(No Model.) 3 Sheets—Sheet 1.

F. C. WATKINS.

AUTOMATIC TELEPHONE SWITCH.

No. 357,051. Patented Feb. 1, 1887.

Fig. 1.

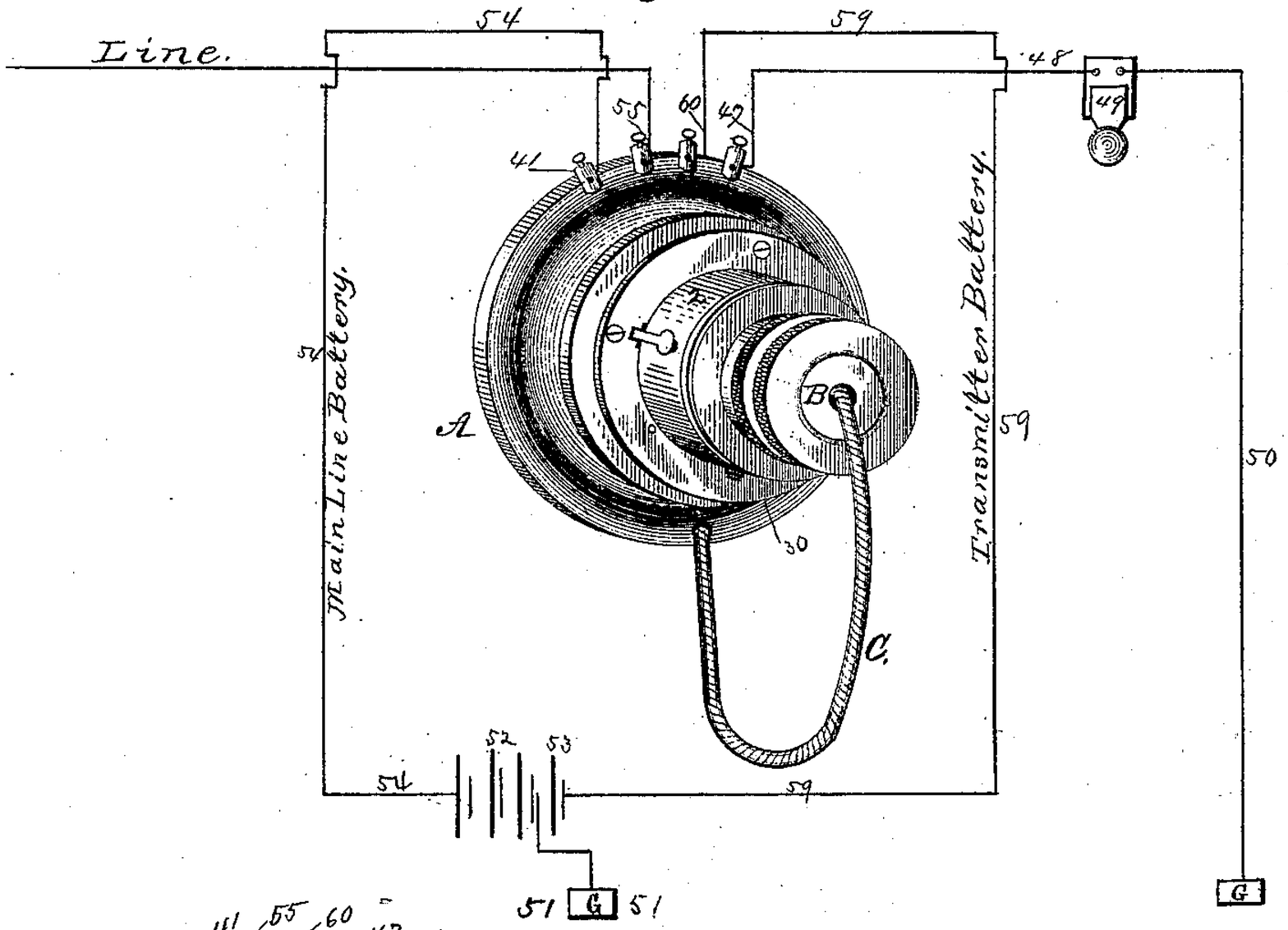


Fig. 2.

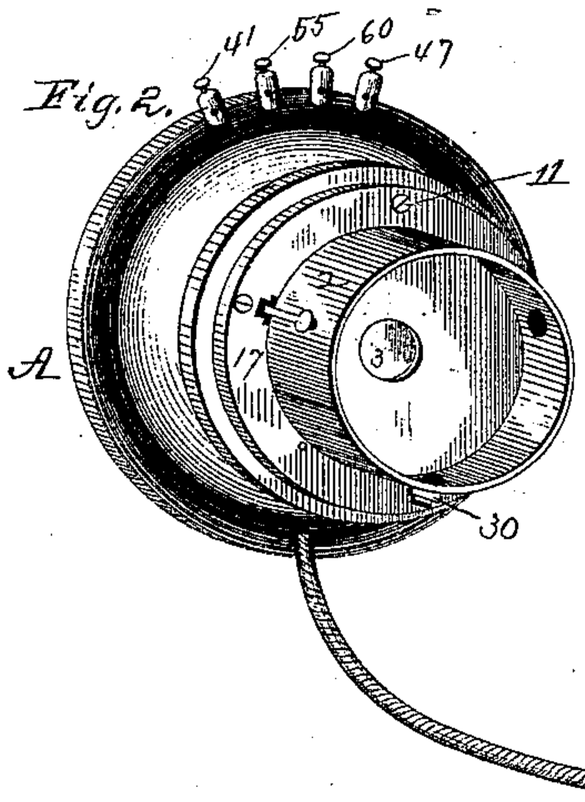
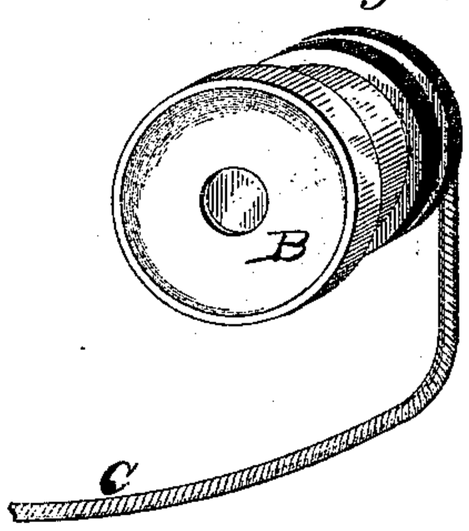


Fig. 3.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

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AUTOMATIC TELEPHONE SWITCH.

No. 357,051. Patented Feb. 1, 1887.

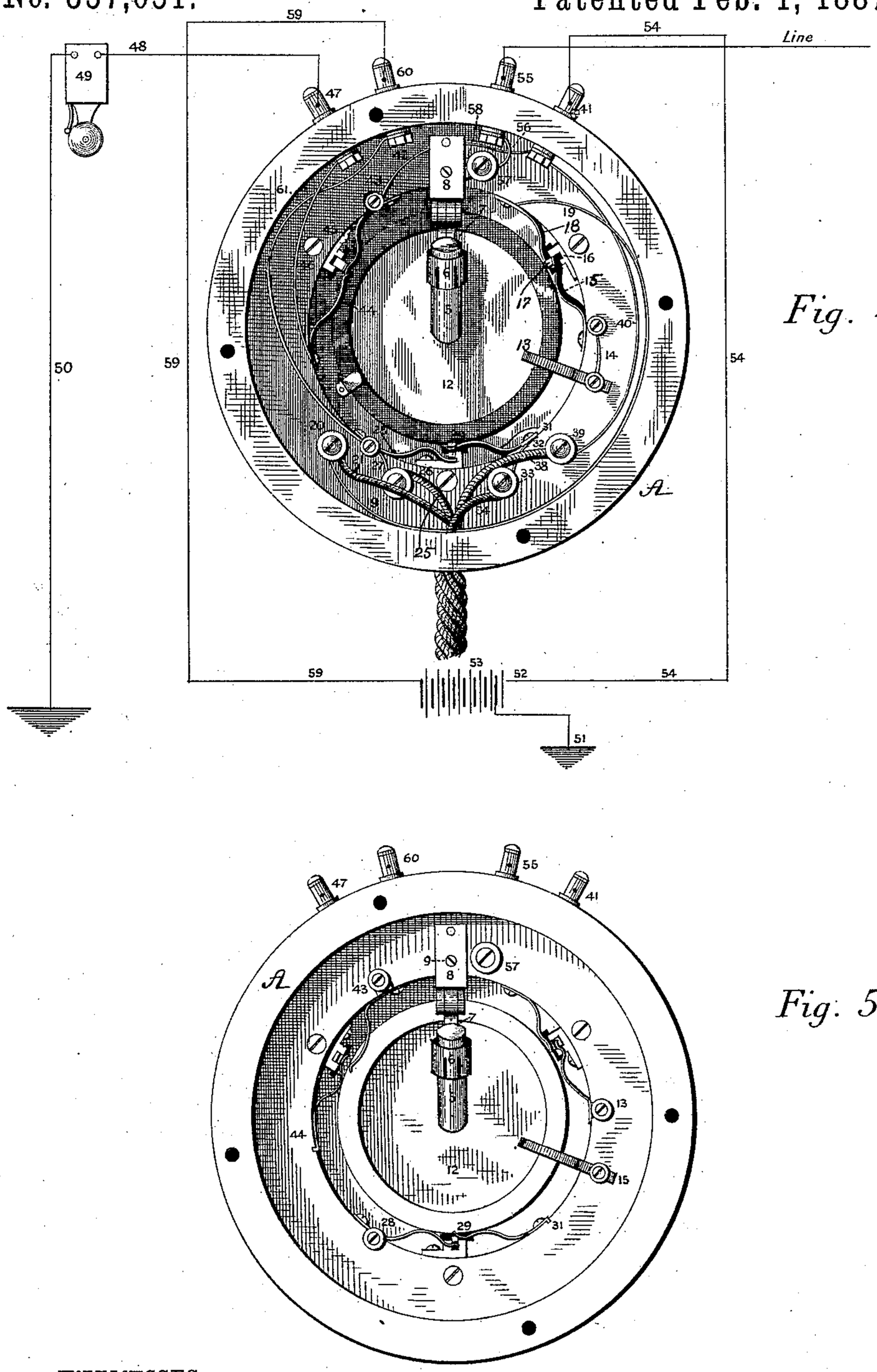

Fig. 4.

Fig. 5.

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No. 357,051. Patented Feb. 1, 1887.

Fig. 6.

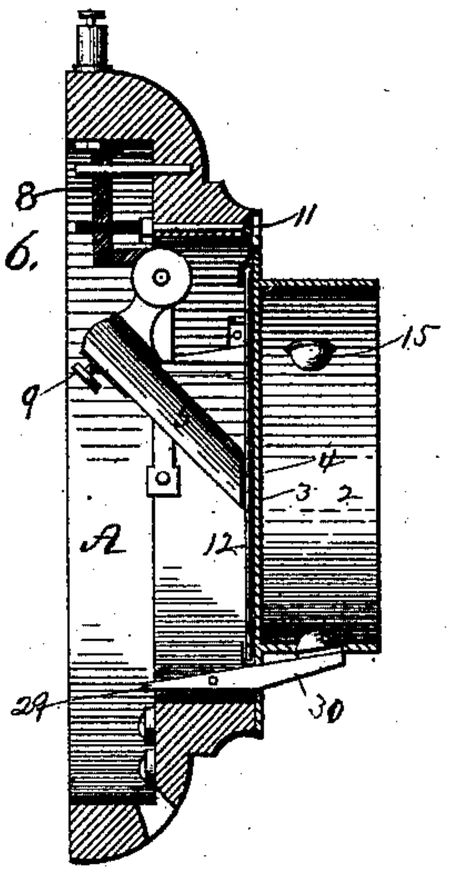
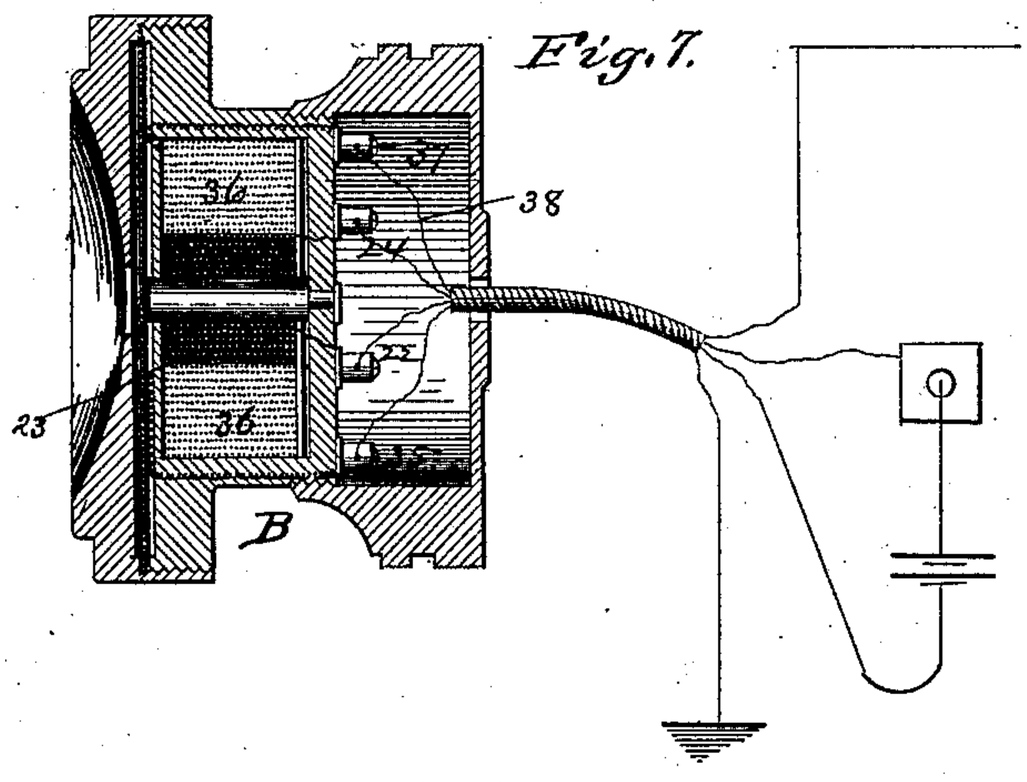


Fig. 7.



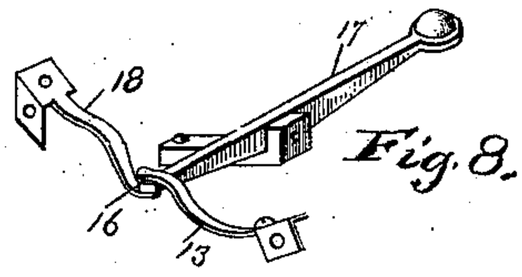


Fig. 8.

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UNITED STATES PATENT OFFICE.

FRANK C. WATKINS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE UNITED STATES KROTOPHONE COMPANY, OF NEW YORK, N. Y.

AUTOMATIC TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 357,051, dated February 1, 1887.

Application filed April 27, 1886. Serial No. 200,372. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. WATKINS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Telephone-Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to telephonic-switch systems, and more particularly to that class wherein the receiver is detachably secured to the transmitter when not in use and removed therefrom when about to operate, whereby, when not in use, the battery transmitter and receiver are cut out, so that the line runs only through the call-bell to the ground, and when the receiver is detached from the transmitter the call is cut out and the line runs through the secondary circuit of the transmitter, thence through the receiver to the ground, and at the same time the primary circuit is closed in the transmitter; and the object of the invention is to simplify telephonic communication, so that all the subscriber has to do is to detach his receiver from the transmitter when he desires to talk and replace it when he is through; and to these ends the novelty consists in a transmitter provided with a series of switches and having an opening for the reception of the receiver and a receiver in electrical connection with the transmitter and adapted to be inserted in the opening in said transmitter and mechanically operate the switches, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same letters of reference indicate the same parts of the invention.

Figure 1 is a perspective view of my transmitter and receiver as they appear when not in use. Figs. 2 and 3 are similar views, showing the receiver detached from the transmitter when in use. Fig. 4 is a rear elevation of the transmitter, showing the position of the switches when the receiver is in place; and Fig. 5 is a similar view of the transmitter, showing the position of the switches when the receiver is detached. Fig. 6 is a vertical section of the transmitter. Fig. 7 is a longitudinal section of the receiver, and Fig. 8 is a perspective view of one of the transmitter-switches.

A is the transmitter-case, and B the receiver, the two being connected by a flexible conducting-cord, C, containing two or more conductors, the cord shown in the present case being composed of four conductors to correspond to the peculiar form of transmitter used.

The transmitter-case A is provided with a central cylindrical shell, 2, into which the receiver is inserted when not in use, and in the center of this shell is an orifice, 3, through which the voice reaches the diaphragm. The back of the diaphragm 12 is provided with a platinum button, 4, and against this button rests the oblique beveled end of the carbon electrode 5, it being supported in a metallic sleeve, 6, provided with an arm, 7, by means of which it is hinged to the depending bracket 8, secured to the interior of the case A.

The set-screw 9 in the sleeve 6 permits an easy adjustment of the electrode 5 with reference to its length, and at the same time insures an electrical connection; and the adjustment of the gravity of the electrode is provided for by means of the set-screw 10, the head 11 of which is accessible from the front of the transmitter.

The diaphragm 12 is made and mounted in the usual manner, and is in electrical connection with the spring 13 by means of the wire 14 and the spring 15; and from the spring 13 through the rear end, 16, of the lever 17 the current runs through the spring 18 and wire 19 to post 20, thence through flexible cord 21 to post 22 of receiver, thence through inside coil of iron wire 23 to post 24, through flexible cord 25 back to post 26 of transmitter, thence through wire 27 to switch-spring 28,

through end 29 of lever 30 to spring 31, through wire 32 to post 33, flexible cord 34 to post 35 of receiver, thence through outside coil of copper wire 36 to post 37, through flexible cord 38 to post 39 of transmitter, thence through wire 40 to outside line-wire binding-post, 41. From the inside of post 41 a wire, 42, runs to spring 43 and spring 44 of lever 45, through wire 46 to post 47, thence through wire 48 to call-bell 49 and wire 50 to ground. From post 41 to ground forms a shunt-circuit, which is closed through lever 45 when the receiver is in place. From the battery-ground 51, through a portion, 52, of battery 53, the current runs over line 54 to transmitter-post 41, over wire 56 to post 57, over connection 58 to bracket 8, and thence to carbon electrode, and from battery 53 over line 59 to post 60, wire 61 to spring 28 of lever 30. This completes the circuit, and both instruments at each end of the line are connected alike when the receivers are both in place in their respective transmitters—that is to say, the circuit begins at the ground, runs through call-bell 49 to post 47, wire 46, and springs 43 and 44, which are closed by lever 45, through wire 42, to post 41, to line 54, and in the same manner to the corresponding ground at the other instrument. This being the normal position of the instrument when not in use, it will be seen that all of the vital elements of the system are cut out, with the exception of the call-bell, and in case of lightning it is the only part exposed to danger, as the lever 30 is the only one that is closed, the levers 17 and 45 being open to break the circuit at their respective springs. When the receiver is removed from the transmitter, the levers spring inward, the lever 30 breaking connection at its springs and consequently cutting out the call-bell, while the lever 30 closes the main or call battery 53 through the outside or copper-wire coil, 36, and the lever 17 closes the local circuit through the transmitter and the iron-wire coil 23 of the receiver.

It will thus be seen that the removal of the receiver at one end of the line throws the main-line or call battery 53 on the line, and consequently rings the call-bell at the other end or at the central office, which remains "calling" until the person at that point removes his receiver, which cuts out the call and automatically connects his instrument in position for operation, as above described in the first instance, and when through talking, should one of the parties neglect to place his receiver into the transmitter the call-bell would notify him of the fact.

The position of the switch-levers when the receiver is in place is clearly shown in Fig. 4, and when the receiver is removed their position is illustrated by Fig. 5.

Assuming that each instrument is connected with a central office, when a subscriber removes his receiver from the transmitter his battery automatically calls the central office, which he then gives the number or name of the subscriber he desires to communicate with, and all the central office has to do is to connect the two lines, the calling subscriber's battery operating the called subscriber's bell and continues ringing it until he responds by removing his receiver, when both parties are in position for communication. Of course where two subscribers are connected by a direct wire, without the intervention of the central-office system, the removal of one receiver calls the other in the same manner as above described.

In the present application I do not claim the construction of the transmitter or the receiver, they being the subject-matter of separate applications filed of even date herewith, but limit my claim to the switch system in the transmitter, adapted to be automatically operated by the removal and replacing of the receiver.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. A telephonic transmitter provided with an outwardly-projecting shell forming a receptacle for the receiver when not in use, as set forth.

2. A telephonic transmitter provided with an outwardly-projecting shell forming a receptacle for the receiver, in combination with a receiver in electrical connection with said transmitter and adapted to be inserted and retained in said shell, as and for the purpose set forth.

3. A telephone-transmitter provided with a receptacle for the receiver and having a switch-lever pivoted to its casing, the inner end of which controls the switch and is within the transmitter, and the outer end of which extends into the receiver-receptacle, whereby the removal and replacing of the receiver operates the switch, substantially as set forth.

4. A telephone-transmitter provided with a receptacle for the receiver and having a series of switch-levers arranged around said receptacle and having their outer ends extending into said receptacle, their inner ends being within the transmitter and in contact with the switches, whereby the removing and replacing of the receiver automatically operates the switches, substantially as specified.

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

FRANK C. WATKINS.

Witnesses:
E. H. BRADFORD,
H. J. ENNIS.