

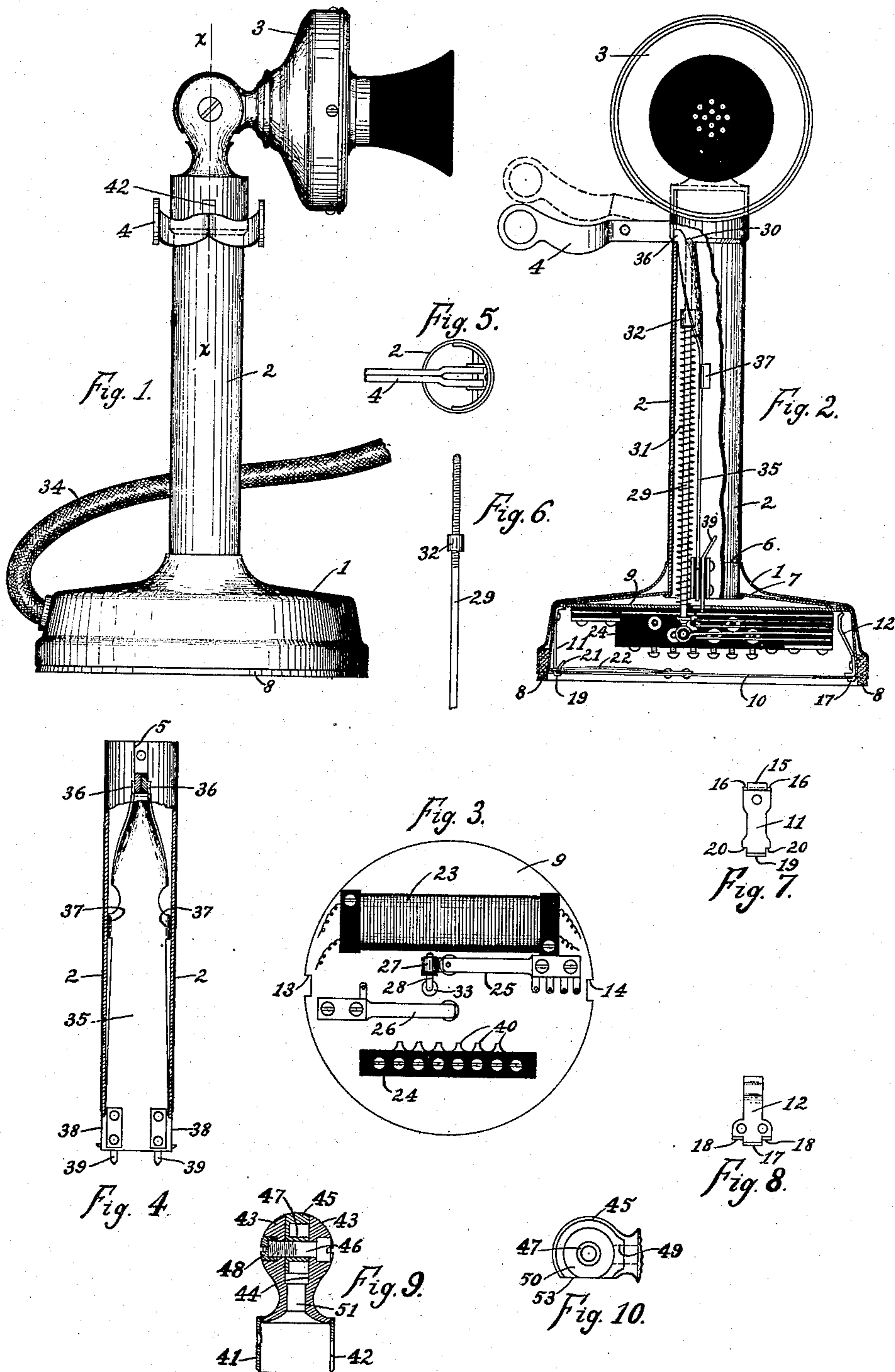
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DESK TELEPHONE.

APPLICATION FILED MAR. 28, 1908.

911,866.

Patented Feb. 9, 1909.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## DESK-TELEPHONE.

No. 941,866.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed March 28, 1908. Serial No. 423,836.

*To all whom it may concern:*

Be it known that we, ELMER R. CORWIN and CHARLES A. BALS, both citizens of the United States of America, and residents of Chicago, Cook county, Illinois, have invented a new and useful Desk-Telephone, of which the following is a specification, reference being had to the accompanying drawings, illustrating same.

Our invention relates to telephones, and more particularly to that class of telephones known as desk telephones.

The principal objects of our invention are to provide improved means for controlling switch contacts by the operation of the telephone receiver hook; to provide improved means for operating the telephone receiver hook; to provide improved means for readily disassembling such a telephone; to provide an improved spherical hinge joint for supporting the transmitter and permitting an adjustment of same; to provide improved means for carrying the transmitter conductors to connection terminals in the base of the telephone; to provide an improved construction of the base portion of the telephone; and to provide other improved details of construction which will be hereinafter described.

Other objects will be apparent from the following specification.

In the drawings Figure 1 is a side elevation of the complete telephone of the present invention; Fig. 2 is a front view of the telephone shown in Fig. 1, with portions shown in vertical cross-section to show the interior construction of the telephone; Fig. 3 is a bottom view of the circular base plate which carries various portions of the apparatus, mounted thereto as shown; Fig. 4 is a vertical cross-sectional view of the vertical standard of the telephone, with portions shown in elevation, taken in the position shown in Fig. 1, showing the guiding arrangement for the switch-contact controlling rod; Fig. 5 is a top view of the vertical standard of the telephone, with the transmitter mounting cap removed, showing the mounting of the receiver hook within the vertical standard; Fig. 6 is an elevation of a portion of the switch-contact controlling rod, showing the screw adjustment for the operating spring; Figs. 7 and 8 are detail views of the spring catches used for holding the two circular base plates of the telephone in place;

Fig. 9 is a vertical cross-sectional view of the spherical hinge joint for the transmitter, taken on line X X of Fig. 1; and Fig. 10 is a side elevation of the middle portion of the hinge joint shown in Fig. 9, taken the same as in Fig. 1.

Like characters refer to like parts in the several figures.

The telephone comprises the circular base portion 1, the vertical standard 2, the transmitter 3 carried by the upper portion of the standard 2, and the telephone receiver hook 4 pivoted within the vertical standard 2 as shown in Fig. 5. The transmitter 3 is supported by the spherical hinge joint shown in Fig. 9, which joint is carried by a cap 41 which fits over the upper end of the standard 2 and is secured thereto by a screw. The cap 41 is slotted as at 42 to receive the receiver hook 4. The hinge joint is made of an external portion 43 which is slotted as at 44, and an internal portion 45 located within the slot 44. A bolt 46 extends through the ears 43 43 and through a hub 47 in the portion 45, being threaded into one of the ears 43. A cap nut 48 is screwed onto the end of bolt 46, fitting within a recess in the last mentioned ear 43, to lock the bolt 46 in place. This construction provides a smooth surface spherical hinge joint, which does away with the usual outwardly projecting thumb screws or nuts. The part 45 is movable between the ears 43 43 to permit the position of the transmitter to be adjusted, but the fit between the parts 43 43 and 45 is sufficiently tight to hold the transmitter in whatever position it may be placed. The conductors leading from the transmitter 3 extend through a hole 49 in the portion 45, through the annular cavity 50 in the portion 45, on either side of the hub 47, and through a hole 51 in the portion 43, into the vertical standard 2. The bottom part of the portion 45 is cut off as at 53, to permit the portion 45 to be turned between the ears 43 43 without cutting off the passage leading from the hole 51 to the cavity 50, and to provide stops to limit the movement of the transmitter. The vertical standard 2 is preferably made of metal tubing, the upper end being slotted as at 5 to receive the receiver hook 4, and the lower end being turned down to form a shoulder 6 which shoulder forms a bearing for the sheet-metal base portion 1, as shown in Fig. 2.

The base portion of the telephone is made of two cup-shaped sheet-metal portions 1 and 7, the portion 7 being placed within the portion 1 and the lower end of the standard 2 being turned over against the portion 7 so as to draw the portion 7 into the portion 1 and thereby form a substantial construction in the base portion and a substantial and rigid mounting for the standard 2. A strip or ring of leather 8 is placed between the lower edge portions of the sheet-metal portions 1 and 7, to form a suitable cushion for the telephone to rest upon, the leather strip 8 being firmly clamped in place between the portions 1 and 7 by the lower end of the standard 2 being turned over against the portion 7 which draws the portions 1 and 7 together and thereby clamps the leather strip 8 in place as shown in Fig. 2. Within the base portion 7 are placed two circular sheet-metal disks 9 and 10 which are automatically held in place within the base portion 7 by spring catches 11 and 12. The plate 9 is for carrying the apparatus shown in Fig. 3 and the plate 10 is for closing the open end of the cup-shaped portion 7 so as to form an inclosure for the apparatus shown in Fig. 3. The plate 9 is provided with two diametrically opposite notches 13 and 14 therein, for allowing it to be inserted in place within the base portion of the telephone. The plate 9 is inserted in place by placing the notch 13 over the tongue portion 15 of spring 11, which serves as a guide for plate 9, so that the plate at the sides of the notch 13 rests upon the shoulders 16 16 of spring 11, and then depressing the plate 9 so that the free end of spring 12 passes through the notch 14 and springs toward the center of plate 9 so as to catch against the latter at the inner portion of the notch 14.

In order to remove the plate 9 from the telephone it is only necessary to press the free end of spring 12 away from the center of the plate whereupon the plate 9 can be readily pulled out of the base portion, the notch 14 straddling the tongue portion 12 and the tongue portion 15 and shoulders 16 16 readily releasing the plate at the notch 13. The circular plate 10 is also provided with two diametrically opposite notches therein so that when it is inserted within the base portion of the telephone one of the notches therein straddles the tongue portion 17 of spring 12, the plate at the sides of this notch resting against the shoulders 18 18, and the plate at the rear of this notch catching under the end of tongue 17; and the other notch therein straddles the tongue portion 19 of spring 11, the plate at the sides of this latter notch resting against the leaf spring 22 which in turn rests against the shoulders 20 20 of spring 11 when the plate is fully inserted, the tongue 19 being forced outward or away from the center of the plate 10 of

the beveled tongue 21 on the plate, and then catching against the outer side of the plate 10 when the tongue portion 21 is depressed far enough to permit the spring 11 to spring back to the position shown in Fig. 2. The leaf spring 22 is secured to the inner side of the plate 10 and is notched at its free end so as to straddle the tongue portion 19 of spring 11 when the plate 10 is placed within the base portion of the telephone as shown in Fig. 2.

In order to remove plate 10 from the base of the telephone it is only necessary to push the tongue portion 19 of spring 11 away from the center of the plate until it disengages the plate, whereupon the leaf spring 22 forces the plate 10 out of the base of the telephone so that it can be readily removed therefrom.

It will readily be seen that the springs 11 and 12 provide automatic catches for the plates 9 and 10 for securely holding the said plates in position within the base portion of the telephone, and that the said springs 11 and 12 also permit of readily removing the plates 9 and 10 from the said base portion.

The base plate 9 carries an induction coil 23, a strip of insulation 24 which is provided with a number of screw-contact connection terminals 40 40, a group of spring contact members 25, and a spring contact member 26, all of which are suitably mounted to the underneath side of the plate 9. One of the springs of the group 25 is formed with a thimble 27 on its free end, through which a bent portion 28 of the vertical rod 29 extends, the said portion 28 being suitably insulated from the thimble 27 and permitted to turn therein. The rod 29 extends up through a hole in the plate 9 and through the hollow standard 2 to the receiver hook 4, the upper end of the rod 29 resting in an indenture 30 in the underneath side of the receiver hook 4. A long coil spring 31 is placed over the rod 29 as shown in Fig. 2, the lower end of the spring 31 bearing against plate 9 and the upper end of spring 31 bearing against a nut 32 on the rod 29, the said spring 31 being for the purpose of operating the receiver hook 4 and for controlling the group of spring contacts 25. The nut 32 is a screw adjustment on the rod 29 whereby the compression of the spring 31 may be adjusted as desired. On the lower portion of the rod 29, beneath the plate 9, is provided a shoulder 33 for limiting the upward movement of the rod 29.

When the receiver is hung upon the hook 4 the hook is depressed thereby to the full-line position shown in Fig. 2, thereby depressing the rod 29 and the thimble 27 associated therewith against the action of spring 31, and thus controlling the group of switch contacts 25 as desired. When the receiver is removed from the hook 4, the coil spring

31 forces the hook 4 to the dotted-line position shown in Fig. 2, through the agency of the rod 29, and thereby raises the thimble 27 so as to control the group of switch contacts 25 as desired. Thus it will be seen that by depressing the hook 4 and releasing same the switch contacts in the base portion of the telephone are controlled, through the agency of the rod 29 and the spring 31 associated therewith. This feature permits the telephone to be readily disassembled, because when the base plate 9 is removed as hereinbefore described, all of the apparatus, including the group of switch contacts 25, which is associated with the plate 9 is also entirely removed from the casing of the telephone. This enables repairs to be readily made, the parts to be readily adjusted and the circuit wiring to be readily connected to the various parts of the apparatus. The group of switch contacts or springs 25, and the spring 26, and also the induction coil 23, are all preferably wired to the screw binding posts carried by the strip 24, to which binding posts the several conductors of a cord 34, which extends through a hole in the side of the base portion of the telephone, may be readily connected.

Within the standard 2 is placed a metal strip 35, preferably formed as shown in Figs. 2 and 4, to guide the rod 29 so that the upper end thereof will engage the indenture 30 in the receiver hook 4 when the plate 9 is put in place in the base portion of the telephone. The strip 35 has a pair of ears 36 36 on its upper end which fits in notches in the standard 2 at the sides of the receiver hook 4, as shown in Figs. 2 and 4; with a pair of ears 37 37 along the middle thereof which bear against the inner surface of the tubular standard 2, and with a pair of projections 38 38 at its lower end which fit in slots in the lower end of the standard 2 as shown in Fig. 4, all of which securely hold the metal strip 35 in place and keep same from turning within the standard 2. The slots in the lower end of the standard 2 serve to guide the strip 35 when the latter is being inserted into the standard 2 from the bottom of the telephone, so that the ears 36 36 will properly fit in place. When it is desired to remove the strip 35 from the standard 2, it is only necessary to press the ears 36 36 inwardly and then pull the strip 35 from the lower end of the standard 2, providing the plates 10 and 9 have first been removed from the telephone. On the lower end of the strip 35 is mounted a pair of contact members 39 39 which extend through respective holes in the plate 9 and engage spring 26 and the upper spring of the group 25, respectively, as shown in Figs. 2 and 3. The circuit conductors leading from the transmitter 3 extend down through the tubular standard 2 and are connected to the respective connection terminals 39 39.

This construction permits the plate 9 with its apparatus to be entirely removed from the base of the telephone without necessitating unsoldering or disconnecting the transmitter conductors. The transmitter conductors are preferably long enough to allow the strip 35 to be partially removed from the standard 2 without unsoldering them from the terminals 39 39. The advantages of such disassembling of the telephone will be readily appreciated by those familiar with the art.

The internal wires of the telephone are preferably connected to the binding posts 40 40 of strip 24, by solder, while the external conductors contained within the cord 34 are connected to the said binding posts 40 40 by the set-screw connections.

We do not wish to limit this invention to all of the particular details of construction herein shown, as many modifications may be made therein without departing from the scope of the appended claims.

What we claim as our invention is:

1. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone receiver hook carried by the said standard, a plate closing the lower end of the base portion to form an inclosure therein, a second plate carried within the said inclosure and having apparatus mounted thereon, mechanism mechanically connecting the said receiver hook with the said apparatus, and a pair of spring catches adapted to automatically clamp both of the said plates in place and to permit of the removal of same when desired, each plate being held by both of the spring catches.

2. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone receiver hook carried by the said standard, a plate located within the base portion, switch contact members carried by the said plate, a spring-controlled rod extending through the said standard from one of the said switch contact members to the receiver hook, and a formed metal plate carried within the said standard to guide the spring-controlled rod into proper connection with the receiver hook.

3. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone transmitter carried by the said standard, a telephone receiver hook carried by the said standard, a plate placed within the base portion, switch contact members carried by the said plate, a spring-controlled rod connecting one of the said spring contact members with the receiver hook whereby the operation of one causes the operation of the other, a formed metal plate inserted within the said standard for guiding the said rod into proper connection with the receiver hook, and a

pair of contact members carried by the said formed metal plate for receiving the transmitter conductors, the said pair of contact members separably engaging a pair of the said switch contact members to properly connect the transmitter circuit for use and permit of readily removing the first mentioned plate from the said base portion without disconnecting the transmitter conductors.

4. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone receiver hook carried by the said standard, a plate located within the base portion, switch contact members carried by the said plate, a rod mechanically connecting one of the said switch contact members with the receiver hook whereby the operation of one causes the operation of the other, a coil spring encircling the said rod and acting on same, and a nut carried by the said rod and adjustable thereon whereby the compression of the coil spring may be adjusted.

5. A telephone of the character described, comprising a metal tube, a pair of sheet-metal cup-shaped portions extending from one end of the said tube, a strip of pliable material placed between the open ends of the said cup-shaped portions, an annular offset near one end of the tube adapted to engage one of the said cup-shaped portions, and the latter end of the said tube being turned over against the other said cup-shaped portion whereby the cup-shaped portions are drawn together and the said strip of pliable material is clamped between the open ends of the said cup-shaped portions, substantially as described.

6. In a telephone of the character described, a base portion, a vertical standard extending from the base portion, a transmitter, and a hinge joint connecting the transmitter with the standard, the said joint

comprising a pair of ears and a central portion movably located between the ears, a bolt extending through the said ears and the central portion and screwed into one of the said ears, and a cap nut on the said bolt within one of the said ears, to lock the said bolt in place, all formed and assembled to provide a smooth spherical surface for the said joint.

7. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone receiver hook carried by the said standard, a plate located within the base portion, spring catches holding the said plate in place whereby it is readily removable, switch contact members carried by the said plate, a spring-controlled rod extending through the said standard from one of the said switch contact members and removably engaging the receiver hook, and means for guiding the said spring-controlled rod into engagement with the receiver hook.

8. A telephone of the character described, comprising a base portion and a vertical standard extending therefrom, a telephone receiver hook carried by the said standard, a plate located within the base portion, spring catches holding the said plate in place whereby it is readily removable, switch contact members carried by the said plate, and a spring-controlled rod extending through the said standard from one of the said switch contact members and removably engaging the receiver hook.

As inventors of the foregoing we hereunto subscribe our names in the presence of two subscribing witnesses, this 25th day of March, 1908.

ELMER R. CORWIN.  
CHARLES A. BALS.

Witnesses:

HARRY B. DAVIS,  
FRANK J. RYAN.