

Illustrated Catalogue  
E

Couch and  
Seeley  
©

MFR'S. OF  
SWITCHBOARDS. TELEPHONES AND  
TELEPHONE APPLIANCES.

26-28  
Binford St.  
Boston.  
Mass.



BUSINESS ESTABLISHED 1893.

INCORPORATED 1899.

# COUCH & SEELEY COMPANY

BOSTON, MASS.

MANUFACTURERS OF

## Telephones, Switchboards

AND TELEPHONE ACCESSORIES

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*Buy Apparatus from Responsible Manufacturers*

### OUR APPARATUS

Is in use in over One Thousand Independent Exchanges,  
Private Plants, Government Buildings, Railroad Companies  
and Industrial Establishments.

*WE SELL OUR INSTRUMENTS OUTRIGHT*



## Terms.

F.O.B. Boston, invariably { ...Care is taken in packing, and receipts are obtained for goods in "good condition." Our responsibility ceases here, and *we will not hold ourselves liable for breakage or loss in transit.*

ALL CLAIMS on account of shortage must be made within ten days after receipt of goods, or they will not be allowed.

GOODS WHEN RETURNED FOR CREDIT WITHOUT OUR CONSENT will be held subject to the shipper's orders, but will not be credited under any circumstances.

BOXING in all cases is charged at cost.

IN ORDERING, always give Catalogue Numbers to avoid errors, and state whether goods are to be shipped by freight or express, and by what line.

ACCOUNTS.—We will be pleased to open accounts on a thirty-day basis with concerns of good financial standing. In order to avoid delay, parties unknown to us should send references or remittance with order.

ORDERS FOR GOODS TO BE SENT C. O. D. should be accompanied by remittance sufficient to pay transportation charges both ways.

PRICES AND DISCOUNTS subject to change without notice.

ALL FORMER PRICES AND CATALOGUE NUMBERS are hereby cancelled.

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## NOTICE.

*The prices on Telephones do not include Batteries, and Batteries will not be shipped unless specially ordered.*



## Announcement.

IN the presentation of this Catalogue it is not only our pleasure but a duty as well, to acknowledge our appreciation of the large share of business with which we have been favored, both by the Independent Telephone Exchanges and the Electrical Trade. We are cognizant of the fact that our interests have many times been greatly advanced by the "good word" spoken by those who are users of our equipment, and especially is this recognition appreciated because conferred by Exchange Managers and Experts who know whereof they speak, and who are recognized as authorities in telephone matters.

Our development from the beginning back in 1893, when three employees constituted the entire force, to the present complete plant involving 25,000 feet of floor space, with upwards of one hundred employees, has been progressive, aggressive, and yet conservative. Our aim has been, is, and in the future will be, to produce the highest grade telephone equipment on the market, both in Telephone Instruments, Switchboards, and miscellaneous telephone appliances. We do not need to expatiate upon the merits of our own equipment, nor to detract from whatever is meritorious in that of our competitors. Our record is known. Our responsibility is established. Our facilities are unsurpassed.

Our abilities, scientific knowledge, experience and facilities are all at your disposal. We guarantee you courteous treatment, and believe business relations with us can result only to our mutual advantage.



## No. 50. Coal Grain Microphone.

*The Most Perfect Transmitter Ever Produced.*

ON opposite page we show cuts of our Microphone with fitting for attaching to Blake Box, Magneto Bell or other similar mounting; also Long Distance Adjustable Arm and Microphone as used on Standard Types of Exchange Instruments.

In this Microphone are involved principles original with ourselves, which, in combination with recognized essential theories, have enabled the production of an article superior in every point of efficiency and durability. It is of the solid back type with carbon block of special form to prevent packing, both the carbon block and carbon granules being of highest grade obtainable. Every part is as accurately made as the movement of a fine watch, and when once finished and tested, never requires adjustment or attention. The Microphone as a whole is beautiful in design, highly finished in nickel with hard rubber mouthpiece, and will stand the most critical examination from every standpoint.

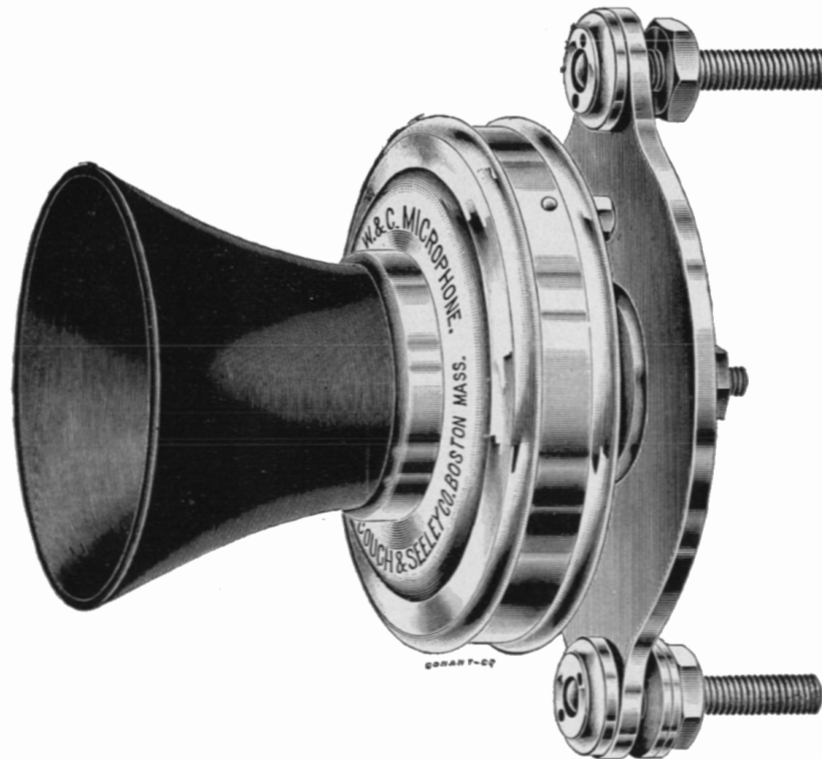
Highest authorities pronounce it scientifically correct in principle, and time — the best of all tests — has demonstrated its permanent efficiency.

*We guarantee every Microphone manufactured by us against deterioration by reason of ordinary wear and tear for a period of five years.*

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SEE THAT OUR NAME IS STAMPED ON EVERY MICROPHONE. IT GUARANTEES SUPERIORITY.
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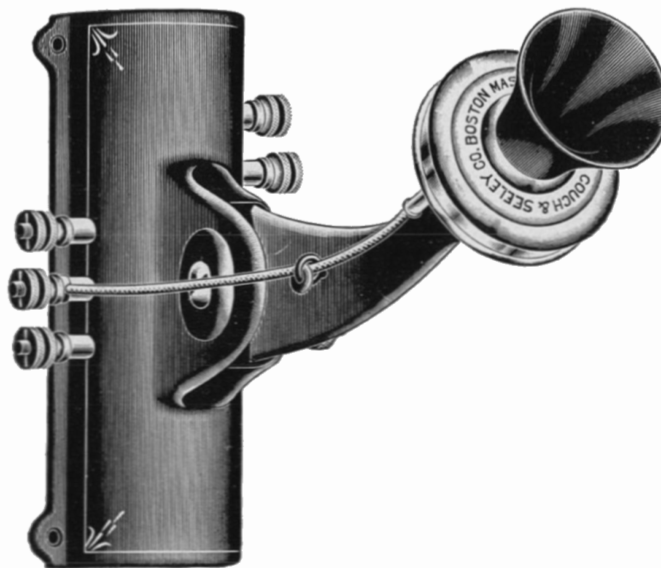




No. 50.

**COAL GRAIN MICROPHONE.**

**Special Mountings for Switchboards, Special Arms or Fittings.**



No. 100.

**ADJUSTABLE ARM AND MICROPHONE.**



## W. & C. Bi-polar Receiver.



*It has many imitators.*

*Our name on the end protects you.*

**W**HEN this Receiver was first produced, we claimed for it absolute superiority in efficiency and detail of construction. The thousands of these Receivers used by the most critical Telephone Exchange Managers throughout the United States and in foreign countries is the best argument for our claims today.

It has stood the test of time and competition, and still stands unequalled in detail of manufacture, efficiency and permanent reliability. Cheaper Receivers may be fairly satisfactory for short lines and interior systems, but it is a question whether at half the cost a cheap Receiver is more economical when durability is considered, and there is nothing superior to be purchased at any price.

Good steel and enough of it.  
All contact surfaces milled.  
Pole-pieces and metal heads rigidly supported.  
Adjustment accurate and permanent.  
Rubber shell of best quality.  
Skilled workmanship throughout.

*Known and acknowledged to be the most perfect Bi-polar Receiver  
made in this or any other country, regardless of cost.*



No. 54.

W. & C. BI-POLAR RECEIVER.



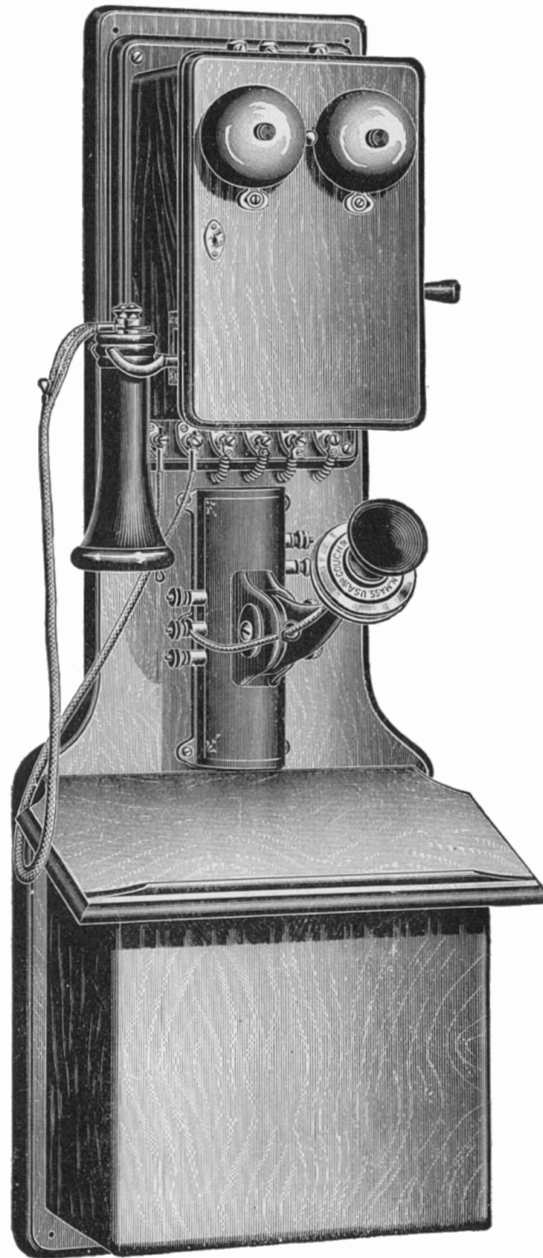
# Telephones.

IT must be apparent to the most casual observer that the time has arrived when every city, village and town is to be placed in telephone connection with every other community, and when telephones are to be not only necessary in business but a convenience in every private house, and furnished at a cost within the reach of everyone. Looking forward, it has seemed to us that the only telephone which we could afford to manufacture or any user could afford to purchase, is an instrument capable of use over long distance lines, equally efficient in both calling, transmitting and receiving. With these facts in mind, in the production of various styles of telephones fitted with Magneto Bells, we use a Magneto of powerful generating capacity, capable of ringing through any resistance liable to be cut in on longest lines, with a Ringer most perfect in design for securing highest electrical and mechanical efficiency, sensitive and durable.

All of our telephones are equipped with long distance Coal Grain Microphone and W. & C. Bi-polar Receiver, illustrated elsewhere in this Catalogue. In the building of telephones we have made merit the first consideration, our policy being to manufacture the highest grade telephone instruments on the market and endeavor to sell them at a price not largely in excess of inferior apparatus, but at the same time making quality first and the price as low as an equally efficient and well-made instrument can be produced.

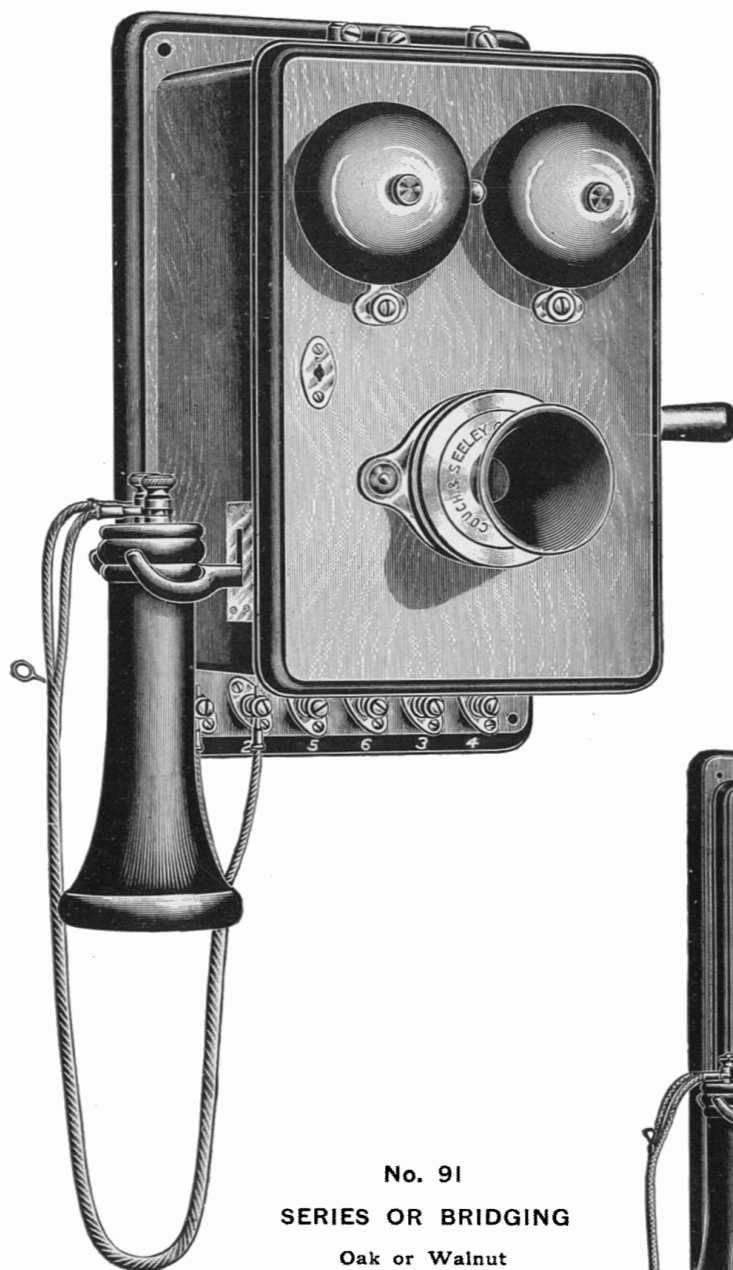
There are no facilities afforded by any manufacturer of telephone apparatus in the United States which are not at our command. Our factory is under the direct supervision of those directly interested in this Company, and no saving of cost can be effected by any competitor; consequently if offered telephone apparatus at a lower price than we ask for ours, it will be worth your while to investigate and compare sample instruments before placing orders. Our equipment will stand taking apart and inspecting in every detail of construction, and we absolutely guarantee our telephone instruments to be the most perfect on the market.

No. 90  
LONG DISTANCE ADJUSTABLE ARM TELEPHONE

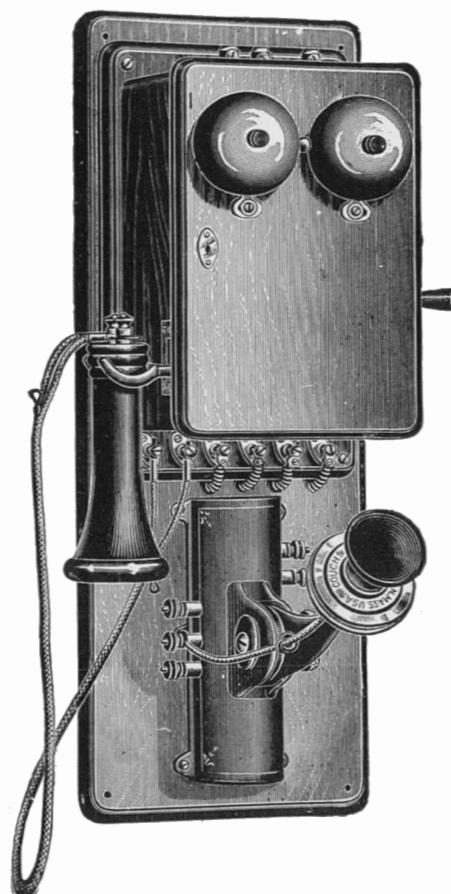


FOR EXCHANGE AND PRIVATE LINE USES  
SERIES OR BRIDGING  
Oak or Walnut

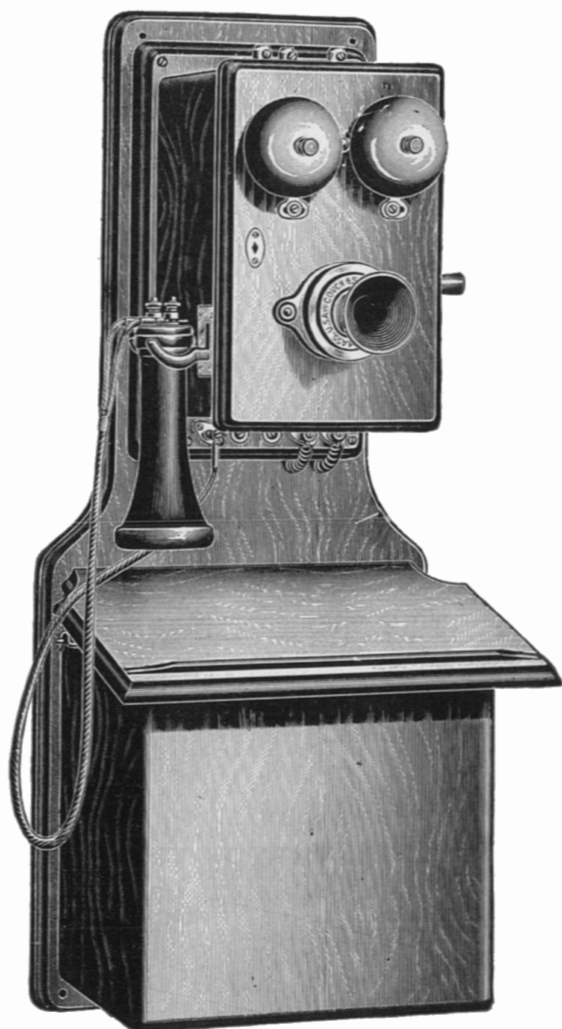




No. 92  
SERIES OR BRIDGING  
Oak or Walnut



No. 91  
SERIES OR BRIDGING  
Oak or Walnut



No. 93  
SERIES OR BRIDGING  
Oak or Walnut



No. 94  
SERIES OR BRIDGING  
Oak or Walnut



## Desk Telephone.

**I**N the production of our desk equipment we have endeavored to secure a type of exceptional beauty in design and finish, combining highest efficiency and durability.

### No. 97. Desk Stand.

The No. 97 Desk Stand is made of cast brass, being highly finished in nickel except the Transmitter Mouthpiece, Switch Block and Receiver, these being hard rubber. The rubber Switch Block connecting the stand and top-piece holding the Microphone is an idea original with us. The contact springs being outside are accessible and easily cleaned, and the possibility of short circuits or disarrangement in any way is practically eliminated in this form of construction. Fitted with standard long distance Coal Grain Microphone and W. & C. Bi-polar Receiver. Induction Coil is placed in base of stand and all connections brought out through a silk-covered connecting cable. Receiver cord is also silk, both being green finish. We furnish with all Desk Stands a connecting block to which this cable is connected, and which admits of disconnecting the Stand at any time without disarrangement of wiring.

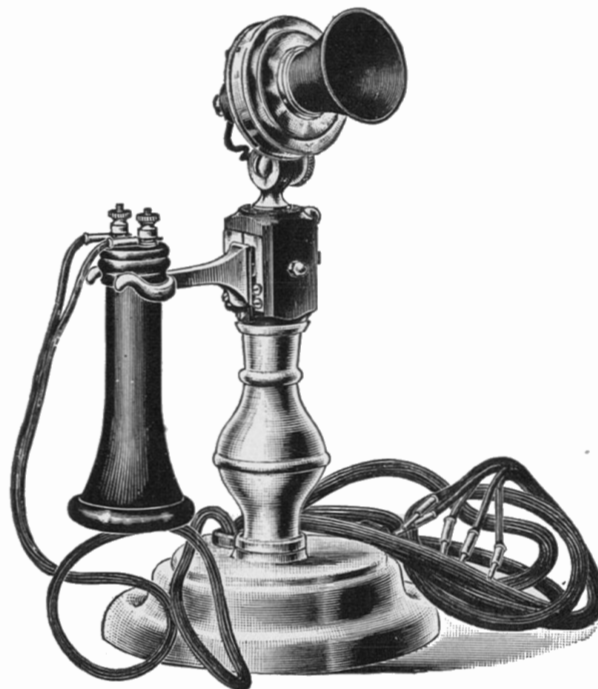
For Battery Call Systems a Buzzer is also placed in base of Stand, together with rubber head Push Button, so that the set is complete without separate connections for signaling.

### No. 96. Swing Arm Set.

The No. 96 Swing Arm Set is also for desk use and is of the same general construction, except that instead of a Stand the connection from the rubber Switch Block is to a Swing Arm which can be made any desired length, but which is usually eighteen inches long. The connections to the base of this Arm are to binding posts. This can be made in any special form to meet individual requirements, and will be found especially convenient in many places. It is made both for Magneto Bell and Battery Call use, being arranged in this particular the same as the No. 97 Desk Set.



No. 96  
SWING ARM DESK SET



No. 97  
DESK SET

Both of these Desk Sets are arranged for either  
Magneto or Battery Call

## C. & S. Hand Micro Telephone.

ON opposite page we show our new Hand Micro Telephone, showing the instrument and its position when in use. When the Receiver is placed to the ear, the mouthpiece of Transmitter is brought into proper position for speaking.

The Hand Micro Telephone is complete in itself so far as talking and receiving is concerned, requiring no automatic hook, and is designed for use either with Magneto Bell or Battery Call. Contacts and connections are enclosed in the handle, which is of hard rubber, the contacts being platinum tipped. The whole instrument is of the highest possible perfection in every detail of construction.

When using the Hand Micro Telephone the small lever shown is naturally pressed, thereby breaking the ringing circuit and closing the circuit through the Transmitter battery, as is done by the ordinary telephone when the Receiver is removed from the hook. When the instrument is laid down, this lever being released breaks the talking circuit and leaves connected the ringing circuit; consequently it can be hung on dummy hook, laid down on a desk, or placed in any position without special attention.

This type of instrument is especially desirable in places where there is vibration which would interfere with the use of an ordinary telephone; also for desk use, Portable Sets, Iron Box Telephones, or places where persons of different heights are to use the instrument. One specially desirable feature is that regardless of the position one occupies when talking, so long as the Receiver is retained at the ear the mouthpiece is always in a proper position for speaking into the Transmitter.

For Battery Call systems a Terminal Box, as shown on page 43, is a very satisfactory combination, this containing the Induction Coil, Push and Buzzer, with binding posts for connecting to cord of the instrument.

For Magneto Bell use, the Induction Coil and binding posts are generally mounted on a wood base.

We specially commend this instrument to your consideration, and guarantee it to be of the highest possible efficiency and most neat in design and finish.





HAND MICRO TELEPHONE IN POSITION FOR USE



No. 55  
HAND MICRO TELEPHONE, WITH MAGNETO  
BELL, FOR DESK USE



No. 98  
HAND MICRO TELEPHONE

## C. & S. Portable Telephone Set. No. 88.

THE Portable Telephone Set illustrated herein is of the most desirable form which experience suggests. The outside dimensions of the complete set are  $12 \times 7\frac{1}{2} \times 7\frac{1}{2}$  inches, making it very compact. The boxes are of oak finish, strongly made, with solid brass finishings.

These Portable Sets can be equipped with special Generators and Ringers if required, but unless specified to the contrary are equipped with heavy 4-bar Generators and 1,000-ohm Ringers.



No. 88.

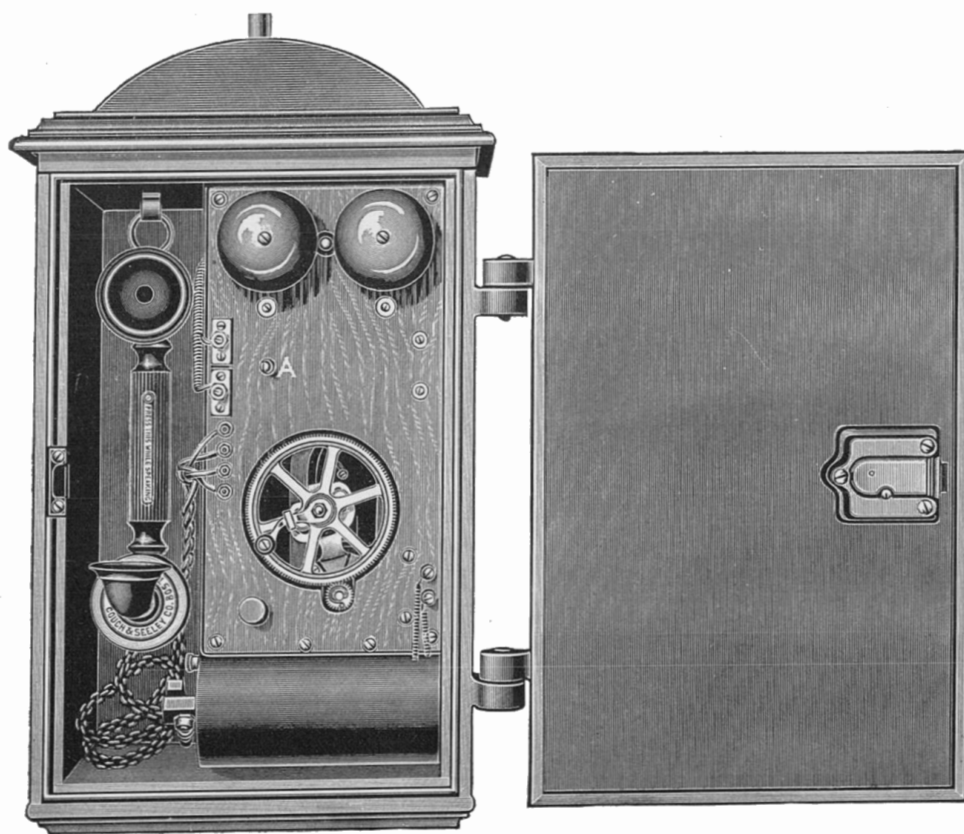
The talking circuit is the standard C. & S. Hand Micro Telephone, battery power being furnished by two cells of Dry Battery enclosed in a separate compartment.

This Portable instrument is capable of adaptation to any special requirements, and is suitable for use by linemen or others desiring a portable set, by street railway companies for carrying on cars, and for all similar purposes.

This type of Portable Set is largely used by the Navy Department and by the Army for use in the field where something of a portable design is necessary.

## Iron Box Telephone. No. 89.

**D**ESIGNED especially for Police Patrol Equipment, Street Railway Service and other places where Telephones are exposed to the weather or are so located as to be liable to damage by persons maliciously inclined. In the design and construction of this Telephone we have made simplicity and durability of first consideration. It is so well made that it must last for many years with the minimum of attention, and is so thoroughly efficient as to entirely eclipse similar equipment heretofore produced.

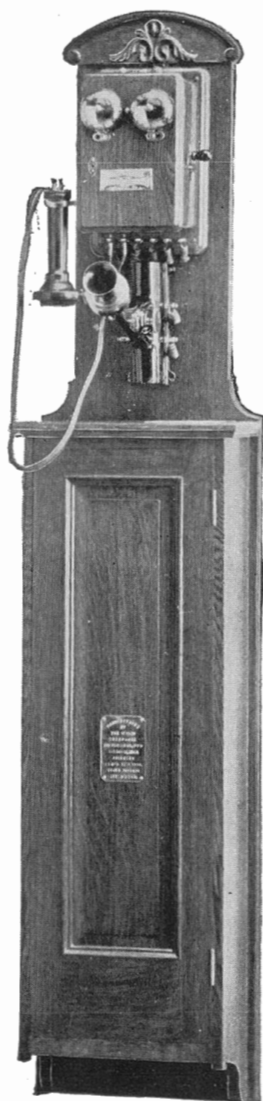


No. 89.

Dimensions: 19 inches high, 12 inches wide, 8 inches deep. Heavy Iron Box, moisture proof and damage proof. Powerful 4-bar Generators and 1000-ohm Ringers unless Ringers of special resistance are ordered. Our Ringer magnets are wound with all copper silk insulated wire.

C. & S. Hand Micro Telephone for talking and receiving. Dispenses with Automatic Hook. Always brings Transmitter into proper position for best results, no matter whether person using it is tall or short. Two cells Dry Battery. Highest grade workmanship throughout.



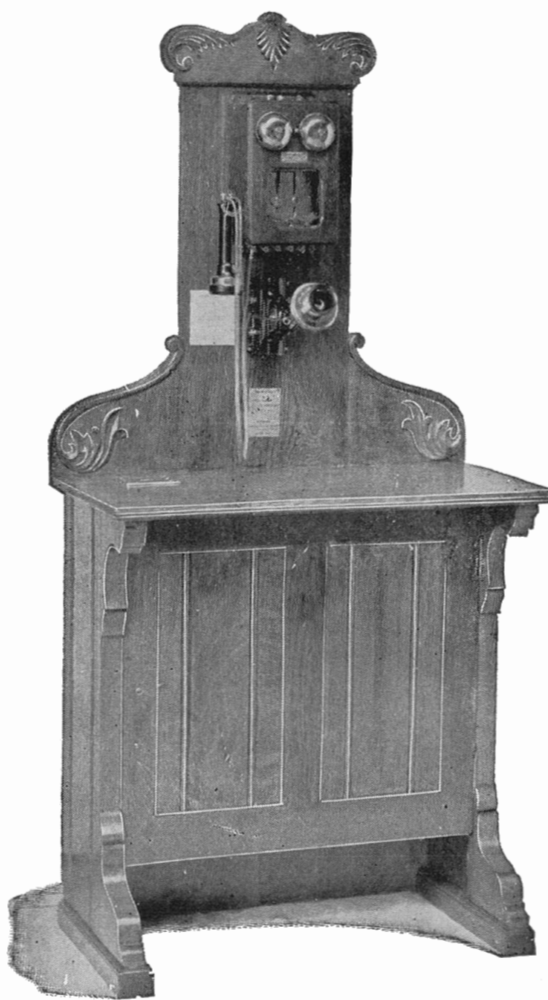


### TELEPHONE PAY STATION No. 56.

THE Telephone Pay Stations Nos. 56 and 57 are manufactured with highly finished quarter sawed oak or dark cherry cabinets, equipped with an iron burglar-proof vault and fitted with our automatic device in any number of slots desired from three to five. The three-slot machines are designed for quarters, dimes and nickels; the four-slot machines for half-dollars, quarters, dimes and nickels, and the five-slot machines for dollars, half-dollars, quarters, dimes and nickels.

### TELEPHONE PAY STATION No. 57.

THIS cut represents our Standard Desk Set, equipped with any number of slots, and built with battery space; is strong and handsomely finished, and most suitable for either our No. 83 or No. 84 booths.



**CABINET DESK SET****No. 58.****Goose-neck Arm Transmitter.****Beveled Glass Front.****Oak or Cherry Finish.**

**T**HE Generator, Induction and Ringer Coils are placed at back of Desk behind a beveled French plate glass, thus being exposed to view, but protected from dust and dirt. The Generator, Bells and minor parts are highly finished in nickel, and present a very beautiful appearance. Receiver hangs at left, as shown.

This style of cabinet can be fitted with Desk Set No. 97 or No. 98 if desired, or with any other special form of mounting Transmitter and Receiver.

All Telephones are fitted with the C. & S. Coal Grain Microphone and the W. & C. Bi-polar Receiver.

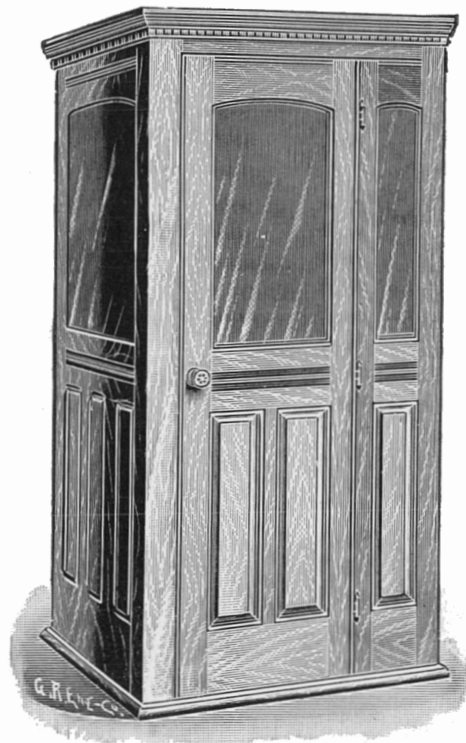
**PORTABLE SOUND-PROOF BOOTH****No. 59.**

**T**HIS Booth is intended for side or corner of room, is easily taken down and put together.

It has glass on one side and front. Suitable for either our Standard Desk Set No. 57 or Nos. 56 and 58 Wall Sets and stool. Built of thoroughly seasoned quarter sawed oak and unsurpassed in workmanship, material and finish, and sound-proof.

**PORTABLE SOUND-PROOF BOOTH****No. 60.**

**P**ORTABLE Sound-proof Booth No. 60 is built with single walls, glass in one side and front, and is somewhat smaller but has practically the same appearance as Booth No. 59. This Booth is not absolutely sound-proof. It is built of thoroughly seasoned quarter sawed oak, and in workmanship, material and finish is unsurpassed in this class of Booth. Outside measurements, 31 x 36 inches.



## Inter-communicating System. Common Return.

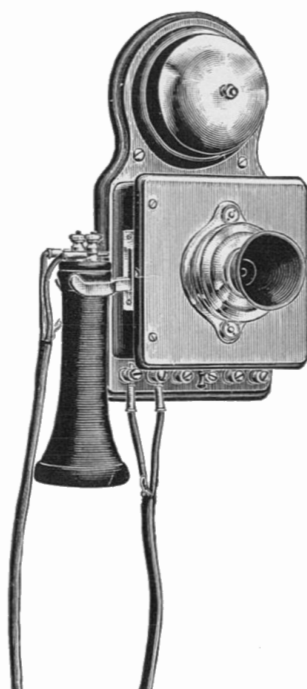
**T**HIS system is arranged for connecting from each telephone to any other telephone by means of a circular switch, as shown in Nos. 22 or 43 on opposite page. The method of signaling is to turn the switch lever on to the number of the point with which connection is desired, and press the button to ring the bell at the other end. When through talking it is not necessary to return the switch lever to the *home point* in order that any other telephone in the system may call this station, as our system of wiring is so arranged that any station can be called regardless of the position of the switch lever. The back of telephone No. 22 is cast metal, leaving an open space about one inch in depth, thereby providing ample room for bringing in and connecting wires to switch points. This will be found to greatly facilitate connecting the instruments.

The system of wiring contemplates running as many wires as there are stations and two additional wires, these being used, one as the common return for the ringing circuit, and the other as the common return for the talking circuit. The most satisfactory method of wiring is generally to run a cable containing the requisite number of wires, touching each station either direct or by branch, although this is of course not necessary except that it is a neat and convenient form of construction.

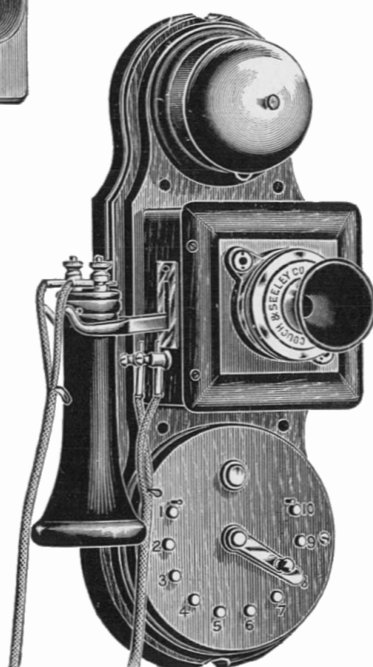
Where lines are too long for use of a Battery Call instrument, as shown in style No. 22, then the same system is secured by use of the No. 43 Magneto Call Telephone. Any of the styles of Desk Sets are used in connection with the Circular Switch No. 46, shown on opposite page. As the Transmitters, Receivers and Induction Coils are the same as on standard long distance telephones, this system is suitable for connecting over outside lines from any establishment, when such connection can be arranged with the local company.

*This Telephone is made in standard sizes with Switches in multiples of 5 points; that is, 5-line, 10-line, 15-line, 20-line, 25-line and 30-line.*

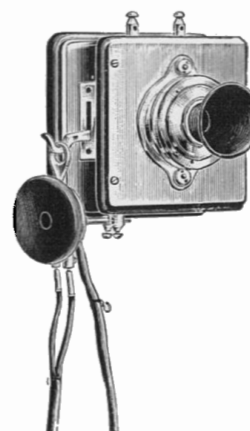




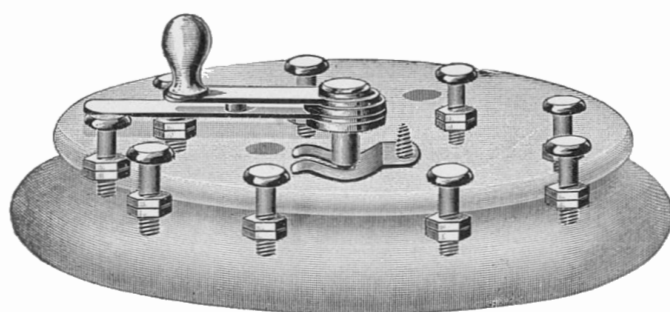
No. 21  
FOR PRIVATE LINES  
INTERIOR SYSTEMS



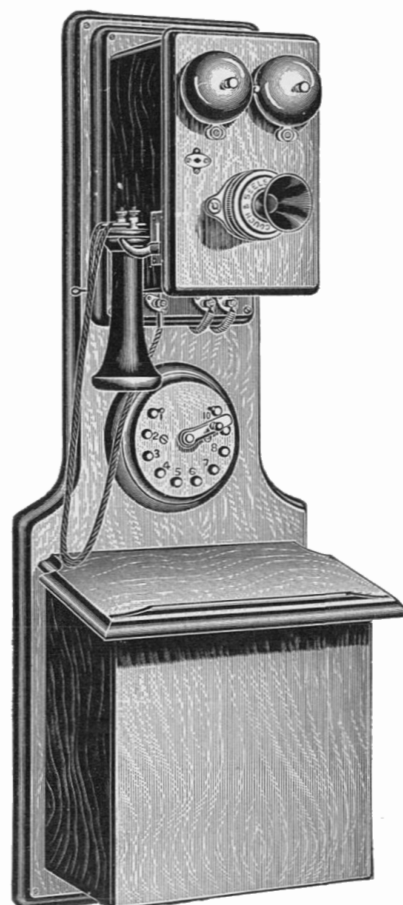
No. 22  
INTER-COMMUNICATING  
SYSTEM  
COMMON RETURN



No. 26  
FOR SPEAKING-TUBE  
AND INTERIOR SYSTEMS



No. 46  
POSITIVE CONTACT SWITCH



No. 43  
INTER-COMMUNICATING  
SYSTEM  
COMMON RETURN

## Inter-communicating System. Metallic Circuit.

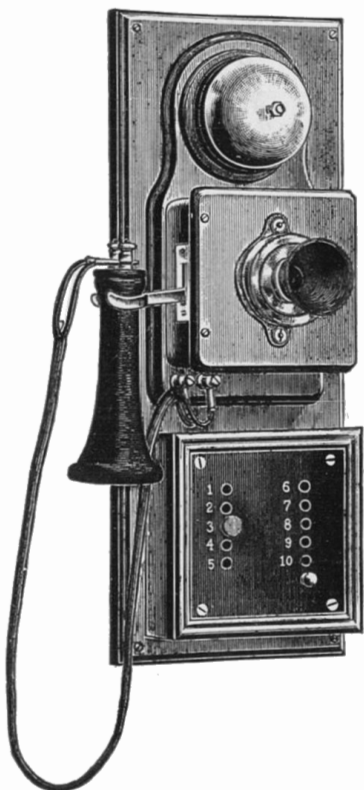
THIS system is designed for places where it is desired that any number of stations may be in use at one time with the least possible interference from cross-talk by reason of induction. The types of telephones used are the No. 23 and No. 24 for Battery Call Wall Sets, and the No. 44 for Magneto Call, together with any of the styles of Desk Sets or Hand Micro Telephone shown in this Catalogue. In the operation of the regular Plug Switch shown on opposite page, it is simply necessary to insert the plug in the number of any telephone with which communication is desired and press the button or turn the generator handle, as the case may be. In the Desk Set the Buzzer and Induction Coil, together with the Push Button on Battery Call Sets, are placed in the base of the Desk Stand or Swing Arm Set, and a separate Magneto Bell for Magneto Call systems.

The system of wiring for Battery Call system requires as many pairs of wires as there are stations, and one additional pair for the ringing battery; that is, for ten stations eleven pairs of wires are necessary. For Magneto Call systems only as many pairs of wires are necessary as there are stations. A neat and convenient form of construction is to have these wires made up in a cable, which costs no more, and greatly facilitates the installation.

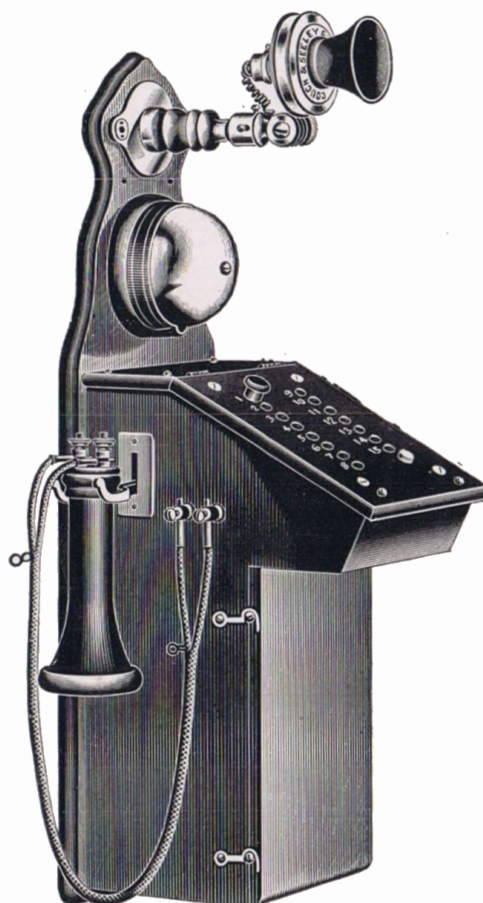
It is not necessary that the plug be restored to its home point when through talking, as any individual telephone can be called regardless of the position of the plug. Of course to call out the plug is inserted in the number of the telephone wanted.

This same style of telephones are furnished with Automatic Button Switches No. 48, as shown on page 27, with separate Button Switches for use with any style of Desk Set or Hand Micro Telephone.

*All Switches are made up in multiples of five lines.*

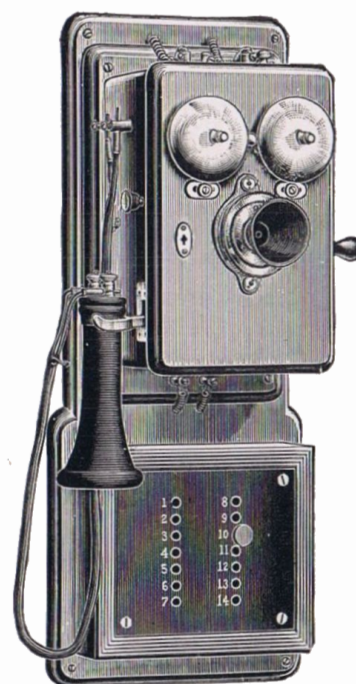


No. 23  
INTER-COMMUNICATING  
SYSTEM  
METALLIC CIRCUIT



No. 24  
INTER-COMMUNICATING  
SYSTEM  
METALLIC CIRCUIT

FOR PLUGBOARDS SEPARATE  
FROM TELEPHONES  
See Page 27



No. 44  
INTER-COMMUNICATING  
SYSTEM  
METALLIC CIRCUIT

## Hotel System.

THERE are three systems used for hotel work, which we designate and describe as follows:

### *System I.*

Consists of Cross-connecting Switchboard, similar to that shown on page 34, this being placed in the office or some central position and connected to telephones placed in each room, these being of style No. 27, or specially designed if required, together with any of the various types of desk sets. This system admits of calling between the switchboard and each station, and *vice versa*, also of cross-connecting between any two stations through the switchboard. All batteries for this system are centrally located.

### *System J.*

Consists of Annunciator and Plugboard, as shown on page 25, this being located in the office or other central position, and connected to telephones in each room, these being of style No. 27, or specially designed if required, together with any of the various types of desk sets. This system admits of conversation between the switchboard and each telephone, and *vice versa*, but does not admit of cross-connecting between any two stations. All batteries for above system are centrally located.

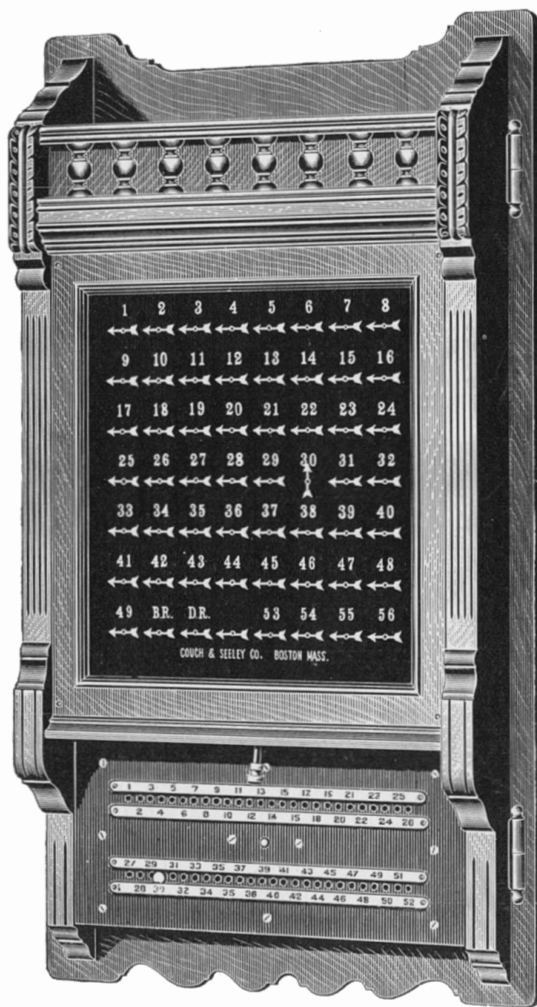
### *System K.*

Where a Hotel Annunciator and call from each room is already in place, telephone communication can be arranged between the office and each room by using a wall set of style No. 28, or special design similarly wired, together with any of the styles of desk sets, connecting these in at the present button wires and placing a jackboard in connection with the Annunciator in the office, thereby affording communication from any room to office. This system does not admit of cross-connecting. Batteries for the system are centrally located.



## Hotel and School System.

THE Annunciator and Plugboard, and two styles of Telephones shown on this page are used in connection with systems explained on opposite page.



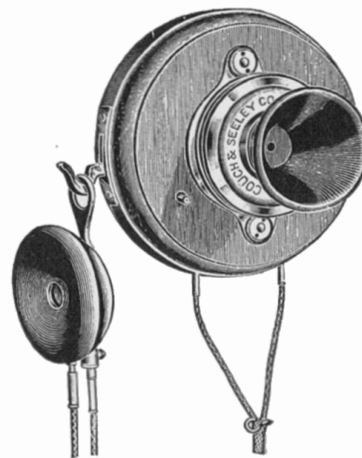
Style No. 61

Oak, Walnut, or Mahogany Finish



Style No. 27

Oak, Walnut, or Ebony



Style No. 28

Oak or Cherry

## Battery Call and Interior Telephones.

### PRIVATE LINES.

WHERE lines are not so long as to preclude the use of a Battery Call instrument by reason of there being too great resistance in the circuit to ring bells satisfactorily by means of current furnished from a chemical battery, the style No. 21 telephone is very satisfactory. If it is desired to detach the bell from the telephones, the style No. 26 telephone is adapted to this requirement.

Where Desk Sets are required, any of the styles shown in this Catalogue are arranged for this purpose.

Where lines are too long for ringing a bell by means of a chemical battery, any of the styles of Magneto Telephones shown are more desirable, these including Nos. 92, 93, 94, and any of the Desk Sets, or Hand Micro Telephone Set.

### SCHOOL SYSTEM.

The systems more generally used in schools are as follows :

*System J.*—Explained on page 24, providing for Annunciator and Plugboard in the principal's office, with telephones in each room, allowing calls to be made from this office to each department, and *vice versa*.

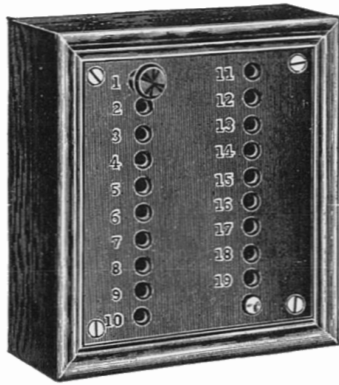
Either of the Inter-communicating Systems explained on pages 20 and 22.

In larger establishments, or where it is desired to be able to cross-connect at the central station between any two departments, the Central Switchboard System, as explained in System I. on page 24, should be used.

### SPEAKING-TUBE SYSTEM.

This system contemplates a separate calling system from the telephone circuit. It simply requires an instrument of style No. 21 or No. 26 without Induction Coil, all of the telephones being connected on two wires with battery cut in through a Retardation Coil. Any number of telephones can be connected on two wires, and any of the styles of Desk Sets are arranged for the same system.

## Plug Switch No. 47.

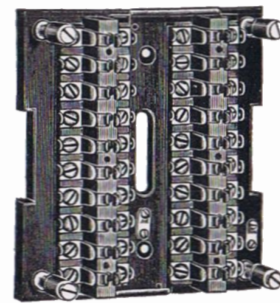


Exterior View.

hole corresponding to number of telephone desired, connection is established with that particular instrument. When through talking it is not necessary to restore the plug to its home number, as any other telephone can call any station regardless of the position of the Switch Plug in the station called.

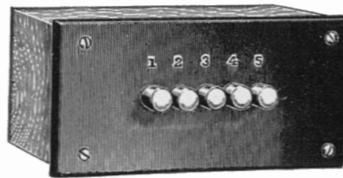
**T**HESE Switches are designed for systems using complete metallic circuit, but can also be used for common return when desired. The base and front plates are hard rubber, fronts being highly polished. Contact springs are of best phosphor bronze, and so designed and constructed as to insure permanent efficiency. Do not get out of adjustment, and are the most perfect in every detail of any similar Switch ever produced. Switches are enclosed in cabinet frames of oak, walnut or other finish, as may be desired.

The operation of this Switch in connection with our telephones is that by inserting the plug in any



Interior View.

## Automatic Button Switch No. 48.

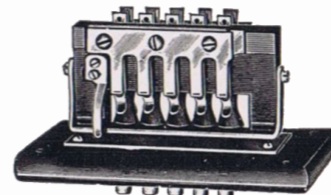


Exterior View.

the Receiver on the hook automatically releases any button, leaving connection with home station perfect. In addition to the above, when any button is pushed in as far as it will go, this closes the ringing circuit, thereby causing the bell on the telephone with which connection is made to ring, and upon taking one's finger off this button the ringing circuit is automatically cut out, leaving the talking circuit perfect. In other words, to call any station, push the button corresponding to that station in as far as it will go. This rings the bell at the other end. Take your finger off the button and you are ready to talk. When another button is pushed the last one is automatically released.

This is the most perfect Inter-communicating Switch ever offered. Both styles are made in multiples of five lines.

**I**N this Switch, instead of using one plug and inserting as in Switch described above, no detached plug is required, it being necessary simply to push in the button corresponding to number of station with which connection is desired. This is also arranged so that each push is released and restored to its normal position when any other number is pushed in; and when desired on Wall Sets, can also be arranged so that the act of hanging



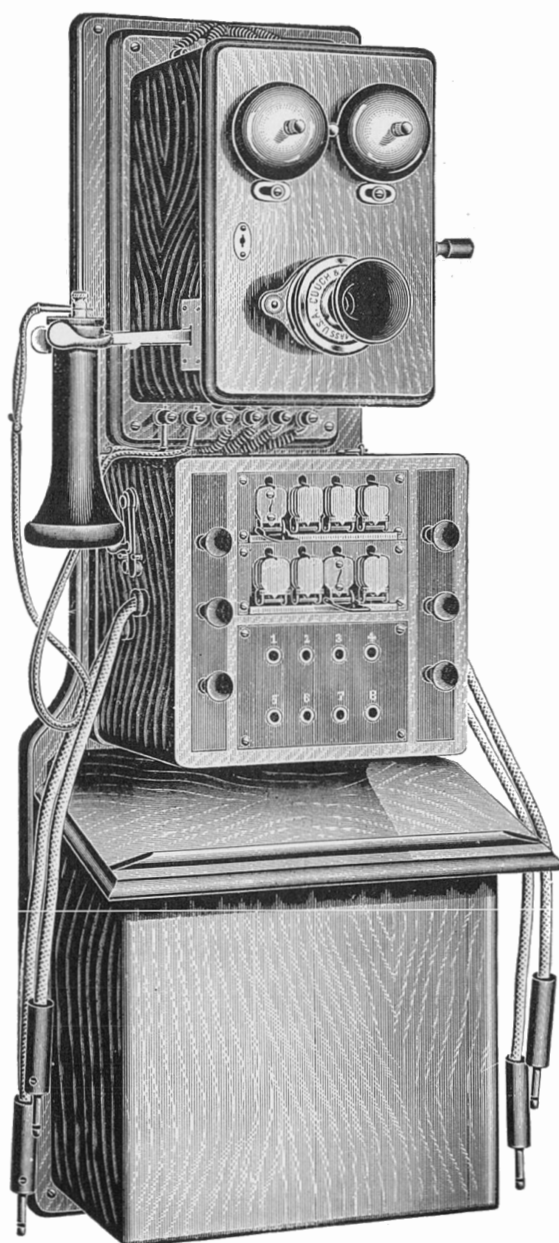
Interior View.

## Combined Telephone and Switchboard.

**W**E show on opposite page cut of Telephone and Switchboard combined, containing eight drops, the Switchboard being placed between the Magneto Bell and Battery Box. This is designed specially for small Exchanges where not more than ten or twelve lines are connected, and contains all the desirable features of the more complete central station switchboard, including ringing and listening keys, night-bell attachment, etc. It is not only desirable for small Exchanges in towns and villages, but also as a central station instrument in small interior systems where it is not desired to have a switchboard separate from the operator's set.

There are different combinations that we can make with this and other boards that cannot well be shown in detail, but if parties wanting anything in the switchboard line for any particular place or for special use will communicate their ideas to us we can design and construct any special apparatus to meet the wants of the many, whether for small switchboards or for the largest Exchanges. We have at our command facilities for producing promptly any special equipment, and such a force of experienced switchboard electricians and mechanics as enables us to guarantee absolutely perfect service in any switchboard apparatus. We guarantee our switchboards to fill any and all requirements, and to be perfect in every detail of construction and operation.



**No. 62**

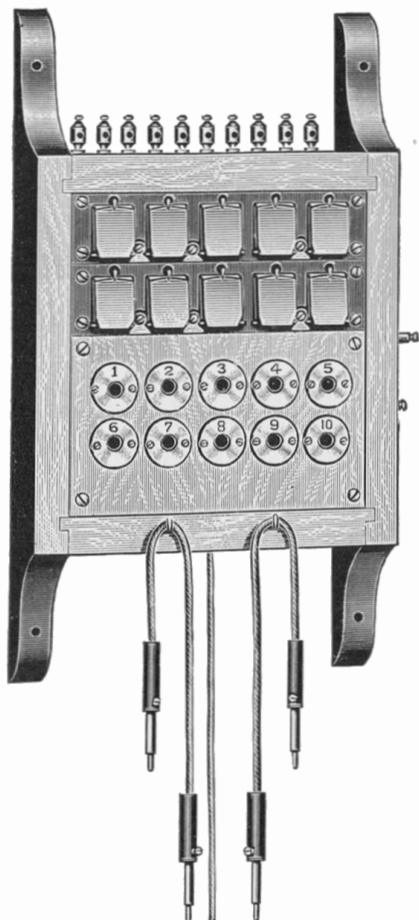
The above cut shows our combined Telephone and Switchboard designed for small Exchanges. The Switchboard, which is mounted under generator box, contains eight drops and jacks with ringing and listening keys, and two pairs of cross-connecting cords and plugs. The most complete combination for small Exchanges of anything heretofore offered.

## Switchboards.

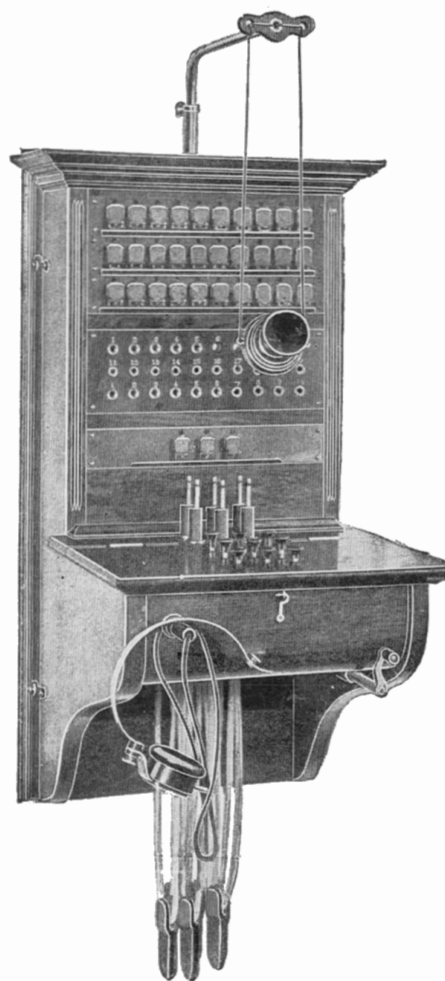
**A**T this stage of development in the Independent Telephone industry it is unnecessary for us to state that in selecting your Switchboards, the *best* is the only grade worthy of a moment's consideration. The Switchboard in a Telephone Exchange is the central figure around which all telephone instruments and other accessories revolve. We would not be understood to mean that the excellence of the Switchboard will in any way make up for a lack of efficiency in the telephones or construction, but that no matter how good these may be, nor how able the management of the business, perfect service cannot be secured except when perfect central station equipment is employed.

The Switchboard occupies the same position in the Telephone Exchange as do the generators in a large power plant to the motors used for driving machinery at outlying points. Upon the generators in the great power plants at Niagara Falls is dependent the ability to operate the thousands of motors driving machinery for miles around. Equally true is this in similar plants of smaller dimensions, and it well illustrates the great importance of the Switchboard in Telephone Exchange equipment. Good line construction will not make up for its imperfections. The highest grade telephone instruments in the world cannot operate perfectly if the cross-connecting apparatus is defective. Operators cannot handle calls rapidly nor satisfactorily unless the switching devices are positive and rapid.

We solicit Switchboard orders only upon the basis of making Switchboards excelled by none and equalled by few. This department of our factory is under the direct supervision of one of the most experienced Switchboard experts in this country, assisted by competent electricians and mechanics, and with every facility afforded by up-to-date machinery and methods. We stand in the front rank of manufacturers in this line, and guarantee those placing orders with us, Switchboard equipment of the highest efficiency, combined with beauty in design and finish.



No. 63  
WALL CABINET  
Style A



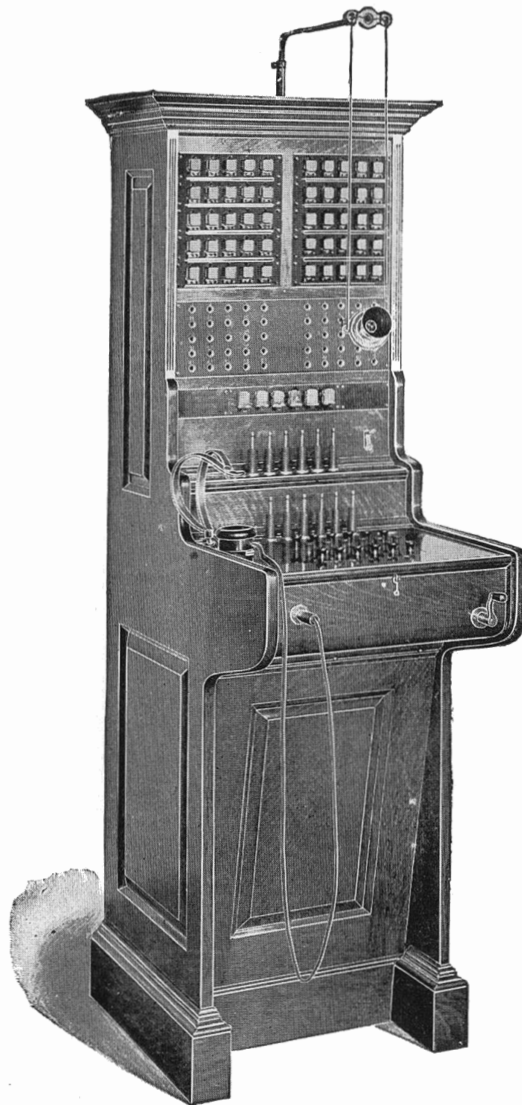
No. 64  
WALL CABINET  
Style B

*IN the matter of Patents, we believe it safer to avoid infringement by investigating in advance and allowing to others the justly deserved benefits of their discoveries. To this end we employ the best expert advice in all possible complications, and have at our command the best legal ability in Telephone and Switchboard Patent matters. We shall continue to stand back of our products in all questions of infringement as in the past, and anyone can readily ascertain whether we are financially able to do so.*

We can furnish to those interested detailed descriptions and information regarding, most up-to-date equipment in this line, and shall take pleasure in submitting drawings covering special requirements.

In purchasing your Switchboards, remember that the best is the cheapest, and while you are to buy the best at the lowest possible cost, *buy the best*, for only by this course can you successfully operate a Telephone plant. If we cannot demonstrate that our equipment is not excelled, we shall not expect your orders.

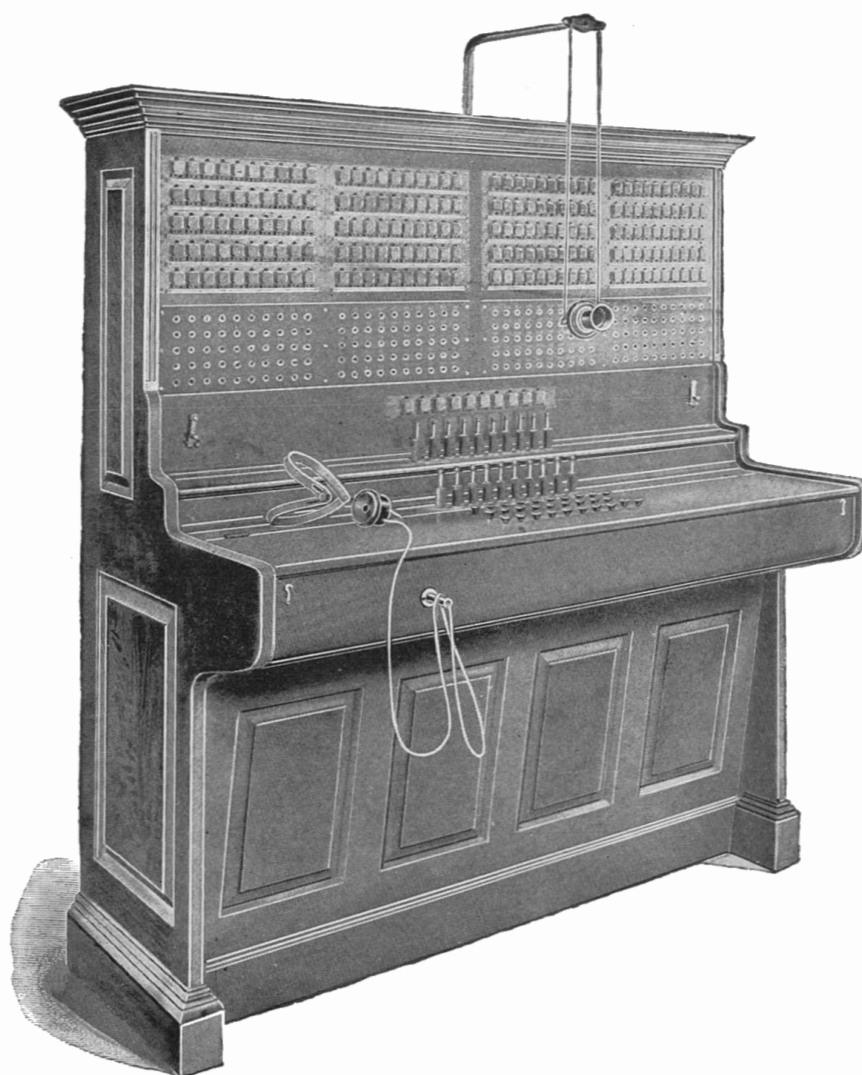




No. 65

50-DROP SWITCHBOARD FLOOR CABINET

Style C



No. 66  
200-DROP SWITCHBOARD, FLOOR CABINET  
Style D



No. 67

200-DROP SWITCHBOARD, FLOOR CABINET  
MULTIPLE-SPECIAL

## Magneto Bells.

THE importance of the Magneto Bell in telephone equipment where this form of instrument is used, cannot be overstated. The broadening demands of even the small systems are such that it is necessary to the ultimate demands of all Exchange equipment that the calling part of the instrument shall be of such generating capacity and electrical efficiency as makes it possible to ring over longest lines, and this can only be done by employing a thoroughly first-class Magneto Bell. Especially is the above true in connection with Exchange equipment where toll lines are already in use, or where they are likely to be used in the future; and when we say likely to be used, it means that every independent Exchange must ultimately be connected by toll lines with every other independent Exchange, and if not already connected it is only a question of time.

There are so many poorly constructed bells upon the market that any one not an expert would do well to thoroughly investigate this part of the equipment before investing in cheap Magnetos, which soon become a source of annoyance as well as a constant item of expense. Remember that while the general appearance may not be a true index to its mechanical and electrical efficiency, nevertheless a good bell is well finished; but this does not mean that a poor bell is not sometimes well finished, as our experience with Magneto Bells has amply demonstrated.

Our Bell is recognized as *the standard*. In its production neither pains nor cost are spared to turn out a superior article and one upon which the telephone user can always depend, with a generator capable of ringing through longest toll lines, and with a ringer mechanically and electrically perfect in operation.

We shall be glad to give more detailed information upon application.



**SERIES MAGNETO BELLS.**

(Without Hook.)

Cat. No.	Rings Through.	Price.
68	10,000 ohms . . .	\$ .
68	15,000 " . . .	" .
68	20,000 " . . .	" .

**SERIES MAGNETO BELLS.**

Complete with Long Lever Automatic Hook, and all wired up ready to be placed upon Backboard, with six Binding Posts on bottom for Receiver, Induction Coil and Battery.

Cat. No.	Rings Through.	Price.
69	10,000 ohms . . .	\$ .
69	15,000 " . . .	" .
69	20,000 " . . .	" .

**SERIES MAGNETO BELLS.**

Complete with Automatic Hook and wired up for mounting Transmitter on cover. These Bells have four hinges, and four Binding Posts on bottom for Receiver and Battery. Connections for Induction Coil are arranged above the Generator.

Cat. No.	Rings Through.	Price.
70	10,000 ohms . . .	\$ .
70	15,000 " . . .	" .
70	20,000 " . . .	" .

**BRIDGING MAGNETO BELLS.**

(Without Hook.)

Cat. No.	Ringer Resistance.	Price.
71	1,000 ohms . . .	\$ .
71	1,200 " . . .	" .
71	1,600 " . . .	" .
71	2,000 " . . .	" .

**BRIDGING MAGNETO BELLS.**

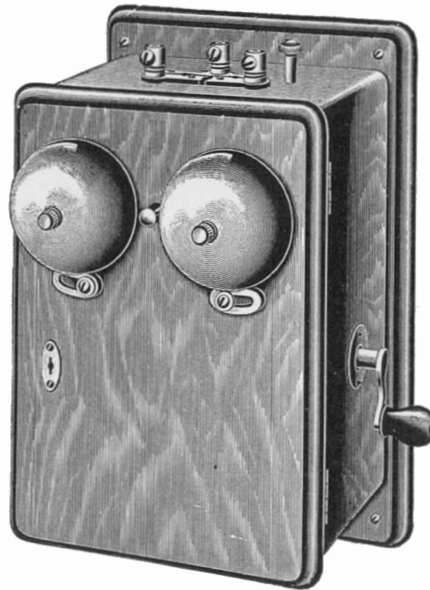
Complete with Long Lever Automatic Hook and all wired up ready to be placed upon Backboard, with six Binding Posts on bottom for Receiver, Induction Coil and Battery.

Cat. No.	Ringer Resistance.	Price.
72	1,000 ohms . . .	\$ .
72	1,200 " . . .	" .
72	1,600 " . . .	" .
72	2,000 " . . .	" .

**BRIDGING MAGNETO BELLS.**

Complete with Automatic Hook and wired up for mounting Transmitter on cover. These Bells have four hinges, and four Binding Posts on bottom for Receiver and Battery. Connections for Induction Coil in box above Generator.

Cat. No.	Ringer Resistance.	Price.
73	1,000 ohms . . .	\$ .
73	1,200 " . . .	" .
73	1,600 " . . .	" .
73	2,000 " . . .	" .



**SERIES BELLS** are furnished regularly with 3-bar Generators. Finished in Oak or Walnut.

Bridging Bells are furnished with either 3-bar or 4-bar Generators, as may be ordered. The 3-bar Generators ring through from 25,000 to 30,000 ohms, and 4-bar Generators from 40,000 to 50,000 ohms.

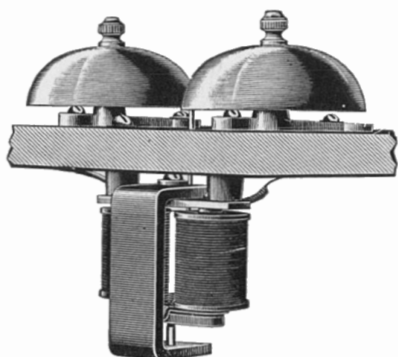
Unless a considerable number of Telephones are to be placed on one line, and that a long one, the regular 3-bar Generator is heavy enough, and our 3-bar Generator will give as large a current output as many 4-bar Generators on the market.

**HAND GENERATORS.**

In Oak or Walnut Boxes.

Cat. No.	Size.	Price.
74	3-Magnet . . . . .	\$
75	4 " . . . . .	

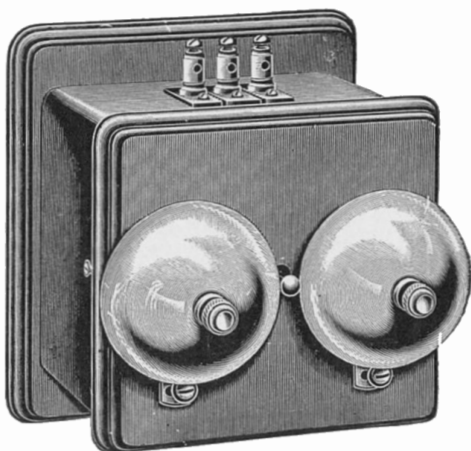
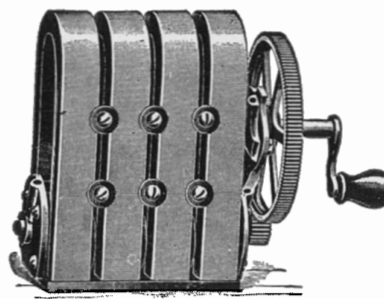
Our 3-Magnet Hand Generators are suitable for Desk Sets and small switchboards. The 4-Magnet size is recommended for larger switchboards and for heavy bridging work.

**STANDARD RINGERS.**

Cat. No.	Resistance.	Price.
681	80 ohms . . . . .	\$
711	1,000 " . . . . .	
"	1,200 " . . . . .	
"	1,600 " . . . . .	
"	2,000 " . . . . .	

**STANDARD GENERATORS.**

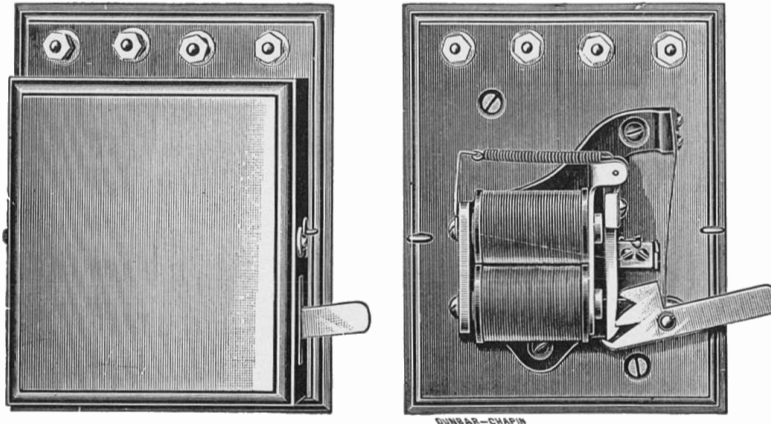
Cat. No.	Size.	Price.
680	3-Magnet Generator only . . . . .	\$
710	4 " " " " . . . . .	

**EXTENSION BELLS.**

Complete in Oak or Walnut Boxes.

Cat. No.	Resistance.	Price.
76	80 ohms, Standard . . . . .	\$
"	500 " " . . . . .	
"	1,000 " " . . . . .	
"	1,200 " " . . . . .	
"	1,600 " " . . . . .	
"	2,000 " " . . . . .	

## Magneto Circuit-closing Attachment. No. 83.



IN many places the ordinary Magneto and Extension Bells do not ring long or loud enough to be heard; especially is this true in noisy factories. In such cases this attachment will be found valuable. It is arranged to close a local circuit and ring

a vibrating electric bell until reset, which is done by simply depressing the lever. In place of one, several bells located at different points may be rung by this means.

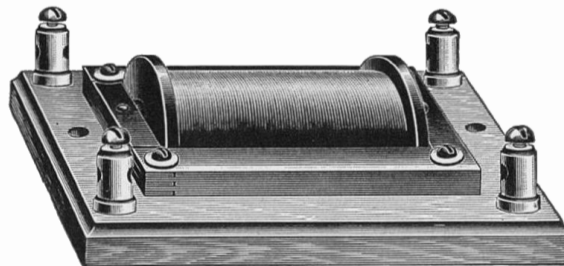
Cat. No.		Price.
83	80 ohms Resistance . . . . .	
"	1,000 " " . . . . .	

## Repeating Coils. No. 84.

IN all cases where circuits of different characters are to be connected, such as bridging to series lines, grounded circuit to metallic circuit, etc., a transformer or repeating coil should be used in order to obtain satisfactory results.

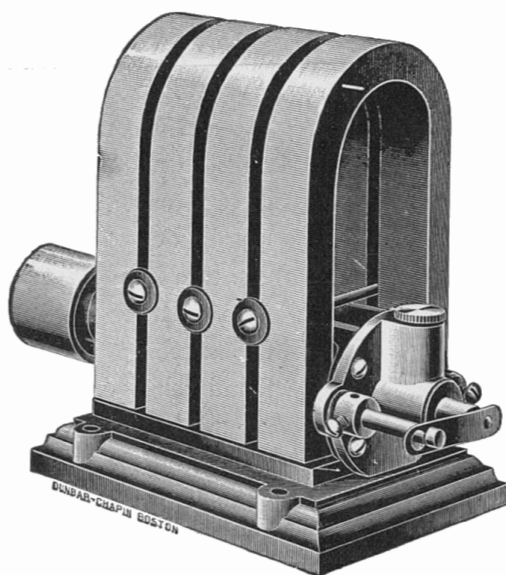
The notorious inefficiency of such coils as have heretofore been placed on the market for this purpose and the high efficiency of the transformers used on the lighting circuits, has often been a subject of comment.

Recognizing the lack of proper designing in telephone repeating coils, we have gotten up a series of coils for this work which will be appreciated by telephone engineers. The magnetic circuit is completed without air-gap, the iron is well laminated, and while sufficient of it is used to carry the magnetic lines generated, there is no excess of iron to add impedance to the talking circuit.



Cat. No.		Price.
84	For Grounded Series to Metallic Series . . . . .	
"	" " " " " Bridging . . . . .	
"	" " " Bridging to Metallic Bridging . . . . .	

## Power Generators.



**NEW 4-BAR POWER GENERATOR.**

Cat. No.	Size.	Price.
77	4-magnet . . . . .	
78	5-magnet . . . . .	

TO meet the demand for a reliable Power Generator, suitable for small Exchanges, we placed upon the market our new 4-magnet style.

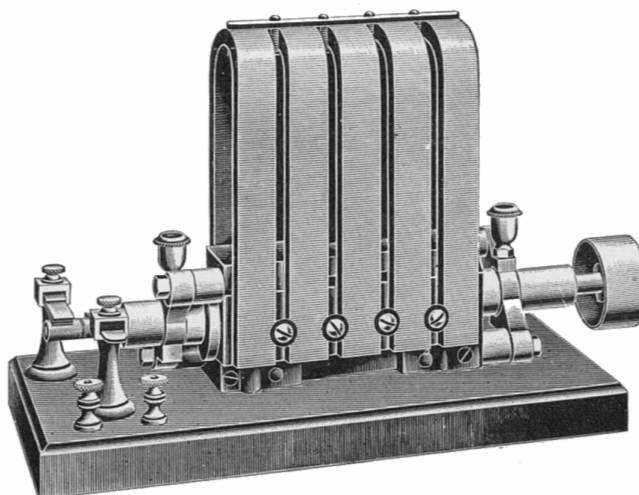
This is a powerful Generator, and it has a current output quite ample for Exchanges up to 500 subscribers. For larger Exchanges up to 2,000 subscribers, we would recommend the 5-magnet size, while for Exchanges from 2,000 subscribers upwards our special 5-magnet style shown below is the most desirable.

These Generators have long bearings and are provided with grease-cups, so that they require practically no attention. The base is of metal, the armature is laminated, and the general finish of the machines is first class.

## Special Power Generator.

FOR Exchanges of 2,000 subscribers and upwards our 5-magnet Special Power Generator is recommended. This Generator is constructed with closed fields separated by solid brass sections. It has long phosphor bronze bearings and a steel armature shaft, and is provided with grease-cups. There is no question regarding its durability under constant service.

This machine gives a current output sufficient for the largest Exchanges.

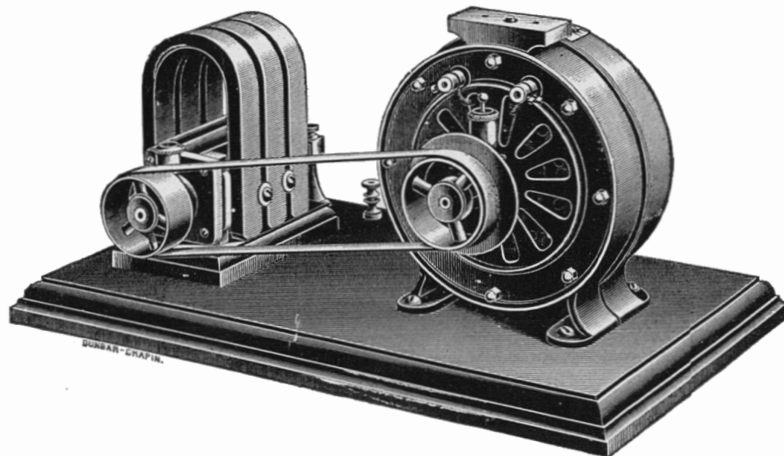




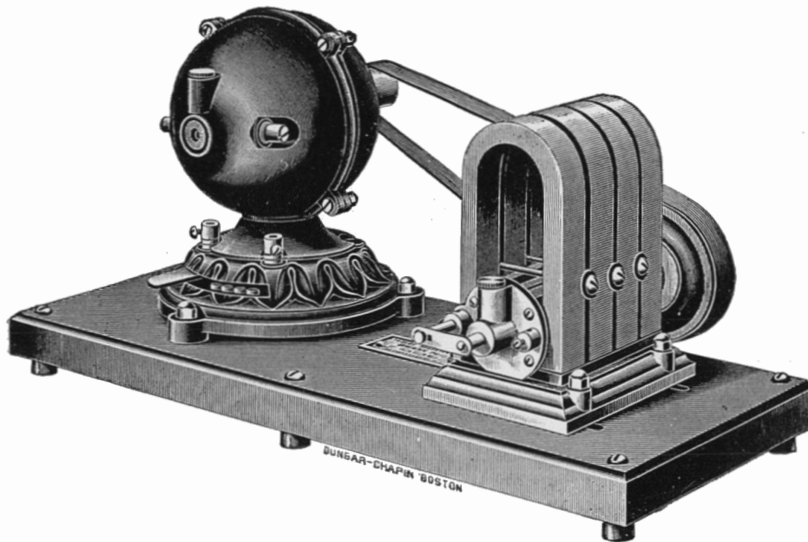
## Motor Generators.

THESE machines are now very largely used for a great variety of purposes, and are rapidly replacing primary batteries on telegraph, telephone, fire and police alarm systems.

They can be operated at much less cost than primary batteries; they require practically no attention and occupy little space.



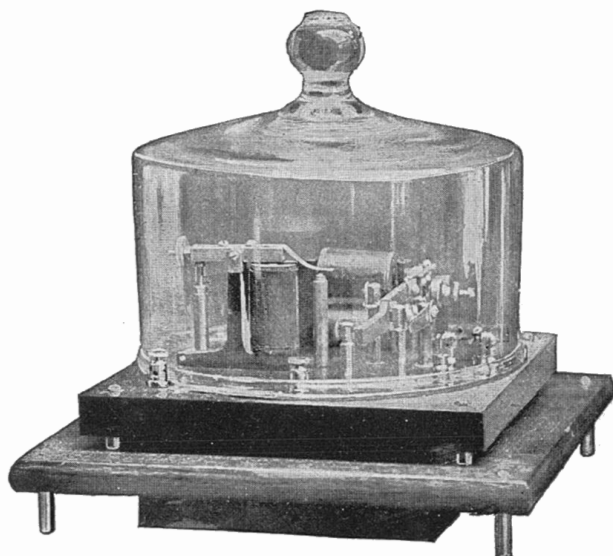
The accompanying cuts represent the combinations usually employed for ringing purposes in telephone service, a Direct or Alternating Motor, belted to a Magneto Power Generator.



They run very quietly, and being provided with grease-cups require practically no attention. We furnish the motor for either 52 or 104 volts alternating, or 110, 220 or 500 volts direct current.

The following table shows the size of Motor Generators usually employed in telephone service, together with prices and other data.

CAT. NO.	MOTOR.		GENERATOR.					
	VOLTAGE MOTOR.	CURRENT.	VOLTAGE GENERATOR.	SIZE.	CURRENT.	OUTPUT WATTS.	USED FOR	PRICE.
529 T	500	Direct	75-80	3-Magnet	Alternating	30	Ring	
530 T	110-220	"	75-80	3 "	"	30	"	
531 T	52-104	Alternating	75-80	3 "	"	30	"	
532 T	500	Direct	4-25	1/8 K. W.	Direct	100	Charging	
533 T	110-220	"	4-25	1/8 "	"	100	"	
534 T	52-104	Alternating	4-25	1/8 "	"	100	"	



STANDARD POLE CHANGER. No. 79.

THE cut opposite shows our Dry Battery Ringing Equipment. This outfit consists of fifty best quality dry batteries, one Type "R" Edison Lalande closed circuit battery, one special condenser, and one **Warner Pole Changer**, all contained in a handsome panelled oak cabinet, having glass cover as shown. The cabinet occupies a space of about 18 x 20 inches, and is about 40 inches high over all; when crated ready for shipment weighs about 225 lbs. This outfit has become very popular among Telephone people, and for Exchanges of 500 subscribers and less it is especially recommended as being *simple, self-contained, economical and complete.*

The instruments and batteries are tested before being shipped, and are all connected up ready for immediate use, so that all you have to do to install this outfit is to carefully remove the crate from around the machine and charge the Edison battery according to the printed directions. This battery is contained in the upper or small part of the cabinet. Then connect the batteries to the loose wires which come down from the machine above, throw in the switch, and the vibrator will immediately begin to vibrate. Then connect the machine to the switchboard.

## THE WARNER GENERATOR.

*The simplest, most perfect and economical Generator for Switch-board ringing ever produced.*

*Complete in itself.*

*Special Catalogue for the asking.*



No. 80.



No. 53.

### BI-POLAR WATCHCASE RECEIVER.

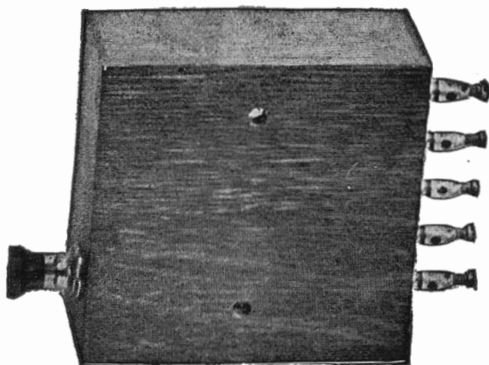
Cut Full Size.

THE cut shown herein illustrates our latest production in this line. It has very strong permanent magnets, and is strictly high grade in every respect. Has genuine hard rubber shell, and is in every detail of design, construction and finish all that the most critical can demand.

No. 52.

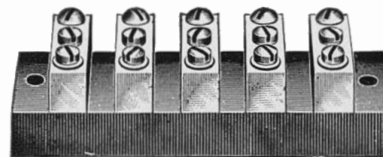
### OPERATOR'S HEAD GEAR WITH BI-POLAR RECEIVER.

AS indicated in cut this is neat in design, adjustable to any requirement, and fitted with Bi-polar Receiver described above. The Band is highly finished in nickel, and as a whole is thoroughly efficient.



No. 84.

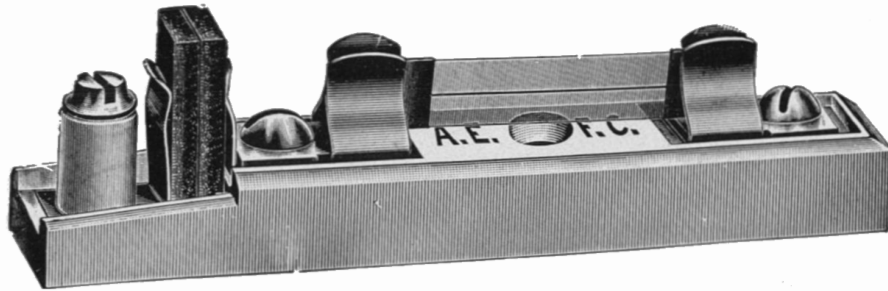
BATTERY CALL TERMINAL BOX FOR  
HAND MICRO TELEPHONE.



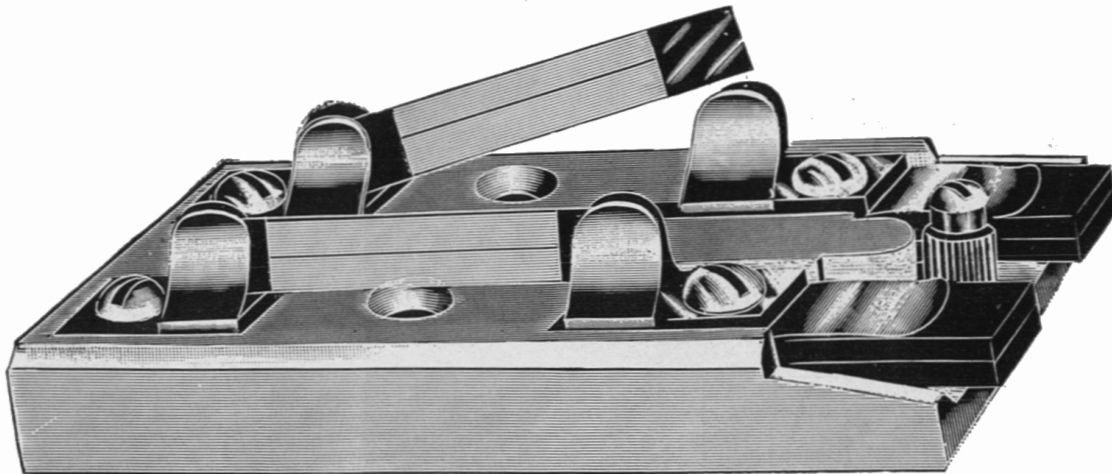
No. 85.

CONNECTING BLOCK FOR  
No. 97 DESK SET.





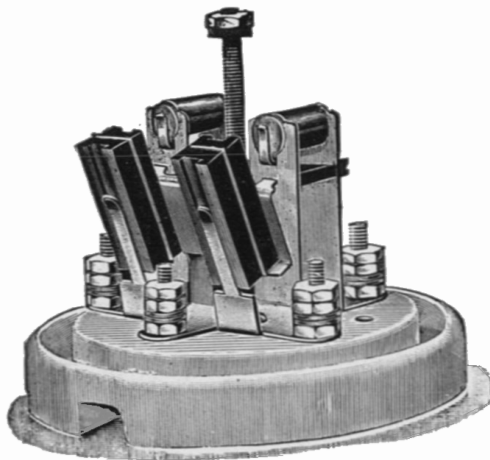
No. 166. COMBINED CARBON AND FUSE LIGHTNING ARRESTER.



No. 186. COMBINED CARBON AND FUSE LIGHTNING ARRESTER.



No. 8. FUSE.



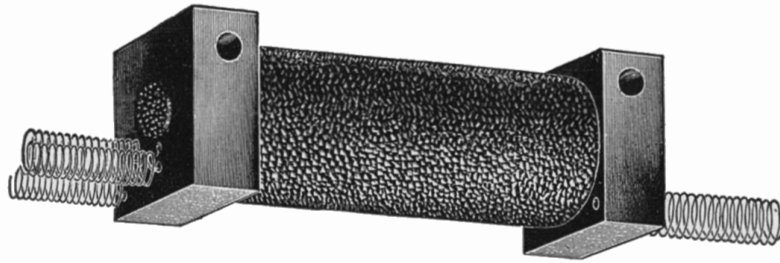
Type S. No. 187.

CARBON AND FUSE LIGHTNING ARRESTER  
WITH HEAT COIL.

PROTECTED BY GLASS COVER.

Indorsed by Insurance Companies.



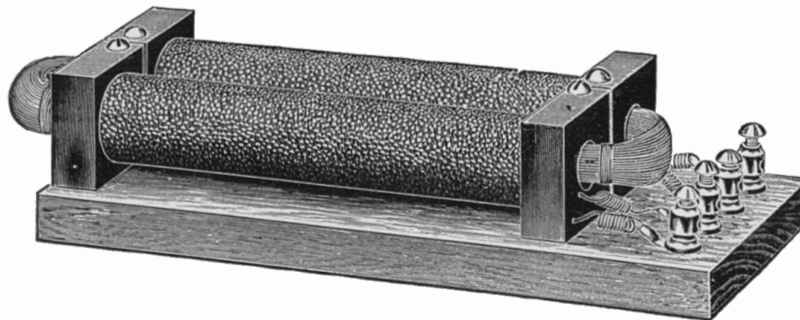


No. 250.

**INDUCTION COILS.**

Our Induction Coils are wound with double silk-covered wire, and to any required resistance. Coils used in Standard Telephones are wound to about .0075 ohms primary and 250 ohms secondary.

Price, 150 ohms	.	.	.	.	.	.	\$
" 250 "	.	.	.	.	.	.	
" 500 "	.	.	.	.	.	.	



No. 81.

**RETARDATION COILS.**

Used on Interior Speaking-tube Systems, Hotel Systems, and Switchboard equipment where battery is centralized.

Price	.	.	.	.	.	.	\$
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**RUBBER HOOK INSULATORS.**

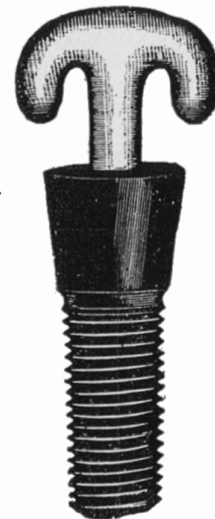
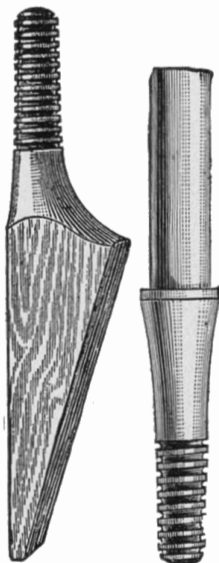
Price, each	.	.	.	.	.	.	\$
" per 100	.	.	.	.	.	.	

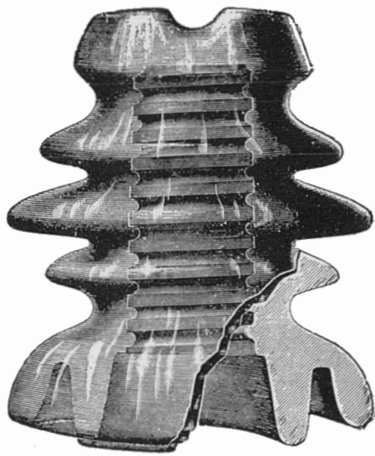
**PINS AND BRACKETS.**

		Per 100.	Per 1,000.
Pins, plain	.	Price, \$	\$
" painted	.	"	
Brackets, plain	.	"	
" painted	.	"	
Locust Pins	.	"	

**CROSS-ARMS.**

Price, 2 Pins, size 3 x 4,	each	.	.	\$
" 4 " " 3 x 4,	"	.	.	
" 6 " " 3 3/4 x 4 3/4,	"	.	.	
" 8 " " 3 3/4 x 4 3/4,	"	.	.	





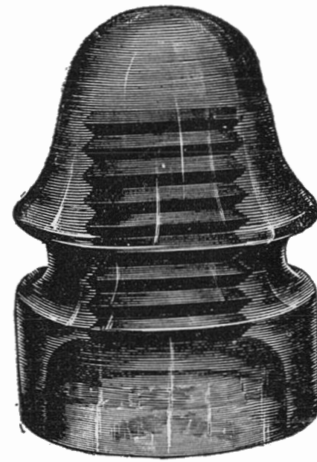
TRANSPPOSITION INSULATOR.

Cut Half Size.

## GLASS INSULATORS.

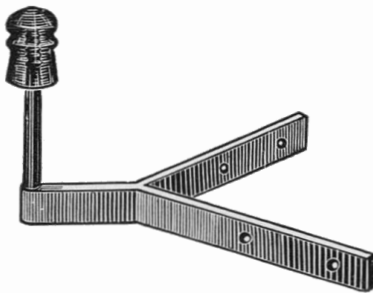
Price, Each.

Deep Groove . . \$  
 Regular Pattern .  
 Pony . . .  
 Transposition, light .  
 " heavy



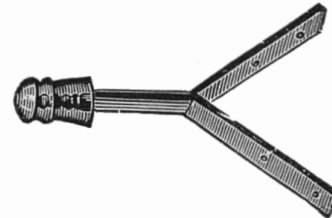
REGULAR INSULATOR.

Cut Half Size.

Corner and Ridge  
Irons.

Price, Each.

Ridge Iron . \$  
 Corner Iron .



## GALVANIZED IRON TELEPHONE AND TELEGRAPH WIRES.

No.	PER POUND.		Size Coils.	Pounds per Mile.	Ohms per Mile.
	Best Best. Net Prices.	Ex. Best Best. Net Prices.			
6			$\frac{1}{3}$ mile	540.0	8.54
7			$\frac{1}{2}$ "	449.9	10.86
8			$\frac{1}{2}$ "	378.1	12.92
9			$\frac{1}{2}$ "	320.0	16.10
10			$\frac{1}{2}$ "	260.0	19.60
11			$\frac{1}{2}$ "	214.0	24.42
12			$\frac{1}{2}$ "	165.0	29.60
14			$\frac{1}{4}$ or $\frac{1}{2}$ "	95.7	51.00
16			$\frac{1}{4}$ or $\frac{1}{2}$ "	57.0	91.60

## Miscellaneous.

In addition to complete Telephones, Switchboards, and such parts as are illustrated herein, we are able to furnish all parts of Telephones, Switchboards, etc., not shown in detail; also carry regularly in stock

Carbon Cylinder Batteries.

“1900” Dry Batteries.

Samson Batteries.

Receiver Cords, Worsted and Silk.

Battery Bells and Gongs.

Damp Proof Office Wire.

Rubber Wire.

Okonite Wire.

Office and Weather Proof Cables.

Linemen's Tools and Climbers.

Battery Gauges.

Porcelain Insulators.

Insulating Tape.

Single Pole Watchcase Receivers.

Switchboard Drops, Jacks, Cords, Plugs, etc.

Distributing Boards.

Terminal Boxes and Cable Heads.

Etc., etc., etc.

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