

(No Model.)

M. G. KELLOGG.  
Telephone Switch.

No. 243,575.

Patented June 28, 1881.

Fig. 1.

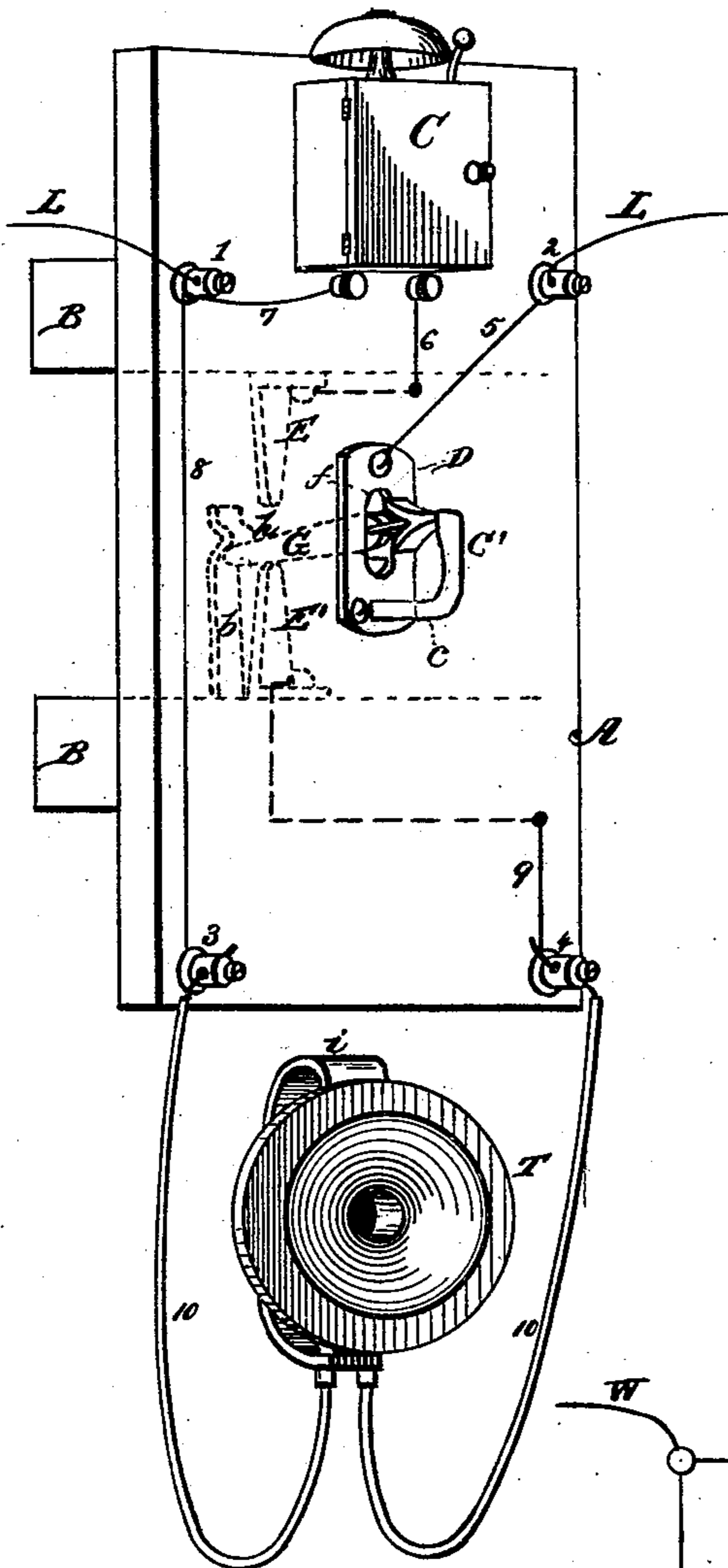


Fig. 2.

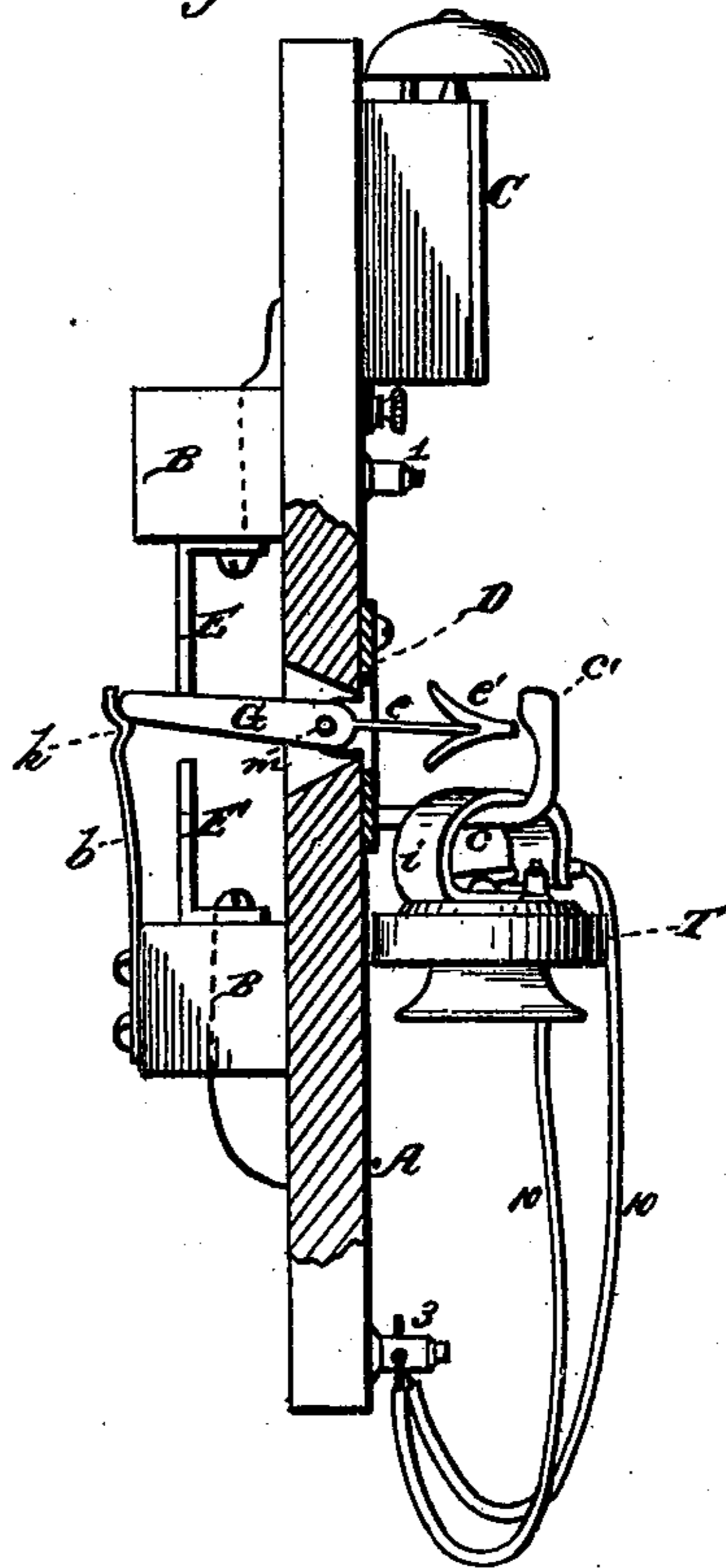


Fig. 3.

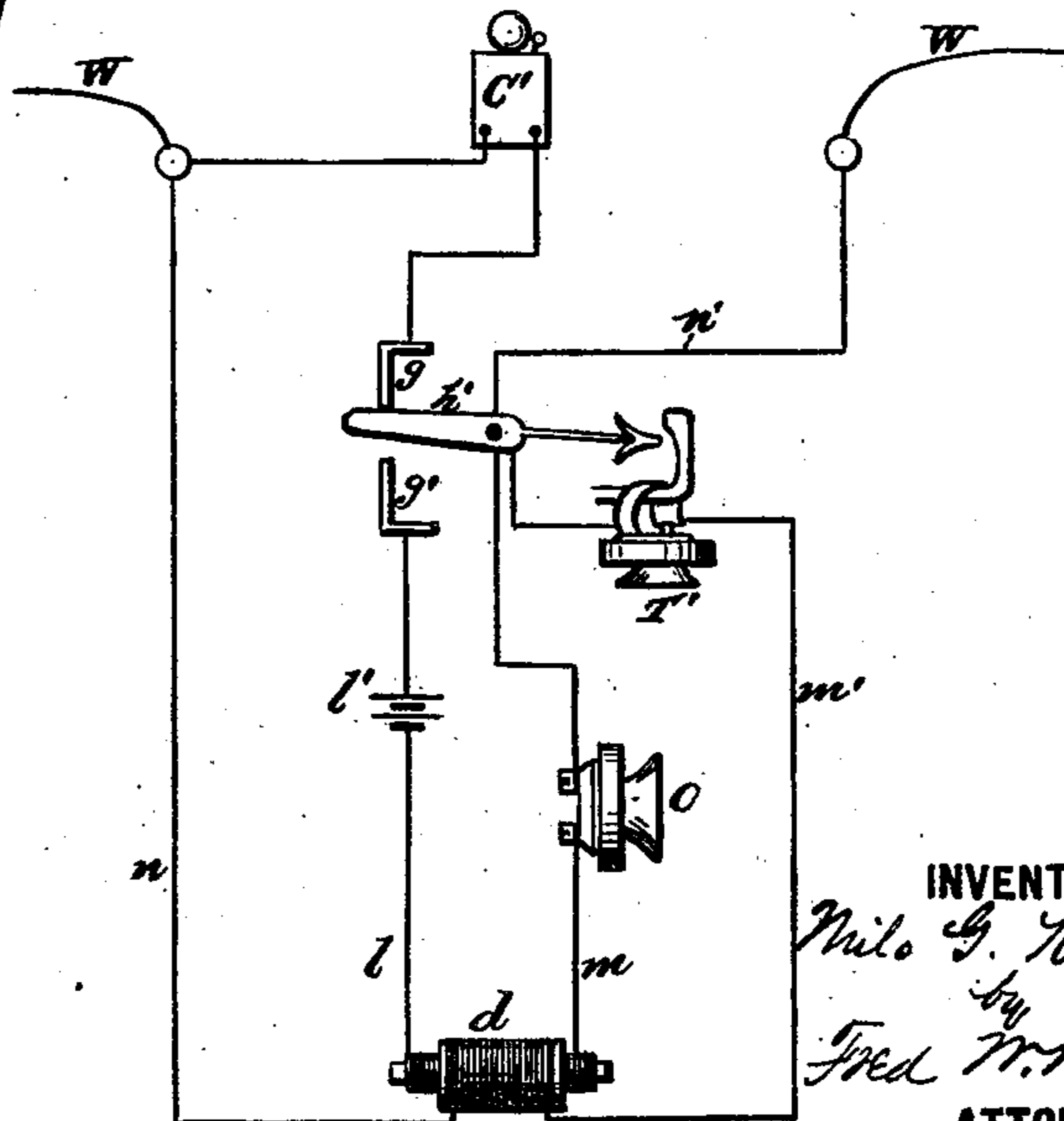
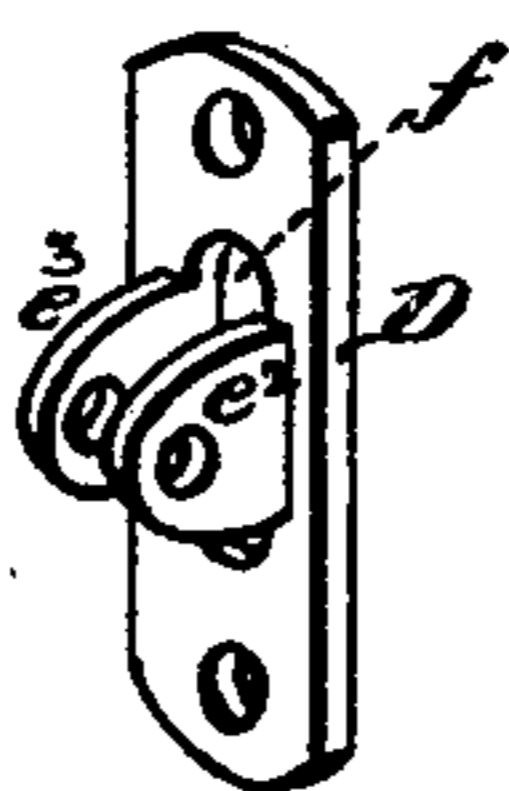


Fig. 4.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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. 243,575, dated June 28, 1881.

Application filed April 5, 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 Automatic Telephone-Switches, of which the following is a specification.

My invention relates to that class of telephone-station switches in which the operation of removing the telephone from its support automatically acts to disconnect the signaling apparatus from the main line and to connect the telephone thereto, while the reverse operation of replacing the telephone upon its support in like manner disconnects the telephone from the line and restores the connection of the signaling apparatus.

Telephone-switches of this character, as heretofore constructed, often fail to make a perfect electric connection between the different contact-points, and communication is thereby partially or entirely interrupted.

The object of my invention is to provide an automatic telephone-switch which will make a perfect electric contact under all circumstances and conditions of ordinary use. To this end I construct the switch or movable portion of the main circuit of conductors of a metallic lever moving upon a pivot, and having an extension or prolongation to which is affixed a guard. The said guard, when in its normal position, is in such close proximity to the end of the stationary arm or hook which forms a support for the telephone that the latter can neither be removed from nor replaced upon said support without pushing the said guard away from the support in one direction or the other, as the case may be, and thereby moving the arm of the switch-lever. This action causes the opposite extremity of the switch-lever to be thrown against the respective contact-points and retained in that position by the pressure of a spring provided for that purpose.

In the accompanying drawings, Figure 1 is a perspective view of an apparatus embodying my invention, in which the telephone is represented as having been removed from its supporting-arm. Fig. 2 is a side elevation of the same, partly in section, in which the telephone is represented as resting upon its sup-

porting-arm. Fig. 3 is a diagram of the electrical connections as arranged for operation in connection with a transmitter, battery, and induction-coil; and Fig. 4 is a detached view of a portion of the apparatus.

The different parts of the apparatus are mounted upon and affixed to a base-board, A, of wood or other non-conducting material, which has transverse projecting pieces B B, of the same material, at its back.

Upon the face of the base-board A, and near its center, is fixed a metallic plate, D, (shown separately in Fig. 4,) which is provided with a central oblong aperture, *f*, on each side of which is a projection extending backward, as shown at *e*<sup>2</sup> and *e*<sup>3</sup>. A metallic switch-lever, G, is pivoted to the projections *e*<sup>2</sup> and *e*<sup>3</sup> at *m*. One arm of this lever extends backward, as shown in the figures, and is movable between two fixed contact-stops, E and E'. The extremity of this arm is beveled on each side, so that its end forms a somewhat obtuse angle. A flat spring, *b*, one end of which is rigidly attached to the base, is bent at its other or free end into a rib, *h*, of a similar angular form, which is pressed by the elasticity of the spring against the angular end of the lever G. By reference to Figs. 1 and 2 it will be understood that when the end of the lever G is moved in either direction past the rib *h* the pressure of the spring *b*, acting upon the inclined surface thereof, will hold the said lever firmly against the adjacent contact-points on either side. The opposite extremity of the lever G is provided with an extension or prolongation, preferably consisting of a flat spring, *e*, which projects forward from the base-board, and carries upon its extremity a guard, *e'*. This guard is arranged to move in close proximity to, but without touching, the end of the upright portion *c'* of the angular projecting arm or hook *c*, upon which the telephone is hung.

The arrangement of the electric circuits will be readily understood by reference to the figures. The main line L is attached to the binding-post 1, at which point it divides into two branches, one going by wire 7 through the signaling apparatus C, and thence by wire 6 to contact-point E, while the other goes by

wire 8 to binding-post 3, to which is attached a flexible conducting-cord, 10 10, passing through the telephone T and terminating at the binding-post 4, which is connected by the  
 5 wire 9 with the contact E'. The earth-wire or line-wire from the opposite direction, as the case may be, is attached to the post 2, which is connected by the wire 5 directly with the plate D and switch-lever G. Thus it will be under-  
 10 stood that by moving the switch-lever G into contact with the point E or E' the signaling apparatus or the telephone may respectively be placed in the circuit of the line.

By reference to Fig. 2 it will be seen that  
 15 the telephone T, when in its normal position, is suspended from the supporting-arm *c* by means of a ring or handle, *i*. In order to remove the telephone from its support for use, the ring *i* must be passed over the end *c'* of the  
 20 support *c*. In consequence of the proximity of the guard *e'* to the end of the support, such removal cannot be effected except by pushing the guard *e'* upward far enough to leave a space between it and the end of the support,  
 25 through which the ring *i* of the telephone may be passed. So, also, in replacing the telephone the guard *e'* must be pushed downward to permit the ring to pass beneath it. The operation of pushing the guard *e'* in either di-  
 30 rection causes the other end of the switch-lever G to pass by the rib *h*, whereupon the action of the spring *b* upon the switch-lever presses it firmly against the contact-point E, toward which it has been moved, thus insur-  
 35 ing a perfect electric connection at the point of contact. In order to place the telephone upon its support, it is necessary to exert a still greater pressure upon the guard *e'* and cause the spring *e* to bend, so that the ring of the  
 40 telephone can pass by the guard *e'*, whereupon the spring *e* will assume a position which guards the supporting-arm of the telephone. This operation takes place whenever the tele-  
 45 phone is removed from or replaced upon its support, and the telephone and the signaling apparatus are thus respectively placed in connection with the line.

I have shown the guard *e'* in the form in which it is preferably constructed; but I do  
 50 not desire to limit myself to any particular form, as this may be varied materially without departing from the spirit of my invention.

I am aware that in a telephone-station ap-  
 55 paratus constructed prior to my invention there is shown the combination, with a signal-bell circuit, telephone-circuit, and telephone-sup-  
 porting arm, of a combined signal and tele-  
 phone switch-lever provided with an arm or

guard adapted to be brought close to or cover  
 the end of said telephone-supporting arm when 60  
 the telephone is in circuit and the signal out  
 of circuit, in such a manner that the telephone  
 cannot be hung upon its supporting-arm until  
 the said arm of the switch is moved away from  
 said supporting-arm, the telephone being 65  
 thereby switched out of and the signal into the  
 circuit. I do not claim such combination or  
 any part of it.

I claim as my invention—

1. The combination, substantially as herein- 70  
 before set forth, of two independent contact-  
 points, a pivoted switch-lever adapted to be  
 brought in contact with either of said points,  
 and a spring which acts automatically in either  
 direction to press said switch-lever firmly 75  
 against either point with which it has been  
 brought in contact.

2. The combination, substantially as herein-  
 before set forth, of two independent contact-  
 points, a pivoted switch-lever adapted to be 80  
 brought in contact with either of said points,  
 a spring which acts automatically in either  
 direction to press said switch-lever against  
 either point with which it has been brought in  
 contact, an arm for supporting a telephone, 85  
 and a movable guard so arranged in relation  
 to said switch-lever and supporting-arm that  
 the position of the lever is reversed by the act  
 of removing the guard in order to take the  
 telephone from the supporting-arm or to re- 90  
 place it thereon.

3. The combination, substantially as herein-  
 before set forth, of two independent contact-  
 points, a pivoted switch-lever adapted to be  
 brought in contact with either of said points, 95  
 a spring which acts automatically in either  
 direction to press said switch-lever against  
 either point with which it has been brought in  
 contact, an arm for supporting a telephone, a  
 guard for said supporting-arm, and a flexible 100  
 resilient spring, by means of which said guard  
 is attached to the movable switch-lever.

4. The combination, substantially as herein-  
 before set forth, of a stationary telephone-  
 supporting arm, a movable switch-lever, and 105  
 a triangular guard mounted upon a flexible  
 resilient extension of said lever, so that its  
 apex will move in close proximity to the sup-  
 porting-arm.

In testimony whereof I affix my signature 110  
 in presence of two witnesses.

MILO G. KELLOGG.

Witnesses:

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 WM. ARNOUX.