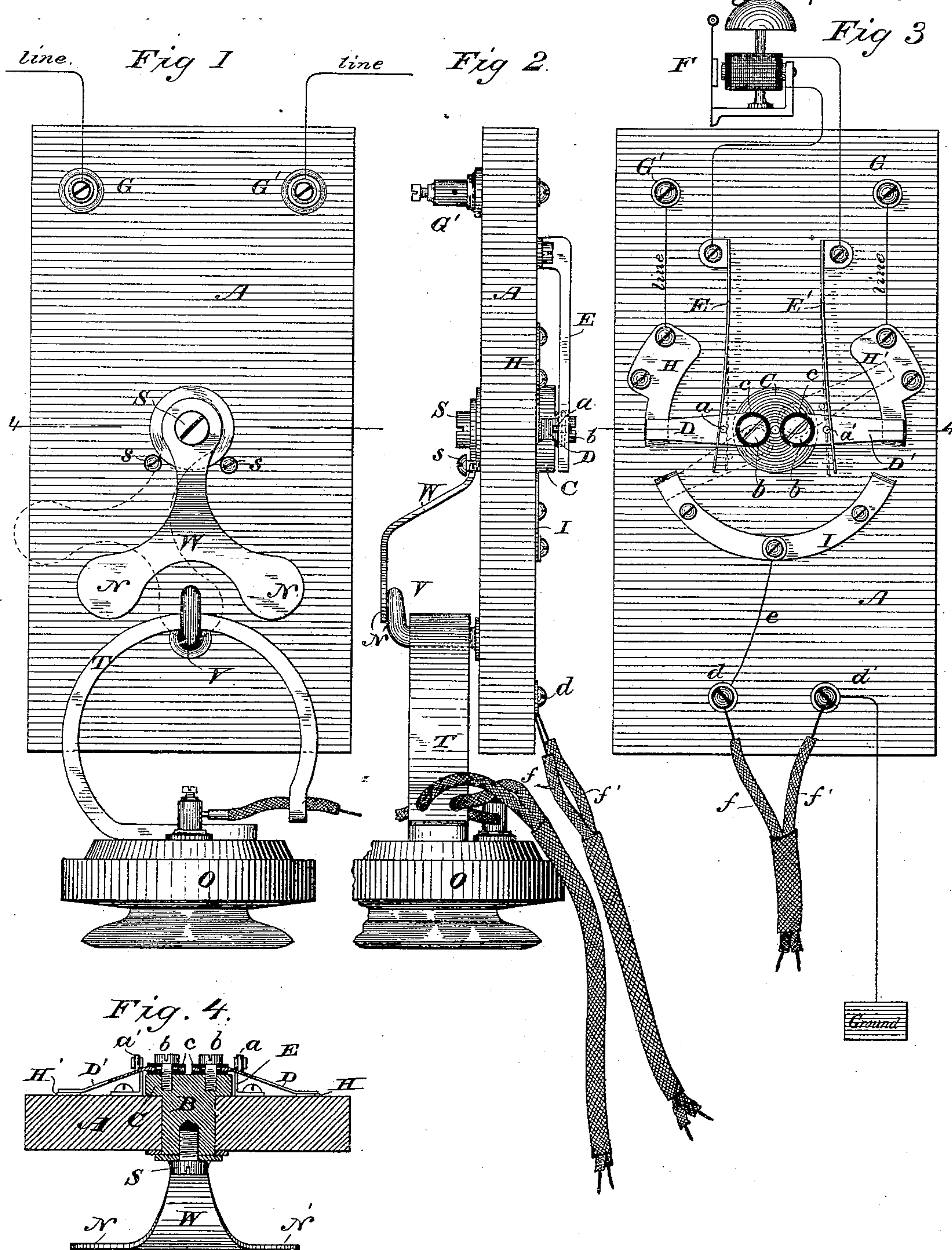


(No Model.)

M. G. KELLOGG.
TELEPHONE SWITCH.

No. 246,275.

Patented Aug. 23, 1881.



WITNESSES

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MILO G. KELLOGG, OF HYDE PARK, ASSIGNOR TO THE WESTERN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 246,275, dated August 23, 1881.

Application filed July 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, MILO G. KELLOGG, a citizen of the United States, residing at Hyde Park, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of telephone-switches called "secrecy-switches," which are adapted more particularly for use at telephone-stations in connection with a telephone-exchange, where a series of such stations are located on a single wire.

In switches of this character, when persons at any two stations are conversing, the intermediate main line is connected to the earth through their respective telephones, the fragments of the line behind the two stations remaining disconnected or "open." It is therefore important that some positive means be provided for restoring the continuity of the main line when conversation is concluded. I effect this object by constructing a telephone-switch with a forked handle, so arranged with relation to a telephone-supporting hook that, in order to switch the telephone into the main line for use, the handle of the switch must be moved from its normal position to one in which one of its branches covers the said supporting-hook, thereby forming a guard. The movement of the handle causes the switch-springs to change position, thereby dividing the main line, one portion of which is connected to the ground through the circuit of the telephone, the other portion remaining open. Thus it will be seen that in order to replace the telephone upon its supporting-hook the guard must be removed, and the operation of removing the guard restores the continuity of the main line, and shunts the telephone therefrom.

Referring to the drawings, which form part of this specification, Figure 1 represents a front view of my apparatus. Fig. 2 is an edge view. Fig. 3 is a rear view. Fig. 4 is a transverse section on the line 4 4.

The letter A indicates a supporting-base, which may be of wood, through the center of which is an aperture of a size to permit the free rotation of a spindle, B, said spindle having one of its extremities formed into a flanged head, C. Fixed to the head C by screws *b b*, but insulated therefrom by insulating-washers *c c*, are two flat metallic springs, D and D', which carry on their upper surface metal pins *a* and *a'*, arranged to make contact with metal springs E and E', which form terminals of the electro-magnet of the call-bell F. The main-line wire enters the switch by the binding-post G', and passes out by the binding-post G, the said posts being in metallic connection, respectively, with metal plates H and H' fixed to the base A.

The letter I indicates a metal segment fixed to the base A, and in metallic connection with the binding-post *d* by wire *e*. One terminal, *f*, of a speaking-telephone, O, is connected to the binding-post *d*, the other terminal, *f'*, of which is connected to binding-post *d'*, the latter being connected to an earth-plate by a suitable wire.

To the front face of the base A is fixed a supporting-hook, V, adapted to hold the handle T of the telephone O when not in use. A handle, W, is fixed to the outward extremity of the spindle B by a screw, S. The free end of said handle is forked into two branches, N and N', having an inwardly-curved recess between them. The stops *s s* on each side of the handle W limit its movement.

The operation of this apparatus is as follows: In the normal position of the switch, as shown in Figs. 1 and 3, the telephone is suspended from the hook V by its handle T, and is shunted from the main line. The branches N and N' of the switch-handle are now equidistant from the hook, and the telephone may be removed therefrom. The springs D and D' make contact, respectively, with main-line terminals H and H'. The route of the main-line current, starting from binding-post G, is completed through plate H, spring D, pin *a*, spring E, electro-magnet of call-bell F, spring E', pin *a'*, spring D', plate H', to binding-post G'. If, now, it is desired to use the telephone it is removed from its supporting-hook and the forked handle W is moved to a position indicated by dotted

lines, Fig. 1. This movement of the handle rotates the spindle B, to the head C of which are fixed the springs D and D', which are caused to take a position as shown in dotted lines, 5 Fig. 3. The circuit is now formed as follows: starting from binding-post G, thence to plate H', spring D', pin a', spring E', and call-bell coils to spring E, pin a, spring D, segment I, wire e, to binding-post d, from whence it passes 10 through the telephone conducting cords and electro-magnet to binding-post d', and thence to the ground. The telephone is now directly in the main circuit, and that portion of the main line connected to plate H and binding- 15 post G' is disconnected from the rest of the circuit, and no interruption can be made by any station located thereon. Thus if two stations are communicating, the main line to the right of one and to the left of the other is open, and 20 only the intermediate portion is intact, and any manipulation of the switch at stations on such intermediate portion of the line for the purpose of overhearing the message will interrupt conversation by opening the line, as has 25 hereinbefore been explained. It is apparent that if the position of the switch-handle be changed so as to bring the end N thereof to cover the hook V, the position of the springs D and D' will be reversed and the route of 30 the current will be changed. When it is desired to restore the telephone to its supporting-hook the switch-handle must be moved until the curved portion between the branches is brought directly over the hook V, when the 35 handle T can be placed thereon. This operation causes the springs D and D' to resume their normal position, thus restoring the continuity of the main line and shunting the telephone therefrom. The same result may be at- 40 tained without departing from the general principle of my invention by reversing the relative position of the movable and stationary portions of the device. For example, the hook V, upon which the telephone is to be hung when not in 45 use, may be formed upon the free extremity of the handle W, while the guard may be stationary and of such form that the telephone can only be placed upon the hook when the handle W is in a position midway between its 50 two extreme positions.

I am aware that a switch has heretofore been constructed to be operated by taking the telephone off and placing it upon its hook, the movement in one direction cutting a signal out 55 or bringing the telephone in circuit, and the opposite movement of the switch bringing the signal in and cutting the telephone out. Such a switch is not a secrecy-switch, as it does not ground a fragment of the main line at the sta- 60 tion, and I lay no claim to it; nor do I claim a switch which guards a telephone-hook when in one position only.

I do not claim the device for locking the switch-lever and guarding the telephone-hook, as described in the patent, No. 209,115, of T. B. 65 Doolittle, and more fully shown in a model filed with said Doolittle's application in the Patent Office, a separate latch being used to guard the hook in that invention, requiring manipu- 70 lation independently of the switch-lever. I dispense with the separate latch, and the movement of my switch-lever automatically places a guard over the hook in both of its extreme positions.

What I claim is— 75

1. In a telephone-exchange apparatus, a switch normally constituting a portion of the main line, and arranged to sever the main line and complete a circuit from the earth at any station through either fragment of the broken 80 main line on either side of said station, in combination with a telephone-supporting arm and a swinging lever or handle attached to said switch, and arranged to coincide with the end of said supporting-arm when the main line is 85 broken in either direction and form a guard which must be swung away from said arm, and thereby move the switch to complete the main line before the telephone can be replaced upon 90 its said supporting-arm after being removed therefrom for use when the main line is broken by the switch, and the fragment on either side of the station connected thereby to ground, sub- 95 stantially as described.

2. The combination, with the plates H, H', 95 and I, and the telephone-supporting arm V, of the arms D D' and the forked handle W, one or the other branches of which covers or guards the said arm V when either of the arms D or D' is in contact with said plate I, substantially 100 as and for the purpose set forth.

3. A telephone-station switch operated by a lever-arm capable of being placed in three positions, the middle position leaving the main line passing through the station unbroken and 105 disconnected from the earth, and the lever in its two extreme positions acting to sever the main line by shifting the switch to form a connection between the earth and a fragment of the severed line in one direction or the other, 110 as the case may be, in combination with an arm or hook for supporting a telephone, and a guard so placed as to be caused to cover said arm or hook by the movement of the switch-lever to either of its extreme positions, sub- 115 stantially as and for the purpose set forth.

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

MILO G. KELLOGG.

Witnesses;

HECTOR H. TYNDALE,
FRANK L. POPE.