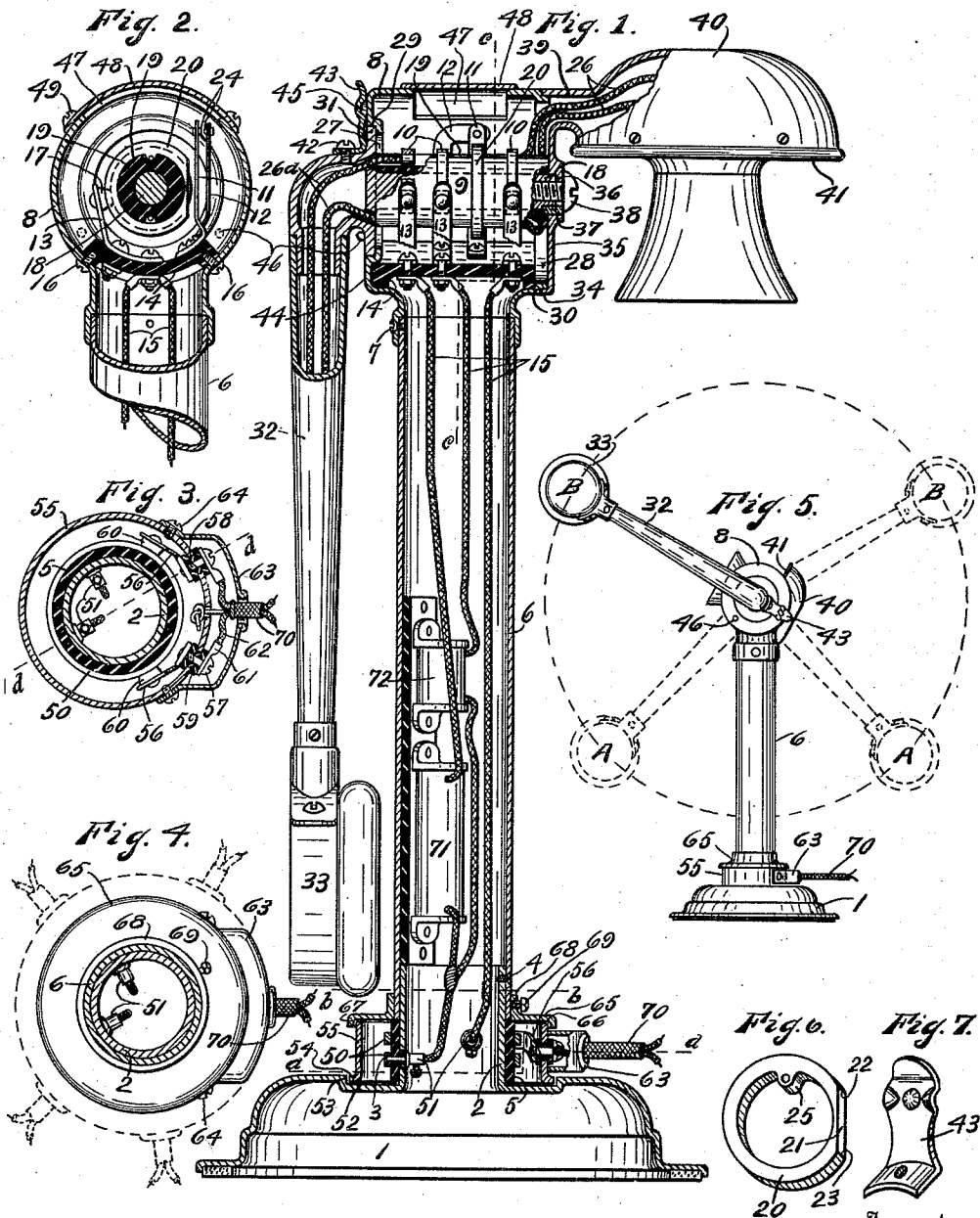


J. WEIL.
 AUTOMATIC TELEPHONE INSTRUMENT.
 APPLICATION FILED APR. 10, 1911.

1,018,646.

Patented Feb. 27, 1912.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN WEIL, OF MANSFIELD, OHIO.

AUTOMATIC TELEPHONE INSTRUMENT.

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Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, JOHN WEIL, a citizen of the United States of America, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Automatic Telephone Instruments, of which the following is a specification.

The present invention relates to improvements in telephone instruments, providing an instrument suitable for both portable and stationary use, and equally adapted to either the central exchange, or automatic systems.

It is well known that in the instruments now in general use, efficiency of service is dependent largely upon the acts of subscribers, or persons using the instruments, instead of upon the instruments themselves, and in my present invention I have not only sought to minimize this dependence, thus rendering the instrument automatic in its mechanical operation, but also to produce an instrument that will be simple and compact in construction, and which can be easily and cheaply manufactured.

In the instruments now in general use, electrical connection is made to the transmitter and receiver by means of insulated wires, braided to form flexible conductor cords, of sufficient length to afford a reasonable range of adjustment for the former, as well as considerable shifting movement of the subscriber or operator while holding the latter to his ear. This places at the discretion of the operator the distance of his lips from the transmitter while speaking, as well as whether or not he will speak directly into the transmitter, and as the delicate mechanism of the latter is adjusted, or attuned in conformity to a substantially fixed distance of the lips therefrom, highly efficient service cannot be attained unless this pre-determined condition is realized. These conductor cords, being exposed, are very liable to injury, by having various objects come in contact with them, thus injuring the insulation, or loosening the connections with the fixed binding posts, and the receiver cord particularly, is free to tangle and twist into knots, which is very liable to result in breaking the inclosed wires, thus rendering the service unreliable and inefficient. Also if the operator, when through speaking, neglects to replace the

receiver upon the switch-hook, usually provided for the purpose of re-instating certain of the circuit connections, the instrument will thus be rendered inoperative.

Another serious disadvantage in the use of the ordinary telephone instruments is, that the transmitter is held substantially fixed in such a position that it is very susceptible to the collection of dust or the like, which is very liable to be polluted with disease germs, thus rendering the instrument unsanitary, particularly when used in hotels or other public places.

The ordinary portable type of instruments, commonly known as desk sets, usually comprise, in addition to the portable stand, a bell box mounted rigidly upon the wall or other convenient place, and to which the stand is electrically connected by means of a flexible conductor cord, or cords, the wires within the cord being inserted into fixed binding posts within the base of the stand, and being thus rigidly held at both extremities, this cord is also very liable to become entangled and twisted into knots, as the instrument is moved about from place to place, or when it is turned around, or rotated into position for use from one ear to the other, or from one side of a desk to the other.

The objects of my invention are, therefore, to provide an instrument suitable for both portable and stationary use, for either the central exchange or automatic systems, and which will be simple, compact, and efficient in construction; to provide an instrument having a fixed distance between transmitter and receiver, and in which the transmitter and receiver conducting cords are entirely inclosed and protected; to provide an instrument in which the receiver automatically returns to its normal position of disuse, but having provision automatically holding the same in an operative position, when so desired by the operator, leaving his hands free; to provide an instrument in which the normal position of disuse of the transmitter is inverted, so that it will not be susceptible to the collection of dust; to provide an instrument of the portable type having a rotary, continuous contact, multiple circuit connector at, or near the base of the stand, to which the conductor cord or cords from the bell box are attached, and adapting the instrument

to be rotated in complete circles about the vertical axis of the stand, for use with either ear of the operator, or from either side of a desk without entangling or twisting of said conductor cords.

I attain these, and other objects by the construction and arrangement of the combination of parts hereinafter fully described, and illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional elevation of a telephone desk set embodying my invention, on line *d—d* of Fig. 3; the receiver and transmitter being shown in elevation. Fig. 2 is a vertical sectional elevation of the upper end or head of the stand, the plane of section being at right angles to that of Fig. 1, and on line *c—c* of Fig. 1. Fig. 3 is a horizontal section of a portion of the stand, on line *a—a* of Fig. 1. Fig. 4 is a horizontal section of a portion of the stand, on line *b—b* of Fig. 1, illustrating the continuous contact connector; it being observed that the conductor cord is capable of being rotated in complete circles about the vertical axis of the stand, as shown by the dotted lines. Fig. 5 is a side elevation of a telephone desk set constructed in accordance with my invention, and illustrating the operation of the swinging receiver arm; the dotted lines showing several positions of the receiver and transmitter, as the receiver arm is rotated about the horizontal axis of the head of the stand. Fig. 6 is a view in perspective of the partially continuous contact ring, and Fig. 7 is a perspective view of a specially formed spring member.

Referring more specifically to the drawings, reference numeral 1 indicates the base of my preferred type of desk set, having a vertical tubular portion 2, upon which is mounted, and securely held in place thereon by any desired means, as by screws 3 and 4, the insulating sleeve 5 and tubular standard 6. The upper end of the tubular standard 6 has attached thereto, and securely held in place thereon, preferably as by means of screws 7, the head or housing 8, preferably of the shape shown, in which is mounted the automatic circuit switch 9, and continuous contact rings 10; the switch blades 11 and 12, and contact fingers 13, of suitably resilient material, are rigidly mounted upon an insulating block 14, and securely held in place thereon, at their lower ends, by any desired means, but having provision for electrical connection with the conducting wires 15, preferably as shown by Figs. 1 and 2; the insulating block 14, preferably of hard rubber, thus forms a base or support for the switch blades 11 and 12, and contact fingers 13, and is securely held in place, preferably as by means of screws 16, Fig. 2. The spring contact fingers 13 have rigidly,

and suitably mounted upon their outer free ends, the contact blocks or brushes 17, adapted to slidably engage the continuous contact rings 10, which are rigidly mounted, and securely held in place by any desired means, upon the shaft 18, and electrically insulated therefrom by means of the bushing or sleeve 19, preferably of hard rubber. The partially continuous contact ring 20, having one side flattened as shown at 21, Fig. 6, and also securely mounted upon, and electrically insulated from the shaft 18, is adapted to slidably engage the switch blade 11, as the said ring is rotated in either direction with the shaft 18; it will be noticed that the edges 22 and 23 of the flattened side 21, of the ring 20, serve as a cam to close the circuit switch 9, by pressing the switch blade 11 into electrical contact with the switch blade 12, at the platinum contact points 24, and also, that when the instrument is in the normal position of disuse, the ring 20 entirely disengages the resilient switch blades, and there is therefore no tension in the latter, except during the usually short periods that the instrument is in use, which serves to prolong the life and usefulness of the said blades. The rings 10 and the ring 20 have inwardly projecting lugs, preferably as shown at 25 in Fig. 6, suitably adapted to receive the circuit conductors 26 and 26^a, from the receiver and transmitter.

The head or housing 8 has central lateral apertures 27 and 28, having the inwardly projecting flanged or shouldered portions 29 and 30; the shouldered portion 29 is adapted to rotatably engage, or journal the outwardly extending flange portion 31 of the shaft 18. Rigidly attached to the flange portion 31, and having a substantially right angle or elbow bend, as shown by Fig. 1, is the tubular member 32, which I shall designate the receiver arm, and upon the outer free end of which is rigidly secured by any suitable desired means, the receiver 33, which may be of any suitable design; the tubular member 32 is adapted to entirely inclose, and thus protect the circuit conductors 26^a leading from the receiver 33 to the contact rings 10. The shouldered portion 30 of the head 8 is likewise adapted to rotatably engage or journal the flange portion 34 of the side plate 35, the latter having a central recessed portion 36 adapted to engage the shaft 18; the said side plate 35 being removably, and securely held in fixed relation to the said shaft by means of the key 37, and screw 38; the side plate 35 also has, at or near its circumference, the tubular projection 39, terminating in the enlarged shell portion 40, hereinafter designated the transmitter shell, which forms the supporting cap or cover for the transmitter 41, which may also be of any suitable design, the tubular portion 39 and cap 40 being likewise

adapted to entirely inclose and protect the circuit conductors 26 leading from the transmitter to the contact rings 10 and 20. It will thus be observed that the shaft 18 is capable of being rotated in complete circles about its horizontal axis, carrying with it the contact rings 10 and 20, the receiver arm 32, receiver 33, transmitter 41 and circuit conductors 26 and 26^a, all in a substantially unified relation to each other, as shown in Figs. 1 and 5; and also that the circuit conductors leading from the transmitter and receiver to the contact rings are entirely inclosed and protected.

Removably secured to the receiver arm 32, by means of screw 42, is the suitably formed spring member 43, which is adapted to slidably engage the face 44 of the housing 8; the said spring member 43 having a suitable recess 45 placed in proper alinement to engage the pins or studs 46, as the receiver arm is rotated to certain pre-determined positions, in either direction, as shown by Fig. 5, thus automatically holding the receiver and transmitter in proper position for talking, leaving the hands of the operator free, when so desired. The pins or studs 46 are rigidly secured to the face 44 of the housing 8. The housing 8 also has a suitable aperture 47, through which the switch blades 11 and 12 and contact fingers 13, may be inspected, and which is provided with a suitable cover 48, preferably removably held in place by means of screws 49.

The insulating sleeve 5, preferably of hard rubber, has securely attached thereto, and rigidly held in place thereon, by any desired means, the continuous contact rings 50, to which are electrically connected the connectors 51, the latter being electrically insulated from the tubular portion 2 of the base, as shown by Fig. 1. The base 1 has a recessed portion 52, forming a shoulder 53, adapted to rotatably engage the flange portion 54 of the sleeve 55, the latter having the spring contact fingers 56 securely attached thereto by means of screws 57, and electrically insulated therefrom by means of bushings 58 and washers 59, preferably of hard rubber; the free ends of the spring contact fingers 56 have securely attached thereto by any desired means, the contact blocks or brushes 60, which are adapted to slidably engage the contact rings 50, as shown by Fig. 3. The screws 57 engage, and securely hold in place at their outer ends, the terminal connectors 61 of the current conductors 62, said screws and terminal connectors being protected, preferably as by the cover 63, which is rigidly secured to the sleeve 55 by means of screws 64, also shown in Fig. 3. A circular disk 65 having a recessed portion 66 (see Fig. 1) forming a shoulder 67, adapted to rotatably engage the sleeve 55, and having a tubular projection 68

adapted to slidably engage the standard 6, is adjustably held in position by means of a set screw 69, to serve as an upper guide for the sleeve 55, as well as protecting cover for the contact rings 50 and spring contact fingers 56. It will be noticed that by loosening the set screw 69, and sliding the disk 65 upwardly along the standard 6, the parts within the sleeve 55 may be inspected at will. It will thus be observed that the instrument may be rotated about the vertical axis of the standard 6, while the conductor cord 70, within which is inclosed the current conductors 62, may remain stationary and yet not interrupt the flow of electric current, thus avoiding the liability of the said cord being twisted into knots as the said instrument is brought into position for use from one ear to the other, or moved about from place to place. As a matter of simplicity I have chosen to illustrate this principle as by means of Fig. 4, in which the conductor cord 70 is shown as being rotated about the instrument, while the latter remains stationary, the dotted lines showing several positions of the cord.

While I have shown the condenser 71 and retardation coil 72 mounted within the standard 6, yet I wish it understood that these may be placed either within the base of the instrument, or in the bell box as desired, without departing from the spirit and scope of my invention.

In operating my preferred type of desk set, the receiver arm is rotated or swung in either direction, to substantially the position shown at A in Fig. 5, at which point the corresponding edge 22 or 23 of the ring 20 will have rotated sufficiently to press the switch blade 11 into electrical contact with the switch blade 12, thus closing the talking circuit, and as the receiver arm is rotated still further, to the normal position for speaking into the transmitter, the periphery of the ring 20 slidably engages the switch blade 11, thus maintaining the talking circuit closed and the ringing circuit inoperative. As hereinbefore stated, the transmitter 41 rotates simultaneously with the receiver by reason of its being rigidly held in fixed relation thereto. When through speaking, it is only necessary for the operator to release his hold upon the receiver, when by reason of its weight, it will fall by gravity to its normal position of disuse, carrying with it the ring 20, circuit conductors 26 and 26^a, and transmitter 41, and as the proper edge 22 or 23, corresponding to the direction of rotation, of the said ring 20, disengages the switch blade 11, the tension in the latter is released, causing it to disengage the switch blade 12, thus automatically opening the talking circuit and re-instating the ringing circuit. If the operator desires to use the instrument, leaving his hands free for tak-

ing notes or messages, it is only necessary to rotate the receiver arm to a position slightly above the normal position for speaking, as shown at B, Fig. 5, when the
 5 spring member 43 will engage the corresponding pin or stud 46, thus automatically holding the receiver and transmitter in position, and when through talking, it is only necessary for the operator to press upon the
 10 receiver arm 32, thus disengaging the spring member 43, from the stud 46, when the receiver and transmitter will automatically return to the normal position of disuse, as hereinbefore described.

15 While I have chosen to illustrate and describe my invention in connection with the preferred type of desk set shown, yet I do not wish to be so limited, as it will be understood that considerable departure may be
 20 made from the particular arrangement and construction of parts shown, without departing from the scope and principle of the invention, as for instance the use of ball bearings in the head of the instrument, in
 25 order to reduce the friction of the journals. I also wish it understood that the head of the instrument as shown, with the automatic swinging, receiver arm and transmitter, and automatic circuit switch, is
 30 equally applicable to a wall type or stationary instrument, as it is only necessary to provide on the box of the latter a suitable support for the head.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a telephone set, the combination with a hollow housing, of a member extending laterally therethrough, and suitably journaled therein, a hollow arm having
 40 a substantially right angle bend secured to one end of said member, a receiver secured to the outer end of said arm, and a transmitter removably secured to the other end
 45 of said member in a fixed relation to the said receiver; said arm being adapted to rotate about the horizontal axis of the said member, and carry with it the receiver and transmitter.

50 2. In a telephone set, the combination with a hollow housing, of a member extending laterally therethrough, and suitably journaled therein, a hollow elbow arm secured to one end of said member, a receiver
 55 secured to the outer end of said arm, and a transmitter removably secured to the other end of said member, said receiver and transmitter being adapted to rotate about the horizontal axis of said member in a
 60 fixed relation to, and at a fixed distance from each other, and means for automatically actuating a circuit switch incased within the said housing.

3. In a telephone set, the combination
 65 with a hollow housing and support there-

for, of a transmitter rotatably engaging one side of said housing, a hollow elbow arm rotatably engaging the other side of the said housing and having a receiver secured to its outer end, means for removably securing the said transmitter to the said hollow arm in a fixed relation to the said receiver, and means for automatically actuating a circuit switch incased within the said housing, and circuit conductors passing
 75 from the switch to the receiver and to the transmitter.

4. In a telephone set, the combination with a hollow housing and support therefor, of a series of rotating contact rings and
 80 a circuit switch incased within the said housing, said rings being mounted upon an insulated shaft, the latter being suitably journaled in the said housing, and having a transmitter removably secured to one of its
 85 ends, and also having a suitable elbow extension at the other end, a receiver secured to the outer end of the extension in a suitable fixed relation to the transmitter, and circuit conductors passing from the said
 90 rings and switch to the receiver and to the transmitter.

5. In a telephone set, the combination with a hollow housing and support therefor, of a series of rotating contact rings and
 95 a circuit switch incased within the said housing, a hollow elbow arm rotatably engaging the housing and having a receiver secured to its outer end, and also having a projection extending laterally through the
 100 housing; a side plate secured to the end of said projection, and being also adapted to rotatably engage the said housing, said side plate having a tubular projection at or near its circumference to which the transmitter
 105 is secured, in a fixed relation to the said receiver; said transmitter being held normally in an inverted position, and circuit conductors passing from the said rings and switch to the receiver and to the transmitter.

6. In a telephone set, the combination with a hollow housing and support therefor, of a hollow elbow arm rotatably engaging the housing and having a receiver secured to its outer end, and also having a projection
 115 extending laterally through the said housing, said projection having mounted thereon and electrically insulated therefrom, a series of contact rings, the latter being in electrical engagement with a series of stationary
 120 contact fingers, one of the rings having a flattened side which serves as a cam to operate the circuit switch; a side plate secured to the end of said projection, and being also adapted to rotatably engage the
 125 said housing, said side plate having a tubular projection at or near its circumference to which the transmitter is secured, in a suitable fixed relation to the receiver, and circuit conductors passing from the said
 130

rings through the said hollow arm to the receiver, and through the said tubular projection to the transmitter.

7. In a telephone set, the combination
5 with a hollow housing, of an elbow swinging receiver arm pivotally connected to one side of said housing, said arm having a receiver secured to its outer swinging end, and also having a projection extending laterally
10 through the said housing, a side plate removably secured to the extremity of the said projection, said plate being suitably journaled in the opposite side of the said housing, and a transmitter shell, in which
15 the transmitter is supported, rigidly secured to the said side plate at or near its circumference, said receiver and transmitter being adapted to rotate about the horizontal axis of the said projection, in a fixed relation to, and at a fixed distance from each other.

8. In a telephone set, the combination with a hollow housing, of a member extending laterally therethrough, said member
25 having a hollow elbow arm rigidly secured to one of its ends, a receiver secured to the outer end of said arm, a transmitter removably secured to the other end of said member in a fixed relation to, and at a fixed
30 distance from the receiver, said member being pivotally connected to the said housing, and means for automatically actuating a circuit switch incased within the housing.

9. In a telephone set, the combination
35 with a hollow housing, of a member extending laterally therethrough and suitably journaled therein, a hollow arm rigidly secured to one end of said member, said arm projecting laterally from the housing and
40 having an elbow extension, a receiver secured to the outer end of the extension, a transmitter removably secured to the other end of the said member in a fixed relation to, and at a fixed distance from the receiver,
45 a plurality of contact rings rigidly mounted upon, and electrically insulated from the said member, said rings being in electrical engagement with stationary contact fingers mounted within the said housing, one of the
50 rings having a flattened side which serves as a cam to automatically actuate the circuit switch, and circuit conductors passed from the said rings to the receiver and to the transmitter.

10. In a telephone set, the combination
55 with a hollow housing, of a member extending laterally therethrough and suitably journaled therein, a plurality of rotating contact rings, stationary contact fingers and
60 a circuit switch incased within the said housing, a hollow elbow arm rigidly secured to one end of said member, a receiver secured to the outer end of said arm, and a transmitter removably secured to the other
65 end of said member in a fixed relation to,

and at a fixed distance from the receiver; said arm being adapted to automatically return by gravity to its normal position of disuse.

11. In a telephone set, the combination
70 of a hollow swinging receiver arm, a hollow support in which the swinging receiver arm is pivoted, a transmitter removably secured to the arm, an automatic circuit switch within the support, said arm actuating the
75 switch to control the talking and ringing circuits.

12. In a telephone, the combination of a hollow swinging receiver arm, a hollow support in which the swinging receiver arm is pivoted, said support having an open top,
80 a removable cover for the opening, a side plate removably secured to the said arm, a hollow member secured to the plate at or near its circumference, said hollow member having a transmitter shell rigidly secured to its outer end, and a circuit switch in the support actuated by the said swinging arm, for controlling the talking and ringing
85 circuits.

13. In a telephone, the combination of a hollow swinging receiver arm, a hollow support in which the swinging receiver arm is pivoted, a plurality of rotating contact rings, stationary contact fingers and a circuit switch incased within the said support,
90 said switch being actuated by the said swinging arm to control the talking and ringing circuits, a side plate removably secured to the said arm, a hollow member secured to the plate at or near its circumference, said hollow member having a transmitter shell rigidly secured to its outer end,
95 and circuit conductors passing from the rings through the hollow swinging arm to the receiver, and through the hollow member and shell to the transmitter, the said conductors being entirely inclosed and protected.

14. In a telephone, the combination of a
110 hollow swinging receiver arm, a hollow support in which the swinging receiver arm is pivoted, a plurality of rotating contact rings, stationary contact fingers and a circuit switch incased within the said support,
115 a cam for automatically actuating the said switch rigidly mounted upon the said arm within the support, an insulating base for supporting the contact fingers and switch blades rigidly mounted within the support,
120 a side plate removably secured to the said arm and having a hollow member at or near its circumference, said hollow member having a transmitter shell rigidly secured to its outer end, and circuit conductors passing
125 from the rings and cam to the receiver and to the transmitter, said conductors being entirely inclosed and protected.

15. In a telephone, the combination of a hollow swinging receiver arm, a hollow sup- 130

port in which the swinging receiver arm is pivoted, a plurality of rotating contact rings, stationary contact fingers and a circuit switch incased within the said support, means for actuating the switch by the movement of the said swinging arm to automatically control the talking and ringing circuits, an insulating base for the contact fingers and switch blades rigidly mounted within the said support, a side plate having a hollow member at or near its circumference, said hollow member having a transmitter shell rigidly secured to its outer end, means for removably securing the plate to the said arm to hold the transmitter in a fixed relation to, and at a fixed distance from the receiver, and circuit conductors passing through the said hollow swinging arm to the receiver, and through the said hollow member and shell to the transmitter, said conductors being entirely inclosed and protected.

16. In a telephone, the combination with a hollow swinging receiver arm and a hollow support in which the swinging receiver arm is pivoted, of a plurality of rotating contact rings, stationary contact fingers having contact blocks or brushes rigidly secured to their free yielding ends slidably engaging the said rings, and a circuit switch incased within the said support; means for electrically connecting the circuit conductors to the lower fixed ends of the said stationary fingers, and means for actuating the said circuit switch by the movement of the swinging arm to automatically control the talking and ringing circuits, said support having a suitable aperture through which the parts within may be inspected, a removable cover for closing the aperture, an insulating base for the said contact fingers and switch blades rigidly mounted within said support, means for removably securing the transmitter shell to the said support on the opposite side of said support from the swinging arm, to hold the transmitter at a fixed distance from the receiver and in a normally inverted position of disuse, and circuit conductors passing from the rotating parts within the support to the receiver and to the transmitter, said conductors being entirely inclosed and protected.

17. In a telephone set, the combination of a hollow housing, a hollow swinging receiver arm pivotally connected to one side of said housing, a transmitter shell removably secured to the said arm at the opposite side of the housing, an automatic circuit switch incased within the housing, said switch being actuated by the movement of the said swinging arm to automatically control the talking and ringing circuits, and means for holding said arm in position for talking when so desired.

18. In a telephone set, the combination of

a hollow housing, a hollow elbow arm pivotally connected to one side of said housing, a receiver secured to the outer end of said arm, a transmitter removably secured to the said arm at the opposite side of the housing, an automatic circuit switch incased within the housing, said switch being actuated by the movement of the said arm to automatically control the talking and ringing circuits, a spring member rigidly secured to the arm and having its outer yielding end adapted to engage studs fixed in the lateral face of the said housing to hold the arm in certain positions when so desired, and circuit conductors passing from the said switch to the receiver and to the transmitter, said conductors being entirely inclosed and protected.

19. In a telephone set, the combination of a hollow housing, a hollow elbow arm pivotally connected to one side of said housing, a receiver secured to the outer end of said arm, a transmitter removably secured to the said arm at the opposite side of the housing, a plurality of rotating contact rings and a cam, stationary contact fingers and a circuit switch incased within the housing, said switch being actuated by the movement of the said arm to control the talking and ringing circuits, a spring member rigidly secured to the arm, studs fixed in the lateral face of the housing, said spring member and studs, in combination being adapted to hold the arm in certain positions when so desired, said arm being adapted to automatically return by gravity to its normal position of disuse, and circuit conductors passing from the rings and cam to the receiver and transmitter, said conductors being entirely inclosed and protected, and being adapted to move in unison with the parts to which they are connected.

20. In a telephone desk set, the combination with a stand comprising a tubular standard and a hollow base, of a hollow housing, an elbow swinging receiver arm having a transmitter shell removably secured thereto, said arm being pivotally connected to the said housing, an automatic circuit switch incased within the housing, said switch being actuated by the movement of the said swinging arm to automatically control the talking and ringing circuits, means for holding the said arm in position for talking when so desired, and means by which the said stand may be rotated about its vertical axis without twisting or entangling the conductor cord or cords leading therefrom.

21. In a telephone desk set, the combination with a stand comprising a tubular standard and a hollow base, of a hollow housing, a hollow swinging receiver arm having a receiver rigidly secured to the outer swinging end thereof, a transmitter

removably secured to the said arm in a fixed relation to, and at a fixed distance from the receiver, said arm being pivotally connected to the said housing, a plurality of
 5 rotating contact rings having stationary contact fingers in electrical engagement therewith, a cam and an automatic circuit switch incased within the said housing, said
 10 said swinging arm to automatically control the talking and ringing circuits; entirely inclosed and protected circuit conductors passing from the said rings and cam to the receiver and to the transmitter, said con-
 15 ductors being adapted to move in unison with the parts to which they are connected, and means for holding the said swinging arm in position for talking when so desired; a plurality of contact rings rigidly secured
 20 to, and electrically insulated from the said standard at or near the base, said rings having contact fingers in electrical engagement therewith, said fingers being adapted to rotate about the vertical axis of the
 25 standard without breaking the circuits, substantially as described.

22. In a portable telephone, the combination with a stand comprising a tubular
 30 standard and a hollow base, of a sleeve rotatably mounted upon the base, a plurality of contact fingers rigidly secured to, and electrically insulated from the said sleeve, said fingers having contact blocks or
 35 brushes rigidly secured to their free yielding ends, said brushes being adapted to slidably engage contact rings which are rigidly secured to, and electrically insulated from

the said standard; a circular disk secured to the said standard and serving to guide the said sleeve from above, said disk being
 40 removable for inspection of the parts within the sleeve, and a protecting cover for the terminal connectors outside the sleeve, said cover being removably secured to the said sleeve.
 45

23. In a telephone desk set, the combination with a hollow base having a tubular projection provided thereon, and having a recessed portion, of a tubular standard
 50 rigidly secured to the said tubular projection, a circular disk adjustably secured to the said tubular standard, a sleeve rotatably mounted upon the said base and being guided by the said recessed portion from below,
 55 and by the said circular disk from above, a plurality of contact fingers rigidly secured to, and electrically insulated from the said sleeve, said fingers having contact blocks or
 60 brushes rigidly secured to their free ends, said brushes being adapted to slidably engage contact rings which are rigidly secured to, and electrically insulated from the said standard; said circular disk being removable for inspection of the parts within the
 65 said sleeve, and a protecting cover for the terminal connectors outside the sleeve, removably secured thereto.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN WEIL.

Witnesses:

R. A. TRACY,
 JOHN L. YOUNG.