

(No Model.)

A. STROMBERG.
TELEPHONE SWITCH.

No. 405,382.

Patented June 18, 1889.

Fig. 1.

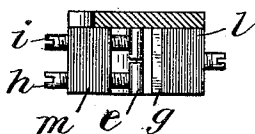
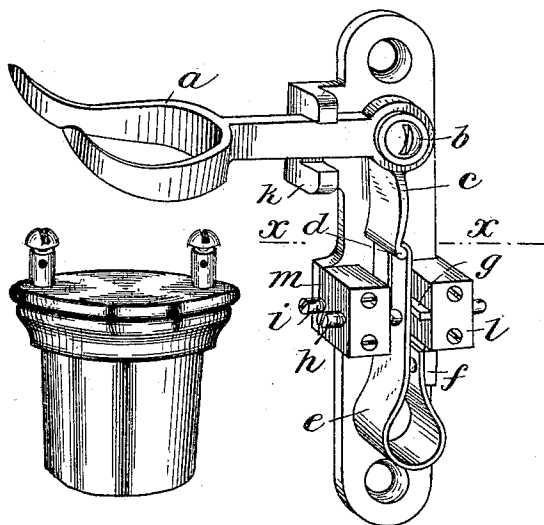


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED STROMBERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
ELECTRIC COMPANY, OF SAME PLACE.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 405,382, dated June 18, 1889.

Application filed April 4, 1887. Serial No. 233,617. (No model.)

To all whom it may concern:

Be it known that I, ALFRED STROMBERG, a citizen of the Kingdom of Sweden, residing at Chicago, in the county of Cook 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 to telephone-switches, and is especially designed to be used at a subscriber's station to enable the operator to automatically bring the telephone into circuit and close the local battery and transmitter-circuit on taking down the telephone, while on hanging up the telephone the bell is brought into the circuit of the telephone-line, while at the same time the telephone is removed from said circuit and the local circuit opened. The gravity-switch has been heretofore most generally used for this purpose, the lever being operated by the weight of the telephone as the telephone is placed upon and removed from the switch-lever, the weight of the telephone being sufficient to overcome the resistance of an opposing spring, which, when the weight of the telephone is removed from the switch-lever, serves to draw the lever up, so as to change the circuit from the bell to the telephone and close at the same time the local circuit. Other forms of switches have been operated by hanging up and taking down the telephone. In one form the ring of the telephone acts as a wedge to move the switch-lever, and when in place is included in the circuit which is closed thereby through the bell. In another well-known telephone-switch the lever is moved positively by the telephone as the telephone is placed upon or removed from its support.

My invention is designed more especially for gravity-switches; and its object is to render such switches more certain and reliable in their action, while their construction is greatly simplified and the cost of manufacture lessened.

My invention is illustrated in the accompanying drawings, in which I have shown a gravity telephone-switch embodying my invention.

Figure 1 is a perspective view of the switch

with the telephone removed. Fig. 2 is a top view of the spring switch-lever between the opposing contact-points, as seen from section, line *x x* of Fig. 1.

The telephone-supporting arm *a* is pivoted at *b*, and is provided with the short arm *c*. The lower end of this short arm *c* is preferably bent, as shown at *d*, so as to fit the correspondingly-bent upper end of the spring *e*, which forms the switch-lever proper. This spring may be of brass, German silver, or other suitable material. One end of this spring is rigidly attached to the lug *f* of the frame, which may be a brass casting of the form shown, while the other and longer end, which is preferably bifurcated, is bent upwardly, as shown, between the contact-points *g* and *h i*. The spring *e* is of such strength and so adjusted that when the telephone is removed from its support the supporting-arm will be lifted and the spring will rest against the contact-points *h i*, as shown. These points *h i* may be used as the telephone and local circuit connections. On placing the telephone on the supporting-arm the arm will be brought against its limiting-stop *k*, and the arm *c*, pressing against spring *e*, will separate said spring from the contacts *h i* and hold said spring against the opposite contact *g*. Thus the telephone-line may be permanently connected with the spring or switch lever *e*, and when the telephone is on the support will be closed through the bell-contact *g*. On removing the telephone the circuit will be closed to the opposite point or points *h i*. The special retractile spring heretofore generally used is thus dispensed with, the flat spring *e* bent into the form shown and normally pressing against the short arm of the support or bell-crank lever *a* serving not only the function of a switch-lever, but also that of a retractile spring.

The opposing contact-points are mounted upon blocks of insulating material *l m*, as shown. These points are fixed, and all contacts are made by the single flat spring moved alternatively from the connection on one side to the opposite connection.

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

1. The combination, with the bell-crank le-

ver, which forms the telephone-support, of the flat bent spring, one end being fixed, the free end of said spring pressing against one of the arms of said support and vibrating between the fixed opposing contacts of the switch to alternatively change the connection of the spring from one side to the other as the telephone is placed upon and removed from the support.

2. The combination, with the pivoted telephone-supporting lever and stops for limiting the movement thereof, the shorter arm of said pivoted support being in engagement with the free end of the spring *e*, of said spring *e*, rigidly secured at one end and bent and adjusted, as described, and the contact-points on opposite sides of spring *e*, upon which said spring closes alternatively as the pivoted arm is operated on taking down and hanging up the telephone.

3. In an electric switch, the combination,

with the flat spring *e*, fixed at one end and bent around to come between opposing contact-points, of said contact-points or connections, and the pivoted lever mechanism operating between fixed stops normally held in position by the tension of the said spring with which said mechanism is connected to allow said spring to close upon the connection on one side thereof, said spring being lifted from said connection and forced to close upon the opposing connection when the position of the lever mechanism is changed, whereby the circuits may be changed on the movement of the lever mechanism from one fixed stop to the other, substantially as described.

In witness whereof I hereunto subscribe my name this 30th day of March, A. D. 1887.

ALFRED STROMBERG.

Witnesses:

WILLIAM M. GILLER,
GEORGE P. BARTON.