(No Model.)

W. M. GOODRIDGE.

TELEPHONE SWITCH.

No. 371,260. Patented Oct. 11, 1887.

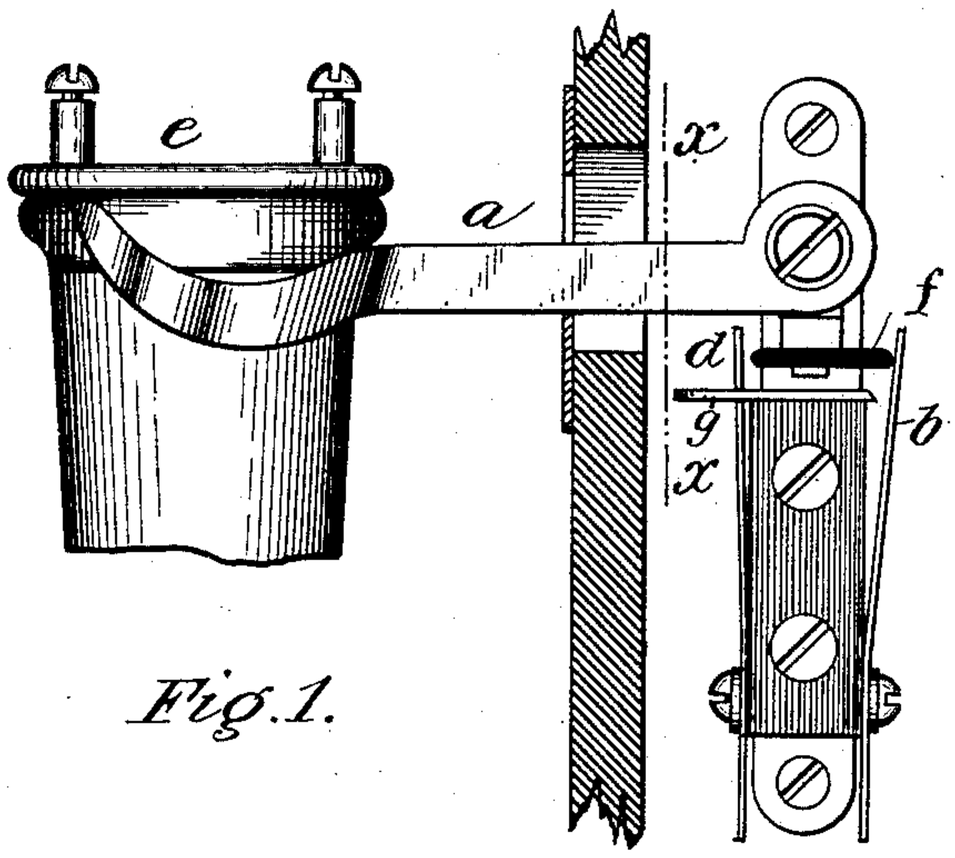
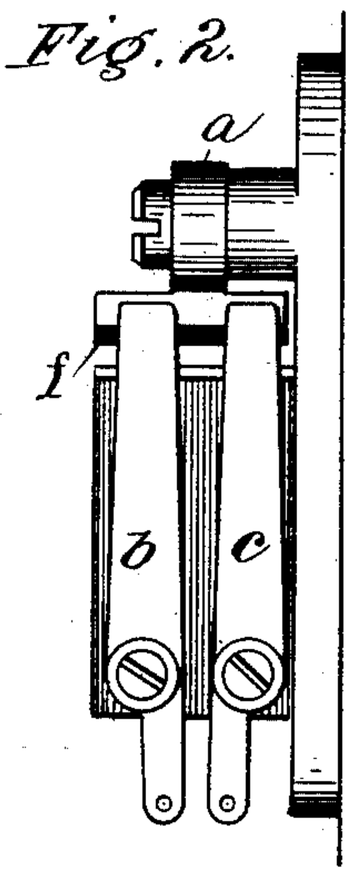


Fig. 1.

Fig. 2.



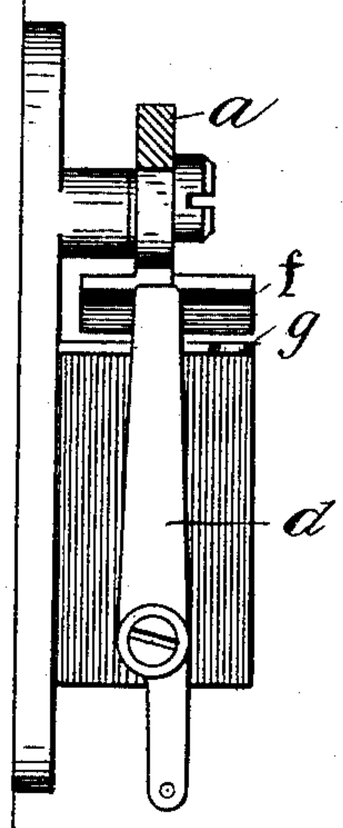


Fig. 3.

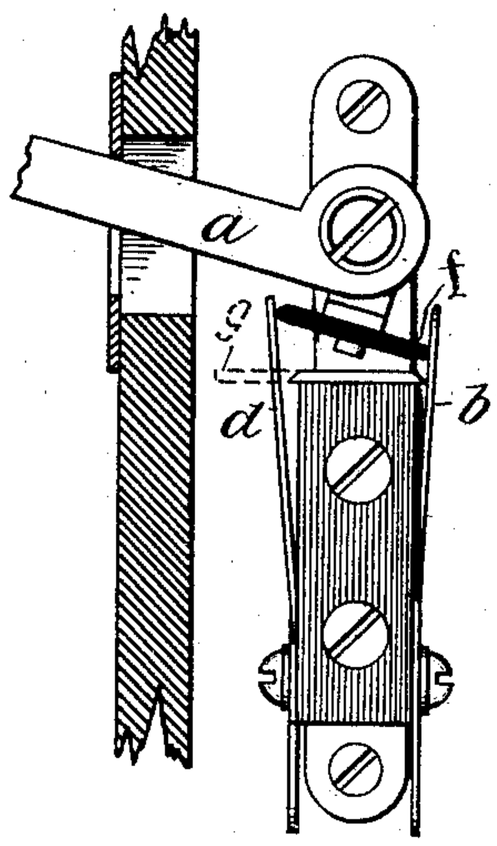


Fig. 4.

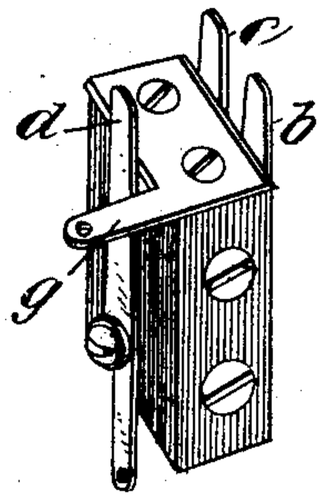


Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM M. GOODRIDGE, OF HIGHLAND PARK, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 371,260, dated October 11, 1887

Application filed March 21, 1887. Serial No. 231,635. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. GOODRIDGE, a citizen of the United States, residing at Highland Park, in the county of Lake and State of Illinois, have invented a certain new and useful Improvement in Telephone-Switches, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates, generally, to circuit-controllers and telephone-switches operated automatically by hanging up and taking down the telephone.

The form most generally in use is known as the "gravity-switch." There are other well-known forms—as, for example, the wedge-switch, and switches actuated positively by the telephone. (See United States Patents Nos. 222,201 and 248,671.) In each of these various forms the arm or lever directly moved by the telephone is used as a part of the circuit. This has made it necessary, in case of gravity-switches, to use a strong retractile spring in connection with the switch-lever, and in all cases pivots or screw-connections liable to rust have been included in the circuit, thus increasing the cost of the apparatus and greatly impairing its usefulness.

The object of my invention is to avoid the use of the special retractile springs in connection with gravity-switches, while at the same time all unnecessary resistance or parts liable to corrode are removed from the circuit.

My invention consists in providing an insulated piece upon the arm moved by the telephone, which serves to press against the telephone contact-spring and the local contact-spring to open telephone-circuit and local circuit when the telephone is hung upon its support, said springs being opposed to the force of the bell contact-spring and of sufficient force to close upon their opposing contact-piece and carry the insulated piece against the bell contact-spring to raise said bell contact-spring from its normal contact-piece and hold the same open while the telephone is in use.

My invention further consists in the devices and combinations herein particularly described and claimed.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a front elevation illustrative of my invention as applied to gravity-switches, the telephone being shown hung upon its supporting-arm. Fig. 2 is a side elevation from the interior of the box, showing the telephone and local contact-springs. Fig. 3 is an elevation of the opposite side as seen from line *x x* of Fig. 1. Fig. 4 is a side elevation showing the arm raised and the springs in position to close the telephone and local circuit and open the bell-circuit. Fig. 5 is a perspective view showing the line plate or terminal and the contact-springs mounted on a block of insulating material.

Like parts are indicated by similar letters in the different figures.

The arm *a* is forked so as to support the telephone when not in use, the weight of the telephone being sufficient to overcome the difference between the united resistance of springs *b c* and the resistance of spring *d*, so that when the telephone *e* is hung up springs *b c* will be pried or forced away by the piece *f* from line contact or terminal *g*, while spring *d* will rest against said terminal *g*, as shown in Figs. 1, 2 and 3. On removing the telephone the contact-springs *b c*, pressing against the rubber piece *f*, overcome the opposing pressure of spring *d*, and thus force said spring *d* away from the line-terminal *g* as they (springs *b c*) close against said terminal *g*, while the arm *a* is lifted, all as shown in Fig. 4.

It is evident that the arm *a* might be arranged to be operated by the telephone in any other well-known way without departing from my invention.

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

1. The combination, with the pivoted arm or lever, of the telephone hung thereon and contact-spring mechanism pressing against the lever in opposition to the weight of the telephone, and other spring mechanism of less force acting upon the lever in the same direction as the telephone and in connection with the weight of the telephone sufficient to overcome the resistance of opposing spring mech-

anism, whereby the circuits are changed on taking down and hanging up the telephone.

2. The combination, in a circuit-controlling device, of three contact-springs, and the line-terminal in combination with an insulating-piece carried at the shorter arm of a pivoted lever and serving to force the springs on one side of the insulating-piece in one direction away from the line-terminal, while the spring on the opposite side at the same time closes thereon as the telephone is hung upon its support, while on removing the telephone the two springs, acting against the insulating-piece, lift the opposing spring from the line-terminal and close thereon, as described.

3. The combination, with the pivoted arm carrying the piece *f*, of the springs *b c* on one side of piece *f* and the spring *d* on the opposite side thereof, and the line-terminal *g*, whereby the circuits are changed as the position of the pivoted lever is changed on taking down and hanging up the telephone.

4. The combination, with the line-terminal mounted upon a block of insulating material, of the springs *b c* and spring *d*, mounted upon said block, with their free ends pressing toward said terminal, the force of the springs *b c* being opposed to and greater than the force of spring *d*, and the insulating-piece *f*, carried upon the shorter arm of the pivoted lever and carried by the lever as it is actuated on hanging up and taking down the telephone, substantially as described.

5. The combination, with the line-terminal and the contact-springs, of the pivoted lever permanently insulated therefrom and carrying an insulating-piece which is forced alternately against the springs in opposite directions as the position of the lever is changed from one position to another, substantially as shown and described.

6. An automatic telephone-switch comprising, in combination, a fixed line-terminal contact-plate, a pair of contact-springs constituting branch circuit-terminals mounted in the rear thereof and adapted, when uncontrolled, to bear with their free ends upon the rear edge of the fixed contact-plate, a front contact-spring, also forming a branch terminal and adapted, when uncontrolled, to bear with its free end upon the front edge of the fixed contact-plate, and a pivoted actuating-lever serving, also, as a support for the telephone when not in use, and provided, as herein described, with a non-conducting heel-piece hanging between the free ends of the front and rear terminal-springs and adapted to engage the two rear springs and to hold them out of contact with the fixed contact-plate while the telephone is in place, but to yield to their pressure and to engage and force the front spring away from such contact when the telephone is removed from its support, whereby a special counter-spring is dispensed with, and whereby the inclusion of the switch-lever in the electrical circuit is also avoided.

In witness whereof I hereunto subscribe my name this 9th day of February, A. D. 1887.

WILLIAM M. GOODRIDGE.

Witnesses:

GEO. L. BEETLE,

GEORGE P. BARTON.