



1903

## *BULLETIN NUMBER 7, 1902*

*Replaces Bulletin Number 1 (1900)*

*Telephones*

A two color booklet depicting the telephone instruments available from Kellogg in about 1902. The date has been determined by the No 2 desk set depicted in the catalog.

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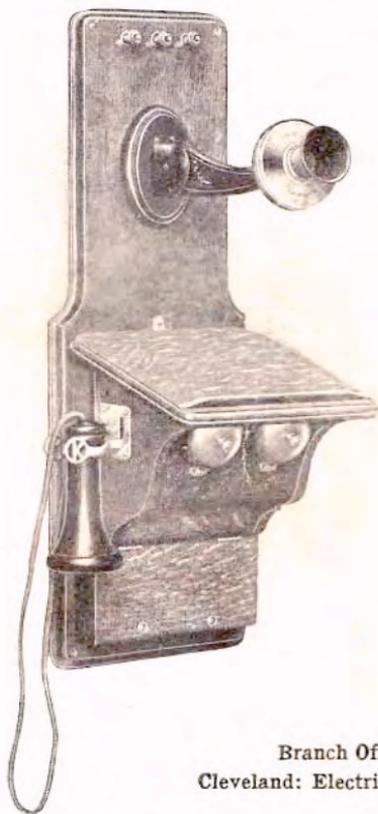
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# Bulletin No. 7

Superseding Bulletin No. 1



Branch Office  
Cleveland: Electric Building

## KELLOGG SWITCHBOARD AND SUPPLY COMPANY

HARRISON, CONGRESS, GREEN & PEORIA STREETS . CHICAGO, ILL

# KELLOGG TELEPHONES

**I**N presenting this bulletin to the public we have not attempted to weary you with the many superior points of Kellogg 'phones, but more especially to show a few of the many styles of instruments which we are prepared to furnish and which we guarantee to be of the same high grade as our well known exchange equipments. They meet the demands of any kind of service. In the manufacture of telephones we have spared no pains in our methods to produce a telephone that should be lasting, efficient, and as near perfect as the finest time-piece. The demand for first-class instruments is becoming more universal, and it is this demand we wish to supply. In attempting to produce an instrument of the highest efficiency, everything has been done that skill, money or experience could do.

It is the aim of the Kellogg Company to produce the finest telephone apparatus in the world; finest in design, finest in workmanship and finish, finest in quality, and, as a natural consequence, finest in results secured. In our line of telephone instruments we are confident that we have not fallen short of this purpose. The instruments will *spea*k for themselves

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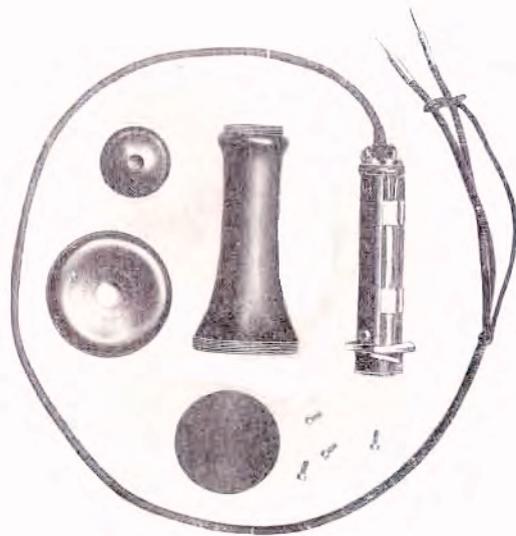
**CODE NUMBERS ON PAGES 39 TO 44**

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## RECEIVERS IN GENERAL

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**I**F one were to observe how careless most persons are with their receiver, especially when they are unable to hear distinctly, it would never occur to him that it is one of the most important parts of the telephone and one that probably requires more care in design and execution than any other.

The most important consideration in the construction of a telephone receiver is its electrical efficiency. Aside from purely electrical efficiency, many considerations of a purely mechanical nature enter into the design of a perfect receiver. It must be adapted to withstand rough usage of careless people, and at the

same time maintain a permanent adjustment. The chamber containing the diaphragm should also be of such shape as not to muffle the sound.

The two points in the construction of a receiver that have given the most trouble in the past are the adjustment of the diaphragm with respect to the pole pieces and the attachment and construction of the binding post. Still another point which in cheap receivers is a source of endless trouble is the material from which the shell is made and the proportioning of this material. With these points in mind, the Kellogg Switchboard & Supply Company have produced the Kellogg receiver, which, together with the great care given in its manufacture, has resulted in a perfect instrument. From an exhaustive series of experiments and tests of actual operation under all conditions of service this new Kellogg receiver has been brought to such a high state of electrical efficiency as to be practically perfect in its electrical as well as mechanical design. The high efficiency of the Kellogg receiver is due to the perfect magnetic balance of its electrical parts.

We believe that the manufacturers of receivers should know more about adjusting them than the subsequent users, and that if provisions are made for maintaining this adjustment permanent throughout the life of the receiver, any means of subsequent adjustment are a detriment rather than an advantage. We have therefore disposed of the source of trouble due to adjustment in this manner.

This new receiver has been improved along certain lines which makes it neater in appearance, much smaller in size, and somewhat shorter in length.

It has reinforcement at the "tail cap," consisting of an extra ring. This is designed to make breakage of the tail cap impossible caused by the user carelessly placing the receiver on the hook-switch.

The binding post nuisance has been gotten rid of by omitting the binding posts entirely. Instead, connectors are carried to a hard fibre insulating block on the permanent magnet. These are completely enclosed within the shell and are readily accessible by removing the tail cap, which screws upon the main portion of the shell. The cord passes through a small hole in this cap and is secured to a metal eye on the magnet in such manner as to relieve the conductors of all strain.

This receiver requires no special cord, as any standard cord may be made to answer by merely cutting off one end. All parts of the shell are composed of the very best grade of hard rubber. The magnets are made of a special grade of magnet steel which was found to give the best results after a long series of tests very carefully and accurately carried out.

The pole pieces are made of a special grade of soft Norway iron, securely fastened to the magnets, and carrying coils wound with the best grade of silk-covered magnet wire. The magnets are secured to the shell at a point near the diaphragm by a heavy cast metal bridge. This bridge is made extra heavy so that it is impossible for any change in adjustment to occur by rough handling of the receiver, and practically no changes in adjustment can be caused by variations in temperature due to the unequal rates of contraction and expansion of hard rubber and metal. The external appearance of this receiver is exceedingly pleasing; the simple graceful curves and the highly polished rubber give the instrument an elegance which is at once an evidence of its high grade.

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## KELLOGG TRANSMITTER

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**I**N the Bell solid back transmitter, which has been held up as a standard by nearly all companies, the cell which contains the electrodes and granular carbon is fastened rigidly to the solid back. As the front electrode is secured to the diaphragm, it vibrates with it and acts as a piston in varying the pressure on the granules, thus producing the transmission. When properly designed this is a very efficient form of transmitter.

The Kellogg transmitter is of the reverse solid back type, and has many advantages of its own, besides all the advantages of the regular Bell solid back. The cell which contains the electrodes and granular carbon is formed in and constitutes a part of the diaphragm. The electrode which corresponds to the front electrode in the solid back transmitter is rigidly held so that not only is the piston effect obtained, but the entire cell vibrates with the diaphragm, thus keeping the granules

well shaken up. This not only prevents "packing," but produces a wide range of variation in resistance, thus giving the most powerful transmission.

The carbon electrodes are made from special carbon with highly polished faces. This polish is produced on the carbon itself without any filing, thus making it permanent.

Next in importance to the carbon electrodes is the quality of the granular carbon. This carbon, for the best effect, should not only be very uniform in size and resistance, but should be able to retain these qualities indefinitely. The granular carbon used in the "Kellogg" transmitter is the result of a great number of experiments and tests, and fulfills all of the above requirements. As the electrodes and granular carbon form a vital part of the transmitter, they are sealed by riveting a retaining ring over a thin mica disk, which is an auxiliary diaphragm. This construction prevents these parts from being tampered with, and at the same time renders the cell practically moisture proof. The diaphragm is formed from hard drawn aluminum surrounded by a soft rubber gasket, held in tension by two steel springs. This construction renders the diaphragm not only highly sensitive to vibrations produced in its close proximity, but prevents its taking up the noise of the room.

The front of the transmitter, to which all the working parts are attached, is turned from a solid brass casting. The bridge to which the back electrode is fastened is made from a heavy strip of brass, which gives very rigid construction. The back, or retaining case, is spun from heavy sheet brass. The mouthpiece is made from pure hard rubber and is provided with a perforated partition to protect the diaphragm. All exterior parts of the transmitter are heavily nickel plated. The novel construction of the diaphragm and the location of the electrode cell causes all heat formed

from excessive flow of current to be radiated quickly. In order to obtain the highest efficiency for both local and common battery transmitter, it is necessary to have two types of instruments, differing only in the construction of the parts contained in the diaphragm cell. These types are designated by "L" and "C" placed after the serial number, which is stamped on the front of the transmitter case.

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## THE KELLOGG RINGER

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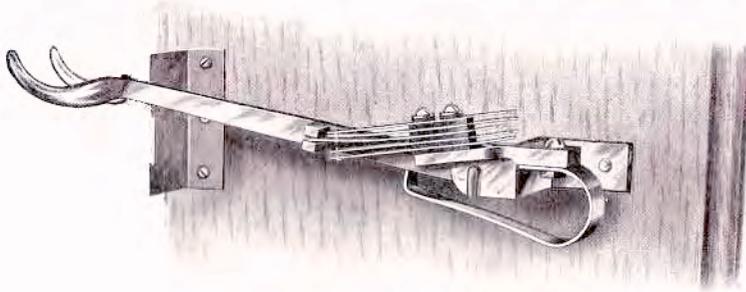
**T**HE call-bell or ringer used on the Kellogg telephones is constructed with the same degree of care as that found on the generator. The armature and cores are of the best grade of annealed soft iron, and all parts are assembled in a thoroughly durable manner. The magnets are wound with the best grade silk-covered copper wire; the ringers for series or ordinary exchange work being wound to 80 ohms and those for bridging work to 1,000 ohms. The cores for the bridging instruments are made much longer than those for the series, in order to give the proper amount of winding space. The resistance of the series and bridging ringers, respectively, are such as our experience has shown us will give the best results for series and bridging work. We can wind these ringers to any reasonable resistance, but will make a small extra charge for departing from our standard. In by far the greater number of cases, however, other resistances than these standards will make no improvement and may be a step in the wrong direction. The adjustment of this ringer is one of its best features, being permanent and at the same time delicate. It is effected by the turning of a single screw which is so arranged that it will not work loose, either in transportation or by the jars brought about by constant use.

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## THE HOOK SWITCH

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THE Kellogg hook switch is undoubtedly the simplest yet produced. Its design is such that all parts are in plain sight and are therefore readily accessible for cleaning or repairs. Only the best grade of German silver and brass is used in its construction, and all contact points are made of real platinum. The hook lever itself, and the base upon



The Kellogg Hookswitch Raised

which it is mounted, form no part of the actual circuits, and in fact are insulated from the circuits of the telephone. By this construction a great advantage is obtained over those forms of hook switches where the lever itself forms a part of the circuit, as poor contacts become practically out of the question.

It is perhaps sufficient to say that, in spite of the fact that we have put out many thousands of these switches during the past four years, we have yet to learn of a single case of trouble with them.

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## MAGNETO GENERATORS

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THE magneto generators used in our telephones for regular exchange service, are of either the three or four magnet type, according to whether they are to be used for series or bridging work. The magnets are bent from heavy bars of the best grade magnet steel, magnetized so as to obtain the greatest possible strength and long life. Their permanency is guaranteed, and this is a point that purchasers of telephone instruments cannot afford to overlook.

Their armature cores are laminated, being composed of thin sheets of very soft iron bolted together instead of being cast in a single piece, as was the old method and as is now done in many of the cheaper grades of instruments. The armature, after being thoroughly insulated, is wound to a resistance suitable for obtaining the best results in the particular service demanded. Only the best quality of silk-insulated copper wire is used, and great pains are taken to prevent short or open circuits which, when they occur, render the generator inoperative. The gears are of cast brass, having very wide faces, which are cut to insure perfect running. The pinion is attached to the armature shaft in a flexible manner, which serves to prevent the unpleasant jerking experienced in turning most generators. The gears run almost noiselessly, and will last throughout the life of any telephone. The magnets of the generator are either highly nickel-plated or coated with a fine grade of enamel. We recommend the use of the enamel, although we are prepared to furnish either style of finish at the same cost.

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## COMPLETE TELEPHONES PORTABLE DESK STANDS

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The  
Kellogg  
Portable  
Desk  
Telephone



**T**HE instrument illustrated on this page carries with it an air of simplicity which is at once a characteristic of elegance. The lines are graceful, and, together with the highly finished hard rubber and nickel-plated surfaces on the exterior and the neat green silk conducting cords, give it the finest appearance of any portable telephone yet produced. This instrument is provided with the regular Kellogg transmitter and receiver, and with the necessary calling apparatus to adapt it to the system with which it is to be used. The hook switch springs are carried within the tube supporting the transmitter, and so mounted

that it is practically an impossibility for them to get out of order. The contacts of the switch hook are all wired down to a connecting rack in the base, to which the terminals of the green silk cords are attached. With each desk stand is furnished a magneto generator and ringer, mounted either in one box or separately, as desired. The standard wood-work may be either of oak or walnut, but if required to match surrounding fixtures, mahogany or any other fancy wood may be used.

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## TRANSMITTER ARM HOLLOW CAST METAL ARM

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No. 22

## STANDARD DOUBLE BATTERY BOX SERIES TELEPHONES

The  
Kellogg  
Series  
Telephone

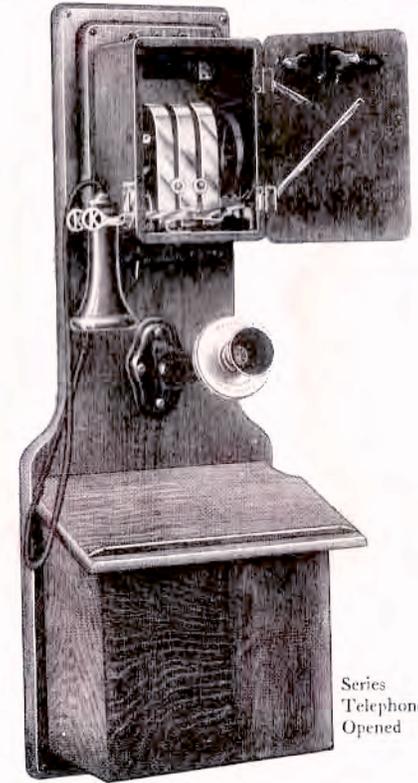


Code numbers page 40

removable from the back boards, there being no wires extending through the bottom of bell box and through the back board, as is often the case in cheap instruments. The battery box is removable, being detached by giving it a sharp rap from beneath with the fist, and there is an iron shelf secured to the back board for the

**I**N this and the page following are shown views of our standard series telephone adapted for use either by any telephone exchange using magneto generators for calling, or for private line service, as between a house and an office. The transmitter, receiver, generator, ringer and hook switch are all of the type heretofore described, wired and assembled in the neatest possible manner so as to give almost positive assurance against circuit trouble. The bell boxes are readily

support of the two cells of ordinary battery. The cut on page 13 shows the battery shelf, and also how the instrument looks with the battery box removed. The woodwork will be furnished at our standard prices in either quarter-sawed oak or walnut, and will also be furnished in mahogany or other woods at an additional cost. All woodwork is free from cracks, splits and objectionable knots, is thoroughly seasoned, and is finished to secure both elegance and durability. The battery box shown in the cuts on this and the preceding page is of our standard type, although at a very slight additional cost we can furnish "Tandem Battery Boxes" of the type shown on pages 16 and 17. In these latter the two battery shelves are provided and arrangements made for wiring the batteries together in series, as before. These instruments are perfectly built and will give complete satisfaction under every condition of usage.

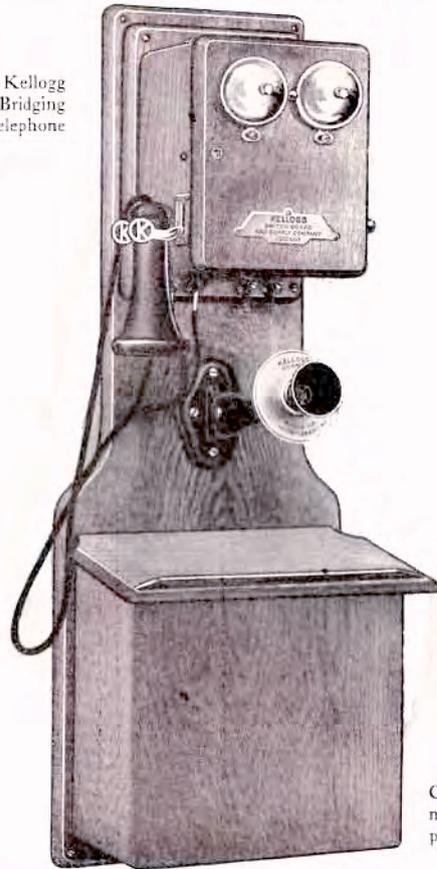


Series  
Telephone  
Opened

Code numbers page 40

## STANDARD DOUBLE BATTERY BOX BRIDGING TELEPHONES

The Kellogg  
Bridging  
Telephone



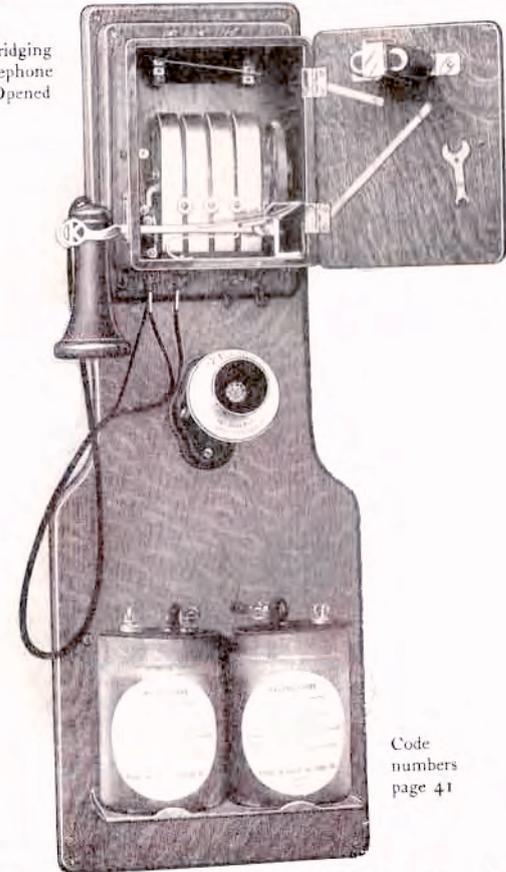
Code  
numbers  
page 41

**T**HE cuts on this and the following page show one of our standard bridging bell telephones adapted for party line service or for regular exchange work, but particularly for the former. All parts of this instrument are the same as those of the series instru-

ment with the exception of the generator and the ringer. The ringer, as stated elsewhere, is provided with very long cores, and is wound to 1,000 ohms, while the generator is provided with four magnets instead of three, and with an automatic cut-in on the shaft.

We believe that for heavily loaded bridging lines these instruments will give satisfaction where most others

Bridging  
Telephone  
Opened



Code  
numbers  
page 41

would fail to work. We say this because the generators are very powerful and the ringers exceptionally sensitive. As for the transmitter and receiver, they will talk over any line over which it is possible to send signals.

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## TANDEM BATTERY BOXES

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Series or  
Bridging  
Telephone  
Tandem  
Battery Box



Code numbers Series Instruments page 40  
Bridging Instruments page 43

16

**T**HIS illustration is representative of our regular magneto instruments, with "Tandem Battery Boxes." The electric features of the instrument are identical with those already described, the only difference being in the battery boxes. This type of instrument is very popular in some sections of the country, and is recommended to those who desire to give their patrons something radically different in appearance from the old style instrument of the Bell Company.

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## TANDEM BATTERY BOXES

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Code numbers  
page 43

This cut shows the instrument illustrated on the preceding page with the cabinet opened to display the interior mechanism. Woodwork in oak or walnut.

17

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## STANDARD SERIES COMPACT DRY CELL TYPE TELEPHONE

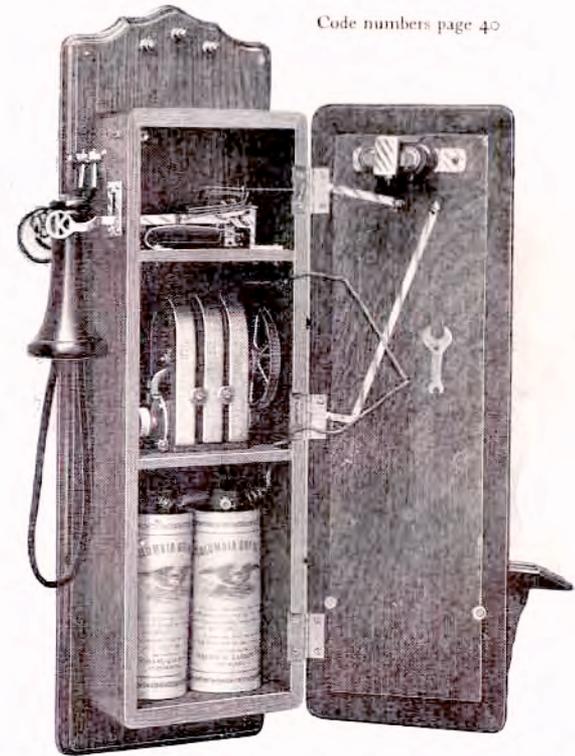
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Code numbers page 40

**T**HIS instrument is made in a design that is now quite well known, and is considered a very desirable as well as ornamental type of telephone. It is equipped with our regular type Kellogg transmitter, receiver, ringer, generator and hookswitch. This type of telephone will be much appreciated by those who

object to the care and trouble of wet batteries, as it is fitted with two high grade dry cells which give very satisfactory results and can be replaced at a small expense. A special feature of this instrument is its compactness and accessibility to all of its parts for inspection, adjustment or repair. The woodwork is well made, thoroughly



Code numbers page 40

seasoned and highly finished. It is quarter-sawed oak in fact as well as in name, and has better joining than is found on telephones of other makes.

All wiring is soldered without acid and cannot become crossed or detached. Compare the wiring of this telephone with that of any other manufacture.

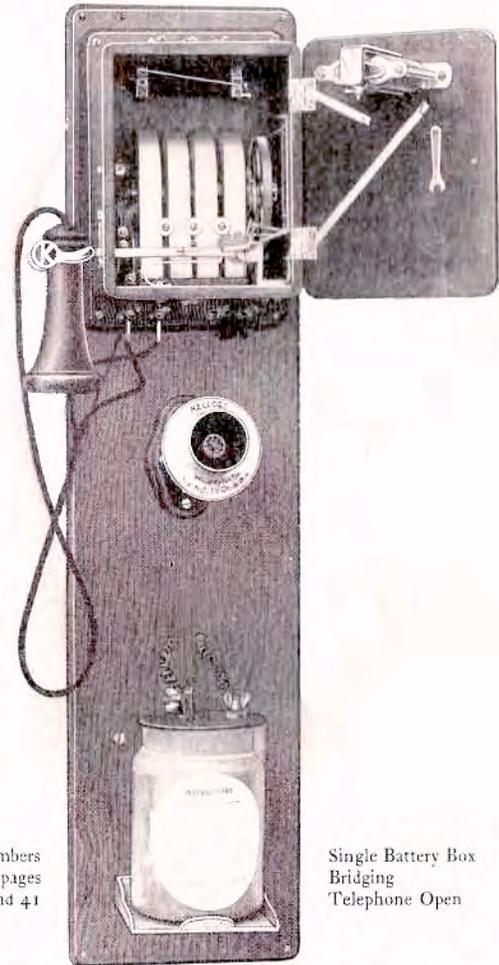
## SINGLE BATTERY BOX BRIDGING TELEPHONE



Code numbers  
pages  
40 and 41

The illustrations on this and the following page are representative of our regular instrument with "Single" Battery Boxes. The electric features of the instrument are identical with those already described, the only

difference being in the battery boxes. They are built with the mechanical and electrical perfection characteristic of all Kellogg telephones and give entire satis-



Code numbers  
pages  
40 and 41

Single Battery Box  
Bridging  
Telephone Open

faction with one ordinary wet battery or two dry cells. Furnished in either quarter-sawed oak or walnut. Also in mahogany or other woods at an additional cost.

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## CABINET DESK TELEPHONE

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**F**OR business offices, hotel lobbies, or halls of fine residences, we offer this cabinet desk telephone as the handsomest piece of telephone apparatus of its kind yet manufactured. The cabinet is of fine selected quarter-sawed oak, joined and finished in a

thoroughly workmanlike manner. All metal parts of the apparatus are either nickel plated and highly polished or are finished in black enamel. All of the apparatus of the telephone is in plain sight, those parts not requiring to be handled being enclosed in a compartment having a bevel plate glass front. The entire top portion of the cabinet is removable to allow the inspector access for repairs or adjustment. The generator crank projects from the upper right hand portion of the cabinet, while the hook switch lever projects in the same manner from the left hand portion, as shown. We make this set for any type of telephone service, for the common battery, automatic calling with local batteries, or the regular magneto system.

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## CABINET DESK SET TRANSMITTER ARM

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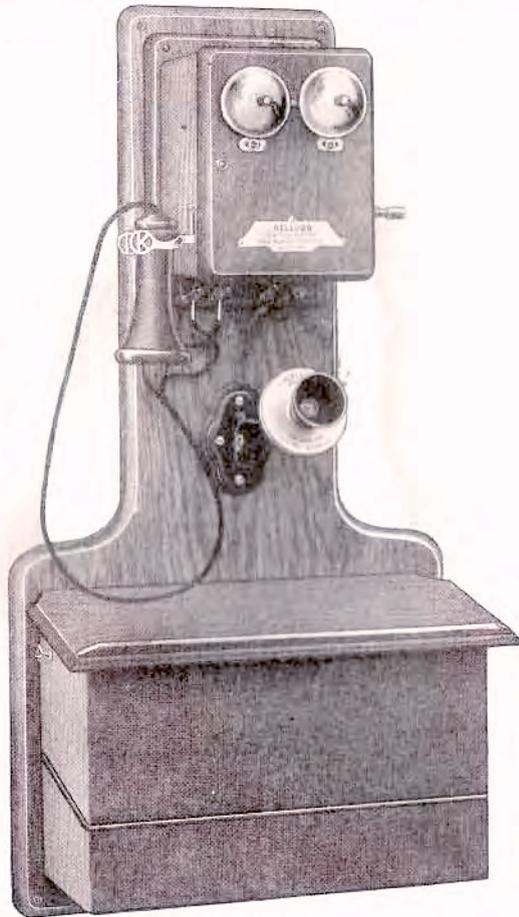
No. 11

No. 13

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## TRIPLE BATTERY BOX PHONE

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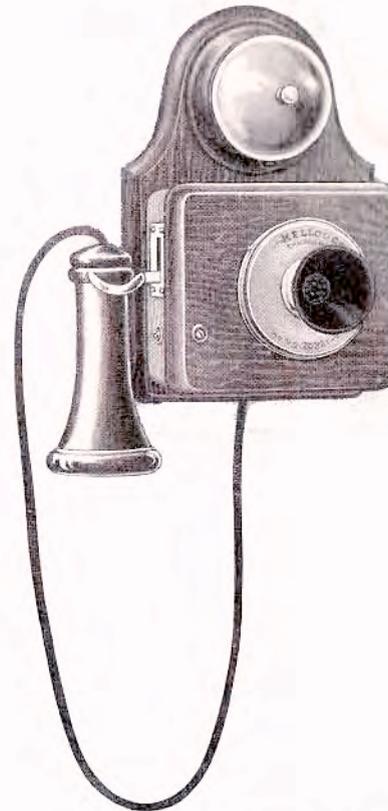
Code numbers page 42

This instrument is the same as our regular double battery box instrument with the exception of the battery box, there being room for three cells of wet battery, instead of two.

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## COMMON BATTERY HOTEL TELEPHONE

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removing the receiver from the hook, and signaling for disconnection by replacing receiver on the hook.

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### CODE NUMBERS

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- No. 191. Oak, No. 9-C transmitter and No. 6-A receiver.
- No. 192. Walnut, No. 9-C transmitter and No. 6-A receiver.

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## CENTRAL ENERGY HOTEL OR RESIDENCE TELEPHONE

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COMMON BATTERY



Code numbers page 44

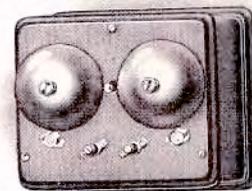
**T**HIS telephone is intended for either hotels, residences or offices where a full metallic circuit is used and where a small, compact set is desirable. All its parts are standard and the same as those used on our regular standard type of instruments. The subscriber signals central automatically by simply removing receiver from hookswitch, and signals for disconnection by replacing the receiver. It has an extra fine

worsted receiver cord and condenser of our own manufacture; the standard Kellogg hookswitch with pure platinum contacts; standard ringer same as used on all Kellogg telephones; bi-polar receiver with pure hard rubber shell concealing all metal parts, and the well known Kellogg long distance transmitter, guaranteed for five years. There are no binding posts or connections exposed in any part of this instrument, which gives it a much neater and more finished appearance than most sets of this type now on the market.

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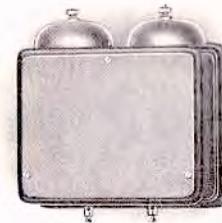
## EXTENSION BELLS

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No. 2

Eighty-ohm ringer.



No. 3

Eighty-ohm ringer.

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## CENTRAL ENERGY HOTEL OR RESIDENCE TELEPHONE

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COMMON BATTERY



Code numbers  
page 44

**T**HIS telephone is intended for either hotels, residences or offices where a common return is used and where a small, compact set is desirable. All its parts are standard and the same as those used on our regular standard types of instruments.

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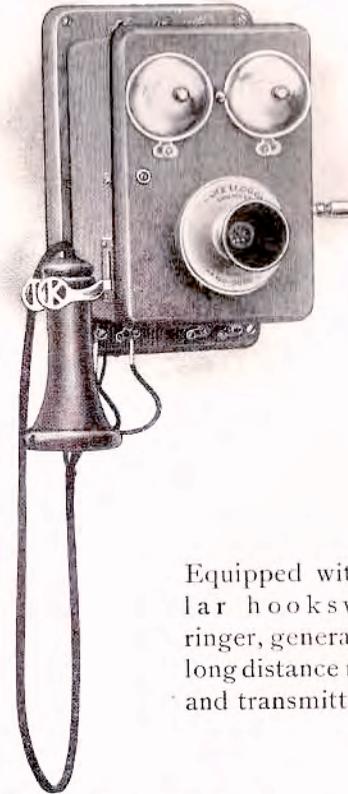
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## HOTEL TELEPHONE

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SERIES OR BRIDGING



Equipped with regular hookswitch, ringer, generator and long distance receiver and transmitter.

Code numbers page 39

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## HIGH GRADE THROUGHOUT

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## CENTRALIZED BATTERY SYSTEM

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Code numbers page 39

**T**HE latest far-reaching development in telephony has been the development of the common battery system in the modern exchanges. In fact, some believe that an exchange is not strictly up-to-the-times unless so equipped. The instruments illustrated on this and the succeeding page are designed particularly for common battery work, and have been subject to

much commendation on account of their small size, neat appearance and extreme simplicity of their parts. This type we have adopted as our standard design, and we are now furnishing it to all our customers. We think this the most desirable form, as the box containing the



Centralized Battery  
Telephone Open

Code numbers page 39

ringer is hung at the lower edge so as to swing down against the back board, leaving all parts exposed and open to inspection. We believe this is the first cabinet ever produced in which the hookswitch, condenser, induction coil and all other parts except the ringer are

mounted directly on the back board. This style of cabinet has several advantages, one of which is that the various parts of the box cannot warp and cause unsightly cracks or openings between its various joints.

This instrument will be furnished in oak, walnut or mahogany.

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### HAVE THE FOLLOWING POINTS OF SUPERIORITY

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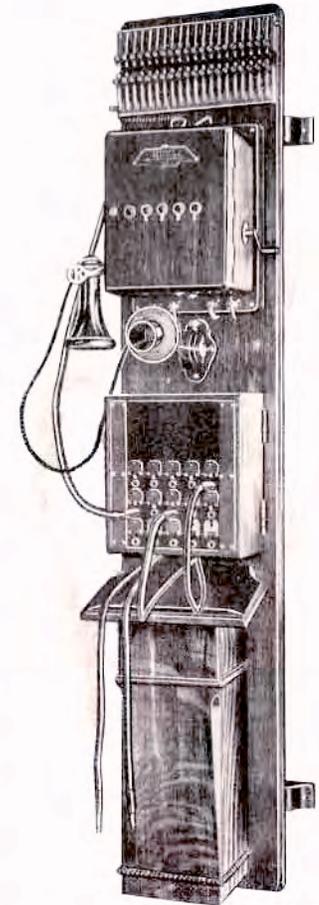
- 1 They are the most modern type now offered to telephone users, whether Bell or Independent.
- 2 They are the simplest in construction and the most efficient in operation.
- 3 All parts are made of the best material carefully selected.
- 4 They are manufactured by the most skillful mechanics obtainable.
- 5 They are electrically as well as mechanically of the highest efficiency.
- 6 All contacts are 99 per cent pure platinum.
- 7 All springs are pure german silver.
- 8 All insulation is pure hard rubber.
- 9 The receiver and transmitter cords are the very best and made in our factory.
- 10 They have the Kellogg transmitter and receiver.

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## KELLOGG COMBINATION TELEPHONE AND SWITCHBOARD

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**T**HE accompanying cut represents one of our standard wall type switchboards. It has a capacity of twenty magneto lines, and is provided with apparatus for four-party line selective signaling. This particular type of switchboard is largely used for connecting farmers' toll lines, and its construction is nearly as simple as the regular subscribers' set, so that it requires no experience to operate it.



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## SELECTIVE PARTY LINE SUBSCRIBERS SET

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Code  
numbers  
page 44

**T**HIS instrument is to be used in connection with the standard Kellogg four-party line selective system. The apparatus for this system can be furnished for any make of magneto switchboard.

The circuits of these instruments are alike, and it is not necessary to specify the station for which it is desired when ordering. Two short connecting cords with terminals are arranged in the magneto box so that by connecting these terminals to binding posts as per directions accompanying the set, it may be made to respond to the desired station signal. Selective party line instruments can only be used on metallic circuits. The ringers are bridged to

ground for signaling, the talking being metallic. The central office is called in the regular way by turning

the hand generator. This throws the drop on the switchboard without ringing any of the bells on the line, so that in no case is there any signal to disturb other subscribers, either in calling central or signaling the called-for subscriber.

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## TRANSMITTER ARMS

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No. 20



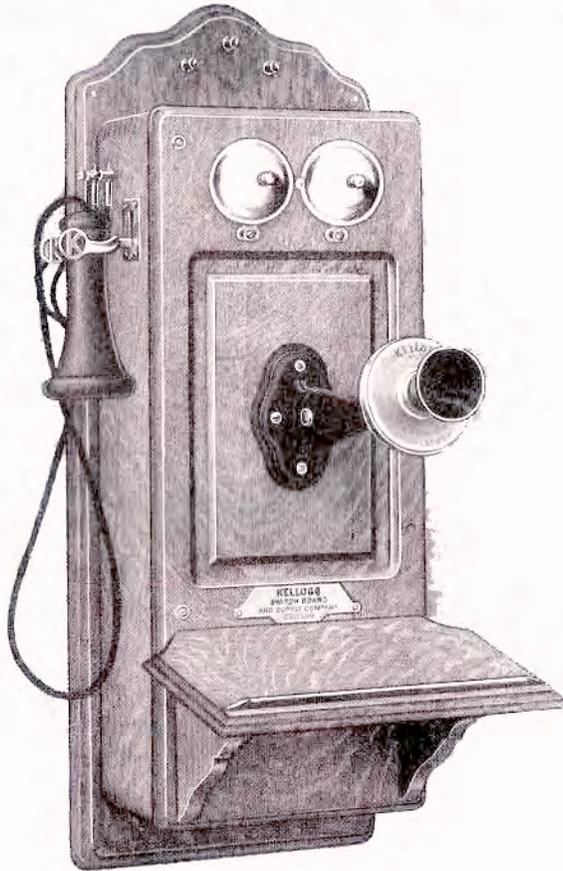
No. 21

**T**WO styles of transmitter arms for wall sets are regularly furnished with our instruments and are shown in the accompanying cut. They are stamped steel concealed cord type arms, and have a japanned finish with gold striping; which makes them very neat in appearance. Both are provided with single joint only, as is the usual practice. The No. 21 arm is the same as No. 20, with the exception of the base, which allows the use of an induction coil.

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**KELLOGG DRY CELL TYPE  
BRIDGING TELEPHONE**

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Code numbers page 43

 SPECIALLY adapted for heavily loaded farmers' lines. The equipment is the same as our regular Compact Dry Cell Type Series Set, with the exception of the generator, which has five bars instead

of three. This instrument will work and give satisfaction where many others have failed, and is electrically and mechanically of the highest efficiency. Woodwork is furnished in either oak or walnut.

The receiver has permanent adjustment.



Code numbers page 44

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**THE TRANSMITTER IS GUARANTEED FOR FIVE YEARS**

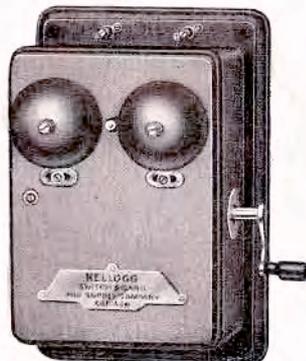
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# DESK SET BOXES



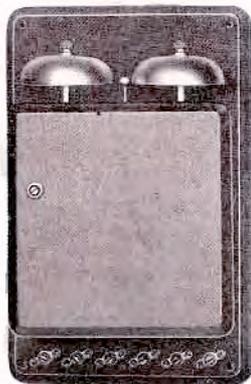
No. 5

Oak or walnut woodwork, 1,000 ohm ringer, 4 bar generator



No. 6

Oak or walnut woodwork  
80 ohm ringer  
3 bar generator



No. 7

"Common Battery" Desk Set  
Box, with condenser and  
1000 ohm ringer

## CODE NUMBERS

### COMMON BATTERY SET TELEPHONE

- No. 28. Oak, No. 20 transmitter arm, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver.
- No. 29. Walnut, No. 20 transmitter arm, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver.
- No. 30. Oak, No. 20 transmitter arm, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver. Concealed binding post.
- No. 31. Walnut, No. 20 transmitter arm, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver. Concealed binding post.

### HOTEL SET SERIES TELEPHONE

- No. 32. Oak, 80 ohm ringer, 3-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 33. Walnut, 80 ohm ringer, 3-bar generator, No. 9-L transmitter and No. 6-A receiver.

### BRIDGING HOTEL SET

- No. 34. Oak, 1000 ohm ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 35. Walnut, 1000 ohm ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 36. Oak, 1600 ohm ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 37. Walnut, 1600 ohm ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 38. Oak, 1000 ohm ringer, 5-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 39. Walnut, 1000 ohm ringer, 5-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 40. Oak, 1600 ohm ringer, 5-bar generator, No. 9-L transmitter and No. 6-A receiver.
- No. 41. Walnut, 1600 ohm ringer, 5-bar generator, No. 9-L transmitter and No. 6-A receiver.





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## SELECTIVE PARTY LINE SUBSCRIBERS BRIDGING PHONE

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### SINGLE BATTERY BOX

- No. 168. Oak, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 169. Walnut, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 170. Oak, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 171. Walnut, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.

### DOUBLE BATTERY BOX

- No. 172. Oak, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 173. Walnut, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 174. Oak, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 175. Walnut, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.

### TRIPLE BATTERY BOX

- No. 176. Oak, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 177. Walnut, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 178. Oak, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 179. Walnut, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.

### TANDEM BATTERY BOX

- No. 180. Oak, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 181. Walnut, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 182. Oak, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 183. Walnut, No. 21 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.

### COMPACT DRY CELL TYPE

- No. 184. Oak, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.  
No. 185. Walnut, No. 20 transmitter arm, 2500 ohm biased ringer, 4-bar generator, No. 9-L transmitter and No. 6-A receiver.

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### COMMON BATTERY SET FOR HOTELS

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- No. 186. Oak, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver.  
No. 187. Walnut, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver.  
No. 188. Ebonized, 1000 ohm ringer, No. 9-C transmitter and No. 6-A receiver.  
No. 189. Oak, 80 ohm ringer, No. 9-C transmitter and No. 6-A receiver.  
No. 190. Walnut, 80 ohm ringer, No. 9-C transmitter and No. 6-A receiver.

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## INDUCTION COIL

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No. 1 A

Designed to give highest efficiency for both local and long distance work.

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## CONDENSER

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No. 5, 2 MF. No. 6, 1 MF.

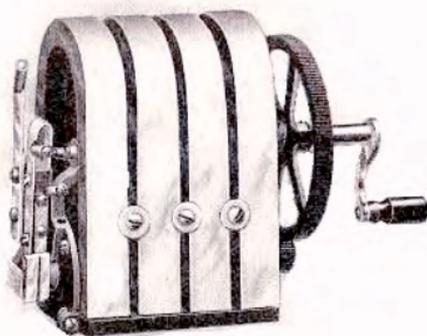
**T**HE No. 5 Condenser is the same as used in all standard central energy telephones. It is enclosed in a sealed metal case, coated with japan and provided with insulated terminals. It is built from the best material obtainable. The best quality of rice paper and pure tin foil is used in its manufacture. They have a high insulation and will stand over 220 volts pressure.

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## DIRECT CURRENT GENERATORS

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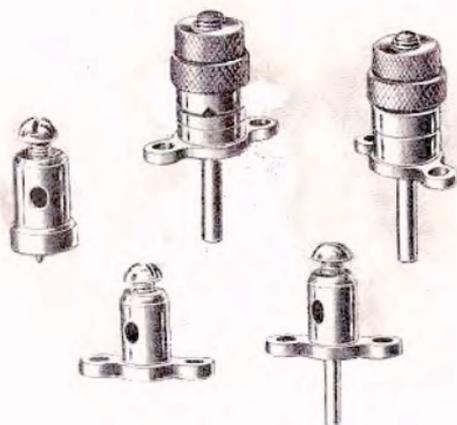
It is a common practice on long toll lines to use instruments equipped with direct current generators so as not to ring the bells of other subscribers' stations whenever central office is called. The generator is the regular bridging machine provided with a commutator and brushes to give direct current.



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## BINDING POSTS

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No. 4    No. 2    No. 3    No. 7    No. 1



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**FACTORY  
CONGRESS AND  
GREEN STREETS**

Three buildings, two  
on Peoria Street and  
one on Harrison Street,  
not shown in this cut

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ALL ORDERS AND CONTRACTS ARE ACCEPTED SUBJECT TO STRIKES, ACCIDENTS AND DELAYS UNAVOIDABLE OR BEYOND OUR CONTROL

MAIN OFFICE AND FACTORY  
CONGRESS AND GREEN STREETS  
CHICAGO

PHILADELPHIA BRANCH  
KEYSTONE TELEPHONE BUILDING

CLEVELAND BRANCH  
ELECTRIC BUILDING

POLE YARDS  
ESCANABA, MICHIGAN

CABLE ADDRESS  
"SWITCHBOARD, CHICAGO"  
LIEBER'S CODE USED

# KELLOGG SWITCHBOARD AND SUPPLY CO.

TELEPHONE SWITCHBOARDS  
TELEPHONES  
INSULATED WIRES  
SWITCHBOARD CABLES  
CONSTRUCTION MATERIAL  
POLES

OFFICE OF EASTERN DISTRICT,

PHILADELPHIA, Feb. 12th 1903

Columbia Telephone Co.,  
Columbia, N. Y.

Gentlemen:-

Information has reached us through the Daily Press reports to the effect that you are contemplating the purchase of telephone apparatus in the near future, if this is correct, we beg to call your attention to the fact that the KELLOGG SWITCHBOARD & SUPPLY CO. of Chicago whose apparatus is well and favorably known throughout this Country and Europe, has opened a Branch office at the above address for the purpose of better serving its patrons located in the Eastern portion of the United States. Inquiries of any kind addressed to this office will receive prompt and careful attention.

Proposals to furnish any and all kinds of High Class telephone apparatus of KELLOGG manufacture, will be made from this office.

Soliciting your valued favors, we are,

Yours truly,

KELLOGG SWITCHBOARD & SUPPLY CO.

By,



Manager E. D.

*Please address your orders to  
Kellogg Switchboard & Supply Co.,  
204 Keystone Telephone Bldg,  
PHILADELPHIA, PA.*

PWB-M