

(No Model.)

P. MINNIS.
TELEPHONE CALL BOX.

No. 561,421.

Patented June 2, 1896.

Fig. 1.

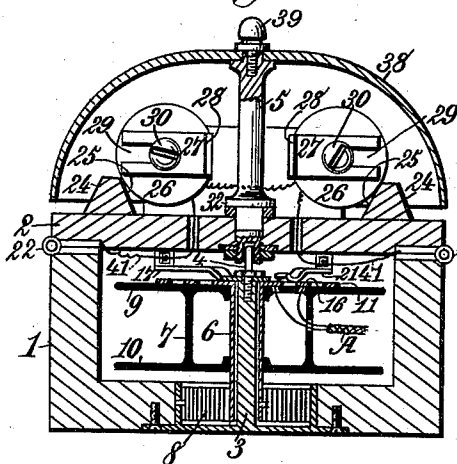


Fig. 2.

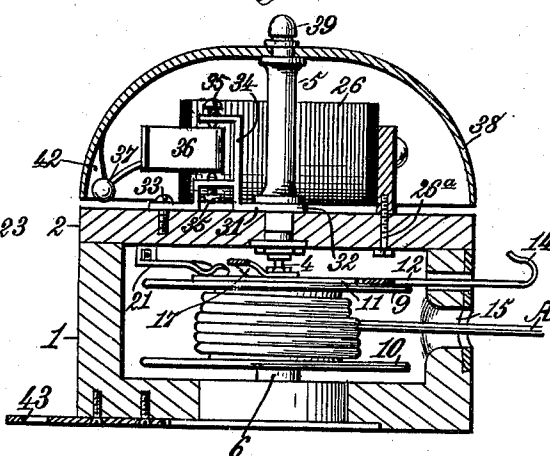


Fig. 3.

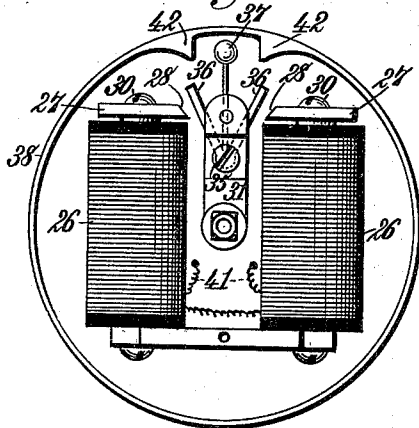
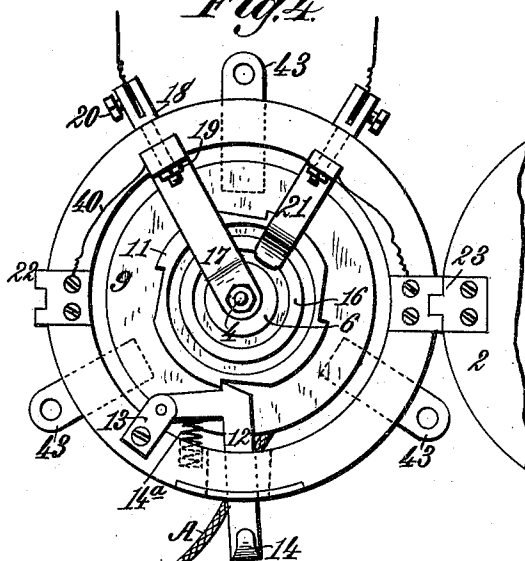


Fig. 4.



Witnesses.
Robert Emmett.
Geo. W. Rea.

Inventor.
Paul Minnis.
By *James L. Norris.*
Atty.

UNITED STATES PATENT OFFICE.

PAUL MINNIS, OF MOBILE, ALABAMA, ASSIGNOR OF ONE-HALF TO THE
HOME TELEPHONE COMPANY, OF SAME PLACE.

TELEPHONE CALL-BOX.

SPECIFICATION forming part of Letters Patent No. 561,421, dated June 2, 1896.

Application filed February 17, 1896. Serial No. 579,649. (No model.)

To all whom it may concern:

Be it known that I, PAUL MINNIS, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented new and useful Improvements in Telephone Call-Boxes, of which the following is a specification.

This invention relates to telephones, and has for its object to provide improved means for winding up the slack portions of the conductors connected to the receiver and transmitter when the telephone is not in use and for automatically preventing the conductors being wound up while the telephone is being used.

It also has for its object to provide improved bell signaling mechanism, and, finally, it has for its object to improve and simplify the construction of telephones generally.

To these ends my invention consists in the features or in the construction, combination, or arrangement of parts hereinafter described, and pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a central sectional view of my improved telephone. Fig. 2 is a similar view taken at a right angle to Fig. 1. Fig. 3 is a bottom plan view of the bell signaling mechanism. Fig. 4 is a similar view, the bell signaling mechanism being removed.

Referring to the drawings, the numeral 1 indicates the casing provided with a hinged cover 2, which carries the bell signaling mechanism.

Arranged centrally within the casing 1 and rigidly secured to the bottom thereof is a spindle 3, in the upper end of which is affixed a threaded and shouldered stud 4, that has bearing in the lower apertured end of a pedestal 5, rigidly secured to the cover 2 and carrying the gong of the bell signaling mechanism, as will more fully hereinafter appear. Loosely arranged on the spindle 3, so as to rotate thereon, is a sleeve 6, and rigidly attached to said sleeve, so as to rotate therewith, is a reel 7.

Disposed in a suitable recess formed in the bottom of the casing 1 is a coiled spring 8, one end of which is secured to the wall of said recess and the other end to the sleeve 6. Se-

cured to the opposite ends of the reel 7 are disks 9 and 10, to one of which, as 9, is secured a ratchet-wheel 11, the teeth of which are adapted to be engaged by a bell-crank-shaped pawl 12, which is pivoted at one end to a bracket 13, attached to the rim of the casing 1, and at its other end is provided with a hook 14, upon which are adapted to be hung the receiver and transmitter. A coiled spring 14^a is interposed between the said pawl and the rim of the casing and operates to normally hold said pawl in engagement with the teeth of the ratchet-wheel 11.

The receiver and transmitter form no part of the present invention, but form the subject-matter of a separate application for patent filed of an even date herewith.

The two wires or conductors A lead from said receiver and transmitter through an aperture 15 in the casing 1 and are wound about the reel 7, the terminals being respectively soldered to the upper flanged end of the sleeve 6 and to an annulus 16, attached to the disk 9. Resting upon the said flanged end of the sleeve 6 is one end of a spring-contact 17, the other end of which is secured to a binding-post 18, that passes through the casing 1, and is secured in place by a nut 19, tapped over the inner threaded end of the binding-post. The nut 19 also serves to attach the spring-contact 17 to said binding-post. The binding-post 18 at its outer end is apertured for the reception of the end of one of the line-wires and is provided with a set-screw for binding said line-wire to the binding-post. A spring-contact 21, similar in all respects to that just before described, makes contact with the annulus 16 and is connected with the other line-wire.

The lid or cover 2 is attached to the casing 1 by two oppositely-arranged hinges 22 and 23, and by removing the pintle of either of said hinges the lid or cover can be swung back upon the other hinge to give access to the interior of the casing 1. When the lid or cover is thus swung back, the pedestal is disengaged from the stud 4 of the spindle 3, permitting the renewal or adjustment and repair of the parts in an obvious manner.

Attached to the outer face of the lid or cover 2 are two cleats 24, having their adjacent

walls 25 inclined toward each other, and resting between and supported by said cleats are the bell-magnets 26, which are provided with pole-pieces 27, having their adjacent edges 28 beveled and inclined toward each other, as most clearly shown in Fig. 3. The said pole-pieces are slotted, as at 29, (see Fig. 1,) and are secured to the cores of the magnets by screws 30, which pass through the said slots.

It will be evident that by loosening the screws 30 the pole-pieces 27 may be adjusted toward and from each other, after which the screws may be tightened up and hold the pole-pieces securely in their adjusted position. The magnets 26 are secured to the lid or cover 2 by a single screw 26^a, as most clearly shown in Fig. 2. Arranged between the magnets 26 is a bracket 31, one end of which is secured to the cover 2 by the pedestal 5, which is provided with a shoulder 32, that bears upon said bracket, the other end being fastened to the cover by a screw 33. The bracket 31 is provided with a forked portion 34, in which are tapped screws 35, having conical ends that form bearings for one end of an armature 36. The said armature is V-shaped in cross-section, as shown in Fig. 3, and carries a bell-hammer 37.

Arranged upon the upper end of the pedestal 5 is a gong 38, that is secured in place on said pedestal by means of a nut 39. The spring-contact 17 is electrically connected to the hinge 22 by a conductor 40, and the spring-contact 21 is in like manner connected to the hinge 23. The coils of the bell-magnets are electrically connected to the hinges 22 and 23 by wires 41. The gong 38 is provided upon its inner edge with two shoulders 42, arranged in proximity to each other, between which is adapted to vibrate the bell-hammer 37.

The casing 1 is provided with one or more suspension rings or plates 43, by means of which the device may be affixed to a wall or vertical support, as most clearly shown in Fig. 4.

The operation of my improved telephone is as follows: Let it be assumed that the device is supported in the position shown in Fig. 4, with the lid or cover closed and all the parts in their normal position. To call up the subscriber, an alternating current of short duration is sent over the line-wires from the central office by a magneto-generator in the ordinary manner and the circuit is closed through the contact 17, wire 40, hinge 22, through the bell-magnets 26 by wires 41, to the hinge 23, thence to contact 21 and over the return-wire to the central office. In this manner the armature 36 is vibrated between the pole-pieces of the magnets, vibrating with it the bell-hammer 37, causing the latter to alternately strike the shoulders 42 of the gong. Upon the subscriber removing the combined receiver and transmitter from the hook 14 the spring 14^a forces the pawl 12 into engagement with the teeth of the ratchet-wheel 11; but

the teeth of the ratchet-wheel are so arranged that the wires or conductors A may be unwound from the reel 7 against the tension of the spring 8 to permit the receiver and transmitter being adjusted to the ears and lips. The pawl, however, prevents the reel from being rotated by its spring in the opposite direction to wind up the conductors A. Conversation may be now carried on between the two communicating parties, upon the conclusion of which the subscriber replaces the receiver and transmitter on the hook 14, and the pawl 12 is thus retracted from its engagement with the ratchet-wheel 11, upon which the spring 8 will rotate the reel 7 and wind up the conductors A. By this means the conductors will be retracted within the casing at all times when the telephone is not in use, where they will be out of the way and removed from all danger of accidental and forcible disturbance by which the telephone and its connections would be rendered liable to serious derangement or destruction.

It will be apparent that by making the connection between the conductors and the spring-contacts in the manner and by the means described the connection between the line-wires and the receiver and transmitter is preserved at all times, the rotation of the reel not affecting in any manner such connection.

By constructing the pole-pieces and armature of the bell signaling mechanism in the manner described great accuracy and permanency of adjustment are secured, while at the same time the armature is rendered extremely sensitive to the action of the magnets. Moreover, the beveled cleats 24 serve as a firm support for the magnets and prevent any lateral displacement of the same, while at the same time they serve to accurately center the magnets relatively to the armature and render it possible to secure the magnets firmly in place by the single screw 26^a. The gong serves as an effectual cover or casing for the bell signaling mechanism, as will be apparent on reference to Figs. 1 and 2, and said figures will illustrate the extreme compactness and smallness of the entire device.

Having described my invention, what I claim is—

1. In a telephone, the combination with a casing, of a reel journaled therein and having wound thereon the conductors connected with the receiver and transmitter, means for rotating said reel to wind up said conductors, a support for the receiver and transmitter, and mechanism controlled by said support for preventing the reel winding up said conductors when the receiver and transmitter are removed from said support, substantially as described.

2. In a telephone, the combination with a casing, of a reel journaled therein and having wound thereon the conductors connected with the receiver and transmitter, contacts arranged in said casing and operating to ef-

fect a constant connection between the terminals of said conductors and the line-wires, means for rotating said reel to wind up the conductors, a support for the receiver and transmitter, and mechanism controlled by

5 said support for preventing the reel winding up the conductors when the receiver and transmitter are removed from said support, substantially as described.

10 3. In a telephone, the combination with a casing, of a reel journaled thereon and having wound therein the conductors connected with the receiver and transmitter, contacts arranged in said casing and operating to effect a constant connection between the terminals of said conductors and the line-wires,

15 means for rotating said reel to wind up the conductors, a ratchet-wheel carried by said reel, a pawl, a spring for forcing said pawl into engagement with the ratchet-wheel to prevent the reel winding up the conductors, and a support carried by said pawl for suspending the receiver and transmitter and operating when the receiver and transmitter are

20 suspended thereon to hold the pawl out of engagement with the ratchet-wheel, substantially as and for the purpose specified.

4. In a telephone, the combination with a casing, of a reel journaled therein and having wound thereon the conductors connected with the receiver and transmitter, annular contact-plates adapted to rotate with said reel and in electrical connection with the terminals of the conductors, spring-contacts resting in contact with said contact-plates and connected with the line-wires, means for rotating the reel to wind up the conductors, a support for the transmitter, and mechanism controlled by said support for preventing the

35 reel winding up said conductors when the receiver and transmitter are removed from said support, substantially as described.

5. In a telephone, the combination with the casing 1, of the spindle 3 fixed therein, the sleeve 6 journaled on said spindle and carrying a reel 7 on which are wound the conductors connected to the receiver and transmitter, a coiled spring 8 operating to rotate said reel to wind up the conductors, a ratchet-wheel 11 carried by the reel, a pivoted pawl 12, a spring 14^a for forcing said pawl into engagement with the ratchet-wheel to prevent the reel winding up the conductors, a hook 14 formed on said pawl and operating when the receiver and transmitter are suspended thereon to hold the pawl out of engagement with the ratchet-wheel, and contacts for effecting a constant connection between the terminals of the conductors and the line-wires, substantially as described.

60

6. In a telephone, the combination with a closed casing of a spring-operated reel arranged in said casing, a flexible cord connected to and normally wound upon said reel, means for maintaining an electrical connection between the terminals of said cord and

the line-wires, bell-magnets mounted on said casing and connected with the line-wires, a vibratory armature, a gong covering and inclosing the bell-magnets, and a spring-raised 70 pawl to engage a ratchet on the reel, said pawl having a hook projecting outside the casing to support the receiver and transmitter, which trip the pawl by their weight and release the reel which at once winds up the 57 flexible cord, substantially as described.

7. In a telephone, the combination with a receiver and transmitter arranged in series, of bell signaling mechanism consisting of magnets 26 arranged in multiple arc with the 80 receiver and transmitter and provided with beveled pole-pieces 27, a vibratory V-shaped armature 36 pivotally arranged between said pole-pieces and carrying a bell-hammer 37, and a gong adapted to be sounded by said 85 bell-hammer, substantially as described.

8. In a telephone, the combination with a receiver and transmitter arranged in series, of bell signaling mechanism consisting of magnets 26 arranged in multiple arc with the 90 receiver and transmitter and provided with beveled pole-pieces 28, means for adjusting said pole-pieces toward and from each other, a vibratory V-shaped armature 36 pivotally arranged between said pole-pieces and carrying a bell-hammer 37, and a gong adapted to be sounded by said bell-hammer, substantially as described.

95

9. In a telephone, the combination with a receiver and a transmitter arranged in series, 100 of bell signaling mechanism consisting of magnets 26 arranged in multiple arc with the receiver and transmitter, slotted pole-pieces 28 having their adjacent edges beveled, screws 30 passed through said slotted pole- 105 pieces and screwed into the cores of the magnets, a vibratory V-shaped armature 36 pivotally arranged between said pole-pieces and carrying a bell-hammer 37, and a gong 38 fixed over said magnets and provided with 110 two shoulders 42 disposed upon each side of the bell-hammer, substantially as described.

10. In a telephone, the combination with a casing 1 and a cover 2 hinged thereto on its opposite sides, of a reel journaled within the 115 casing and having wound thereon the conductors connected with the receiver and transmitter, a spring for rotating said reel to wind up the conductors, contacts for effecting a constant connection between said conductors and the line-wires, conductors forming a connection between said contacts and hinges, bell-magnets electrically connected with said hinges, a vibratory armature actuated by said magnets and carrying a bell- 125 hammer, and a gong adapted to be sounded by said bell-hammer, substantially as described.

11. The combination with the casing 1 and the cover 2 hinged thereto, of the spindle 3 130 fixed in said casing, the reel 6 journaled on said spindle, the spring 8 for rotating the

reel, the stud 4 fixed to the upper end of the
spindle, the pedestal 5 secured in the cover 2
and having an apertured lower end fitting
over the spindle, bell signaling mechanism
5 arranged on the cover, and a gong arranged
over said mechanism and supported on said
pedestal, substantially as described.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

PAUL MINNIS.

Witnesses:

CLAYTON B. CLARK,
WILLIAM H. SULLIVAN.