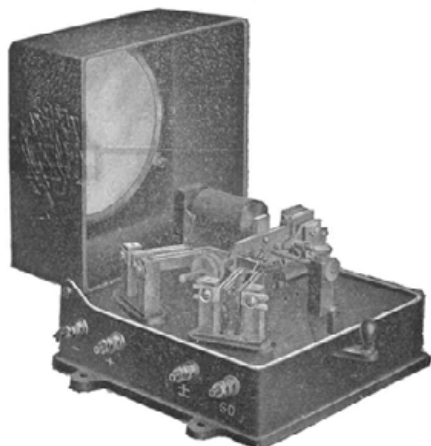
No. 100-A

| Code No. | Description and Use   | List Price each |
|----------|---|-----------------|
| 65-A     | A wooden box containing:<br>1 vibrating sending relay, 100 ohms,<br>1 No. 21-E condenser, 1 No. 8 repeating coil, 1 resistance, 26,000 ohms. ...<br>Base is 10 $\frac{3}{16}$ in. x 5 $\frac{3}{4}$ in.<br>Used with the ringing set for composite telephone lines. | \$ 18.40        |
| 100-A    | Same as No. 65-A, except base is 10 $\frac{3}{4}$ in. x 5 $\frac{3}{4}$ in., and is designed for mounting on a rack.....  | 18.40           |

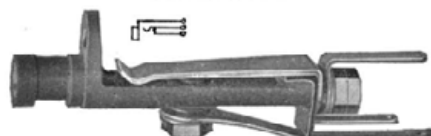
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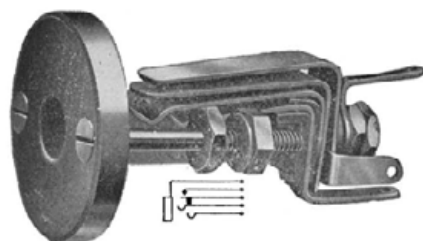
No. 84-A, closed



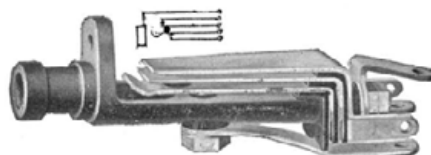
No. 84-A, open



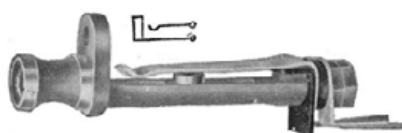
No. 3



No. 77



No. 91



No. 99

## Interruption—Continued

Code No.

Description and Use

List Price  
each

84-A

An electrically operated pole changer producing alternating and positive and negative pulsating currents from a source of direct electro-motive force. Operating coil wound for current from a 24-volt battery. Ringing current taken from a battery of dry cells. Used for supplying ringing current in small exchanges. Dry cells are not included. Size of base, 8 in. x 8 in. . . .

\$ 24.70

84-B

Same as No. 84-A, except the operating coil is wound for current from two primary cells in series (Gladstone-Lalande batteries usually used). Cells are not included. . . . .

24.00

We make a variety of interrupter attachments which are for mounting on ringing machines and which are intended to interrupt battery current supply and ringing current supply in various circuits. Interrupters can be supplied to meet any requirements as to frequency of interruptions for such uses as tone test, howler, busy back and machine ringing.

## WARNER POLE CHANGER

Operated by One Cell of Closed Circuit Battery

Code Word  
Hygiocome  
Hygiologie

List No.  
52039  
52040

Description  
Standard  
Selective

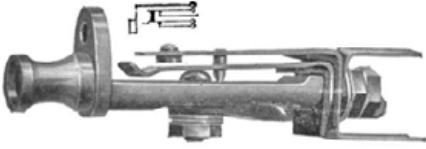

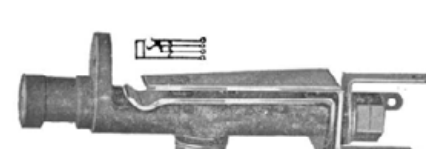
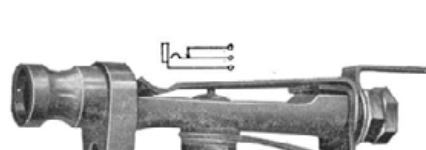
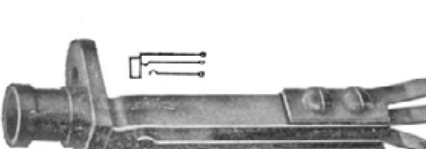
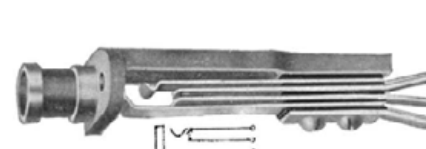
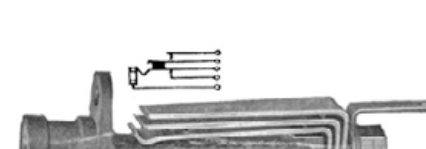


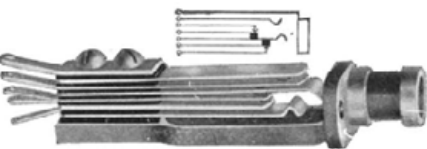
## JACKS

The jacks designed for mountings must be ordered in connection with them. See note under JACK MOUNTINGS.

| Code No. | Contact Points                                      | Used with Plugs number | Used with Jack Mountings number              | List Price each   |
|----------|---|------------------------|--|---|
| 3        | Not platinum  | 47,116                 | Singly. . . . .                              | \$ 0.17   |
| 49       | None  | 110                    | 1, 2, 3, 114. . . . .                        | 5 per strip .71<br>10 per strip .48<br>20 per strip .38 |
| 77       | Platinum  | 85                     | Singly. . . . .                              | .83   |
| 81       | Platinum  | 110                    | 6, 7. . . . .                                | 10 per strip .68<br>20 per strip .53                    |
| 91       | Platinum make contact<br>Break contact not platinum | 47, 103 or 112 for two | Singly and 30, 78, 80 jack mounting. . . . . | singly .48<br>mounted .78                               |
| 92       | None  | 109                    | 18, 19, 113. . . . .                         | 10 per strip .48<br>20 per strip .38                    |
| 99       | None  | 47, 103 or 112 for two | Singly and 30, 78, 80 jack mounting. . . . . | singly .20<br>mounted .50                               |

WRITE FOR LIBERAL DISCOUNTS

## Jacks—Continued

|   | Code No. | Contact Points | Used with Plugs number | Used with Jack Mountings number                                | List Price each |
|---|----------|----------------|------------------------|--|-----------------|
| <br>No. 102    | 102      | Not Platinum   | 47                     | Singly.....  | \$ 0.42         |
| <br>No. 103    | 103      | Platinum       | 47                     | Singly.....  | .36             |
| <br>No. 107    | 107      | Platinum       | 47                     | Singly.....  | .54             |
| <br>No. 108  | 108      | Platinum       | 47                     | Singly.....  | .39             |
| <br>No. 117  | 117      | None           | 110                    | Singly.....  | .20             |
| <br>No. 118  | 118      | Platinum       | 110                    | Singly.....  | .38             |
| <br>No. 124  | 124      | Platinum       | 47                     | Singly.....  | .60             |
| <br>No. 132  | 132      | None           | 126                    | Singly.....  | 3.38            |
| <br>No. 140  | 140      | Platinum       | 110                    | Singly.....  | .45             |
| <br>No. 141  | 141      | Platinum       | 110                    | 108, 109, 110, 112,<br>10 per strip .....<br>20 per strip..... | .68<br>.53      |
| <br>No. 132  |          |                |                        |  |                 |
| <br>No. 140 |          |                |                        |  |                 |

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## JACK FASTENERS



No. 4

No. 16

These are for holding the jack and lamp socket mountings in place.

| Code No. | Used with Jack number | List Price each |
|----------|-----------------------|-----------------|
| 4        | 49, 81                | \$ 0.06         |
| 16       | 92, 141               | .045            |

## JACK MOUNTINGS

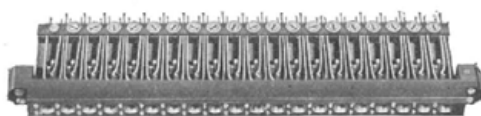
For central battery exchanges the multiple jack strips in each panel are separated into groups of five by thin white holly strips. Each group consists of one hundred jacks numbered 0 to 99. Each strip is divided into four parts, each having five jacks, by a distinctive mark so that an operator may readily choose the proper ones. It is also usual to furnish these jack mountings with a groove on the lower edge for marking the jacks for various purposes such as signifying that several adjoining jacks are connected to one private exchange.

In ordering specify the number of jacks and the code number, the code number of the mounting with the number per strip together with the numbering desired. If holly strips are to be attached to the lower edge of any, the order should specify which ones. The proper number of jacks should be ordered to fully equip the mountings.

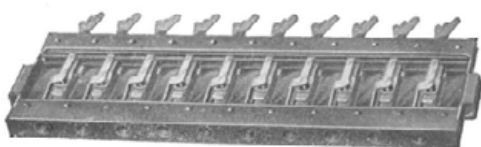
### Not Arranged for Number Plates



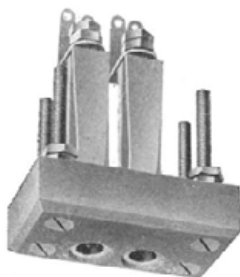
No. 1



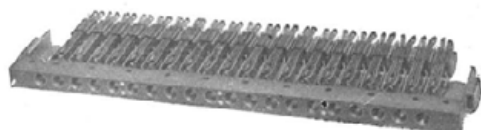
No. 7



No. 18



No. 80

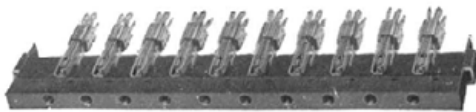


No. 108

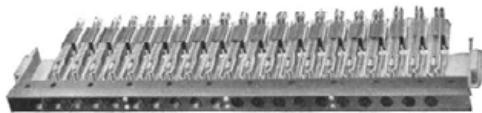
| Code No. | Used with Jack number | Number per Strip | Used with  | List Price   |
|----------|-----------------------|------------------|--|--|
| 1        | 49                    | 10               | No. 49 jack, No. 1 switchboard.                                    | The price of the jack mounting is included in the price of the jack. |
| 3        | 49                    | 20               | No. 49 jack, No. 1 switchboard.                                    |  |
| 6        | 81                    | 10               | No. 9 switchboard.   |  |
| 7        | 81                    | 20               | No. 9 switchboard.   |  |
| 18       | 92                    | 10               | No. 92 jack, No. 1 switchboard.                                    |  |
| 30       | 91, 99                | 4                | All switchboards for operator's telephone jacks.                   |  |
| 78       | 91, 99                | 6                | No. 1 switchboard for operator's and supervisor's telephone jacks. |  |
| 80       | 91, 99                | 2                | All switchboards for operator's telephone jacks.                   |  |
| 108      | 141                   | 20               | No. 10 switchboard.  |  |

WRITE FOR LIBERAL DISCOUNTS

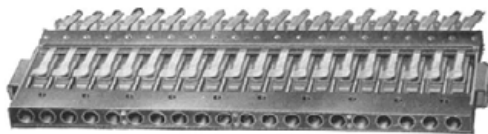
## Jack Mountings—Continued



No. 109



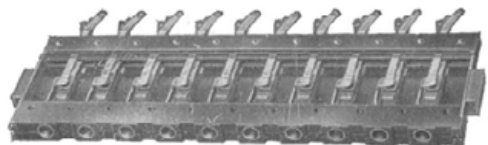
No. 112



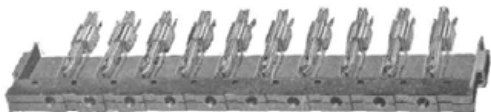
No. 113



No. 114



No. 19



No. 110

| Code No. | Used with Jack number | Number per Strip | Used with                       | List Price   |
|----------|-----------------------|------------------|---------------------------------|--|
| 109      | 141                   | 10               | No. 10 switchboard.             | The price of the jack mounting is included in the price of the jack. |
| 112      | 141                   | 20               | No. 10 switchboard.             |  |
| 113      | 92                    | 20               | No. 92 jack, No. 1 switchboard. |  |
| 114      | 49                    | 20               | No. 49 jack, No. 1 switchboard. |  |

## Arranged for Number Plates

These are not numbered. In ordering specify the number of jacks and the code number, the code number of the mounting with the number per strip. The proper number of jacks should be ordered to fully equip the mountings.

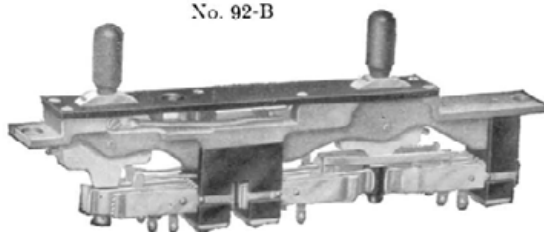
| Code No. | Used with Jack number | Number per Strip | For Number Plates | Used with                       | List Price  |
|----------|-----------------------|------------------|-------------------|---------------------------------|---|
| 2        | 49                    | 10               | 4, 31, 109        | No. 49 jack, No. 1 switchboard. | The price of the jack mounting is included in the price of the jacks. |
| 19       | 92                    | 10               | 6, 30, 108        | No. 92 jack, No. 1 switchboard. |   |
| 110      | 141                   | 10               | 5-A               | No. 10 switchboard.             |   |

## KEYS

These represent a few of the commonly used types which we manufacture. We have a very complete line of standard keys, from which can be selected those which, we believe, will fulfil any requirements. All contacts used in the talking circuit are made of platinum.



No. 92-B

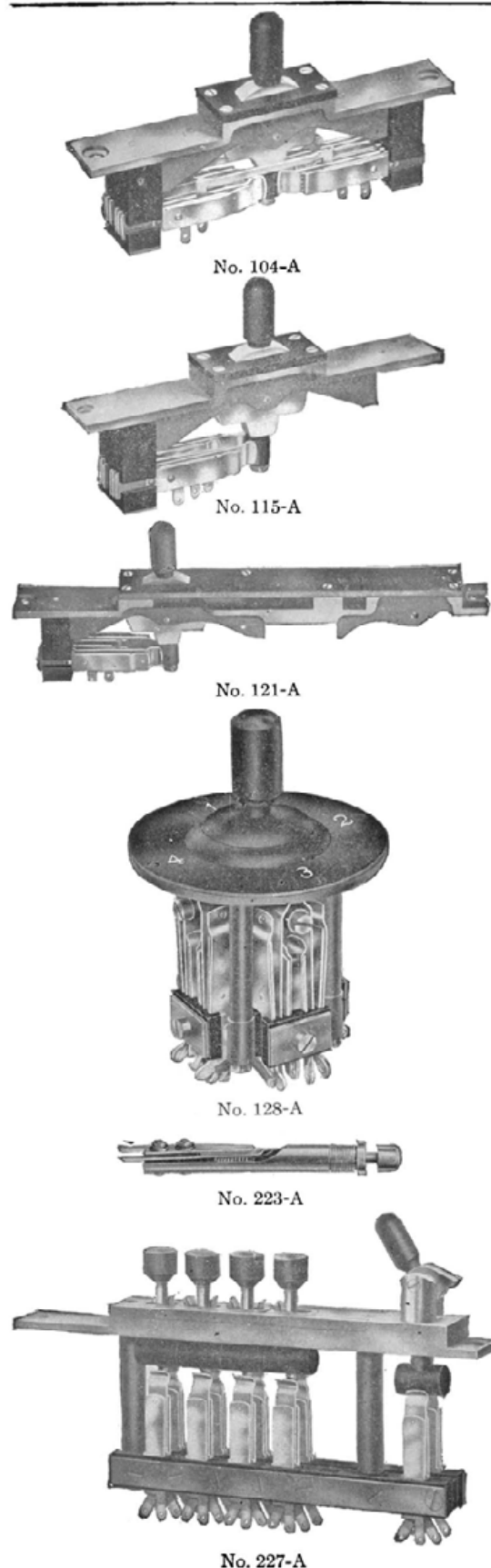


No. 102-A

| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 69-A     | Push button type, mounted in strips; used in order wire circuits.....                                  | \$ 0.60         |
| 242-A    | Push button type, mounted in strips; used in order wire circuits where local contact is necessary..... | 1.00            |
| 92-B     | Single brass listening key; locks when operated.....   | .75             |

WRITE FOR LIBERAL DISCOUNTS

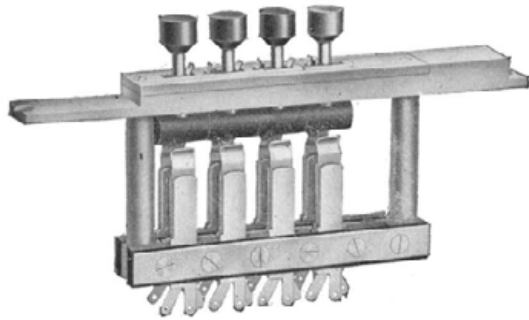
## Keys—Continued



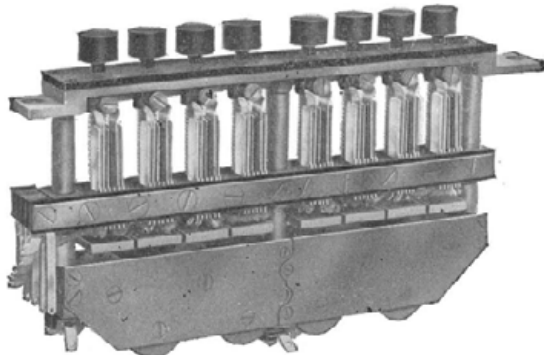
| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 102-A    | Listening and two-party ringing key with indicator.....  | \$ 3.15         |
| 110-A    | Listening and two-party ringing key with indicator; has local contact springs on listening end, .....  | 3.30            |
| 124-A    | Double listening key.....  | 2.80            |
| 156-A    | Listening and two-party ringing key without indicator; has local contact springs on listening end..... | 2.85            |
| 104-A    | Listening and single ringing key....   | 1.75            |
| 116-A    | Listening and single ringing key; has local contact springs on listening end.....                      | 1.90            |
| 184-A    | Listening and single ringing key....   | 1.80            |
| 115-A    | Single ringing key.....  | 1.20            |
| 155-A    | Single listening key.....  | 1.45            |
| 121-A    | Single listening key.....  | 1.60            |
| 123-A    | Single ringing key .....   | 1.35            |
| 128-A    | Four party ringing switching key...  | 6.00            |
| 223-A    | Single service meter key .....   | .55             |
| 227-A    | Four party ringing and listening key with indicator, .....   | 6.00            |

WRITE FOR LIBERAL DISCOUNTS

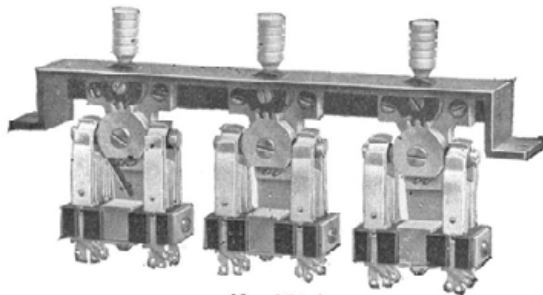
## Keys—Continued



No. 228-B



No. 237-A



No. 371-A



No. 375-A



No. 375-A



No. 378-A

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 228-B    | Four party ringing key with indicator   | \$ 4.90         |
| 237-A    | Double four party machine ringing key; button is held depressed until party answers.....        | 14.25           |
| 251-A    | Ringing and listening key; used on cordless private exchange switch-board.....                  | 5.25            |
| 371-A    | Ten line push button key used in intercommunicating system.....                                 | 8.80            |
| 371-B    | Twenty line push button key used in intercommunicating system.....                              | 15.55           |
| 371-C    | Thirty line push button key used in intercommunicating system.....                              | 22.30           |
| 375-A    | Push button type; single mounted ringing key.....   | .70             |
| 378-A    | Plunger type listening key, single mounted; used with key lever ...                             | .70             |
| 381-A    | Plunger type listening key with local contact springs, single mounted; used with key lever..... | .85             |

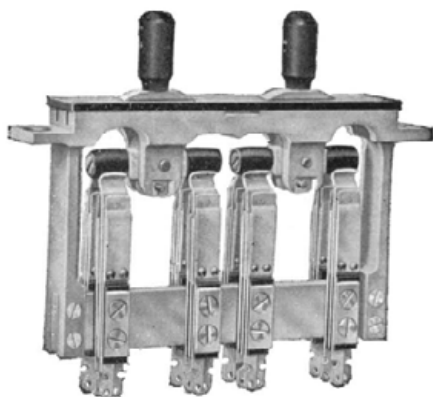
WRITE FOR LIBERAL DISCOUNTS



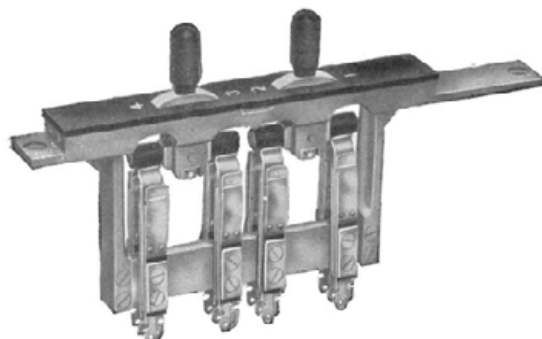


No. 406-A

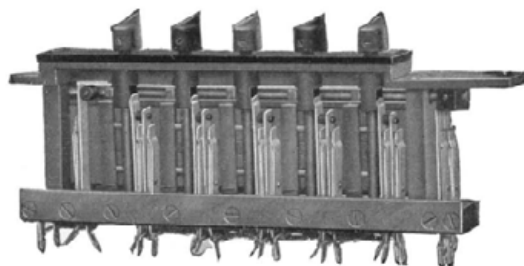
## Keys—Continued



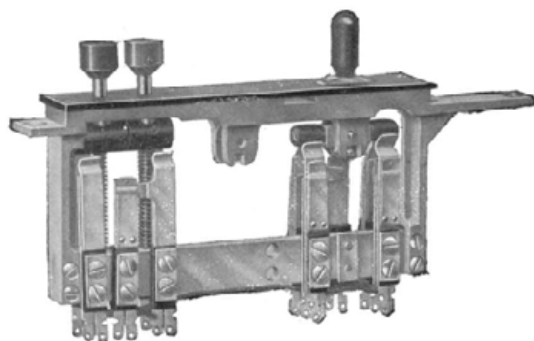
No. 438-A



No. 439-A



No. 442-B



No. 462-A

| Code No. | Description   | List Price<br>each |
|----------|---|--------------------|
| 406-A    | Single switching key; locking. ....   | \$0.75             |
| 438-A    | Four party ringing key.....   | 4.50               |
| 439-A    | Four party ringing key.....   | 4.90               |
| 442-B    | Four party machine ringing and<br>listening key; ringing key remains<br>operated until party answers..... | 8.55               |
| 462-A    | Listening, single party ringing, coin<br>collector and service meter key ..                               | 4.60               |

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 WRITE FOR LIBERAL DISCOUNTS



No. 2-A



No. 6-A

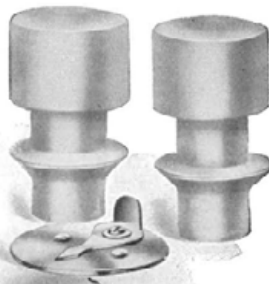
## KEY LEVERS

These are used with the No. 378 type plunger keys.

| Code No. | Operated Position<br>of Handle | Handle                  | List Price<br>each |
|----------|--------------------------------|-------------------------|--------------------|
| 2-A      | Vertical                       | Hard rubber, black..... | \$ 0.45            |
| 4-A      | Horizontal                     | Hard rubber, black..... | .45                |
| 6-A      | Vertical                       | Hard rubber, black..... | .38                |
| 6-B      | Vertical                       | Hard rubber, red.....   | .38                |
| 14-A     | Horizontal                     | Hard rubber, black..... | .38                |
| 14-B     | Horizontal                     | Hard rubber, red.....   | .38                |



No. 303



No. 1

## KEY MOUNTINGS

These are used with the Nos. 69 and 242 type order wire keys. They are made in various lengths with different numbers of keys per strip to mount with all our standard cord circuit and trunk keys. The width of these mountings is  $\frac{1}{2}$  in. for No. 69 type keys and  $\frac{5}{8}$  in. for No. 242 type keys.

| Code No. | Number per Strip | Used with<br>Keys Number | List Price<br>each  |
|----------|------------------|--------------------------|---|
| 300      | 5                | 242                      | The price for Nos.<br>69 and 242 keys<br>includes the<br>mounting |
| 303      | 8                | 69                       |   |
| 304      | 8                | 242                      |   |
| 314      | 5                | 69                       |   |
| 315      | 4                | 69                       |   |

## KEY INDICATORS

| Code No. | Use  | List Price<br>each |
|----------|--|--------------------|
| 1        | With No. 375 type keys to indicate<br>which key was last operated..... | \$ 0.15            |

## LAMPS

The overall diameter of the No. 2 type lamp is .3075 in. and of the No. 4 type .515 in.



No. 2



No. 4

| Code No. | Voltage  | Current Consumption |                    | Used with<br>Lamp Sockets<br>Number | List Price<br>each |
|----------|----------|---------------------|--------------------|-------------------------------------|--------------------|
|          |          | Minimum<br>Amperes  | Maximum<br>Amperes |                                     |                    |
| 2-A      | 4        | .17                 | .21                | 12, 13, 30, 32                      | \$ 0.225           |
| 2-B      | 4        | .27                 | .31                | 12, 13, 30, 32                      | .27                |
| 2-C      | 15       | .09                 | .12                | 12, 13, 30, 32                      | .27                |
| 2-D      | 16       | .27                 | .31                | 12, 13, 30, 32                      | .27                |
| 2-E      | 20       | .09                 | .12                | 12, 13, 30, 32                      | .27                |
| 2-F      | 12       | .097                | .12                | 12, 13, 30, 32                      | .225               |
| 2-G      | 24       | .075                | .105               | 12, 13, 30, 32                      | .225               |
| 2-H      | 6        | .27                 | .31                | 12, 13, 30, 32                      | .27                |
| 2-J      | 24       | .025                | .035               | 12, 13, 30, 32                      | .27                |
| 2-K      | 30       | .09                 | .12                | 12, 13, 30, 32                      | .27                |
| 2-L      | 10       | .24                 | .26                | 12, 13, 30, 32                      | .27                |
| 2-N      | 6        | .12                 | .16                | 12, 13, 30, 32                      | .27                |
| 2-P      | 8        | .085                | .10                | 12, 13, 30, 32                      | .27                |
| 2-R      | 18       | .09                 | .12                | 12, 13, 30, 32                      | .27                |
| 2-T      | 35 to 47 | .03                 |                    | 12, 13, 30, 32                      | .27                |
| 4-A      | 4        | .50                 | .60                | 16                                  | .39                |
| 4-B      | 8        | .50                 | .60                | 16                                  | .39                |
| 4-C      | 22       | .17                 | .21                | 16                                  | .39                |
| 4-D      | 12       | .27                 | .31                | 16                                  | .39                |
| 4-E      | 18       | .17                 | .21                | 16                                  | .39                |
| 4-F      | 20       | .17                 | .21                | 16                                  | .39                |
| 4-G      | 24       | .15                 | .185               | 16                                  | .39                |

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## LAMP BRACKETS



No. 1

For use on power switchboards. Comprises a bracket fitted with Edison key socket, lamp shade holder, green porcelain half shade and a 16 c. p. lamp. Voltage of lamp to be called for on the order.....

List Price  
each

\$ 1.35

## LAMP CAPS

No. 2 TYPE (Used with Nos. 12 and 13 Lamp Sockets)



No. 2-C



No. 2-J



No. 2-AY



No. 4-A



No. 8-A

| Code No. | Symbol | Color             | List Price<br>each | Code No. | Symbol | Color  | List Price<br>each |
|----------|--------|-------------------|--------------------|----------|--------|--|--------------------|
| 2-A      | ⊙      | White Opalescent  | \$0.12             | 2-AC     | ⊙      | Red.....   | \$0.12             |
| 2-B      | ⊙      | White Opalescent  | .12                | 2-AD     | ⊙      | White Opalescent                                 | .12                |
| 2-C      | ⊕      | White Opalescent  | .12                | 2-AE     | ⊕      | Red.....   | .15                |
| 2-D      | ⊙      | White Opalescent  | .12                | 2-AF     | ⊕      | White Opalescent                                 | .12                |
| 2-E      | ⊙      | White Opalescent  | .12                | 2-AG     | ⊕      | White Opalescent                                 | .12                |
| 2-F      | ⊙      | White Opalescent  | .12                | 2-AH     | ⊙      | White Opalescent                                 | .12                |
| 2-G      | ⊕      | White Opalescent  | .12                | 2-AJ     | ⊕      | White Opalescent                                 | .12                |
| 2-H      | ⊙      | Red.....          | .12                | 2-AK     | ⊕      | White Opalescent                                 | .12                |
| 2-J      | ⊕      | White Opalescent  | .12                | 2-AL     | ⊙      | Green.....                                       | .15                |
| 2-K      | ⊕      | White Opalescent  | .12                | 2-AM     | ⊕      | White Opalescent                                 | .12                |
| 2-L      | ⊙      | Green.....        | .12                | 2-AN     | ⊕      | White Opalescent                                 | .12                |
| 2-M      | ⊕      | White Opalescent  | .12                | 2-AP     | ⊕      | White Opalescent                                 | .12                |
| 2-N      | ⊙      | Red.....          | .12                | 2-AR     | ⊙      | Red.....   | .15                |
| 2-P      | ⊕      | Jeweled Red.....  | .15                | 2-AS     | ⊕      | White Opalescent                                 | .12                |
| 2-R      | ⊕      | Jeweled Blue..... | .15                | 2-AT     | ⊕      | White Opalescent                                 | .12                |
| 2-S      | ⊕      | Jeweled Green.... | .15                | 2-AU     | ⊕      | White Opalescent                                 | .12                |
| 2-T      | ⊕      | Red.....          | .15                | 2-AW     | ⊕      | White Opalescent                                 | .12                |
| 2-U      | ⊙      | Amber.....        | .12                | 2-AY     | ⊙      | White Opalescent                                 | .075               |
| 2-W      | ⊙      | Blue.....         | .12                | 2-AZ     | ⊕      | Red.....   | .15                |
| 2-Y      | ⊙      | Green.....        | .15                | 2-BA     | ⊕      | White Opalescent En-<br>graved as Specified, ... | .15                |
| 2-Z      | ⊕      | White Opalescent  | .12                | 2-BC     | ⊕      | White Opalescent                                 | .12                |
| 2-AA     | ⊕      | Red.....          | .15                | 2-BD     | ⊕      | White Opalescent                                 | .12                |
| 2-AB     | ⊕      | White Opalescent  | .12                | 2-BE     | ⊕      | Green.....                                       | .15                |

No. 4 TYPE (Used with Nos. 16 and 32 Lamp Sockets)

|     |   |                   |      |     |   |                  |      |
|-----|---|-------------------|------|-----|---|------------------|------|
| 4-A | ⊙ | White Opalescent  | .15  | 4-E | ⊕ | White Opalescent | .225 |
| 4-B | ⊕ | Jeweled Red.....  | .225 | 4-F | ⊙ | Green.....       | .225 |
| 4-C | ⊕ | Jeweled Green.... | .225 | 4-G | ⊕ | White Opalescent | .225 |
| 4-D | ⊙ | Red... ..         | .225 | 4-H | ⊕ | White Opalescent | .225 |

No. 8 TYPE (Used with No. 30 Lamp Socket)

|     |   |                     |     |     |   |                  |     |
|-----|---|---------------------|-----|-----|---|------------------|-----|
| 8-A | ⊙ | White Opalescent    | .06 | 8-G | ⊕ | White Opalescent | .12 |
| 8-B | ⊙ | Clear.....          | .12 | 8-H | ⊕ | White Opalescent | .12 |
| 8-C | ⊙ | Clear, Flat Top.... | .26 | 8-J | ⊕ | White Opalescent | .12 |
| 8-D | ⊙ | Red.....            | .12 | 8-K | ⊙ | White Opalescent | .12 |
| 8-E | ⊙ | White Opalescent    | .12 | 8-L | ⊙ | Green.....       | .12 |
| 8-F | ⊙ | White Opalescent    | .12 |     |   |                  |     |

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No. 68-A

## Lamp Caps—Continued

No. 68 TYPE (Used with Nos. 12 and 13 Lamp Sockets)

| Code No. | Color                 | List Price each |
|----------|-----------------------|-----------------|
| 68-A     | White Opalescent..... | \$ 0.09         |
| 68-B     | Red.....              | .135            |
| 68-C     | Green.....            | .135            |



No. 69-A

No. 69 TYPE (Used with Nos. 16 and 32 Lamp Sockets)

|      |   |                       |      |
|------|---|-----------------------|------|
| 69-A | ○ | White Opalescent..... | .165 |
| 69-B | ⊗ | Jeweled Red.....      | .24  |
| 69-C | ⊗ | Jeweled Green.....    | .24  |
| 69-D | ⊕ | White Opalescent..... | .24  |

## LAMP GUARDS

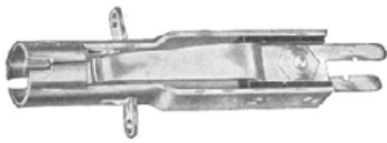


No. 21

| Code No. | Used with Lamp Sockets number | List Price each |
|----------|-------------------------------|-----------------|
| 21       | 12, 13                        | \$ 0.03         |
| 22       | 16, 32                        | .03             |

## LAMP SOCKETS

## Mounted Singly



No. 13

| Code No. | Used with Lamps number | Used with Lamp Caps number | Used with Thickness of Shelf inches   | List Price each |
|----------|------------------------|----------------------------|---|-----------------|
| 13       | 2 type                 | 2, 68                      | $\frac{7}{8}$ .....   | \$ 0.23         |
| 16       | 4 type                 | 4, 69, 70                  | $\frac{7}{8}$ , $1\frac{3}{16}$ , $1\frac{1}{4}$ , $1\frac{13}{16}$ as specified..... | .75             |
| 32       | 2 type                 | 4, 69, 70                  | $\frac{7}{8}$ , $1\frac{3}{16}$ , $1\frac{1}{4}$ , $1\frac{13}{16}$ as specified..... | .75             |

## Mounted in Strips

These must be ordered in connection with the lamp socket mountings. See note under LAMP SOCKET MOUNTINGS.

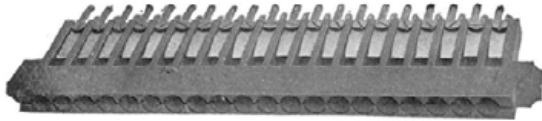
| Code No. | Used with Lamps number | Used with Lamp Caps number | Suitable for Lamp Socket Mountings number | List Price each  |
|----------|------------------------|----------------------------|---|--|
| 12       | 2 type                 | 2                          | 102, 117, 118, 122, 134, 136, 137         | 5 per strip \$0.75<br>10 per strip .53<br>20 per strip .38 |
| 30       | 2 type                 | 8                          | 101, 102, 111, 118 .....                  | 10 per strip .53<br>20 per strip .38                       |

WRITE FOR LIBERAL DISCOUNTS





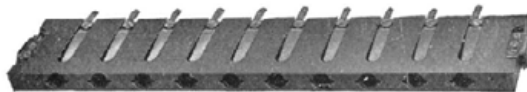
No. 101



No. 102



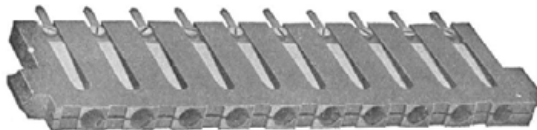
No. 118



No. 136



No. 137



No. 122



No. 134



No. 2

## LAMP SOCKET MOUNTINGS

In ordering specify the number of lamp sockets and the code number together with the code number of the lamp socket mounting. The proper number of lamp sockets should be ordered to fully equip the mountings.

### Not arranged for Number Plates

| Code No. | Used with Lamp Sockets No. | No. per Strip | Used with                      | List Price  |
|----------|----------------------------|---------------|--------------------------------|---|
| 101      | 30                         | 10            | No. 49 jack, No. 1 switchboard | The price of the lamp socket mounting is included in the price of the lamp socket |
| 111      | 30                         | 10            | No. 92 jack, No. 1 switchboard |   |
| 102      | 12, 30                     | 20            | No. 49 jack, No. 1 switchboard |   |
| 118      | 30                         | 20            | No. 92 jack, No. 1 switchboard |   |
| 136      | 12                         | 10            | No. 10 switchboard             |   |
| 137      | 12                         | 20            | No. 10 switchboard             |   |

### Arranged for Number Plates

| Code No. | Used with Lamp Sockets No. | No. per Strip | For Number Plates | Used with                      | List Price   |
|----------|----------------------------|---------------|-------------------|--------------------------------|--|
| 122      | 12                         | 10            | 4, 31, 109        | No. 49 jack, No. 1 switchboard | The price of the lamp socket mounting is included in the price of the lamp socket. |
| 134      | 12                         | 10            | 6, 30, 108        | No. 92 jack, No. 1 switchboard |  |

## LINE POLES

Code No.

List Price each

- 2 Pole designed to make the line connection for portable railway composite set No. 1314-A. It consists of three six foot sections and one No. 268 cord 100 feet long. The two upper sections are made of bamboo, the lower section of hickory.

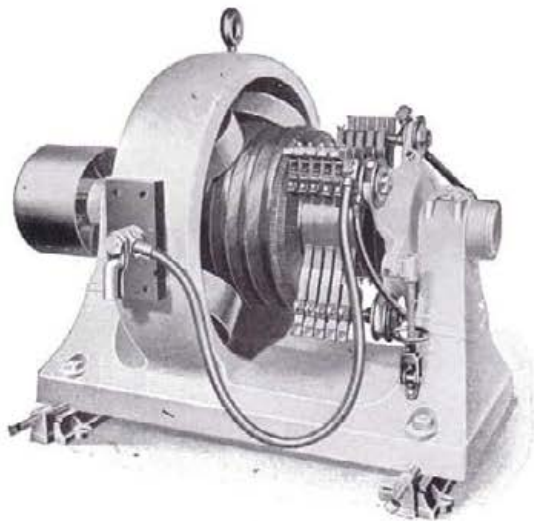
\$ 11.25

WRITE FOR LIBERAL DISCOUNTS

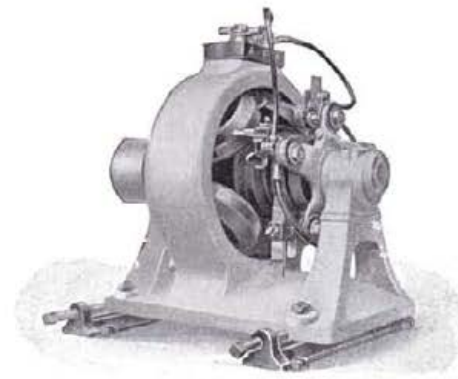
## MACHINES

### CHARGING GENERATORS

These have been designed for charging storage batteries in telephone exchanges. They are especially constructed to reduce to a minimum the chances of noise being introduced into the telephone circuits while the battery is being charged.



No. 7-A



No. 1-A

### CHARGING GENERATORS, BELT DRIVEN

These are suitable for charging eleven cells in series. If there are two batteries (each of eleven cells) the fact should be stated in the order so that the proper rheostat may be determined. The rheostat will regulate the voltage between 22 and 30.

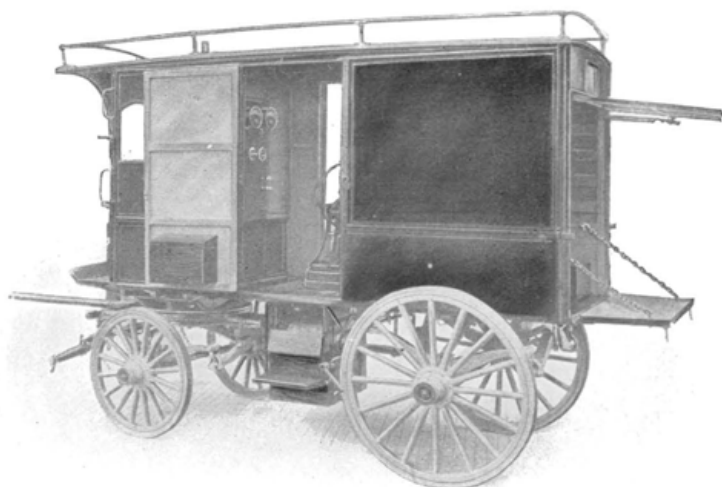
When ordering a new rheostat to replace one in service, the name plate data of the machine should be stated in the order.

| Code No. | Type | Output  |       |        | Standard Speed<br>R.P.M. | Diameter of Pulley<br>inches | Horse Power<br>Required to Drive | Length Including Pulley<br>inches | Size.<br>Width Including Slide Rails<br>inches | Approximate Shipping Weight<br>pounds |
|----------|------|---------|-------|--------|--------------------------|------------------------------|----------------------------------|-----------------------------------|--|---------------------------------------|
|          |      | Amperes | Volts | Watts  |                          |                              |                                  |                                   |  |                                       |
| 1-A      | M-1  | 25      | 30    | 750    | 1,750                    | 8                            | 11                               | 20½                               | 20   | 275                                   |
| 2-A      | M-2  | 50      | 30    | 1,500  | 1,750                    | 8                            | 3                                | 23½                               | 20   | 385                                   |
| 3-A      | M-3  | 100     | 30    | 3,000  | 1,150                    | 8                            | 5½                               | 24½                               | 24   | 575                                   |
| 4-A      | M-4  | 175     | 30    | 5,250  | 1,150                    | 8                            | 9½                               | 28½                               | 30   | 990                                   |
| 5-A      | M-5  | 225     | 30    | 6,750  | 1,150                    | 8                            | 11½                              | 28½                               | 30   | 1,000                                 |
| 6-A      | M-5½ | 300     | 30    | 9,000  | 1,150                    | 8                            | 14½                              | 46½                               | 41   | 1,950                                 |
| 6-B      | M-5½ | 400     | 30    | 12,000 | 1,150                    | 8                            | 19½                              | 46½                               | 41   | 1,950                                 |
| 7-A      | M-7  | 600     | 30    | 18,000 | 850                      | 14½                          | 28½                              | 50½                               | 47   | 2,200                                 |
| 8-A      | M-8  | 800     | 30    | 24,000 | 850                      | 15                           | 37½                              | 52½                               | 51   | 3,980                                 |
| 9-A      | M-9  | 1,000   | 30    | 30,000 | 475                      | 20 or 24                     | 48                               | 71½                               | 57   | 6,000                                 |

Note:—Orders should read thus:

One No. .... belt driven charging generator to give an output of .... amperes at 30 volts; to run at .... R.P.M., with pulley .... inches in diameter; terminals drilled for .... circular mil cable; with necessary rheostat for rear of board mounting with hand wheels; to be used for charging a battery of 11 type "G" .... cells and also a battery of 11 type E-11 cells.

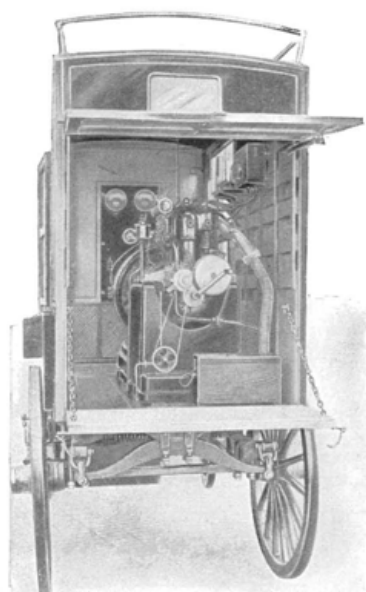
PRICES ON REQUEST



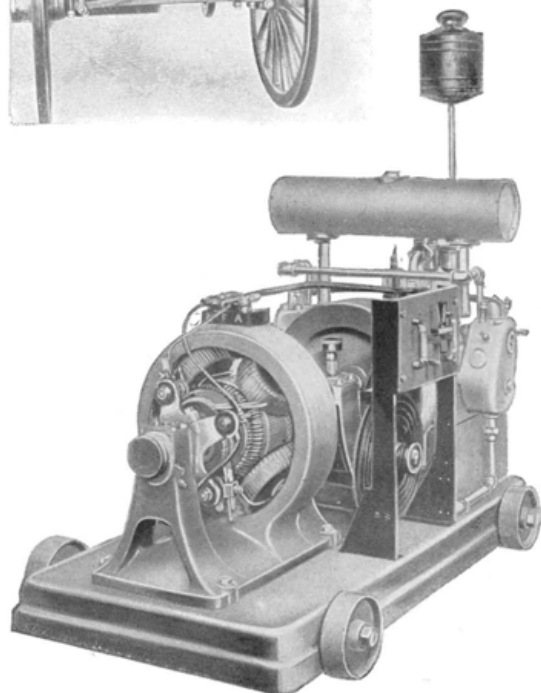
## PORTABLE CHARGING SETS

For Charging Storage Batteries

| Output                 | Generator | Remarks                     | Shipping Weight pounds |
|------------------------|-----------|-----------------------------|------------------------|
| 25 amperes at 42 volts | M-2       | On iron base with wheels... | 1400                   |



| Output                         | Generator | Remarks                      | Shipping Weight pounds |
|--------------------------------|-----------|------------------------------|------------------------|
| 50 to 60 amperes at 36 volts   | M-3       | Mounted in covered wagon.... | 2200                   |
| 100 to 125 amperes at 36 volts | M-4       | Mounted in covered wagon.... | 3800                   |



| Output                         | Generator | Remarks                      | Shipping Weight pounds |
|--------------------------------|-----------|------------------------------|------------------------|
| 200 to 225 amperes at 36 volts | M-5       | Mounted in covered wagon.... | 4000                   |
| 300 to 350 amperes at 36 volts | M-5½      | Mounted in covered wagon.... | 4500                   |

The above sets include a type "M" generator direct connected to a gasolene engine and the necessary field rheostat. The rheostat with the 25 ampere set is capable of regulating the terminal voltage between 22 and 42 volts. The field rheostat furnished with the other sets is capable of regulating the terminal voltage between 22 and 30 volts.

The shipping weights given above for the large sets are for the apparatus complete including the wagon.

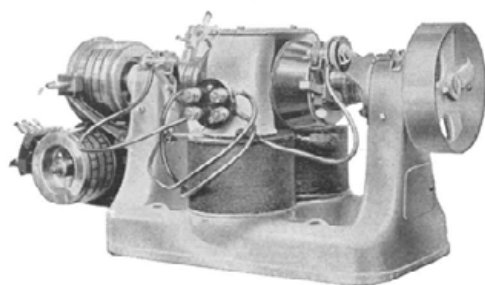
PRICES ON REQUEST



## CHOKE COILS

Used in the lead between the charging machine and the non-grounded side of the storage battery to choke down any disturbances which might cause noises in the telephone circuits while the battery is being charged. Mounted on wooden base. Terminals are included. Prices are f.o.b. Chicago.

| Code No. | Used with<br>Charging Units<br>Employing the<br>Following Generators | Winding  | Size of Base<br>inches             | List Price<br>each |
|----------|--|--|------------------------------------|--------------------|
| 1-A      | M-2  | 90 turns of No. 0 wire.  | 24 x 5 $\frac{1}{4}$               | \$ 59.35           |
| 1-B      | M-2  | 80 turns of No. 00 wire.   | 24 x 5 $\frac{1}{4}$               | 64.15              |
| 1-C      | M-3  | 72 turns of No. 0000 wire.   | 24 x 6 $\frac{1}{4}$               | 110.65             |
| 2-A      | M-4  | 69 turns of 3-No. 10x1 in. copper ribbons in parallel.               | 26 $\frac{1}{4}$ x11 $\frac{1}{2}$ | 272.55             |
| 2-B      | M-5  | 69 turns of 3-No. 8x1 in. copper ribbons in parallel.                | 36 $\frac{1}{4}$ x12 $\frac{3}{4}$ | 399.20             |
| 2-C      | M-7  | 48 turns of 7-No. 8x1 $\frac{1}{4}$ in. copper ribbons in parallel.  | 43 $\frac{1}{2}$ x17 $\frac{3}{4}$ | 1,232.85           |
| 2-D      | M-5 $\frac{1}{2}$<br>(300 ampere)                                    | 56 turns of 4-No. 9x1 in. copper ribbons in parallel.                | 37 x13                             | 375.15             |
| 2-E      | M-5 $\frac{1}{2}$<br>(400 ampere)                                    | 48 turns of 4-No. 9x1 $\frac{1}{4}$ in. copper ribbons in parallel.  | 42 x14 $\frac{1}{2}$               | 509.85             |
| 2-F      | M-8  | 40 turns of 10-No. 8x1 $\frac{1}{2}$ in. copper ribbons in parallel. | 43 $\frac{1}{2}$ x21 $\frac{1}{4}$ | 1,979.85           |
| 2-G      | M-9  | 38 turns of 11-No. 8x2 in. copper ribbons in parallel.               | 52 $\frac{1}{2}$ x23               | 3,642.30           |



No. 3-A  
With Interrupter

## RINGING GENERATORS

Belt Driven, Self Excited

Prices are f.o.b. Chicago and do not include slide rails or starting boxes

When the power supply is direct current at a voltage exceeding 220 or alternating current, ringing generators driven by suitable motors are used.

| Code No. | Output        |       |       | Full Load<br>Speed<br>R. P. M. | Overall Size<br>Length<br>Including<br>Pulley<br>inches | Width<br>inches  | Horse Power<br>Required to<br>Drive without<br>interrupters | Shipping<br>Weight<br>without<br>Interrupters<br>pounds | List Price<br>each |
|----------|---------------|-------|-------|--------------------------------|---|------------------|---|---|--------------------|
|          | Amperes       | Volts | Watts |                                |   |                  |   |   |                    |
| 1-A      | $\frac{1}{4}$ | 75    | 19    | 950                            | 14 $\frac{1}{2}$  | 7 $\frac{1}{2}$  | $\frac{1}{8}$   | 50  | \$ 179.55          |
| 3-A      | 1             | 75    | 75    | 950                            | 16  | 9 $\frac{1}{2}$  | $\frac{1}{4}$   | 95  | 243.70             |
| 5-A      | 2             | 75    | 150   | 950                            | 18 $\frac{1}{2}$  | 10 $\frac{3}{4}$ | $\frac{1}{2}$   | 160   | 373.55             |
| 8-A      | 4             | 75    | 300   | 950                            | 23  | 13 $\frac{3}{4}$ | $\frac{3}{4}$   | 290   | 488.95             |

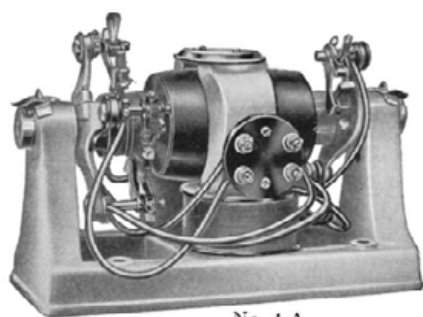
Slide rails are not needed when the driving motor has means for tightening the belt.

Orders should read thus:

1 No. . . . ringing machine, self-excited; with an output of . . . amperes at 75 volts, complete with slide rails and pulley . . . inches in diameter; equipped with . . . interrupter.

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No. 4-A

## RINGING DYNAMOTORS

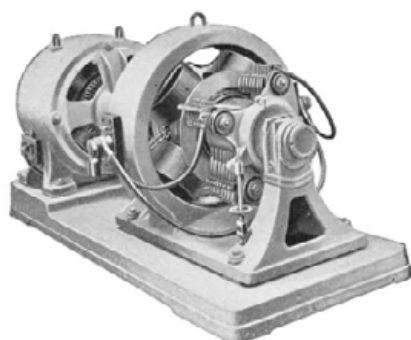
Direct Current Primary

Prices are f.o.b. Chicago and do not include starting boxes

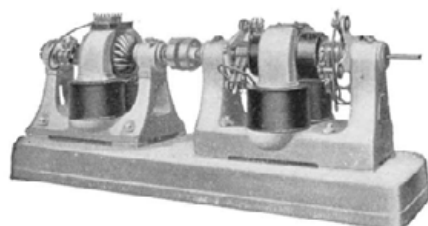
| Code No. | Output<br>Amperes | volts | watts | Primary<br>Voltage | Size of<br>Starting Box<br>Horse Power | Full Load<br>Speed<br>R.P.M. | Overall<br>Length<br>inches | Size<br>Width<br>inches | Shipping<br>Weight<br>Without<br>Interrupters<br>pounds | List Price |
|----------|-------------------|-------|-------|--------------------|--|------------------------------|-----------------------------|-------------------------|---|------------|
| 2-A      | $\frac{1}{2}$     | 75    | 15    | 20                 | None Required                          | 950                          | 13                          | 9                       | 50  | \$ 168.35  |
| 2-B      | $\frac{1}{2}$     | 75    | 15    | 110                | None Required                          | 950                          | 13                          | 9                       | 50  | 168.35     |
| 2-C      | $\frac{1}{2}$     | 75    | 15    | 220                | None Required                          | 950                          | 13                          | 9                       | 50  | 168.35     |
| 4-A      | $\frac{1}{2}$     | 75    | 38    | 20                 | $\frac{1}{8}$                          | 950                          | 14 $\frac{1}{2}$            | 10 $\frac{3}{4}$        | 95  | 232.50     |
| 4-B      | $\frac{1}{2}$     | 75    | 38    | 110                | $\frac{1}{8}$                          | 950                          | 14 $\frac{1}{2}$            | 10 $\frac{3}{4}$        | 95  | 232.50     |
| 4-C      | $\frac{1}{2}$     | 75    | 38    | 220                | $\frac{1}{8}$                          | 950                          | 14 $\frac{1}{2}$            | 10 $\frac{3}{4}$        | 95  | 232.50     |
| 6-A      | 1                 | 75    | 75    | 20                 | $\frac{1}{4}$                          | 950                          | 17                          | 13                      | 160   | 360.70     |
| 6-B      | 1                 | 75    | 75    | 110                | $\frac{1}{4}$                          | 950                          | 17                          | 13                      | 160   | 360.70     |
| 6-C      | 1                 | 75    | 75    | 220                | $\frac{1}{4}$                          | 950                          | 17                          | 13                      | 160   | 360.70     |
| 7-A      | 2                 | 75    | 150   | 20                 | $\frac{1}{2}$                          | 950                          | 20 $\frac{3}{4}$            | 15 $\frac{1}{4}$        | 290   | 472.90     |
| 7-B      | 2                 | 75    | 150   | 110                | $\frac{1}{2}$                          | 950                          | 20 $\frac{3}{4}$            | 15 $\frac{1}{4}$        | 290   | 472.90     |
| 7-C      | 2                 | 75    | 150   | 220                | $\frac{1}{2}$                          | 950                          | 20 $\frac{3}{4}$            | 15 $\frac{1}{4}$        | 290   | 480.95     |
| 9-A      | 4                 | 75    | 300   | 20                 | $\frac{3}{4}$                          | 950                          | 28                          | 18 $\frac{1}{4}$        |   | 641.25     |
| 9-B      | 4                 | 75    | 300   | 110                | $\frac{3}{4}$                          | 950                          | 28                          | 18 $\frac{1}{4}$        |   | 641.25     |
| 9-C      | 4                 | 75    | 300   | 220                | $\frac{3}{4}$                          | 950                          | 28                          | 18 $\frac{1}{4}$        |   | 681.35     |

Orders should read thus:

1 No. . . ringing machine to give an output of . . . amperes at 75 volts; primary voltage. . . volts; equipped with. . . interrupters and necessary starting box for rear of board mounting with hand wheel.



Charging Motor Generator



Ringing Motor Generator

## MOTORS

We carry a complete line of motors suitable for all power circuits. In ordering, specify the voltage of the circuit if direct current, or the voltage, phase and frequency if the current is alternating, also whether a starting box for rear of board mounting with hand-wheel is to be provided. If the motor is to be direct connected to a generator, the order should state if a flexible insulated coupling is to be furnished and if the sub-base is to have cushions.

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## COIN COLLECTOR MOTOR-GENERATORS

We furnish motor generators for supplying current for operating coin collectors. Orders should state the output desired, and specify exactly the power circuit on which the motor is to work, also whether the rheostat and starting box should be furnished with hand wheels for rear of board mounting.

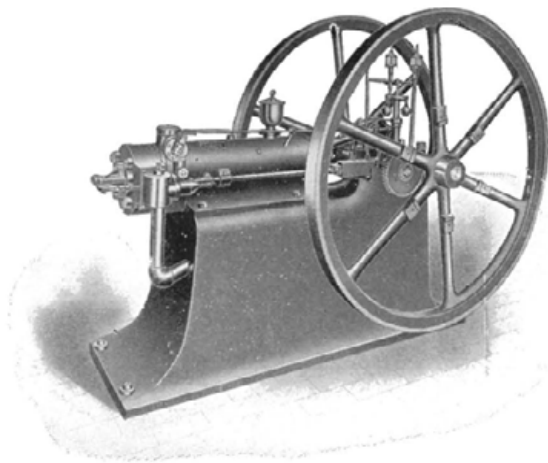
## SERVICE METER MOTOR-GENERATORS

We furnish motor-generators for supplying current for operating the service meters. Orders should state the output desired, and specify exactly the power circuit on which the motor is to work, also whether the rheostat and starting box should be furnished with hand wheels for rear of board mounting.

## GAS ENGINES

### White & Middleton

| Brake Horse Power | Extreme Length Including Fly Wheel | Width to Outside of Fly Wheels | Diameter of Fly Wheels | Width of Fly Wheels inches | Width of Belt Used inches | Speed R.P.M. | Approx. Shipping Weight pounds | Used with Charging Machine |
|-------------------|------------------------------------|--------------------------------|------------------------|----------------------------|---------------------------|--------------|--------------------------------|----------------------------|
| 4                 | 5 ft. 2½ in.                       | 2 ft. 2½ in.                   | 3 ft. 4 in.            | 3½                         | 3                         | 300          | 1600                           | M-1 and M-2                |
| 6                 | 6 ft. 3 in.                        | 2 ft. 5 in.                    | 4 ft. 0 in.            | 4                          | 4                         | 250          | 2400                           | M-3                        |
| 9                 | 7 ft. 2½ in.                       | 2 ft. 9 in.                    | 4 ft. 8 in.            | 5½                         | 4                         | 250          | 3100                           | M-4                        |
| 12                | 7 ft. 3 in.                        | 2 ft. 9 in.                    | 4 ft. 8 in.            | 5½                         | 5                         | 240          | 3600                           | M-5                        |
| 15                | 7 ft. 7 in.                        | 3 ft. 1 in.                    | 5 ft. 1 in.            | 6½                         | 5                         | 220          | 4300                           | M-5½ (300 amperes)         |
| 20                | 8 ft. 6½ in.                       | 3 ft. 6 in.                    | 5 ft. 6 in.            | 6½                         | 6                         | 200          | 5600                           | M-5½ (400 amperes)         |
| 25                | 8 ft. 7 in.                        | 3 ft. 7½ in.                   | 6 ft. 0 in.            | 8                          | 7                         | 200          | 7700                           |                            |
| 30                | 9 ft. 6½ in.                       | 3 ft. 7½ in.                   | 6 ft. 0 in.            | 9                          | 8                         | 200          | 8500                           | M-7                        |
| 40                | 10 ft. 9½ in.                      | 4 ft. 1½ in.                   | 6 ft. 8 in.            | 9                          | 9                         | 180          | 13500                          | M-8                        |
| 50                | 12 ft. 3 in.                       | 4 ft. 3½ in.                   | 7 ft. 6 in.            | 10                         | 10                        | 180          | 16000                          | M-9                        |



The engine requires a foundation which is slightly longer and wider than the space occupied by the engine as given above.

The following accessories should be ordered with each engine:

- 1 gas bag
- 1 exhaust muffler
- 1 set of oil cans
- 1 set of wrenches
- 1 5 gallon can of cylinder oil
- 1 5 gallon can of bearing lubricating oil
- 1 wooden templet for locating foundation bolts
- 1 set of foundation bolts and anchor plates
- 1 list of framed instructions
- 1 cooling tank (unless running water will be used for the cylinder jacket)
- 1 spark coil panel including one No. 1 spark coil and one double pole, single throw switch
- 1 belt

## SPARK COIL

| Code No. | Description and Use  | List Price each |
|----------|--|-----------------|
| 1        | A gas or gasoline engine spark coil for use on a 24-volt circuit. Resistance 60 ohms. Base 13 in. x 3½ in. | \$7.50          |

## MACHINE COVERS

A complete line of machine covers is manufactured for all of our machines. They are made of eight ounce brown army paraffined canvas.

PRICES ON REQUEST

## MACHINE TABLES

These consist of an angle iron frame with a slate top drilled for our various small machines, such as ringing, coin collector or service meter machines.

## RHEOSTATS

These are used with our various generators which supply direct current, and are made for mounting on the front or rear of the power switchboard. When rear mounted they require hand wheels and index plates.

They should be ordered with each new machine when required. When a rheostat is being ordered for a machine already installed, the data on the name plate on the machine should be stated in the order.

## STARTING BOXES

No-voltage release or no-voltage release and overload boxes are supplied for motors of all capacities and voltages. They are arranged for rear of board mounting and require a hand wheel on the front. They should be ordered with new motors. When a starting box is being ordered for a machine already installed the data on the name plate on the motor should be stated in the order.



## HAND WHEELS

These are finished in polished copper and black dip, and are for use with rear mounted starting boxes and rheostats. A complete line is carried for all the various sizes. The hand wheel includes a dial properly marked.

## BELTS

No. 192

Endless leather belts are carried in single or double ply. Specify length, width and ply

## POWER PROTECTION PANELS

These are arranged for mounting on a wall, and comprise a slate panel equipped with a switch, together with the necessary fuses, retardation coils and lightning arresters for protecting motors. A complete line is manufactured, suitable for all kinds of circuits and for motors of different horse-power.

## POWER SWITCHBOARDS

These comprise one or more slate panels mounted on an iron framework, which is braced to the floor and wall. Space is left for access to the back of the board. The size and number of panels depend upon the machines furnished. There is mounted on these boards all of the apparatus for controlling the machines.

## BATTERY PANELS

These are arranged for mounting on a wall and comprise a slate panel equipped with fuses for protecting the storage battery and a shunt for reading the battery current. They are made for protecting one or two batteries.

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PRICES ON REQUEST



## MOUNTING PLATES

The term "mounting plate" refers in general to a mild steel plate drilled and slotted for mounting relays, resistance coils, service meters or small retardation coils. Plates for mounting drops and signals are known as "drop mountings" and "signal mountings" respectively.

The standard thickness of a relay mounting plate is  $\frac{3}{8}$  in.; of a mounting plate for No. 18 and No. 19 type resistances  $\frac{1}{8}$  in.; and of a mounting plate for service meters  $\frac{3}{8}$  in. All these plates are of mild steel, copper plated, oxidized and lacquered to improve the appearance and prevent rusting.

Whenever necessary the holes for terminals are equipped with hard rubber bushings to insulate the parts in circuit from the plate.

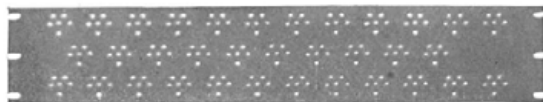
Certain mounting plates are equipped with dust proof covers which enclose the strips of relays. Such mounting plates are used with relays like the No. 189, not equipped with individual covers.

The length of mounting plates is usually 19 in., 21 $\frac{1}{2}$  in., 23 in., or 27 in. The first is used on relay racks, the second and third on subscriber and trunk sections of the No. 1 board and the last on the No. 10 board. Service meters are regularly mounted 20 per strip on a plate 33 $\frac{1}{2}$  in. long.

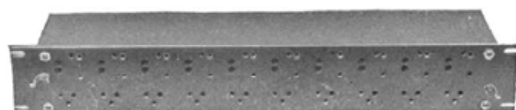
Mounting plates of other sizes are furnished to meet conditions.



No. 600-A



No. 610-C



No. 603-F



No. 601-C



No. 671-A



No. 1-A



No. 23-B



No. 4-A

## Relay Mounting Plates

| Code No. | Number per Strip | Centers inches  | Size inches                              | List Price each |
|----------|------------------|-----------------|--|-----------------|
| 600-A    | 10               | 1 $\frac{3}{4}$ | 19 x 1 $\frac{3}{8}$ .....               | \$ 0.60         |
| 606-A    | 10               | 1 $\frac{3}{4}$ | 21 $\frac{1}{2}$ x 1 $\frac{3}{8}$ ..... | .70             |
| 609-A    | 10               | 1 $\frac{3}{4}$ | 23 x 1 $\frac{3}{8}$ .....               | .70             |
| 605-B    | 34               | 1 $\frac{3}{8}$ | 21 $\frac{1}{2}$ x 4 $\frac{1}{2}$ ..... | 1.80            |
| 610-C    | 34               | 1 $\frac{3}{8}$ | 23 x 4 $\frac{1}{2}$ .....               | 1.80            |
| 603-F    | 10               | 1 $\frac{3}{8}$ | 19 x 2 $\frac{3}{8}$ .....               | 1.75            |

## Resistance Mounting Plates

|       |    |                 |  |     |
|-------|----|-----------------|--|-----|
| 601-A | 10 | 1 $\frac{3}{4}$ | 19 x 1 $\frac{3}{8}$ .....               | .45 |
| 601-C | 40 | $\frac{7}{16}$  | 19 x 1 $\frac{3}{8}$ .....               | .70 |
| 607-D | 40 | $\frac{7}{16}$  | 21 $\frac{1}{2}$ x 1 $\frac{3}{8}$ ..... | .85 |
| 602-F | 42 | $\frac{7}{16}$  | 23 x 1 $\frac{3}{8}$ .....               | .85 |

## Service Meter Mounting Plates

|       |    |                 |  |      |
|-------|----|-----------------|--|------|
| 623-A | 20 | 1 $\frac{5}{8}$ | 33 $\frac{1}{2}$ x 1 $\frac{1}{4}$ ..... | 1.00 |
| 671-A | 10 | 1 $\frac{5}{8}$ | 19 x 1 $\frac{1}{4}$ .....               | .60  |

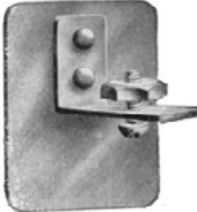
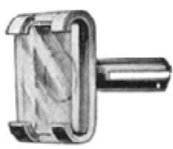



## NUMBER PLATES

| Code No. | Description  | Size inches                     | Used on  | List Price each |
|----------|--|---------------------------------|--|-----------------|
| 1-A      | White ivory, black figures $\frac{1}{4}$ in. high        | $\frac{5}{8}$ diameter          | Wooden stile casings and panel numbers   | \$ 0.075        |
| 12-A     | White ivory, black figures $\frac{3}{16}$ in. high       | $\frac{3}{8}$ diameter          | Plug shelves and key shelves .....   | .0675           |
| 113-A    | White ivory, black figures $\frac{1}{2}$ in. high        | 1 $\frac{1}{4}$ diameter        | Panels of switchboards   | .36             |
| 23-B     | Aluminum, black figures $\frac{3}{32}$ in. high          | $\frac{25}{32}$ diameter        | Flat iron stile casings ..   | .075            |
| 107-A    | Aluminum, black figures $\frac{1}{4}$ in. high           | $\frac{13}{32}$ diameter        | Flat iron stile casings ..   | .075            |
| 4-A      | Metal, black finish white figures $\frac{3}{4}$ in. high | $\frac{5}{16}$ x $\frac{7}{16}$ | No. 2 jack mounting No. 2-C designation strip No. 50-A designation strip ..... | .045            |

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## Number Plates—Continued

|   | Code No. | Description  | Size inches                          | Used on   | List Price each |
|---|----------|--|--------------------------------------|---|-----------------|
|    | 5-A      | Metal, black finish, white figures $\frac{5}{8}$ in. high            | $\frac{5}{16} \times \frac{1}{2}$    | No. 110 jack mounting.  | \$ 0.045        |
| No. 58-A  | 6-A      | Metal, black finish, white figures $\frac{1}{8}$ in. high            | $\frac{1}{4} \times \frac{3}{8}$     | No. 19 jack mounting.   | .045            |
|    | 21-A     | Metal, black finish, white figure $\frac{5}{8}$ in. high             | $\frac{5}{16} \times \frac{1}{16}$   | No. 105 board, for numbering toll and out-going jacks....                         | .06             |
| No. 30-A  | 30-A     | Metal, black finish, numbers printed on white paper                  | $\frac{1}{4} \times \frac{3}{8}$     | No. 19 jack mounting.....   | .0375           |
|   | 31-A     | Metal, black finish, numbers printed on white paper                  | $\frac{5}{16} \times \frac{7}{16}$   | No. 2 jack mounting and Nos. 2-C strip and 50-A designation strips..              | .0375           |
| No. 93-A  | 108-A    | Metal, black finish, numbers printed on white paper                  | $\frac{1}{8} \times \frac{3}{8}$     | No. 19 jack mounting and No. 134 lamp socket mounting when mounted together ..... | .0375           |
|  | 109-A    | Metal, black finish, numbers printed on white paper                  | $\frac{1}{8} \times \frac{3}{8}$     | No. 2 jack mounting and No. 122 lamp socket mounting when mounted together .....  | .0375           |
| No. 97-A  | 58-A     | Metal, nickel finish, black figures                                  | $\frac{1}{8} \times 1 \frac{1}{4}$   | Protector bar of main distributing frame..  | .06             |
|  | 93-A     | Aluminum, black figures  | $1 \frac{1}{8} \times 2 \frac{5}{8}$ | Transmitter of telephone sets.....  | .03             |
| No. 110-A   | 97-A     | Metal, black finish, white letters or figures $\frac{1}{4}$ in. high | $2 \times 2 \frac{1}{8}$             | Transmitter of telephone sets.....  | .06             |
|   | 110-A    | Metal, nickel plated, paper card with celluloid covering             | $1 \frac{1}{8} \times 2 \frac{3}{4}$ | Transmitter of telephone sets.....  | .05             |

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## Number Plates—Continued



No. 67-AF



No. 24-A



No. 117-A

| Code No. | Description  | Size<br>inches     | Used on   | List Price<br>each |                    |
|----------|--|--------------------|---|--------------------|--------------------|
| 67       | Brass, black finish,<br>raised copper figures<br>$\frac{3}{8}$ in. high; designa-<br>tions as listed below | 2x1                | Power switchboards<br>for designating the<br>circuits controlled by<br>switches, etc. |                    |                    |
| Code No. | Designation  | List Price<br>each | Code No.  | Designation        | List Price<br>each |
| 67-A     | BAT.....   | \$0.55             | 67-Q  | R-3.....           | \$0.55             |
| 67-B     | VM.....  | .40                | 67-R  | R-4.....           | .55                |
| 67-C     | G-1.....   | .55                | 67-S  | B-1.....           | .55                |
| 67-D     | G-2.....   | .55                | 67-T  | B-2.....           | .55                |
| 67-E     | G-3.....   | .55                | 67-U  | GEN.....           | .55                |
| 67-F     | G-4.....   | .55                | 67-W  | R-2.....           | .55                |
| 67-G     | G-5.....   | .55                | 67-Y  | PC-2.....          | .70                |
| 67-H     | G-6.....   | .55                | 67-Z  | START.....         | .85                |
| 67-J     | M-1.....   | .55                | 67-AA   | RUN.....           | .55                |
| 67-K     | M-2.....   | .55                | 67-AB   | LINE.....          | .70                |
| 67-L     | M-3.....   | .55                | 67-AC   | R-1.....           | .55                |
| 67-M     | M-4.....   | .55                | 67-AE   | PC-1.....          | .70                |
| 67-N     | M-5.....   | .55                | 67-AF   | AMM.....           | .55                |
| 67-P     | M-6.....   | .55                |   |                    |                    |

These are used for inserting in a jack to designate change of number, dead lines, lines temporarily disconnected, lines arranged for calling only or similar purposes.

## For Number 49 Jacks

| Code No. | Color       | List Price per thousand | Code No. | Color            | List Price per thousand |
|----------|-------------|-------------------------|----------|------------------|-------------------------|
| 24-A     | White ..... | \$ 9.85                 | 24-E     | Yellow .....     | \$ 9.85                 |
| 24-B     | Red .....   | 9.85                    | 24-F     | Dark Blue.....   | 9.85                    |
| 24-C     | Slate.....  | 9.85                    | 24-G     | Dark Green.....  | 9.85                    |
| 24-D     | Black.....  | 9.40                    | 24-H     | Light Green..... | 9.85                    |

These are for the same purpose as those above but have a slot in the face. By means of a screw-driver they can be turned through half a circle when the jack springs will force them out.

|       |             |      |       |                  |      |
|-------|-------------|------|-------|------------------|------|
| 117-A | White ..... | 9.85 | 117-E | Yellow .....     | 9.85 |
| 117-B | Red .....   | 9.85 | 117-F | Dark Blue.....   | 9.85 |
| 117-C | Slate.....  | 9.85 | 117-G | Dark Green.....  | 9.85 |
| 117-D | Black.....  | 9.40 | 117-H | Light Green..... | 9.85 |

## For Number 92 Jacks

These are similar to the No. 24 type.

|      |             |      |      |                  |      |
|------|-------------|------|------|------------------|------|
| 27-A | White ..... | 9.85 | 27-E | Yellow .....     | 9.85 |
| 27-B | Red .....   | 9.85 | 27-F | Dark Green.....  | 9.85 |
| 27-C | Slate.....  | 9.85 | 27-G | Light Green..... | 9.85 |
| 27-D | Black.....  | 9.40 |      |                  |      |

These are similar to the No. 117 type.

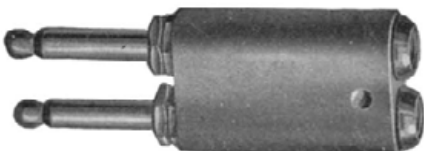
|       |             |      |       |                  |      |
|-------|-------------|------|-------|------------------|------|
| 118-A | White ..... | 9.85 | 118-E | Yellow .....     | 9.85 |
| 118-B | Red .....   | 9.85 | 118-F | Dark Blue.....   | 9.85 |
| 118-C | Slate.....  | 9.85 | 118-G | Dark Green.....  | 9.85 |
| 118-D | Black ..... | 9.40 | 118-H | Light Green..... | 9.85 |



No. 47



No. 85



No. 103

## PLUGS

In ordering specify the code number and if cords are to be attached give the code number of the cords together with the length and color. No extra charge is made for attaching cords to plugs.

| Code No. | Number of Conductors | Used with Jacks number                   | Used with Cords number | Use  | List Price each |
|----------|----------------------|--|------------------------|--|-----------------|
| 47       | 2                    | 3, 91, 99<br>102, 103<br>107, 108<br>124 | 156, 236               | Switchboards...                                      | \$0.45          |
| 85       | 3                    | 77                                       | 30                     | Operator's head telephone....                        | 1.50            |
| 103      | Twin 2               | 91, 99                                   | 87, 254                | Operator's head telephone and chest transmitter..... | 1.50            |

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## Plugs--Continued

# Plugs--Continued

No. 109

No. 112

No. 116

No. 126

No. 124

No. 128

No. 132

| Code No. | Number of Conductors | Used with Jacks number     | Used with Cords number | Use             | List Price each |
|----------|----------------------|----------------------------|------------------------|-----------------|-----------------|
| 109      | 3                    | 92                         | 155, 244               | Switchboards... | \$ 1.13         |
| 110      | 3                    | 49, 117<br>118, 140<br>141 | 152, 249               | Switchboards... | 1.13            |

|     |        |        |    |  |      |
|-----|--------|--------|----|--|------|
| 112 | Twin 2 | 91, 99 | 87 | Operator's head telephone and chest transmitter. Has transmitter cutout key... | 3.75 |
|-----|--------|--------|----|--|------|

|     |   |        |     |                 |      |
|-----|---|--------|-----|-----------------|------|
| 116 | 1 | 3, 103 | 265 | Switchboards... | .225 |
|-----|---|--------|-----|-----------------|------|

|     |   |     |     |                                |      |
|-----|---|-----|-----|--------------------------------|------|
| 126 | 3 | 132 | 309 | Portable street railway sets.. | 4.15 |
|-----|---|-----|-----|--------------------------------|------|

## For Testing on Frames

| Code No. | Number of Conductors | Used with Cords number | Use  | List Price each |
|----------|----------------------|------------------------|--|-----------------|
| 124      | 2                    | 129                    | For testing on Nos. 4, 65, 78 and 84 protectors..... | \$ 0.98         |

|     |   |     |  |      |
|-----|---|-----|--|------|
| 128 | 4 | 129 | For testing on Nos. 4, 65, 78 and 84 protectors..... | 1.90 |
|-----|---|-----|--|------|

|     |   |          |   |      |
|-----|---|----------|---|------|
| 132 | 4 | 129, 153 | For testing on terminal strips Nos. 35, 36, 38 and 39 ..... | 2.65 |
|-----|---|----------|---|------|

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## PLUG SEATS

Red Fibre



No. 13

| Code No. | Mounted on<br>Centers<br>inches | Used with<br>Plugs<br>number | List Price<br>each |
|----------|---------------------------------|------------------------------|--------------------|
| 12       | $\frac{3}{4}$                   | 110                          | \$ 0.015           |
| 13       | $\frac{3}{4}$                   | 109                          | .015               |
| 15       | $\frac{13}{16}$                 | 47, 116                      | .015               |

## PROTECTION

The complete protection of telephone apparatus from foreign electrical currents which might cause damage by fire or injury from electrical shock requires the use of high potential, abnormal current and sneak current arresters. These arresters should be installed (1) at central offices, (2) at cable terminals, and (3) at telephone stations.

**Central Offices** All lines entering the central office should be equipped with heat coils or sneak current arresters. In case the lines outside the central office are wholly underground, or of non-exposed, insulated wire, no protection other than heat coils is necessary. In case the lines leave the central office in underground cable but are exposed, carbon block cutouts should be installed in addition to heat coils. In case the lines are distributed immediately to open lines, heat coils, carbon block cutouts and No. 7-A fuses should be provided.

When open wire lines enter the central office and at any portion of their length are exposed to potentials in excess of 2,500 volts, the protection noted above should be used and, in addition, metal block cutouts should be installed at the outer end of the bridge cable.

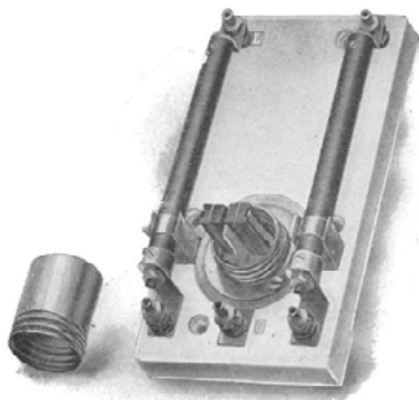
**Cable Terminals** Cable terminals should be located at the outer end of underground cable and equipped with No. 7-A fuses. If the lines are connected to aerial cable or open wires in localities where lightning is not very prevalent, and if they are not exposed to foreign electrical circuits this protection is sufficient, provided the lines are less than one-half mile in length. Under these conditions if the lines are over one-half mile long, copper block cutouts should also be used. Carbon block cutouts should be installed if the lines are exposed to other electrical circuits. If the lines are not exposed to other circuits copper block cutouts should be used if the lines are over one-half mile in length or if they are in districts where lightning is very severe.

**Telephone Stations** In case the line from the central office to a telephone station is wholly underground or of non-exposed, insulated wire, no protection need be installed at the telephone station.

If the lines are wholly or in part of open wire, and exposed to circuits not in excess of 1800 volts, the No. 12-A protector should be used at magneto stations and the No. 58-A or Nos. 59-A and 60-A at central battery telephone stations. If the lines are not exposed to other circuits the No. 58-B or the Nos. 59-A and 60-B may be used at central battery and magneto stations respectively.

In case the lines are exposed to lighting or power circuits in excess of 1800 volts, or to severe lightning discharges, the No. 47 type fuse should be employed at the telephone stations. These are outside fuses to be connected in the drop wire and are so constructed that if an arc persists after the fuse blows, the tube will be shattered and the wire will fall away by several feet, thus effectually opening the line.

When the exposed line is not more than one-half mile long, the No. 47-A, 7 ampere fuse, may be employed in connection with the No. 60-A protector. In case the exposed line is more than one-half mile long the No. 47-B, 14 ampere fuse, may be used in connection with the No. 79-A protector.



No. 12-A

## PROTECTORS

For code numbers of fuses, protector blocks and protector micas, see tables having these headings.

## MOUNTED SINGLY

| Code No. | Used with              | Protecting<br>against                       | Consists of   | List Price<br>each |
|----------|------------------------|---|---|--------------------|
| 12-A     | Magneto telephone sets | High potential, abnormal and sneak currents | 2 7-ampere fuses with heat coils, 2 carbon cutouts and mounting.... | \$ 1.22            |

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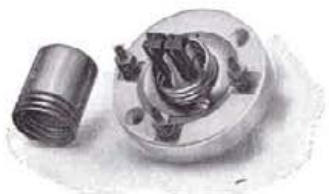
## Protectors—Continued



No. 58-A



No. 59-A



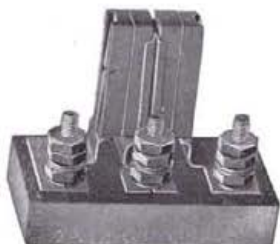
No. 60-A



No. 62-A



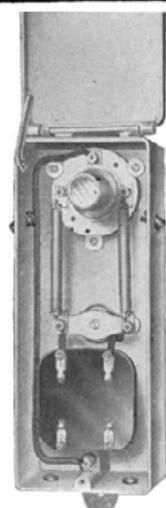
No. 68-A



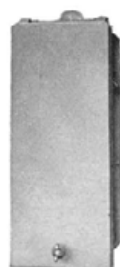
No. 70-A

| Code No. | Used with                                 | Protecting against                   | Consists of   | List Price each |
|----------|---|--------------------------------------|---|-----------------|
| 58-A     | Central battery or magneto telephone sets | High potential and abnormal currents | 2 7-ampere fuses, 2 carbon cutouts and mountings..  | \$ 0.77         |
| 58-B     | Magneto telephone sets                    | High potential and abnormal currents | 2 7-ampere fuses, 2 copper cutouts and mountings...   | .93             |
| 58-C     | Magneto street railway telephone sets     | High potential and abnormal currents | 2 $\frac{1}{2}$ -ampere fuses, 2 copper cutouts and mountings. Two protector micas are used between each pair of protector blocks.. | .85             |
| 59-A     | No. 60 type protector                     | Abnormal current                     | 2 7-ampere fuses and mountings...   | .48             |
| 60-A     | Central battery or magneto telephone sets | High potential current               | 2 carbon cutouts and mounting....   | .38             |
| 60-B     | Magneto telephone sets                    | High potential current               | 2 copper cutouts and mounting....   | .54             |
| 62-A     | Central battery switchboard circuits      | Abnormal current                     | 1 mica fuse and mounting; capacity $\frac{1}{2}$ to 5 amperes as specified.....   | .09             |
| 62-B     | Central battery switchboard circuits      | Abnormal current                     | 1 alarm fuse with mounting; capacity $\frac{1}{2}$ to 5 amperes as specified  | .195            |
| 68-A     | Central battery switchboard circuits      | Abnormal current                     | 1 mica fuse and mounting; capacity $\frac{1}{2}$ to 5 amperes as specified.....   | .135            |
| 70-A     | Portable street railway telephone sets    | High potential current               | 2 carbon cutouts and mounting....   | 1.23            |

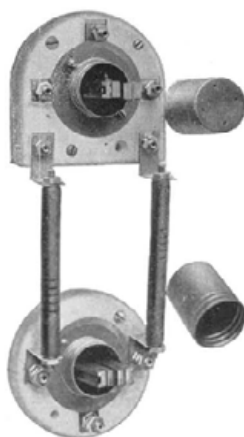
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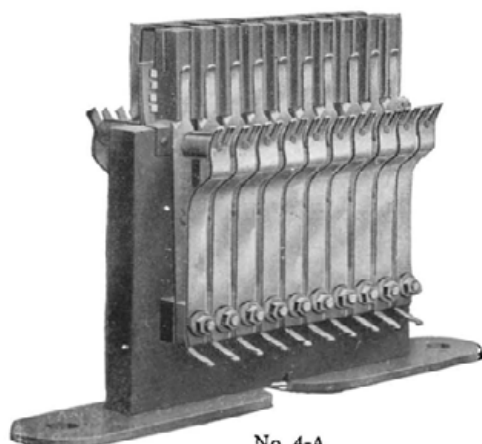
No. 74-A. (open)



No. 74-A (closed)



No. 79-A



No. 4-A

## Protectors—Continued

| Code No. | Used with                                  | Protecting against                   | Consists of   | List Price each |
|----------|--|--------------------------------------|---|-----------------|
| 74-A     | Magneto street railway telephone sets      | High potential and abnormal currents | 2 $\frac{1}{2}$ -ampere fuses, 2 copper cutouts, repeating coil and mounting in iron box. Two protector micas are used between each pair of protector blocks. . . . .       | \$ 11.18        |
| 79-A     | Central battery and magneto telephone sets | High potential and abnormal currents | 2 7-ampere fuses, 2 copper cutouts, 2 carbon cutouts, 1 retardation coil and mountings. Two protector micas are used between each pair of copper protector blocks . . . . . | 1.64            |

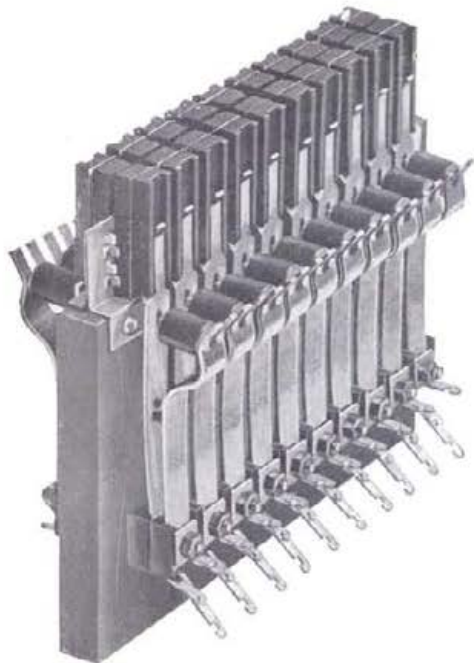
## MOUNTED IN STRIPS

The No. 4 and No. 65 protectors are like the No. 84 and No. 78 respectively except the mounting and the No. 4 and No. 84 differ from the No. 65 and No. 78 only in the way the wires are connected to them. The Nos. 4 and 84 are designed for the outside wires to be connected first to a terminal block, and jumper wires to extend from the terminal block to one side of the protector, and the switchboard cables to the other. The Nos. 65 and 78 are just the reverse, that is, they are designed for the outside wires to be connected directly to one side of the protector, and jumper wires to extend from the other side to a terminal strip, where they are connected to the switchboard cables.

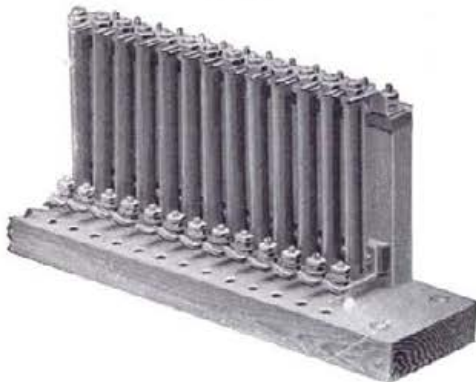
In ordering, specify the number of protectors per strip (noting that some protectors are single, while others are in pairs) and if the protector is for a frame give sufficient information for the drilling. If the protector is to be mounted on a frame which we have furnished, the name of the exchange with the location of the protectors on the frame is sufficient.

| Code No. | Used with                      | Protecting against                | Consists of   | List Price each |
|----------|--------------------------------|-----------------------------------|---|-----------------|
| 4-A      | Magneto central office         | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 10 protector mounting for mounting on wall | \$ 0.68         |
| 4-C      | Central battery central office | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 10 protector mounting for mounting on wall | .68             |
| 65-A     | Magneto central office         | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 23 protector mounting for mounting on wall | .68             |
| 65-B     | Central battery central office | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 23 protector mounting for mounting on wall | .68             |

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No. 84



No. 7-D



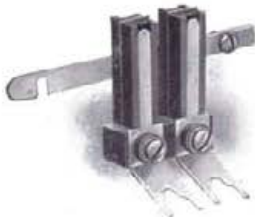
No. 7-A

## Protectors—Continued

| Code No. | Used with   | Protecting against                | Consists of   | List Price each |
|----------|---|-----------------------------------|---|-----------------|
| 78-A     | Magneto central office  | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 24 protector mounting for mounting on frame .....                        | \$ 0.68         |
| 78-B     | Central battery central office                                  | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 24 protector mounting for mounting on frame .....                        | .68             |
| 84-A     | Magneto central office  | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 11 protector mounting for mounting on frame .....                        | .68             |
| 84-B     | Central battery central office                                  | High potential and sneak currents | 2 heat coils, 2 carbon cutouts and No. 11 protector mounting for mounting on frame .....                        | .68             |
| 7-A      | Magneto and central battery central offices and cable terminals | Abnormal current                  | 1 6-ampere fuse and No. 2 protector mounting for mounting on wall or in cable terminals (except No. 15 type)... | .24             |
| 7-D      | Magneto and central battery central offices                     | Abnormal current                  | 1 6-ampere fuse and No. 41 protector mounting for wall type main distributing frame .....                       | .27             |

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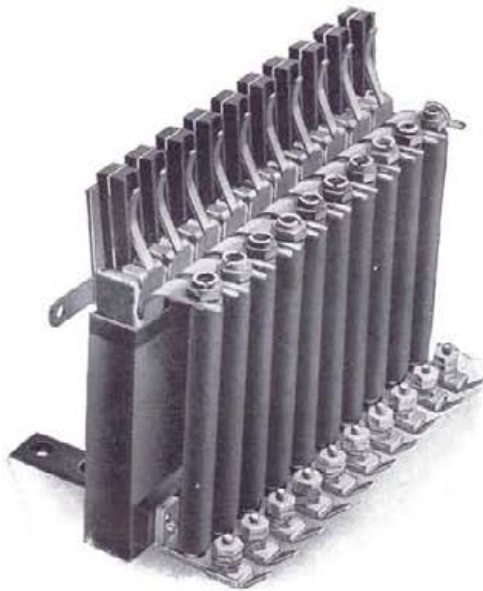




No. 17-A

## Protectors—Continued

| Code No. | Used with         | Protecting against     | Consists of   | List Price each |
|----------|-------------------|------------------------|---|-----------------|
| 17-A     | No. 7-A protector | High potential current | 2 carbon cutouts and No. 15 protector mounting for mounting on No. 7-A protector..... | \$ 0.41         |



No. 61-A

|      |                   |                        |   |     |
|------|-------------------|------------------------|---|-----|
| 17-B | No. 7-A protector | High potential current | 2 copper cutouts and No. 15 protector mounting for mounting on No. 7-A protector..... | .54 |
|------|-------------------|------------------------|---|-----|

|      |   |                                      |   |     |
|------|---|--------------------------------------|---|-----|
| 61-A | Magneto and central battery central offices and cable terminals | High potential and abnormal currents | 1 6-ampere fuse, 1 carbon cutout and No. 30 protector mounting for mounting on wall or in cable terminals (except No. 15 type)... | .45 |
|------|---|--------------------------------------|---|-----|



No. 77-A

|      |                       |                  |   |     |
|------|-----------------------|------------------|---|-----|
| 77-A | No. 15 cable terminal | Abnormal current | 1 6-ampere fuse and No. 51 protector mounting for mounting in No. 15 type cable terminal..... | .24 |
|------|-----------------------|------------------|---|-----|

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## PROTECTOR BLOCKS

A No. 1 protector block is used with a No. 2 and requires one or two No. 3 protector micas. A No. 5 block is used with another No. 5 and requires a No. 7 protector mica. A No. 9 protector block is used by itself and requires no protector mica. A No. 19 protector block is used with a No. 20 and requires one or two No. 10 protector micas.



No. 1



No. 2



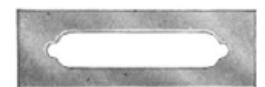
No. 19



No. 20



No. 3



No. 10



No. 48



No. 9641

| Code No. | Description   | Used with<br>Protectors number  | List Price<br>each |
|----------|---|---|--------------------|
| 1        | Plain carbon block with fuse metal.   | 4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B..... | \$ 0.0225          |
| 2        | Grooved carbon block without fuse metal.  | 4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B..... | .0125              |
| 5        | Grooved carbon block with fuse metal.   | 17-A.....   | .02625             |
| 9        | Wood dummy  | 4, 65, 78, 84.....  | .0075              |
| 13       | Copper block with two pins which fit into two bushings of the 20 protector block. | 17-B, 58-B, 58-C, 60-B, 74-A, 79-A, 80-A.....   | .04875             |
| 20       | Copper block with two bushings which engage two pins of the 19 protector block.   | 17-B, 58-B, 58-C, 60-B, 74-A, 79-A, 80-A.....   | .07125             |

## PROTECTOR MICAS

| Code No. | Used with<br>Protector<br>number | Used with<br>Protectors<br>number   | List Price<br>per hundred |
|----------|----------------------------------|---|---------------------------|
| 3        | 1, 2                             | 4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B..... | \$ 1.15                   |
| 7        | 5                                | 17-A.....   | 1.60                      |
| 10       | 19 and 20                        | 17-B, 58-B, 58-C, 60-B, 74-A, 79-A.....   | 1.15                      |

## PROTECTOR MOUNTINGS

| Code No. | Description   | List Price<br>each |
|----------|---|--------------------|
| 48       | Asbestos mat, 8 in. x 4 1/2 in. for placing under No. 58 type protectors..... | \$ 0.021           |

## PUSH BUTTONS

### WOOD

Diameter 1 3/4 in.

| Code Word | List No. | Finish      |
|-----------|----------|-------------|
| Benton    | 9641     | Natural oak |
| Benwood   | 9642     | Antique oak |
| Berkeley  | 9643     | Walnut      |
| Berkley   | 9644     | Ash         |
| Berkshire | 9645     | Cherry      |
| Berl      | 9646     | Mahogany    |

Diameter 2 1/8 in.

| Code Word  | List No. | Finish      |
|------------|----------|-------------|
| Berea      | 9650     | Natural oak |
| Berger     | 9651     | Antique oak |
| Berholz    | 9652     | Walnut      |
| Bernice    | 9653     | Ash         |
| Bernie     | 9654     | Cherry      |
| Berryville | 9655     | Mahogany    |

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## Push Buttons—Continued



No. 9703



No. 2890



No. 9705

| Code Word  | Diameter, 1 in. at base |          |
|------------|-------------------------|----------|
|            | List No.                | Finish   |
| Bloomville | 9703                    | Oak      |
| Blodgett   | 9704                    | Ash      |
| Boca       | 9705                    | Walnut   |
| Bodan      | 9706                    | Mahogany |
| Boise      | 9707                    | Rosewood |

## NEW MITE PUSH

The smallest push made. Fits in  $\frac{1}{4}$  in. hole, is  $\frac{3}{8}$  in. deep and has a face  $\frac{3}{8}$  in. in diameter. Held in place by side springs. Centers will not turn. Wire connectors will take any size wire.

| Code Word  | List No. | Finish                           |
|------------|----------|----------------------------------|
| Famelict   | 2889     | Light or dark pearl center.      |
| Fames      | 2890     | Black or white celluloid center. |
| Organiscos | 23695    | Red or blue celluloid center.    |

## PEAR PUSHES

|           |      |        |
|-----------|------|--------|
| Biddeford | 9675 | Oak    |
| Bigelow   | 9676 | Cherry |
| Billin    | 9677 | Walnut |



No. 122-W

## RECEIVERS

| Code No. | Description                                       | Used with   | List Price each  |
|----------|---|---|--|
| 122-W    | Standard bipolar hand receiver, hard rubber case. | Telephone sets, desk stands, transmitter arms, etc. | Without cord \$ 1.52<br>With 3 ft. No. 92 cord..... 1.65 |



No. 125-W

| Code No. | Description   | Used with                  | List Price each   |
|----------|---|----------------------------|-------------------|
| 125-W    | Lineman's receiver, hard rubber case, metal front and back. Includes a 3 ft. No. 15 cord. | No. 1006 type test sets... | With cord \$ 3.45 |

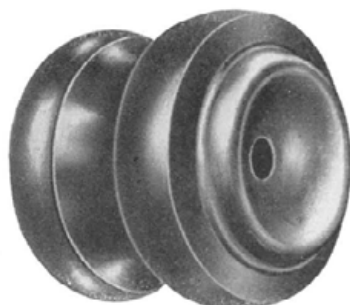


No. 128-W

| Code No. | Description  | Used with                                    | List Price each  |
|----------|--|--|--|
| 128-W    | Standard bipolar head receiver, hard rubber case. This receiver used in combination with the No. 234 transmitter takes a No. 87 cord; when used with a No. 85 plug it takes a No. 30 cord. | Operator's telephone set all switchboards... | Without cord \$ 1.95<br>With 6 ft. No. 87 cord..... 2.70<br>With 6 ft. No. 30 cord..... 2.31 |

WRITE FOR LIBERAL DISCOUNTS

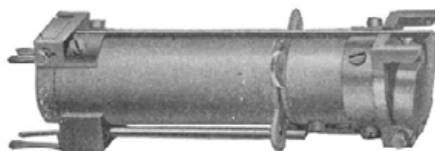
## Receivers—Continued



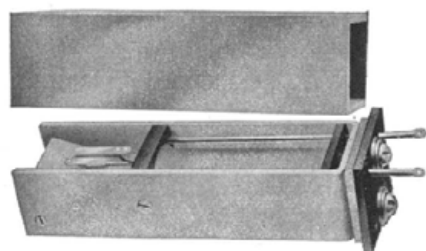
No. 133-W



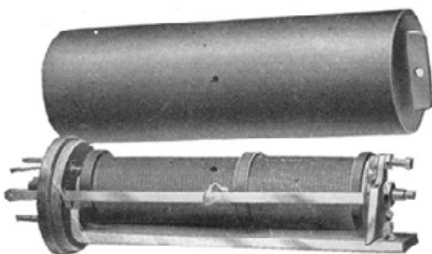
No. 143-W



No. 44-A



No. 87-A



No. 89-A

| Code No. | Description   | Used with   | List Price each  |
|----------|---|---|--|
| 131-W    | Metal case bipolar receiver.  | No. 1 hand set handle, No. 1001 hand set.....           | Without cord \$ 2.30   |
| 133-W    | Insulated bipolar hand receiver, hard rubber case   | No. 1302 and 1314 telephone sets.....                   | Without cord 1.90<br>With 3 ft. No. 311 cord..... 2.24   |
| 141-W    | Small metal case bipolar receiver   | No. 1002-A hand set.....                                | Without cord.. 1.90  |
| 143-W    | Concealed binding post hand receiver composition case.<br>This receiver will be furnished in hard rubber case if desired. | Telephone sets, desk stands, transmitter arms, etc..... | Without cord.. 1.20<br>With 3 ft. No. 92 cord..... 1.33<br>Without cord.. 1.52<br>With 3 ft. No. 92 cord..... 1.65 |

## RELAYS

The wide range of types and resistances of our relays makes it impracticable to catalogue them all here. The following views are shown to convey an idea of the types generally used. The resistances of the windings and the arrangements of contacts are varied to meet the requirements of the circuits in which they are placed.

**No. 44 Type** Is self-restoring. Has a line operating coil and a restoring coil. Used when a local signal circuit is to be operated by ringing on the line. When the line coil is energized, the front armature is released and falls forward, closing a local contact. When the restoring coil is energized, the front armature is restored to the vertical position. Makes one contact when operated.

**No. 87 Type** Closes a local circuit only while the line is being rung upon. Has flexible contact springs and a heavy armature sluggish action so that the local circuit remains closed as long as there is ringing current on the line. Used in trunk circuits between central offices. Has a cross-talk proof cover. Makes one contact when operated.

**No. 89 Type** Has an operating coil and a locking coil. Made to respond to ringing current and to close a circuit through its armature contact and locking coil so that the relay remains in the operated position after ringing has ceased. Used for toll line signalling and in toll cord supervisory circuits. Has cross-talk proof cover. Makes one contact when operated.

PRICES ON REQUEST

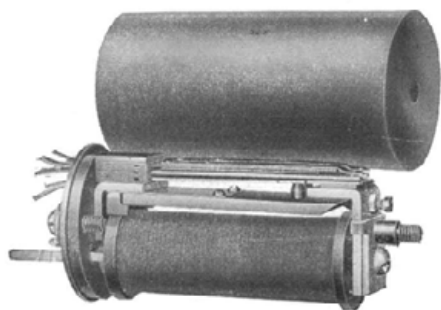


## Relays—Continued



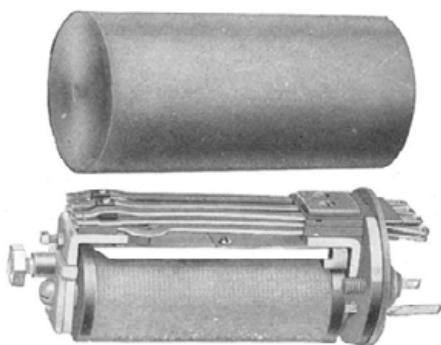
No. 118

**No. 114 Type** Operates on direct current. Has one or two operating windings. Used when a firmly established back contact is desired. Makes one contact and breaks one.



No. 122-A

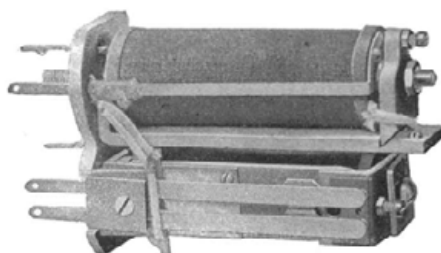
**No. 118 Type** Sensitive relay for operating on direct current. For general use where a single contact is to be made. Has cross-talk proof cover. One form of this relay has in addition a back contact.



No. 125-A

**No. 122 Type** Operated by direct current and generally used where it is desired to break two and make two contacts when the relay is energized.

**No. 125 Type** Operated by direct current and generally used where it is desired to break three and make three contacts when the relay is energized.



No. 163-E

**No. 163 Type** The type of line and cut-off relay used with the No. 1 switchboard. Comprises a line relay which controls the signal lamp circuit, and a cut-off relay which operates and cuts off the line relay and signal equipment when the call is answered.



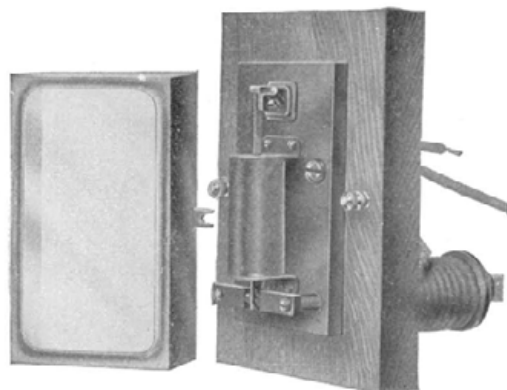
No. 189-B

**No. 189 Type** A small relay operating on direct current. Used as a line relay with the No. 10 switchboard. Makes one contact when operated.

PRICES ON REQUEST



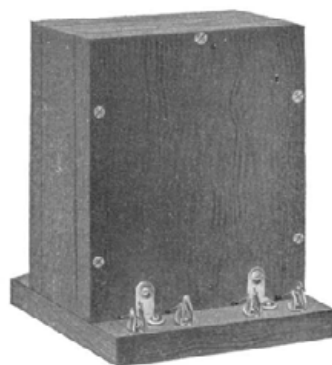
## POLARIZED RELAYS



No. 154-A Relay

These are used in connection with the reverse current coil of a circuit breaker, to prevent the storage battery discharging through the generator in case the latter stops.

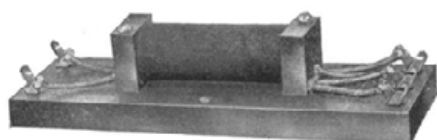
| Code No. | Capacity<br>amperes | For                  | List Price<br>each |
|----------|---------------------|----------------------|--------------------|
| 154-A    | 50                  | 30 volt battery..... | \$ 22.50           |
| 154-B    | 100                 | 30 volt battery..... | 30.00              |
| 154-C    | 200                 | 30 volt battery..... | 30.00              |
| 154-D    | 300                 | 30 volt battery..... | 30.00              |
| 154-E    | 400                 | 30 volt battery..... | 30.00              |
| 154-F    | 600                 | 30 volt battery..... | 36.00              |
| 154-G    | 800                 | 30 volt battery..... | 75.00              |
| 154-H    | 1,000               | 30 volt battery..... | 75.00              |



No. 8-A

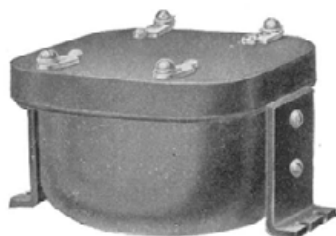
## REPEATING COILS

The No. 8-A repeating coil is mounted in a wooden box, and the Nos. 20-A and 30-A have a cloth covering. With these exceptions the coils listed below are enclosed in iron cross-talk proof shells. The No. 25-E is provided with a hard rubber base. All others are mounted on wooden bases.



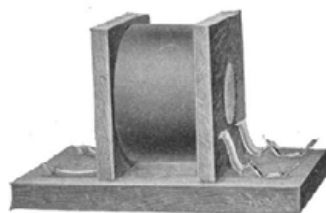
No. 20-A

| Code No. | Resistance<br>ohms   | Size of Base<br>inches           | Use  | List Price<br>each |
|----------|--|----------------------------------|--|--------------------|
| 8-A      | 2 Primary windings,<br>52.5 each.<br>2 Secondary wind-<br>ings, 76 each. | 3 $\frac{3}{8}$ x4 $\frac{1}{2}$ | Cord circuits Nos.<br>1006, 1101, 1102<br>and 1010 mag-<br>neto switch-<br>boards..... | \$ 2.40            |



No. 25-E

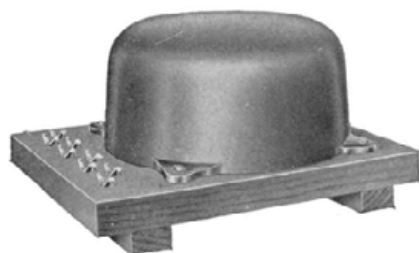
|      |  |                                  |   |      |
|------|--|----------------------------------|---|------|
| 20-A | 1 Primary winding,<br>277.<br>1 Secondary wind-<br>ing, 40.<br>1 Tertiary winding,<br>non-inductive, 360 | 5 $\frac{7}{8}$ x1 $\frac{1}{2}$ | Trunk operator's<br>telephone cir-<br>cuit, No. 1 switch-<br>board..... | 1.15 |
|------|--|----------------------------------|---|------|



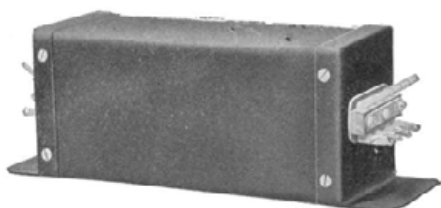
No. 30-A

|      |  |                                  |   |      |
|------|--|----------------------------------|---|------|
| 25-E | 1 Primary winding,<br>46.<br>1 Secondary wind-<br>ing, 46.   | 3 $\frac{3}{8}$ x4 $\frac{7}{8}$ | Street railway tel-<br>ephonesets Nos.<br>1278 - A and<br>1302-A..... | 5.05 |
| 30-A | 1 Primary winding,<br>385.<br>1 Secondary wind-<br>ing, .03. | 5 $\frac{1}{2}$ x5 $\frac{1}{2}$ | Tone test cir-<br>cuit.....   | 6.25 |

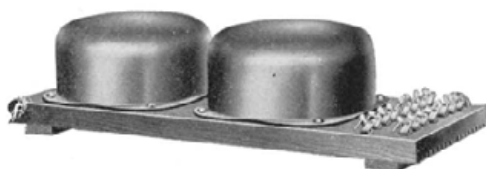
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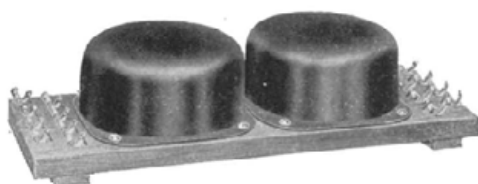
No. 37-A



No. 39-A



No. 25-A



No. 25-C



No. 26-A

## Repeating Coils—Continued

| Code No.    | Resistance<br>ohms  | Size of Base<br>inches | Use   | List Price<br>each |
|-------------|---|------------------------|---|--------------------|
| <b>37-A</b> | 2 Primary windings, 35 each.                              | 11 x 8½                | Phantom toll circuits and simplex circuits..... | <b>\$ 18.90</b>    |
|             | 2 Secondary windings, 35 each.                            |                        |   |                    |
| <b>39-A</b> | First winding, 62; second winding, 37; third winding, 40. | 10½ x 3½               | Phantom toll circuits and simplex circuits..... | <b>13.70</b>       |

These have two coils mounted on one base and are for use on standard repeating coil racks. Size of base is 10½ in. by 4 in.

The windings of the Nos. 25-C and 25-G are the same as those of the Nos. 25-A and F respectively, except that they are brought out to terminals on both ends of the base.

| Code No.    | Resistance<br>ohms                 | Use  | List Price<br>each |
|-------------|------------------------------------|--|--------------------|
| <b>25-A</b> | 2 Primary windings, 23 each.       | Cord circuits and incoming trunk circuits on central battery switchboards.....           | <b>\$ 7.65</b>     |
|             | 2 Secondary windings, 23 each.     |  |                    |
| <b>25-F</b> | 2 Primary windings, 23 each.       | 48 volt battery long distance and incoming toll trunks central battery switchboards..... | <b>8.30</b>        |
|             | 2 Secondary windings, 23 each.     |  |                    |
|             | 2 Non-inductive windings, 40 each. |  |                    |
| <b>25-C</b> | 2 Primary windings, 23 each.       | Cord circuits and incoming trunk circuits of central battery switchboards.....           | <b>7.65</b>        |
|             | 2 Secondary windings, 23 each.     |  |                    |
| <b>25-G</b> | 2 Primary windings, 23 each.       | 48 volt battery long distance and incoming toll trunks central battery switchboards..... | <b>8.30</b>        |
|             | 2 Secondary windings, 23 each.     |  |                    |
|             | 2 Non-inductive windings, 40 each. |  |                    |

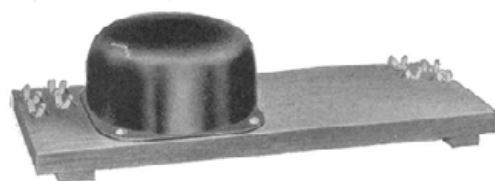
These have one coil per base, and are for use on standard repeating coil racks. Size of base is 10½ in. by 4 in.

The windings of the Nos. 26-C and 26-F are the same as those of the Nos. 26-A and 26-E respectively, except that they are brought out to terminals on both ends of the base.

| Code No.    | Resistance<br>ohms             | Use  | List Price<br>each |
|-------------|--------------------------------|--|--------------------|
| <b>26-A</b> | 2 Primary windings, 23 each.   | Cord circuits and incoming trunk circuits of central battery switchboards..... | <b>\$ 4.05</b>     |
|             | 2 Secondary windings, 23 each. |  |                    |

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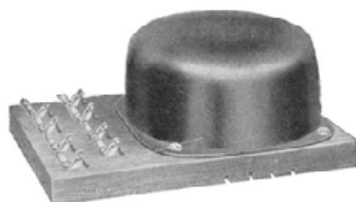
## Repeating Coils—Continued



No. 26-C

| Code No.    | Resistance<br>ohms  | Use  | List Price<br>each |
|-------------|---|--|--------------------|
| <b>26-E</b> | 2 Primary wind-<br>ings, 23 each.<br>2 Secondary<br>windings, 23<br>each.<br>2 Non - inductive<br>windings, 40<br>each. | 48 volt battery long<br>distance and in-<br>coming toll trunks<br>central battery<br>switchboards..... | <b>\$ 4.25</b>     |
| <b>26-C</b> | 2 Primary wind-<br>ings, 23 each.<br>2 Secondary<br>windings, 23<br>each.   | Cord circuits and in-<br>coming trunk cir-<br>cuits of central<br>battery switch-<br>boards.....       | <b>4.05</b>        |
| <b>26-F</b> | 2 Primary wind-<br>ings, 23 each.<br>2 Secondary<br>windings, 23<br>each.<br>2 Non - inductive<br>windings, 40<br>each. | 48 volt long distance<br>and incoming toll<br>trunks central<br>battery switch-<br>boards.....         | <b>4.25</b>        |

These have a single coil on a base 6 in. by 4 in. and are used where a single coil mounted on a short base is desired.



No. 27-A

| Code No.    | Resistance<br>ohms  | Use   | List Price<br>each |
|-------------|---|---|--------------------|
| <b>27-A</b> | 2 Primary wind-<br>ings, 23 each.<br>2 Secondary<br>windings, 23<br>each.   | Cord circuits and in-<br>coming trunk cir-<br>cuits on central<br>battery switch-<br>boards.....          | <b>\$ 3.95</b>     |
| <b>27-C</b> | 2 Primary wind-<br>ings, 23 each.<br>2 Secondary<br>windings, 23<br>each.<br>2 Non - inductive<br>windings, 40<br>each. | 48 volt battery long<br>distance and in-<br>coming toll trunks<br>on central battery<br>switchboards..... | <b>4.25</b>        |

These coils may be used in single office districts.

The windings of the "B" type coils are the same as those of the "A" type, except that they are brought out to terminals on only one end of the base.



No. 11-A

| Code No.    | Resistance<br>ohms      | Use  | List Price<br>each |
|-------------|-------------------------|--|--------------------|
| <b>11-A</b> | 4 windings, 38<br>each. | Subscriber cord cir-<br>cuits at central bat-<br>tery switchboards.. | <b>\$ 2.50</b>     |
| <b>11-B</b> | 4 windings, 38<br>each. | Subscriber cord cir-<br>cuits at central bat-<br>tery switchboards.. | <b>2.50</b>        |
| <b>12-A</b> | 4 windings, 22<br>each. | Trunk and toll circuits<br>central battery<br>switchboards.....      | <b>3.45</b>        |
| <b>12-B</b> | 4 windings, 22<br>each. | Trunk and toll circuits<br>central battery<br>switchboards.....      | <b>3.45</b>        |

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## RESISTANCES

## No. 1 Type



No. 1

These have a brass core, fibre heads and are enclosed in a brass shell. They have one coil.

| Code No. | Resistance ohms | List Price each | Code No. | Resistance ohms      | List Price each |
|----------|-----------------|-----------------|----------|----------------------|-----------------|
| 1-A      | 400             | \$ 0.30         | 1-K      | 30                   | \$ 0.30         |
| 1-B      | 2500            | .45             | 1-L      | 100 (Non inductive)  | .30             |
| 1-C      | 500             | .30             | 1-N      | 700                  | .30             |
| 1-D      | 60              | .30             | 1-P      | 5                    | .30             |
| 1-E      | 300             | .30             | 1-R      | 250                  | .30             |
| 1-F      | 1000            | .45             | 1-T      | 350                  | .30             |
| 1-G      | 3000            | .60             | 1-U      | 45                   | .30             |
| 1-H      | 200             | .30             | 1-W      | 2000 (Non inductive) | .45             |
| 1-J      | 20              | .30             |          |                      |                 |

## No. 5 Type



No. 5

These have a wooden spool and one winding.

|     |       |      |      |       |      |
|-----|-------|------|------|-------|------|
| 5-A | 120   | .70  | 5-S  | 9000  | 1.50 |
| 5-B | 20    | .70  | 5-T  | 20000 | 1.90 |
| 5-C | 60    | .70  | 5-U  | 450   | .85  |
| 5-D | 50    | .70  | 5-W  | 150   | .70  |
| 5-E | 90    | .70  | 5-Y  | 1150  | 1.15 |
| 5-F | 10    | .75  | 5-Z  | 8550  | 1.50 |
| 5-G | 10000 | 1.50 | 5-AA | 300   | .70  |
| 5-H | 500   | .85  | 5-AB | 9250  | 1.50 |
| 5-I | 600   | .85  | 5-AC | 2000  | 1.12 |
| 5-K | 750   | 1.15 | 5-AD | 8800  | 1.50 |
| 5-L | 1000  | 1.15 | 5-AE | 1200  | 1.15 |
| 5-M | 2500  | 1.15 | 5-AF | 100   | .70  |
| 5-N | 800   | 1.15 | 5-AG | 200   | .70  |
| 5-P | 180   | .70  | 5-AH | 250   | .70  |
| 5-R | 40    | .70  |      |       |      |

## No. 18 Type



No. 18

These have a micranite core and two terminals.

|      |     |     |       |     |     |
|------|-----|-----|-------|-----|-----|
| 18-A | 37  | .35 | 18-U  | 100 | .35 |
| 18-B | 40  | .35 | 18-W  | 133 | .35 |
| 18-C | 83  | .35 | 18-Y  | 90  | .35 |
| 18-D | 120 | .35 | 18-Z  | 67  | .35 |
| 18-E | 140 | .35 | 18-AA | 95  | .35 |
| 18-F | 150 | .35 | 18-AB | 45  | .35 |
| 18-G | 200 | .35 | 18-AC | 500 | .35 |
| 18-H | 210 | .35 | 18-AD | 240 | .35 |
| 18-I | 30  | .35 | 18-AE | 600 | .35 |
| 18-K | 80  | .35 | 18-AF | 300 | .35 |
| 18-L | 170 | .35 | 18-AG | 226 | .35 |
| 18-M | 53  | .35 | 18-AH | 320 | .35 |
| 18-N | 180 | .35 | 18-AJ | 400 | .35 |
| 18-P | 130 | .35 | 18-AK | 60  | .35 |
| 18-Q | 110 | .35 | 18-AL | 4   | .35 |
| 18-R | 10  | .35 | 18-AM | 250 | .35 |
| 18-S | 20  | .35 | 18-AN | 350 | .35 |
| 18-T | 50  | .35 |       |     |     |

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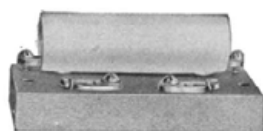
## No. 19 Type

These have a micanite core, two windings and three terminals, the middle terminal being common to one end of each of the windings.



No. 19

| Code No. | Resistance ohms | List Price each | Code No. | Resistance ohms | List Price each |
|----------|-----------------|-----------------|----------|-----------------|-----------------|
| 19-A     | 37 and 37       | \$ 0.38         | 19-Y     | 15 and 15       | \$ 0.38         |
| 19-B     | 40 and 40       | .38             | 19-Z     | 120 and 120     | .38             |
| 19-C     | 40 and 83       | .38             | 19-AA    | 15 and 90       | .38             |
| 19-D     | 83 and 83       | .38             | 19-AB    | 120 and 210     | .38             |
| 19-E     | 30 and 30       | .38             | 19-AC    | 60 and 83       | .38             |
| 19-F     | 40 and 60       | .38             | 19-AD    | 150 and 150     | .38             |
| 19-G     | 40 and 100      | .38             | 19-AE    | 30 and 120      | .38             |
| 19-H     | 40 and 120      | .38             | 19-AF    | 140 and 140     | .38             |
| 19-J     | 10 and 40       | .38             | 19-AG    | 120 and 160     | .38             |
| 19-K     | 100 and 100     | .38             | 19-AH    | 240 and 240     | .38             |
| 19-L     | 60 and 60       | .38             | 19-AJ    | 200 and 200     | .38             |
| 19-M     | 20 and 20       | .38             | 19-AK    | 70 and 70       | .38             |
| 19-N     | 5 and 8         | .38             | 19-AL    | 40 and 68       | .38             |
| 19-P     | 20 and 130      | .38             | 19-AM    | 50 and 50       | .38             |
| 19-R     | 25 and 120      | .38             | 19-AN    | 260 and 260     | .38             |
| 19-S     | 60 and 90       | .38             | 19-AP    | 180 and 180     | .38             |
| 19-T     | 25 and 25       | .38             | 19-AR    | 60 and 260      | .38             |
| 19-U     | 25 and 90       | .38             | 19-AS    | 170 and 170     | .38             |
| 19-W     | 10 and 10       | .38             |          |                 |                 |



No. 31-A

## No. 31 Type

A steel tube enameled resistance; mounted on a wood base; used in railway composite circuit.

| Code No. | Resistance ohms | List Price each |
|----------|-----------------|-----------------|
| 31-A     | 1,200           | \$ 1.15         |

## RESISTANCE LAMPS

These have tubular bulbs  $1\frac{1}{4}$  in. diameter with carbon filament and are fitted with Edison bases.



No. 1

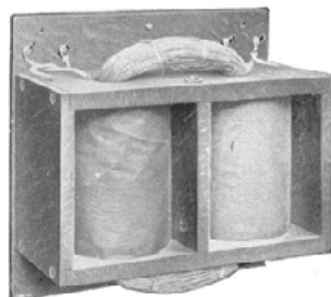
| Code No. | Resistance ohms | List Price each |
|----------|-----------------|-----------------|
| 1-A      | 660             | \$ 0.60         |
| 1-B      | 220             | .43             |
| 1-C      | 300             | .60             |
| 1-D      | 100             | .60             |

## RETARDATION COILS

These represent a few of the commonly used types which we manufacture.



No. 1-A



No. 5-K

| Code No. | Resistance ohms     | Use   | List Price each |
|----------|---------------------|---|-----------------|
| 1-A      | 1 winding 600       | Telephone circuit desk operator, No. 1 switchboard.....                                     | \$ 1.00         |
| 1-C      | 1 winding 200       | Telephone circuit Nos. 1006, 1010, 1101 and 1102 magneto switchboards.....                  | .90             |
| 1-F      | 1 winding 500       | Telephone circuit, desk operator, No. 1 switchboard and cord circuit No. 9 switchboard..... | .90             |
| 1-G      | 1 winding 750       | Telephone circuit, Nos. 101, 102 and cordless private exchanges                             | 1.00            |
| 1-K      | 1 winding 1000      | Long line circuit No. 10 switchboard  | 1.05            |
| 5-K      | 2 windings 15 each  | Composite circuit and No. 9 switchboard.....  | 11.80           |
| 5-L      | 2 windings 25 each  | Composite circuit.....  | 12.85           |
| 5-N      | 4 windings 250 each | Duplex telegraph circuit.....   | 16.20           |
| 5-R      | 2 windings 20 each  | Composite circuit.....  | 1.80            |

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## Retardation Coils—Continued



No. 8-B



No. 12-A



No. 12-K



No. 31-B



No. 45-A



No. 44-B



No. 2-AG

| Code No. | Resistance<br>ohms     | Use  | List Price<br>each |
|----------|------------------------|--|--------------------|
| 8-B      | 2 windings 85<br>each  | Cord circuit Nos. 4, 101, 102 and<br>cordless private exchanges.....                                       | \$ 3.25            |
| 8-L      | 2 windings 175<br>each | No. 4 private exchange.....  | 2.55               |
| 12-A     | 1 winding 165          | Operator's telephone circuit, Nos. 1,<br>9 and 10 switchboards, Nos. 101<br>and 102 private exchanges..... | .85                |
| 12-G     | 1 winding 2            | Telephone set No. 1312-A.....  | .75                |
| 12-L     | 1 winding 400          | Operator's telephone circuit, No. 4<br>private exchange.....   | 1.50               |
| 12-M     | 1 winding 2.3          | Telephone set No. 1314-A.....  | .75                |
| 12-H     | 1 winding              | Choke coil used in primary circuit of<br>battery driven 38 watt dynamotor                                  | 6.75               |
| 12-J     | 1 winding              | Choke coil used in primary circuit of<br>battery driven 75 watt dynamotor                                  | 6.75               |
| 12-K     | 1 winding              | Choke coil used in primary circuit of<br>battery driven 150 watt dynamotor.....                            | 6.75               |

The No. 31 type for use with lightning arresters for the protection of overhead direct and alternating current power circuits; mounted on a temporary base for shipment.

| Code No. | Capacity<br>amperes | List Price<br>each |
|----------|---------------------|--------------------|
| 31-B     | 25                  | \$ 4.30            |
| 31-D     | 50                  | 7.50               |
| 31-F     | 100                 | 17.65              |
| 31-H     | 150                 | 25.90              |

| Code No. | Resistance<br>ohms  | Use   | List Price<br>each |
|----------|---------------------|---|--------------------|
| 45-A     | 2 windings .04 each | In No. 79 type protector.....   | \$ 0.20            |
| 44-B     | 2 windings 200 each | This has two separate toroidal<br>coils on the same wooden base.<br>Each coil is enclosed in a cross<br>talk-proof shell. Used in the<br>cord circuit of No. 1 toll switch-<br>board..... | 14.25              |

## RINGERS

## For Telephone Sets

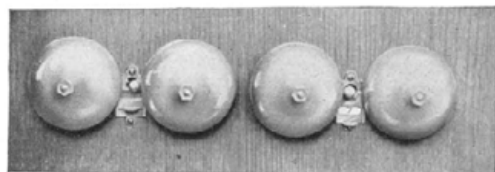
These are equipped with No. 16 gongs and the necessary gong mountings and gong nuts. Different gongs may be used if desired, by changing the gong mountings and nuts and in ordering these it will be sufficient to specify, No. ....ringers equipped with No. ....gongs.

| Code No. | Type          | Type of<br>Gong Posts | Resistance<br>ohms | List Price<br>each |
|----------|---------------|-----------------------|--------------------|--------------------|
| 2-AG     | Long unbiased | Long                  | 1000               | \$ 1.65            |
| 2-BG     | Long unbiased | Long                  | 2500               | 2.25               |
| 2-FG     | Long unbiased | Long                  | 1600               | 2.25               |
| 3-AG     | Long unbiased | Medium                | 1000               | 1.65               |
| 3-BG     | Long unbiased | Medium                | 2500               | 2.25               |
| 4-AG     | Long unbiased | Short                 | 1000               | 1.65               |
| 4-BG     | Long unbiased | Short                 | 2500               | 2.25               |

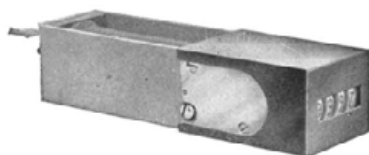
WRITE FOR LIBERAL DISCOUNTS



No. 6-AG



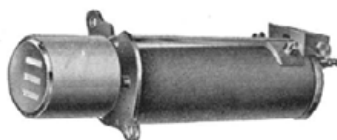
No. 1-A operated and non operated



No. 5-G



No. 4-E



No. 32-A



No. 34-A



No. 42-A

## Ringers—Continued

| Code No. | Type        | Type of Gong Posts | Resistance ohms | List Price each |
|----------|-------------|--------------------|-----------------|-----------------|
| 6-AG     | Long biased | Long               | 1000            | \$ 1.65         |
| 6-BG     | Long biased | Long               | 2500            | 2.25            |
| 6-FG     | Long biased | Long               | 1600            | 2.25            |
| 7-AG     | Long biased | Medium             | 1000            | 1.65            |
| 7-BG     | Long biased | Medium             | 2500            | 2.25            |
| 8-AG     | Long biased | Short              | 1000            | 1.65            |
| 8-BG     | Long biased | Short              | 2500            | 2.25            |

## RINGER INDICATORS

Used in connection with ringers to indicate the calling line.

| Code No. | List Price each |
|----------|-----------------|
| 1-A      | \$ 0.45         |

## SERVICE METERS

These are for counting the number of effective calls made on a telephone line. They are mounted at the central office on steel mounting plates.

| Code No. | Outer Winding Resistance ohms | Inner Winding Resistance ohms | Operates on volts | Does not Operate on volts | List Price each |
|----------|-------------------------------|-------------------------------|-------------------|---------------------------|-----------------|
| 5-G      | 40                            | 500                           | 26.5              | 25                        | \$ 3.70         |

These are for counting the number of connections made by an operator. They are mounted on steel mounting plates.

| Code No. | Resistance ohms | Operating Current amperes | Non-operating Current amperes | List Price each |
|----------|-----------------|---------------------------|-------------------------------|-----------------|
| 5-H      | .25             | 1.3                       | 1.2                           | \$ 3.40         |

## SIGNALS

The No. 4 has two coils and is used principally as a line signal in private exchanges employing magnetic signals and operating on a central battery basis.

The No. 32 has a single coil and is used principally as a supervisory signal in private exchanges employing magnetic signals and operating on a central battery basis. It is also used as the line signal in the cordless private exchange switchboards.

The No. 34 is used as a line signal in the No. 9 switchboard and in the trunk circuits of the No. 105 magneto switchboard. The Nos. 39 and 41 signals are used in the cord circuits of the No. 9 switchboard.

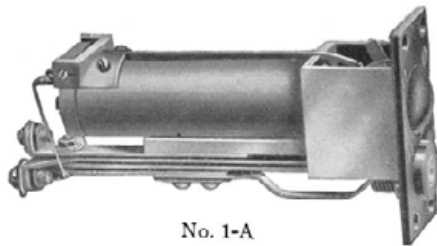
The No. 42 is used as a busy signal with multiple toll line jacks and mounts on same centers as jacks.

The Nos. 4, 34, 39 and 41 signals are numbered in paint on the shutter, numbering to be specified.

| Code No. | Resistance ohms     | List Price each |
|----------|---------------------|-----------------|
| 4-E      | 250                 | \$ 1.90         |
| 32-A     | 33.3                | 2.35            |
| 34-A     | 80                  | 2.25            |
| 34-B     | 300                 | 2.40            |
| 39-A     | 2 windings 250 each | 3.30            |
| 41-B     | 2 windings 100 each | 3.25            |
| 42-A     | 100                 | .90             |

WRITE FOR LIBERAL DISCOUNTS





No. 1-A



No. 62

| Code No. | For Signals number | Number of Signals per Strip |
|----------|--------------------|-----------------------------|
| 2        | 4                  | 10                          |
| 29       | 34, 39, 41         | 5                           |
| 60       | 34, 39, 41         | 15                          |
| 61       | 34, 39, 41         | 20                          |
| 62       | 34, 39, 41         | 12                          |
| 77       | 42                 | 10                          |
| 78       | 42                 | 10                          |
| 79       | 42                 | 20                          |

### Signals—Continued

The No. 1-A Combination Jack and Signal is used as a line signal for the Nos. 1101 and 1102 magneto switchboards. It is designed for magneto switchboards when the jack is to be mounted adjacent to the signal. The signal is restored automatically by inserting a plug in the associated jack.

| Code No. | Description                 | Resistance ohms | List Price each |
|----------|-----------------------------|-----------------|-----------------|
| 1-A      | Combination jack and signal | 500             | \$ 2.65         |

### SIGNAL MOUNTINGS

The following are the principal mountings used with the signals described above.

| Size of Face Plate inches                | List Price   |
|--|--|
| 15x $\frac{9}{16}$ .....                 | The price of the signal mounting is included in the price of the signal if the strip is fully equipped |
| 7 $\frac{1}{2}$ x1 $\frac{3}{8}$ .....   |  |
| 24 $\frac{9}{16}$ x1 $\frac{3}{8}$ ..... |  |
| 24 $\frac{9}{16}$ x1 $\frac{3}{8}$ ..... |  |
| 21x1 $\frac{3}{8}$ .....                 |  |
| 9 $\frac{3}{16}$ x $\frac{7}{8}$ .....   |  |
| 7 $\frac{3}{8}$ x $\frac{7}{8}$ .....    |  |
| 9 $\frac{3}{16}$ x $\frac{7}{8}$ .....   |  |

## CENTRAL BATTERY SWITCHBOARDS

### No. 1 SUBSCRIBER AND TRUNK SWITCHBOARDS

The No. 1 switchboard is a central battery lamp signal and lamp supervisory switchboard arranged for positive supervision, and is recommended for use for all equipments where a central battery exchange of more than 1600 lines is desired, or for a smaller equipment, where the liability of growth within a few years to a system exceeding 1600 lines is calculated.

For small central battery exchanges we recommend the No. 9 or the No. 10 switchboards which are described herein.

The No. 1 switchboard is a multiple board, the multiple jacks being bridged across the line, and appearing once in each section, so that every operator has a multiple jack of each subscriber's line within her reach.

These boards are furnished in various standard sizes from 3000 to 9600 lines; the commonly used of these being the 3000 line, 4900 line and 9600 line boards. Any equipment desired may be provided with the original installation, as the equipment is so arranged that additions may be installed at any time without interrupting the service.

The 3000 line section is a five panel board, arranged for two operators' positions, 400 answering jacks, 300 outgoing trunk multiple and is 6 ft. 6 in. high, 4 ft. 3 $\frac{1}{4}$  in. long and 3 ft. 7 $\frac{1}{4}$  in. deep from the front of the keyshelf to the rear curtain.

The 4900 line section has seven panels, is arranged for three operators' positions, 560 answering jacks, 500 outgoing trunk multiple and is 6 ft. 10 in. high, 5 ft. 11 $\frac{3}{4}$  in. long and 4 ft.  $\frac{1}{4}$  in. deep from the front of the keyshelf to the rear curtain.

The 9600 line section has eight panels, is arranged for three operators' positions, 640 answering jacks, 600 outgoing trunk multiple, and is 7 ft. 8 $\frac{1}{2}$  in. high, 5 ft. 8 in. long and 4 ft. 4 $\frac{5}{8}$  in. deep from the front of the keyshelf to the rear curtain.

The first two of these boards are what are commonly known as the No. 49 jack boards, on account of their being arranged for No. 49 jacks, and the latter is known as the No. 92 jack board, because it is arranged for No. 92 jacks.

The No. 49 and No. 92 jacks are similar with the exception that the No. 92 is smaller and is assembled on a metal mounting, while the No. 49 jack is assembled on a hard rubber mounting. The No. 92 jacks being smaller are mounted on closer centers, and for this reason are used in place of the No. 49 jacks where large multiple equipments are necessary.

It will be understood from the above that the plugs and cords, as well as the various other pieces of apparatus used in these sections, will be different. These differences, however, are only in dimensions, and do not in any way affect the operation, strength and efficiency of the equipment.

PRICES ON REQUEST



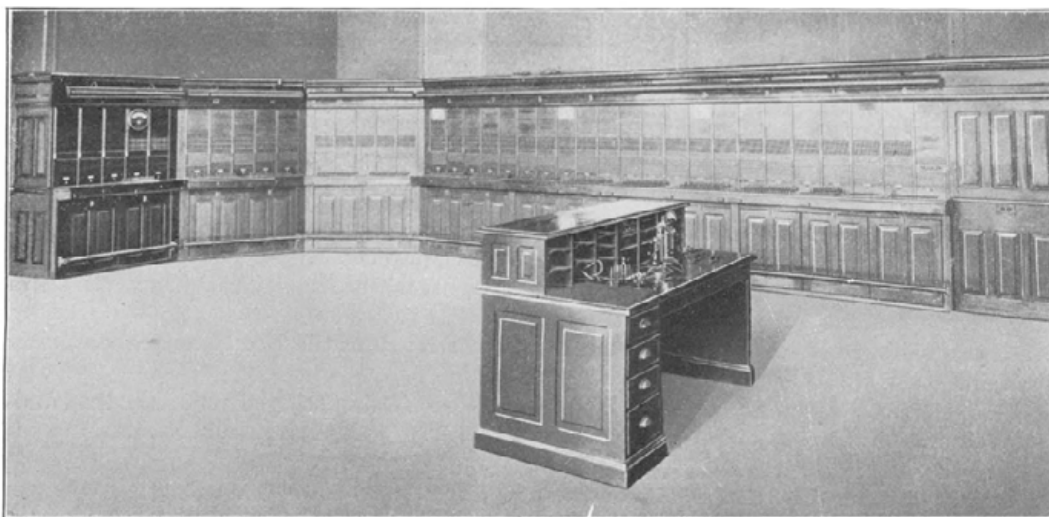
### Central Battery Switchboard—Continued

Line and cut-off relays are provided for each subscriber line circuit. The function of the line relay being to operate when a subscriber takes the receiver off the hook, thus lighting the line lamp and signalling the operator. The cut-off relay operates when the call is answered, cutting off the line battery and extinguishing the line lamp. From this point on during a conversation, the talking battery is taken from the cord circuit through the repeating coil, separate coils being provided with each pair of cords.

In multiple office districts, i.e., in districts where there are two or more exchanges, as for instance, in a large city where the number of subscribers is such that they can be accommodated only by a number of central offices, instead of by only one exchange, or where the area covered is such that it is more economical to install several exchanges than to try to handle the business from one point, trunk sections are recommended for use in conjunction with the No. 1 subscriber board.

In these trunk sections appear multiple jacks, bridged across the subscribers' lines, so that a multiple jack of each line is within the reach of every one of the trunk operators.

In cases of this kind, trunk equipments are provided, terminating in jacks at the subscriber board and in incoming trunks, consisting of plugs and cords with the necessary repeating coils, relays, resistances, lamps and keys at a distant exchange. These incoming trunks are placed in the trunk sections, and when a subscriber connected to one exchange desires to converse with a subscriber connected to another exchange,



Operating Room

the operator at the subscriber board where the call originates, has a trunk assigned over a call wire, by the trunk operator at the distant exchange, who then makes connection with the trunk multiple jack of the subscriber's line with which the calling subscriber desires connection.

The trunk sections are in large exchanges placed in a separate line from the subscriber sections, but in exchanges where the number of trunks is not large the sections may be placed in the same line with the subscriber board. Subscriber sections may be readily converted into trunk sections by merely changing the equipment.

The frames of these sections are made of steel to give them strength and rigidity. All the woodwork on the front of the boards is of selected mahogany, and is very carefully fitted and finished. The rear of the board is provided with rolling wooden curtains. Lighting equipment is provided with each section.

These switchboards, both subscriber and trunk, are equipped with the necessary miscellaneous circuits, such as night bell, auxiliary signal, instruction, supervisors, tone test, etc.

## FRAMES AND RACKS, USED WITH No. 1 SWITCHBOARD

### MAIN DISTRIBUTING FRAME

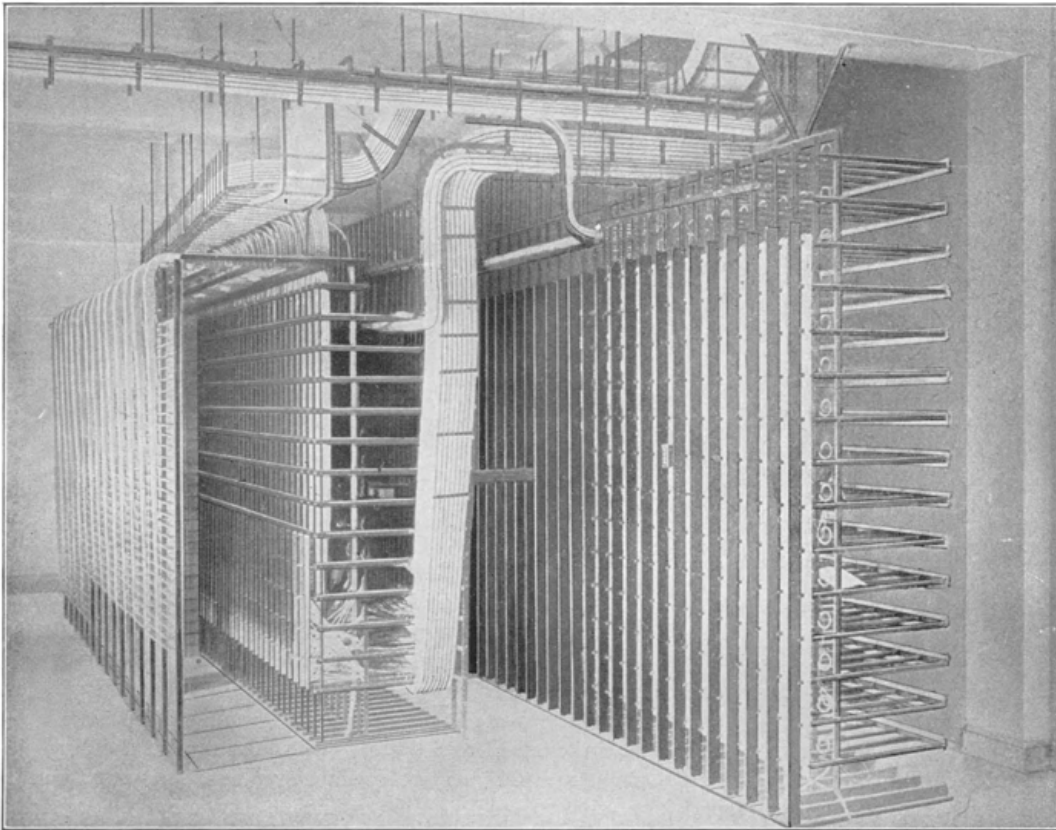
A main frame of iron construction is provided with this board, to one side of which the outside lines are connected, the other side being connected by cable to the intermediate frame. On it are mounted protectors, consisting of heat coils and carbon block arresters. Adequate provision is made for cross connecting.

PRICES ON REQUEST

## Frames and Racks—Continued

### INTERMEDIATE FRAME

An intermediate distributing frame of iron construction is provided, on the horizontal side of which are mounted terminal strips, to which the cables from the main frame are soldered. Terminal strips are placed on the vertical side of this frame, and from these the cables are run to the answering jacks in the switchboard and to the relays on the relay rack. Ample provision is made on this frame for cross connecting.



Terminal Room

### RELAY RACK

A relay rack of iron construction is provided on which to mount the line relays and the incoming trunk relays in case trunking equipment is necessary. In a very large exchange a separate relay rack is provided for the trunk relays.

### COIL RACK

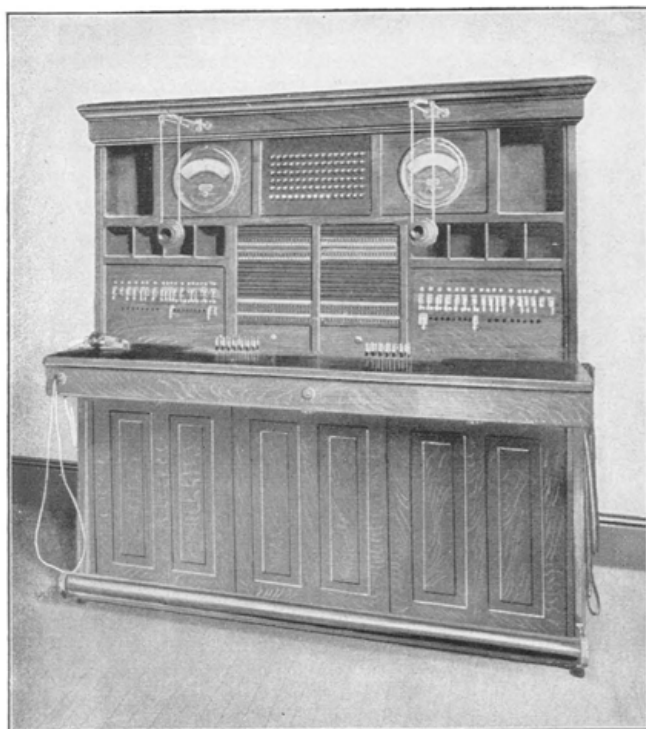
A coil rack of iron construction is provided on which the repeating coils, wired in the cord circuits, are mounted. These coils are connected to the cord circuits by cable run from the coil rack to the switchboard sections.

### FUSE PANEL

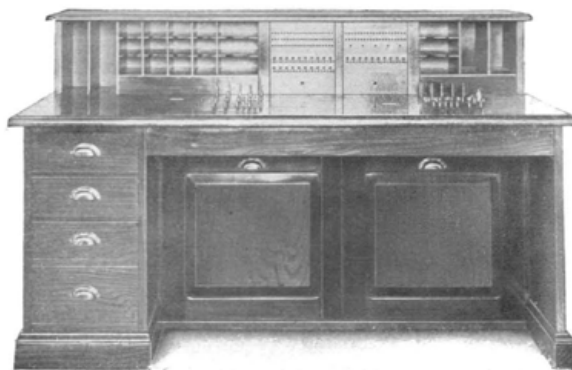
At the end of the coil rack is placed a fuse panel of slate  $1\frac{1}{2}$  in. thick, on which are mounted the fuses for the cord circuits and operators' sets, as well as the line fuses and other fuses necessary to protect the miscellaneous circuits. This fuse panel is generally arranged for alarm type fuses, so that when the fuse blows, a connection is made with an alarm fuse bus-bar closing a circuit through a bell, thus giving the signal that one of the fuses has burned out. (This fuse panel is separate from the power fuse panel on which the fuses used in the power circuits are mounted.)

WRITE FOR LIBERAL DISCOUNTS





No. 9 Wire Chief's Desk



No. 2 Chief Operator's Desk

### DESKS

The necessary desks, such as Wire Chief's, Chief Operator's, Manager's and Information Desks, will be provided with the multiple switchboard.

### POWER PLANT

The power plant is laid out on the basis of 24 volt battery supply for local connections and 48 volt supply for toll and long distance connections. For charging the storage batteries, it is considered desirable to have duplicate

sources of power and the usual arrangement is to have two charging sets entirely independent of each other, one to operate from the city power supply and the other run from a gas engine installed at the exchange, the latter is to be used as an emergency set in case of accidents, or a breakdown in the city plant.

To provide ringing current, duplicate ringing machines are ordinarily furnished, one run from the storage battery and the other from the city power supply. These sets may be equipped with interrupters for tone, trouble and busy test service.

## No. 9 SWITCHBOARD

The No. 9 switchboard is used in offices up to 800 lines capacity. Two types of this board are furnished, one for use in offices to handle only local and toll traffic and the other in offices such as those in the vicinity of large telephone centers, where calls will be trunked to other exchanges. These are known as the No. 9-D and No. 9-C switchboards respectively, and differ principally in that the No. 9-D is arranged for 24 and the No. 9-C for 38 volt battery supply.

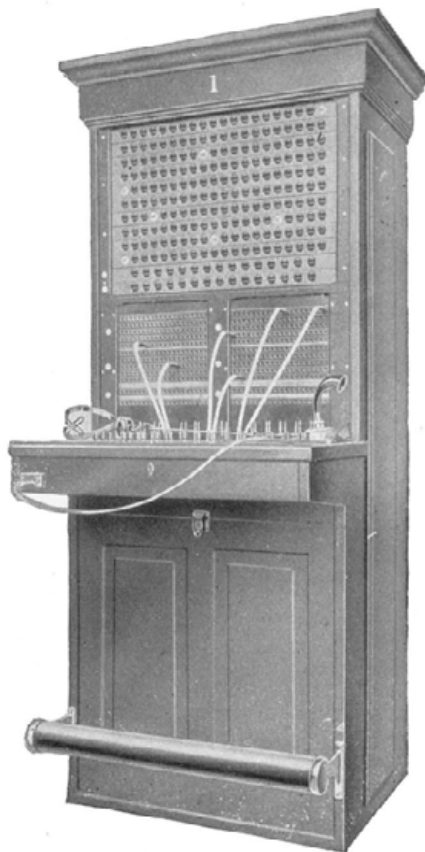
These switchboards are furnished with magnetic line and supervisory signals, and are arranged for negative supervision.

The cord circuits on the subscriber section are equipped with condensers, and those on the toll sections with repeating coils. The toll cord circuits are universal, i.e., they are entirely automatic, being arranged so that either toll to toll or toll to local connections can be made without any additional work by the operator, no keys or switching devices, other than the regular listening and ringing keys, being necessary.

The board is self-contained, terminal strips and connecting rack being mounted on the rear to provide for cross-connecting the multiple jacks and line signals.

This section is a two-panel single operator's section with a capacity for 400 multiple jacks and 200 line signals. The lines are multipled every second section, making a total multiple capacity of 800 lines.

WRITE FOR LIBERAL DISCOUNTS



No. 9 Switchboard

**No. 9 Switchboard—Continued**

The following gives the capacity of the subscriber, trunk, toll and combination subscriber and toll sections:

**Subscriber Section**

|  | Capacity     |
|--|--------------|
| Operator's position .....                    | 1            |
| Subscriber Multiple jacks—20 per strip ..... | 400          |
| Trunk Multiple jacks—10 per strip .....      | 40           |
| Subscriber line signals (see note) .....     | 200          |
| Ring down trunk drops .....                  | As specified |
| Subscriber cord circuits .....               | 15           |
| Operator's telephone circuit .....           | 1            |
| Auxiliary signal circuit .....               | 1            |
| Ringing circuit .....                        | 1            |
| Call wire circuits .....                     | 8            |
| Night bell circuit .....                     | 1            |
| Test lines to wire chief .....               | 2            |

Note.—When a section is equipped with No. 22-A drops for ring down trunks the subscriber's line signal capacity will be reduced by 20 for each 15 of these trunks.

**Incoming Call Wire Trunk Section**

|  | Capacity |
|--|----------|
| Operator's position .....                    | 1        |
| Subscriber multiple jacks—20 per strip ..... | 400      |
| Trunk multiple jacks—10 per strip .....      | 30       |
| Busy back jacks—10 per strip .....           | 10       |
| Incoming call wire trunks .....              | 28       |
| Trunk operator's telephone circuit .....     | 1        |
| Call wire signal circuit .....               | 1        |
| Ringing circuits .....                       | 2        |
| Call wire circuits .....                     | 8        |

**Toll Section**

|  | Capacity     |
|--|--------------|
| Operator's position .....                        | 1            |
| Subscriber multiple jacks—20 per strip .....     | 400          |
| Toll and trunk multiple jacks—10 per strip ..... | 40           |
| Central battery toll line signals .....          | As specified |
| Magneto toll line drops .....                    | As specified |
| Through toll line drops .....                    | As specified |
| Recording trunks drops .....                     | As specified |
| Universal toll cord circuits (see note) .....    | 7            |
| Operator's telephone circuit .....               | 1            |
| Auxiliary signal circuit .....                   | 1            |
| Ringing circuit .....                            | 1            |
| Call wire circuits .....                         | 4            |
| Night alarm circuit .....                        | 1            |
| Test lines to wire chief .....                   | 2            |

Note.—The toll cord circuits shall all be wired so that they can be used for either magneto or common battery and local subscriber's lines, and with the repeating coil out on through toll connections or in on all connections. The standard arrangement is to leave the repeating out on the first 5 cords and in on the last 2.

**Combination Subscriber and Toll Section**

|   | Capacity |
|---|----------|
| Operator's position .....                           | 1        |
| Subscriber multiple jacks—20 per strip .....        | 400      |
| Toll and trunk multiple jacks—10 per strip .....    | 40       |
| Subscriber line signals (see note No. 1) .....      | 120      |
| Central battery toll line signals .....             |          |
| Magneto toll line drops } .....                     | 20       |
| Through toll line drops } .....                     |          |
| Recording trunk drops } .....                       |          |
| Universal toll cord circuits (see note No. 2) ..... | 5        |
| Operator's telephone circuit .....                  | 1        |
| Auxiliary signal circuit .....                      | 1        |
| Call wire circuits .....                            | 4        |
| Night alarm circuit .....                           | 1        |
| Test line to wire chief .....                       | 2        |

PRICES ON REQUEST



### No. 9 Switchboard—Continued

#### Notes:—

1. If a section is equipped with No. 22-A drops for ring down trunks the subscriber line signal capacity will be reduced by 20 for each 15 of these trunks.
2. The toll cord circuits shall all be wired so that they can be used for either magneto or common battery toll and local subscriber's lines, and with the repeating coil out on through toll connections or in on all connections. The standard arrangement is to leave the repeating coil out on the first 4 toll cords and in on the last cord.

In addition to these sections we have standard rural and combination subscriber and toll switching trunk sections. We will furnish complete information on any of these upon request.

The frame of this board is made of birch, finished to match mahogany. The dimensions of the standard sections are as follows: 6 ft. 3 in. high; 2 ft. 5 in. wide; 2 ft. 9 in. deep, from front of key shelf to rear door. The equipment in the rear of the section is accessible by removing the rear door.

### MAIN DISTRIBUTING FRAMES

The main distributing frame is of iron construction, and may be either the wall type, or arranged to mount separately. In the wall type the lower portion is designed to carry the protectors, consisting of heat coils and carbon block arresters, while the upper portion of the frame carries the fuses.

The separate type is designed so that one vertical may be added at a time, the vertical side carrying the protectors, consisting of heat coils and carbon block arresters, the horizontal side being equipped with terminal strips for connecting the outside lines.

### DESKS

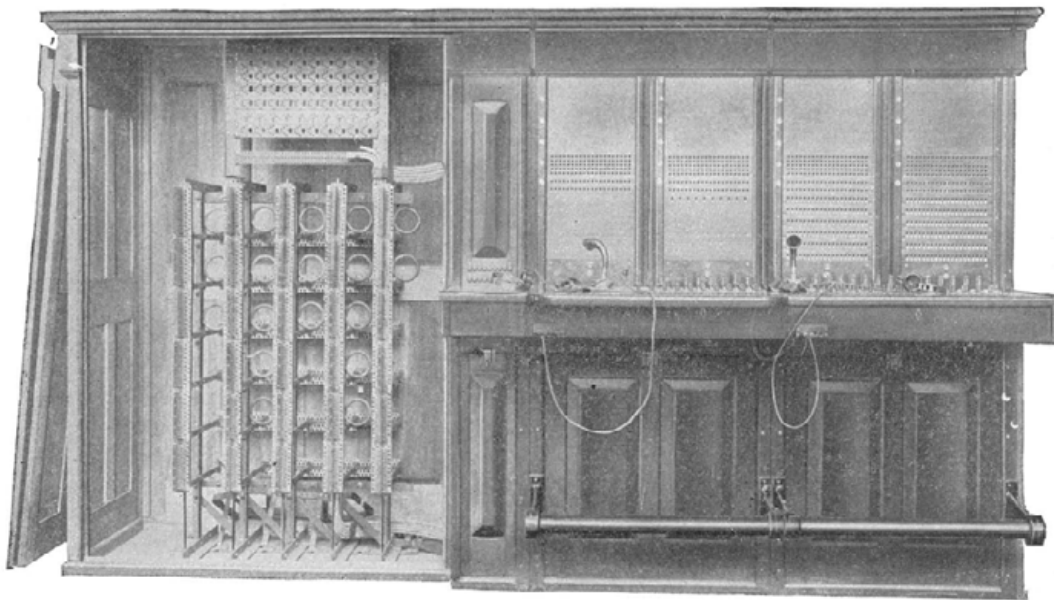
A wire chief's desk and chief operator's desk are provided for use with the No. 9 switchboard when necessary.

### POWER PLANT

The power plants of the No. 9-D and No. 9-C switchboards are planned on the basis of 24 and 38 volt battery supply respectively. There is supplied a storage battery (usually E-7 cells), motor, charging generator, together with a power switchboard, on which are mounted the necessary instruments, such as voltmeter, ammeter, switches, fuses, etc.

A ringing machine is not ordinarily used, as it is the usual practice to provide two interrupters to supply the ringing current.

## No. 10 SWITCHBOARD



No. 10 Switchboard

The No. 10 switchboard is used in offices up to 1600 lines capacity. In general, it may be said that the No. 10 switchboard possesses the operating and transmitting features of the No. 1 switchboard, it being provided with repeating coils in the cord circuits, and the functions of the cut-off relay being performed by a cut-off jack. The supervisory signals are controlled by back contact relays.

The board is provided with answering jacks and associated lamp signals and lamp supervising signals arranged for positive supervision. It is designed for both single and multi-office districts.

PRICES ON REQUEST

## No. 10 Switchboard—Continued

This board is self-contained, except that an intermediate distributing frame is provided for cross connecting. The section is a two panel single operator's section with a capacity for 800 multiple and 120 answering jacks per panel. The lines are multiplied every second section, making a total multiple capacity of 1600 lines. The equipment is arranged as flexible as possible, with a view of meeting all usual requirements shown by careful study.

The following gives the capacity of the subscriber, toll and combination subscriber and toll sections:

| Subscriber Section                                  |  | Capacity |
|---|--|----------|
| Operator's position.....                            |  | 1        |
| Subscriber multiple jacks, 20 per strip .....       |  | 800      |
| Trunk multiple jacks, 20 per strip.....             |  | 80       |
| Subscriber line equipment jacks, 20 per strip ..... |  | 240      |
| Subscriber cord circuits.....                       |  | 15       |
| Subscriber operator's telephone circuit.....        |  | 1        |
| Ringing circuit.....                                |  | 1        |
| Call wire circuits.....                             |  | 32       |
| Auxiliary signal circuits.....                      |  | 2        |
| Night alarm circuit.....                            |  | 1        |
| Tone test cords.....                                |  | 2        |

| Toll Section                                 | Capacity | Combination Toll and Subscriber Section       | Capacity |
|--|----------|---|----------|
| Operator's position.....                     | 1        | Operator's position.....                      | 1        |
| Subscriber multiple jacks, 20 per strip..... | 800      | Subscriber multiple jacks, 20 per strip ..... | 800      |
| Trunk multiple jacks, 20 per strip .....     | 80       | Trunk multiple jacks, 20 per strip.....       | 80       |
| Magneto toll line jacks, 10 per strip....    | 10       | Subscriber or common battery toll             |          |
| Common battery toll line jacks, 20 per       |          | lines, jacks 20 per strip.....                | 120      |
| strip.....                                   | 20       | Magneto toll lines, jacks 10 per strip...     | 10       |
| Universal toll cord circuits:                |          | Subscriber cord circuits.....                 | 10       |
| Repeating coil in on all connections..       | 2        | Universal toll cord circuits:                 |          |
| Repeating coil out on through con-           |          | Repeating coil in on all connections..        | 1        |
| nections .....                               | 8        | Repeating coil out on through con-            |          |
| Toll operator's telephone circuit.....       | 1        | nections.....                                 | 4        |
| Ringing circuit.....                         | 1        | Operator's telephone circuit.....             | 1        |
| Call wire circuits.....                      | 4        | Ringing circuit.....                          | 1        |
| Auxiliary signal circuit, magneto toll...    | 1        | Call wire circuits.....                       | 4        |
| Auxiliary signal circuit, common battery     |          | Auxiliary signal circuit, magneto toll...     | 1        |
| toll .....                                   | 1        | Auxiliary signal circuit, subscriber or       |          |
| Night alarm circuit.....                     | 1        | common battery toll.....                      | 1        |
|  |          | Night alarm circuit.....                      | 1        |

In addition to these sections we have a standard recording, trunk, toll trunk, rural, combination subscriber and toll trunk, combination subscriber and rural sections, and subscriber sections arranged for rural cords. We will furnish complete information on any of these upon request.

The frame of this board consists of steel enclosed in wood, all the woodwork on the front of the board having a mahogany finish.

The dimensions of the standard section are as follows:—5 ft. 10 $\frac{3}{4}$  in. high; 2 ft. 5 in. wide; 2 ft. 10 $\frac{1}{2}$  in. deep, from front of keyshelf to rear door.

The line relays are arranged in the board and are accessible by removing the rear door.

PRICES ON REQUEST



## No. 10 Switchboard—Continued



No. 10 Wire Chief's Desk



No. 10 Chief Operator's Desk

**DESKS**

A wire chief's desk and chief operator's desk are provided for use with the No. 10 switchboard when necessary.

**FRAMES AND RACKS**

An intermediate distributing frame of iron construction is provided for cross connecting, and can be placed either at the end of the first section, or on a separate floor if desired. This frame is so designed that additions may be made in units of one vertical. When placed in line with the boards it is enclosed in a casing, finished to match the board.

The main frame is of iron construction, and may be either the wall type or arranged to mount separately.

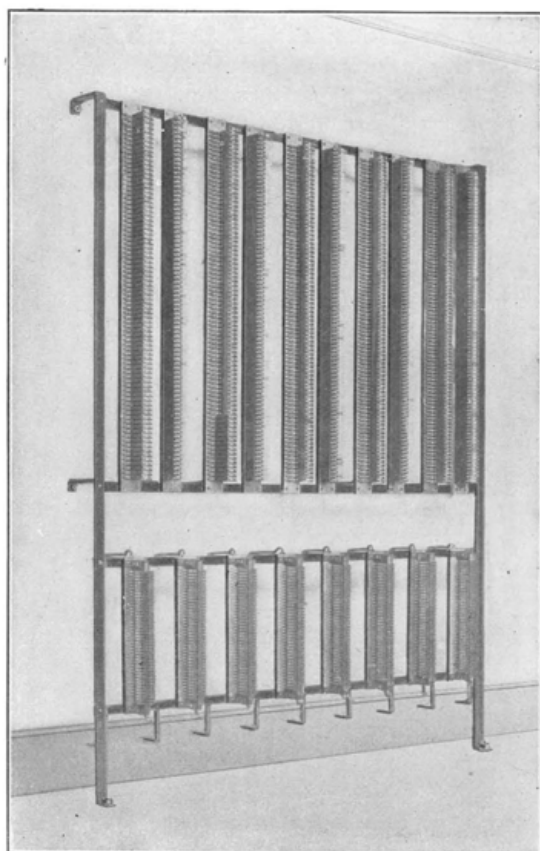
In the wall type the lower portion is designed to carry the protectors, consisting of heat coils and carbon block arresters, while the upper portion of the frame carries the fuses.

The separate type is designed so that one vertical may be added at a time, the vertical side carrying the protectors, consisting of heat coils and carbon block arresters, the horizontal side being equipped with terminal strips for connecting the outside lines.

**POWER PLANT**

The power plant for the No. 10 switchboard is planned on the basis of a 24-volt battery supply for local connections, and a 48-volt battery supply for toll connections. The equipment is similar to the No. 1 power plant, except that it is smaller.

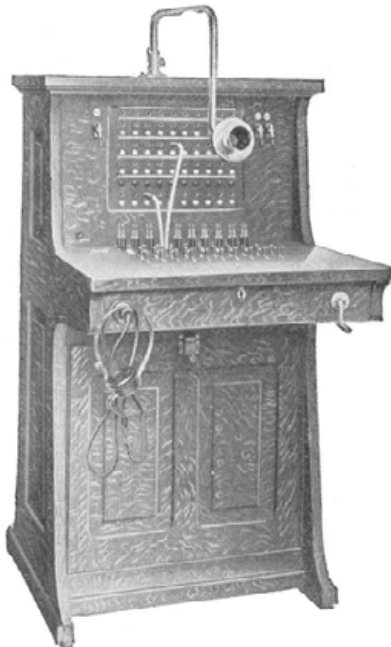
Standard power plant equipments, with the exception of storage batteries and miscellaneous material, are carried in stock.

Main Distributing Frame  
Wall Type

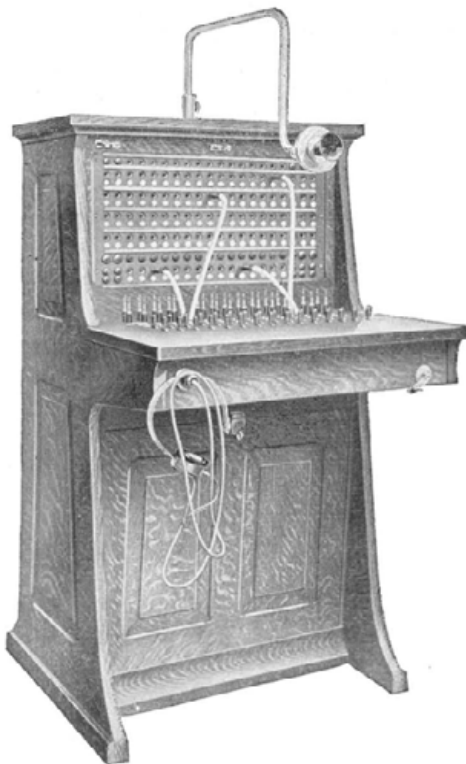
**PRICES ON REQUEST**



## No. 4 PRIVATE EXCHANGE SWITCHBOARDS



30 Line Section



80 Line Section

In the past few years there has been an increased demand for a private exchange, which will employ lamp signals, provide high efficiency in transmission and conform closely to the standard methods of operation employed in the No. 1 switchboard. This has led to the development of the No. 4 private exchange.

These boards are of the central battery lamp signal type, giving positive supervision. All of the apparatus necessary for their operation is mounted in the framework. Two or more sections may be readily lined up together, thus increasing the capacity of the exchange.

The cord circuits are so arranged that they can be used either for local connections or connections with trunks to a central battery exchange. Any of the subscriber lines may be connected by means of trunk lines direct to the central office, where calls during the night or at other times when the operator is absent, can be handled.

These boards are furnished in two sizes, 30- and 80-line, the capacities of these sections being as follows:

| Capacity                                      | 30-line   | 80-line   |
|---|-----------|-----------|
| Subscriber lines.....                         | 30        | 80        |
| Trunk lines.....                              | 10        | 15        |
| Cord circuits.....                            | 10        | 15        |
| List price of one section fully equipped..... | \$ 509.65 | \$ 797.50 |

If the board is connected to a central battery exchange it will with few exceptions be unnecessary to install a storage battery at the private exchange, as the talking and signalling current may be supplied over cable pairs from the central office. If, however, it should be found necessary to install a storage battery, it may be charged over trunks from the central office; two trunk lines in the 30-line board and 3 trunk lines in the 80-line board are wired to permit the addition of the necessary relays.

The 30- and 80-line boards are carried in stock in two finishes,—quarter sawed oak and birch stained to match mahogany. Other finishes than these can be furnished with but a slight increase in cost and delay in delivery. If a special finish is desired a sample should accompany the order.

Either a No. 229 W. transmitter with an arm or the chest type (No. 234) can be furnished. Unless otherwise specified, the board will be arranged for the transmitter arm.

The buzzer circuit can be arranged to operate from either two cells of dry battery or from the ringing current. It will be arranged to operate from the dry battery unless otherwise specified.

The dimensions of these sections are as follows:

30-line board: 3 ft. 8½ in. high; 1 ft. 11½ in. long; 2 ft. 2½ in. deep, from front of keyshelf to rear door.

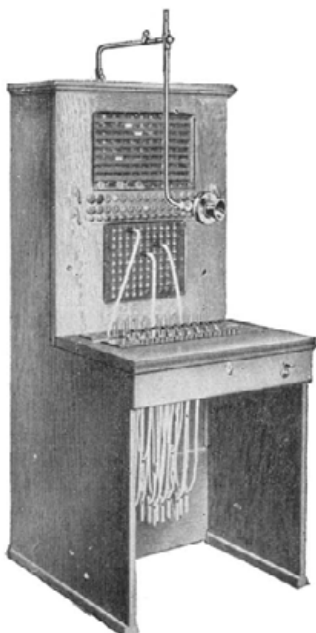
80-line board: 3 ft. 10 in. high; 2 ft. 1 in. long; 2 ft. 5¼ in. deep, from front of keyshelf to rear door.

Orders for these boards should give the following information:

- Capacity
- Subscriber lines
- Equipment
- Subscriber lines
- Cord circuits
- Trunk lines
- Trunk lines arranged for storage battery
- Will suspended or chest transmitter be used
- Will buzzer circuit be connected to dry cells or ringing current
- Finish

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## Nos. 101 AND 102 PRIVATE EXCHANGE SWITCHBOARDS



No. 102

These switchboards are furnished in two sizes, thirty line and eighty line capacity. They are equipped with magnetic line and supervisory signals and are arranged for negative supervision. The trunk circuits are equipped with No. 19 drops. The capacities of these sections is as follows:—

| Capacity                                      | No. 101   | No. 102   |
|---|-----------|-----------|
| Position.....                                 | 1         | 1         |
| Subscriber lines.....                         | 30        | 80        |
| Subscriber cord circuits.....                 | 10        | 15        |
| Trunk circuits.....                           | 10        | 10        |
| List price of one section fully equipped..... | \$ 350.05 | \$ 573.00 |

If desired two sections may be lined up together, thus increasing the capacity of the exchange.

The cord circuits are arranged so that they can be used either for local connections or connections with trunks to a central battery exchange. Any of the subscriber lines may be connected by means of trunk lines direct to the central office where calls during the night or at other times when the operator is absent can be handled.

The standard finish of these sections is birch stained to match mahogany or oak.

In case writing space is desired for the operator, a shelf may be provided and attached to the section.

The No. 229-W transmitter with the No. 23 transmitter arm is used on these sections. The dimensions are as follows:—

No. 101—4 ft. 2 in. high; 1 ft. 11 in. long; 2 ft. 2½ in. deep.

No. 102—5 ft. high; 2 ft. 1 in. long; 2 ft. 2½ in. deep.

## CORDLESS PRIVATE EXCHANGE SWITCHBOARDS



For 3 trunks and 7 local lines

The cordless private exchange is particularly well adapted for use as a private exchange in small offices, factories, stores, etc. It is very compact and requires less space than a board equipped with connecting cords. All of the apparatus, with the exception of that necessary for the operator, is mounted in the framework, and is readily accessible.

These boards are made in two sizes, one for two trunks and four local stations, and the other for three trunks and seven local stations.

The standard finish is oak.

The local line and supervisory circuits are provided with No. 32 magnetic signals, and the trunks with No. 19 drops.

The connections are made in this board by means of keys, any two local lines or any trunk and any local line may be connected together. The necessary keys are provided in the smaller board for 3 and in the other for 5 simultaneous connections.

The operator's set consists of a No. 20-C desk stand with No. 229-W transmitter, No. 122-W receiver and cord.

List price, smaller, fully equipped, \$ 84.45; larger, \$ 149.20



For 2 trunks and 4 local lines

## TOLL SWITCHBOARDS

### No. 1 TOLL SWITCHBOARD

This is designed especially for large toll centers, and the cord circuits are arranged to obtain the best possible transmission over long toll lines. The section has an iron framework with selected mahogany on the front of the board.

The capacity is as follows:

|                                       | Capacity |
|---------------------------------------|----------|
| Operator's positions per section..... | 2        |
| Trunk multiple.....                   | 400      |
| Toll line multiple.....               | 200      |
| Toll answering jacks.....             | 100      |
| Toll cord circuits, per position..... | 12       |

The section is 4 ft. 1 in. high; 4 ft. 3½ in. long; 3 ft. ¾ in. deep, from front of keyshelf to rear door.

The board is arranged for all miscellaneous circuits necessary for the proper operation of the exchange, such as night alarm ringing, auxiliary signal, supervisors, instruction circuits, etc.

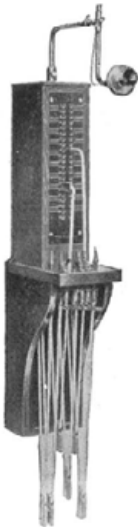
WRITE FOR LIBERAL DISCOUNTS



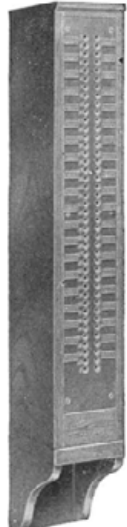
## No. 2 TOLL SWITCHBOARD

This is the regular subscriber framework equipped with toll line and toll cord circuits and is arranged to line up with the No. 1 subscriber board, with which it is used. When additions are necessary, adjacent subscriber sections may be converted with very little trouble to toll sections by merely changing the equipment. The subscriber lines will be multiplied through the toll sections. Universal toll cord circuits are provided. These cord circuits are entirely automatic being arranged so that either toll to toll or toll to local connections may be made without any additional work by the operator, no keys or switching devices other than the regular listening and ringing keys being necessary.

This board is arranged with the necessary miscellaneous circuits for its proper operation.



No. 21 Wire toll test board



No. 41 Wire extension

## TOLL TEST BOARDS

These are made in twenty-one and forty-one wire capacities and are used as test boards in test stations and small exchanges. The jacks are mounted on a hard rubber panel either in two or four rows as desired. Designation strips are provided so that the jacks may be properly numbered. A telephone and cord circuit are provided and arrangements made for talking and ringing in either direction. The framework is made of mahogany and is arranged to mount on the wall, or on the end of the switchboard.

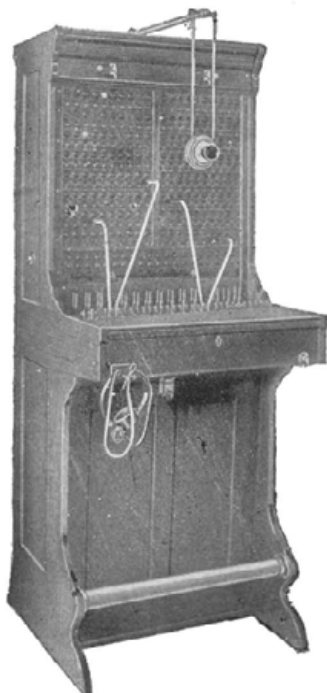
## TOLL TEST BOARD EXTENSIONS

These are furnished in twenty-one and forty-one wire capacities and are similar to the toll test boards, except that they are provided with jacks only, no cord or telephone circuits being provided.

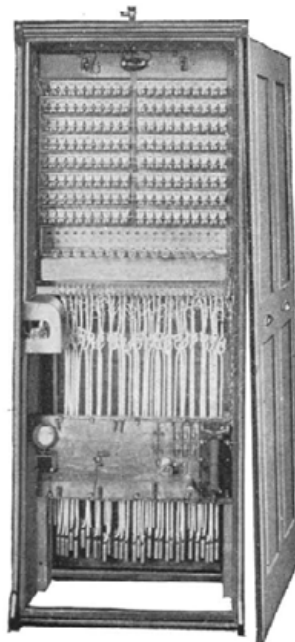
## MAGNETO SWITCHBOARDS

### Nos. 1101 AND 1102 SWITCHBOARDS

The cabinets are made in two sizes, 100- and 160-line, and are of quarter sawed oak with a dark finish. Two or more may be lined up without any change in the woodwork. Each signal is mechanically associated with its jack so that it is automatically restored when the operator plugs into the jack. The line circuit may be used for either toll or local work. The trunk circuits have lamp signals and are arranged for connection in either direction between sections. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which they may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type of transmitter (No. 232-W) is provided unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switch-



No. 1102—Front

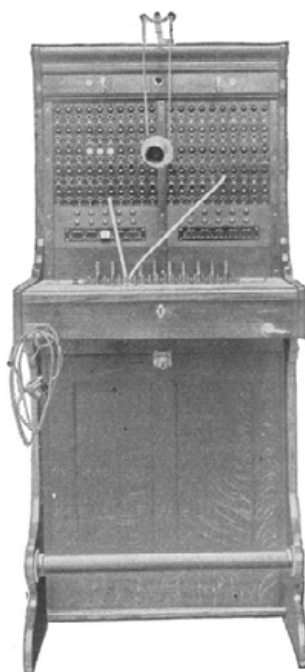


No. 1102—Rear

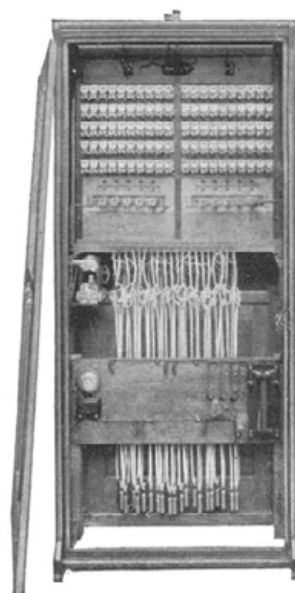
PRICES ON REQUEST



## Nos. 1101 and 1102 Switchboards—Continued



No. 1101—Front



No. 1101—Rear

ing circuit is arranged with a key to throw in the hand generator or some other source of ringing current. Cable for the equipment ordered is provided sufficient to extend fifteen feet from the base of the section.

In ordering specify the number of circuits to be equipped in each section, the type of the transmitter, and whether two or four party selective ringing is to be provided.

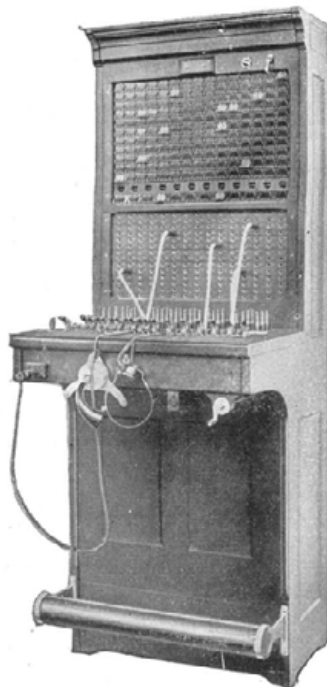
| Capacity  | No. 1101<br>Section | No. 1102<br>Section |
|---|---------------------|---------------------|
| Operator's position   | 1                   | 1                   |
| Line circuits   | 100                 | 160                 |
| Trunk circuits  | 10                  | 20                  |
| Cord circuits with repeating coil                             | 3                   | 5                   |
| Cord circuits without repeating coil                          | 7                   | 10                  |
| List price of one section fully equipped less repeating coils | \$ 436.97           | \$ 664.23           |

Dimensions of No. 1101 cabinet  
5 ft. 1½ in. high; 2 ft. 2½ in. long; 2 ft. 3 in. deep.

Dimensions of No. 1102 cabinet  
5 ft. 8½ in. high; 2 ft. 2½ in. long; 2 ft. 3 in. deep.

## No. 105 SWITCHBOARD

The face of the cabinet is made of mahogany and the unexposed parts of a lighter wood with a mahogany finish. Two or more may be lined up without any change in the woodwork. The trunk circuits are of the call wire type and are arranged for connections between sections. Provision is therefore made for incoming trunks at each section, which will be connected to outgoing trunks at all the other sections. Wiring is always provided for the repeating coils but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type of transmitter (No. 232-W) is provided unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switching circuit is arranged with a key to throw in the hand generator or some other source of ringing current. No cable is provided unless ordered. In ordering specify the number of circuits to be equipped in each section, the type of transmitter and whether two or four party selective ringing is to be provided.



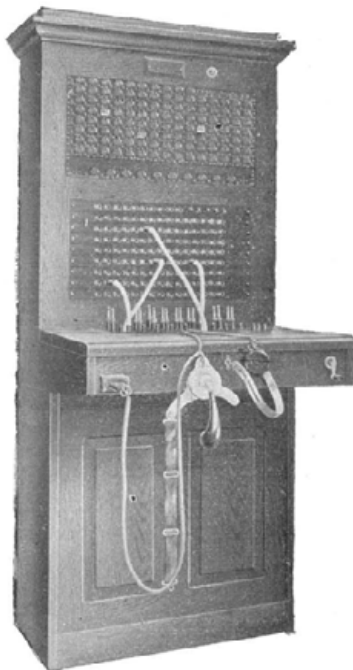
No. 105

| Capacity  | No. 105<br>Section |
|---|--------------------|
| Position  | 1                  |
| Toll lines  | 15                 |
| Subscriber lines  | 150                |
| Incoming trunk lines  | 12                 |
| Outgoing trunk lines  | 45                 |
| Call wire circuits  | 5                  |
| Cord circuits with repeating coil                             | 5                  |
| Cord circuits without repeating coil                          | 7                  |
| List price of one section fully equipped less repeating coils | \$ 506.14          |

Dimensions of cabinet, 5 ft. 9½ in. high; 2 ft. 1 in. long; 2 ft. 1½ in. deep.

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## No. 1005 SWITCHBOARD

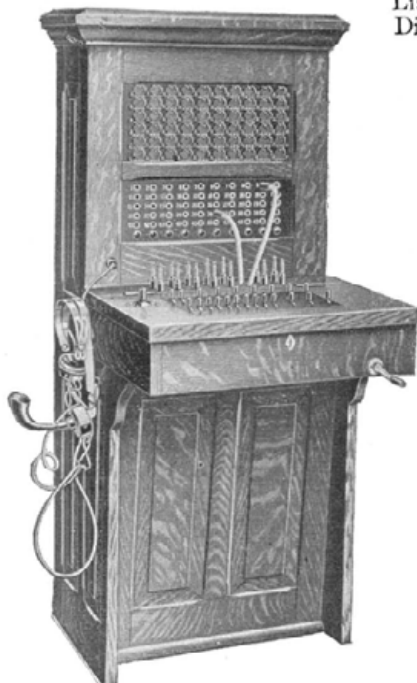


No. 1005.

The cabinet is made of selected oak with a light finish. Two or more may be lined up to increase the capacity of an exchange. The board is very similar to the No. 105, except that it is designed for smaller exchanges when it is desired to secure an equipment at a low cost. Trunk jacks may be placed in each section to be connected to drops or signals in the others. No provision is ordinarily made for repeating coils. The cord circuits are designed for ringing on the calling cords only. A suspended type transmitter (No. 232-W) is furnished, unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switching circuit is arranged with a key to throw in the hand generator or some source of ringing current. No cable is provided unless ordered. In ordering, specify the number of circuits to be equipped in each section, the type of transmitter, and whether two or four party selective ringing is to be provided.

|  | Capacity | No. 1005<br>Section |
|--|----------|---------------------|
| Position .....   |          | 1                   |
| Toll lines.....  |          | 15                  |
| Subscriber lines.....  |          | 100                 |
| Trunk jacks.....   |          | 15                  |
| Cord circuits.....   |          | 10                  |
| List price of one section fully equipped.....  |          | \$ 272.90           |
| Dimensions of cabinet, 4 ft. 10 <sup>9</sup> / <sub>16</sub> in. high; 2 ft. 3 in. wide; 2 ft. 1 <sup>7</sup> / <sub>8</sub> in. deep. |          |                     |

## No. 1006 SWITCHBOARD



No. 1006

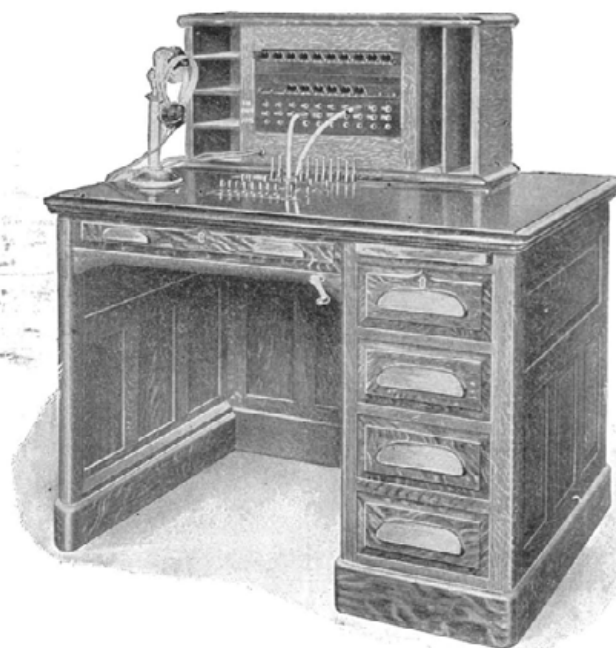
The cabinet is made of quarter sawed oak with a light finish. Two or more may be lined up to increase the capacity of an exchange. The board is very similar to the No. 105 except that it is designed for a smaller exchange. Any subscriber line may be equipped for toll service. Trunk jacks may be placed in each section to be connected to drops in the others. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type transmitter (No. 232-W) is provided unless a chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. No generator switching key is ordinarily furnished. No cable is provided unless specified. In ordering specify the number of circuits to be equipped in each section, the type of transmitter, and whether two or four party selective ringing is to be provided.

|  | Capacity | No. 1006<br>Section |
|--|----------|---------------------|
| Position .....   |          | 1                   |
| Subscriber lines.....  |          | 50                  |
| Trunk jacks.....   |          | 10                  |
| Cord circuits with repeating coils.....  |          | 4                   |
| Cord circuits without repeating coils.....   |          | 4                   |
| List price of one section fully equipped less repeating coils.....                                       |          | \$ 164.38           |
| Dimensions of cabinet: 4 ft. 4 in. high; 1 ft. 9 <sup>7</sup> / <sub>8</sub> in. wide; 2 ft. 1 in. deep. |          |                     |

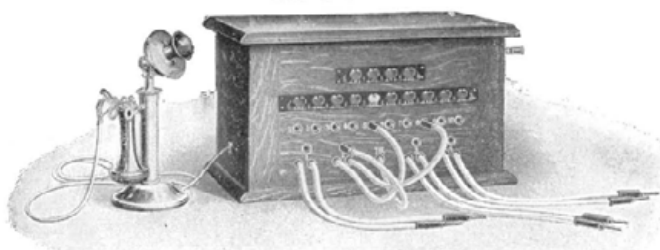
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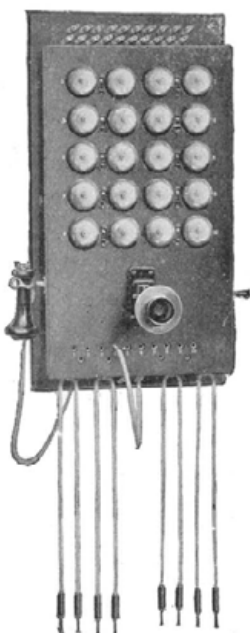
## No. 1010 SWITCHBOARD



No. 1010



No. 1011



No. 1012

The desk and cabinet are made of oak with a light finish. Any subscriber line may be equipped for toll service. No provision is made for trunks. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A No. 1020-J desk stand is provided. A head receiver is furnished in all cases. A night alarm bell is supplied together with a key to cut it out of service. A five-bar hand generator is mounted in each desk. No provision is ordinarily made for selective ringing. No generator switching key or cable is furnished unless specified. In ordering specify the number of circuits to be equipped in each section and the type of transmitter.

| Capacity  | No. 1010<br>Section |
|---|---------------------|
| Position .....  | 1                   |
| Subscriber lines.....   | 30                  |
| Cord circuits with repeating coils.....   | 3                   |
| Cord circuits without repeating coils.....  | 3                   |
| List price of one section fully equipped less repeating coils.....                                | \$ 140.79           |
| Dimensions of desk: 2 ft. 4 in. high; 3 ft. 6 in. wide; 2 ft. 8 in. deep.                         |                     |
| Dimensions of cabinet: 1 ft. $\frac{3}{4}$ in. high; 2 ft. 6 in. wide; 10 $\frac{1}{2}$ in. deep. |                     |

## No. 1011 SWITCHBOARD

The cabinet is made of quarter sawed oak with a light finish, and is designed for mounting on a desk or shelf. Any subscriber line may be equipped for toll service. A five-bar hand generator and No. 1020-B desk stand are furnished. The operator answers, listens in and rings with a cord

provided for the purpose. Connections are made by the other cords without the use of keys.

| Capacity  | No. 1011<br>Section |
|---|---------------------|
| Position.....   | 1                   |
| Subscriber lines.....   | 10                  |
| Cord circuits.....  | 4                   |
| List price of one section fully equipped.....   | \$ 51.03            |
| Dimensions of cabinet: 1 ft. high; 1 ft. 7 $\frac{3}{4}$ in. wide; 10 $\frac{3}{4}$ in. deep. |                     |

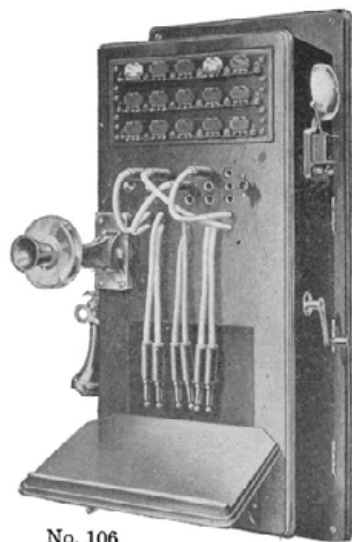
## No. 1012 SWITCHBOARD

The cabinet is made of quarter sawed oak with a light finish, and the front is hinged to allow of easy access to the apparatus. A five-bar hand generator, No. 250-W transmitter and No. 122-W receiver are furnished. The ringers are of 1000 ohms resistance, unless otherwise ordered, and are equipped with indicators to show which line is calling. The operator answers, listens in and rings with a cord provided for the purpose. Connections are made by the other cords without the use of keys.

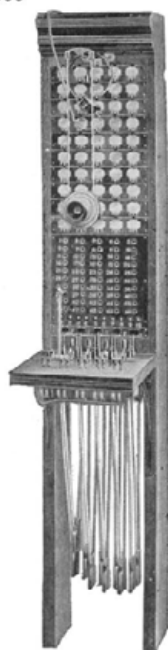
| Capacity   | No. 1012<br>Section |
|--|---------------------|
| Position.....  | 1                   |
| Line circuits.....   | 10                  |
| Cord circuits.....   | 4                   |
| List price, one section fully equipped.....  | \$ 57.36            |
| Dimensions of cabinet: 2 ft. 5 $\frac{3}{4}$ in. high; 1 ft. 3 $\frac{1}{2}$ in. wide; 6 $\frac{7}{8}$ in. deep. |                     |

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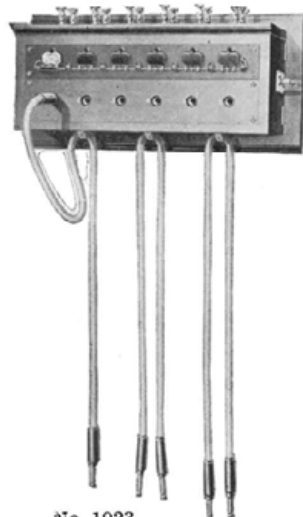




No. 106



No. 1002



No. 1023

## No. 106 SWITCHBOARD

The cabinet is made of black walnut and the front is hinged to allow of easy access to the apparatus. The cabinet has a capacity of ten subscriber lines, 1 toll line and 4 cord circuits. A five-bar hand generator, night alarm circuit, No. 250-W transmitter and No. 122-W receiver are furnished. The drops are 500 ohms resistance and are bridged across the line. They may be of the No. 19 type to operate whenever one subscriber calls another on the same line or, the No. 57 type may be furnished, the latter operating only when a subscriber wishes to signal central office. If the latter service is desired the telephone sets must be equipped with a key and wired so that normally alternating current is delivered, which will ring the bells of the other telephone sets bridged across the line, but will not operate the drop at the central office. When the key is operated, pulsating current is delivered; this will not ring the bell of the telephone sets, but will operate the central office drop. The operator answers, listens in and rings with either of two duplicate cords provided for that purpose, connections are made by the other cords without the use of keys. Four boards are made differing only in the equipment.

In ordering specify only the code numbers.

|  |          |
|--|----------|
| No. 106-A has 10 subscriber lines equipped with No. 19 drops,<br>0 toll lines and 4 cord circuits..... | \$ 63.46 |
| No. 106-B has 10 subscriber lines equipped with No. 19 drops,<br>1 toll line and 4 cord circuits.....  | 69.89    |
| No. 106-C has 10 subscriber lines equipped with No. 57 drops,<br>0 toll lines and 4 cord circuits..... | 86.75    |
| No. 106-D has 10 subscriber lines equipped with No. 57 drops,<br>1 toll line and 4 cord circuits.....  | 93.17    |

## Nos. 1001, 1002 AND 1003 SWITCHBOARDS

These switchboards are of uniform type, varying only in size and capacity; the various capacities being 25, 50 and 100 lines.

The cherry frame is simple in design, and strongly constructed. Each section is equipped with a suspended transmitter, hand receiver, hand generator and night alarm circuit. The 100-line switchboard (No. 1001), is equipped with ten pairs of connecting cords; the 50-line switchboard (No. 1002) and the 25-line switchboard (No. 1003) each have five pairs of cords. Any of the subscriber lines may be equipped as toll lines.

In each section space is provided for trunking jacks, the No. 1001 switchboard being drilled for 20, the No. 1002 switchboard for 10, and the No. 1003 switchboard for 5. Two or more of these sections may be easily lined up if desired.

In ordering these boards, it will only be necessary to specify the code number and the number of grounded and metallic lines.

## PONY SWITCHBOARDS

The "Pony" switchboards, made in sizes from two to twenty lines, are very simple and inexpensive; and are designed for equipments where it is desired to connect only a few lines; and where the initial expense is an important consideration.

The cabinet is made of black walnut, and is equipped with binding posts on the top, to which the line wires are to be connected.

The board is equipped for either metallic or grounded circuits.

The board is equipped with a night alarm circuit, but not with an operator outfit, as it is intended for use with a separate telephone set, for which a cord and plug are provided.

WRITE FOR LIBERAL DISCOUNTS

## Numbers of "Pony" Magneto Switchboards

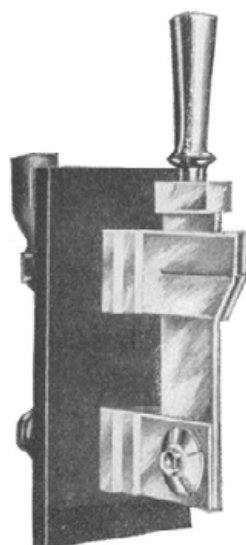
| Code No. | Capacity                    | Code No. | Capacity                    |
|----------|-----------------------------|----------|-----------------------------|
| 1021     | 2 line magneto switchboard  | 1026     | 12-line magneto switchboard |
| 1022     | 4-line magneto switchboard  | 1027     | 14-line magneto switchboard |
| 1023     | 6-line magneto switchboard  | 1028     | 16-line magneto switchboard |
| 1024     | 8-line magneto switchboard  | 1029     | 18-line magneto switchboard |
| 1025     | 10-line magneto switchboard | 1030     | 20-line magneto switchboard |

In ordering these boards, it will only be necessary to specify the code number, with the number of grounded and metallic lines.

## SWITCHES

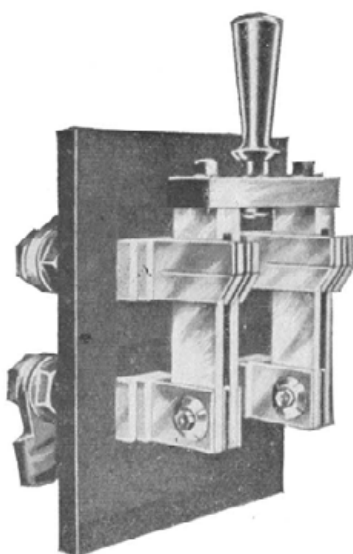
### KNIFE SWITCHES

These have a draw file finish and are arranged for rear of board connections. They are mounted on temporary wood bases. Terminal lugs are not provided unless specified. The Nos. 8, 25, 26 and 27 switches are designed for 500 volts, all other knife switches are designed for a maximum of 250 volts. In this list the following abbreviations are used: S. P. single pole; D. P. double pole; 3 P. three pole; 4 P. four pole; S. T. single throw; D. T. double throw.



No. 17-C

| Code No. | Style                         | Capacity<br>amperes | Use  | List Price<br>each |
|----------|-------------------------------|---------------------|--|--------------------|
| 4-A      | 4-P., D. T.                   | 25                  | Used with 2 or 3 phase dry auto-starter .....                              | \$ 34.25           |
| 4-B      | 4-P., D. T.                   | 50                  | Used with 2 or 3 phase dry auto-starter .....                              | 51.50              |
| 4-C      | 4-P., D. T.                   | 100                 | Used with 2 or 3 phase dry auto-starter .....                              | 65.50              |
| 4-D      | 4-P., D. T.                   | 200                 | Used with 2 or 3 phase dry auto-starter .....                              | 84.50              |
| 4-E      | 4-P., D. T.                   | 300                 | Used with 2 or 3 phase dry auto-starter .....                              | 129.50             |
| 8-A      | 4-P., D. T.                   | 25                  | Used with 2 or 3 phase dry auto-starter .....                              | 49.50              |
| 8-B      | 4-P., D. T.                   | 50                  | Used with 2 or 3 phase dry auto-starter .....                              | 64.75              |
| 8-C      | 4-P., D. T.                   | 100                 | Used with 2 or 3 phase dry auto-starter .....                              | 107.75             |
| 14-A     | S. P. 3 throw<br>knife switch | 25                  | Used to control counter E. M. F. cells in battery driven ringer sets ..... | 30.00              |
| 15-A     | D. P., D. T.                  |                     | Used with ammeter with two shunts .....                                    | 18.40              |



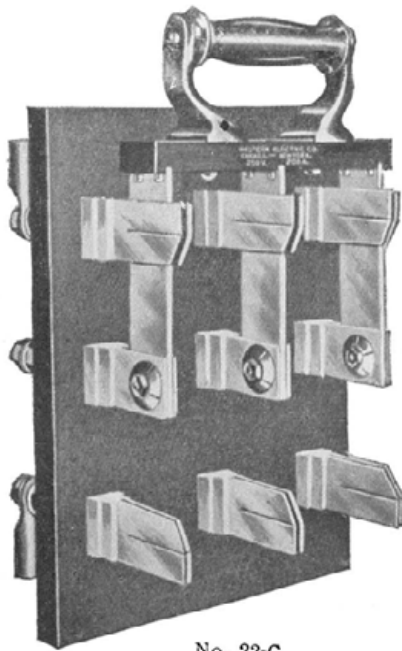
No. 19-H

| Code No. | Style      | Capacity<br>amperes | List Price<br>each |
|----------|------------|---------------------|--------------------|
| 17-A     | S.P., S.T. | 25                  | \$ 5.35            |
| 17-B     | S.P., S.T. | 50                  | 6.30               |
| 17-C     | S.P., S.T. | 100                 | 9.10               |
| 17-D     | S.P., S.T. | 200                 | 13.80              |
| 17-E     | S.P., S.T. | 300                 | 17.45              |
| 17-F     | S.P., S.T. | 400                 | 21.60              |
| 17-G     | S.P., S.T. | 600                 | 30.15              |
| 17-H     | S.P., S.T. | 800                 | 38.15              |
| 17-J     | S.P., S.T. | 1200                | 63.35              |
| 18-A     | S.P., D.T. | 25                  | 7.70               |
| 18-B     | S.P., D.T. | 50                  | 9.40               |
| 18-C     | S.P., D.T. | 100                 | 13.00              |
| 18-D     | S.P., D.T. | 200                 | 19.60              |
| 18-E     | S.P., D.T. | 300                 | 24.50              |
| 18-F     | S.P., D.T. | 400                 | 32.60              |
| 18-G     | S.P., D.T. | 600                 | 41.80              |
| 18-H     | S.P., D.T. | 800                 | 52.00              |
| 18-J     | S.P., D.T. | 1200                | 87.70              |
| 19-A     | D.P., S.T. | 25                  | 11.30              |
| 19-B     | D.P., S.T. | 50                  | 13.10              |
| 19-C     | D.P., S.T. | 100                 | 18.20              |
| 19-D     | D.P., S.T. | 200                 | 26.60              |
| 19-E     | D.P., S.T. | 300                 | 35.00              |
| 19-F     | D.P., S.T. | 400                 | 47.20              |
| 19-G     | D.P., S.T. | 600                 | 58.30              |
| 19-H     | D.P., S.T. | 800                 | 76.30              |

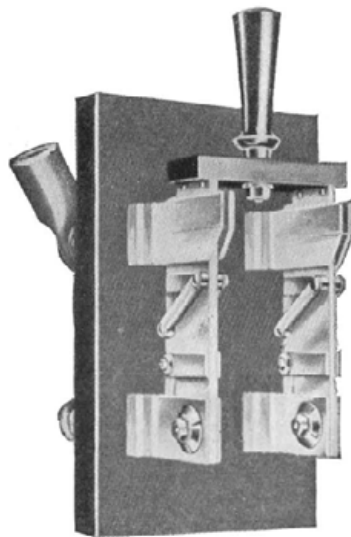
WRITE FOR LIBERAL DISCOUNTS



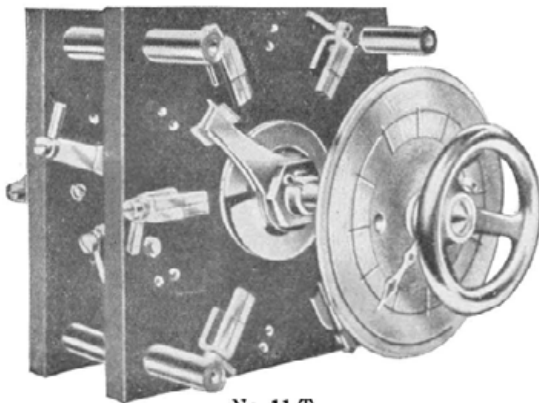
## Switches—Continued



No. 22-C



No. 25-B



No. 11-Type

| Code No. | Style      | Capacity<br>amperes | List Price<br>each |
|----------|------------|---------------------|--------------------|
| 19-J     | D.P., S.T. | 1200                | \$ 126.70          |
| 20-A     | D.P., D.T. | 25                  | 15.70              |
| 20-B     | D.P., D.T. | 50                  | 19.80              |
| 20-C     | D.P., D.T. | 100                 | 27.00              |
| 20-D     | D.P., D.T. | 200                 | 39.50              |
| 20-E     | D.P., D.T. | 300                 | 50.80              |
| 20-F     | D.P., D.T. | 400                 | 68.90              |
| 20-G     | D.P., D.T. | 600                 | 83.60              |
| 20-H     | D.P., D.T. | 800                 | 108.60             |
| 20-J     | D.P., D.T. | 1200                | 181.40             |
| 21-A     | 3 P., S.T. | 25                  | 18.55              |
| 21-B     | 3 P., S.T. | 50                  | 21.10              |
| 21-C     | 3 P., S.T. | 100                 | 27.10              |
| 21-D     | 3 P., S.T. | 200                 | 40.50              |
| 21-E     | 3 P., S.T. | 300                 | 50.75              |
| 21-F     | 3 P., S.T. | 400                 | 63.30              |
| 21-G     | 3 P., S.T. | 600                 | 85.95              |
| 21-H     | 3 P., S.T. | 800                 | 108.95             |
| 21-J     | 3 P., S.T. | 1200                | 195.55             |
| 22-A     | 3 P., D.T. | 25                  | 24.10              |
| 22-B     | 3 P., D.T. | 50                  | 29.00              |
| 22-C     | 3 P., D.T. | 100                 | 37.20              |
| 22-D     | 3 P., D.T. | 200                 | 54.50              |
| 22-E     | 3 P., D.T. | 300                 | 68.20              |
| 22-F     | 3 P., D.T. | 400                 | 84.10              |
| 22-G     | 3 P., D.T. | 600                 | 113.90             |
| 22-H     | 3 P., D.T. | 800                 | 139.40             |
| 22-J     | 3 P., D.T. | 1200                | 259.10             |
| 23-A     | 4 P., S.T. | 25                  | 21.40              |
| 23-B     | 4 P., S.T. | 50                  | 26.80              |
| 23-C     | 4 P., S.T. | 100                 | 36.50              |
| 23-D     | 4 P., S.T. | 200                 | 53.70              |
| 24-A     | 4 P., D.T. | 25                  | 29.10              |
| 24-B     | 4 P., D.T. | 50                  | 38.00              |
| 24-C     | 4 P., D.T. | 100                 | 53.70              |
| 25-A     | D.P., S.T. | 25 Quick break      | 15.20              |
| 25-B     | D.P., S.T. | 50 Quick break      | 15.20              |
| 25-C     | D.P., S.T. | 100 Quick break     | 21.00              |
| 25-D     | D.P., S.T. | 200 Quick break     | 31.00              |
| 26-A     | D.P., D.T. | 25 Quick break      | 24.00              |
| 26-B     | D.P., D.T. | 50 Quick break      | 24.00              |
| 26-C     | D.P., D.T. | 100 Quick break     | 35.50              |
| 27-A     | 3 P., S.T. | 25 Quick break      | 24.40              |
| 27-B     | 3 P., S.T. | 50 Quick break      | 24.40              |
| 30-A     | 5 P., D.T. | 25                  | 42.00              |

## INSTRUMENT SWITCHES

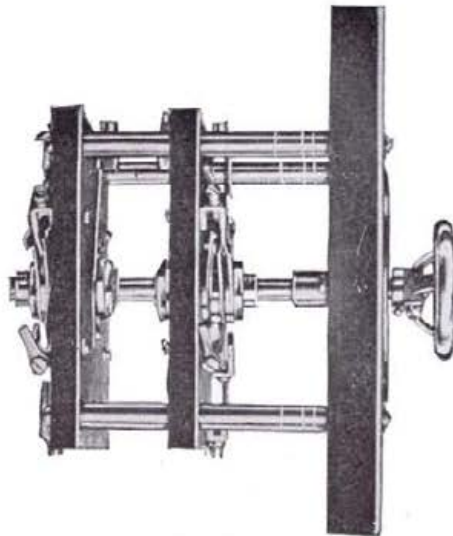
Used with voltmeter or ammeter. The switch includes the hand wheel and index plate. The stamping of the index plate should be specified, except for the No. 11-A.

| Code No. | Style                                     | Description   | List Price<br>each |
|----------|---|---|--------------------|
| 11-A     | 16 circuit double scale instrument switch | One scale has 11 contacts and the other 5. Index plate stamped B-1, B-2, G-1, G-2, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. | \$ 62.70           |
| 11-D     | Two-scale switch for 4 circuits           | Two contacts on each scale.....   | 50.70              |
| 11-E     | Two-scale switch for 6 circuits           | Three contacts on each scale.....   | 52.00              |
| 11-F     | Two-scale switch for 8 circuits           | Four contacts on each scale.....  | 53.35              |
| 11-G     | Two-scale switch for 10 circuits          | Five contacts on each scale.....  | 54.70              |
| 11-H     | Two-scale switch for 12 circuits          | 11 contacts on one scale and 1 on the other   | 56.00              |

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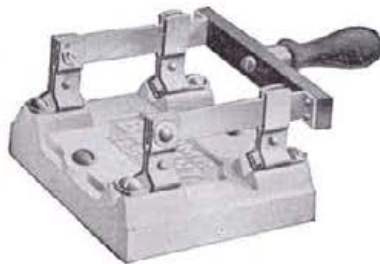
## Switches—Continued



No. 11-Type



No. 1436



No. 1438



No. 11250



No. 13116

| Code No. | Style                            | Description                                 | List Price each |
|----------|----------------------------------|---|-----------------|
| 11-J     | Two-scale switch for 16 circuits | 11 contacts on one scale and 5 on the other | \$ 62.70        |
| 11-K     | Two-scale switch for 20 circuits | 16 contacts on one scale and 4 on the other | 65.35           |
| 11-L     | Two-scale switch for 24 circuits | 20 contacts on one scale and 4 on the other | 68.00           |
| 11-M     | Two-scale switch for 14 circuits | 11 contacts on one scale and 3 on the other | 61.35           |
| 11-N     | Two-scale switch for 18 circuits | 11 contacts on one scale and 7 on the other | 64.00           |

| Code No. | Style                                   | List Price each | Code No. | Style                                   | List Price each |
|----------|---|-----------------|----------|---|-----------------|
| 16-A     | Single scale switch for 2 circuits....  | \$ 35.35        | 16-G     | Single scale switch for 14 circuits.... | \$ 45.35        |
| 16-B     | Single scale switch for 4 circuits....  | 36.70           | 16-H     | Single scale switch for 16 circuits.... | 46.70           |
| 16-C     | Single scale switch for 6 circuits....  | 38.00           | 16-J     | Single scale switch for 18 circuits.... | 48.00           |
| 16-D     | Single scale switch for 8 circuits....  | 39.35           | 16-K     | Single scale switch for 20 circuits.... | 49.35           |
| 16-E     | Single scale switch for 10 circuits.... | 40.70           | 16-L     | Single scale switch for 22 circuits.... | 50.70           |
| 16-F     | Single scale switch for 12 circuits.... | 42.00           | 16-M     | Single scale switch for 24 circuits.... | 52.00           |

## SMALL KNIFE SWITCHES

## Single-Pole Porcelain Base

| Code Word | List No. | Description             | Standard Package | List Price each |
|-----------|----------|-------------------------|------------------|-----------------|
| Fluidify  | 1436     | 15 amp., S.P., S.T..... | 100              | \$ 0.34         |
| Fluidize  | 1437     | 25 amp., S.P., S.T..... | 100              | .44             |
| Flying    | 1454     | 15 amp., S.P., D.T..... | 100              | .60             |
| Flysch    | 1455     | 25 amp., S.P., D.T..... | 100              | .74             |

## Double-Pole Porcelain Base, 125 Volts.

| Code Word | List No. | Description             | Standard Package | List Price each |
|-----------|----------|-------------------------|------------------|-----------------|
| Fluidism  | 1438     | 15 amp., D.P., S.T..... | 250              | .42             |
| Fluidist  | 1439     | 25 amp., D.P., S.T..... | 250              | .50             |
| Outlaid   | 16040    | 15 amp., D.P., D.T..... | 100              | .74             |
| Outlay    | 16041    | 25 amp., D.P., D.T..... | 100              | .90             |

## ROUND WOOD BASE SWITCHES

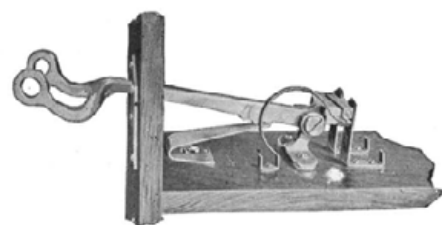
| Code Word  | List No.   | Description |
|------------|------------|-------------|
| Farragut   | 11250..... | 1-Point     |
| Farrington | 11251..... | 2-Point     |
| Farwell    | 11252..... | 3-Point     |
| Faucett    | 11253..... | 4-Point     |
| Faulkland  | 11254..... | 5-Point     |
| Fayette    | 11255..... | 6-Point     |

## RUBBER BASE SWITCH

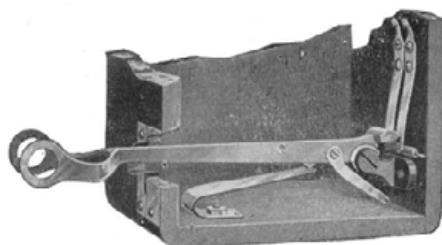
| Code Word  | List No.   | Description   |
|------------|------------|---------------|
| Holgate    | 13115..... | 1-Point       |
| Holland    | 13116..... | 2-Point       |
| Hollenburg | 13117..... | Neutral point |

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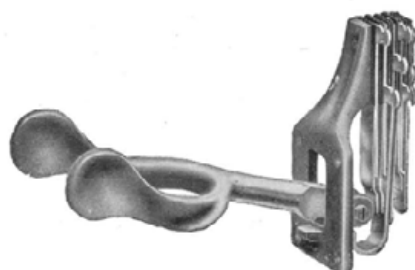
## SWITCH HOOKS



No. 120-A

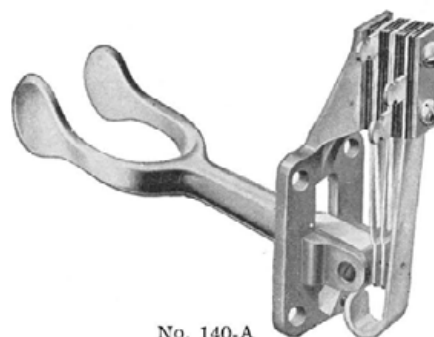


No. 121-A



No. 140-H

| Code No. | Description   | Contacts                    | List Price each |
|----------|---|-----------------------------|-----------------|
| 120-A    | Long lever, restoring spring mounted separately, horizontal mounting                                    | 2 front                     | \$ 0.75         |
| 121-A    | Long lever, restoring spring mounted separately, vertical mounting                                      | 2 front                     | .70             |
| 140-A    | Short lever, self-contained, vertical mounting  | 2 front                     | .75             |
| 140-B    | Short lever, self-contained, vertical mounting  | 2 front<br>1 back opens     | .90             |
| 140-H    | Short lever, self-contained, vertical mounting  | 2 front<br>1 passing ground | 1.05            |
| 140-F    | Short lever, self-contained, vertical mounting  | 1 front<br>1 back           | .70             |
| 141-A    | Brass wire hook threaded at one end and provided with a cap staked on. For use with No. 1002-A hand set |                             | .03             |



No. 140-A

## SIGNALLING SYSTEMS

We give below a brief description of the signalling systems commonly used for giving magneto and central battery telephone service.

## MAGNETO SYSTEMS

**Code Ringing.** In this system a large number of parties may be connected to one line, all of the ringers at the telephone stations and the central office drop being bridged across the line. The ringers are unbiased, and the drop at the central office of the usual type, which is operated by alternating current supplied by the subscribers' hand generators. Whenever a party on the line calls, all of the ringers and the central office drop are operated. When central office rings on the line, likewise, all of the bells are sounded. The proper party is called by a code system made up of various numbers of long and short rings.

**2 Party Selective Ringing.** In this system two subscribers may be connected to one line. The ringers at the telephone stations are biased and wired to ground, one from each side of the line. The drop at the central office is bridged and operated by alternating current supplied by the subscribers' hand generators. The generators in the subscriber stations are of the two-bar type, and not heavy enough to ring the two bells on the line since these are biased and in series, as far as the ringing current supplied by the hand generator is concerned. The generator, however, is heavy enough to throw the drop at the central office.

Whenever one party calls or is being called the other ringer is not operated. It is impossible for one subscriber to call the other on the same line, except through the central office operator.

The cord circuits at the central office are wired so that alternating ringing current may be sent out on either side of the line to ground by means of a key for each cord circuit, or a master key for all of the cord circuits in a position.

**4 Party Selective Ringing.** This system is precisely the same as the 2 party selective system, except that there are wired to ground from each side of the line two sets. Both of these sets are biased, and one is so connected to the line that it is operated by positive pulsating current, while the other is operated by negative pulsating current. The cord circuits at the central office are so wired

WRITE FOR LIBERAL DISCOUNTS



### Signalling Systems—Continued

that positive and negative pulsating current may be sent out over either side of the line to ground by means of a party line ringing key for each cord circuit or a master key for all of the cord circuits in the position.

**Center Checking.** This system is used on toll lines where it is desired to have several stations on one line, and yet require all of them to secure connections entirely through one office. The ringers at the stations are all biased and bridged across the line in one way, that is, they either operate on alternating current or on pulsating current in one direction only. The generators at the stations are all arranged to furnish pulsating current of the polarity which does not ring the bells; and accordingly it is impossible for one party on the line to call another, except through the center checking operator. The central office has a bridged drop, operated by the pulsating current, and rings the different parties on the line by means of a code system.

**Central Office Selective Signalling.** This is just the reverse of the center checking system, that is, there may be placed a large number of subscribers on one line, and they can call one another without signalling central office; or they can call central office without notifying the other parties on the line. This is accomplished in two ways.

The first method is to bridge across the line bells which are biased so that they operate on alternating or pulsating current in one direction. The hand generators in the telephone sets normally deliver to the two sides of the lines alternating current; but when a button is depressed there is delivered to the two sides of the line pulsating current of a polarity which will not operate the bells. This current, however, will throw the drop at the central office. This drop is arranged so that it will not operate on alternating current which, as explained before, is ordinarily used to signal the other subscribers on the line. The central office rings the desired party by a code system.

The other method is to use unbiased ringers and alternating current generators at the telephone stations. The generators normally deliver current to the two sides of the line but when a push button at any set is depressed the generator is connected between one side of the line and ground. At the central office a drop of the regular type is wired from one side of the line to ground and accordingly is not operated unless a subscriber rings with the push button in his set depressed.

### CENTRAL BATTERY SYSTEMS

**Code Ringing.** Several parties may be connected to one line in the central battery system, the bells all being bridged across the line and biased. The line at the central office is wired the same as for single party line service. One party cannot call another on the same line, except through the central office operator, and central office calls the desired party by a code system of ringing.

**2 Party Selective Ringing.** With this system two parties may be connected to one line, the two bells being biased and connected to ground, one from each side of the line. The line at the central office is wired the same as for single party line service, and the cord circuits are arranged so that alternating current may be sent out over either side of the line by means of a key for each cord circuit, or a master key for all of the cord circuits in the position.

**4 Party Selective Ringing.** Four parties may be connected to one line, and the line arranged so that any party may be called without signalling the others. There is bridged across the line at each station a high impedance relay, from the local contacts of which the four ringers are wired to ground. These relays are arranged so that when they operate they connect to ground the four ringers, two from each side of the line. These ringers are biased and wired so that one of the pair on each side of the line operates on positive pulsating and the other operates on negative pulsating current. One party cannot call another on the same line, except through the central office operator.

The line circuit at the central office is wired the same as for single party line service. The cord circuits are arranged so that the operator may ring over one side of the line to ground with either positive or negative pulsating current. With either of these currents all four relays on the line operate, connecting to ground all four bells. As the operator rings on only one side of the line with pulsating current of one polarity, only the bell on that side of the line which is connected to respond to that polarity will sound. During conversation all ground connections are open at the substations.

**4 Party Semi-Selective Ringing.** This is the same as the two party selective system, except that there are connected to ground two stations from each side of the line. The operator thus can ring either pair of bells without operating the other pair. The operator uses a code system of ringing to distinguish between the two parties which form a pair connected to each side of the line.

### PRICES ON REQUEST



## TELEPHONE SETS

### CENTRAL BATTERY WALL TYPE

Regularly furnished in oak or walnut. The No. 122-W receiver and standard high resistance transmitter are furnished with these sets, others will be supplied if ordered.

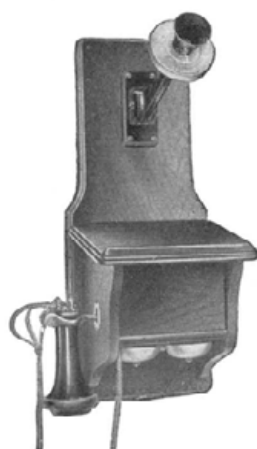


No. 1293-A

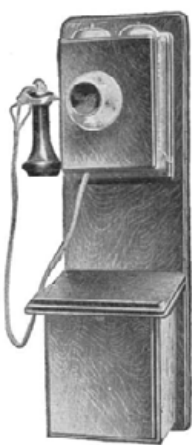
Code No.

List Price  
each

- 1293-A** For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer and inside binding posts..... **\$ 10.05**
- Includes: 1 No. 8-AG ringer; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 140-A switchhook; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord. This set may be used with the Nos. 132-A or 134-A backboards

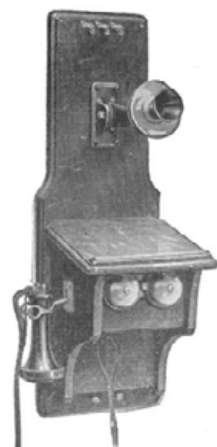


No. 1294-A

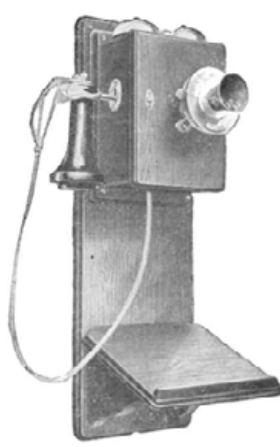
No. 1293-Y  
On No. 136-B Backboard

- 1296-A** For four party selective central battery service. 2500-ohm biased ringer, relay and inside binding posts..... **14.25**
- Includes: 1 No. 8-BG ringer; 1 No. 140-A switchhook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 85-B relay. This set may be used with the 132-A backboard.

- 1293-Y** For local battery talking and central battery signalling service. 1000-ohm biased ringer and inside binding posts. No provision made for dry cells, but backboard or No. 1 battery box may be provided for them..... **9.80**
- Includes: 1 No. 8-AG ringer; 1 No. 140-A switchhook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord. This set may be used with Nos. 132-A, 134-A or 136-B backboards.



No. 1098-A

No. 1293-A  
On No. 132-A Backboard

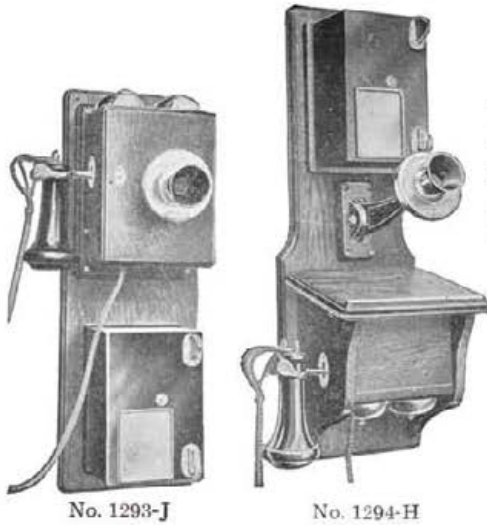
- 1294-A** For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer and inside binding posts.. **11.05**
- Includes: 1 No. 7-AG ringer; 1 No. 21-D condenser; 1 No. 140-A switchhook; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.
- 1098-A** For four party selective central battery service. 2500-ohm biased ringer and relay.... **10.15**
- Includes: 1 No. 7-BG ringer; 1 No. 120-A switch hook; 1 No. 5-A condenser; 5 No. 2-A binding posts; 2 No. 3-A binding posts; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 85-A relay.

WRITE FOR LIBERAL DISCOUNTS

**Telephone Sets—Continued**  
**Central Battery Wall Type—Continued**

**With No. 7 Type Coin Collectors**

These are equipped with No. 7-A (for nickels) coin collectors, but others will be furnished if desired. Coin collector sets arranged for four party selective service will be furnished, if specified. Regularly furnished in oak or walnut.



No. 1293-J

No. 1294-H

Code No.

List Price  
each**1293-J**

For direct, two party selective or four party semi-selective central battery service with No. 7 type electrically operated coin collector. 1000-ohm biased ringer and inside binding posts.....

**\$ 16.15**

Includes: 1 No. 8-AG ringer; 1 No. 140-B switch hook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 7-A coin collector; 1 No. 133-A backboard.

**1294-H**

For direct, two party selective or four party semi-selective central battery service with electrically operated coin collector No. 7-A, 1000-ohm biased ringer and inside binding posts.....

**16.45**

Includes: 1 No. 7-AG ringer; 1 No. 21-D condenser; 1 No. 140-B switch hook; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 7-A coin collector.



No. 2000

**Metal Case Wall Type**

**2002**

For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer

Consists of: 1 No. 1130-A wall set, which includes: 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 179, 5½ in. cord; 1 No. 196, 3 ft. cord; 1 No. 202, 6 ft. cord and 1 switchhook and 1 No. 1131-J. Desk Set Box, which includes: 1 No. 17-A ringer, 1 No. 21 E condenser, and 1 induction coil. The cases are metal, and regularly furnished with a black finish.....

**9.75**

No. 2002

**CENTRAL BATTERY DESK TYPE**

Regularly furnished in oak or walnut. Can be furnished for four party selective service.

Code No.

Price List  
each**2000**

For direct, two party selective or four party semi-selective central battery service.....  
 Includes: 1 No. 1295-A desk set box, 1 No. 1020-B desk stand.

**11.75****2001**

For coin collector service.....  
 Includes: 1 No. 1295-A desk set box, 1 No. 7-A coin collector, 1 No. 1020-F desk stand.

**17.45**

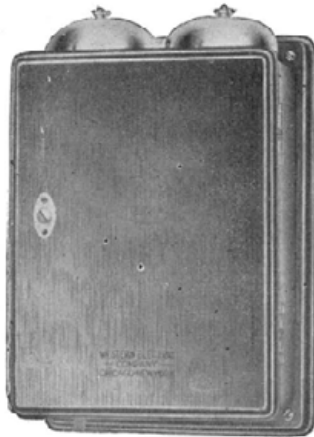
**WRITE FOR LIBERAL DISCOUNTS**



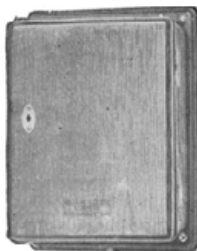
## Telephone Sets—Continued

**CENTRAL BATTERY DESK SET BOXES**

These do not include transmitters and receivers, but are intended for use with desk stands, transmitter arms, or hand sets. Furnished regularly in oak or walnut.



No. 1295-A

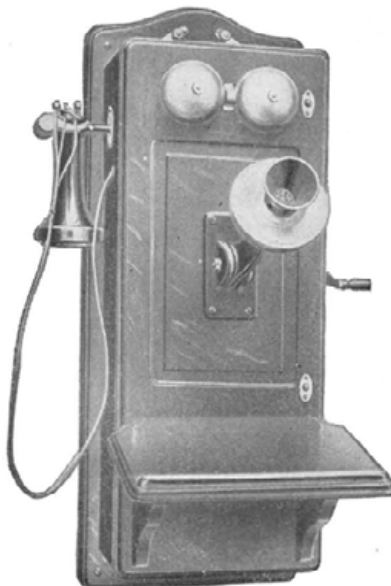


No. 1295-AC

| Code No.       | Description   | List Price each |
|----------------|---|-----------------|
| <b>1131-J</b>  | For direct, two party selective or four party semi-selective central battery service. This is used with the No. 1130-A wall set, forming the No. 2002 wall telephone set. .... Includes: 1 No. 17-A ringer, 1 No. 21-E condenser, 1 No. 20 induction coil.  | <b>\$ 3.35</b>  |
| <b>1295-A</b>  | For direct, two party selective or four party semi-selective central battery service. May be used either with or without the No. 7 type electrically operated coin collector. 1000-ohm biased ringer and inside binding posts.... Includes: 1 No. 8-AG ringer, 1 No. 21-D condenser, 1 No. 20 induction coil. | <b>4.85</b>     |
| <b>1297-A</b>  | For four party selective central battery service. 2500-ohm biased ringer, relay and inside binding posts..... Includes: 1 No. 8-BG ringer, 1 No. 21-D condenser, 1 No. 20 induction coil, 1 No. 85-B relay.   | <b>9.15</b>     |
| <b>1295-AA</b> | For local battery talking and central battery signalling service. 1000-ohm biased ringer and inside binding posts..... Includes: 1 No. 8-AG ringer, 1 No. 21-D condenser, 1 No. 13 induction coil.  | <b>4.60</b>     |
| <b>1295-AC</b> | For extension to a main telephone set on a direct, two party selective or four party semi-selective central battery system. No ringer, inside binding posts..... Includes: 1 No. 21-D condenser, 1 No. 20 induction coil.   | <b>3.35</b>     |

**MAGNETO WALL TYPE**

These are regularly furnished in oak, and arranged to accommodate 3 standard size dry cells; but the cells are not included in the telephone set, and when desired they should be ordered separately. The No. 122-W receiver and standard high resistance transmitter are furnished with these sets. Others will be supplied if ordered.



No. 1317-A

with the receiver. 5-bar A.C. generator and 1600-ohm unbiased ringer. .... Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.

| Code No.      | Description   | List Price each |
|---------------|---|-----------------|
| <b>1317-H</b> | For light load bridging service where code ringing is employed. 3-bar A.C. generator and 1000-ohm unbiased ringer..... Includes: 1 No. 2-AG ringer; 1 No. 22-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord. This telephone set may be equipped with a condenser wired in the receiver circuit, and will be so furnished if specified on the order. | <b>\$ 12.15</b> |
| <b>1317-A</b> | For moderate load rural service where code ringing is employed. 5-bar A.C. generator and 1600-ohm unbiased ringer..... Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.  | <b>15.60</b>    |
| <b>1317-E</b> | For heavy load rural service where code ringing is employed. 5-bar A.C. generator and 2500-ohm unbiased ringer..... Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.   | <b>15.60</b>    |
| <b>1317-F</b> | For moderate load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator and 1600-ohm unbiased ringer..... Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.  | <b>16.35</b>    |

WRITE FOR LIBERAL DISCOUNTS



## Telephone Sets—Continued

| Code No       | Description  | List Price each |
|---------------|--|-----------------|
| <b>1317-G</b> | For heavy load rural service where code ringing is employed. Condenser in series with receiver. 5-bar A.C. generator and 2500-ohm unbiased ringer.<br>Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.   | \$ 16.35        |
| <b>1317-J</b> | For two or four party selective service. 2-bar A.C. generator and 2500-ohm biased ringer.<br>Includes: 1 No. 6-BG ringer; 1 No. 22-E generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.   | 12.75           |
| <b>1317-K</b> | For heavy load center checking service. 5-bar pulsating and A.C. generator and 2500-ohm biased ringer.<br>Includes: 1 No. 6-BG ringer; 1 No. 47-B generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.  | 16.60           |
| <b>1317-L</b> | For heavy load rural line where selective central office signalling service and code ringing are employed. 5-bar pulsating and A.C. generator and 2500-ohm biased ringer.<br>Includes: 1 No. 6-BG ringer; 1 No. 47-B generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 92, 3 ft. cord; 1 push button; 1 No. 250-W transmitter; 1 No. 122-W receiver.<br><br>This telephone set may be obtained with a ringer of 1000 or 1600 ohms resistance and with a 3-bar generator and will be furnished with these if specified on the order. | 17.05           |
| <b>1317-M</b> | For series line. 3-bar A.C. generator and 80-ohm unbiased ringer. Includes: 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 13 induction coil.<br><br>These are arranged to accommodate 3 standard size dry cells. Regularly furnished in oak or walnut.  | 11.70           |
| <b>1240-A</b> | For light load bridging service where code ringing is employed. 3-bar A.C. generator and 1000-ohm unbiased ringer.<br><br>Walnut<br>Oak  | 14.15<br>14.05  |
| <b>1298-A</b> | For heavy load rural service where code ringing is employed. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts.<br><br>Walnut<br>Oak   | 16.55<br>16.45  |
| <b>1240-E</b> | For two or four party selective service. 2-bar A.C. generator and 2500-ohm biased ringer.<br><br>Walnut<br>Oak   | 14.95<br>14.85  |



No. 1298-A



No. 1240-A

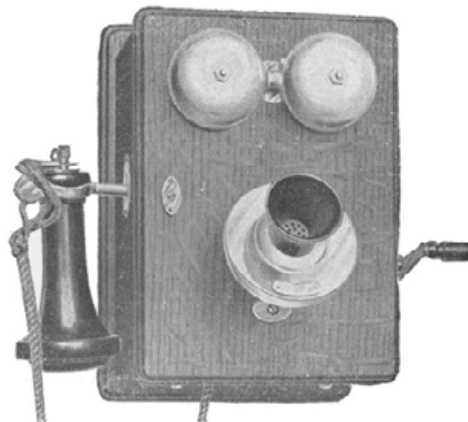
WRITE FOR LIBERAL DISCOUNTS

### Telephone Sets—Continued

#### Magneto Wall Type—Continued

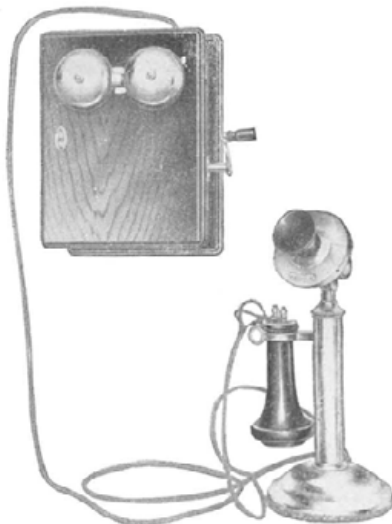
These are not arranged to accommodate the necessary dry cells. It is recommended that the No. 1-A battery box be ordered for this purpose.

Regularly furnished in oak or walnut.



No. 1305-A.

| Code No.                 | Description  | List Price each |
|--------------------------|--|-----------------|
| <b>1305-G</b>            | For light load bridging service where code ringing is employed. 3-bar A.C. generator, 1000-ohm unbiased ringer and inside binding posts.<br>Includes: 1 No. 2-AG ringer; 1 No. 22-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.   | \$ 12.30        |
|                          | This telephone set may be equipped with a condenser wired in the receiver circuit, and will be so furnished if specified on the order.   |                 |
| <b>1305-H</b>            | For moderate load rural service where code ringing is employed. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts.<br>Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.   | 15.75           |
| <b>1305-A</b>            | For heavy load rural service where code ringing is employed. 5-bar A. C. generator, 2500-ohm unbiased ringer and inside binding posts.<br>Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.   | 15.75           |
| <b>1305-J</b>            | For moderate load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts.<br>Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser. | 16.50           |
| <b>1305-K</b>            | For heavy load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts.<br>Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.    | 16.50           |
| <b>1305-L</b>            | For two or four party selective service. 2-bar A.C. generator, 2500-ohm biased ringer and inside binding posts.<br>Includes: 1 No. 6-BG ringer; 1 No. 22-E generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.  | 12.90           |
| <b>1305-F</b>            | For series line. 3-bar A. C. generator and 80-ohm unbiased ringer.<br>Includes: 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 13 induction coil; 1 No. 92, 3 ft. cord.  | 11.85           |
|                          | Regularly furnished in oak or walnut.  |                 |
| <b>MAGNETO DESK TYPE</b> |  |                 |
| <b>2003</b>              | For light load service.<br>Includes: 1 No. 1315-A desk set box, 1 No. 1020-B desk stand.   | 13.75           |
| <b>2004</b>              | For heavy load service.<br>Includes: 1 No. 1300-A desk set box, 1 No. 1020-B desk stand.   | 17.35           |



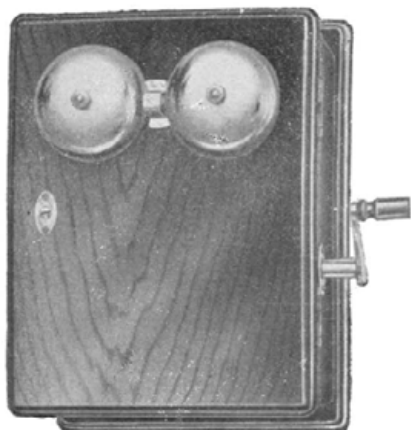
No. 2004

WRITE FOR LIBERAL DISCOUNTS



## Telephone Sets—Continued

## MAGNETO DESK SET BOXES

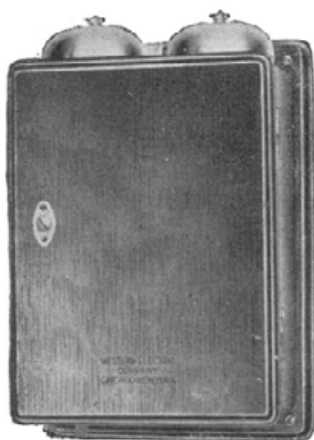


No. 1315-A

These do not include transmitters and receivers, but are intended for use with desk stands, transmitter arms or hand sets. No provision is made in these boxes for the dry cells. It is recommended, however, that the No. 1-A battery box be ordered for this purpose.

Regularly furnished in oak or walnut.

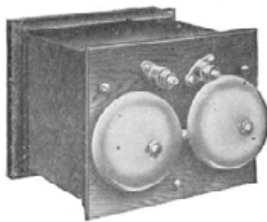
| Code No.   | Description  | List Price each |
|--|--|-----------------|
| <b>1315-A</b>  | For light load bridging service where code ringing is employed. 3 bar A.C. generator, 1000-ohm unbiased ringer and inside binding posts.....<br>Includes: 1 No. 2-AG ringer, 1 No. 22-A generator, 1 No. 13 induction coil.  | \$ 6.85         |
| <b>1300-F</b>  | For moderate load rural service where code ringing is employed. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts.....<br>Includes: 1 No. 2-FG ringer, 1 No. 47-A generator, 1 No. 13 induction coil.  | 10.45           |
| <b>1300-A</b>  | For heavy load rural service where code ringing is employed. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts.....<br>Include: 1 No. 2-BG ringer, 1 No. 47-A generator, 1 No. 13 induction coil.  | 10.45           |
| <b>1300-G</b>  | For moderate load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts.....<br>Includes: 1 No. 2-FG ringer, 1 No. 47-A generator, 1 No. 13 induction coil, 1 condenser.  | 11.20           |
| <b>1300-H</b>  | For heavy load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generators, 2500-ohm unbiased ringer and inside binding posts.....<br>Includes: 1 No. 2-BG ringer, 1 No. 47-A generator, 1 No. 13 induction coil, 1 condenser.  | 11.20           |
| <b>1315-E</b>  | For two or four party selective service. 2-bar A.C. generator, 2500-ohm biased ringer and inside binding posts.....<br>Includes: 1 No. 6-BG ringer, 1 No. 22-E generator, 1 No. 13 induction coil.   | 7.45            |
| These are intended for the purpose of giving extension service to main telephone sets, and are not provided with generators. Regularly furnished in oak or walnut. |  |                 |
| <b>1295-S</b>  | For light load bridging service where code ringing is employed. 1000-ohm unbiased ringer.....<br>Includes: 1 No. 4-AG ringer, 1 No. 13 induction coil.   | 3.70            |
| <b>1295-Y</b>  | For heavy load service where code ringing is employed. 2500-ohm biased ringer.....<br>Includes: 1 No. 8-BG ringer, 1 No. 13 induction coil.<br>This set may be obtained with a 1600-ohm ringer in place of a 2500-ohm ringer, or with a condenser wired in the receiver circuit, and will be furnished with these if specified on the order. | 4.10            |
| <b>1295-AB</b>   | For all classes of bridging magneto service. Condenser in series with receiver. No ringer.....<br>Includes: 1 No. 13 induction coil, 1 condenser.  | 3.10            |



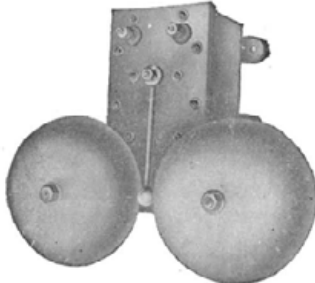
No. 1295-S

WRITE FOR LIBERAL DISCOUNTS

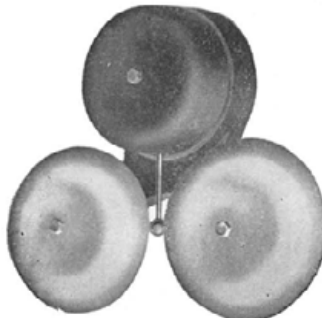




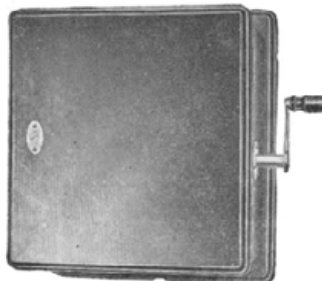
No. 43-A



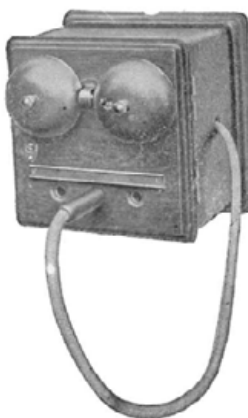
No. 283-A



No. 292-A



No. 299-A



No. 319-A

## Telephone Sets—Continued

### EXTENSION BELLS

Regularly furnished in oak or walnut.

| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 43-A     | 1000-ohm unbiased ringer mounted in box 5 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. .... | \$ 2.55         |
| 43-F     | 1000-ohm biased ringer mounted in box 5 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. ....   | 2.55            |
| 43-J     | 2500-ohm biased ringer mounted in box 5 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. ....   | 3.15            |

### LOUD RINGING EXTENSION BELLS

These will operate on alternating or pulsating current. They have metal cases finished in black japan. The gongs are nickel plated.

| Code No. | Description             | List Price each |
|----------|-------------------------|-----------------|
| 292-A    | 1000-ohm unbiased. .... | \$ 5.25         |
| 292-J    | 1000-ohm biased. ....   | 5.80            |
| 292-E    | 2500-ohm unbiased. .... | 5.65            |
| 292-K    | 2500-ohm biased. ....   | 6.15            |

### EXTENSION BELL FOR MINES

These operate on alternating current.

| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 283-A    | 1000-ohm unbiased. Gongs and case protected by a coating of lead. .... | \$ 15.75        |

### HAND GENERATOR BOXES

Regularly furnished in oak or walnut.

| Code No. | Description  | List Price each |
|----------|--|-----------------|
| 299-A    | 5-bar A.C. Generator mounted in box 7 $\frac{1}{2}$ in. x 9 in. x 5 $\frac{1}{2}$ in. ....               | \$ 7.30         |
| 299-E    | 5-bar Pulsating and A.C. Generator mounted in box 7 $\frac{1}{2}$ in. x 9 in. x 5 $\frac{1}{2}$ in. .... | 8.25            |
| 303-A    | 3-bar A.C. Generator mounted in box 6 $\frac{1}{2}$ in. x 8 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. .... | 4.35            |

### CUT IN STATION SETS FOR TOLL LINES

For use at intermediate station on a toll line to cut the line off in either direction.

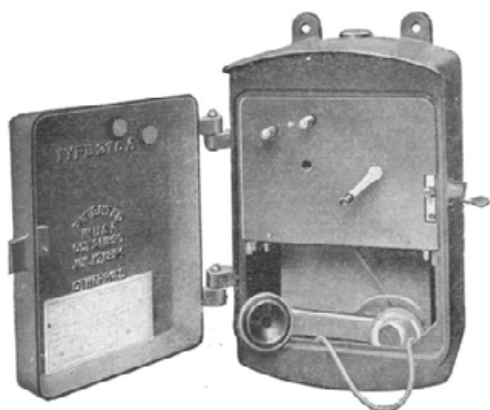
Regularly furnished in oak or walnut.

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 319-A    | For series service; equipped with an 80-ohm unbiased ringer, three jacks, a two-conductor cord and plug. .... | \$ 5.00         |
| 319-E    | Similar to No. 319-A but for use on a bridging line and equipped with a 1000-ohm unbiased ringer. ....        | 5.30            |
| 319-F    | Similar to No. 319-E but equipped with a 1600-ohm unbiased ringer. ....                                       | 5.90            |
| 319-G    | Similar to No. 319-E but equipped with a 2500-ohm unbiased ringer. ....                                       | 5.90            |

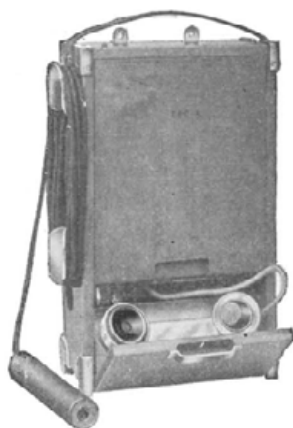
WRITE FOR LIBERAL DISCOUNTS

## LOCAL BATTERY TELEPHONE SETS FOR STREET RAILWAYS

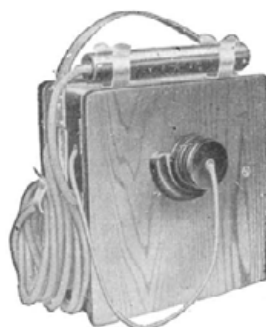
These are particularly well adapted to street railway work where the telephone lines are strung with the trolley and feed wires (on the same poles) and where the need of the best known protective devices is apparent.



No. 1278-A



No. 1280-A



No. 1302-A

### Poie Type

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 1278-A   | Includes: 1 No. 47-G, 5-bar generator; 1 No. 25-E repeating coil; 2, 1-amp. fuses; 2 carbon cutouts; 1 No. 13 induction coil; 1 No. 244-W transmitter; 1 No. 131-W receiver; 1 No. 1 hand-set handle; 1 No. 242, 18 in. cord; 1 No. 243, 8 in. cord; 2 switches for automatically opening the line and battery circuits when the door is closed. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified ..... | \$ 43.75        |

### Portable Type

|        |  |       |
|--------|--|-------|
| 1280-A | Includes: 1 No. 20-B, 5-Bar generator, 1 No. 34-A repeating coil; 1 No. 126 plug; 1 No. 309, 15 ft. cord; 1 No. 70-A protector; 1 No. 13 induction coil; 1 No. 244-W transmitter; 1 No. 131-W receiver; 1 No. 1 hand-set handle; 1 No. 285, 18 in. cord; 1 No. 243, 8 in. cord; 1 switch for automatically opening the battery circuit when the set is closed. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified. Weight, 33 lbs..... | 43.10 |
| 1302-A | Includes: 1 No. 43-B, 5-bar generator; 1 No. 25-E repeating coil; 1 No. 126 plug; 1 No. 309, 15 ft. cord; 1 No. 70-A protector; 1 No. 13 induction coil; 1 No. 228-W transmitter; 1 No. 133-W receiver; 1 No. 179, 5½ in. cord; 1 No. 311, 3 ft. cord; 1 switch for automatically opening the battery circuit when the receiver is placed in holder. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified. Weight, 27 lbs.....           | 29.00 |

## TELEPHONE SETS FOR USE ON "RAILWAY COMPOSITE" LINES

Special telephone sets used in railway systems for simultaneous telephony and telegraphy. These are arranged to signal by means of high frequency current which operates a howler, producing a loud tone.

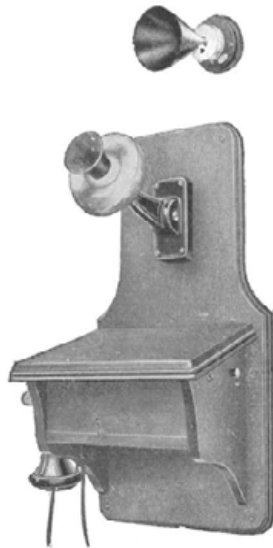
In equipping a line for this service it is necessary to install at each terminal telephone station a differentiator known as the No. 28-B condenser; at each intermediate telegraph station a No. 27-B condenser and No. 31-A resistance coil.

WRITE FOR LIBERAL DISCOUNTS

## Telephone Sets—Continued

Telephone Sets for use on "Railway Composite"  
Lines—Continued

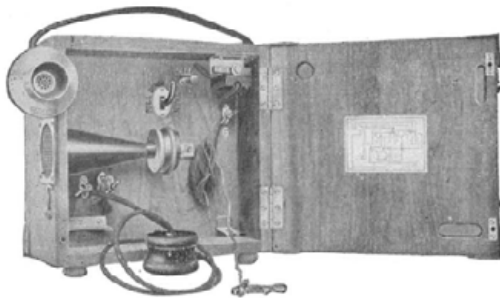
## Wall Type



No. 1312-A

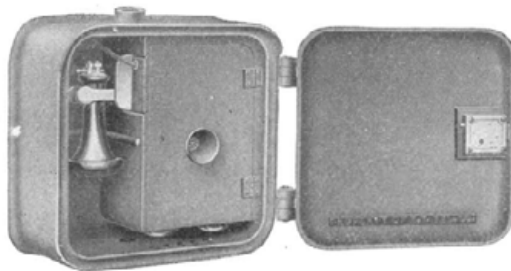
| Code No.      | Description   | List Price<br>each |
|---------------|---|--------------------|
| <b>1312-A</b> | Includes: 1 No. 12-G retardation coil; 1 No. 21-D condenser; 1 No. 21-U condenser; 1 No. 21-H condenser; 1 No. 140-B switch hook; 1 No. 1-A howler; 1 No. 5 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 390-B key..... | <b>\$ 28.80</b>    |

## Portable Type



No. 1314-A

|               |  |              |
|---------------|--|--------------|
| <b>1314-A</b> | Includes: 1 No. 12-M retardation coil; 1 No. 140-F switch hook; 1 No. 390-B key; 1 No. 21-D condenser; 1 No. 21-U condenser; 1 No. 1-B howler; 1 No. 3-B binding post; 3 No. 3-C binding posts; 1 No. 311, 3 ft. cord; 1 No. 179, 5½ in. cord; 1 No. 267, 10 ft. cord; 1 No. 2 line pole; 1 No. 228-W transmitter; 1 No. 133-W receiver; 1 No. 5 induction coil; 4 Blue Bell dry cells; 1 rail clamp ..... | <b>47.45</b> |
|---------------|--|--------------|



No. 1320-A Open



No. 1320-A Closed

## TELEPHONE SETS FOR POLICE SERVICE

This is a central battery telephone set enclosed in a cast iron case about 12 in. x 12 in. x 6½ in. and especially adapted to police patrol service. The lettering on the case can be arranged as ordered. All the telephone parts are mounted on a frame which can be removed as a unit from the case. The door is flanged to make it weather proof and is provided with a strong spring lock of special design.

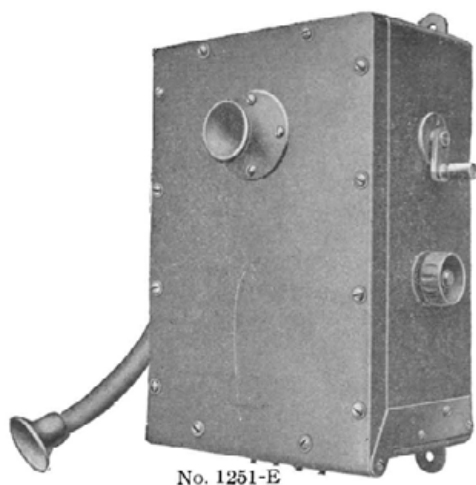
| Code No.      | Description   | List Price<br>each |
|---------------|---|--------------------|
| <b>1320-A</b> | Furnished with all the necessary apparatus.<br>Includes: 1, 1000-ohm unbiased ringer; 1 No. 21-D condenser; 1 No. 20 induction coil; 2 No. 3-A binding posts; 2 No. 2-A binding posts; 1 No. 92, 12 in. cord; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 switch hook..... | <b>\$ 40.25</b>    |

WRITE FOR LIBERAL DISCOUNTS



## Telephone Sets—Continued

## TELEPHONE SETS FOR USE IN MINES



No. 1251-E

| Code No.      | Description  | List Price each |
|---------------|--|-----------------|
| <b>1251-E</b> | This contains all the apparatus except the extension bell. The case is covered with lead as a protection against corrosion and decay, 5 bar generator..... | <b>\$ 35.00</b> |

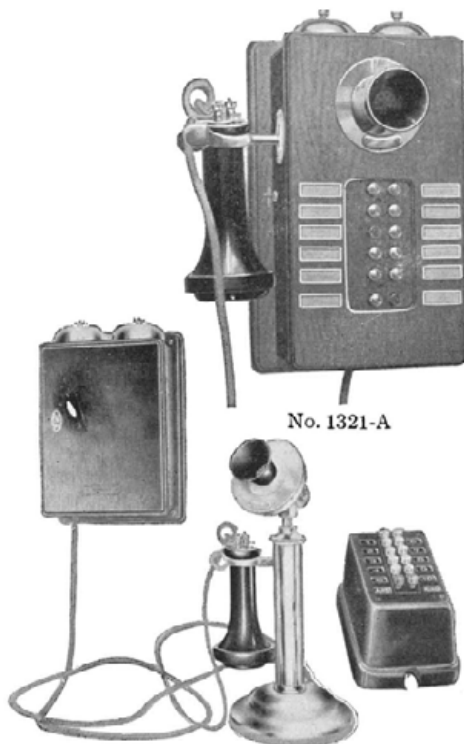
Includes: 1 No. 20-A generator, 1 key for battery circuit, 1 No. 13 induction coil, 1 No. 228-W transmitter, 1 No. 128-W receiver less head band and cap.

The No. 283-A extension bell is used with this set.

## INTER-COMMUNICATING TELEPHONE SETS

Regularly furnished in oak

These sets are designed for inter-communicating service between different rooms or departments in the same building or adjoining buildings. They are built in two styles, one being equipped with keys for making the desired connections and the other with jacks and a cord and plug. The former is furnished in three sizes, ten, twenty and thirty line capacities and the latter in twenty four line capacity with equipment as specified. Either wall or desk type telephone sets can be furnished. Two groups of dry batteries are necessary, one for ringing and the other for talking. These sets are wired for metallic service but may be used on a common return system if desired.



No. 1321-A

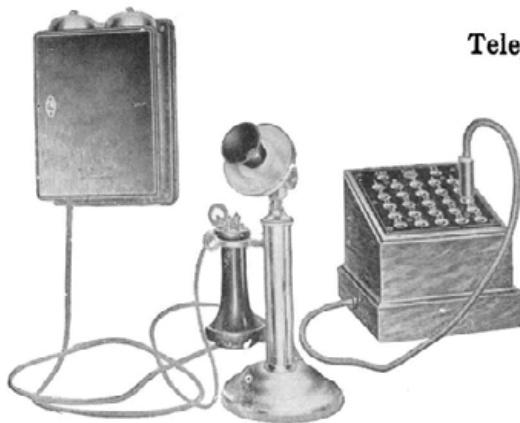
No. 2005

No. 1322-A

| Code No.      | Description  |
|---------------|--|
| <b>1321-A</b> | 10 line wall telephone set equipped with keys for making connections   |
| <b>1321-E</b> | 20 line wall telephone set equipped with keys for making connections   |
| <b>1321-F</b> | 30 line wall telephone set equipped with keys for making connections   |
| <b>2005</b>   | 10 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-A key |
| <b>2006</b>   | 20 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-B key |
| <b>2007</b>   | 30 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-C key |
| <b>1322-A</b> | 24 line wall telephone set equipped with jacks and plug and cord for making connections. Equipment of jacks to be specified.   |

PRICES ON REQUEST

Telephone Sets—Continued



No. 2008

Inter-Communicating Telephone Sets—Continued

| Code No. | Description  |
|----------|--|
| 2008     | 24 line desk telephone set with jacks, plug and cord for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 jack box. Equipment of jacks to be specified. |

PRIVATE LINE TELEPHONE SET

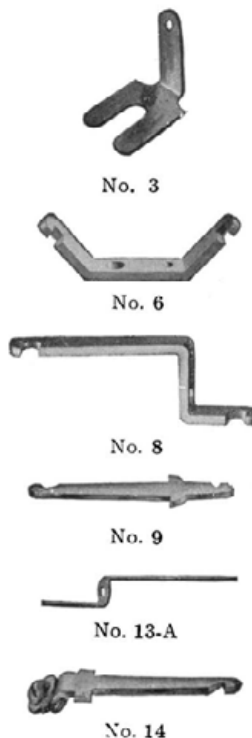


No. 1293-AB

This set is suitable for use on short lines connecting different rooms or departments in the same building, or for connecting house and stable, only two wires between stations being necessary. More than two stations may be connected to the line if desired. The batteries are located at each station and signalling is accomplished by means of a push button which operates direct current ringers at the other stations.

| Code No. | Description                              |
|----------|--|
| 1293-AB  | Furnished in oak or walnut as specified. |

TERMINAL PUNCHINGS



| Code No. | Description  | List Price<br>per<br>hundred |
|----------|--|------------------------------|
| 3        | German silver, used on fuse posts and fuse blocks . . . . .                            | \$ 0.45                      |
| 6        | Brass, used for the ground side of the ringing leads . . . . .                         | .90                          |
| 8        | Heavy brass, used on double sided connecting racks . . . . .                           | 2.25                         |
| 9        | Brass, used on No. 10 switchboard . . . . .  | .85                          |
| 13-A     | Brass, used on double sided connecting racks . . . . .                                 | 1.15                         |
| 13-B     | Brass, used on double sided connecting rack, similar to No. 13-A only longer . . . . . | 1.15                         |
| 14       | Brass, screw connection . . . . .  | 2.65                         |
| 15-A     | Brass, used on one sided connecting racks . . . . .                                    | 1.30                         |
| 16       | Brass, used on repeating coils and retardation coils . . . . .                         | .45                          |
| 17-A     | Brass, used on induction coils and telephone sets . . . . .                            | .55                          |



No. 15

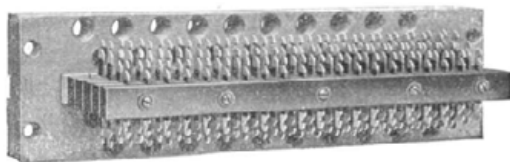


No. 16

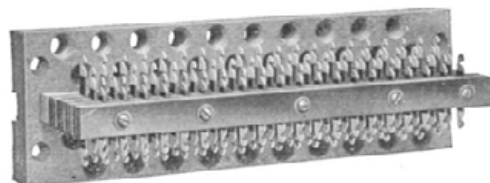


No. 17-A

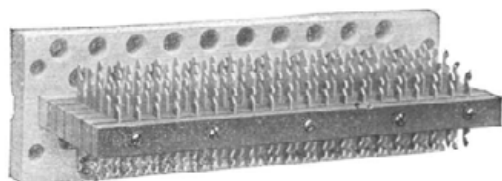
WRITE FOR LIBERAL DISCOUNTS



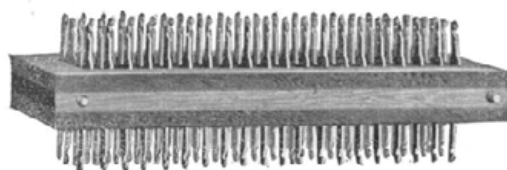
No. 26



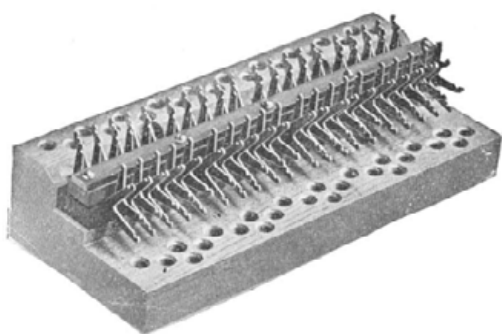
No. 35



No. 37



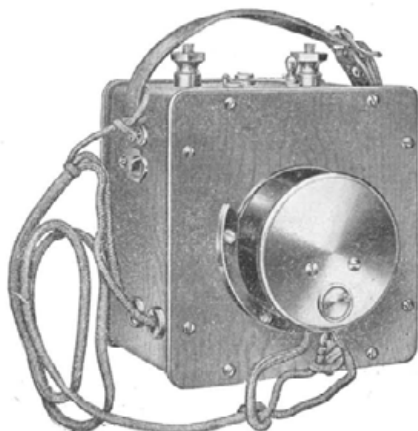
No. 49



No. 65



No. 53



No. 1006-A

## TERMINAL STRIPS

These strips consist of a maple base drilled for connecting wires and equipped with terminal punchings held in place by hard rubber insulating strips.

### Used on Intermediate Distributing Frame

| Code No. | Number of<br>Terminals in<br>each Row | Number of<br>Rows of<br>Terminals | Length<br>of Strip<br>inches | List Price<br>each          |
|----------|---------------------------------------|-----------------------------------|------------------------------|-----------------------------|
| 35       | 20                                    | 3                                 | 7 $\frac{3}{8}$              | \$ 1.50                     |
| 36       | 20                                    | 4                                 | 7 $\frac{3}{8}$              | 1.80                        |
| 37       | 20                                    | 5                                 | 7 $\frac{3}{8}$              | 2.10                        |
| 38       | 20                                    | 3                                 | 6 $\frac{1}{8}$              | 1.20                        |
| 39       | 20                                    | 4                                 | 6 $\frac{1}{8}$              | 1.50                        |
| 40       | 20                                    | 5                                 | 6 $\frac{1}{8}$              | 1.80                        |
| 41       | 20                                    | 6                                 | 6 $\frac{1}{8}$              | 2.10                        |
| 43       | 20                                    | 4                                 | 6 $\frac{1}{8}$              | for No. 9 ex-<br>change .53 |
| 49       | 20                                    | 3                                 | 6 $\frac{1}{8}$              | for No. 9 ex-<br>change .48 |

### Used on Main Distributing Frame

|    |  |  |  |      |
|----|--|--|--|------|
| 65 | 1 Row of 40 three-way terminals; 7 $\frac{3}{8}$ in. long..... |  |  | 1.20 |
|----|--|--|--|------|

### Used on No. 9 Section

|    |    |   |    |     |
|----|----|---|----|-----|
| 53 | 20 | 2 | 10 | .45 |
|----|----|---|----|-----|

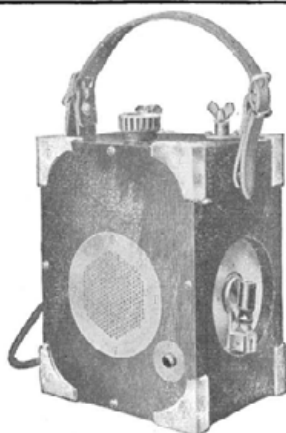
## TEST SETS

The No. 125-W receiver on the No. 1006 type sets is used both as transmitter and receiver.

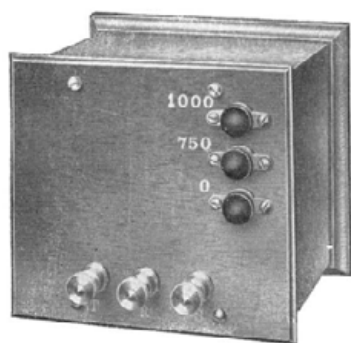
| Code No. | Will ring<br>through<br>ohms | Contains   | Size of Case<br>inches             | Finish | List Price<br>each |
|----------|------------------------------|--|------------------------------------|--------|--------------------|
| 1006-A   | 2500                         | 1 No. 2-A buzzer<br>1 No. 29-A generator<br>1 switch<br>1 No. 125-W receiver<br>with cord.<br>Receiver holder  | 6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$ | Cherry | \$ 11.05           |
| 1006-B   | 3500                         | 1 No. 2-B buzzer<br>1 No. 29-A generator<br>1 switch<br>1 No. 125-W receiver<br>with cord.<br>Receiver holder  | 6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$ | Cherry | 11.35              |
| 1006-C   | 2500                         | 1 No. 2-A buzzer<br>1 No. 29-A generator<br>1 switch<br>1 No. 125-W re-<br>ceiver with cord                    | 6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$ | Cherry | 10.60              |
| 1006-D   | 5000                         | 1 No. 2-A buzzer<br>1 No. 22-B generator<br>1 switch<br>1 No. 125-W re-<br>ceiver with cord<br>Receiver holder | 6 $\frac{3}{4}$ x6x4 $\frac{1}{2}$ | Cherry | 12.55              |

WRITE FOR LIBERAL DISCOUNTS

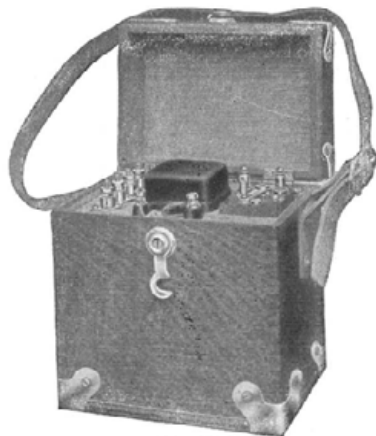




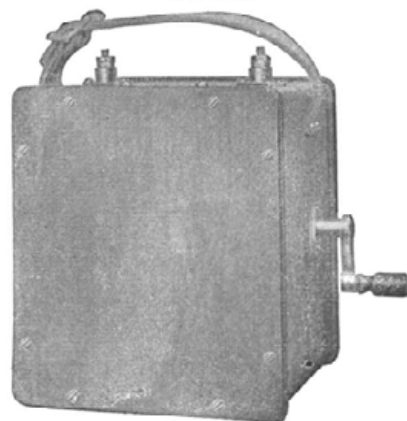
No. 1017-A



No. 9-A



No. 16-A



No. 90510

## Test Sets—Continued

| Code No. | Will ring through ohms | Contains   | Size of Case inches                                 | Finish                    | List Price each |
|----------|------------------------|--|---|---------------------------|-----------------|
| 1006-E   | 5000                   | 1 No. 2-A buzzer<br>1 No. 22-B generator<br>1 switch<br>1 No. 125-W receiver with cord   | 6 $\frac{3}{4}$ x6x4 $\frac{1}{4}$                  | Cherry                    | \$ 12.10        |
| 1017-A   | 2500                   | 1 No. 2-D buzzer<br>1 No. 29-A generator<br>1 switch<br>1 No. 337 cord<br>1 dry battery<br>1 No. 13 induction coil<br>1 No. 226-W transmitter<br>1 No. 128-W receiver less head band         | 7 $\frac{3}{4}$ x6 $\frac{1}{8}$ x4 $\frac{3}{4}$   | Birch<br>Mahogany         | 14.55           |
| 9-A      |                        | For test- 1 No. 117 jack<br>ing super-3 No. 89-A keys<br>visory re- 1 No. 5-K resistance,<br>lays (750 ohms)<br>1 No. 5-S resistance<br>(9000 ohms)<br>1 No. 5-AH resist-<br>ance (250 ohms) | 5 $\frac{3}{4}$ x5 $\frac{1}{8}$ x4 $\frac{3}{16}$  | Oak<br>nickel<br>trimming | 8.25            |
| 16-A     |                        | For cable 6 O.K. dry cells No. 2<br>testing 1 No. 31-A condenser<br>1 No. 13115 switch<br>1 buzzer<br>4 No. 2-A binding posts  | 7 $\frac{1}{16}$ x5 $\frac{1}{16}$ x7 $\frac{3}{4}$ | Oak<br>nickel<br>trimming | 12.45           |

These test sets are 5 $\frac{3}{4}$  in. x 6 $\frac{3}{8}$  in. x 5 $\frac{1}{4}$  in.

| Code No. | Will ring through ohms | Contains                                  | Finish | List Price each |
|----------|------------------------|---|--------|-----------------|
| 90530    | 10000                  | 1 No. 22-K generator<br>1 No. 18-A ringer | Birch  | \$ 6.00         |
| 90510    | 35000                  | 1 No. 22-K generator<br>1 No. 18-B ringer | Birch  | 8.50            |
| 90511    | 50000                  | 1 No. 22-N generator<br>1 No. 19-A ringer | Birch  | 9.50            |
| 90512    | 100000                 | 1 No. 22-N generator<br>1 No. 19-B ringer | Birch  | 11.00           |

WRITE FOR LIBERAL DISCOUNTS

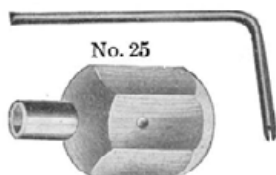


No. E-3200

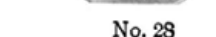
## THE QUEEN ACME PORTABLE TESTING SETS

This is a combined resistance box and galvanometer used for general resistance measurement work.

| List No. | Range<br>in ohms  | List Price<br>each |
|----------|-------------------|--------------------|
| E-3200   | 0.01 to 1,000,000 | \$ 100.00          |



No. 25



No. 28



No. 34



No. 35



No. 39



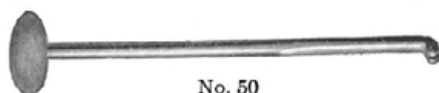
No. 40



No. 43



No. 46



No. 50




















No. 58

## TOOLS FOR CENTRAL OFFICES

| Code No. | Used for  | List Price<br>each |
|----------|---|--------------------|
| 25       | Spring adjustment of horizontal key.....  | \$ 0.25            |
| 28       | Nos. 4 and 65 protector nuts.....   | .30                |
| 34       | Wrench and screw driver for $\frac{7}{16}$ in. hexagonal nuts on No. 7 protector.....   | 1.00               |
| 35       | Plug and drop screws.....   | .30                |
| 39       | Shutter support adjuster, used on drops...  | .30                |
| 40       | Double screw driver for drops.....  | .30                |
| 43       | Fits $\frac{3}{16}$ in. and $\frac{1}{4}$ in. nuts.....   | .30                |
| 46       | Removing cap nuts from relays of No. 122 type.....  | .55                |
| 48       | Wrench and screw driver for adjusting armature contacts of No. 185-A relay. Will fit $\frac{1}{4}$ in. and $\frac{7}{32}$ in. nuts..... | .90                |
| 50       | Relay spring adjustment.....  | .40                |
| 58       | Handling heat coils of protectors.....  | .75                |

WRITE FOR LIBERAL DISCOUNTS

## Tools—Continued

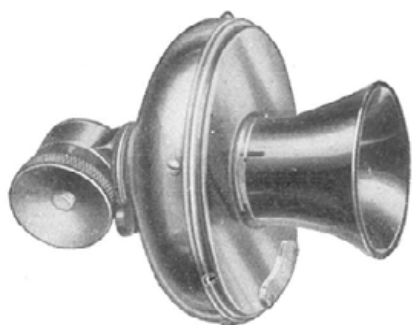
|   |  |   |
|---|--|---|
|    |    |    |
| No. 64  | No. 66   | No. 68  |
|    |  |   |
| No. 67  |  |   |
|    |  |   |
| No. 72  |  |   |
|    |  |   |
| No. 71  |  |   |
|    |  |   |
| No. 77  |  |   |
|    |  |   |
| No. 80  |  |   |
|   |  |   |
| No. 81  |  |   |
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| No. 85  |  |   |
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| No. 87  |  |   |
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| No. 90  |  |   |
|  |  |   |
| No. 91  |  |   |
|  |  |   |
| No. 92  |  |   |
|  |  |  |
| No. 93  | No. 97   | No. 105   |

| Code No. | Used for   | List Price each |
|----------|--|-----------------|
| 64       | Wrench and screw driver for adjusting Nos. 4 and 16 jack fasteners.....  | \$ 1.90         |
| 66       | Extracting line and supervisory lamps.....   | .30             |
| 67       | Adjusting ring springs of No. 49 jacks....   | .40             |
| 68       | Adjusting tip springs of No. 49 jacks.....   | .40             |
| 72       | Wrench and screw driver for adjusting armature contact screws, $\frac{1}{16}$ in. and $\frac{5}{32}$ in. hexagonal nuts..... | .85             |
| 74       | Fits $\frac{5}{32}$ in. and $\frac{7}{32}$ in. nuts.....   | .45             |
| 77       | Holding wires to terminals of jacks for soldering.....   | 1.15            |
| 80       | Extracting Nos. 2 and 4 type lamp caps..   | .30             |
| 81       | Adjusting tip and ring springs of No. 92 jacks.....  | .40             |
| 85       | Extracting No. 4 type lamps.....   | .30             |
| 87       | Extracting No. 8 type lamp caps.....   | .30             |
| 90       | Removing caps of service meters.....   | .90             |
| 91       | Removing cover of No. 89 type relay.....   | .55             |
| 92       | Nuts on Nos. 18 and 19 resistances.....  | .55             |
| 93       | Multiple cable lifter.....   | .25             |
| 97       | $\frac{3}{8}$ in. hexagonal nuts on No. 7 type fuses...  | .45             |
| 105      | Adjusting springs on No. 453 type keys...  | .45             |

WRITE FOR LIBERAL DISCOUNTS



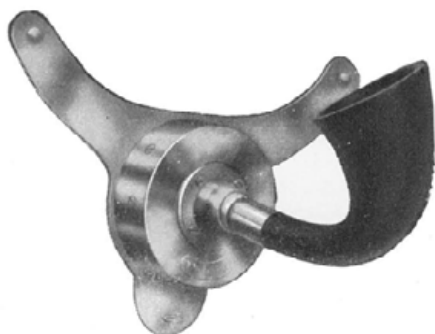
## TRANSMITTERS



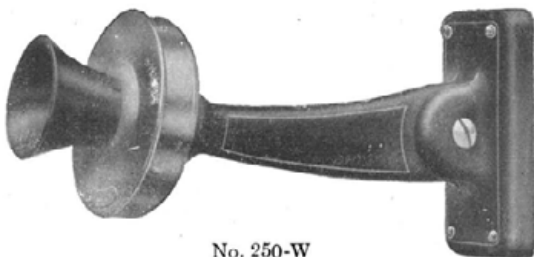
No. 229-W



No. 232-W



No. 234-W



No. 250-W

| Code No. | Description  | Used with   | List Price each |
|----------|--|---|-----------------|
| 226-W    | Low resistance transmitter without lug.  |   | \$ 1.40         |
| 227-W    | Low resistance transmitter with lug.   |   | 2.00            |
| 228-W    | High resistance transmitter without lug.   | Nos. 1251-E, 1302-A and 1314-A telephone sets.....  | 1.40            |
| 229-W    | High resistance transmitter with lug.  | Desk stands, transmitter arms and small telephone sets  | 2.00            |
| 232-W    | High resistance transmitter arranged to be suspended by two cords entering side of case.   | Nos. 7 and 19 transmitter arms for switchboards....   | 2.55            |
| 234-W    | Operator's chest transmitter arranged to be supported by a band around the operator's neck. This attachment is not furnished with the transmitter. | Switchboards as operator's transmitter. No. 3 type of transmitter attachment used as support..... | 2.95            |
| 244-W    | Transmitter arranged to be fixed to No. 1 hand set handle.   | No. 1001 hand set ..  | 2.25            |
| 250-W    | High resistance bracket type transmitter.  | All wall telephone sets that require bracket type transmitter.....                                | 2.40            |

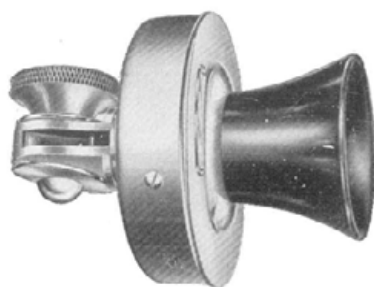
WRITE FOR LIBERAL DISCOUNTS

## Transmitters—Continued

| Code No. | Description   | Used with  | List Price each |
|----------|---|--|-----------------|
| 251-W    | Low resistance bracket type transmitter.  |  | \$ 2.40         |
| 266-W    | Transmitter to be fastened inside case.   | No. 1017-A test set  | 1.30            |
| 267-W    | Transmitter arranged to be fixed to No. 2 type hand set handle.   | No. 1002-A hand set.....   | 1.55            |
| 269-W    | High resistance transmitter having small insulated case.  | Intercommunicating wall telephone sets   | 2.00            |
| 270-W    | High resistance transmitter of the bracket type having insulated case.                                  | All wall telephone sets that require bracket type transmitter .....                    | 2.40            |
| 271-W    | High resistance transmitter having insulated case with lug.   | No. 1020-P desk stand.....   | 2.00            |
| 272-W    | High resistance transmitter having insulated case with lug, and equipped with two 5½ in. No. 329 cords. | Wall telephone sets (except intercommunicating) that require transmitter with lug..... | 2.00            |



No. 266-W



No. 269-W



No. 7-A

## TRANSMITTER ARMS

## FOR SWITCHBOARDS

The code number does not include transmitter, receivers or cords.

## Using Suspended Transmitter

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 7-A      | This includes the two cord escutcheon tubes, hanger and two No. 103 cord weights. Furnished in brass finish unless otherwise specified. In ordering, state whether the tubes through which the cord runs shall be 7 or 13 inches long. .... | \$ 4.90         |
| 19-A     | Nickel plated unless otherwise specified.....   | 5.65            |

## Using Transmitter with Lug

No. 11 type is nickel plated unless otherwise specified.



No. 11

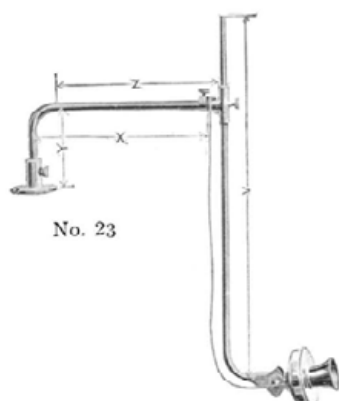
|      | Dimensions in inches |    |    |    |         |
|------|----------------------|----|----|----|---------|
|      | B                    | C  | E  | F  |         |
| 11-A | 19                   | 12 | 12 | 12 | \$ 5.85 |
| 11-B | 12                   | 11 | 11 | 12 | 5.85    |
| 11-C | 18                   | 12 | 12 | 16 | 5.85    |
| 11-D | 12                   | 16 | 16 | 15 | 5.85    |
| 11-E | 6                    | 12 | 12 | 11 | 5.85    |

WRITE FOR LIBERAL DISCOUNTS

## Transmitter Arms—Continued

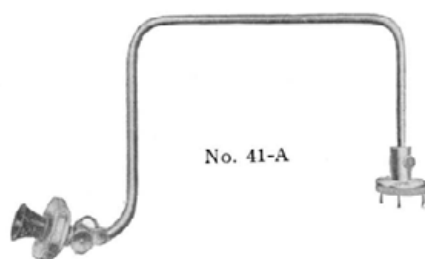
## For Switchboards—Continued

No. 23 type is nickel plated unless otherwise specified.



| Code No. | Dimensions, inches |    |   |    | List Price each |
|----------|--------------------|----|---|----|-----------------|
|          | V                  | X  | Y | Z  |                 |
| 23-A     | 27                 | 11 | 5 | 10 | \$ 3.60         |
| 23-B     | 18                 | 11 | 5 | 10 | 3.60            |
| 23-C     | 12                 | 8  | 6 | 7  | 3.60            |
| 23-D     | 20                 | 14 | 4 | 13 | 3.60            |
| 23-E     | 12                 | 14 | 8 | 13 | 3.60            |
| 23-F     | 8                  | 14 | 4 | 13 | 3.60            |

No. 41 type is nickel plated unless otherwise specified.

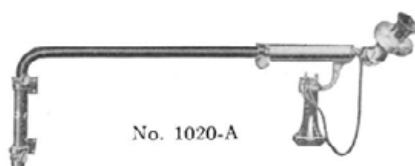


|      |  |      |
|------|--|------|
| 41-A | Used with No. 4 private exchanges..... | 5.65 |
|------|--|------|

## FOR DESKS

## With Transmitters, Receivers and Cords

The No. 122-W receiver and standard high resistance transmitter are furnished with these transmitter arms, as specified below. Others will be furnished if ordered.



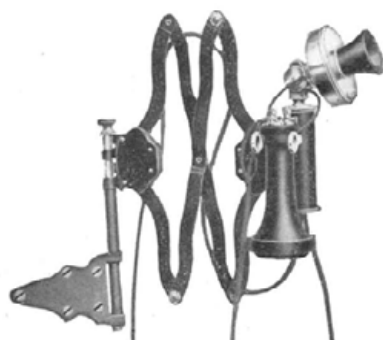
| Code No. | Description  | Finish                | List Price each |
|----------|--|-----------------------|-----------------|
| 1020-A   | For regular local battery bridging or central battery service. Used on flat top desks. | Rust proof dull black | \$ 12.35        |

Includes: 1 No. 20-A transmitter arm  
1 No. 229-W transmitter  
1 No. 122-W receiver  
1 No. 310 cord



|        |  |              |      |
|--------|--|--------------|------|
| 1040-B | For regular local battery bridging or central battery service. Mounts on wall. | Black enamel | 9.05 |
|--------|--|--------------|------|

Includes: 1 No. 40-B transmitter arm  
1 No. 229-W transmitter  
1 No. 122-W receiver  
1 No. 308 cord



|        |  |              |      |
|--------|--|--------------|------|
| 1040-D | For regular local battery bridging or central battery service. Used on roll top desks. | Black enamel | 9.20 |
|--------|--|--------------|------|

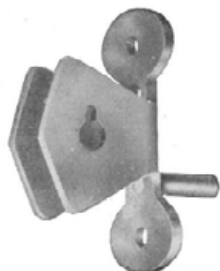
Includes: 1 No. 40-D transmitter arm  
1 No. 229-W transmitter  
1 No. 122-W receiver  
1 No. 308 cord

WRITE FOR LIBERAL DISCOUNTS





No. 1040-F



No. 3-A



No. 3-A



No. 1-A

### Transmitter Arms—Continued For Desks—Continued

| Code No. | Description   | Finish       | List Price each |
|----------|---|--------------|-----------------|
| 1040-F   | For regular local battery bridging or central battery service. Used on flat top desks.                    | Black enamel | \$ 9.15         |
|          | Includes: 1 No. 40-F transmitter arm<br>1 No. 229-W transmitter<br>1 No. 122-W receiver<br>1 No. 308 cord |              |                 |

### Without Transmitters, Receivers or Cords

These are similar to those listed above except that the transmitters, receivers and cords are omitted.

| Code No. | Description  | Finish                | List Price each |
|----------|--|-----------------------|-----------------|
| 20-A     | Regular local battery bridging or central battery service. Used on flat top desks. | Rust proof dull black | \$ 7.50         |
| 40-B     | Regular local battery bridging or central battery service. Mounts on wall.         | Black enamel          | 4.35            |
| 40-D     | Regular local battery bridging or central battery service. Used on roll top desks. | Black enamel          | 4.50            |
| 40-F     | Regular local battery bridging or central battery service. Used on flat top desks. | Black enamel          | 4.50            |

### TRANSMITTER BRACKET

| Code No. | Description   | List Price each |
|----------|---|-----------------|
| 3-A      | Nickel plated bracket for mounting transmitter on front of telephone set..... | \$ 0.18         |

### TRANSMITTER ATTACHMENTS

Used to Support the Operator's "Chest" Transmitter

| Code No. | Description                         | List Price each |
|----------|-------------------------------------|-----------------|
| 2-A      | Buckle only.....                    | \$ 0.08         |
| 3-A      | Buckles and slate colored tape..... | .24             |
| 3-B      | Buckles and black colored tape..... | .24             |
| 3-C      | Buckles and white tape.....         | .24             |

### TROUBLE CAPS

These are split fibre tubes for placing over a plug to designate trouble in the cord circuit apparatus.

| Code No. | Color | To be used on Plugs number | List Price each |
|----------|-------|----------------------------|-----------------|
| 1-A      | Black | 109.....                   | \$ 0.0225       |
| 1-B      | Red   | 109.....                   | .0225           |
| 2-A      | Black | 110.....                   | .0225           |
| 2-B      | Red   | 110.....                   | .0225           |

### WESTON AMMETERS

For power switchboards; flush mounting; finished in polished copper and black dip; provided with external shunt, scales may have zero at left or at the center as ordered.

Type "F" has a face plate 9½ in. in diameter

Type "K" has a face plate 7¾ in. in diameter

Order thus:

1 Type "F" Weston 200 - 0 - 200 scale ammeter, flush mounted, with external shunt provided with leads .... feet long; finished in polished copper and black dip.

WRITE FOR LIBERAL DISCOUNTS

## WESTON VOLTMETERS



### For Wire Chief's Desk and Telephone Switchboards

These have high resistance coils of 2500- ohms per scale volt; are arranged for flush mounting, and are finished in nickel and black dip. These are used in the testing circuits. Type "F" instruments have face plates  $9\frac{1}{2}$  in. in diameter. They are usually provided with 0 to 4 and 0 to 40 scales.

Order thus:—

1 Type "F" Weston flush mounted voltmeter, finished in nickel and black dip; scales 0 to 4 and 0 to 40; resistance of 4 volt coil 10,000- ohms and of the 40 volt coil 100,000- ohms.

### For Power Switchboards

Flush mounting, finished in polished copper and black dip; type "F" has a face plate  $9\frac{1}{2}$  in. in diameter and the type "K" has a face plate  $7\frac{3}{4}$  in. in diameter.

Order thus:—

1 Type "F" Weston flush mounted voltmeter, finished in polished copper and black dip; scales 0 to 5 and 0 to 50.

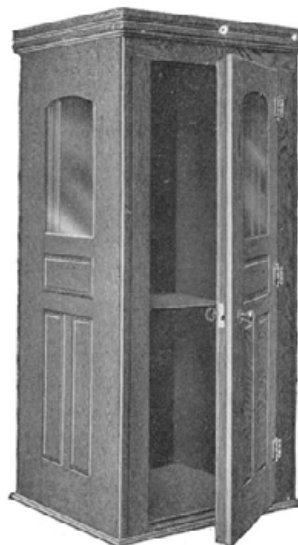
## INTEGRATING WATTMETERS

These may be furnished for recording the current consumed, or the current delivered by the power plant. Various styles are carried.

PRICES ON REQUEST

# TELEPHONE SUPPLIES





## TELEPHONE BOOTHS

### Sound Proof

We are prepared to furnish, on request, a complete catalogue illustrating and describing our line of standard sound-proof telephone booths.

All styles, sizes and finishes to match interior fixtures and decorations.



PRICES ON REQUEST



No. 52031

No. 94029

### CARBONIC ACID GAS HAND FIRE EXTINGUISHERS

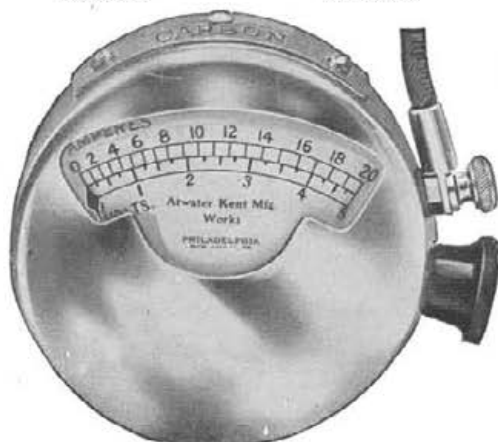
The fire extinguisher, as illustrated, is ready for instant use, being constructed to compel the immediate mixing of the chemicals the instant the extinguisher is turned bottom up. It will throw a stream of fire-killing liquid from 40 to 50 feet, thus enabling the user to reach fires above the surface of the floor, in ceilings, curtains, and elsewhere.

This liquid is heavily charged with carbonic acid gas, and is many times more effective than water, readily extinguishing burning varnish, celluloid, tar, coal-oil, and naphtha.

Code Word  
Hygeian  
Mertertjes

List No.  
52031  
94029

Name  
Newark  
Accurate



No. 16520

### KENT AUTOMATIC POCKET VOLT-AMMETER

This instrument is designed and calibrated especially for testing batteries. The needle is delicately pivoted and the readings are accurate.

Flexible leads of ample capacity are provided with each instrument.

No change is made in the connection to the battery for the two readings, as that in amperes is obtained by simply pressing the button.

Code Word  
Oxhoftstab

List No.  
16520

### LEAD SLEEVES

#### For Making Straight Splices

| Size and Gauge Cable | Inside Diameter of Sleeve, inches | Length inches | Size and Gauge Cable | Inside Diameter of Sleeve, inches | Length inches |
|----------------------|-----------------------------------|---------------|----------------------|-----------------------------------|---------------|
| 15 pair No. 22       | 1                                 | 16            | 15 pair No. 19       | 1                                 | 16            |
| 20 pair No. 22       | 1                                 | 16            | 20 pair No. 19       | 1½                                | 16            |
| 25 pair No. 22       | 1½                                | 16            | 25 pair No. 19       | 1½                                | 16            |
| 30 pair No. 22       | 1½                                | 16            | 30 pair No. 19       | 2                                 | 16            |
| 50 pair No. 22       | 2                                 | 16            | 50 pair No. 19       | 2                                 | 16            |
| 75 pair No. 22       | 2½                                | 16            | 75 pair No. 19       | 2½                                | 16            |
| 100 pair No. 22      | 2½                                | 16            | 100 pair No. 19      | 3                                 | 16            |
| 150 pair No. 22      | 2½                                | 16            | 150 pair No. 19      | 3                                 | 18            |
| 180 pair No. 22      | 2½                                | 16            | 180 pair No. 19      | 3½                                | 18            |
| 200 pair No. 22      | 3                                 | 18            | 200 pair No. 19      | 3½                                | 18            |
| 300 pair No. 22      | 3½                                | 18            | 300 pair No. 19      | 4½                                | 22            |
| 400 pair No. 22      | 3½                                | 22            |                      |                                   |               |

#### For Making "Y" Splices

| Size and Gauge Cable | Inside Diameter of Sleeve, inches | Length inches | Size and Gauge Cable | Inside Diameter of Sleeve, inches | Length inches |
|----------------------|-----------------------------------|---------------|----------------------|-----------------------------------|---------------|
| 10 pair No. 22       | 1                                 | 16            | 10 pair No. 19       | 1                                 | 16            |
| 20 pair No. 22       | 1½                                | 16            | 20 pair No. 19       | 1½                                | 16            |
| 25 pair No. 22       | 1½                                | 16            | 25 pair No. 19       | 1½                                | 16            |
| 30 pair No. 22       | 2                                 | 16            | 30 pair No. 19       | 2                                 | 16            |
| 50 pair No. 22       | 2½                                | 16            | 50 pair No. 19       | 2½                                | 16            |
| 75 pair No. 22       | 3                                 | 16            | 75 pair No. 19       | 3                                 | 16            |
| 100 pair No. 22      | 3½                                | 18            | 100 pair No. 19      | 3½                                | 18            |
| 150 pair No. 22      | 4                                 | 18            | 150 pair No. 19      | 4                                 | 18            |
| 180 pair No. 22      | 4                                 | 18            | 180 pair No. 19      | 4½                                | 18            |
| 200 pair No. 22      | 4                                 | 18            | 200 pair No. 19      | 4½                                | 22            |
| 300 pair No. 22      | 4½                                | 22            | 300 pair No. 19      | 4½                                | 22            |
| 400 pair No. 22      | 4½                                | 22            |                      |                                   |               |

PRICES ON REQUEST

## Lead Sleeves—Continued

## For Pot Heads

| Size and Gauge Cable  | Inside Diameter of Sleeve, inches | Length inches | Size and Gauge Cable  | Inside Diameter of Sleeve, inches | Length inches |
|-----------------------|-----------------------------------|---------------|-----------------------|-----------------------------------|---------------|
| 25 and 30 pair No. 22 | 2                                 | 20            | 25 and 30 pair No. 19 | 2                                 | 20            |
| 50 pair No. 22        | 2½                                | 20            | 50 pair No. 19        | 2½                                | 20            |
| 60 pair No. 22        | 3                                 | 20            | 60 pair No. 19        | 3                                 | 20            |
| 100 pair No. 22       | 3½                                | 24            | 100 pair No. 19       | 3½                                | 24            |
| 120 pair No. 22       | 3½                                | 26            | 120 pair No. 19       | 3½                                | 26            |
| 150 pair No. 22       | 3½                                | 26            | 150 pair No. 19       | 4                                 | 26            |
| 180 pair No. 22       | 4                                 | 26            | 180 pair No. 19       | 4                                 | 30            |
| 200 pair No. 22       | 4                                 | 26            | 200 pair No. 19       | 4                                 | 30            |
| 400 pair No. 22       | 4½                                | 26            |                       |                                   |               |

## CABLE PASTERS

| Code Word  | List No. |
|------------|----------|
| Masseteric | 100000   |

Used to limit the length of wiped joint. Sold by thousand

## IMPROVED PAPER SLEEVES

| Code Word  | List No. | Size, inches | Code Word  | List No. | Size, inches |
|------------|----------|--------------|------------|----------|--------------|
| Plagiandum | 25944    | ½ x 2½       | Plagiarism | 25947    | ½ x 18       |
| Plagianthe | 25945    | ¾ x 3        | Plagiarize | 25948    | ¾ x 18       |
| Plagiara   | 25946    | ¾ x 3        | Plagiat    | 25949    | ¾ x 18       |

| Code Word | List No. |
|-----------|----------|
| Hymnirent | 52002    |

## PARAFFINE

| Code Word | List No. |
|-----------|----------|
| Hyenide   | 52003    |

## BEESWAX

| Code Word  | List No. |
|------------|----------|
| Escatimeis | 7944     |

## W. E. POT HEAD COMPOUND

## WIRES

## DOUBLE GALVANIZED TELEPHONE WIRE

There are three grades of telephone wire, classified as follows:

EXTRA BEST (E. B. B.)

BEST BEST (B. B.)

STEEL

Extra Best Best (E. B. B.) wire is made from a special stock of great purity, producing wire of absolute uniform quality, in which the elements of softness and elongation are combined with low electrical resistance to a marked degree. It is largely employed in long lines or service where low electrical resistance is both desirable and necessary.

Best Best (B. B.) wire is made from a stock of high quality, producing a wire somewhat less uniform and of higher resistance than E. B. B., but of greater tensile strength. This grade is used almost exclusively for the construction of subscribers' lines in exchanges, and on account of its great tensile strength is best adapted for rural or farmer lines.

Steel wire has a greater tensile strength than either E. B. B. or B. B., but on account of its greater electrical resistance is not very generally used.

As indicated by heading, the different grades of wire are double galvanized, each coat being uniform in its application, thereby insuring uniform durability.

| Code Word  | List No. | Size | Diameter inches | Breaking Strain in Pounds |       |       | Weight Pounds per Mile | Coils  |
|------------|----------|------|-----------------|---------------------------|-------|-------|------------------------|--------|
|            |          |      |                 | E. B. B.                  | B. B. | Steel |                        |        |
| Plaindrons | 25976    | 10   | .135            | 780                       | 858   | 962   | 260                    | ½ mile |
| Plainly    | 25977    | 11   | .120            | 642                       | 706   | 792   | 214                    | ½ mile |
| Plainness  | 25978    | 12   | .105            | 495                       | 545   | 611   | 165                    | ½ mile |
| Plaintful  | 25979    | 14   | .080            | 288                       | 317   | 355   | 96                     | ½ mile |

## RUBBER-COVERED COPPER WIRE (BRAIDED)

| Code Word  | List No. | Description  |
|------------|----------|--|
| Hydatide   | 52152    | No. 14, B. & S., ⅜ in. rubber insulation, outside distributing wire, double conductor, braided and twisted; for drop wires and outside work. |
| Hydatiform | 52153    | No. 18, B. & S., ⅜ in. rubber insulation, bridle wire, double conductor, braided and twisted; for bridling, entrance or ground wire.         |
| Hydatigere | 52154    | No. 19, B. & S., ⅜ in. rubber insulation, interior wire, single conductor, finished braid.   |
| Hydatism   | 52155    | No. 19, B. & S., ⅜ in., same as above, double conductor, braided and twisted, finished braid, oak or olive green; for interior use.          |

PRICES ON REQUEST



## Wires--Continued

## Rubber Covered Copper Wire (Braided)—Continued

| Code Word | List No. |   |
|-----------|----------|---|
| Hydatoid  | 52156    | No. 19, B. & S., $\frac{3}{32}$ in., same as above, triple conductor; for interior use.                                     |
| Hydatule  | 52157    | No. 20, B. & S., rubber insulation flame-proof wire, double conductor, braided and twisted; distributing frame jumper wire. |
| Hyderode  | 52158    | No. 22, B. & S., rubber insulation flame-proof wire, double conductor, braided and twisted; distributing frame jumper wire. |
| Hyderzahn | 52159    | No. 22, B. & S., same as above, triple conductor; distributing frame jumper wire.   |

## RUBBER COVERED COPPER WIRE (PLAIN)

| Code Word  | List No. |  |
|------------|----------|--|
| Hydnei     | 52160    | No. 16, B. & S., $\frac{5}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads. |
| Hydnocarpe | 52161    | No. 19, B. & S., $\frac{3}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads. |
| Hydnopore  | 52162    | No. 20, B. & S., $\frac{3}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads. |

## GALVANIZED STEEL WIRE STRAND

(Sometimes called Signal Strand.)

These galvanized steel strands are largely employed as messengers or suspension cables for hanging aerial telephone and other cables.

Composed of seven galvanized wires twisted together.

| Code Word  | List No. | No. 19 Gauge   | No. 22 Gauge   | Diameter inches | Weight pounds per hundred feet | Breaking Strain pounds |
|------------|----------|----------------|----------------|-----------------|--------------------------------|------------------------|
| Methocampe | 94031    | over 100 pairs | over 200 pairs | $\frac{7}{16}$  | 40                             | 16,000                 |
| Methionate | 94030    | 100 pairs      | 200 pairs      | $\frac{3}{8}$   | 30                             | 10,000                 |
| Aboriginal | 3052     |                |                | $\frac{1}{2}$   | 52                             | 8,320                  |
| Aborsement | 3054     | 50 pairs       | 100 pairs      | $\frac{7}{16}$  | 40                             | 6,000                  |
| Coupe      | 3055     |                |                | $\frac{3}{8}$   | 30                             | 4,700                  |
| Coupling   | 3056     |                |                | $\frac{5}{16}$  | 22                             | 3,300                  |
| Abounding  | 3059     |                |                | $\frac{1}{4}$   | 13                             | 1,750                  |
| Abrade     | 3061     |                |                | $\frac{3}{16}$  | 8                              | 1,000                  |
| Abraham    | 3092     |                |                | $\frac{3}{32}$  | 5                              | 700                    |
| Abreast    | 3093     |                |                | $\frac{1}{8}$   | 3.50                           | 375                    |
| Abridge    | 3065     |                |                | $\frac{3}{32}$  | 2.25                           | 320                    |

## WEATHER-PROOF IRON LINE WIRE

This is sometimes classified as tree wire. Its use is advised where branches of trees interfere with line.

This wire is guaranteed genuine double galvanized B. B. iron wire.

This wire can be furnished with double or triple braid. In either case the braid is thoroughly saturated with weather-proof compound, which gives it a highly polished finish.

Put up in half-mile coils only.

| Code Word | List No. | Size B. W. G. | Double Braid | Pounds per Mile Triple Braid | Coils              |
|-----------|----------|---------------|--------------|------------------------------|--------------------|
| Hydage    | 52146    | 10            | 370          | 400                          | $\frac{1}{2}$ mile |
| Hydarnes  | 52147    | 12            | 225          | 250                          | $\frac{1}{2}$ mile |
| Hydaspei  | 52148    | 14            | 145          | 165                          | $\frac{1}{2}$ mile |

## WEATHER-PROOF COPPER WIRE

Especially adapted for drops or leads from main line to telephone.

This wire is furnished in coils.

Furnished with double or triple insulation, as ordered.

| Code Word  | List No. | Size B. & S. Gauge | Double Braid | Feet per Pound Triple Braid | Pounds per thousand feet Double Braid | Pounds per thousand feet Triple Braid |
|------------|----------|--------------------|--------------|-----------------------------|---------------------------------------|---------------------------------------|
| Hydaspeos  | 52149    | 14                 | 56           | 38                          | 18                                    | 26                                    |
| Hydaspeum  | 52150    | 16                 | 76           | 48                          | 13                                    | 21                                    |
| Hydatidome | 52151    | 18                 | 100          | 67                          | 10                                    | 15                                    |

PRICES ON REQUEST

## Wires—Continued

## ANNUNCIATOR WIRE

Has covering consisting of two wraps of cotton saturated with paraffine. The outer covering is made in solid color or combination of colors. The following sizes can be furnished tinned.

| Code Word  | List No. | Size<br>B. & S. Gauge | Pounds<br>per thousand feet |
|------------|----------|-----------------------|-----------------------------|
| Hydracid   | 52163    | 16                    | 9½                          |
| Hydraemia  | 52164    | 18                    | 6½                          |
| Hydragogos | 52165    | 20                    | 4½                          |
| Hydragogue | 52166    | 22                    | 4                           |

## WEATHER-PROOF ANNUNCIATOR WIRE

| Code Word | List No. |  |
|-----------|----------|--|
| Hydraire  | 52167    | No. 18, same as above, saturated with weather-proof compound. Furnished in black only. Weight, per thousand ft., 6½ lbs. |

## DAMP-PROOF OFFICE WIRE

For interior work not exposed to heavy moisture

| Single Conductor |          |                       |                             | Double Conductor |          |                       |                             |
|------------------|----------|-----------------------|-----------------------------|------------------|----------|-----------------------|-----------------------------|
| Code Word        | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet | Code Word        | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet |
| Hydracool        | 52168    | 16                    | 13½                         | Hydramide        | 52171    | 16                    | 18½                         |
| Hydraleta        | 52169    | 18                    | 10                          | Hydranos         | 52172    | 18                    | 12½                         |
| Hydraletes       | 52170    | 20                    | 8                           | Hydranth         | 52173    | 20                    | 10                          |

## GERMAN SILVER RESISTANCE WIRE

## Bare

| Code Word  | List No. | Size<br>B. & S. Gauge | Ohms per<br>thousand feet | Code Word  | List No. | Size<br>B. & S. Gauge | Ohms per<br>thousand feet |
|------------|----------|-----------------------|---------------------------|------------|----------|-----------------------|---------------------------|
| Hydraotes  | 52174    | 16                    | 75.22                     | Hydreleon  | 52187    | 29                    | 1,533                     |
| Hydragyre  | 52175    | 17                    | 94.84                     | Hydrellie  | 52188    | 30                    | 1,933                     |
| Hydrarum   | 52176    | 18                    | 119.6                     | Hydreuma   | 52189    | 31                    | 2,437                     |
| Hydraspis  | 52177    | 19                    | 155.1                     | Hydreumata | 52190    | 32                    | 3,073                     |
| Hydrastina | 52178    | 20                    | 190.2                     | Hydriade   | 52191    | 33                    | 3,875                     |
| Hydratado  | 52179    | 21                    | 239.8                     | Hydric     | 52192    | 34                    | 4,888                     |
| Hydratant  | 52180    | 22                    | 302.4                     | Hydridae   | 52193    | 35                    | 6,163                     |
| Hydrate    | 52181    | 23                    | 381.3                     | Hydrinorum | 52194    | 36                    | 7,770                     |
| Hydraula   | 52182    | 24                    | 480.8                     | Hydriodeux | 52195    | 37                    | 9,797                     |
| Hydraules  | 52183    | 25                    | 606.3                     | Hydriodico | 52196    | 38                    | 12,357                    |
| Hydrauliam | 52184    | 26                    | 764.6                     | Hypanthe   | 52197    | 39                    | 15,570                    |
| Hydraulica | 52185    | 27                    | 964.1                     | Hypanthium | 52198    | 40                    | 19,653                    |
| Hydrazote  | 52186    | 28                    | 1,215.                    |            |          |                       |                           |

## MAGNET WIRE

## Single Cotton Covered

## Double Cotton Covered

| Code Word | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet | Code Word  | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet |
|-----------|----------|-----------------------|-----------------------------|------------|----------|-----------------------|-----------------------------|
| Jean      | 1704     | 24                    | 1.30                        | Joyously   | 1725     | 24                    | 1.37                        |
| Jears     | 1705     | 25                    | 1.04                        | Joyousness | 1726     | 25                    | 1.11                        |
| Jeer      | 1706     | 26                    | .84                         | Jubilant   | 1727     | 26                    | .89                         |
| Jeered    | 1707     | 27                    | .67                         | Jubilate   | 1728     | 27                    | .72                         |
| Jeerer    | 1708     | 28                    | .53                         | Jubilation | 1729     | 28                    | .59                         |
| Jeering   | 1709     | 29                    | .42                         | Judah      | 1730     | 29                    | .47                         |
| Jungly    | 1710     | 30                    | .34                         | Judicial   | 1731     | 30                    | .39                         |
| Junior    | 1711     | 31                    | .28                         | Judicious  | 1732     | 31                    | .32                         |
| Jockeyism | 1712     | 32                    | .22                         | Josephine  | 1733     | 32                    | .26                         |
| John      | 1713     | 33                    | .18                         | Joshua     | 1734     | 33                    | .22                         |
| Joinder   | 1714     | 34                    | .15                         | Josiah     | 1735     | 34                    | .19                         |
| Jollify   | 1715     | 35                    | .13                         | Jostle     | 1736     | 35                    | .17                         |

PRICES ON REQUEST

## Wire—Continued

## Magnet Wire—Continued

| Single Cotton Covered |          |                       |                             | Double Cotton Covered |          |                       |                             |
|-----------------------|----------|-----------------------|-----------------------------|-----------------------|----------|-----------------------|-----------------------------|
| Code Word             | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet | Code Word             | List No. | Size<br>B. & S. Gauge | Pounds per<br>thousand feet |
| Jolliment             | 1716     | 36                    | .11                         | Jostled               | 1737     | 36                    | .15                         |
| Jollity               | 1717     | 37                    | ...                         | Jove                  | 1738     | 37                    | ...                         |
| Jonas                 | 1718     | 38                    | ...                         | Jovial                | 1739     | 38                    | ...                         |
| Jonathan              | 1719     | 39                    | ...                         | Jovialty              | 1740     | 39                    | ...                         |
| Joseph                | 1720     | 40                    | ...                         | Joy                   | 1741     | 40                    | ...                         |
| Single Silk Covered   |          |                       |                             | Double Silk Covered   |          |                       |                             |
| Jervin                | 1658     | 24                    | 1.25                        | Jeweling              | 1683     | 24                    | 1.28                        |
| Jested                | 1659     | 25                    | 1.00                        | Jewelry               | 1684     | 25                    | 1.02                        |
| Jester                | 1660     | 26                    | .79                         | Jewess                | 1685     | 26                    | .81                         |
| Jestful               | 1661     | 27                    | .67                         | Jewish                | 1686     | 27                    | .69                         |
| Jesting               | 1662     | 28                    | .50                         | Jib                   | 1687     | 28                    | .52                         |
| Jesuit                | 1663     | 29                    | .39                         | Jibboom               | 1688     | 29                    | .41                         |
| Plantensap            | 1664     | 30                    | .31                         | Jibdoor               | 1689     | 30                    | .33                         |
| Plantenwas            | 1665     | 31                    | .25                         | Jibe                  | 1690     | 31                    | .26                         |
| Jelly                 | 1666     | 32                    | .20                         | Jibing                | 1691     | 32                    | .21                         |
| Jemima                | 1667     | 33                    | .16                         | Jigger                | 1692     | 33                    | .17                         |
| Jennet                | 1668     | 34                    | .13                         | Jiggish               | 1693     | 34                    | .14                         |
| Jenneting             | 1669     | 35                    | .11                         | Jiggling              | 1694     | 35                    | .12                         |
| Jentling              | 1670     | 36                    | .09                         | Jill                  | 1695     | 36                    | .10                         |
| Jeopard               | 1671     | 37                    | .07                         | Jilted                | 1696     | 37                    | .08                         |
| Jeoparder             | 1672     | 38                    | .06                         | Jilting               | 1697     | 38                    | .07                         |
| Jeoparding            | 1673     | 39                    | .05                         | Jingle                | 1698     | 39                    | .06                         |
| Jeopardize            | 1674     | 40                    | .04                         | Jingled               | 1699     | 40                    | .05                         |

## ENAMELED MAGNET WIRE

Enameled insulation is an elastic, yet resistant and firmly adherent film, which is applied to the wire by specially constructed machinery of our own design. The insulation is unaffected by chemical re-agents which will not affect the wire itself, diluted acids, alkalis, alcohol, benzine, turpentine, etc., having little or no effect on it. Excessive humidity will cause silk or cotton insulation to become practically useless as insulators, but has little or no effect on the enameled insulation.

A great saving of space required for magnet windings may be made by using this enameled wire, as the insulation is only about one-quarter as thick as that of silk covering affording the same degree of insulation. Consequently, a given winding space will with No. 32 gauge wire hold 30 per cent. more enameled insulated wire than the silk insulated. At No. 40 gauge the increased number of turns is 120 per cent. more than single silk. With wire insulated with No. 100 cotton a saving in favor of the enameled wire is for No. 24 gauge equal to 30 per cent. and for No. 40 gauge equal to 500 per cent.

A saving in the price of the wire is possible, as the cost of the enamel is only a small fraction of that of the silk.

| Size<br>B. & S. Gauge | Pounds per thousand<br>feet | Size<br>B. & S. Gauge | Pounds per thousand<br>feet |
|-----------------------|-----------------------------|-----------------------|-----------------------------|
| 24                    | 1.24                        | 33                    | .16                         |
| 25                    | .98                         | 34                    | .12                         |
| 26                    | .78                         | 35                    | .098                        |
| 27                    | .62                         | 36                    | .078                        |
| 28                    | .48                         | 37                    | .062                        |
| 29                    | .39                         | 38                    | .050                        |
| 30                    | .31                         | 39                    | .040                        |
| 31                    | .25                         | 40                    | .031                        |
| 32                    | .20                         |                       |                             |

## SWITCHBOARD WIRE

Copper wire with double silk and single cotton paraffined insulation of assorted colors.

| Code Word  | List No. | Size<br>B. & S. Gauge          |
|------------|----------|--------------------------------|
| Mezclabais | 94056    | No. 19 single conductor        |
| Miccianza  | 94076    | No. 22 single conductor        |
| Miccichino | 94077    | No. 19 twisted pair conductors |
| Micciebant | 94078    | No. 22 twisted pair conductors |

PRICES ON REQUEST



Wire—Continued  
BARE COPPER WIRE  
TINNED  
For Strapping Apparatus Terminals

| Size<br>B. & S. Gauge | Feet<br>per pound | Size<br>B. & S. Gauge | Feet<br>per pound |
|-----------------------|-------------------|-----------------------|-------------------|
| No. 14                | 80                | No. 18                | 203               |
| No. 16                | 127               | No. 20                | 323               |
|                       |                   | No. 22                | 513               |

HABIRSHAW INSULATED CONDUCTORS

Solid Copper, Tinned, Double Coated, Rubber Insulation, Braided and Waxed

| White Core |          | Red Core   |          | Size<br>B. and S. | Diameter over<br>Braid, inches | Thickness of Insulation<br>without Braid<br>inches | Weight<br>per mile<br>pounds |
|------------|----------|------------|----------|-------------------|--------------------------------|--|------------------------------|
| Code Word  | List No. | Code Word  | List No. |                   |                                |  |                              |
| Platmaken  | 27040    | Plasmabunt | 26080    | 18                | .136                           | $\frac{3}{64}$                                     | 84.48                        |
| Platole    | 27041    | Plasmadora | 26081    | 16                | .162                           | $\frac{3}{64}$                                     | 110.88                       |
| Platometer | 27042    | Plasmados  | 26082    | 14                | .203                           | $\frac{3}{64}$                                     | 168.96                       |
| Platon     | 27043    | Plasmammo  | 26083    | 12                | .225                           | $\frac{3}{64}$                                     | 221.76                       |
| Platonical | 27044    | Plasmando  | 26084    | 11                | .235                           | $\frac{3}{64}$                                     | 253.44                       |
| Platonis   | 27045    | Plasmarian | 26085    | 10                | .246                           | $\frac{3}{64}$                                     | 311.52                       |
| Platonize  | 27046    | Plasmarono | 26086    | 9                 | .256                           | $\frac{3}{64}$                                     | 359.04                       |
| Platschelp | 27047    | Plasmassi  | 26087    | 8                 | .272                           | $\frac{3}{64}$                                     | 422.40                       |
| Platt      | 27048    | Plasmata   | 26088    | 7                 | .288                           | $\frac{3}{64}$                                     | 501.00                       |
| Platteland | 27049    | Plasmatic  | 26089    | 6                 | .328                           | $\frac{3}{64}$                                     | 654.72                       |
| Plattgarn  | 27050    | Plasmatori | 26090    | 5                 | .387                           | $\frac{1}{16}$                                     | 839.52                       |
| Platthaupt | 27051    | Plasmavate | 26091    | 4                 | .409                           | $\frac{1}{16}$                                     | 997.92                       |
| Platthin   | 27052    | Plasmogony | 26092    | 3                 | .434                           | $\frac{1}{16}$                                     | 1209.12                      |
| Platthuf   | 27053    | Plasmome   | 26093    | 2                 | .463                           | $\frac{1}{16}$                                     | 1457.28                      |
| Platlack   | 27054    | Plassabat  | 26094    | 1                 | .494                           | $\frac{1}{16}$                                     | 1789.92                      |
| Plattnarbe | 27055    | Plassabor  | 26095    | 0                 | .530                           | $\frac{1}{16}$                                     | 2164.80                      |

Stranded Copper Conductors, Tinned Double Coated Insulation, Rubber Braided and Waxed

| White Core |          | Red Core   |          | Size<br>B. and S. | Strand  | Diameter of Insulation<br>over Braid without Braid<br>inches | Thickness<br>of Insulation<br>without Braid<br>inches | Weight<br>per mile<br>pounds |
|------------|----------|------------|----------|-------------------|---------|--|---|------------------------------|
| Code Word  | List No. | Code Word  | List No. |                   |         |  |   |                              |
| Plaudebat  | 27072    | Platanine  | 27012    | 14                | 7-.025  | .226   | $\frac{3}{64}$  | 174.24                       |
| Plaudendum | 27073    | Plataninos | 27013    | 13                | 7-.028  | .232   | $\frac{3}{64}$  | 211.20                       |
| Plaudit    | 27074    | Plataniste | 27014    | 12                | 7-.032  | .247   | $\frac{3}{64}$  | 253.44                       |
| Plauditory | 27075    | Platanonis | 27015    | 11                | 7-.035  | .256   | $\frac{3}{64}$  | 290.40                       |
| Plaudunt   | 27076    | Platanorum | 27016    | 10                | 7-.038  | .265   | $\frac{3}{64}$  | 337.92                       |
| Plaumorato | 27077    | Platband   | 27017    | 9                 | 7-.043  | .280   | $\frac{3}{64}$  | 385.44                       |
| Plausible  | 27078    | Platearas  | 27018    | 8                 | 7-.048  | .295   | $\frac{3}{64}$  | 454.08                       |
| Plausisset | 27079    | Platessa   | 27019    | 7                 | 7-.053  | .313   | $\frac{3}{64}$  | 528.00                       |
| Plausisti  | 27080    | Platessis  | 27020    | 6                 | 7-.063  | .365   | $\frac{3}{64}$  | 686.40                       |
| Plausitabo | 27081    | Platform   | 27021    | 5                 | 7-.069  | .412   | $\frac{1}{16}$  | 887.04                       |
| Plausitavi | 27082    | Platheid   | 27022    | 4                 | 7-.077  | .436   | $\frac{1}{16}$  | 1024.32                      |
| Plausuram  | 27083    | Platiasme  | 27023    | 3                 | 19-.052 | .465   | $\frac{1}{16}$  | 1209.12                      |
| Plausuri   | 27084    | Platicos   | 27024    | 2                 | 19-.059 | .500   | $\frac{1}{16}$  | 1525.92                      |
| Plautarum  | 27085    | Platifillo | 27025    | 1                 | 19-.066 | .535   | $\frac{1}{16}$  | 1890.24                      |
| Plautia    | 27086    | Platija    | 27026    | 0                 | 19-.074 | .575   | $\frac{1}{16}$  | 2212.32                      |
| Plautianos | 27087    | Platille   | 27027    | 00                | 19-.083 | .620   | $\frac{1}{16}$  | 2740.32                      |
| Plautidis  | 27088    | Platillos  | 27028    | 000               | 19-.093 | .670   | $\frac{1}{16}$  | 3379.20                      |
| Plautilla  | 27089    | Platinage  | 27029    | 0000              | 19-.104 | .788   | $\frac{5}{64}$  | 4329.60                      |

Copper Conductors Stranded, Tinned, Two Coatings, Rubber Insulation, Taped, Braided and Waxed

| White Core |          | Red Core   |          | Circular<br>Mils | Strand  | Diameter<br>over Braid<br>inches | Weight<br>per Mile<br>pounds | Wall of<br>Insulation<br>inches |
|------------|----------|------------|----------|------------------|---------|----------------------------------|------------------------------|---------------------------------|
| Code Word  | List No. | Code Word  | List No. |                  |         |                                  |                              |                                 |
| Pleiteas   | 28032    | Playground | 28000    | 200000           | 37-.073 | .772                             | 4065                         | $\frac{5}{64}$                  |
| Pleitesia  | 28033    | Playhouse  | 28001    | 210000           | 37-.075 | .786                             | 4292                         | $\frac{5}{64}$                  |
| Pleitkunst | 28034    | Playless   | 28002    | 220000           | 37-.077 | .800                             | 4519                         | $\frac{5}{64}$                  |
| Pleitos    | 28035    | Playones   | 28003    | 230000           | 37-.078 | .807                             | 4688                         | $\frac{5}{64}$                  |
| Pleitvogel | 28036    | Playsome   | 28004    | 240000           | 37-.080 | .821                             | 4873                         | $\frac{5}{64}$                  |
| Plejaden   | 28037    | Plaything  | 28005    | 250000           | 37-.082 | .835                             | 5047                         | $\frac{5}{64}$                  |
| Plejadis   | 28038    | Playtime   | 28006    | 260000           | 37-.083 | .842                             | 5216                         | $\frac{5}{64}$                  |
| Pleminius  | 28039    | Playwright | 28007    | 270000           | 37-.085 | .856                             | 5401                         | $\frac{5}{64}$                  |
| Plemmyrium | 28040    | Pleatable  | 28008    | 280000           | 37-.086 | .863                             | 5570                         | $\frac{5}{64}$                  |
| Plemnæus   | 28041    | Pleading   | 28009    | 290000           | 37-.088 | .877                             | 5739                         | $\frac{5}{64}$                  |
| Plempe     | 28042    | Pleadingly | 28010    | 300000           | 37-.089 | .884                             | 5924                         | $\frac{5}{64}$                  |
| Plenarias  | 28043    | Pleasance  | 28011    | 325000           | 37-.092 | .908                             | 6367                         | $\frac{5}{64}$                  |

PRICES ON REQUEST

## Wires—Continued

## Habershaw Insulated Conductors—Continued

| White Core |          | Red Core    |          | Circular<br>Mils | Strand  | Diameter<br>over Braid<br>inches | Weight per<br>mile<br>pounds | Wall of<br>Insulation<br>inches |
|------------|----------|-------------|----------|------------------|---------|----------------------------------|------------------------------|---------------------------------|
| Code Word  | List No. | Code Word   | List No. |                  |         |                                  |                              |                                 |
| Plenarily  | 28044    | Pleasedly   | 28012    | 350000           | 37-.096 | .933                             | 6811                         | $\frac{5}{64}$                  |
| Plenarty   | 28045    | Plebaglia   | 28013    | 375000           | 37-.100 | .958                             | 7260                         | $\frac{5}{64}$                  |
| Plendorum  | 28046    | Plebamus    | 28014    | 400000           | 37-.103 | .982                             | 7703                         | $\frac{5}{64}$                  |
| Plengfcest | 28047    | Plebe       | 28015    | 425000           | 37-.106 | 1.003                            | 8120                         | $\frac{5}{64}$                  |
| Plenilunc  | 28048    | Plebeity    | 28016    | 450000           | 37-.110 | 1.031                            | 8627                         | $\frac{5}{64}$                  |
| Plenipos   | 28049    | Plebejorum  | 28017    | 475000           | 37-.112 | 1.045                            | 8986                         | $\frac{5}{64}$                  |
| Plenishing | 28050    | Plebejum    | 28018    | 500000           | 37-.115 | 1.066                            | 9435                         | $\frac{5}{64}$                  |
| Plenisme   | 28051    | Plebitatem  | 28019    | 525000           | 37-.118 | 1.087                            | 9847                         | $\frac{5}{64}$                  |
| Plenitas   | 28052    | Plebitatis  | 28020    | 550000           | 37-.121 | 1.108                            | 10311                        | $\frac{5}{64}$                  |
| Plenitatis | 28053    | Plechtig    | 28021    | 575000           | 37-.123 | 1.122                            | 10755                        | $\frac{5}{64}$                  |
| Plenitude  | 28054    | Pledgeless  | 28022    | 600000           | 61-.098 | 1.143                            | 11172                        | $\frac{5}{64}$                  |
| Plenteous  | 28055    | Pleegkind   | 28023    | 700000           | 61-.106 | 1.245                            | 13110                        | $\frac{3}{32}$                  |
| Plentiful  | 28056    | Plegaberes  | 28024    | 750000           | 61-.110 | 1.275                            | 14013                        | $\frac{3}{32}$                  |
| Platineux  | 27030    | Plegadoras  | 28025    | 800000           | 61-.114 | 1.317                            | 14868                        | $\frac{3}{32}$                  |
| Platinic   | 27031    | Plegmation  | 28026    | 850000           | 61-.117 | 1.344                            | 15734                        | $\frac{3}{32}$                  |
| Platinides | 27032    | Plegueis    | 28027    | 900000           | 61-.120 | 1.371                            | 16595                        | $\frac{3}{32}$                  |
| Platinise  | 27033    | Pleister    | 28028    | 1000000          | 61-.127 | 1.443                            | 18448                        | $\frac{3}{32}$                  |
| Platinmohr | 27034    | Pleitdag    | 28029    | 1250000          | 61-.141 | 1.580                            | 22820                        | $\frac{3}{32}$                  |
| Platinous  | 27035    | Pleitudagen | 28030    | 1500000          | 61-.155 | 1.718                            | 27192                        | $\frac{3}{32}$                  |
| Platinoxyd | 27036    | Pleiteabas  | 28031    | 2000000          | 91-.148 | 1.900                            | 36141                        | $\frac{5}{16}$                  |

## ENAMELED STEEL CONDUIT AND FITTINGS

The enameled steel conduit is made from mild drawn steel tubing, which is thoroughly freed by a special process from scales, burrs and silicates before the enamel is applied.

The enamel forms a homogeneous coating, adhering closely to the surface pores of the metal, and retaining its flexibility under all changes of temperature. It is acid-proof, water-proof, rust-proof, and forms a glass smooth coating to both the outside and inside of the tubing, allowing wires to be pulled through it very easily.

This conduit is soft, and may be easily bent, without danger of breaking the tubing or injuring the protecting enamel. It is manufactured in lengths of ten feet, threaded on each end, and furnished with one coupling for each length.

As this conduit has the same outside diameter as the standard gas pipes, no special dies or tools are necessary when it is being installed.

## CONDUIT

| Code Word  | List No. | Nominal<br>Size<br>inches | Inside<br>Diameter<br>inches | Outside<br>Diameter<br>inches | Weight per<br>hundred feet<br>pounds |
|------------|----------|---------------------------|------------------------------|-------------------------------|--------------------------------------|
| Kohaerenz  | 96581    | $\frac{1}{2}$             | .62                          | .84                           | 85                                   |
| Kohautee   | 96582    | $\frac{3}{4}$             | .82                          | 1.05                          | 112                                  |
| Kohlacker  | 96583    | 1                         | 1.04                         | 1.31                          | 167                                  |
| Kohlenader | 96584    | $1\frac{1}{4}$            | 1.38                         | 1.66                          | 224                                  |
| Kohlenbett | 96585    | $1\frac{1}{2}$            | 1.61                         | 1.90                          | 268                                  |
| Kohlenerz  | 96586    | 2                         | 2.06                         | 2.37                          | 361                                  |
| Kohlenhaus | 96587    | $2\frac{1}{2}$            | 2.46                         | 2.87                          | 574                                  |
| Kohlenholz | 96588    | 3                         | 3.06                         | 3.50                          | 754                                  |
| Kohlenkalk | 96589    | $3\frac{1}{2}$            | 3.54                         | 4.00                          | 900                                  |
| Kohlenloch | 96590    | 4                         | 4.02                         | 4.50                          | 1066                                 |

## ELBOWS

| Code Word  | List No. | Size<br>inches | Weight pounds<br>per hundred | Radius<br>inches | Offset<br>inches |
|------------|----------|----------------|------------------------------|------------------|------------------|
| Legumaio   | 98358    | $\frac{1}{2}$  | 73                           | 4.25             | 7.50             |
| Leguminoso | 98359    | $\frac{3}{4}$  | 132                          | 5.37             | 9.25             |
| Leguminous | 98360    | 1              | 200                          | 5.75             | 10.12            |
| Leguminum  | 98361    | $1\frac{1}{4}$ | 300                          | 7.25             | 11.50            |
| Lehenrecht | 98362    | $1\frac{1}{2}$ | 415                          | 8.50             | 12.62            |
| Lehensherr | 98363    | 2              | 700                          | 9.50             | 15.25            |
| Lehensstab | 98364    | $2\frac{1}{2}$ | 1138                         | 10.50            | 17.75            |
| Lehenstaxe | 98365    | 3              | 1885                         | 13.00            | 19.37            |
| Lehmmuehle | 98366    | $3\frac{1}{2}$ | 2100                         | 15.00            | 21.00            |
| Lehmmergel | 98367    | 4              | 2160                         | 16.00            | 22.50            |

PRICES ON REQUEST

## Enameled Steel Conduit and Fittings—Continued

## COUPLINGS

| Code Word   | List No. | Size<br>inches  | Weight in<br>pounds<br>per hundred | Code Word  | List No. | Size<br>inches  | Weight in<br>pounds<br>per hundred |
|-------------|----------|-----------------|------------------------------------|------------|----------|-----------------|------------------------------------|
| Lehmsandes  | 98368    | $\frac{1}{2}$   | 15 $\frac{1}{2}$                   | Lehnsessel | 98373    | 2               | 132                                |
| Lehmziegel  | 98369    | $\frac{3}{4}$   | 25 $\frac{1}{2}$                   | Lehnstreue | 98374    | 2 $\frac{1}{2}$ | 185                                |
| Lehnbauer   | 98370    | 1               | 40 $\frac{1}{2}$                   | Lehnstueck | 98375    | 3               | 300                                |
| Lehngueter  | 98371    | 1 $\frac{1}{4}$ | 57 $\frac{1}{2}$                   | Lehnzins   | 98376    | 3 $\frac{1}{2}$ | 400                                |
| Lehnhoeften | 98372    | 1 $\frac{1}{2}$ | 71 $\frac{1}{4}$                   | Lehrbild   | 98377    | 4               | 412                                |

## BUSHINGS

| Code Word  | List No. | Size<br>inches  | Standard<br>Package | Code Word  | List No. | Size<br>inches  | Standard<br>Package |
|------------|----------|-----------------|---------------------|------------|----------|-----------------|---------------------|
| Laetaverit | 97759    | $\frac{1}{2}$   | 1000                | Laetitatem | 97766    | 3               | 25                  |
| Laetice    | 97760    | $\frac{3}{4}$   | 100                 | Laetorio   | 97767    | 3 $\frac{1}{2}$ | 20                  |
| Laeticorum | 97761    | 1               | 100                 | Laetorius  | 97768    | 4               | 20                  |
| Laeticos   | 97762    | 1 $\frac{1}{4}$ | 100                 | Laetzlein  | 97769    | 4 $\frac{1}{2}$ | 20                  |
| Laetificet | 97763    | 1 $\frac{1}{2}$ | 50                  | Laeusebaum | 97770    | 5               | 20                  |
| Laetiscet  | 97764    | 2               | 50                  | Laeutete   | 97771    | 6               | 15                  |
| Laetiscunt | 97765    | 2 $\frac{1}{2}$ | 25                  |            |          |                 |                     |

## GALVANIZED FLEXIBLE STEEL CONDUIT

| Code Word  | List No. | Inside diameter<br>inches | Approximate Feet<br>in Coil |
|------------|----------|---------------------------|-----------------------------|
| Koppelhaak | 96729    | $\frac{3}{16}$            | 250                         |
| Koppelhout | 96730    | $\frac{3}{8}$             | 250                         |
| Koppeljagd | 96731    | $\frac{1}{2}$             | 100                         |
| Koppelriem | 96732    | $\frac{3}{4}$             | 50                          |
| Koppelseil | 96733    | 1                         | 50                          |
| Koppelstuk | 96734    | 1 $\frac{1}{4}$           | 50                          |
| Koppeltjes | 96735    | 1 $\frac{1}{2}$           | 50                          |
| Koppeltouw | 96736    | 2                         | 50                          |

## FITTINGS

In ordering by telegraph specify two code words, one for style and one for size.

| Code Word  | Description    | Code Word  | Description   |
|------------|----------------|------------|---------------|
| Ladierinha | Couplings.     | Ladezeiten | Pipe hooks.   |
| Ladenzeug  | Lead bushings. | Ladhoelzer | Bushing tools |

## SIZES

| Code Word | Size<br>inches | Code Word  | Size<br>inches  |
|-----------|----------------|------------|-----------------|
| Ladholz   | $\frac{3}{16}$ | Ladrasemos | 1 $\frac{1}{4}$ |
| Ladislao  | $\frac{1}{2}$  | Ladrillazo | 1 $\frac{1}{2}$ |
| Ladogasee | $\frac{3}{4}$  | Ladroasso  | 2               |
| Ladrao    | 1              |            |                 |

## PIPE STRAPS

| Code Word  | List No. | For                             |
|------------|----------|---------------------------------|
| Kruitvaten | 97294    | For $\frac{1}{2}$ in. conduit   |
| Kruitwagen | 97295    | For $\frac{3}{4}$ in. conduit   |
| Garcia     | 11485    | For 1 in. conduit               |
| Kruitzak   | 97297    | For 1 $\frac{1}{4}$ in. conduit |
| Kruitzakje | 97298    | For 1 $\frac{1}{2}$ in. conduit |

## SIZE IN INCHES OF ENAMELED STEEL CONDUIT

| Size of Wire | 1 Wire          | 2 Wires         | 3 Wires         | 4 Wires         |
|--------------|-----------------|-----------------|-----------------|-----------------|
| 14           | $\frac{1}{2}$   | $\frac{3}{4}$   | $\frac{3}{4}$   | 1               |
| 12           | $\frac{1}{2}$   | $\frac{3}{4}$   | 1               | 1 $\frac{1}{4}$ |
| 10           | $\frac{1}{2}$   | 1               | 1               | 1 $\frac{1}{4}$ |
| 8            | $\frac{1}{2}$   | 1               | 1 $\frac{1}{4}$ | 1 $\frac{1}{2}$ |
| 6            | $\frac{3}{4}$   | 1               | 1 $\frac{1}{4}$ | 1 $\frac{1}{2}$ |
| 5            | $\frac{3}{4}$   | 1 $\frac{1}{4}$ | 1 $\frac{1}{4}$ | 1 $\frac{1}{2}$ |
| 4            | $\frac{3}{4}$   | 1 $\frac{1}{4}$ | 1 $\frac{1}{4}$ | 1 $\frac{1}{2}$ |
| 2            | 1               | 1 $\frac{1}{2}$ |                 |                 |
| 0            | 1               | 1 $\frac{1}{2}$ |                 |                 |
| 00           | 1 $\frac{1}{4}$ | 2               |                 |                 |
| 000          | 1 $\frac{1}{4}$ |                 |                 |                 |
| 0000         | 1 $\frac{1}{4}$ |                 |                 |                 |

PRICES ON REQUEST



## Enameled Steel Conduit and Fittings—Continued

## SIZE IN INCHES OF ENAMELED STEEL CONDUIT

| Circular Mills | 1 Wire | Circular Mills | 1 Wire |
|----------------|--------|----------------|--------|
| 250,000        | 1½     | 650,000        | 2      |
| 300,000        | 1½     | 700,000        | 2      |
| 350,000        | 1½     | 750,000        | 2½     |
| 400,000        | 1½     | 800,000        | 2½     |
| 450,000        | 2      | 850,000        | 2½     |
| 500,000        | 2      | 900,000        | 2½     |
| 550,000        | 2      | 950,000        | 2½     |
| 600,000        | 2      | 1,000,000      | 2½     |

## SIZE IN INCHES OF FLEXIBLE STEEL CONDUIT

| Size of Wire | 1 Wire | 2 Wires | For | 3 Wires | 4 Wires |
|--------------|--------|---------|-----|---------|---------|
| 14           | 1½     | 1½      |     | ¾       | 1       |
| 12           | 1½     | 1½      |     | 1       |         |
| 10           | 1½     | 1       |     | 1       |         |
| 8            | 1½     | 1       |     |         |         |
| 6            | ¾      | 1       |     |         |         |
| 4            | ¾      |         |     |         |         |
| 2            | 1      |         |     |         |         |
| 0            | 1      |         |     |         |         |
| 00           | 1      |         |     |         |         |

## MICHIGAN CEDAR POLES

Poles up to and including 30 feet in length may be loaded on cars taking a 24000 pounds minimum; 35s require a car taking 30000 pounds minimum; double loads (45s and longer) require cars taking a 30000 pounds minimum or 60000 pounds for the double load. We do not advise shipment by the small cars taking 24000 pounds minimum as the railroads will not use them except under certain restrictions and thus shipments are delayed.

The Northwestern Cedarman's Specifications govern all inspections.

Write us for our pamphlet on poles.

| Code Word  | List No. | Length feet | Top inches | Weight pounds | Number per Load |
|------------|----------|-------------|------------|---------------|-----------------|
| Hygrograph | 52042    | 20          | 4          | 100           | 240 to 420      |
| Hygrologia | 52043    | 20          | 5          | 130           | 185 to 325      |
| Hygrometer | 52044    | 20          | 6          | 175           | 137 to 250      |
| Methodical | 94032    | 22          | 5          | 175           | 137 to 250      |
| Hygrometry | 52045    | 25          | 4          | 150           | 160 to 280      |
| Hygrophile | 52046    | 25          | 5          | 200           | 120 to 210      |
| Hygroscope | 52047    | 25          | 6          | 250           | 100 to 170      |
| Hygroskop  | 52048    | 25          | 7          | 350           | 70 to 130       |
| Hygrusine  | 52049    | 30          | 5          | 275           | 80 to 150       |
| Hylacides  | 52050    | 30          | 6          | 350           | 70 to 120       |
| Hylacion   | 52051    | 30          | 7          | 450           | 55 to 95        |
| Hylactor   | 52052    | 35          | 6          | 450           | 70 to 90        |
| Hylaeorum  | 52053    | 35          | 7          | 600           | 50 to 70        |
| Hylaeum    | 52054    | 40          | 6          | 625           | 50 to 65        |
| Hylatae    | 52055    | 40          | 7          | 800           | 40 to 55        |
| Hylemide   | 52057    | 45          | 7          | 1000          | 60 to 70        |
| Hylicus    | 52059    | 50          | 7          | 1250          | 48 to 45        |
| Hylism     | 52061    | 55          | 7          | 1550          | 39 to 42        |
| Hylithe    | 52062    | 60          | 7          | 2000          | 30 to 33        |
| Hylleer    | 52063    | 65          | 7          | 2700          | 23 to 25        |

PRICES ON REQUEST

## CROSS ARMS

## YELLOW OR WHITE PINE AS ORDERED

**Standard Cross Arms**—Size,  $3\frac{1}{2}$  in. x  $4\frac{1}{2}$  in., bored for  $1\frac{1}{2}$  in. or  $1\frac{1}{2}$  in. pins; two  $\frac{1}{2}$  in. lag screws or one  $\frac{5}{8}$  in. machine bolt and two  $\frac{3}{8}$  in. brace bolts. Painted red.



No. 23573

| Code Word | List No. | Length<br>feet | Number<br>of Pins | End,<br>inches | Spacings—<br>Center<br>inches | Sides<br>inches | Weight<br>each<br>pounds |
|-----------|----------|----------------|-------------------|----------------|-------------------------------|-----------------|--------------------------|
| Otley     | 23563    | 3              | 2                 | 4              | 28                            | ..              | 12                       |
| Otesgo    | 23564    | 4              | 4                 | 4              | 16                            | 12              | 16                       |
| Ottawa    | 23565    | 5              | 4                 | 4              | 18                            | 17              | 20                       |
| Otto      | 23566    | 6              | 4                 | 4              | 22                            | 21              | 24                       |
| Ottumwa   | 23567    | 6              | 6                 | 4              | 16                            | 12              | 24                       |
| Overton   | 23568    | 8              | 6                 | 4              | 18                            | $17\frac{1}{2}$ | 32                       |
| Ovid      | 23569    | 8              | 8                 | 4              | 16                            | 12              | 32                       |
| Owego     | 23572    | 10             | 8                 | 4              | 17                            | $15\frac{3}{4}$ | 40                       |
| Oxford    | 23573    | 10             | 10                | 4              | 16                            | 12              | 40                       |

**Light Weight Cross Arms**—Size,  $2\frac{1}{2}$  in. x  $3\frac{1}{2}$  in., bored for  $1\frac{1}{2}$  in. pins; two  $\frac{1}{2}$  in. lag screws and two  $\frac{3}{8}$  in. brace bolts 28 in. apart. Painted red.

| Code Word | List No. | Length<br>inches | Number<br>of Pins | End<br>inches | Spacings—<br>Center<br>inches | Sides<br>inches | Weight<br>each<br>pounds |
|-----------|----------|------------------|-------------------|---------------|-------------------------------|-----------------|--------------------------|
| Newburn   | 15460    | 24               | 2                 | 3             | 18                            | ..              | 6                        |
| Newburg   | 15461    | 30               | 2                 | 3             | 24                            | ..              | 7                        |
| Newton    | 15462    | 36               | 2                 | 3             | 30                            | ..              | 9                        |
| Niagara   | 15463    | 42               | 4                 | 3             | 16                            | 10              | 10                       |
| Phynonis  | 24668    | 48               | 4                 | 3             | 16                            | 10              | 12                       |
| Niantic   | 15464    | 62               | 6                 | 3             | 16                            | 10              | 16                       |
| Phypes    | 24669    | 72               | 6                 | 3             | 16                            | 10              | 18                       |
| Nichols   | 15465    | 82               | 8                 | 3             | 16                            | 10              | 21                       |
| Physalia  | 24670    | 96               | 8                 | 3             | 16                            | 10              | 24                       |
| Nicolleti | 15466    | 102              | 10                | 3             | 16                            | 10              | 25                       |
| Niles     | 15467    | 120              | 12                | 3             | 16                            | 10              | 30                       |

## WASHINGTON FIR

The use of Washington fir is recommended, owing to its clear, straight-grained quality and its freedom from defects.

The life of these arms is greater than those of other woods.

Washington fir arms have been adopted for use by the American Telephone and Telegraph Co., the Western Union, and Postal Telegraph Companies.

**Standard Cross Arms**—Size,  $3\frac{1}{2}$  in. x  $4\frac{1}{2}$  in.; bored for  $1\frac{1}{2}$  in. and  $1\frac{1}{2}$  in. pins; two  $\frac{1}{2}$  in. lag screws or one  $\frac{5}{8}$  in. machine bolt and two  $\frac{3}{8}$  in. brace bolts. Unpainted.

| Code Word   | List No. | Length<br>feet | Number<br>of Pins | Center<br>inches | Spacings—<br>Sides<br>inches | End<br>inches | Weight<br>each<br>pounds |
|-------------|----------|----------------|-------------------|------------------|------------------------------|---------------|--------------------------|
| Masstabes   | 100005   | 3              | 2                 | 28               | ..                           | 4             | 10                       |
| Massvoller  | 100006   | 4              | 4                 | 16               | 12                           | 4             | 13                       |
| Massylorum  | 100007   | 5              | 4                 | 18               | 17                           | 4             | 17                       |
| Masteiche   | 100008   | 6              | 4                 | 22               | 21                           | 4             | 20                       |
| Mastenhoch  | 100009   | 6              | 6                 | 16               | 12                           | 4             | 20                       |
| Masterhood  | 100010   | 8              | 6                 | 18               | $17\frac{1}{2}$              | 4             | 27                       |
| Mastfutter  | 100011   | 8              | 8                 | 16               | 12                           | 4             | 27                       |
| Mastgeldler | 100012   | 10             | 8                 | $17\frac{1}{2}$  | $15\frac{3}{4}$              | 4             | 34                       |
| Masthafer   | 100013   | 10             | 10                | 16               | 12                           | 4             | 34                       |

PRICES ON REQUEST

## Cross Arms—Continued

## Washington Fir—Continued

Light Weight Cross Arms—Size,  $2\frac{3}{4}$  in. x  $3\frac{3}{4}$  in., bored for  $1\frac{1}{2}$  in. pins, two  $\frac{1}{2}$  in. lag screws or one  $\frac{3}{8}$  in. and two  $\frac{3}{8}$  in. brace bolts 28 in. apart. Unpainted.

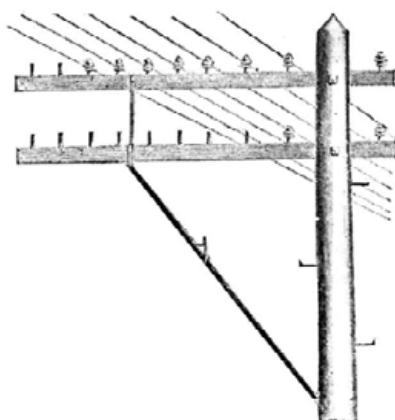
| Code Word  | List No. | Length<br>inches | Number<br>of Pins | Center<br>inches | Spacings<br>Sides<br>inches | End<br>inches | Weight<br>each<br>pounds |
|------------|----------|------------------|-------------------|------------------|-----------------------------|---------------|--------------------------|
| Masticine  | 100014   | 24               | 2                 | 18               | ..                          | 3             | 5                        |
| Masticinos | 100015   | 30               | 2                 | 24               | ..                          | 3             | 6 $\frac{1}{2}$          |
| Masticinum | 100016   | 36               | 2                 | 30               | ..                          | 3             | 7                        |
| Masticorum | 100017   | 42               | 4                 | 16               | 10                          | 3             | 9                        |
| Mastigacao | 100018   | 48               | 4                 | 16               | 10                          | 3             | 10                       |
| Mastixoele | 100019   | 62               | 6                 | 16               | 10                          | 3             | 12 $\frac{1}{2}$         |
| Mastkeilen | 100020   | 72               | 6                 | 16               | 10                          | 3             | 15                       |
| Mastkorf   | 100021   | 82               | 8                 | 16               | 10                          | 3             | 17                       |
| Mastknehen | 100022   | 96               | 8                 | 16               | 10                          | 3             | 20                       |
| Mastochsen | 100023   | 102              | 10                | 16               | 10                          | 3             | 21 $\frac{1}{2}$         |
| Mastoideal | 100024   | 120              | 12                | 16               | 10                          | 3             | 25                       |

## CROSS ARM BRACES

| Plain      |          | Galvanized  |          | Size<br>inches                       | Weight<br>pounds per hundred |            |
|------------|----------|-------------|----------|--------------------------------------|------------------------------|------------|
| Code Word  | List No. | Code Word   | List No. |                                      | Plain                        | Galvanized |
| Ajaja      | 6630     | Ajun        | 6626     | 20x1 x $\frac{3}{16}$                | 100                          | 107        |
| Plagiadas  | 25941    | Plagiandos  | 25942    | 22x1 x $\frac{3}{16}$                | 110                          | 117        |
| Ajabe      | 6629     | Ajugis      | 6625     | 24x1 x $\frac{3}{16}$                | 120                          | 129        |
| Plassor    | 26052    | Plantadora  | 26066    | 20x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 141                          | 148        |
| Platful    | 26053    | Planquetas  | 26067    | 22x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 154                          | 164        |
| Plateau    | 26054    | Platbekkig  | 26068    | 24x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 168                          | 175        |
| Platine    | 26055    | Platylophe  | 26069    | 26x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 182                          | 190        |
| Platkop    | 26056    | Platypalpe  | 26070    | 28x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 196                          | 205        |
| Platrant   | 26057    | Platypyges  | 26071    | 30x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 210                          | 220        |
| Playbill   | 26058    | Platybune   | 26072    | 32x1 $\frac{7}{32}$ x $\frac{7}{32}$ | 224                          | 235        |
| Playbook   | 26059    | Platyholme  | 26073    | 20x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 175                          | 183        |
| Plauso     | 26060    | Platylobes  | 26074    | 22x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 188                          | 195        |
| Platschig  | 26061    | Platygenie  | 26075    | 24x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 200                          | 210        |
| Platschaaf | 26062    | Platyonyx   | 26076    | 26x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 213                          | 223        |
| Platbek    | 26063    | Platypus    | 26077    | 28x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 225                          | 238        |
| Plasmavamo | 26064    | Platynemes  | 26078    | 30x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 238                          | 250        |
| Plasmodium | 26065    | Plattstitch | 26079    | 32x1 $\frac{1}{4}$ x $\frac{1}{4}$   | 250                          | 265        |

## CROSS ARM BACK BRACES

This back brace is punched at the center for a  $\frac{3}{8}$ -inch cross arm bolt. The ends of the brace are bolted to the arm by carriage bolts or lag screws.



No. 52134

| Code Word | List No. |                          |
|-----------|----------|--------------------------|
| Hybridity | 52140    | Flat Braces, galvanized  |
| Hybridous | 52141    | Angle Braces, galvanized |

Made in 3 ft., 3 ft. 6 in., 4 ft., 4 ft. 6 in., 5 ft., and 6 ft. lengths.

## ALLEY ARM BRACES

The side or alley arm braces, as illustrated, are made of angle iron—stiffer and lighter than pipe or rod braces. A step is placed so that the end pins may be conveniently reached. Angle iron upright braces are used to support arms above the bottom one. In the table below, "A" is the distance between the center of the pole and the point on the arm where the brace is bolted—thus a 5-ft. brace hits the cross arm 5 ft. from the pole. The foot of the brace meets the pole 5 ft. below the cross arms.

"A," 4 ft., 5 ft., 6 ft., 7 ft., 8 ft.

Number of arms....2, 3, 4, 5, 6, 7, 8, 9, 10

| Code Word  | List No. |   |
|------------|----------|---|
| Hydruntina | 52134    | Uprights, galvanized, 18 in. gain spacing |
| Hydrureto  | 52135    | Uprights, galvanized, 24 in. gain spacing |

PRICES ON REQUEST



## BUTT GUARDS AND BUTT PROTECTORS

Made of  $\frac{3}{16}$  in. steel plate, 18 in. high x 22 in. long, bent into half circle. These are finished in black.

Code Word

List No.

Hyempsal

52138

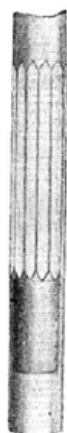
Butt Guards

Made of No. 24 sheet iron, 4 ft. long x 2 in. wide, galvanized. Clipped to points at both ends and punched with nail holes.

Hybridists

52139

Pole Protectors



Nos. 52138  
52139

## MACHINE BOLTS

### FURNISHED PLAIN OR GALVANIZED

With Square Heads and Square Nuts, Finished Points.

Weight in Pounds per 100. Not Galvanized

|                |  | Length inches |      |      |       |       |       |       |       |       |
|----------------|--|---------------|------|------|-------|-------|-------|-------|-------|-------|
| Diam.<br>inch  |  | 1½            | 2    | 2½   | 3     | 3½    | 4     | 4½    | 5     | 5½    |
| $\frac{1}{4}$  |  | 3.75          | 4.33 | 4.91 | 5.50  | 6.21  | 6.92  | 7.63  | 8.35  | 9.06  |
| $\frac{5}{16}$ |  | 6.12          | 7.10 | 8.08 | 9.06  | 10.14 | 11.22 | 12.30 | 13.38 | 14.46 |
| $\frac{3}{8}$  |  | 9.3           | 10.9 | 12.5 | 14.1  | 15.5  | 16.9  | 18.3  | 19.7  | 21.1  |
| $\frac{7}{16}$ |  | 14.7          | 16.6 | 18.4 | 20.3  | 22.4  | 24.4  | 26.5  | 28.5  | 30.6  |
| $\frac{1}{2}$  |  | 20.2          | 22.8 | 25.3 | 27.9  | 30.4  | 32.9  | 35.4  | 37.9  | 40.4  |
| $\frac{5}{8}$  |  | 36.5          | 40.8 | 45.0 | 49.3  | 53.6  | 57.9  | 62.2  | 66.4  | 70.7  |
| $\frac{3}{4}$  |  | 58.0          | 63.9 | 69.9 | 75.8  | 81.7  | 87.7  | 93.6  | 99.6  | 105.5 |
| $\frac{7}{8}$  |  | ....          | 88.5 | 98.0 | 107.5 | 117.0 | 126.5 | 136.0 | 145.5 | 155.0 |
| 1              |  | ....          | 142. | 152. | 162.  | 172.  | 182.  | 192.  | 202.  | 212.  |



|                |  | Length inches |       |       |       |       |      |      |      |      |
|----------------|--|---------------|-------|-------|-------|-------|------|------|------|------|
| Diam.<br>inch  |  | 6             | 6½    | 7     | 7½    | 8     | 9    | 10   | 11   | 12   |
| $\frac{1}{4}$  |  | 9.77          | 10.48 | 11.19 | 11.90 | 12.62 | .... | .... | .... | .... |
| $\frac{5}{16}$ |  | 15.54         | 16.62 | 17.70 | 18.78 | 19.87 | .... | .... | .... | .... |
| $\frac{3}{8}$  |  | 22.5          | 23.9  | 25.3  | 26.7  | 28.1  | 30.9 | 33.8 | 36.6 | 39.4 |
| $\frac{7}{16}$ |  | 32.6          | 34.7  | 36.7  | 38.8  | 40.8  | 44.9 | 49.0 | 53.1 | 57.2 |
| $\frac{1}{2}$  |  | 42.9          | 45.4  | 47.9  | 50.4  | 52.9  | 57.9 | 62.9 | 67.9 | 72.9 |
| $\frac{5}{8}$  |  | 75.0          | 79.3  | 83.4  | 87.6  | 91.8  | 100. | 109. | 117. | 126. |
| $\frac{3}{4}$  |  | 111.5         | 117.5 | 123.6 | 129.6 | 136.  | 148. | 160. | 172. | 184. |
| $\frac{7}{8}$  |  | 164.5         | 173.0 | 181.0 | 189.0 | ....  | .... | .... | .... | .... |
| 1              |  | 222.          | 232.  | 243.  | 253.  | ....  | .... | .... | .... | .... |


|                |  | Length inches |      |      |      |      |       |       |       |
|----------------|--|---------------|------|------|------|------|-------|-------|-------|
| Diam.<br>inch  |  | 13            | 14   | 15   | 16   | 17   | 18    | 19    | 20    |
| $\frac{1}{4}$  |  | ....          | .... | .... | .... | .... | ....  | ....  | ....  |
| $\frac{5}{16}$ |  | ....          | .... | .... | .... | .... | ....  | ....  | ....  |
| $\frac{3}{8}$  |  | ....          | .... | .... | .... | .... | ....  | ....  | ....  |
| $\frac{7}{16}$ |  | ....          | .... | .... | .... | .... | ....  | ....  | ....  |
| $\frac{1}{2}$  |  | 77.9          | 82.9 | 87.9 | 92.9 | 97.9 | 102.9 | 107.9 | 112.9 |
| $\frac{5}{8}$  |  | 134.          | 143. | 151. | 160. | 168. | 176.  | 185.  | 193.  |
| $\frac{3}{4}$  |  | 196.          | 208. | 220. | 232. | 244. | 256.  | 268.  | 280.  |

PRICES ON REQUEST

## LAG SCREWS

FURNISHED PLAIN OR GALVANIZED

Weight in Pounds per 100. Not Galvanized



| Diam.<br>inches | Length inches |      |      |      |      |      |      |      |
|-----------------|---------------|------|------|------|------|------|------|------|
|                 | 1½            | 2    | 2½   | 3    | 3½   | 4    | 4½   | 5    |
| 5/16            | 3.5           | 4.4  | 5.3  | 6.2  | 7.1  | 8.0  | 9.   | 10.  |
| 3/8             | 5.8           | 7.1  | 8.5  | 9.8  | 11.1 | 12.5 | 13.8 | 14.9 |
| 7/16            | 9.1           | 11.  | 12.9 | 14.8 | 16.5 | 18.2 | 19.9 | 21.8 |
| 1/2             | ....          | 15.  | 17.3 | 19.5 | 21.6 | 23.8 | 26.3 | 28.8 |
| 5/8             | ....          | 26.3 | 29.9 | 33.5 | 37.1 | 40.7 | 44.5 | 48.3 |
| 3/4             | ....          | .... | .... | 46.1 | 51.5 | 57.1 | 62.9 | 68.8 |
| 7/8             | ....          | .... | .... | 71.8 | 78.5 | 85.3 | 92   | 98.6 |
| 1               | ....          | .... | .... | 103. | 112. | 121. | 130  | 141  |


  

| Diam.<br>inches | Length inches |      |       |       |       |       |       |       |
|-----------------|---------------|------|-------|-------|-------|-------|-------|-------|
|                 | 5½            | 6    | 7     | 8     | 9     | 10    | 11    | 12    |
| 5/16            | 11            | 12   | ....  | ....  | ....  | ....  | ....  | ....  |
| 3/8             | 16            | 17.2 | ....  | ....  | ....  | ....  | ....  | ....  |
| 7/16            | 23.5          | 25.2 | ....  | ....  | ....  | ....  | ....  | ....  |
| 1/2             | 31.3          | 33.8 | 38.9  | 44    | 48.5  | 53    | 57.5  | 62    |
| 5/8             | 52.0          | 55.7 | 63.2  | 69.3  | 76.4  | 83.5  | 90.6  | 97.8  |
| 3/4             | 74.7          | 80.5 | 92.3  | 104   | 115.4 | 126.8 | 138.2 | 149.5 |
| 7/8             | 105.3         | 112  | 125.4 | 138.8 | 156.3 | 173.8 | 191.3 | 208.8 |
| 1               | 153           | 164  | 185   | 205   | 225   | 245   | 265   | 285   |

## CARRIAGE BOLTS

FURNISHED PLAIN OR GALVANIZED

Weight per 100. Not Galvanized



| Diam.<br>inches | Length inches |      |      |      |      |      |      |      |      |     |
|-----------------|---------------|------|------|------|------|------|------|------|------|-----|
|                 | 1½            | 2    | 2½   | 3    | 3½   | 4    | 4½   | 5    | 5½   | 6   |
| 1/4             | 3.7           | 4.2  | 4.9  | 5.6  | 6.2  | 7    | 7.7  | 8.5  | 9.2  | 9.9 |
| 5/16            | 6.2           | 7.2  | 8.2  | 9.2  | 10.2 | 11.2 | 12.3 | 13.5 | 14.7 | 16  |
| 3/8             | 9.7           | 11.2 | 12.7 | 14.5 | 16   | 18   | 19   | 21   | 22   | 24  |
| 7/16            | 14            | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32  |
| 1/2             | 20.2          | 23.2 | 26   | 28   | 30   | 33   | 36   | 39   | 41   | 44  |
| 5/8             | ....          | 38   | 42   | 46   | 50   | 55   | 59   | 63   | 67   | 71  |

## DOUBLE ARMING BOLTS

Furnished with 2 nuts and 3-inch threads on each end of bolt, but no washers; plain or galvanized.

| Code Word  | List No. | Size<br>inches | Weight<br>pounds per<br>hundred | Code Word  | List No. | Size<br>inches | Weight<br>pounds per<br>hundred |
|------------|----------|----------------|---------------------------------|------------|----------|----------------|---------------------------------|
| Hylogenie  | 52067    | ½x12           | 172                             | Hylonomous | 52072    | ½x17           | 202                             |
| Hylognosie | 52068    | ½x13           | 178                             | Hylophile  | 52073    | ½x18           | 208                             |
| Hylogyne   | 52069    | ½x14           | 184                             | Hylotheist | 52074    | ½x19           | 214                             |
| Hyloist    | 52070    | ½x15           | 190                             | Hylotome   | 52075    | ½x20           | 220                             |
| Hylogy     | 52071    | ½x16           | 196                             | Hylotropie | 52076    | ½x22           | 232                             |

PRICES ON REQUEST

## ROUND WASHERS

Furnished Plain or Galvanized

| Code Word  | List No. | For Size Bolt<br>inches | Weight pounds per thousand<br>Plain | Galvanized       |
|------------|----------|-------------------------|-------------------------------------|------------------|
| Hylozoic   | 52077    | $\frac{3}{8}$           | 13 $\frac{3}{4}$                    | 15               |
| Hylozoical | 52078    | $\frac{1}{2}$           | 34 $\frac{1}{2}$                    | 37               |
| Hylozoism  | 52079    | $\frac{5}{8}$           | 77                                  | 82 $\frac{1}{2}$ |

## SQUARE WASHERS

Furnished Plain or Galvanized

| Code Word  | List No. | Size<br>inches                                     | For Size Bolt<br>inches | Number in one hundred pounds<br>Plain | Galvanized |
|------------|----------|--|-------------------------|---------------------------------------|------------|
| Hylozoists | 52080    | 2 x 2 x $\frac{1}{8}$                              | $\frac{1}{2}$           | 500                                   | 450        |
| Hymeas     | 52081    | 2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{3}{16}$ | $\frac{5}{8}$           | 410                                   | 380        |
| Hymenaeal  | 52082    | 2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{1}{4}$  | $\frac{3}{4}$           | 315                                   | 295        |
| Hymenaicos | 52083    | 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x $\frac{1}{4}$  | $\frac{7}{8}$           | 165                                   | 150        |
| Hymenaicum | 52084    | 3 x 3 x $\frac{1}{4}$                              | 1                       | 87                                    | 80         |
| Hydriote   | 52085    | 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$  | 1 $\frac{1}{8}$         | 65                                    | 60         |
| Hydroarion | 52086    | 4 x 4 x $\frac{3}{8}$                              | 1 $\frac{1}{4}$         | 48                                    | 44         |
| Hydrobate  | 52087    | 4 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x $\frac{3}{8}$  | 1 $\frac{1}{2}$         | 40                                    | 36         |
| Hydrobryon | 52088    | 5 x 5 x $\frac{3}{8}$                              | 1 $\frac{3}{8}$         | 28                                    | 26         |
| Hydrocampe | 52089    | 6 x 6 x $\frac{3}{8}$                              | 1 $\frac{1}{2}$         | 24                                    | 22         |

## POLE STEPS

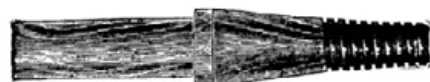


No. 15480

| Plain     |          |                                   | Galvanized |          |                                   |
|-----------|----------|-----------------------------------|------------|----------|-----------------------------------|
| Code Word | List No. | Size<br>inches                    | Code Word  | List No. | Size<br>inches                    |
| Norton    | 15480    | $\frac{9}{16}$ x 9                | Norwalk    | 15481    | $\frac{9}{16}$ x 9                |
| Plage     | 25938    | $\frac{9}{16}$ x 10 $\frac{1}{2}$ | Plagellis  | 25939    | $\frac{9}{16}$ x 10 $\frac{1}{2}$ |
| Norway    | 15482    | $\frac{8}{8}$ x 9                 | Norwich    | 15483    | $\frac{8}{8}$ x 9                 |
| Boom      | 3533     | $\frac{8}{8}$ x 10                | Bootless   | 3539     | $\frac{8}{8}$ x 10                |

## PINS AND BRACKETS

### PAINTED OAK PINS



No. 52090

| Code Word  | List No. | Size<br>inches      | Weight<br>pounds per<br>thousand |
|------------|----------|---------------------|----------------------------------|
| Hydrochere | 52090    | 1 $\frac{1}{4}$ x 8 | 280                              |
| Hydrochous | 52092    | 1 $\frac{1}{4}$ x 9 | 350                              |

### UNPAINTED LOCUST PINS



No. 52093

| Code Word  | List No. | Size<br>inches      | Weight<br>pounds per<br>thousand |
|------------|----------|---------------------|----------------------------------|
| Hydrocleis | 52093    | 1 $\frac{1}{4}$ x 8 | 280                              |
| Hydrocoque | 52094    | 1 $\frac{1}{4}$ x 9 | 300                              |
| Hydrocyn   | 52096    | 1 $\frac{1}{4}$ x 9 | 350                              |

### WESTERN UNION STEEL PINS



No. 19310

| Code Word | List No. | Size<br>inches                  | Weight<br>pounds per<br>thousand |
|-----------|----------|---------------------------------|----------------------------------|
| Essandole | 19310    | $\frac{1}{2}$ x 9 $\frac{1}{2}$ | 640                              |
| Essayames | 19311    | $\frac{3}{4}$ x 9 $\frac{1}{2}$ | 880                              |

PRICES ON REQUEST



## Pins and Brackets—Continued



No. 52097

## OAK BRACKETS

Code Word  
HydrocysteList No.  
52097

No. 1 Bracket, 12 in. long;  $1\frac{1}{2}$  in. wide;  
 $1\frac{1}{2}$  in. deep at shoulder;  $\frac{3}{8}$  in. thick  
tail end.  
No. 1 packed 100 in crate. Weight,  
80 lbs. per 100.



No. 1028



No. 01020

Hydroecie

52098

No. 2 Bracket, 12 in. long;  $1\frac{1}{2}$  in. wide;  
2 in. deep at shoulder,  $\frac{3}{8}$  in. thick  
tail end.  
No. 2. Packed 100 in crate. Weight  
110 lbs. per 100.



No. 01029



No. 18836

Hydroecium

52099

No. 3 Bracket, 12 in. long;  $1\frac{1}{2}$  in. wide;  
 $2\frac{1}{4}$  in. deep at shoulder,  $\frac{3}{8}$  in. thick  
tail end.  
No. 3. Packed 150 in bag. Weight,  
90 lbs. per 100.

Hydrogala

52100

No. 4. Packed 200 in bag. Weight  
75 lbs. per 100.



No. 18840

## FLETCHER BRACKETS

Code Word

List No.

Weight per  
hundred pieces  
pounds

Knoud

1028

Curved back bracket

200

Phradates

18838

Fletcher iron bracket

205

Phrasing

18845

Fletcher iron bracket

180

Solely

01020

Short wall bracket

85

Butt,  $1\frac{1}{2}$  in.;  $3\frac{1}{2}$  in. below shoulder,  $4\frac{1}{2}$  in. above shoulder

Certified

01018

Short wall bracket

190

Certify

01019

Short wall bracket

215

Kontow

01029

Heavy malleable bracket

285

Photophobe

18833

Fletcher iron pin

125

Photopsie

18835

Fletcher iron pin

100

Phototype

18836

Fletcher iron pin

80

Phragmitem

18840

Fletcher iron bracket

90

## GALVANIZED STEEL HOUSE BRACKETS

These Brackets are strong, non-corrosive, and very quickly attached. There is an adjustable wood cushion for the insulator which decreases the liability of glass breakage.

Code Word

List No.

Hydrogarum

52101

One point telephone bracket

Hydrogene

52102

Two point telephone bracket

Mastreacao

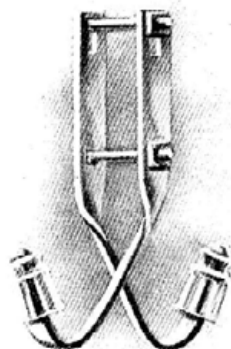
100025

Four point telephone bracket

No. 52102

PRICES ON REQUEST

## Pins and Brackets—Continued



No. 52103

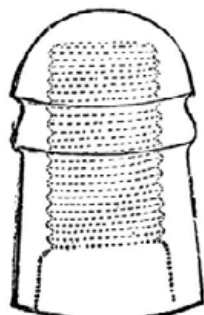
## GALVANIZED UNDERHANG BRACKET

Used for temporarily or permanently doubling the capacity of cross arms. They do not weaken the arms with bolt holes. They are adjustable for any size arm; are easier put up than porcelain knobs, and afford the best of insulation. These brackets are used principally for temporary work, and the ease with which they may be put up and taken down recommends them for this use. Only a small stock is necessary, as they may be used over and over again.

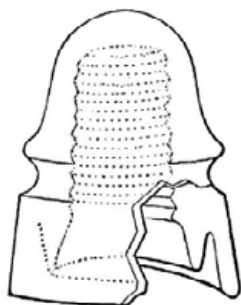
Code Word  
**Hydrogeton**

List No.  
**52103**

Complete with bolts, washers and split pins



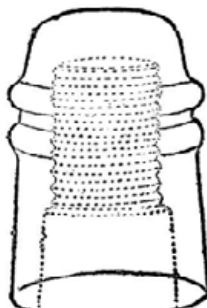
No. 2351



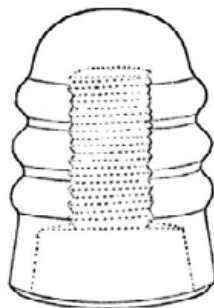
No. 2354

## INSULATORS

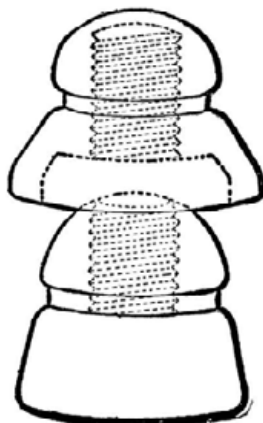
| Code Word  | List No. |                               | Number<br>in<br>Barrel | Weight per<br>thousand<br>Packed<br>Pounds |
|------------|----------|-------------------------------|------------------------|--|
| Eloquence  | 2351     | No. 9 pony glass              | 400                    | 800  |
| Elsewhere  | 2354     | Pony double<br>petticoat      | 300                    | 930  |
| Hydrolico  | 52106    | No. 4 pony                    | 300                    | 650  |
| Foreseen   | 4765     | Long distance<br>regular      | 300                    | 1100                                       |
| Foreseer   | 17476    | No. 11 double<br>groove pony  | 400                    | 800  |
| Forestless | 4780     | Single piece<br>transposition | 100                    | 2400                                       |
| Foresty    | 4781     | Two-piece trans-<br>position  | 125                    | 2025                                       |



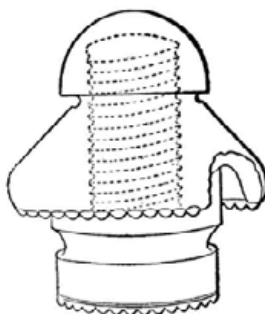
No. 4765



No. 17476

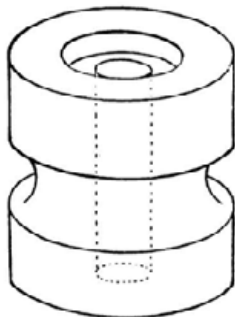


No. 4781

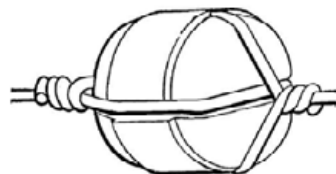


No. 4780

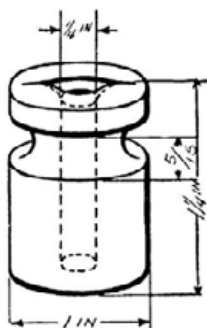
PRICES ON REQUEST



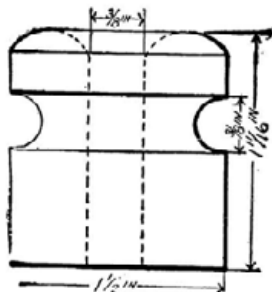
No. 24606



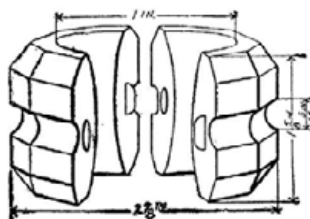
No. 24605



No. 25444



No. 25443



No. 9266

## Insulators—Continued

## GLASS BREAK KNOBS

| Code Word | List No.   | Standard Package | Weight per thousand Packed pounds |
|-----------|--|------------------|-----------------------------------|
| Empty     | 2337 No. 1 Break knob<br>1 1/2 in. long, 1 1/2 in. wide,<br>3/8 in. hole | 500              | 220                               |
| Phrynes   | 24606 No. 2 Break knob<br>1 1/4 in. long, 2 in. wide,<br>3/8 in. hole    | 500              | 510                               |
| Forestry  | 4786 No. 10, for guy wires   | 500              | 720                               |
| Phrygibus | 24605 No. 15, for guy wires  | 250              | 1260                              |

## PORCELAIN KNOBS

| Code Word  | List No. | Standard Package | Pounds per thousand |
|------------|----------|------------------|---------------------|
| Accipient  | 25444    | 500              | 69                  |
| Accipenser | 25443    | 1800             | 200                 |
| Empress    | 9266     | 1300             | 342                 |

## PORCELAIN TUBES

The following sizes listed measure  $\frac{5}{16}$  in. inside diameter and  $\frac{9}{16}$  in. outside diameter:

| Code Word  | List No. | Length inches | Standard Package | Pounds per thousand |
|------------|----------|---------------|------------------|---------------------|
| Hymnidici  | 52016    | 3             | 6200             | 67                  |
| Hymnidicos | 52017    | 4             | 3600             | 83                  |
| Hymnidicum | 52018    | 6             | 1900             | 150                 |
| Hymniebant | 52019    | 8             | 500              | 175                 |
| Hymnientem | 52020    | 10            | 500              | 210                 |
| Hymnientis | 52021    | 12            | 500              | 260                 |
| Hymnificas | 52022    | 14            | 500              | 295                 |

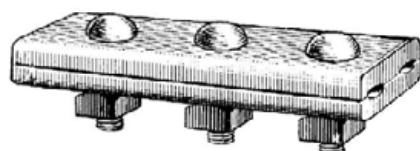
We can furnish any size tube from  $\frac{5}{16}$  in. inside diameter to 2 1/2 in. inside diameter, and from 3 in. to 24 in. in length of the standard sizes.

PRICES ON REQUEST



## GALVANIZED GUY CLAMPS

Rolled steel with high carbon steel bolts.



No. 25603

Code Word  
**Acquittal**  
**Pillottava**

List No.  
**25603**  
**25604**

Large size, 3 bolts  
 Small size, 2 bolts

## CROSBY CLIPS



No. 15484

Code Word  
**Oakville**  
**Oakland**  
**Oaklawn**  
**Oakdale**  
**Oakfield**  
**Oakford**  
**Oakwood**  
**Obeida**  
**Oconto**  
**Ocean**

List No.  
**15484**  
**15485**  
**15486**  
**15487**  
**15488**  
**15489**  
**15490**  
**15491**  
**15492**  
**15493**

Diameter of Strand  
 inches

$\frac{3}{8}$   
 $\frac{1}{2}$   
 $\frac{5}{8}$   
 $\frac{3}{4}$   
 $\frac{7}{8}$   
 1  
 $1\frac{1}{8}$   
 $1\frac{1}{4}$   
 $1\frac{3}{8}$   
 $1\frac{1}{2}$

## THIMBLES



No. 26023



No. 52108

Code Word  
**Meterschap**  
**Plangent**  
**Plangimur**  
**Plangorum**  
**Planhammer**  
**Planheid**  
**Planiforme**

List No.  
**94012**  
**26022**  
**26023**  
**26024**  
**26025**  
**26026**  
**26027**

Diameter of Strand  
 inches

$\frac{1}{4}$   
 $\frac{5}{16}$   
 $\frac{3}{8}$   
 $\frac{7}{16}$   
 $\frac{1}{2}$   
 $\frac{5}{8}$   
 $\frac{3}{4}$

## TELEPHONE GROUND RODS

Code Word  
**Hydrologo**

**Hydrolure**

**Methymnaeo**

**Meticuloso**



No. 94039

List No.

**52108**  $\frac{1}{2}$  in. x 5 ft. Galvanized. Pierced for ground wire with soldered connection.

**52109**  $\frac{1}{2}$  in. x 6 ft. Galvanized. Pierced for ground wire, but no soldered connection. Approximate weight,  $4\frac{1}{2}$  lbs.

**94033**  $\frac{1}{2}$  in. x 5 ft. Not galvanized. Pierced for ground wire with soldered connection.

**94034**  $\frac{1}{2}$  in. x 6 ft. Not galvanized. Pierced for ground wire but no soldered connection.

## ROCK GUY BOLT

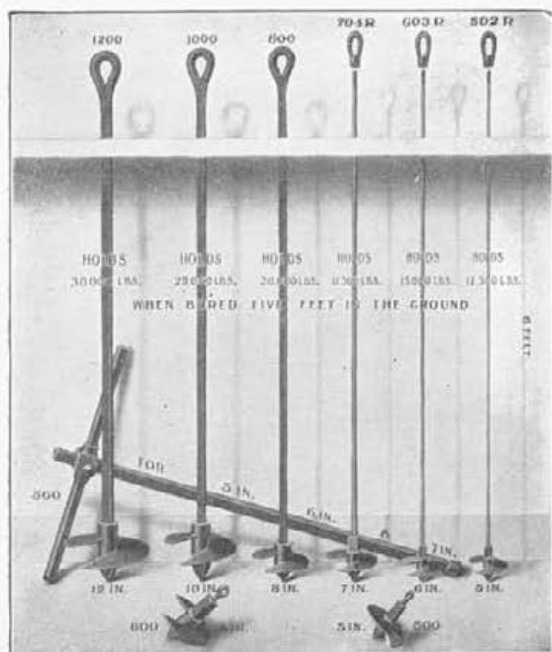
**Metitionis**  
**Metochite**

**94039** 1 in. x 18 in., 2 in. eye galvanized.  
**94040** 1 in. x 18 in., 2 in. eye plain.

PRICES ON REQUEST



No. 2998



Nos. 2899 to 2997

## ANCHOR OR GUY RODS

Code Word

List No.

|            |        |                                      |
|------------|--------|--------------------------------------|
| Metieramos | 94035  | 1 in. x 10 ft. galvanized            |
| Metiliorum | 94036  | $\frac{5}{8}$ in. x 8 ft. galvanized |
| Forebode   | 2998   | $\frac{5}{8}$ in. x 6 ft. galvanized |
| Massstab   | 100004 | $\frac{1}{2}$ in. x 6 ft. galvanized |
| Meliosedum | 94037  | 1 in. x 10 ft. plain                 |
| Metitionem | 94038  | $\frac{5}{8}$ in. x 8 ft. plain      |
| Mastrinder | 100026 | $\frac{5}{8}$ in. x 6 ft. plain      |
| Mastschrot | 100027 | $\frac{1}{2}$ in. x 6 ft. plain      |

## STOMBAUGH GUY ANCHORS

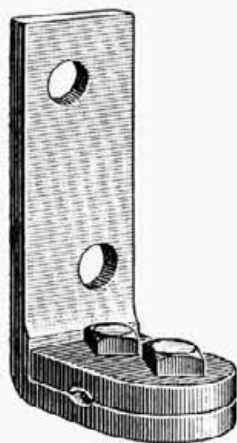
Rods are 6 ft. long.

| Trade numbers | Diameter of Anchor inches | Class of Work    | Diameter of Rod inches | Weight pounds   |
|---------------|---------------------------|------------------|------------------------|-----------------|
| 500           | 5                         | Light Strains    | No rod                 | 2 $\frac{1}{2}$ |
| 600           | 6                         | Medium Strains   | No rod                 | 4 $\frac{1}{2}$ |
| 502R          | 5                         | Light Strains    | $\frac{1}{2}$          | 6 $\frac{1}{2}$ |
| 603R          | 6                         | Medium Strains   | $\frac{5}{8}$          | 10              |
| 704R          | 7                         | Medium Strains   | $\frac{3}{4}$          | 15              |
| 800           | 8                         | Heavy Strains    | 1 $\frac{1}{8}$        | 38              |
| 1000          | 10                        | Heavier Strains  | 1 $\frac{1}{4}$        | 50              |
| 1200          | 12                        | Heaviest Strains | 1 $\frac{1}{2}$        | 80              |

560 Wrench for 5 in. and 6 in. anchors, weight 18 lbs.

707 Wrench for 7 in. anchor, weight 24 lbs.

No wrench required to install 8 in., 10 in. or 12 in. anchors

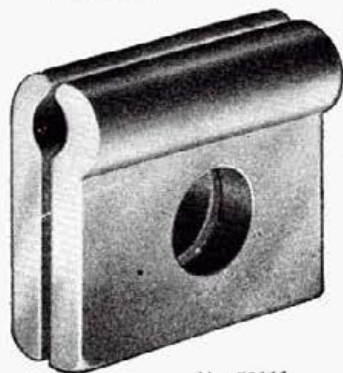


No. 52110

## GALVANIZED MESSENGER CLAMPS

Code Word

List No.

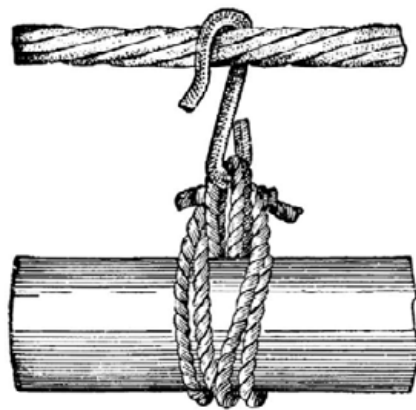
Hydromancy 52110 6 in. x 2 in. x  $\frac{3}{8}$  in., weight 42 ozs.Will take strand up to and including  $\frac{3}{8}$  inch.

No. 52111

Hydromania 52111

Clamp

PRICES ON REQUEST



No. 52116

## MARLINE CABLE HANGER

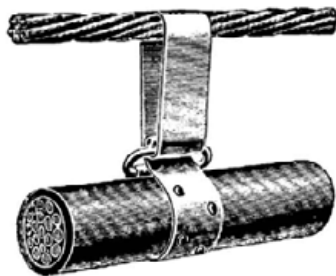
Furnished galvanized and regalvanized (the wire hooks galvanized a second time after they have been cut and formed). Size of cable in pairs which different size loops will hold.

| Code Word   | List No. | Length of Loop inches | Will Support Cables |                 |
|-------------|----------|-----------------------|---------------------|-----------------|
|             |          |                       | No. 19 B. & S.      | No. 22 B. & S.  |
| Metoeccien  | 94041    | 9                     | 24 pairs            | 49 pairs        |
| Metoeccorum | 94042    | 11                    | 49 pairs            | 99 pairs        |
| Hydrophora  | 52116    | 14                    | 99 pairs            | 199 pairs       |
| Hydropismo  | 52118    | 16                    | 150 pairs           | 300 pairs       |
| Metoleic    | 94043    | 19                    | above 150 pairs     | above 300 pairs |

## CABLE CLIP

Code Word  
Meublasses

List No.  
94044



No. 94044

"LONG  
SAUT"

## COMBINATION CABLE CLAMP AND BRIDLE RING

### GALVANIZED CLAMPS

Does not include bridle ring or expansion bolt. The Nos. 94064 and 94065 are not drilled for bridle rings.

| Code Word  | List No. | Diameter of Cable, inches |
|------------|----------|---------------------------|
| Mezzaiolo  | 94064    | $\frac{1}{8}$             |
| Mezzananza | 94065    | $\frac{5}{8}$             |
| Mezzanetto | 94066    | $\frac{3}{4}$             |
| Mezzina    | 94067    | 1                         |
| Mezzissimo | 94068    | $1\frac{1}{8}$            |
| Mezzotint  | 94069    | $1\frac{1}{2}$            |
| Miagolando | 94070    | 2                         |
| Miargyrite | 94071    | $2\frac{5}{8}$            |

Made also in other sizes and with nickel plate finish.

### BRIDLE RINGS

Threaded to Fit the Galvanized Straps

| Code Word  | List No. |   |
|------------|----------|---|
| Miaveritis | 94072    | No. 10 wire, $\frac{3}{4}$ in. eye, brass       |
| Micaceous  | 94073    | No. 10 wire, $1\frac{1}{4}$ in. eye, brass      |
| Micaiah    | 94074    | No. 10 wire, $\frac{3}{4}$ in. eye, galvanized  |
| Mication   | 94075    | No. 10 wire, $1\frac{1}{4}$ in. eye, galvanized |



No. 94071 with bridle ring and expansion bolt



No. 94046

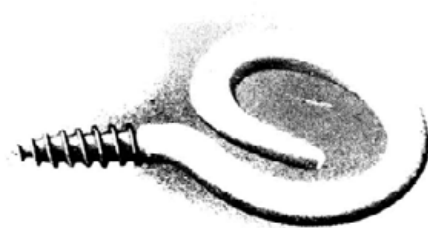
## BRIDLE OR DISTRIBUTING RINGS

Enameled or Galvanized

| Code Word  | List No. |  |
|------------|----------|--|
| Hydrotheca | 52126    | Style A $1\frac{1}{2}$ in. eye, $1\frac{1}{4}$ in. shank |
| Hydrous    | 52127    | Style C $1\frac{1}{4}$ in. eye, $1\frac{1}{4}$ in. shank |
| Hydroxyde  | 52128    | Style E $\frac{3}{8}$ in. eye, $\frac{3}{8}$ in. shank   |
| Hydrozoal  | 52129    | Style F 3 in. eye, $1\frac{1}{4}$ in. shank              |

Without Screw, Type "DX"

| Code Word  | List No. |                                    |
|------------|----------|------------------------------------|
| Meubleront | 94046    | 1 in. eye, galvanized              |
| Meurtrier  | 94047    | $1\frac{1}{2}$ in. eye, galvanized |
| Meurtriras | 94048    | $1\frac{3}{4}$ in. eye, galvanized |
| Mevaniensi | 94049    | 1 in. eye, enameled                |
| Mevaniola  | 94050    | $1\frac{1}{2}$ in. eye, enameled   |
| Mevrouw    | 94051    | $1\frac{3}{4}$ in. eye, enameled   |



No. 52126

PRICES ON REQUEST



## EXPANSION BOLTS

### COMPOSITION ONE-PIECE SHIELD, COMPLETE WITH BRIGHT IRON SCREWS

Shield Not Over 1 in. Long

| Size of Screw        | Length of Screw                                      |
|----------------------|--|
| No. 5 or 6           | $\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in.         |
| No. 9, 10 or 11      | $\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in., 2 in.  |
| No. 12, 13 or 14     | $\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in., 2 in.  |
| No. 15, 16, 17 or 18 | 1 in., $1\frac{1}{2}$ in., 2 in., $2\frac{1}{2}$ in. |

Shields  $1\frac{1}{2}$  in. Long

|                  |  |
|------------------|--|
| No. 9, 10 or 11  | 2 in., $2\frac{1}{2}$ in., 3 in.                     |
| No. 12, 13 or 14 | 2 in., $2\frac{1}{2}$ in., 3 in., $3\frac{1}{2}$ in. |

### MALLEABLE TWO-PIECE SHIELD COMPLETE WITH LAG SCREW

| Length of Lag Screw | Diameter of Lag Screw   |
|---------------------|---|
| 2 in.               | $\frac{1}{4}$ in., $\frac{5}{16}$ in.   |
| $2\frac{1}{2}$ in.  | $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. |
| 3 in.               | $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. |
| 4 in.               | $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. |
| 5 in.               | $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. |
| 6 in.               | $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. |

### COMPOSITION ONE-PIECE SHIELD

| For Screw           | Length of Shield inches | Outside Diameter inches |
|---------------------|-------------------------|-------------------------|
| Nos. 5, 6, 7        | $\frac{5}{8}$           | $\frac{1}{4}$           |
| Nos. 8, 9, 10, 11   | $\frac{3}{4}$           | $\frac{5}{16}$          |
| Nos. 9, 10, 11      | $1\frac{5}{8}$          | $\frac{5}{16}$          |
| Nos. 12, 13, 14     | $\frac{3}{4}$           | $\frac{3}{8}$           |
| Nos. 12, 13, 14     | $1\frac{1}{2}$          | $\frac{7}{16}$          |
| Nos. 12, 13, 14     | $2\frac{1}{2}$          | $\frac{7}{16}$          |
| Nos. 15, 16, 17, 18 | 1                       | $\frac{7}{16}$          |
| Nos. 22, 23, 24     | $1\frac{1}{4}$          | $\frac{9}{16}$          |

### No. 1-A CABLE POLE BALCONY

As an adjunct to the No. 15 cable terminal, a pole balcony as inconspicuous as possible has been designed to be used on poles carrying cable terminals of such height as to require linemen to stand while at work upon them.

While the feature of appearance has been an important one affecting the design, the necessity for substantial construction has been by no means disregarded. The framework is of angle iron to secure ample strength and the flooring is of oak. A permanent guard-rail is provided.

All parts are given a coating of asphaltum paint.

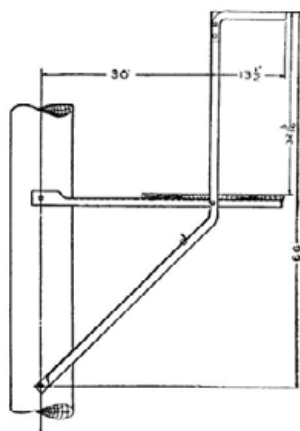
### WESTERN ELECTRIC COMPANY POLE SEAT

The frame is made of  $1\frac{1}{2}$  in. x  $1\frac{1}{2}$  in. x  $\frac{1}{8}$  in. angle iron with a brace of  $\frac{5}{8}$  in. round iron. The frame is 2 ft.  $7\frac{3}{4}$  in. long and has a pine seat 11 in. x 13 in. bolted to it. All parts are given a coat of asphaltum paint.

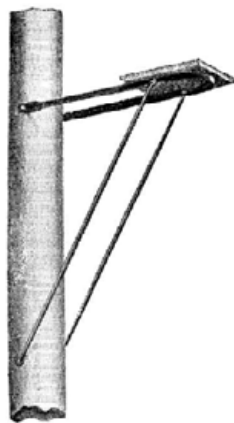
Code Word  
Meubleriez

List No.  
94045

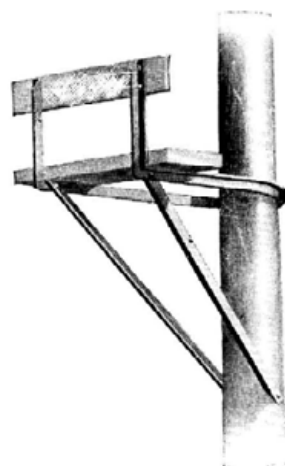
PRICES ON REQUEST



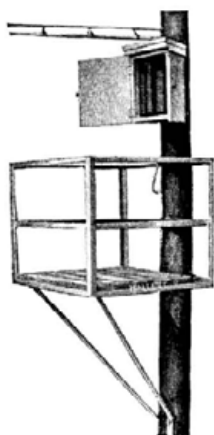
No. 1-A



No. 94045



No. 52132



No. 52136

## POLE SEAT

For use at small terminals or in places where a platform would be too conspicuous our pole seat cannot be surpassed. Its angle frame is rigid. Its back and seat board are of oak. We can furnish this seat, fitted with an over balance weight that will keep it tipped up when not in use—clear of snow and sleet.

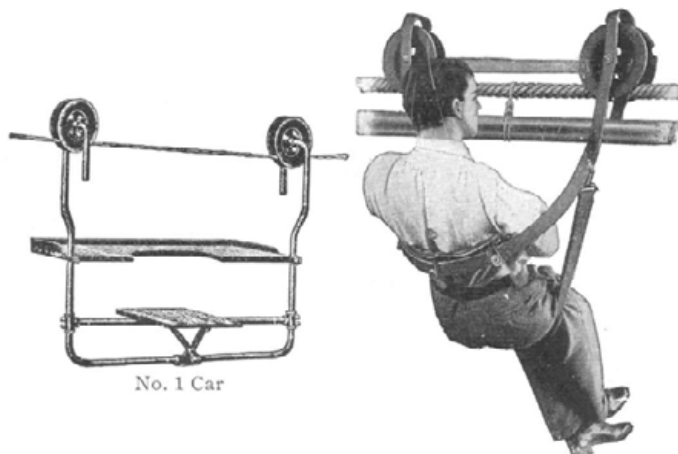
| Code Word  | List No. |            |
|------------|----------|------------|
| Hydrusa    | 52132    | Black      |
| Hydurilate | 52133    | Galvanized |

## POLE PLATFORM

This platform has two strong angle rails, an oak floor on an iron frame, and two round rod braces. This is the platform to use on important terminal poles—where a good deal of work is done—the sense of security imparted by the railing makes it possible for the lineman to give his entire attention to his work.

| Code Word | List No. |
|-----------|----------|
| Hyemated  | 52136    |
| Hyemation | 52137    |

Galvanized  
Painted



No. 1 Car



No. 3 Car

## CABLE CARS

Cable car No. 1 is a combined seat and table. The framework of the car is continuous, without joints. The seat is of wood, and the rollers of malleable iron. The table is adjustable. Tested for 1000 pounds.

Car No. 3 is lighter than No. 1 and is not equipped with a table. It is intended for use with a lineman's safety belt. The height of the seat is adjustable.

| Code Word  | List No. |                 |
|------------|----------|-----------------|
| Massiccio  | 100002   | Cable car No. 1 |
| Massicoter | 100003   | Cable car No. 3 |

## TOOLS

### CARRYING HOOKS

| Code Word | List No.                                |
|-----------|---|
| Skill     | 24064 With swivel bearing, 4 ft. handle |
| Maro      | 15010 Extra heavy, 7 ft. handle         |
| Marquan   | 15011 Heavy, 6 ft. handle               |
| Marquette | 15012 Medium, 5 ft. handle              |
| Feign     | 4402 Standard weight, 4 ft. handle      |



No. 24064



No. 15007

### CANT HOOKS

|         |                      |
|---------|----------------------|
| Merwin  | 15007 Length, 4 ft.  |
| Penonne | 24890 Length, 4½ ft. |

### TAMPING BARS

|          |   |
|----------|---|
| Skinch   | 24075 Hardwood, iron shoe, length 7 ft. |
| Piovento | 25770 Heavy hardwood 7 ft.              |



No. 24075

PRICES ON REQUEST



No. 4412



No. 25093



No. 4421



No. 4423



No. 4407



No. 4410



No. 3869



No. 3870



No. 14928

## Tools—Continued

## SPLITWOOD HANDLE DIGGER

| Code Word  | List No. | Length feet  |
|------------|----------|--------------|
| Felbovinum | 4412     | 5 ft. handle |
| Feld       | 4413     | 7 ft. handle |

## THE ELECTRIC SPUD

|            |       |                              |
|------------|-------|------------------------------|
| Songstress | 25093 | With tamping end. 9 ft. long |
|------------|-------|------------------------------|

## TAMPING AND DIGGING BARS

|          |      |  |
|----------|------|--|
| Felician | 4421 | 1½ in. octagon tool steel, 8 ft. long, weight, 30 lbs. |
| Felicify | 4422 | 1 in. octagon tool steel, 8 ft. long, weight, 25 lbs.  |
| Ejerzo   | 5924 | 1 in. round tool steel, 7 ft. long, weight, 19 lbs.    |

## CROW AND DIGGING BARS

|            |      |  |
|------------|------|--|
| Ejointage  | 5925 | 1 in. round steel, 7 ft. long, weight, 17 lbs.   |
| Felicitate | 4423 | 1 in. octagon steel, 7 ft. long, weight, 17 lbs. |
| Felicitous | 4424 | 1½ in. octagon steel 8 ft. long, weight, 28 lbs. |

## LONG-HANDLED SHOVELS

|              |       |                                    |
|--------------|-------|------------------------------------|
| Pioveva      | 25771 | 5 ft. or 6 ft. shovel, 9 in. strap |
| Pipabimus    | 25772 | 7 ft. shovel, 9 in. strap          |
| Pipabunt     | 25773 | 8 ft. shovel, 9 in. strap          |
| Feisty       | 4407  | 5 ft. or 6 ft. shovel 18 in. strap |
| Metcalf      | 14912 | 7 ft. shovel, 18 in. strap         |
| Metropolitan | 14913 | 8 ft. shovel 18 in. strap          |

## LONG-HANDLED SPOONS

|            |       |                                 |
|------------|-------|---------------------------------|
| Piparote   | 25776 | 6 ft. solid spoons, 9 in. strap |
| Pipaste    | 25777 | 7 ft. solid spoons, 9 in. strap |
| Pipavisset | 25778 | 8 ft. solid spoons, 9 in. strap |
| Felanders  | 4410  | 6 ft. spoon, 18 in. strap       |
| Beefall    | 3782  | 7 ft. spoon, 18 in. strap       |
| Befit      | 3783  | 8 ft. spoon, 18 in. strap       |

## GRADING SHOVELS

|            |      |              |
|------------|------|--------------|
| Binocular  | 3869 | Round point  |
| Binoculate | 3870 | Square point |

## PIKE POLES

|            |       | Length feet |
|------------|-------|-------------|
| Millerton  | 14928 | 12          |
| Millenburg | 14929 | 14          |
| Millar     | 14930 | 16          |
| Millerburg | 14931 | 18          |
| Piously    | 25768 | 20          |

PRICES ON REQUEST



## Tools—Continued

## POLE SUPPORTS

## Mule Pattern

| Code Word | List No. | Length<br>feet |
|-----------|----------|----------------|
| Skink     | 24078    | 4½             |
| Skinless  | 24079    | 6              |
| Skinner   | 24080    | 7½             |

## Jenney Pattern

|           |       |                |
|-----------|-------|----------------|
| Pilanga   | 14932 | height, 6 ft.  |
| Millercan | 14933 | height, 7½ ft. |

## RAISING FORKS OR GUARDED PIKE POLES

|            |       |                             |
|------------|-------|-----------------------------|
| Feliform   | 4427  | 10 ft. handle, 1¾ in. thick |
| Millanvill | 14925 | 12 ft. handle, 1¾ in. thick |
| Millanfeld | 14926 | 14 ft. handle, 2½ in. thick |
| Millervill | 14927 | 16 ft. handle, 2½ in. thick |
| Felinal    | 4428  | 18 ft. handle, 2½ in. thick |

## REELS

## Take-Up Reels

|        |       |                       |
|--------|-------|-----------------------|
| Martel | 15015 | Improved take-up reel |
|--------|-------|-----------------------|

## Common Pay-Out Reel

|           |      |              |
|-----------|------|--------------|
| Pilantium | 2544 | Pay-out reel |
|-----------|------|--------------|

## Ball-Bearing Pay-Out Reel with Carrying Handles

|           |       |                                 |
|-----------|-------|---------------------------------|
| Pilanorum | 2545  | Pay-out and take-up reel, heavy |
| Piove     | 25769 | Same, but much lighter          |
| Pilaremus | 2546  | Reel straps, per set            |

## VOM CLEFF'S LONG NOSE CHAIN PLIERS

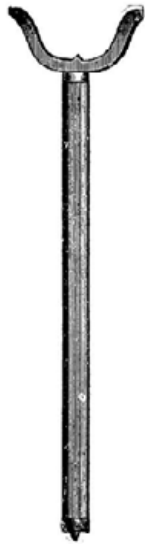
## Not Side Cutting—First Quality

| Code Word | List No. | Length<br>inches |
|-----------|----------|------------------|
| Fense     | 4517     | 3                |
| Fensible  | 4518     | 3½               |
| Fensome   | 4519     | 4                |
| Fensucked | 4520     | 4½               |
| Fensure   | 4521     | 5                |
| Fent      | 4522     | 5½               |
| Fenugreck | 4523     | 6                |

## VOM CLEFF'S ROUND, LONG NOSE

|            |      |    |
|------------|------|----|
| Cordovan   | 2879 | 3  |
| Corduroy   | 2880 | 3½ |
| Cordwain   | 2881 | 4  |
| Corelation | 2882 | 4½ |
| Corinne    | 2883 | 5  |
| Corinthian | 2884 | 5½ |
| Cork       | 2885 | 6  |

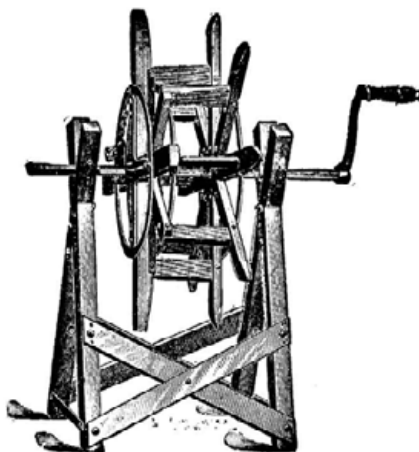
PRICES ON REQUEST



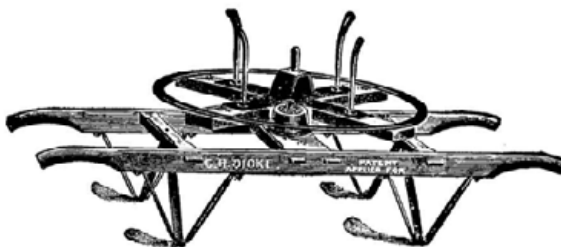
No. 24078



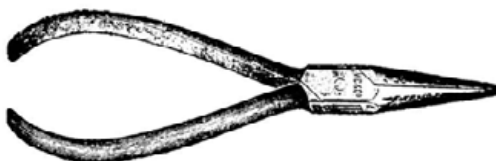
No. 14932



No. 15015



No. 2545



No. 4517

## Tools—Continued



No. 2688

## BERNARD'S PARALLEL PLIERS

| Code Word  | List No. | Length<br>inches |
|------------|----------|------------------|
| Consummate | 2688     | 4½               |
| Pingres    | 2689     | 5½               |
| Piangummen | 2690     | 6½               |
| Contact    | 2691     | 7½               |

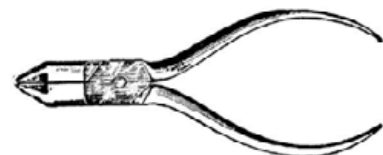
## BERNARD'S COMBINED PARALLEL AND CUTTING PLIERS



No. 3789

| Code Word | List No.  | Length<br>inches | Will Cut<br>Wire | Width be-<br>tween plying<br>jaws when<br>open, inches |
|-----------|-----------|------------------|------------------|--|
| Beholder  | 3789..... | 4½               | No. 9 B. & S.    | ¼ in.  |
| Beholding | 3790..... | 5½               | No. 7 B. & S.    | ⅜ in.  |
| Behoove   | 3791..... | 6½               | No. 5 B. & S.    | ½ in.  |
| Belabor   | 3792..... | 7½               | No. 3 B. & S.    | ¾ in.  |

## VOM CLEFF'S LINEMAN'S PLIERS



No. 3746

| Code Word  | List No. | Length<br>inches |
|------------|----------|------------------|
| Forefend   | 3746     | 3½               |
| Forefinger | 3747     | 5                |
| Forefoot   | 3748     | 5½               |
| Forefront  | 3749     | 6                |

## STUBS' SIDE CUTTING PLIERS

|           |       |    |
|-----------|-------|----|
| Anarchist | 3663  | 4  |
| Anarchy   | 3664  | 4½ |
| Anatomist | 3665  | 5  |
| Anatomy   | 3667  | 6  |
| Anatron   | 3668  | 7  |
| Ancestor  | 3669  | 8  |
| Milbrook  | 2523  | 9  |
| Pilunno   | 25744 | 10 |

## VOM CLEFF'S DIAGONAL CUTTING PLIERS



No. 2869

|           |      |    |
|-----------|------|----|
| Corant    | 2869 | 3  |
| Corcule   | 2870 | 3½ |
| Cord      | 2871 | 4  |
| Cordage   | 2872 | 4½ |
| Cordate   | 2873 | 5  |
| Corded    | 2874 | 5½ |
| Cordelia  | 2875 | 6  |
| Cordial   | 2876 | 6½ |
| Cordially | 2877 | 7  |
| Cordon    | 2878 | 8  |

## STUBS' DIAGONAL CUTTING PLIERS

|            |      |    |
|------------|------|----|
| Foregaff   | 3750 | 5  |
| Foreganger | 3751 | 5½ |
| Foregather | 3752 | 6  |

## SPlicing CLAMPS

|            |      |   |
|------------|------|---|
| Contagious | 8633 | For Nos. 8, 10, 12, 14 B. & S. gauge wires and finer.   |
| Pingendos  | 5109 | For wire connectors on Nos. 8, 10, 12 and 14 B. & S. gauge wires.   |
| Forelay    | 3769 | For wire connectors on Nos. 8, 10, 12, 14 B. & S. gauge or Nos. 10, 12, 16 British gauge copper wire on one side and No. 6 and finer iron wire on the other side. |

## FRY'S PATENT LINEMAN'S SPlicing PLIERS



No. 3769

| Code Word | List No. | Length<br>inches |
|-----------|----------|------------------|
| Ejulatuum | 5927     | 7 in.            |
| Eclairage | 5090     | 8 in.            |

PRICES ON REQUEST

## Tools—Continued

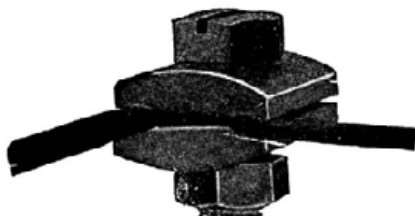
## WIRE JOINTS

For splicing wires together. Made to accommodate two wires of the same or different sizes and in two lengths—full and half—the former being about 4 in. long for No. 14 wire, and the latter about 2½ in. long for the same size wire. Made of plain copper for use with copper wires and of tinned copper for use with galvanized iron wires. Splicing clamps are used to twist the joints.

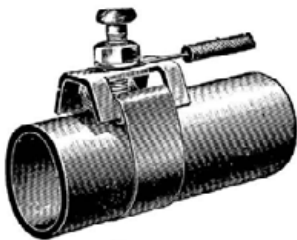
Orders should state size and kind of wire to be accommodated and whether full or half length joints are desired.



No. 24578



No. 52130



No. 25711



No. 15078



No. 15077



No. 14946



No. 2519

## THE ANTI-HUM

Humming of line wires easily and cheaply remedied

Code Word  
Ossiopia

List No.  
24578

## COPPER TEST CONNECTOR

It securely grips wires of the same or different sizes. The convex surface allows the clamp to readily adjust itself.

Code Word  
Hydrozoon

List No.  
52130

## NEW YORK GROUND CLAMP

For connecting telephone and telegraph ground wires to pipes or cables

Code Word  
Pillottano

List No.  
25711

## STEEL LAG SCREW WRENCH

This wrench is very convenient for drawing up lag screws through cross arms. The jaw is made tapering to accommodate variations in bolt heads.

Code Word  
Mekers

List No.  
15078

## COMBINATION LAG SCREW AND NUT WRENCH

Will take lag screws and nuts for ⅜ in., ½ in., and ⅝ in. bolts.

Code Word  
Medway

List No.  
15077

## STEEL TIE WRENCH

The purpose of this tool is to make the tie around the line wire, where it is fastened to the insulators. It will wind the tie around line smoothly, without marring the hard drawn copper wire on which it is intended for use.

Code Word  
Medora

List No.  
15076

## BUFFALO GRIPS

Code Word  
Milesburg

List No.  
14946

No. 1, extreme opening .22 in., holding wire from the smallest to No. 6, inclusive.

Forborn

2519

No. 1, with pulley; will accommodate rope ⅜ in.

Milipitus

14945

No. 2, extreme opening .35 in., holding all sizes from the smallest to No. 0, inclusive.

Forby

2585

No. 2, with pulley; will accommodate rope ⅞ in.

Acosmism

25594

No. 3, extreme opening .48 in., holding all sizes of wire from the smallest to No. 0000 inclusive.

Forcause

2663

No. 3, with pulley; will accommodate rope ⅝ in.

Force

2664

No. 4, extreme opening .52 in.; for insulated wire.

PRICES ON REQUEST





No. 2667

## Tools—Continued

## BUFFALO LINEMAN'S TOOL

Latest adaptation to needs of line construction men. Self-adjusting brake, which holds securely under severest tension.

| Code Word  | List No. |  |
|------------|----------|--|
| Forcedly   | 2667     | Lineman's tool, with No. 1 grip, .22 in. opening |
| Forcedness | 2677     | Lineman's tool, with No. 2 grip, .35 in. opening |
| Piomesi    | 25762    | Lineman's tool, with No. 4 grip, .52 in. opening |



No. 3494

## HAVEN'S CLAMP

|            |      |                                      |
|------------|------|--------------------------------------|
| Blundering | 3494 | Small size, for No. 8 wire and finer |
| Blunt      | 3495 | Large size, for 1/2 in. and finer    |

## ECCENTRIC CLAMPS

|       |       |                          |
|-------|-------|--------------------------|
| Skeed | 24099 | For No. 9 wire and finer |
|-------|-------|--------------------------|

## KLEIN'S PLAIN ECCENTRIC

|            |      |                                 |
|------------|------|---------------------------------|
| Beauty     | 3705 | Brass, for No. 8 wire and finer |
| Beautyspot | 3706 | Steel, for No. 8 wire and finer |



Nos. 1109 and 2548

## CAST STEEL VISES

|           |      |                             |
|-----------|------|-----------------------------|
| Bilking   | 2547 | 5 1/2 in.                   |
| Billbrook | 2548 | 6 in.                       |
| Billet    | 2549 | 5 1/2 in. copper-faced jaws |
| Milville  | 2538 | 6 in. copper-faced jaws     |

## VISE OR ECCENTRIC STRAPS

|        |      |
|--------|------|
| Milroy | 1109 |
|--------|------|

## WRENCHES



No. 3496

| Code Word | List No. | Length inches |
|-----------|----------|---------------|
| Blunted   | 3496     | 6             |
| Blunting  | 3497     | 8             |
| Bluntly   | 3498     | 10            |
| Blur      | 3499     | 12            |
| Blurred   | 3500     | 15            |
| Blurring  | 3501     | 18            |
| Elfjarig  | 6187     | 21            |

## 8-INCH COLD CHISEL



No. 15180

| Code Word | List No. | Width inches |
|-----------|----------|--------------|
| Momence   | 15180    | 3/8          |
| Mona      | 15181    | 1/2          |
| Moncure   | 15182    | 5/8          |
| Monclova  | 15183    | 3/4          |
| Pinuelos  | 25757    | 7/8          |

PRICES ON REQUEST

## Tools—Continued

## BELL HANGER'S GIMLET

| Code Word | List No. | Length<br>inches | Diameter<br>inches |
|-----------|----------|------------------|--------------------|
| Minedosa  | 15152    | 15               | $\frac{8}{32}$     |
| Mineota   | 15153    | 15               | $\frac{10}{32}$    |
| Minewakan | 15154    | 15               | $\frac{11}{32}$    |
| Minock    | 15155    | 24               | $\frac{8}{32}$     |
| Minuka    | 15156    | 24               | $\frac{10}{32}$    |
| Minster   | 15157    | 24               | $\frac{11}{32}$    |
| Mishawaka | 15158    | 36               | $\frac{8}{32}$     |
| Misoula   | 15159    | 36               | $\frac{10}{32}$    |
| Missoura  | 15160    | 36               | $\frac{11}{32}$    |

## SAWS

|            |      |    |
|------------|------|----|
| Connive    | 1750 | 18 |
| Connivency | 1751 | 20 |
| Connivent  | 1752 | 22 |
| Conniver   | 1753 | 24 |

## DRAW KNIVES

|         |       |    |
|---------|-------|----|
| Melborn | 15085 | 12 |
| Melvin  | 15086 | 14 |

## NAIL HAMMERS

## Plain Eye

| Code Word | List No. | Weight<br>ounces |
|-----------|----------|------------------|
| Mewdota   | 15116    | 12               |
| Menlo     | 15117    | 15               |
| Mento     | 15118    | 18               |

## HATCHETS

|         |       |                         |
|---------|-------|-------------------------|
| Meridan | 15122 | 3 $\frac{1}{2}$ in. cut |
| Meridia | 15123 | 4 in. cut               |

## LINEMAN'S AXE

|           |       |             |
|-----------|-------|-------------|
| Merillian | 15130 | With handle |
|-----------|-------|-------------|

## HAND AXES

|            |       |                         |
|------------|-------|-------------------------|
| Merigold   | 15124 | 4 $\frac{1}{2}$ in. cut |
| Merom      | 15125 | 5 in. cut               |
| Merian     | 15126 | 5 $\frac{1}{2}$ in. cut |
| Merricourt | 15127 | 6 in. cut               |

## TREE TRIMMERS

|           |       |  |
|-----------|-------|--|
| Minburne  | 2520  | Small size, 18 in. over all                    |
| Minden    | 2521  | Large size, 21 in. over all                    |
| Pinguesco | 5177  | 18 ft. handles for above                       |
| Melton    | 15080 | Best cast steel; length, 12 in., 2 in. cutters |

PRICES ON REQUEST



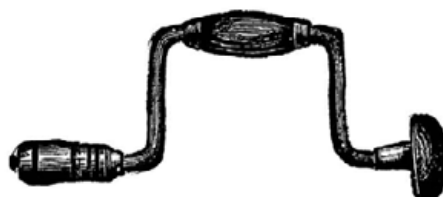
Dicke Type



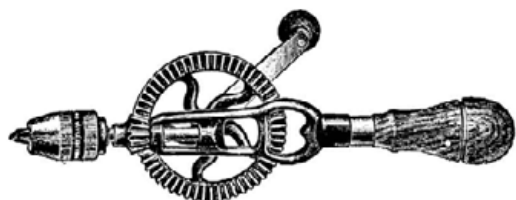
No 5168



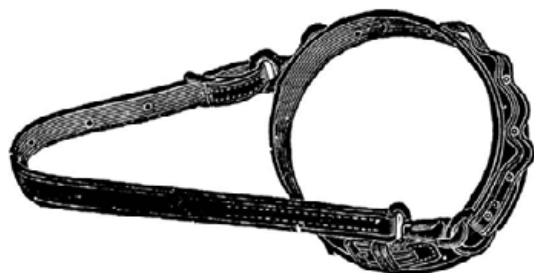
No. 15185



No. 2917



No. 4485



Nos. 5033 and 5034

## Tools—Continued

**DICKE LOCK FERRULE SCREW DRIVER**

Blades forged from finest tool steel, polished malleable ferrules, fluted handles.

Cabinet—Length of blade. 2½ 3½ 4½ 5½ 6½ 8½ 10½ 12½  
Machinists—Length of blade. 2½ 3 4 5 6 7 8 9 10 11 12

Blades and handles of the Dicke screw driver are warranted not to turn in the ferrule.

**"YANKEE" RATCHET SCREW DRIVER**

No. 10

Right and Left Hand, and Rigid

| Code Word  | List No. | Length of Blade inches |
|------------|----------|------------------------|
| Economicas | 5166     | 2                      |
| Pilcrow    | 5167     | 3                      |
| Economique | 5168     | 4                      |
| Economist  | 5169     | 5                      |
| Economizar | 5170     | 6                      |
| Pildish    | 5171     | 8                      |
| Pildora    | 5172     | 10                     |
| Pildanthe  | 5173     | 12                     |

**SOCKET FRAMING CHISEL**

| Code Word | List No. | Width inches |
|-----------|----------|--------------|
| Pinulam   | 25758    | ½            |
| Pinus     | 25759    | ¾            |
| Monster   | 15185    | 1            |
| Mondamin  | 15186    | 1½           |
| Mondola   | 15187    | 2            |

**RATCHET BRACE**

| Code Word  | List No. | Sweep inches |
|------------|----------|--------------|
| Pinfeather | 2917     | 8            |
| Conjunctly | 2918     | 10           |

**BITS**

Diameters by thirty-second inch from ⅜ in. to ⅝ in.

Diameters by sixteenth inch from ⅜ in. to ⅝ in.

No. 4491 expansion bit bores from ½ in. to 1½ in.

No. 4492 expansion bit bores from ½ in. to 3 in.

**HAND DRILL**

The chuck will hold twist drills from ⅜ in. to 1 in. Six drill points are furnished with each drill. The drills are made of malleable iron, nickel plated; with steel spindle and rosewood head and handle.

| Code Word  | List No.                        |
|------------|---------------------------------|
| Feminate   | 4485 Single gear, hollow handle |
| Pingadouro | 4486 Double gear, same chuck    |

**BREAST DRILL**

Pinetorum 6216

We furnish Miller's Falls No. 13, which is similar to cut.

**TOOL BELTS**

| Code Word | List No.   |
|-----------|--|
| Monongah  | 15200 Plain tool belt  |
| Pindeniso | 5033 Tool belt, for use with safety strap                        |
| Pindonga  | 5034 Safety strap to attach to tool belt; heavy snap on each end |

**LINEMAN'S TOOL BAG**

|            | List No.                                      |
|------------|---|
| Pindariser | 15201 Canvas, 20 in., with leather bottom     |
| Pindarismo | 6227 12 in., with leather bottom              |
| Pindemonte | 5031 Leather, best russet, with shoulder stay |

PRICES ON REQUEST



## Tools—Continued



No. 15165

## INSPECTOR'S TOOLS

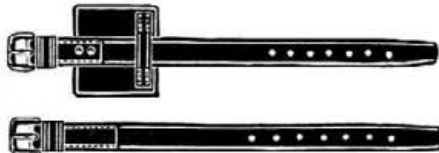
| Code Word | List No. |   |
|-----------|----------|---|
| Modena    | 15165    | Complete set in morocco case, containing everything necessary for adjusting telephone apparatus, telegraph and stock-printing instruments, etc. |
| Modesta   | 15166    | Case only.  |



No. 24093

## KLEIN EASTERN CLIMBERS

|            |       |                   |
|------------|-------|-------------------|
| Skittish   | 24093 | Without straps    |
| Skittishly | 24094 | Straps, with pads |
| Pintiparo  | 25752 | Nickel plated     |



EASTERN

## DICKE EASTERN CLIMBERS

|          |       |                |
|----------|-------|----------------|
| Pintoja  | 25753 | Without straps |
| Pintojos | 25754 | Straps         |



No. 24091

## KLEIN WESTERN CLIMBERS

16 in. to 18 in.

|            |       |                |
|------------|-------|----------------|
| Skirt      | 24091 | Without straps |
| Skirting   | 24092 | Straps         |
| Pintamonos | 25750 | Nickel plated  |
| Pintiparar | 25751 | Pads for above |



WESTERN

## DICKE WESTERN CLIMBERS

|          |       |                |
|----------|-------|----------------|
| Pintonas | 25755 | Without straps |
| Pinturas | 25756 | Straps         |



No. 15218

## POLE COUNTER OR TALLY REGISTER

|           |       |                  |
|-----------|-------|------------------|
| Montevale | 15216 | Records to 100   |
| Pilobole  | 25718 | Records to 1000  |
| Pilofores | 25719 | Records to 10000 |

PRICES ON REQUEST

## Tools—Continued



No. 15165

## INSPECTOR'S TOOLS

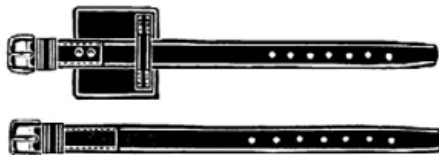
| Code Word | List No. |   |
|-----------|----------|---|
| Modena    | 15165    | Complete set in morocco case, containing everything necessary for adjusting telephone apparatus, telegraph and stock-printing instruments, etc. |
| Modesta   | 15166    | Case only.  |



No. 24093

## KLEIN EASTERN CLIMBERS

|            |       |                   |
|------------|-------|-------------------|
| Skittish   | 24093 | Without straps    |
| Skittishly | 24094 | Straps, with pads |
| Pintiparo  | 25752 | Nickel plated     |



EASTERN

## DICKE EASTERN CLIMBERS

|          |       |                |
|----------|-------|----------------|
| Pintoja  | 25753 | Without straps |
| Pintojos | 25754 | Straps         |



No. 24091

## KLEIN WESTERN CLIMBERS

16 in. to 18 in.

|            |       |                |
|------------|-------|----------------|
| Skirt      | 24091 | Without straps |
| Skirting   | 24092 | Straps         |
| Pintamonos | 25750 | Nickel plated  |
| Pintiparar | 25751 | Pads for above |



WESTERN

## DICKE WESTERN CLIMBERS

|          |       |                |
|----------|-------|----------------|
| Pintonas | 25755 | Without straps |
| Pinturas | 25756 | Straps         |



No. 15218

## POLE COUNTER OR TALLY REGISTER

|           |       |                  |
|-----------|-------|------------------|
| Montevale | 15218 | Records to 100   |
| Pilobole  | 25718 | Records to 1000  |
| Pilofora  | 25719 | Records to 10000 |

PRICES ON REQUEST

## Tools—Continued

## GAUGES

## Standard Wire Gauge



No. 8625

| Code Word  | List No. |                         |
|------------|----------|-------------------------|
| Pindongueo | 8624     | American, Nos. 0 to 36. |
| Constrain  | 8625     | American, Nos. 5 to 36. |
| Pindust    | 8626     | English, Nos. 1 to 36.  |
| Pinenchyma | 8627     | English, Nos. 6 to 36.  |

## TAPE LINES

Linen tape reinforced with wire; hard leather case.



No. 15205

| Code Word | List No. | Length Feet |
|-----------|----------|-------------|
| Monrovia  | 15205    | 25          |
| Monsin    | 15206    | 50          |
| Pilogyne  | 25720    | 75          |
| Montague  | 15207    | 100         |

## Steel Tape

|           |       |     |
|-----------|-------|-----|
| Pilosisme | 25725 | 25  |
| Pilosorum | 25726 | 50  |
| Pilostyle | 25727 | 75  |
| Pilotage  | 25728 | 100 |

## VULCAN ELECTRIC SOLDERING IRON



No. 52030

Excellent for telephone work. Consumes minimum of energy. Heats quickly. Removable tips, no screws.

| Code Word | List No. |
|-----------|----------|
| Hytology  | 52030    |

## SOLDERING COPPERS

## Pointed



No. 3513

| Code Word  | List No. |                     |
|------------|----------|---------------------|
| Pignattini | 24876    | 1 lb. to the pair.  |
| Pignattone | 24877    | 1½ lb. to the pair. |
| Pignolato  | 24889    | 2 lb. to the pair.  |
| Blustrous  | 3513     | 2½ lb. to the pair. |

## RITTER SOLDERING COPPER



No. 4532

This soldering copper is designed to be attached to any gasoline blow torch. This is an exceedingly convenient soldering iron for linemen, inside wiremen, or for shop use. The temperature of the copper is maintained constant when the torch is in operation.

| Code Word | List No. |
|-----------|----------|
| Feral     | 4532     |

## EXCELSIOR SOLDERING COPPERS



No. 4711

| Code Word  | List No. |                                    |
|------------|----------|------------------------------------|
| Fiberd     | 4711     | For joints on No. 12, 14, 16 wire. |
| Fibratio   | 4712     | For joints on No. 9, 12, 14 wire.  |
| Fibrillous | 4713     | For joints on No. 4, 6, 8 wire.    |

PRICES ON REQUEST





No. 3338

|            |          |
|------------|----------|
| Code Word  | List No. |
| Solemnnees | 24459    |

## Tools—Continued

## ALLEN SOLDERING STICK



No. 3339

|            |      |
|------------|------|
| Concord    | 3340 |
| Concolor   | 3338 |
| Pinillosie | 3339 |

## SOLDER

Resin core solder  
Strictly half and half  
Wire solder



No. 17481

|            |          |
|------------|----------|
| Code Word  | List No. |
| Pinonates  | 17481    |
| Blushfully | 3507     |
| Blushless  | 3509     |

## SOLDER POTS

Diameter  
inches

5  
6  
8



No. 2550

|          |      |
|----------|------|
| Carabine | 2550 |
| Caravan  | 2551 |
| Cardine  | 2552 |
| Careen   | 2553 |

## SOLDER LADLES

2½  
3  
4  
5



No. 5148

|           |          |
|-----------|----------|
| Code Word | List No. |
| Arbitrate | 3205     |

## VICTOR SOLDERING SALTS

Package  
In ½ lb. bottles  
In 1 lb. bottles  
In 5 lb. bottles

## BURNLEY SOLDERING PASTE

|           |       |                |
|-----------|-------|----------------|
| Pipitanas | 25799 | In 2 oz. boxes |
| Plangence | 26021 | In 4 oz. boxes |

## HIGHLAND SOLDERING PASTE

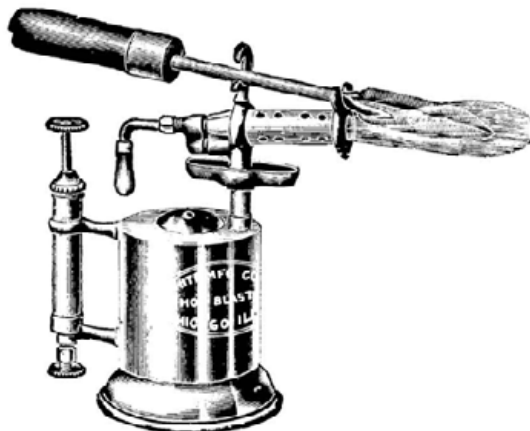
|           |       |                            |
|-----------|-------|----------------------------|
| Ferant    | 4534  | In boxes containing 2 ozs. |
| Planetule | 26019 | In boxes containing 1 lb.  |
| Plangebat | 26020 | In boxes containing 5 lbs. |

## THE COMBINATION "HOT BLAST" BLOW TORCH

|           |          |
|-----------|----------|
| Code Word | List No. |
| Simply    | 23118    |

## GASOLINE BLOW TORCH

|            |      |
|------------|------|
| Pinnipedes | 5148 |
|------------|------|



No. 23118

PRICES ON REQUEST

## Tools—Continued



No. 15220

Code Word      List No.  
**Montevideo**      **15220**

**FURNACES**

Combination hot blast furnace holds one gallon of oil.

**COMBINATION SOLDERING TORCH**

For Alcohol

Code Word      List No.  
**Montcell**      **15225**

This torch can be carried in the pocket or tool bag. The handle contains a vial for acid, doing away with carrying an extra acid bottle. The blow pipe is adjustable and the wick large. It is made entirely of brass and highly polished.



No. 94060

Code Word      List No.  
**Mezereum**      **94060**

No. 1 Soldering Furnace (American Meter Co.)



No. 94061

**Mezinheira**      **94061**

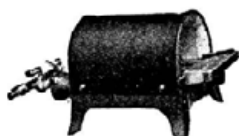
No. 2 Hercules Furnace

**Meziriac**      **94062**

No. 2 Fire King Furnace

**Mezzabout**      **94063**

No. 3 Superior Furnace

**SOLDERING IRON FURNACES**

No. 94062

Code Word      List No.  
**Grafton**      **11950**

Length inches

$\frac{3}{8}$

**Grayson**      **11951**

$\frac{1}{2}$

**Ossiculo**      **11952**

$\frac{5}{8}$

**DOUBLE-POINTED TACKS**

No. 94063

**BLAKE INSULATED STAPLES**

For use on all low voltage circuits of interior wiring, such as telephone work.

These are a standard, square shouldered staple having good driving qualities the upper part of which is so protected by a sheet fibre insulation as to prevent the covering on the wire coming in contact with the metal of the staple.



Code Word      List No.  
**Placammo**      **18879**  
**Mevrouwen**      **94052**  
**Hyetograph**      **52029**  
**Mevrouwjtje**      **94053**

Length inches

$\frac{1}{2}$

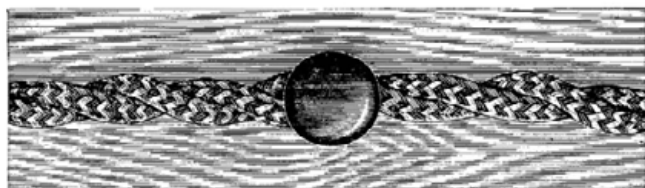
$\frac{5}{8}$

$\frac{3}{4}$

$\frac{7}{8}$

PRICES ON REQUEST

## MILONITE NAILS



No. 22

No. 20

No. 18

No. 15

Used in installing twisted pair wires. The head is of insulating material and the shank is covered with an insulating paint. The heads are made in four sizes as shown full size herewith and may be obtained in gray, dark green and dark brown.



No. 94055



No. 15150

Code Word  
**Mexericada**  
**Mexerufada**  
**Beamlet**  
**Beamtree**  
**Pigorada**  
**Beancaper**  
**Beancod**  
**Beanfed**  
**Creased**  
**Escatimado**

List No.  
**94054** Amazon, black  
**94055** Victor, black  
**3638** Grimshaw, black  
**3639** Grimshaw, white  
**24891** Competition  
**3642** Okonite  
**3643** Manson, black  
**3644** Manson, white  
**8746** Kerite, black  
**7943** P. & B.

## TAPE

## ELECTRICIAN'S SCISSORS

Code Word  
**Mingo**

List No.  
**15150** Nickel plated.

## WEBBING

For wrapping multiple cables in switchboards.

Code Word  
**Mezclarian**  
**Mezeillade**

List No.  
**94057** Cotton, 1½ in. wide, slate.  
**94058** Cotton, 1½ in. wide, black.

## TWINE

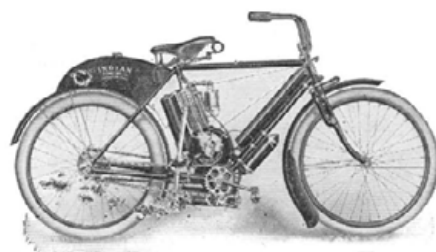
For sewing switchboard cables in runs.

Code Word  
**Mezereine**

List No.  
**94059** 12 strand linen.

## INDIAN MOTOR CYCLE

These are offered in following styles with attachments:  
 Single cylinder 2½ horsepower  
 Double cylinder, 4 horsepower  
 Tandem attachment  
 Luggage carrier attachment (capacity 50 pounds)



Indian Motor Cycle



Tandem Attachment

PRICES ON REQUEST



## DIFFERENCE BETWEEN WIRE GAUGES IN DECIMAL PARTS OF AN INCH

| No. of Wire Gauge | American or Brown & Sharpe | Birmingham or Stubs | Washburn & Moen Mfg. Co., Worcester, Mass. | Trenton Iron Co., Trenton, N. J. | New British | Old English from Brass Mfrs. List | No. of Wire |
|-------------------|----------------------------|---------------------|--|----------------------------------|-------------|-----------------------------------|-------------|
| 000000            | .....                      | ....                | .46  | .....                            | .....       | .....                             | 000000      |
| 00000             | .....                      | ....                | .43  | .45                              | .....       | .....                             | 00000       |
| 0000              | .46                        | .454                | .393                                       | .4                               | .4          | .....                             | 0000        |
| 000               | .40964                     | .425                | .362                                       | .36                              | .372        | .....                             | 000         |
| 00                | .3648                      | .38                 | .331                                       | .33                              | .348        | .....                             | 00          |
| 0                 | .32495                     | .34                 | .307                                       | .305                             | .324        | .....                             | 0           |
| 1                 | .2893                      | .3                  | .283                                       | .285                             | .3          | .....                             | 1           |
| 2                 | .25763                     | .284                | .263                                       | .265                             | .276        | .....                             | 2           |
| 3                 | .22942                     | .259                | .244                                       | .245                             | .252        | .....                             | 3           |
| 4                 | .20431                     | .238                | .225                                       | .225                             | .232        | .....                             | 4           |
| 5                 | .18194                     | .22                 | .207                                       | .205                             | .212        | .....                             | 5           |
| 6                 | .16202                     | .203                | .192                                       | .19                              | .192        | .....                             | 6           |
| 7                 | .14428                     | .18                 | .177                                       | .175                             | .176        | .....                             | 7           |
| 8                 | .12849                     | .165                | .162                                       | .16                              | .16         | .....                             | 8           |
| 9                 | .11443                     | .148                | .148                                       | .145                             | .144        | .....                             | 9           |
| 10                | .10189                     | .134                | .135                                       | .13                              | .128        | .....                             | 10          |
| 11                | .090742                    | .12                 | .12  | .1175                            | .116        | .....                             | 11          |
| 12                | .080808                    | .109                | .105                                       | .105                             | .104        | .....                             | 12          |
| 13                | .071961                    | .095                | .092                                       | .0925                            | .092        | .....                             | 13          |
| 14                | .064084                    | .083                | .08  | .08                              | .08         | .083                              | 14          |
| 15                | .057068                    | .072                | .072                                       | .07                              | .072        | .072                              | 15          |
| 16                | .05082                     | .065                | .063                                       | .061                             | .064        | .065                              | 16          |
| 17                | .045257                    | .058                | .054                                       | .0525                            | .056        | .058                              | 17          |
| 18                | .040303                    | .049                | .047                                       | .045                             | .048        | .049                              | 18          |
| 19                | .03589                     | .042                | .041                                       | .039                             | .04         | .04                               | 19          |
| 20                | .031961                    | .035                | .035                                       | .034                             | .036        | .035                              | 20          |
| 21                | .028462                    | .032                | .032                                       | .03                              | .032        | .0315                             | 21          |
| 22                | .025347                    | .028                | .028                                       | .027                             | .028        | .0295                             | 22          |
| 23                | .022574                    | .025                | .025                                       | .024                             | .024        | .027                              | 23          |
| 24                | .0201                      | .022                | .023                                       | .0215                            | .022        | .025                              | 24          |
| 25                | .0179                      | .02                 | .02  | .019                             | .02         | .023                              | 25          |
| 26                | .01594                     | .018                | .018                                       | .018                             | .018        | .0205                             | 26          |
| 27                | .014195                    | .016                | .017                                       | .017                             | .0164       | .01875                            | 27          |
| 28                | .012641                    | .014                | .016                                       | .016                             | .0148       | .0165                             | 28          |
| 29                | .011257                    | .013                | .015                                       | .015                             | .0136       | .0155                             | 29          |
| 30                | .010025                    | .012                | .014                                       | .014                             | .0124       | .01375                            | 30          |
| 31                | .008928                    | .01                 | .0135                                      | .013                             | .0116       | .01225                            | 31          |
| 32                | .00795                     | .009                | .013                                       | .012                             | .0108       | .01125                            | 32          |
| 33                | .00708                     | .008                | .011                                       | .011                             | .01         | .01025                            | 33          |
| 34                | .006304                    | .007                | .01  | .01                              | .0092       | .0095                             | 34          |
| 35                | .005614                    | .005                | .0095                                      | .009                             | .0084       | .009                              | 35          |
| 36                | .005                       | .004                | .009                                       | .008                             | .0076       | .0075                             | 36          |
| 37                | .004453                    | ....                | .0085                                      | .00725                           | .0068       | .0065                             | 37          |
| 38                | .003965                    | ....                | .008                                       | .0065                            | .006        | .00575                            | 38          |
| 39                | .003531                    | ....                | .0075                                      | .00575                           | .0052       | .005                              | 39          |
| 40                | .003144                    | ....                | .007                                       | .005                             | .0048       | .0045                             | 40          |

## EQUIVALENTS OF WIRES

## Brown &amp; Sharpe Gauge

|      |          |          |          |           |           |           |
|------|----------|----------|----------|-----------|-----------|-----------|
| 0000 | 2 No. 0  | 4 No. 3  | 8 No. 6  | 16 No. 9  | 32 No. 12 | 64 No. 15 |
| 000  | 2 No. 1  | 4 No. 4  | 8 No. 7  | 16 No. 10 | 32 No. 13 | 64 No. 16 |
| 00   | 2 No. 2  | 4 No. 5  | 8 No. 8  | 16 No. 11 | 32 No. 14 | 64 No. 17 |
| 0    | 2 No. 3  | 4 No. 6  | 8 No. 9  | 16 No. 12 | 32 No. 15 | 64 No. 18 |
| 1    | 2 No. 4  | 4 No. 7  | 8 No. 10 | 16 No. 13 | 32 No. 16 | 64 No. 19 |
| 2    | 2 No. 5  | 4 No. 8  | 8 No. 11 | 16 No. 14 | 32 No. 17 | 64 No. 20 |
| 3    | 2 No. 6  | 4 No. 9  | 8 No. 12 | 16 No. 15 | 32 No. 18 | 64 No. 21 |
| 4    | 2 No. 7  | 4 No. 10 | 8 No. 13 | 16 No. 16 | 32 No. 19 | 64 No. 22 |
| 5    | 2 No. 8  | 4 No. 11 | 8 No. 14 | 16 No. 17 | 32 No. 20 | 64 No. 23 |
| 6    | 2 No. 9  | 4 No. 12 | 8 No. 15 | 16 No. 18 | 32 No. 21 | 64 No. 24 |
| 7    | 2 No. 10 | 4 No. 13 | 8 No. 16 | 16 No. 19 | 32 No. 22 | 64 No. 25 |
| 8    | 2 No. 11 | 4 No. 14 | 8 No. 17 | 16 No. 20 | 32 No. 23 | 64 No. 26 |
| 9    | 2 No. 12 | 4 No. 15 | 8 No. 18 | 16 No. 21 | 32 No. 24 | 64 No. 27 |
| 10   | 2 No. 13 | 4 No. 16 | 8 No. 19 | 16 No. 22 | 32 No. 25 | 64 No. 28 |
| 11   | 2 No. 14 | 4 No. 17 | 8 No. 20 | 16 No. 23 | 32 No. 26 | 64 No. 29 |
| 12   | 2 No. 15 | 4 No. 18 | 8 No. 21 | 16 No. 24 | 32 No. 27 | 64 No. 30 |
| 13   | 2 No. 16 | 4 No. 19 | 8 No. 22 | 16 No. 25 | 32 No. 28 |           |
| 14   | 2 No. 17 | 4 No. 20 | 8 No. 23 | 16 No. 26 | 32 No. 29 |           |
| 15   | 2 No. 18 | 4 No. 21 | 8 No. 24 | 16 No. 27 | 32 No. 30 |           |
| 16   | 2 No. 19 | 4 No. 22 | 8 No. 25 | 16 No. 28 |           |           |
| 17   | 2 No. 20 | 4 No. 23 | 8 No. 26 | 16 No. 29 |           |           |
| 18   | 2 No. 21 | 4 No. 24 | 8 No. 27 | 16 No. 30 |           |           |
| 19   | 2 No. 22 | 4 No. 25 | 8 No. 28 |           |           |           |
| 20   | 2 No. 23 | 4 No. 26 | 8 No. 29 |           |           |           |
| 21   | 2 No. 24 | 4 No. 27 | 8 No. 30 |           |           |           |

## BARE COPPER WIRE

| Am.<br>Gauge<br>B. & S.<br>No. | Diam.<br>mils. | Area   |  | Weight and Lg'th Sp. Gr. 8.9 |                    |                   | Resistance at 75° F         |                  |                 |                   |
|--------------------------------|----------------|--|--|------------------------------|--------------------|-------------------|-----------------------------|------------------|-----------------|-------------------|
|                                |                | Circular<br>Mils. (d <sup>2</sup> )<br>1 mil.<br>.001 inch | Square in.<br>(D <sup>2</sup> x .7854) | Lbs. per<br>1000 ft.         | Pounds<br>per mile | Feet per<br>pound | R. Ohms<br>per 1000<br>feet | Ohms per<br>mile | Feet per<br>ohm | Ohms<br>per pound |
| 0000                           | 460.000        | 211600.00  | 166190.                                | 639.33                       | 3375.7             | 1.56              | .04906                      | .25903           | 20383.          | .000076736        |
| 000                            | 409.640        | 167805.00  | 131790.                                | 507.01                       | 2677.0             | 1.97              | .06186                      | .32664           | 16165.          | .00012039         |
| 00                             | 361.800        | 133079.40  | 104520.                                | 402.09                       | 2123.0             | 2.49              | .07801                      | .41187           | 12820.          | .00019423         |
| 0                              | 324.950        | 105592.50  | 82932.                                 | 319.04                       | 1684.5             | 3.13              | .09831                      | .51909           | 10409.          | .00030772         |
| 1                              | 289.300        | 83691.20   | 65733.                                 | 252.88                       | 1335.2             | 3.95              | .12404                      | .65490           | 8062.3          | .00048994         |
| 2                              | 257.680        | 66373.00   | 52130.                                 | 200.54                       | 1058.8             | 4.99              | .15640                      | .82582           | 6393.7          | .00078045         |
| 3                              | 229.420        | 52634.00   | 41399.                                 | 159.03                       | 839.68             | 6.29              | .19723                      | 1.0414           | 5070.2          | .0012406          |
| 4                              | 204.310        | 41742.00   | 32784.                                 | 126.12                       | 665.91             | 7.93              | .24869                      | 1.3131           | 4021.0          | .0019721          |
| 5                              | 181.940        | 33102.00   | 25998.                                 | 100.01                       | 528.05             | 10.00             | .31361                      | 1.6558           | 3188.7          | .0031361          |
| 6                              | 162.020        | 26250.50   | 20617.                                 | 79.32                        | 418.81             | 12.61             | .39546                      | 2.0881           | 2528.7          | .0049868          |
| 7                              | 144.280        | 20816.00   | 16349.                                 | 62.90                        | 332.11             | 15.90             | .49871                      | 2.6331           | 2005.2          | .0079294          |
| 8                              | 128.490        | 16509.00   | 12966.                                 | 49.88                        | 263.37             | 20.05             | .62881                      | 3.3201           | 1590.3          | .012608           |
| 9                              | 114.430        | 13094.00   | 10284.                                 | 39.56                        | 208.88             | 25.28             | .79281                      | 4.1860           | 1261.3          | .020042           |
| 10                             | 101.890        | 10381.00   | 8153.2                                 | 31.37                        | 165.63             | 31.38             | 1.                          | 5.2800           | 1000.0          | .031380           |
| 11                             | 90.742         | 8234.00  | 6467.0                                 | 24.88                        | 137.37             | 40.20             | 1.2607                      | 6.6568           | 793.18          | .050682           |
| 12                             | 80.808         | 6529.90  | 5128.6                                 | 19.73                        | 104.18             | 50.69             | 1.5898                      | 8.3940           | 629.02          | .080585           |
| 13                             | 71.961         | 5178.38  | 4067.0                                 | 15.68                        | 82.792             | 63.78             | 2.0037                      | 10.5798          | 499.06          | .127788           |
| 14                             | 64.084         | 4106.76  | 3225.4                                 | 12.44                        | 65.658             | 80.42             | 2.5266                      | 13.3405          | 375.79          | .203180           |
| 15                             | 57.068         | 3256.76  | 2557.8                                 | 9.86                         | 52.069             | 101.40            | 3.1860                      | 16.8223          | 313.87          | .323079           |
| 16                             | 50.820         | 2582.67  | 2028.4                                 | 7.82                         | 41.292             | 127.87            | 4.0176                      | 21.2130          | 248.90          | .513737           |
| 17                             | 45.257         | 2048.20  | 1608.6                                 | 6.20                         | 32.746             | 161.24            | 5.0660                      | 26.7485          | 197.39          | .816839           |
| 18                             | 40.303         | 1624.33  | 1275.7                                 | 4.92                         | 25.970             | 203.31            | 6.3880                      | 33.7285          | 156.54          | 1.298764          |
| 19                             | 35.890         | 1288.09  | 1011.6                                 | 3.90                         | 20.594             | 256.39            | 8.0555                      | 42.5329          | 124.14          | 2.065312          |
| 20                             | 31.961         | 1021.44  | 802.2                                  | 3.09                         | 16.331             | 323.32            | 10.1584                     | 53.6362          | 98.44           | 3.284374          |
| 21                             | 28.462         | 810.09   | 636.2                                  | 2.45                         | 12.952             | 407.67            | 12.8088                     | 67.6302          | 78.07           | 5.221775          |
| 22                             | 25.347         | 642.47   | 504.6                                  | 1.95                         | 10.272             | 514.03            | 16.1504                     | 85.2343          | 61.92           | 8.301819          |
| 23                             | 22.571         | 509.45   | 400.1                                  | 1.54                         | 8.1450             | 648.25            | 20.3674                     | 107.540          | 49.10           | 13.20312          |
| 24                             | 20.100         | 404.01   | 317.3                                  | 1.22                         | 6.4593             | 817.43            | 25.6830                     | 135.606          | 38.94           | 20.99405          |
| 25                             | 17.900         | 320.41   | 251.6                                  | .97                          | 5.1227             | 1030.71           | 32.3833                     | 170.984          | 30.88           | 33.37780          |
| 26                             | 15.940         | 254.08   | 199.5                                  | .77                          | 4.0623             | 1299.77           | 40.8377                     | 215.623          | 24.49           | 53.07946          |

PRICES ON REQUEST

## THE METRIC SYSTEM

Metric Denominations and  
Values

Equivalents in Denomina-  
tions in use

### WEIGHTS

| Name               | No. Grams   | Weight of what quantity<br>of water at max. density |
|--------------------|-------------|---|
| Millier or tonneau | = 1,000,000 | = 1 cubic meter.                                    |
| Quintal            | = 100,000   | = 1 hectoliter.                                     |
| Myriagram          | = 10,000    | = 10 liters.  |
| Kilogram or Kilo   | = 1,000     | = 1 liter.  |
| Hectogram          | = 100       | = 1 deciliter.                                      |
| Dekagram           | = 10        | = 10 cubic centimeters.                             |
| Gram               | = 1         | = 1 cubic centimeter.                               |
| Decigram           | = .1        | = .1 cubic centimeter.                              |
| Centigram          | = .01       | = 10 cubic millimeters.                             |
| Milligram          | = .001      | = 1 cubic millimeter.                               |

| Name               | No. Grams   | Avoirdupois Weight |
|--------------------|-------------|--------------------|
| Millier or tonneau | = 1,000,000 | = 2,204.6 pounds.  |
| Quintal            | = 100,000   | = 220.46 pounds.   |
| Myriagram          | = 10,000    | = 22.046 pounds.   |
| Kilogram or Kilo   | = 1,000     | = 2.2046 pounds.   |
| Hectogram          | = 100       | = 3.5274 ounces.   |
| Dekagram           | = 10        | = 0.3527 ounce.    |
| Gram               | = 1         | = 15.432 grains.   |
| Decigram           | = .1        | = 1.5432 grains.   |
| Centigram          | = .01       | = 0.1543 grain.    |
| Milligram          | = .001      | = 0.0154 grain.    |

### MEASURES OF LENGTH

|            |                 |                                     |
|------------|-----------------|-------------------------------------|
| Myriameter | = 10,000 meters | = 6.2137 miles.                     |
| Kilometer  | = 1,000 meters  | = 0.62137 m. or 3,280 ft.<br>10 in. |
| Hectometer | = 100 meters    | = 328. feet and 1 inch.             |
| Dekameter  | = 10 meters     | = 393.7 inches.                     |
| Meter      | = 1 meter       | = 39.37 inches.                     |
| Decimeter  | = .1 meter      | = 3.937 inches.                     |
| Centimeter | = .01 meter     | = 0.3937 inch.                      |
| Millimeter | = .001 meter    | = 0.0394 inch.                      |

### MEASURES OF SURFACE

|         |                        |                        |
|---------|------------------------|------------------------|
| Hectare | = 10,000 square meters | = 2.471 acres.         |
| Arc     | = 100 square meters    | = 119.6 square yards.  |
| Centare | = 1 square meter       | = 1.550 square inches. |

### MEASURES OF CAPACITY

| Name       | No. Liters | Cubic Measure    | Dry Measure          |
|------------|------------|------------------|----------------------|
| Kiloliter  | = 1,000    | = 1 cu. meter    | = 1.308 cubic yards. |
| Hectoliter | = 100      | = .1 cu. meter   | = 2 bush. 3.35 pks.  |
| Decaliter  | = 10       | = 10 c. decimet. | = 9.08 quarts.       |
| Liter      | = 1        | = 1 c. decimet.  | = 0.908 quart.       |
| Deciliter  | = .1       | = .1 c. decimet. | = 6.1022 cubic in.   |
| Centiliter | = .01      | = 10 c. centim.  | = 0.6102 cubic in.   |
| Milliliter | = .001     | = 1 c. centim.   | = 0.061 cubic in.    |

| Name       | No. Liters | Cubic Measure      | Wine Measure      |
|------------|------------|--------------------|-------------------|
| Kiloliter  | = 1,000    | = 1 cubic meter    | = 264.17 galls.   |
| Hectoliter | = 100      | = .1 cubic meter   | = 26.417 galls.   |
| Decaliter  | = 10       | = 10 c. decimeters | = 2.6417 galls.   |
| Liter      | = 1        | = 1 c. decimeter   | = 1.0567 qts.     |
| Deciliter  | = .1       | = .1 c. decimeter  | = 0.845 gill.     |
| Centiliter | = .01      | = 10 c. centimeter | = 0.388 fluid oz. |
| Milliliter | = .001     | = 1 c. centimeter  | = 0.27 fluid oz.  |

PRICES ON REQUEST

## TABLE of DECIMAL EQUIVALENTS

of 8ths, 16ths, 32ds and 64ths  
of an Inch

FOR USE IN CONNECTION WITH  
THE MICROMETER CALIPERS

| 8ths.                    | 64ths.                    |
|--------------------------|---------------------------|
| $\frac{1}{8} = .125$     | $\frac{1}{64} = .015625$  |
| $\frac{1}{4} = .250$     | $\frac{3}{64} = .046875$  |
| $\frac{3}{8} = .375$     | $\frac{5}{64} = .078125$  |
| $\frac{1}{2} = .500$     | $\frac{7}{64} = .109375$  |
| $\frac{5}{8} = .625$     | $\frac{9}{64} = .140625$  |
| $\frac{3}{4} = .750$     | $\frac{11}{64} = .171875$ |
| $\frac{7}{8} = .875$     | $\frac{13}{64} = .203125$ |
| 16ths.                   |                           |
| $\frac{1}{16} = .0625$   | $\frac{17}{64} = .265625$ |
| $\frac{3}{16} = .1875$   | $\frac{19}{64} = .296875$ |
| $\frac{5}{16} = .3125$   | $\frac{21}{64} = .328125$ |
| $\frac{7}{16} = .4375$   | $\frac{23}{64} = .359375$ |
| $\frac{9}{16} = .5625$   | $\frac{25}{64} = .390625$ |
| $\frac{11}{16} = .6875$  | $\frac{27}{64} = .421875$ |
| $\frac{13}{16} = .8125$  | $\frac{29}{64} = .453125$ |
| $\frac{15}{16} = .9375$  | $\frac{31}{64} = .484375$ |
| 32ds.                    |                           |
| $\frac{1}{32} = .03125$  | $\frac{33}{64} = .515625$ |
| $\frac{3}{32} = .09375$  | $\frac{35}{64} = .546875$ |
| $\frac{5}{32} = .15625$  | $\frac{37}{64} = .578125$ |
| $\frac{7}{32} = .21875$  | $\frac{39}{64} = .609375$ |
| $\frac{9}{32} = .28125$  | $\frac{41}{64} = .640625$ |
| $\frac{11}{32} = .34375$ | $\frac{43}{64} = .671875$ |
| $\frac{13}{32} = .40625$ | $\frac{45}{64} = .703125$ |
| $\frac{15}{32} = .46875$ | $\frac{47}{64} = .734375$ |
| $\frac{17}{32} = .53125$ | $\frac{49}{64} = .765625$ |
| $\frac{19}{32} = .59375$ | $\frac{51}{64} = .796875$ |
| $\frac{21}{32} = .65625$ | $\frac{53}{64} = .828125$ |
| $\frac{23}{32} = .71875$ | $\frac{55}{64} = .859375$ |
| $\frac{25}{32} = .78125$ | $\frac{57}{64} = .890625$ |
| $\frac{27}{32} = .84375$ | $\frac{59}{64} = .921875$ |
| $\frac{29}{32} = .90625$ | $\frac{61}{64} = .953125$ |
| $\frac{31}{32} = .96875$ | $\frac{63}{64} = .984375$ |



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