

# STROMBERG-CARLSON TELEPHONE MFG. CO.

ROCHESTER, N.Y. CHICAGO, ILL.  
KANSAS CITY, MO. TORONTO, ONT.

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## Magneto Telephones



No. 896 Wall Telephone

# Magneto Telephones

## General Information

The telephone instruments described in this bulletin are wired and equipped for service in connection with magneto type telephone lines and systems. The current for the transmission of speech is drawn from two cells of dry battery mounted in or near the instrument and the ringing current for signalling other stations on the same line or central is generated by a hand generator which is included in the equipment of each telephone.

We manufacture magneto telephones in three types, viz., wall, desk and combination types which are furnished with various standard equipments which will satisfactorily meet the operating requirements of nearly all rural systems. The three types have the same high efficiency and can be used interchangeably, provided that the ringer and generator equipments on the same line are alike. Detailed information regarding the different types will be found in the following pages as indicated below:

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Our experience in the manufacture of telephone equipment of all kinds covers a period of twenty-five years. During that time we have made and sold over 2,500,000 telephones and 12,500 switchboards. We manufacture one grade of apparatus—the best we know how to make and guarantee our product to equal or exceed other kinds in operating efficiency and to be free from all defects in workmanship or materials.

Large and complete stocks of the instruments described herein are carried at Rochester, N. Y., Chicago, Ill., Kansas City, Mo., San Francisco, Cal., Seattle, Wash., Atlanta, Ga. and Toronto, Ont., from which points we are prepared to make prompt shipments.

Prices applying to the various types of telephones and the component parts thereof will be found in the price list supplementing this bulletin.

## **Stromberg-Carlson Telephone Manufacturing Co.**

**Rochester, N. Y.**

**Chicago, Ill.**

**Kansas City, Mo.**

**Toronto, Ont.**

**Southern Distributors—Scoville Mercantile Co., Atlanta, Ga.**

**Pacific Coast Distributors—Garnett Young and Company, San Francisco and Los Angeles, Cal., Portland, Ore., Seattle, Wash.**

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## No. 896 Wall Telephone

In this new telephone there are many new improvements which are not to be found in other magneto telephones. It is superior to all previous types in both transmission and ringing efficiency and the refinements in the design make it more economical to install, operate and maintain. It is thoroughly practical in every detail and its general convenience is pleasing to every user.

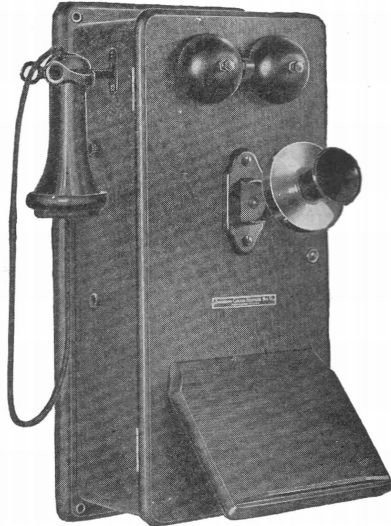


Fig. 1—Left Perspective View of No. 896 Telephone

accurately, and the joints are tongued and held together firmly by a special glue which withstands all climatic conditions.

The cabinet of this new telephone is  $\frac{1}{8}$  inch shorter and  $\frac{1}{2}$  inch narrower than in our previous compact type wall telephone. It will be noted from the open view of the telephone Fig. 5 that no generator shelf is provided and that the generator is securely fastened to the back-board instead of to a shelf. This construction eliminates the trouble frequently experienced with other telephones due to splitting and breaking of the shelves because of the severe strains resulting from rough handling in transit. The interior of the cabinet is roomy and all parts are readily accessible.

All cabinets are alike in every detail. The various pieces are uniformly made to standard patterns and all holes are drilled with the aid of drill jigs and other fixtures. This provides for complete interchangeability of parts

The following detailed description of instruments of this type and their component parts will give the prospective purchaser a clear understanding of their many meritorious features and assist in drawing comparisons with other instruments intended for the same service.

### Woodwork

The cabinets for our No. 896 Wall Telephones, in fact for all other woodwork used in our products, are made in our own factory to insure proper supervision by our engineers and an unvarying high standard of workmanship and materials. The cabinets are made from selected quarter-sawed oak which is thoroughly seasoned in dry kilns before use, to avoid warping or splitting after the instruments are assembled. The several pieces in each cabinet are machined to size



Fig. 2—Right Perspective View of No. 896 Telephone

between any two telephones of the same type and partial interchangeability between the different types.

The bottom of the cabinet on which the dry cells are placed, is provided with two circular recesses which determine the locations of the dry cells permanently and keep them from getting together or against the sides of the cabinet. This makes accidental contacts between the dry cell terminals and consequent short-circuiting impossible. It also avoids contact between the dry cells and any of the apparatus on the inside of the door or elsewhere inside the cabinet. A groove measuring  $\frac{5}{8}$  inch wide by  $\frac{5}{16}$  inch deep extends the full length of the backboard on the side that mounts against the wall so that all kinds of wire, from heavy outside twisted pair wire to ordinary interior wire, can be used for making either exposed or concealed connections with the telephone.

The screw-holes at the four corners of the cabinet are lined with metal bushings which

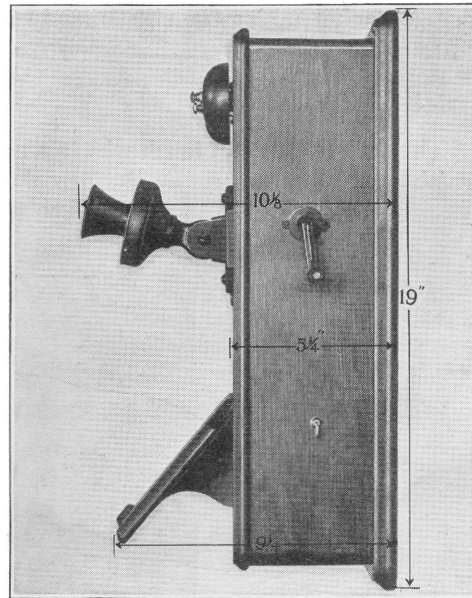


Fig. 3—Showing Depths of No. 896 Telephone

prevent splitting the woodwork. These bushings are large enough to take heavy standard size wood screws and toggle bolts.

### Improved Writing Shelf

The writing shelf is inclined at an angle of 40 degrees to give the most natural writing position while standing. This shelf provides plenty of writing space and holds memorandum pads securely, yet does not project out so far that the user is obliged to crane his neck to speak into the transmitter mouthpiece correctly. Better transmission is obtained when this telephone is used, because the speaker naturally has his lips close to the mouthpiece. The depth of the writing shelf and the length of the transmitter arm are proportioned so that the writing shelf is in plain sight when speaking into the transmitter mouthpiece in the proper way.

The shelf is attached to the door rigidly with three long screws, two of which enter the



Fig. 4—The Writing Shelf is Inclined at the Correct Angle for Writing Purposes

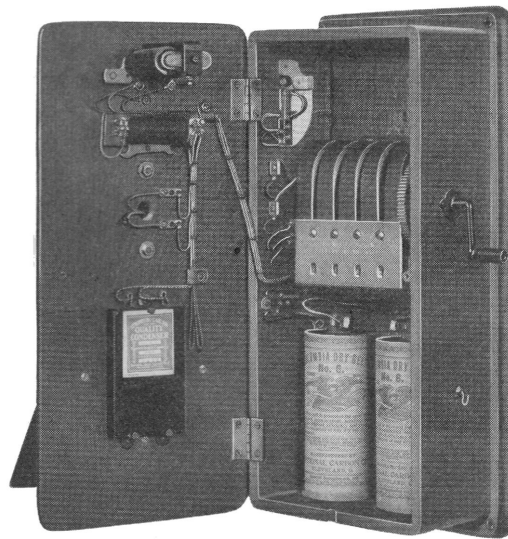


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shelf direct and the third into the spacing bracket. By this method of attachment the spacing bracket under the shelf merely acts as a stiffener and only one bracket is required for utmost strength.

**Finish**

The dull golden oak finish which is applied to the cabinets is a special filler with clear varnish which penetrates deeply into the pores of the wood and retains a neat, clean appearance. This finish is exceedingly durable and will not readily show slight mars or



**Fig. 5—Interior of No. 896 Telephone Equipped with Five-bar Hand Generator**

scratches. The pleasing design and finish of the telephone allow it to be installed in any room and to harmonize well with its surroundings.

All exposed metal parts of the telephone with the exception of the face of the transmitter and the gong cap nuts are finished by a rust-proofing process and several coats of dull black enamel. Each coat of enamel is applied separately and baked on thoroughly. This gives a high grade finish which will neither chip nor peel off and which protects the parts against rust or other forms of corrosion.

**Transmitter**

Telephones of this type are regularly furnished with our No. 7-L Transmitter which develops a transmission efficiency, equal to, or exceeding all other types and with less consumption of battery current. As the current consumption is less the telephone dry batteries last longer and battery renewals are required less frequently.

The No. 7-L Transmitter is designed to operate from two dry cells and is adjusted to give maximum efficiency when the battery voltage is nearly constant. When dry batteries are put into any telephone their voltage drops rapidly for the first week or two and then becomes fairly constant for a long time. No. 7-L Transmitters are adjusted to this voltage and therefore give greatest efficiency and satisfaction for the longest period.

Much of the high efficiency of the No. 7-L Transmitter is due to the high quality of the carbon granules and carbon electrodes which are incased in a moisture-proof chamber or "button" and form the operating element of the transmitter. The carbon granules used are quite coarse compared with those used in other kinds of transmitters and they cannot settle into a mass ("pack") and interfere with the free movement of the diaphragm as often happens in transmitters in which fine carbon granules are used. The use of this carbon also gives clear articulation in the natural tones of the speaker's voice.

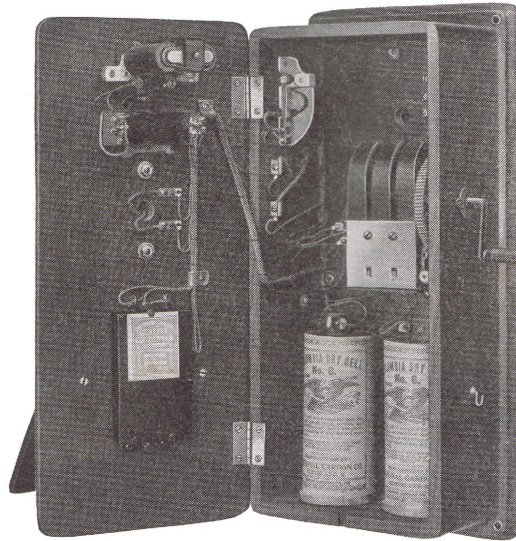


Fig. 6—Interior of No. 896 Telephone Equipped with Three-bar Hand Generator

No rubber or moisture absorbing materials are used in the construction of the No. 7-L Transmitter and all parts are designed to avoid any interference with the proper operation of the instrument by temperature changes. The transmission efficiency and lasting qualities of the transmitter are not affected by atmospheric or climatic conditions.

### Transmitter Arm

The transmitter arm used on all new type No. 896 Wall Telephones is considerably shorter than the type used heretofore. It is made of pressed steel and the base and head to which the transmitter is attached are interchangeable with the longer types and possess the same mechanical strength. A knuckle joint provides a wide range of vertical adjustment and the extreme movement either up or down does not tilt the transmitter electrodes more than in the longer types of arms, thus assuring full transmission efficiency in any position. An inside limiting stop avoids pinching the hand or fingers when the arm is moved.

The length of the arm brings the transmitter mouthpiece beyond the outer edge of the writing shelf so that the speaker is not obliged to hunch his body over the shelf in order to speak directly into the mouthpiece. Another advantage gained through the use of this arm is the unobstructed view of the writing shelf. Other types are in the line of the speaker's vision while using the telephone and attempting to make notes. Serious trans-

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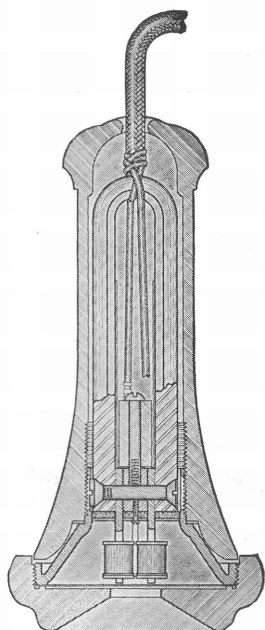


Fig. 7—Cross-section  
View of No. 27  
Receiver

mission losses are often caused by persons standing back from the transmitter in order to correct this fault.

### Receiver

The transmission efficiency of our No. 27 Type Receiver, which is used on all telephones listed in this bulletin, is equal to or higher than that of any other magnetic receiver. The mechanical correctness and small number of simple parts insure continuous good service at minimum cost.

It will be noted from the cross-section view in Fig. 7 that there are no joints, breaks or welds in the permanent magnet. This one-piece construction in combination with a high quality of magnet steel produces a maximum magnetic flux. The amounts of iron and copper in the pole-piece electro-magnets have been carefully calculated and are correctly balanced for highest efficiency.

The windings are designed and located on the pole-pieces so as to give maximum efficiency.

The diaphragm is clamped in position by the ear cap which screws on a separate thread from that holding the shell so that breakage of the shell cannot make the instrument inoperative nor can the jars of hanging up the receiver reach the diaphragm.

If the receiver shell breaks, the operation of the receiver is not affected and the telephone remains serviceable. Dust cannot sift down and settle behind the diaphragm. Moisture and variations of temperature will neither change the adjustment nor impair the efficiency of the instrument.

### Hand Generator

This, and our other types of magneto telephones are furnished with hand generators in three and five bar sizes to meet all signalling conditions. Size for size these generators deliver a surplus of current for the service to which they are put and will give entire satisfaction.

All types are assembled upon a frame consisting of two soft iron pole pieces with two hard brass end plates fitted with wide bearings which insure long life and accurate clearance between the fixed and rotating parts. The permanent magnets are made of a special high quality magnet steel and will retain their strength for many years, thus assuring a strong and practically constant magnetic flux and large current output. The armatures are wound upon cores made of soft iron laminations which keep power losses within the generators at a minimum. Silk insulated magnet wire is used for winding the armatures and the size and number of turns of wire used are closely calculated to give largest current outputs at the correct voltage for ringing purposes.

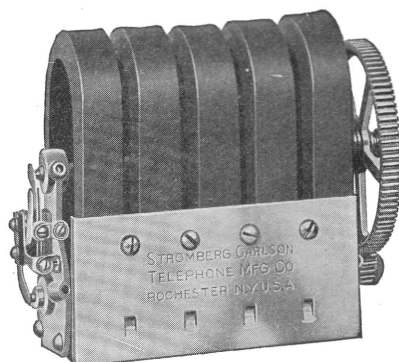


Fig. 8—No. 38 Five-bar Hand  
Generator

In the new No. 896 Type Wall Telephone the generator is mounted directly on the back-board instead of on a shelf as in other types. This improved construction eliminates the trouble commonly experienced with other types of telephones due to breakage of the generator shelf in transit.

The drillings in the telephone cabinet are arranged so that the two standard sizes of generators are interchangeable without the necessity of redrilling the woodwork and interfering with the existing arrangement of the other apparatus and wiring.

### Induction Coil

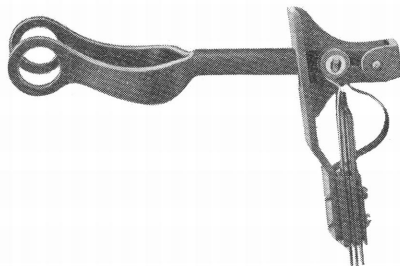
The induction coil used in No. 896 Wall Telephones is scientifically designed and proportioned to give highest transmission efficiency with maximum clearness, when used with our standard transmitter and receiver over local or long distance lines. Both the primary and secondary windings are wound with silk insulated copper wire by semi-automatic machinery, which assures unvarying uniformity in the electrical characteristics of each coil. Fibre or other substances liable to absorb moisture and start corrosion are not used in its assembly. The center or core of the coil consists of a bundle of dead soft annealed iron wires enclosed in a split iron tube and held in place by hard maple heads which are thoroughly impregnated with a moisture-proofing compound and firmly attached to the core. The coil windings terminate on combination soldered lug and screw type terminals. The induction coil wires are soldered to their proper terminals when the telephones leave the factory, the screw terminals being provided for the convenience of the installer or inspector in testing or reconnecting the induction coil when no soldering facilities are at hand.



**Fig. 9—Knuckles Cannot Scrape on Wall while Turning Generator Crank**

### Hookswitch

The hookswitch used in No. 896 Wall Telephones is of the new and improved design shown in Fig. 10. In this hookswitch all parts are assembled upon a one-piece steel frame so that variations in the woodwork due to changes in temperature and humidity can not affect the operation or adjustment.



**Fig. 10—No. 41-B Removable Lever Hookswitch**

The hookswitch is provided with a removable lever which is packed within the telephone cabinet to avoid injury to the hookswitch through possible rough handling in transit and to reduce the size of the packing box. The lever can be easily reassembled to



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the hookswitch by holding down the actuating cam roller with the fingers of the right hand and inserting the end of the lever through the escutcheon into its socket. The hookswitch has only three contact springs and these are mounted on one side of the actuating cam so that a "wiping" contact is assured. The springs are long and flexible and will retain their adjustment indefinitely. The insulation between the springs is of extra high quality and of ample size to prevent break down in service.

The lever spring is of the gun-lock type, positive in its action and provided with tension adjustment to compensate for the use of receivers of different weights caused by different receiver shell materials.

**Ringer**

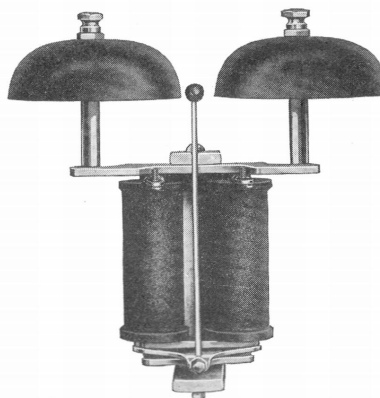
The ringer equipment of this improved telephone is extremely sensitive and highly efficient so that clear satisfactory rings are obtained under poor ringing conditions when other instruments fail.

All parts of the ringer are mounted upon a strong metal frame so that changes in the woodwork, due to excessive moisture or dryness, can neither affect the relative positions of the parts nor disturb their adjustment for highest efficiency. A single screw controls the adjustment of the armature and is arranged so that it cannot work loose and impair the operation of the ringer. The gongs are  $2\frac{1}{2}$  inches in diameter, black enameled and will give clear loud signals which can be heard throughout a residence of the usual size. They are drilled off-center so that by simply turning them on their mounting posts gives complete adjustment with the armature clapper rod.

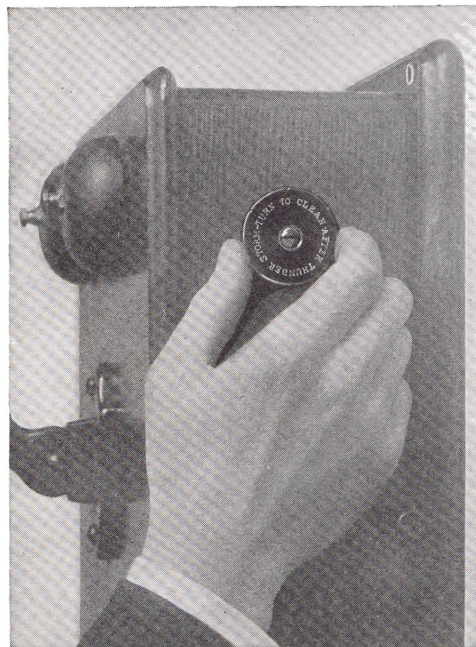
The windings are impregnated with a moisture-proofing compound and are provided with terminals arranged for both screw and soldered connections.

**Lightning Arrester**

Each telephone is equipped with an efficient carbon block and air-gap lightning arrester to protect the telephone against line discharges. This is located on the right side of the telephone or bell box cabinet where it is not liable to be short circuited by metallic articles



**Fig. 11—No. 46 Ringer**



**Fig. 12—Turn Arrester Cover to Clean the Arrester Air-gap**



placed on the telephone, which often happens to instruments in which the lightning arrester is located on the top of the cabinet.

We provide the arrester with a metal cover which is attached to a dielectric disc in the air-gap, so that when it is turned the dielectric disc turns with it and cleans the arrester of any dislodged particles of carbon, caused by discharges, which might make the line noisy. This restores the service on the line to its normal condition without the necessity of taking the arrester apart to clean it, as is the case with other types of magneto telephones. Fig. 12 shows a close-up view of the arrester. It makes no difference which way the metal cap is turned as the cleaning device is operative in both directions.

## Universal Telephone Wiring

One of the most valuable of the new features incorporated in this instrument is the universal cable form in the telephone which contains complete circuit wiring for five different kinds of magneto telephone service without the necessity for adding a single wire. The circuits provided in this cable form, ready for use, are as follows:

Regular Bridging	Bridging with Non-Interfering Push
Bridging with "Battery Saver"	Button
Bridging with "Sure-Ring" Condenser	Divided Circuit Ringing

All of the wiring is contained within a single hand-made cable form and the various wires of which it is made up are provided with insulations of different colors so that any wire can be easily traced or identified anywhere in the cabinet. There are no wires concealed in grooves in the backboard—each wire is in plain sight. The cable form is held in place firmly by leather fasteners and where it crosses over to the door of the cabinet it is provided with a "V" shaped cable hinge similar to the hinge commonly made in switch-board key-cables. There are no connections made through the door hinges or by means of flexible cords. All wires are continuous without joints, splices or welds.

All wires used in the cable form are made of No. 20 B and S Gauge tinned copper and are insulated with silk and cotton braided and waxed insulation, which will neither fray nor unwind.

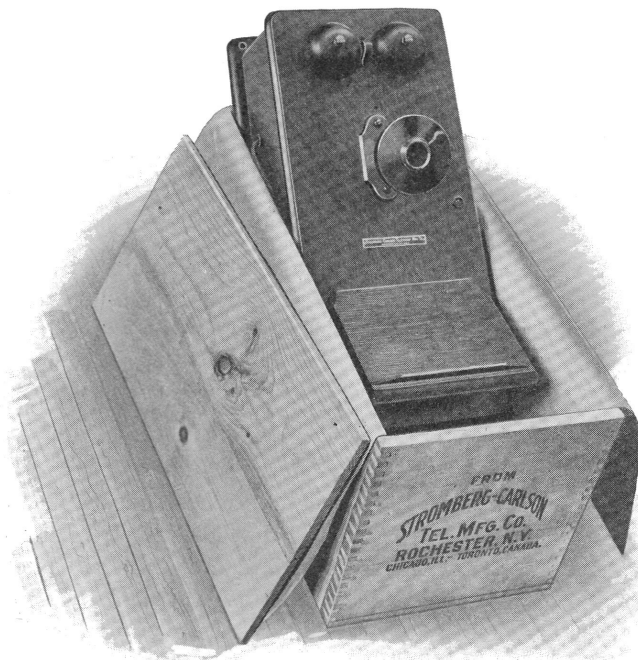
## Packing and Shipping

The new No. 896 Compact Type Telephone is made so that it can be shipped in an assembled condition with the transmitter, receiver and writing shelf attached. The detachable parts, such as the hookswitch lever, generator crank and mouthpiece, are packed inside the telephone battery compartment to avoid injury to these projecting parts and to reduce the size and weight of the packing box. They can be attached in their proper places without the use of tools. The receiver is shipped with both ends of the cord attached, so as to be ready for service without further connections.

All telephones of this type are packed individually in light, strong, packing boxes which weigh approximately 33 pounds gross, when ready for shipment. This method of packing practically insures the delivery of the telephone to the purchaser, unharmed by rough handling in transit and also permits convenient storage of telephones not required for immediate installation. As the telephones are packed one in a box the lid need not be

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taken off until the subscriber's premises are reached, when everything needed for putting up the telephone, except the batteries, will be found in the box. Other kinds of telephones shipped in quantities of two to eight in a box soon become marred and dusty, if all are not needed immediately. Our system of packing avoids this undesirable feature.



**Fig. 13—Stromberg-Carlson No. 896 Telephones are Packed Fully Assembled**

**Standard No. 896 Wall Telephones**

The following table shows the various combinations of ringer and generator equipments in which No. 896 Telephones are furnished.

Code	For	Type	Generator	Ringer
896-R	Town lines	Bridging	3 Bar	1000 Ohm
896-I	Rural lines	Bridging	5 Bar	1600 Ohm
896-L	Rural lines	Bridging	5 Bar	2500 Ohm

**Harmonic**

Code	For	Generator	Ringer
896-QE	Harmonic Party Lines	3 Bar	16 Cycle, 2500 Ohm
896-QF	Harmonic Party Lines	3 Bar	33 Cycle, 500 Ohm
896-QG	Harmonic Party Lines	3 Bar	50 Cycle, 500 Ohm
896-QH	Harmonic Party Lines	3 Bar	66 Cycle, 500 Ohm

**Additions**

For Battery-Saver Attachment (Page 18) add letter "W" to code number. (On all types).

For Sure-Ring Condenser (Page 20) add letter "K" to code number. (On 5-Bar telephones only).

For Non-Interfering Push Button (Page 20) add letter "P" to code number. (On 5-Bar telephones only).

# Code and Piece Numbers of Parts for No. 896 Wall Telephones

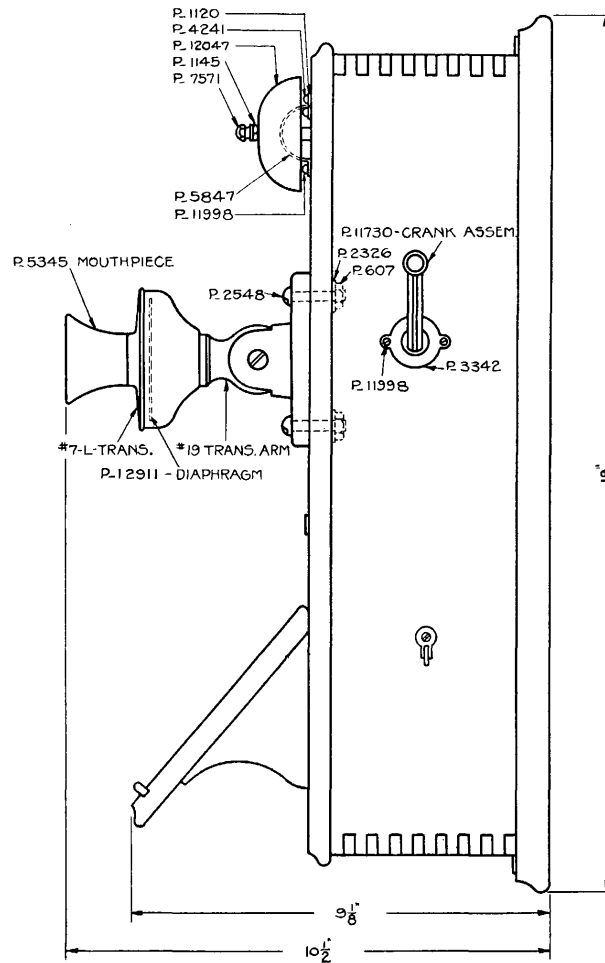


Fig. 14—Code and Piece Numbers of Parts for No. 896  
Wall Telephones

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# Code and Piece Numbers of Parts for No. 896 Wall Telephones

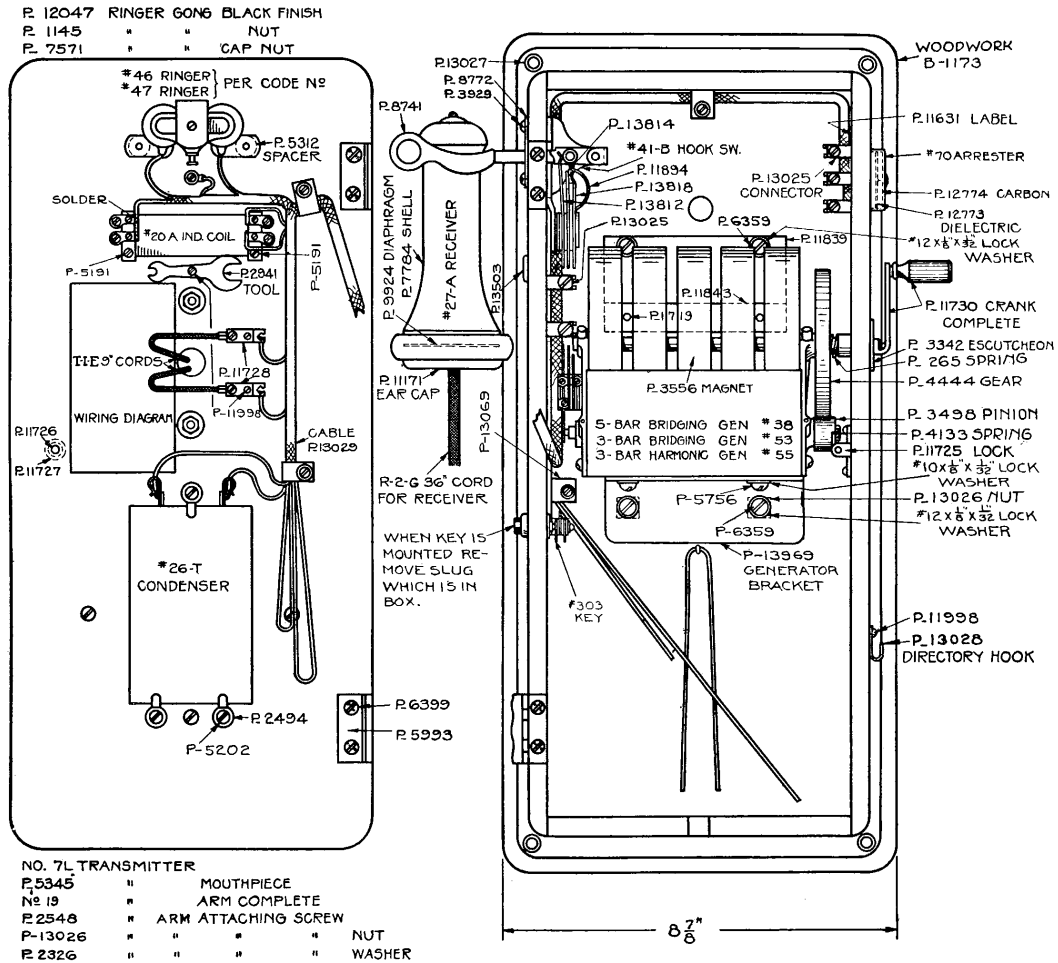


Fig. 15—Code and Piece Numbers of Parts for No. 896 Wall Telephones

## No. 1000 Desk Telephone

Business men usually prefer this type of telephone because it brings the service close at hand and ready for immediate use. It is also becoming more and more popular for residence service as many subscribers prefer to talk while seated. The difference between the No. 1000 Desk Telephone and our other types listed herein is merely a matter of design, for the standard equipments have the same high efficiency and one is as strong and durable as the other.

The No. 1000 Desk Telephone comprises a desk stand of standard pattern (Code No. 992) and a desk set box (Code No. 327) with which it is connected by means of a three conductor flexible cord six feet in length. This combination of apparatus with the necessary two dry cells forms the complete telephone station equipment.

The desk stand is of all-metal construction, the various parts being securely fastened together with a degree of strength and rigidity that makes the instrument practically indestructible and unbreakable. The exposed metal parts are, for the most part, finished with our dull black enamel, which will neither chip, discolor nor peel off. This finish has the peculiar characteristic of taking on an ebony-like luster as it is handled so that its appearance improves with age. The trimmings are heavily nickel-plated and form a pleasing contrast with the black finish of the other metal parts.

The desk stand includes speech transmission apparatus consisting of our standard No. 7-L Transmitter, No. 27-A Receiver, Induction Coil and Hookswitch. The induction coil, hookswitch contacts and cord terminals are located inside the base of the desk stand and are easily exposed for inspection and tests by removing the base plate of the stand, which may be taken off by a slight turn of a single screw. All of the apparatus in the base may be completely removed as a single unit, if necessary, as it is assembled on an inner removable mounting plate. The bottom of the desk stand is fitted with a leather collar which prevents scratching or otherwise marring the finish of the desk or table upon which the instrument is placed. This protection remains when the base plate is taken off.

The No. 327 desk set box, made of quarter-sawed oak with a dull golden oak finish, contains the signalling and terminal equipment of the telephone, which consists of the hand generator, ringer, lightening arrester and line and cord terminals. When "Sure Ring" Condenser and "Non-Interfering" Push Button Key are used with five-bar desk set boxes these parts are also mounted inside the cabinet.

The generator equipment is furnished in two different strengths, viz. 3-bar and 5-bar types and the ringer equipment in the standard resistances, viz. 1000 ohms,

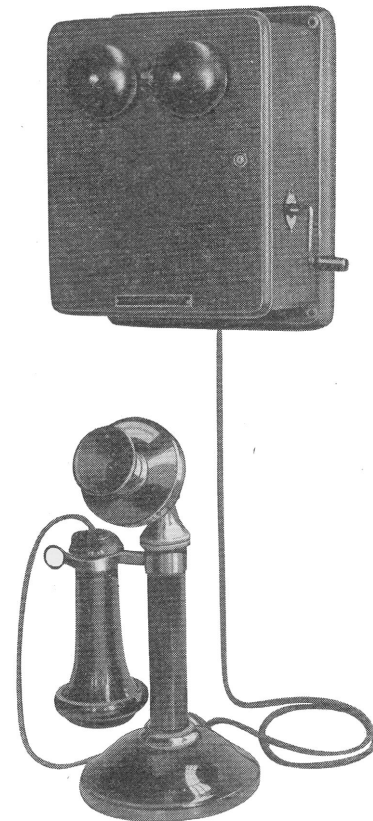


Fig. 15—No. 1000 Desk Telephone



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1600 ohms, and 2500 ohms. For use on short town lines we recommend the No. 1000-R Desk Telephone with 3-bar hand generator and 1000 ohm ringer, while for long rural party lines we recommend the more powerful No. 1000-I Desk Telephone whose equipment includes a 5-bar hand generator and 1600 ohm ringers. These are recognized as the standard equipments by telephone companies everywhere because of their entirely satisfactory operation. The signalling apparatus of No. 1000 Desk Telephones is exactly the same as used in our No. 896 Wall Telephones, described in the preceeding pages.

The arrester equipment of the No. 1000 Desk Telephone is likewise exactly the same as used on our No. 896 Telephones and is mounted in the same way on the side of the desk set box cabinet, just above the generator crank, where dust cannot settle upon it and where it is not liable to become short circuited by metallic articles.

The cords used with this desk telephone are made up with best quality copper tinsel, insulated with pure silk and covered by a green silk braiding. The cords connecting the desk stand with the desk set box have colored threads running through them to facilitate proper connections and tracing of the circuit. All connections in the desk stand including the transmitter connections, which are made from the transmitter to the terminal block in the base by insulated cords, terminate in brass tips. The desk set box end of the cord terminates in "U" shape tips, arranged to connect with screw terminals inside of the desk set box.

The No. 1000 Desk Telephones are furnished with various standard equipments as listed in the following table.

**Standard No. 1000 Desk Telephones**

<b>Code</b>	<b>For</b>	<b>Type</b>	<b>Generator</b>	<b>Ringer</b>
1000-R	Town lines	Bridging	3 Bar	1000 Ohm
1000-I	Rural lines	Bridging	5 Bar	1600 Ohm
1000-L	Rural lines	Bridging	5 Bar	2500 Ohm

**Harmonic**

<b>Code</b>	<b>For</b>	<b>Generator</b>	<b>Ringer</b>
1000-QE	Harmonic Party Lines	3 Bar	16 Cycle, 2500 Ohm
1000-QF	Harmonic Party Lines	3 Bar	33 Cycle, 500 Ohm
1000-QG	Harmonic Party Lines	3 Bar	50 Cycle, 500 Ohm
1000-QH	Harmonic Party Lines	3 Bar	66 Cycle, 500 Ohm

**Additions**

For Sure-Ring Condenser (Page 20) add letter "K" to code number. (On 5-bar telephones only).

For Non-Interfering Push Button (Page 20) add letter "P" to code number. (On 5-bar telephones only).

**Shipping Weights**

No. 1000 Desk Telephones are packed in boxes of different sizes, depending upon the number of telephones shipped together. When packed for shipment without dry batteries, the gross shipping weight per telephone is approximately 31 lbs., or when shipped with batteries, about 35 lbs.

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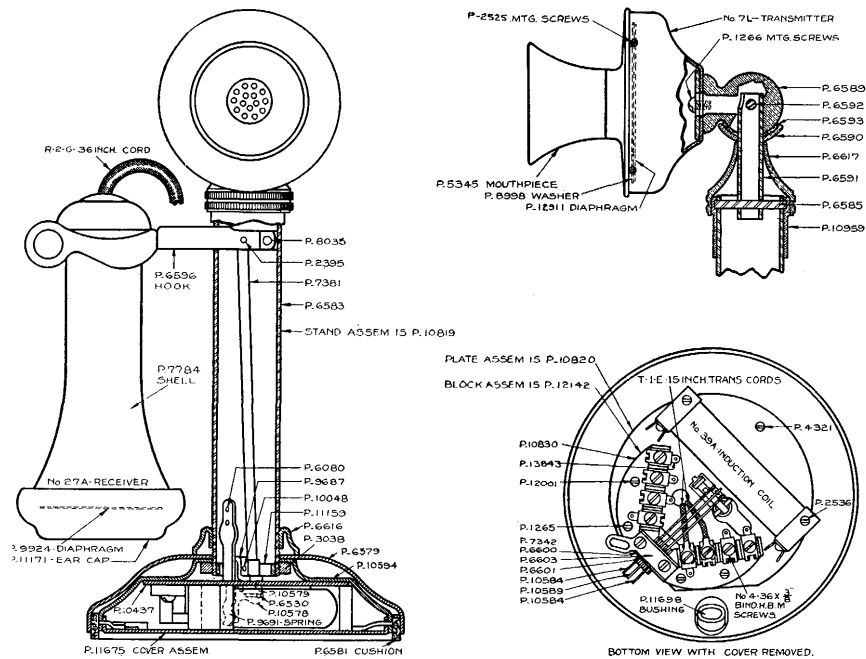


Fig. 17—Code and Piece Numbers of Parts for No. 992 Desk Stand

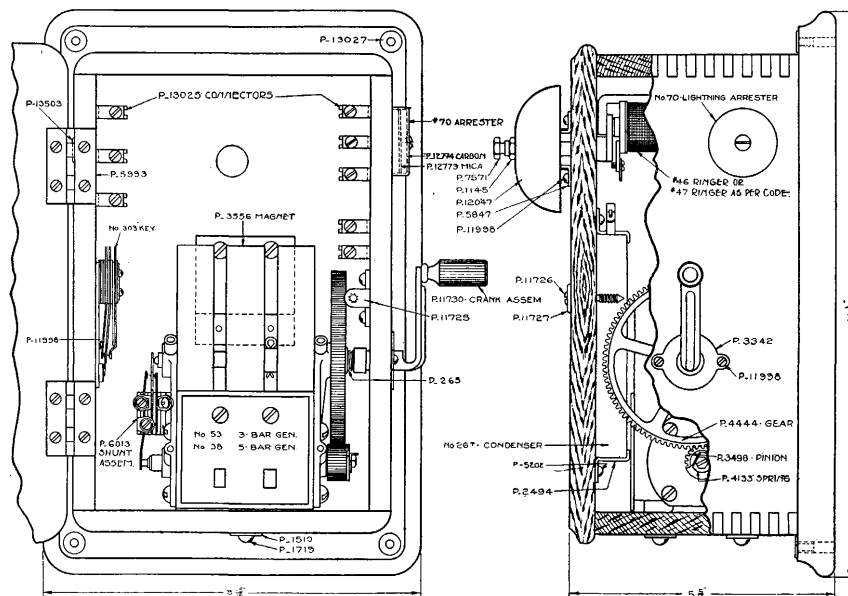


Fig. 18—Code and Piece Numbers of Parts for No. 327 Desk Set Box

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**No. 1138 Combination Telephone**

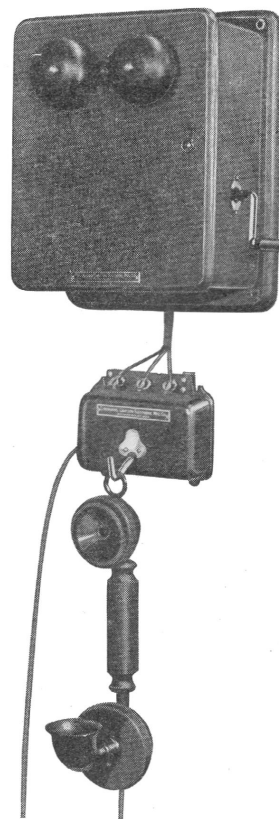
As shown in the accompanying illustration our No. 1138 Combination Telephone Outfit is a two-piece subscriber's station equipment consisting of a No. 10-L Combination Telephone and an associated No. 327 Type Desk Set Box. The apparatus is suitable for either residence or office service as a desk or wall installation.

The No. 10-L Combination Telephone is light, convenient, and requires the use of but one hand to operate it. Its transmission efficiency equals and generally exceeds our other types of instruments because the user naturally speaks directly into the transmitter mouthpiece. The equipment includes a transmitter of our standard size and type, permanent magnet receiver, induction coil and hookswitch. The induction coil and hookswitch are contained within the pressed steel hook-switch box from which the combination telephone is suspended when not in use. Maintenance charges on this style of instrument are very low, as the instrument is mounted where it is seldom in the way or exposed to injury.

The No. 327 Desk Set Box is a re-designed type in which the line, ground and instrument terminals are located within the cabinet so that the apparatus may be used in connection with either exposed or concealed house wiring. Each terminal is distinctively numbered or lettered so that the proper line and cord connections can be made quickly and easily. An improved lightning arrester with a large discharge area is mounted on the side of the box where it is not liable to short circuiting, either by metallic articles or through the collection of dust. The door of the cabinet is hinged on the left side to facilitate the operation of the generator when the door is open. We regularly furnish No. 327 Desk Set Boxes in quartered sawed oak woodwork with a dull golden oak finish.

The No. 1138 Combination Telephone Outfits are furnished with a number of standard equipments for use on grounded or metallic bridging lines. For use on short city or town lines we strongly recommend the No. 1138-R Combination Telephone Outfit, which is equipped with a three bar generator and 1000 ohm ringers. For use on long rural lines where greater ringing power is required the No. 1138-I Combination Telephone Outfit, equipped with a five bar generator and 1600 ohm ringers, will give excellent service.

The No. 10-L Combination Telephone may be used without the desk set box as an extension telephone. The approximate shipping weight of the complete outfit is 21 pounds. No. 10-L Combination Telephone only, 2 pounds. A wiring diagram showing the method of connecting the instruments for both main and extension telephone service is packed with each instrument.



**Fig. 19—No. 1138 Combination Telephone**

## Standard No. 1138 Combination Telephones

Code	For	Type	Generator	Ringer
1138-R	Town lines	Bridging	3 Bar	1000 Ohm
1138-I	Rural lines	Bridging	5 Bar	1600 Ohm
1138-L	Rural lines	Bridging	5 Bar	2500 Ohm

## Harmonic

Code	For	Generator	Ringer
1138-QE	Harmonic Party Lines	3 Bar	16 Cycle, 2500 Ohm
1138-QF	Harmonic Party Lines	3 Bar	33 Cycle, 500 Ohm
1138-QG	Harmonic Party Lines	3 Bar	50 Cycle, 500 Ohm
1138-QH	Harmonic Party Lines	3 Bar	66 Cycle, 500 Ohm

For Sure-Ring Condenser (Page 20) add letter "K" to code number. (On 5-bar telephones only).

For Non-Interfering Push Button (Page 20) add letter "P" to code number. (On 5-bar telephones only).

## Shipping Weights

No. 1138 Combination Telephones are packed in boxes of different sizes, depending upon the number of telephones shipped together. When packed for shipment without dry batteries, the gross shipping weight per telephone is approximately 24 lbs., or when shipped with batteries, about 28 lbs.

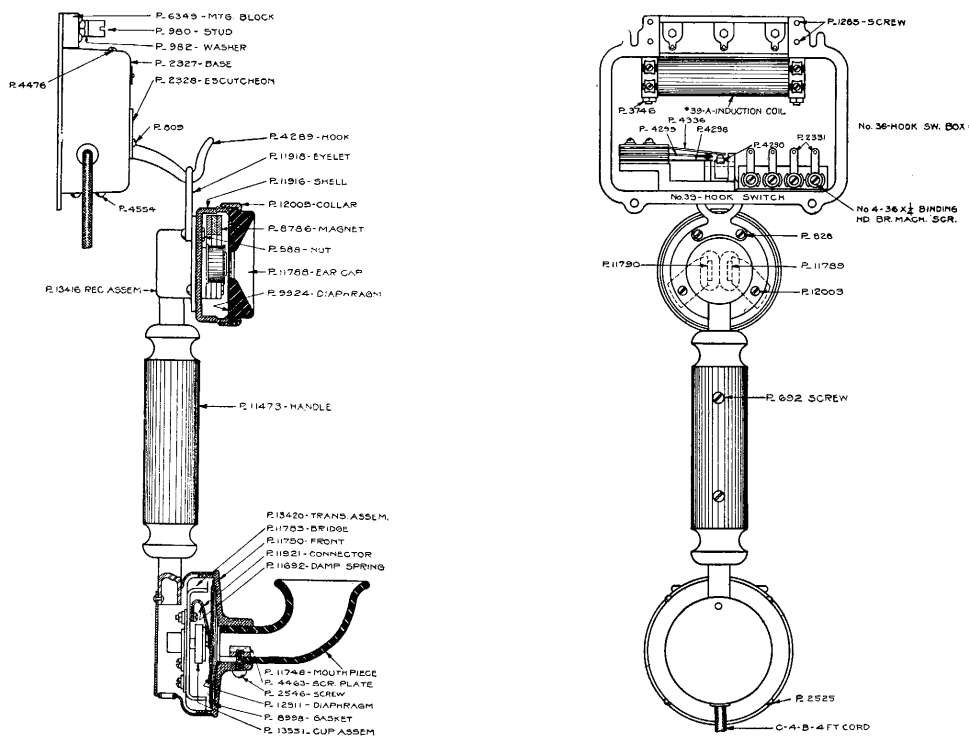


Fig. 20—Code and Piece Numbers of Parts for No. 10-L Combination Telephone.  
See Page 16 for Parts for No. 327 Desk Set Box.

## Magneto Telephones

**Attachments for Magneto Telephones****Battery-Saver Latch**

The price of the dry batteries used in magneto telephones, owing to the scarcity of the raw materials used in their manufacture, is now about 40% higher than it was prior to the beginning of the European war. Because of the increased battery expense and the necessity for conserving battery materials, every owner of a Stromberg-Carlson No. 896 Wall Telephone should equip the instrument with our new and improved Battery-Saver attachment.

In a magneto telephone the circuits and apparatus are arranged so that current from the dry cells begins to flow through the transmitter when the receiver is lifted off the hook and the current consumption continues until the receiver is again replaced; regardless of whether the user is carrying on a conversation or simply listening.

On rural lines there are often times when the telephone is used for listening purposes only, as for example, when market and weather reports are being issued from the central exchange. Then, too, in some communities subscribers do not consider telephone messages confidential and a ring on the line brings many subscribers to the telephone to get the neighborhood news. Under all these conditions the current from the battery is being utterly wasted at the listening stations, and when the telephone company furnishes the batteries the total cost of the wastage amounts to a considerable sum in the course of a year.

Our Battery-Saver, as the name implies, absolutely eliminates this waste by permitting subscribers to use their telephone for listening purposes to their heart's content without connecting the dry cells to the transmitter circuit, but is arranged so that by pushing a button the telephone is immediately put in transmitting condition for talking purposes.

The device consists of a latch which is made to attach to the hookswitch escutcheon plate on the left side of the instrument. Our new No. 896 telephones described in this bulletin require only the latch, but in the case of previous types of this instrument it is also necessary to install one of our new type hookswitches as well.

The Battery-Saver is compact, does not complicate the telephone and will not get out of order.



**Fig. 21—Battery-saver Latch in Normal Position—Receiver on the Hook**



**Fig. 22—Listening Position—Receiver off and Hook half-way up**



## How It Operates

In Figure 21 we show a close-up view of a telephone, equipped with the Battery-Saver, just as it is when it is not in use. When the receiver is removed from the hook the lever springs up but is caught half-way by the bent finger of the Battery-Saver Latch, as in Figure 22. In this position the circuits of the telephone are connected so that the user may hear but not talk; the transmitter is not connected to the battery and no current is consumed.



**Fig. 23—Pressing Latch Back to Put Telephone in Talking Condition**

If the person using the telephone wishes to talk he presses the latch back as in Figure 23. This disengages the hookswitch lever and allows it to resume its upward movement to the full operated position as shown in Figure 24. When the lever is in this position the battery is connected to the transmitter and telephone may then be used for talking purposes.

When the receiver is replaced (hung-up) after a conversation the Battery-Saver is automatically *forced* to its normal position, Figure 21. This action is in no way dependent upon force of gravity as in other kinds of similar apparatus.

We issue a special bulletin describing the Battery-Saver attachment in detail, which we will send free upon request.

## How to Order the Battery Saver

Purchasers of our improved type No. 896 Wall Telephones, described herein, can order their instruments with the Battery-Saver attached and ready for use by adding the letter "W" to the regular telephone code number when writing the order. For example, if the purchaser wishes to buy a No. 896 telephone equipped with a five-bar hand generator, 1600 ohm ringers and Battery Saver the order should read "1 No. 896-IW Telephone." If batteries are also required this item should be followed by the phrase "with 2 No. 531 Batteries."

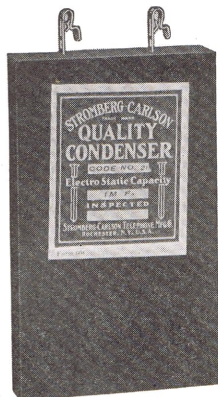
An additional charge is made for the Battery-Saver attachment. For details see the supplementary price-list enclosed with this bulletin.

Our previous types of wall telephones, likewise wall telephones made by other concerns, can be equipped with the Battery-Saver by changing the hookswitch assembly. Owners of such telephones who desire to use the attachment can obtain complete information by applying to our nearest office.



**Fig. 24—Fully Operated—Hook Up as far as it Will Go**

## Magneto Telephones

**Sure-Ring Condenser****Fig. 25—Sure-Ring Condenser**

When the receiver of a bridging telephone is left off the hook it interferes with signalling on the line to such an extent that other parties on the same line can only call one another or central with great difficulty, if at all. This is due to the low resistance connection put across the line at the station where the receiver is off the hook, which consumes nearly all of the ringing current so that the bells in the other telephones cannot operate properly.

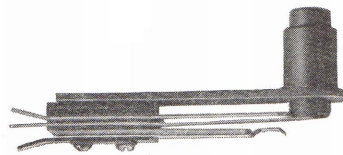
Our "Sure-Ring" Condenser, shown in Fig. 25, when connected in series with the receiver, prevents ringing current from passing through the receiver and induction coil of the telephone when the receiver has been left off the hook, but offers no interference with the voice currents. A telephone equipped with a "Sure-Ring" Condenser cannot cause trouble on a bridging line when left with the receiver down.

All of our magneto telephones described in this bulletin are wired for "Sure-Ring" Condensers, which can be ordered as an additional attachment when the telephone is purchased or added at a later time. The condenser is fitted with Fahnestock spring binding posts so that it can be installed without the use of a soldering copper.

When "Sure-Ring" Condenser attachment is wanted in a telephone ordered, add the letter "K" to the code number of the instrument selected—thus "No. 896-IK Telephone."

**Non-Interfering Push Button**

When this additional equipment is included in a standard bridging magneto telephone, an alternating current generator is used and Central may be called without signalling the other subscribers on the line, or the other subscribers on the same line may be called without signalling Central. The "Non-Interfering" Push Button feature is of benefit on a metallic circuit only, although telephones equipped with push button may be used on grounded lines, in which case the push button would be of no value unless the purchaser contemplates a future change of the grounded lines into a metallic circuit.

**Fig. 26—Non-Interfering Push Button**

All types of our magneto telephones are wired for, but not equipped with, Non-Interfering Push Button service, so that this additional equipment may be specified in the equipment of the telephone when it is purchased or added at a later time.

Non-Interfering Push Button attachments may be ordered in telephones by adding the letter "P" to the code number of the instrument selected—thus "No. 896-IP Telephone."

When both "Sure-Ring" Condenser and "Non-Interfering" Push Button are wanted, order thus—"No. 896 IKP Telephone."



## No. 300 Type Extension Bell

This equipment consist of a quartered-sawed oak cabinet finished in dull golden oak and containing a standard telephone ringer equipped with two 2½" gongs. It is used principally as an auxiliary signal in offices and residences for sounding calls on the line in parts of the building where the ringers of the main telephone set can not be heard.

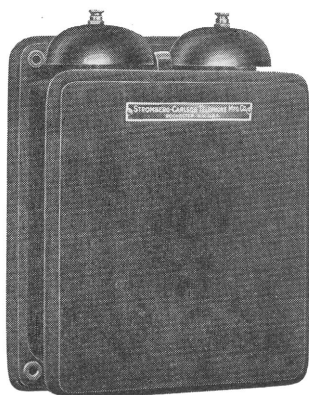


Fig. 27—No. 300 Extension Bell

Extension bells of this type are furnished with standard equipments as follows:

Code No.	Ringer Resistance
300-D	1000 Ohms
300-E	1600 Ohms
300-G	2500 Ohms

Mounting space 6⅜" x 9⅛"; depth over all 4⅝"; net weight 4¼ lbs.; weight packed for shipment 5½ lbs.

## No. 962 Loud Ringing Extension Bell

An iron-clad weatherproof and waterproof extension bell which can be used indoors or in exposed positions out-of-doors without additional protection. Rain and snow cannot affect its operation as the housing of the instrument is designed to shed water and as all of the interior parts are independently waterproof.

The No. 962 Extension Bell is assembled upon a heavy cast-iron frame and is provided with a removable cover of the same material. The ringer movement is extremely simple and contains no delicate or short-lived parts. The ringer coils are contained within sealed metallic cases which water cannot penetrate and are arranged one on each side of the clapper rod so as to give a long armature stroke and to impart powerful blows on the gongs. Adjustments of the ringer are made by means of two eccentric posts which will not work loose in operation.

Extension bells of this type are furnished with triple zinc-plated six inch gongs which will not rust.

Code No.
962
962

Mounting space 17" x 13"; depth over all 4"; net weight, 17 lbs.; weight packed for shipment 21 lbs.

NOTE: To obtain best results the resistance of extension bell ringers should be the same as the resistance of the ringers in the telephones connected on the same line.

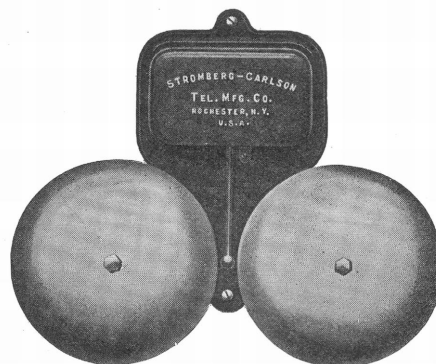


Fig. 28—No. 962 Weatherproof Extension Bell

Ringer Resistance
1600 Ohms
2500 Ohms

## Magneto Telephones

**No. 844 Test Set**

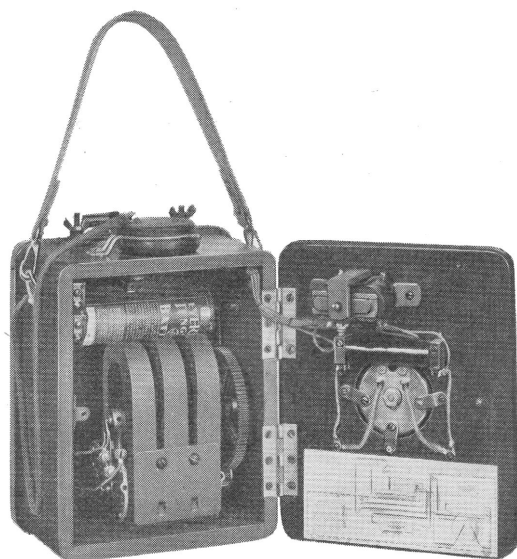
A portable magneto telephone used principally by line-men and inspectors for communicating with their headquarters and for testing telephone lines and apparatus. Railroads and power transmission companies also use this telephone on their private telephone systems for the use of their train crews and patrolmen who require a light, portable telephone set.

This instrument contains all of the operating elements used in other types of magneto telephones, and all of the apparatus is contained within a strong oak cabinet which measures  $8\frac{1}{2} \times 7 \times 5\frac{1}{4}$  inches. This extreme compactness is gained by a unique method of mounting the various pieces of equipment instead of by sacrificing the number and size of the parts, as is often the case in other instruments of similar type.

The transmitter is of the same type that we use in our other standard types of telephones, and is protected by a metal case, which is mounted in the door of the cabinet. Current for talking purposes is supplied to the transmitter by a cylindrical flashlight battery under the control of a battery switch located in the top of the cabinet. Removal of the receiver from its clamp operates the battery switch and permits use of the test set for talking purposes.



**Fig. 29—Closed View of No. 844 Test Set**



**Fig. 30—Open View No. 844 Test Set**

A bi-polar watch-case type receiver with concealed terminals is attached to the set by means of a waterproof receiver cord, which is provided with a heavy linen braid to resist wear.

The testing and signalling equipment includes a powerful three or four bar hand generator as specified, and a 100 ohm or 1600 ohm alternating current buzzer as specified.

No. 844 Test Sets are furnished with two standard equipments as follows:

Code No.	Type	Generator	Ringer
844-A	Series	3 Bar	100 Ohms
844-E	Bridging	3 Bar	1600 Ohms

Furnished complete with leather hand strap. Shoulder strap not included in standard equipment, but can be supplied extra at additional cost. Net weight approximately 12 lbs. Shipping weight 15 lbs.

**ALWAYS SPECIFY CODE NUMBERS OF APPARATUS WHEN ORDERING**



