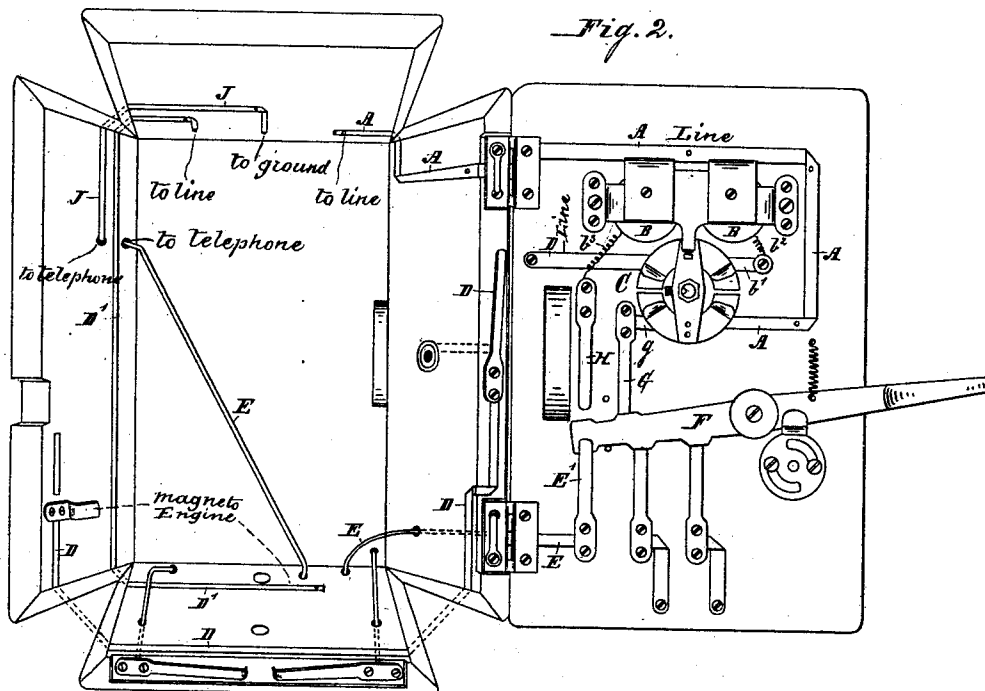
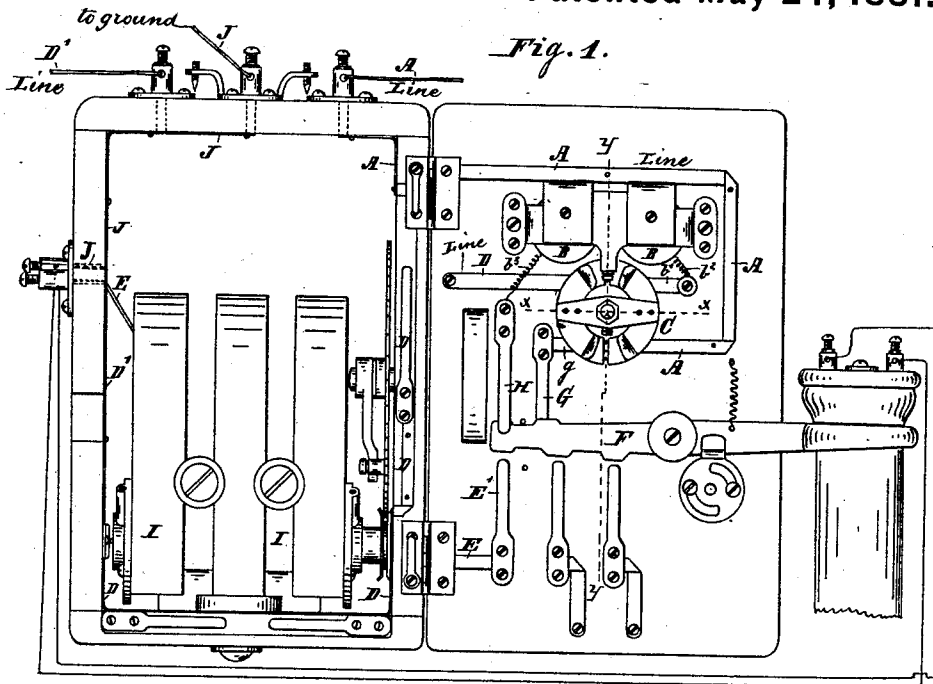


(Model.)

3 Sheets—Sheet 1.

E. T. GILLILAND.
Secrecy Switch for Telephones.
No. 241,963.
Patented May 24, 1881.



WITNESSES.

James B. Liggins.
R. P. Daggett

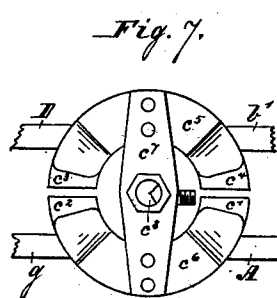
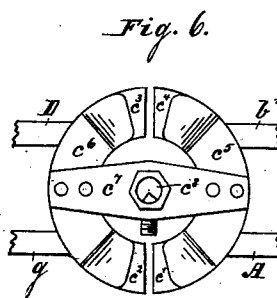
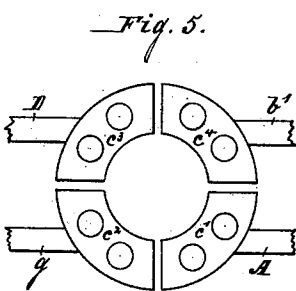
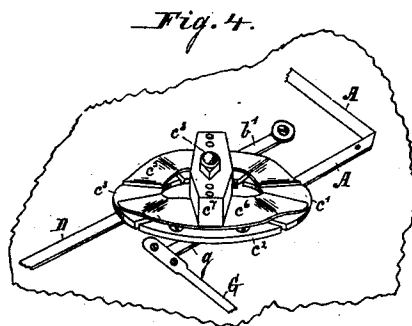
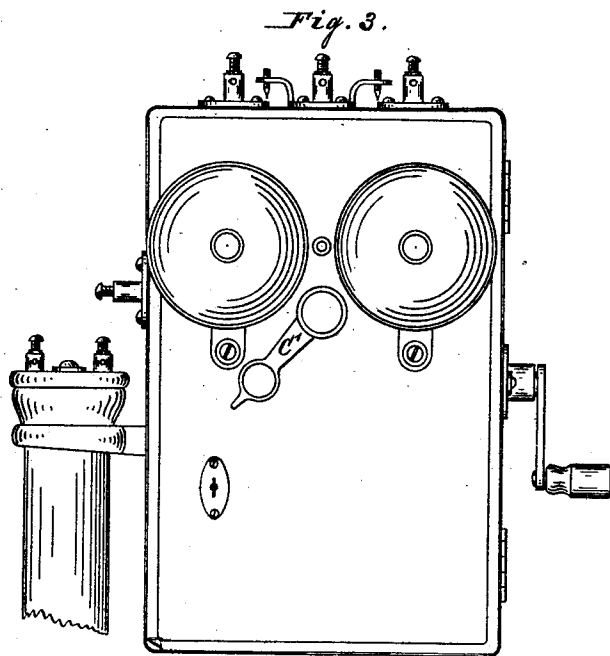
INVENTOR.

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(Model.)

3 Sheets—Sheet 2.

E. T. GILLILAND.
Secrecy Switch for Telephones.
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(Model.)

3 Sheets—Sheet 3.

E. T. GILLILAND.

Secrecy Switch for Telephones.

No. 241,963.

Patented May 24, 1881.

Fig. 8.

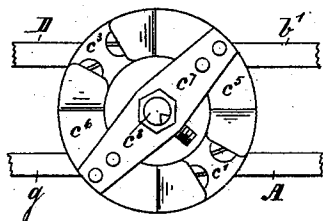
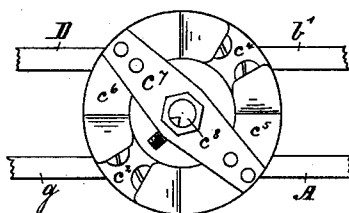


Fig. 9.



—Fig. 11.

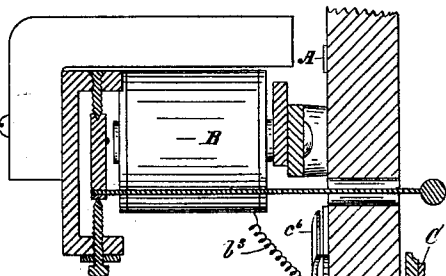
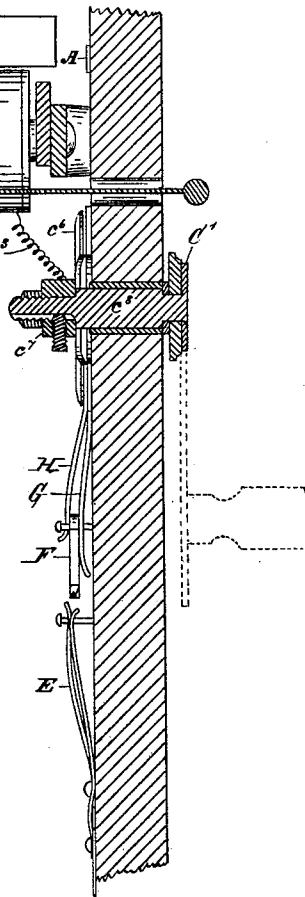
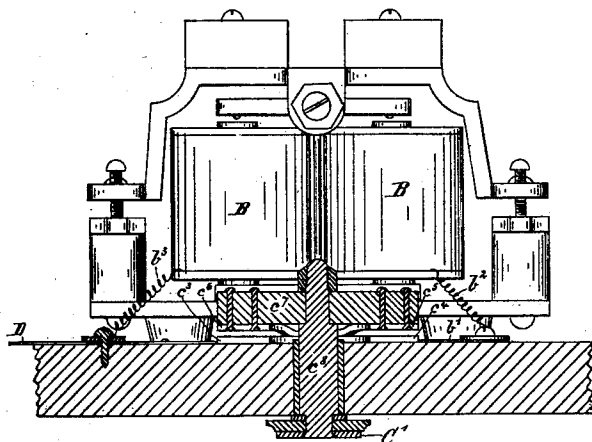


Fig. 10.



WITNESSES.

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UNITED STATES PATENT OFFICE.

EZRA T. GILLILAND, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE
AMERICAN BELL TELEPHONE COMPANY, OF BOSTON, MASSACHUSETTS.

SECRECY-SWITCH FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 241,963, dated May 24, 1881.

Application filed December 18, 1880. (Model.)

To all whom it may concern:

Be it known that I, EZRA T. GILLILAND, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Secrecy-Switches for Telephones, of which the following is a specification.

The principal object of my invention is to produce a secrecy-switch for telephones, which, while it will allow a call-signal to be received from either direction when in either of its usual positions, shall remain, when once set continuously, so that the telephone can be used for communication in one direction only until its position is changed, and in which the said change, when made, is also continuous until the position is changed again. This enables the user of any instrument (when it is on a line with other instruments) to be in constant communication with the instruments in one of either of the two directions from his own without impairing its usefulness for such communication as may be desired with those in the other direction. The convenience of such an arrangement is illustrated by the case of two parties on the same line who are in almost constant communication with each other, and who but rarely have occasion to call the central office. The switch is then set so that telephonic communication can ordinarily be had between the parties exclusively, and only with the central office when the switch is turned in the other direction. When these conditions are reversed, and two parties are on one line who ordinarily have no occasion to communicate with each other, the switch is set so that the central office can only be communicated with unless the switch is changed.

Secrecy-switches, as heretofore constructed, while serving their primary purpose of cutting out the instruments to one side while allowing communication with those on the other side, have, at the same time, also cut the main line, and the position of the switch has, therefore, always had to be changed as often as the telephone was used. Whenever the user forgot to make this change the line remained broken, and its usefulness, until the mistake was corrected, has been thus destroyed. This disadvantage has been usually corrected by embody-

ing in the secrecy-switch the gravity-switch, and using the same as a support for the telephone, but in this use there has still remained the disadvantage of being obliged to set the switch each time the telephone has been used.

By the peculiar construction of my improved switch and its connection with the ordinary gravity-switch all these disadvantages are avoided and new advantages are attained, as will presently be more particularly set forth.

For the sake of convenience in describing my improved switch, and to give a clearer understanding of its operation, the instrument shown is to be considered an intermediate one of a series with the central office (or exchange) upon the right (other instruments may, of course, be also on the right, between this instrument and the central office) and one or more other instruments upon the left, the last one of which is at the end of the line.

From the foregoing statements it will be seen that this invention is not intended for use, except where more than one instrument is on the line.

Referring to the accompanying drawings, which are made a part hereof, Figure 1 is a front elevation of an open bell-box; Fig. 2, a similar view, except that the magneto-engine is omitted, and the several sides of the box are swung apart so as to show all the connections, my improved switch being attached to the inside of the cover, as in Fig. 1, but in a different position; Fig. 3, a front elevation of the outside of the box, showing the bells and switch-handle; Fig. 4, a perspective view of my improved switch and connections, as seen from the lower left hand, when in the position shown by Fig. 8; Fig. 5, a plan view of the lower segments of the switch; Fig. 6, a plan view of the whole switch, in similar position to that shown in Fig. 1, but on a larger scale; Figs. 7, 8, and 9 plan views, similar to Fig. 6, except that the positions of the movable segments are different; Fig. 10, a section on the dotted line *xx* in Fig. 1, showing the parts above said line in elevation; and Fig. 11, a section on the dotted line *yy* in Fig. 1, showing the parts to the left of said line in elevation.

In said drawings, the portions marked A 100

represent the various strips or wires which are connected with the main line leading toward the central office or instruments on the right, and are known as "line-strips" or "connections"; B, the set of magnets used as the immediate means of ringing the bells, and being a portion of the device known as the "ringer"; C, the secrecy-switch which is the subject-matter of this invention; D, the strips or wires connecting said switch with the instruments on the left and leading through the magneto-engine; E, the strips connecting the telephone to the other apparatus; F, the usual gravity-switch; G, a short strip which connects said gravity-switch to the secrecy-switch, and forms a part of one or another electrical circuit, according to whether said switches are in one position or another; H, a spring-strip which forms a part of the main-line circuit, when the telephone is cut out by reason of a weight being hung on the gravity-switch, but which terminates the line A, and consequently cuts out the ringer when the weight is removed from the gravity-switch, and said gravity-switch is brought into contact with the spring-strip E' of the line E; I, the magneto-engine, by which the current is generated which actuates the ringer in call-signaling; and J the ground-wire of the telephone.

The secrecy-switch C is composed of segments $c^1 c^2 c^3 c^4$, fastened permanently to the cover of the box or other base on which the apparatus is mounted, two movable segments, $c^5 c^6$, which are preferably in the form of springs, a cross-bar, c^7 , to which the spring-segments are attached, and a shaft, c^8 , which carries said cross-bar and movable segments, and is preferably operated by a suitable handle, C'. The segments $c^1 c^2 c^3 c^4$ are separated from each other by a sufficient space to prevent any electrical connection, and the cross-bar c^7 is constructed of or separated from the segments $c^5 c^6$ by hard rubber or other insulating material, so that said segments are also insulated from each other.

When all the parts are arranged as shown in Fig. 1 the telephone is intended for use in communicating with persons having instruments upon the line running to the left, and the electric current, when the instrument is in such use, takes the following course: Coming in over the line D', it passes through the magneto-engine I, over the line D, through the permanent segment c^3 , movable segment c^6 , permanent segment c^2 , connection g , spring G, a portion of the switch-bar F, spring H, curl b^3 , coils B B, curl b^2 , connection b^1 , segments $c^4 c^5 c^1$, and out over the line A, causing the bell to ring in its passage in the ordinary manner by its action on the magneto-coils B B. It is obvious that the call may come from the opposite direction, as while the gravity-switch F is in the position shown in this figure the current is free to pass through the instrument in both directions, and will operate to ring the bell equally well while passing in one or the other. The call being

received and the telephone taken down, the gravity-switch F assumes the position shown in Fig. 2, and as the contact between said switch and the spring H is thereby broken the latter forms the terminus of the line A, cutting out said line (and also the ringer) and making the conversation, so far as any instrument on said line A is concerned, entirely secret. A new contact is formed, however, between the switch F and the spring E', forming a part of the telephone-connection and throwing the telephone (which has previously been cut out) into the circuit and putting it in readiness for use.

When the secrecy-switch is in the position shown in Fig. 2 and the gravity-switch in the position shown in Fig. 1 the apparatus is arranged for communication with the central office or instruments to the right over the line A, and the electrical current coming in over said line A would pass through the segments $c^1 c^2 c^3$, connection g , spring G, switch F, spring H, curl b^3 , coils B B, curl b^2 , connection b^1 , segments $c^4 c^5 c^3$, connections D, engine I, and out over the line D' as before, causing the bell to ring in its passage. Of course, as in the previous case, a call from the other direction would pass through the instrument in the reverse direction to that just described, but operating, as before, to ring the bell. The call having been received and the telephone removed from the switch F, the latter assumes, as before, the position shown in this figure, 2. The parting of the contact between the switch F and the spring H while the switch C is in this position has the effect of cutting out the ringer and the magneto-engine, and of course destroying all communication with the line D' or instruments thereon, as said line is only reached through said engine.

Should a call-signal be received from one direction when the apparatus is arranged for use in the other, the person answering has only to turn his switch, by means of the handle C', and be prepared to hear the voice-call made. In this case it is understood that a different call-signal is to be employed; but if, by mistake, it is not, the party can first listen a moment, and not hearing any voice-call, can then turn the switch.

As will be readily understood from the foregoing description, when the secrecy-switch C is in either of the positions shown in Figs. 1 and 2 (also 6 and 7) and the gravity-switch F has the telephone hung thereon, the call-signal apparatus, both engine and ringer, is always in circuit, no matter from which direction the call comes. When the weight is removed from the gravity-switch, (the secrecy-switch being still in one of the positions named,) the telephone is thrown into circuit, and the line leading in one direction, and also the ringer, is cut out. When the secrecy-switch is in the position shown by Figs. 1 and 6, the exchange and instruments to the right are cut out, and the telephone is in communication with the in-

struments to the left only. When the secrecy-switch is in the position shown in Figs. 2 and 7, the exchange and instruments to the right can be communicated with, and the instruments to the left cannot be communicated with.

The positions already described comprise all that will usually be employed, as the results do all ordinarily useful purposes. Other positions are shown, however, and will be now described, as occasions may arise when they will effect useful results.

When the secrecy-switch is in the position shown in Fig. 8, the telephone and ringer are both cut out, irrespective of the position of the gravity-switch, and the instrument cannot therefore be used at all, but the line passes through unbroken. This can serve no useful purpose, save where the person having the instrument does not desire to have it used, or where it is out of order and it is desired to have communication between the instruments on each side while it is being repaired, or to secure it against damage by lightning during a storm.

The position shown by Fig. 9 is not one which it is expected that the switch will ordinarily be placed in, as all communication is destroyed by so placing it, and the line rendered valueless for the time it is so positioned.

To recapitulate: When the secrecy-switch is in the position shown in Fig. 1, the call-signal can be made from either direction, and by means of the operation of the gravity-switch the telephone can be used to communicate with instruments on the left. When the secrecy-switch is in the position shown in Fig. 2, the call-signal can be made as before, but the telephone can only be used to communicate with instruments on the right. When the secrecy-switch is in position as shown in Fig. 8, no call-signal or telephonic communication can be held, but the line for other instruments remains unbroken. When the secrecy-switch is in position as shown in Fig. 9, the line is broken for all instruments thereon, as well as for the one in which the switch is located, so far as communication past said instrument is concerned.

It will be understood, of course, that the describing of the central office as being located to the right, and the end of the line as to the left in this specification, is simply for convenience in describing the operation of the invention, and that in practice these locations may be reversed. It will also be understood that the exact location and arrangement of the sev-

eral parts and connections shown is not essential to the operation of my invention, but that these matters, as well as the form of construction, may be varied considerably without departing from said invention.

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

1. The combination of a secrecy-switch, an independent telephone-switch and their contacts, and electrical connections, substantially as described, so that the two sections of a line-wire can be connected with each other, or either of them grounded through the telephone, according to the position of the switches, as set forth.

2. A secrecy-switch for telephone-lines, comprising segments insulated from each other, line-strips or conductors connected with a pair of said segments, local strips through which connection is made between the line-strips and between one or the other and the telephonic instruments, and other segments suitably mounted and movable over the first-named segments, the said segments and conducting-strips being arranged substantially as described, so that either of the line-strips can be connected with either of the local strips through the aforesaid segments, as set forth.

3. The combination of a secrecy-switch comprising fixed and movable segments, as specified, with a gravity-switch, its contact-points, conductors connected with said points, and a conductor connecting the two switches with each other, substantially as described.

4. In a telephone apparatus, the combination, with a secrecy-switch, of a gravity-switch having an electrical connection therewith, which is at all times in operation, and a connection with the ringer and one with the telephone, of which only one shall be in operation at any one time, substantially as set forth.

5. The combination, with a secrecy-switch and a gravity-switch constructed independently of each other, of a strip, G, which forms a connection between said two switches regardless of the positions occupied thereby, substantially as set forth.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 11th day of December, A. D. 1880.

EZRA T. GILLILAND. [L. S.]

Witnesses:

C. BRADFORD,
LILLIE GILLILAND.