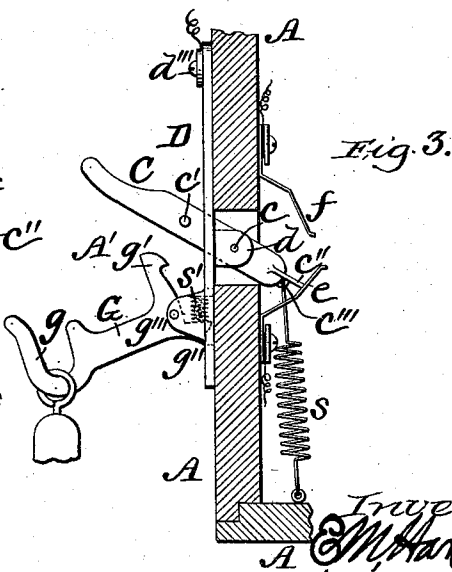
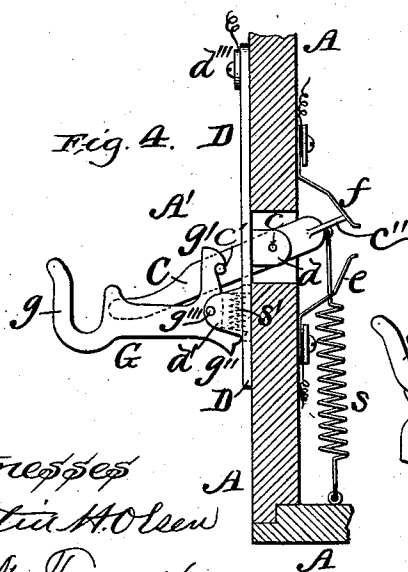
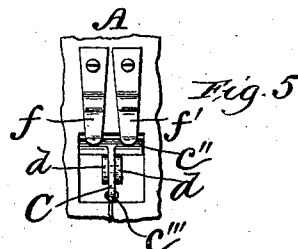
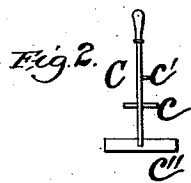
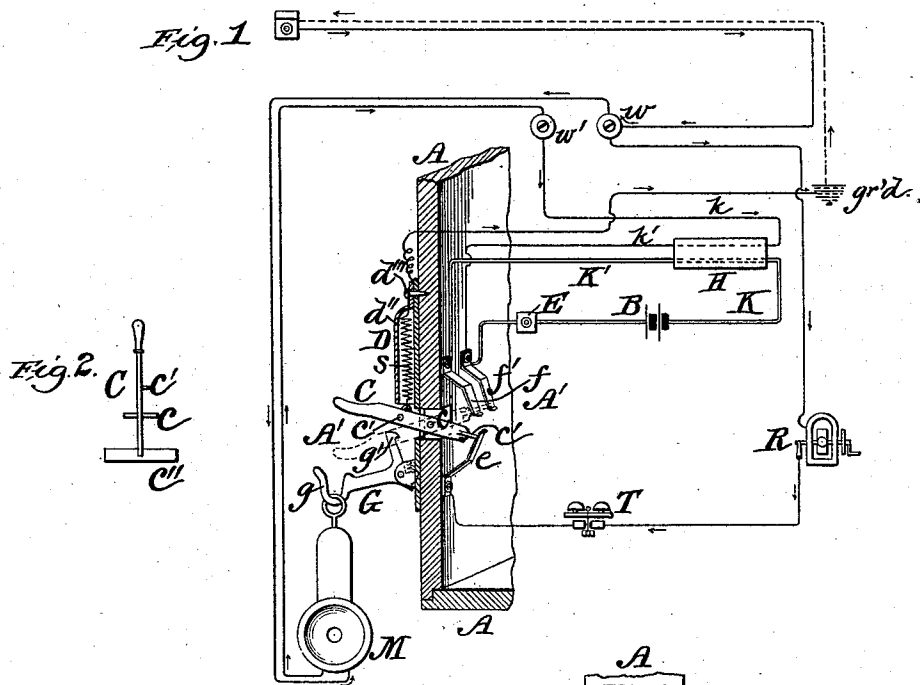


(No Model.)

E. M. HARRISON. TELEPHONE SWITCH.

No. 571,162.

Patented Nov. 10, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD M. HARRISON, OF CHICAGO, ILLINOIS.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 571,162, dated November 10, 1896.

Application filed November 21, 1894. Serial No. 529,479. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. HARRISON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone-Switches; and I do hereby 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.

This invention relates to telephone-switches which may be conveniently and quickly operated by hand in connection with a suitable hook for supporting the receiving instrument.

The object of my invention is to provide an improved telephone-switch in which the necessity of hanging the receiving instrument on the cut-out lever is avoided, thereby making it possible to increase the strength of the contacting-springs, whereby better contact is made as the switch is moved to cut-out and in the different parts of the telephonic apparatus, and whereby the receiving instrument may be made lighter and neater.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a diagrammatic view illustrating my switch in perspective elevation and the electrical circuits connecting it with the transmitter, the battery, the induction or intensity coil back to the switch, and also the circuit connecting it with the magneto-bell, the magneto-generator, and thence to the distant telephone and back to ground. Fig. 2 represents a top-plan view of my cut-out lever. Fig. 3 represents an elevation of my telephone switch device in normal position. Fig. 4 represents an elevation of the switch device with the cut-out lever held in position for permitting the telephone to transmit phonetic sounds. Fig. 5 represents a rear elevation of the upper contact-springs and the horizontal bar of the cut-out lever in contact therewith, being in the same position as in Fig. 4.

In my present form of switch device illustrated in the accompanying drawings the old form of shifting switch-bar having a hook on its outer end for supporting the receiver is dispensed with, and instead thereof I provide a pivoted cut-out lever C, which, together

with its escutcheon and connecting devices, is attached to and supported by one of the side walls A of the telephone-case.

The whole switch device is designated by the letter A'.

The cut-out lever C in its normal position, as in Figs. 1 and 3, makes contact, by means of its horizontal bar, with the lower or magneto-bell-spring *e*, and the spiral spring *s* for holding it in such position is relieved from strong tension. While communication is being made over the line to a distant telephone, the cut-out lever C is shifted into the position shown in Fig. 4, in which its horizontal bar *c''* is in contact with the upper or battery springs *f f'*, Figs. 4 and 5, and it is held in this position by a catch, as *g'*, forming part of the hook, which acts as a trigger or releasing device.

The cut-out lever C is made with a suitable handle at its outer end, and is provided at its inner end with a transverse horizontal bar *c''*, of hard-tempered metal, and also has a lateral catch-pin *c'''* and a small lug *c'''*, having an eye for connecting the spiral spring *s*.

The lever C is pivotally connected by a pin *c* to an inwardly-projecting lug *d* of the escutcheon D, so that its horizontal bar *c''* may be readily shifted and put in contact with the lower flat contact-spring *e* and the upper flat springs *f f'*. Below the cut-out lever C, and at the lower end of the escutcheon D, there is pivoted to the lug *d'*, by means of pin *g'''*, the trigger or releasing device G, having at its outer end a telephone-hook *g* and at its inner end an upwardly-projecting catch *g'* and a heel-piece *g''*, projecting below said catch and serving as a seat for the coiled springs *s'*, for holding the trigger G normally in horizontal position when it is not weighted by the receiver instrument.

The escutcheon D is elongated above the cut-out lever, and may be formed with a recess *d''* for receiving a spiral lifting-spring *s*, which may be attached at its lower end to a suitable eye at the top of the lever, as shown in Fig. 1, for holding the lever in its normal position. The recess *d''* may be omitted, and I preferably place the spiral spring *s* within the telephone-case and connect it to a lug *c'''*, having an eye at the inner end of the lever C, as shown in Figs. 3 and 4, and the other end of the spring is connected to an eye at the

bottom of the case. The escutcheon D is also provided with a pair of lugs *d*, which project into an opening in the wooden case and to which the lever C is pivotally connected by a pin *c*, and also with an outwardly-projecting lug *d'*, to which the trigger G is pivotally connected by a pin *g'''*. The escutcheon is suitably secured by a screw at its lower end (not here shown) and at its upper end by a binding-screw *d'''*, to which is connected the terminal of the ground-wire.

To the inner side of the wooden case A, above the cut-out lever, are secured two stiff flat springs *f f'*, which are the terminals of the battery-circuit and the receiver, as shown in diagrammatic view, Fig. 1. To the inside of case A, below the cut-out lever, is secured a stiff flat spring *e*, which forms the terminal of the magneto-bell T, as shown in Fig. 1. In the normal position of the switch device, Fig. 3, the cut-out lever is in contact with the terminal spring *e* of the magneto-bell, closing the circuit with the ground for the purpose of signaling. When connection is to be made through the telephone E, the cut-out lever C is pulled down by hand and its lateral pin *c'* engaged by the catch *g'* of the trigger device G, thus placing the horizontal bar *c''* in contact with the upper springs *f f'*, as shown in Fig. 4, and thereby closing the battery-circuit and also the receiver-circuit to the ground. At the end of communication the receiver or other suitable weight is hung upon the hook *g*, which disengages the catch *g'* of the trigger device from the cut-out lever C, permitting such lever to return to its normal position, as shown in Fig. 3.

One of the free ends *K'* of the primary coil in the intensity coil H is connected through the switch and transmitter E to the battery, and the other end *K* of the primary coil is connected with the battery, as shown in Fig. 1. One of the free ends *k* of the secondary coil goes to line through the receiver M to a distant telephone, and the other free end *k'* connects through the switch to the ground, as illustrated in Fig. 1. The magneto-generator R is connected in circuit with the bell T, the receiver, and the distant telephone, as shown in Fig. 1.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the primary and secondary of an induction-coil and battery including a short calling-circuit, lagged in from the main line, a pivoted cut-out lever in constant connection with the ground and having at its inner end, a transverse horizontal bar and means to keep the outer end or handle of the cut-out lever raised, so as to keep the inner transverse horizontal bar in constant contact with the short or calling circuit, a pivoted trigger-catch or releasing device, without electrical connections, and having at its outer end a hook and at its inner end an upwardly-projecting catch, for the purpose of

holding the pivoted cut-out lever down, when pressed under the catch by the hand, for the purpose of establishing the primary circuit and at the same time to bring in the secondary circuit of an induction-coil, substantially as described.

2. In combination with the primary and secondary of an induction-coil and battery including a short calling-circuit, lagged in from the main line, a pivoted cut-out lever in constant connection with the ground and having at its inner end, a transverse horizontal bar and means to keep the outer end or handle of the cut-out lever raised so as to keep the inner transverse horizontal bar in constant contact with the short or calling circuit, a pivoted trigger-catch or releasing device, not electrically connected with anything, having at its outer end a hook and at its inner end an upwardly-projecting catch, for the purpose of holding the pivoted cut-out lever down when pressed under the catch by the force of the hand, for the purpose of establishing the primary circuit and at the same time to bring in the secondary circuit of an induction-coil; and whereby the use of said induction-coil and battery-circuit may be discontinued by simply releasing the trigger-catch by placing a weight on the hook thereof, causing the pivoted cut-out lever to return to its normal position in the calling-circuit, substantially as described.

3. The combination in a telephone switch device, of a pivoted cut-out lever, in constant contact with the ground, and having at its inner end a transverse bar, a magneto-bell spring secured below said bar, two battery and line springs secured above said bar, a lifting-spring normally holding the cut-out lever with its transverse bar in contact with the magneto-bell spring, and a pivoted trigger or release device, having at its outer end a hook and at its inner end an upwardly-projecting catch, adapted to engage with a pin on said cut-out lever for holding the transverse bar of said lever in contact with the battery-springs during communication, substantially as described.

4. A telephone-switch comprising terminals of a signal-circuit and a transmitter-circuit, a pivoted cut-out lever adapted, when in its raised position, to connect the signal-circuit with the line-circuit, and, when in its lower position, to connect the transmitter-circuit with the line-circuit, a lever pivoted below said cut-out lever, and having means for holding the transmitter, whereby the lever is normally held down by the weight of said transmitter, and a hook upon said lever for engaging and holding the cut-out lever when the latter is in its lower position, substantially as described.

5. A telephone-switch comprising terminals of a signal-circuit and transmitter-circuit, a pivoted cut-out lever adapted when in its raised position to connect the signal-circuit with the line-circuit and when in its lower

position to connect the transmitter with the line-circuit, a lever pivoted below said cut-out lever, and having means for holding the transmitter, whereby the lever is normally held down by the weight of said transmitter, a hook upon said lever for engaging and holding the cut-out lever when the latter is in its lower position, and means whereby, upon the removal of the transmitter, the lever is thrown into position to engage the cut-out lever when in its said lower position, substantially as described.

6. A telephone-switch comprising terminals of a signal-circuit and a transmitter-circuit, a pivoted cut-out lever adapted, when in its raised position, to connect the signal-circuit with the line-circuit, and, when in its lower position, to connect the transmitter-circuit

with the line-circuit, a lever pivoted below said cut-out lever and having means for holding the transmitter, a heel-piece projecting from said lever, a spring between said heel-piece and a fixed portion of the switch whereby the lever is, when left to the action of the spring, forced upwardly, and a hook upon said lever adapted, in the raised position of the lever, to engage the cut-out lever and hold the same when said cut-out lever is in its lower position, substantially as described.

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

EDWARD M. HARRISON.

Witnesses:

FLORENCE SAUNDERS,
W. S. HARRISON.