(No Model.)

W. M. GOODRIDGE

LOOP SWITCH.

No. 455,747. Patented July 14, 1891.

Fig. 1.

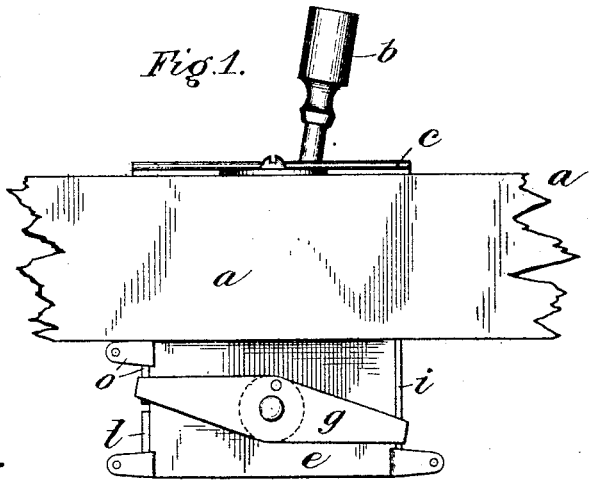


Fig. 6.

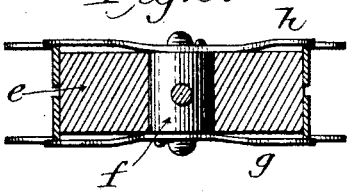


Fig. 2.

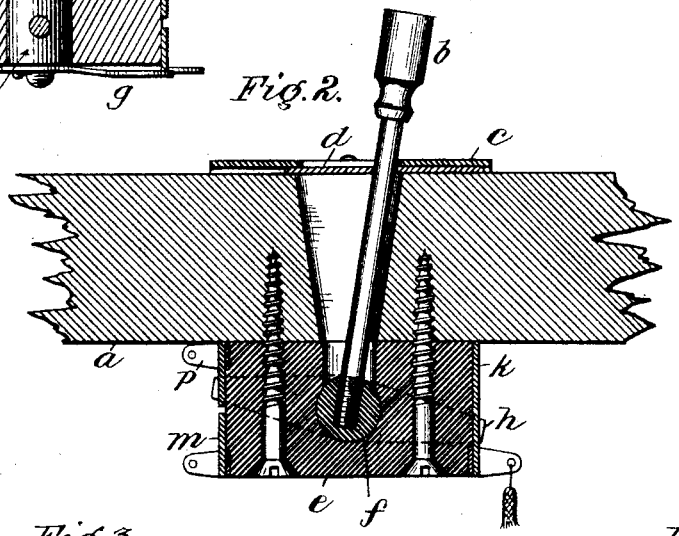


Fig. 3.

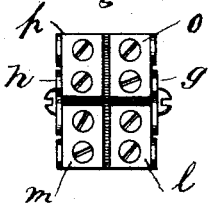


Fig. 4

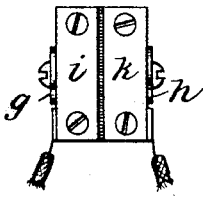
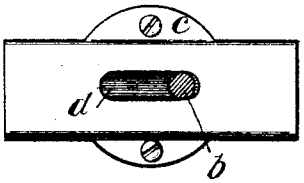


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

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

LOOP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 455,747, dated July 14, 1891.

Application filed March 4, 1887. Serial No. 229,667. (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 Loop-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 electric switches for looping in and out alternately different instruments.

My switch is especially designed for use as a part of the key-board apparatus of a telephone exchange.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a side elevation of my loop-switch. Fig. 2 is a sectional view thereof. Fig. 3 is an end elevation showing the two pairs of contact-pieces or terminals. Fig. 4 is a view of the opposite end of the switch, showing terminal plates or connections of the line. Fig. 5 is a plan showing the escutcheon and slide for preventing dirt from falling into the switch. Fig. 6 is a horizontal sectional view showing the manner of mounting the contact-springs.

Like parts are indicated by similar letters of reference throughout the different figures.

The board or shelf *a* is usually of wood and in a telephone exchange is placed directly in front of the switch-board as a part of the outfit. Through this shelf is cut a downwardly-tapering opening for the handle *b*, by means of which the switch is moved back and forth by hand. Over this opening is placed the escutcheon *c*, which is stamped out, preferably, of the form shown and bent upwardly, so as to afford room for the slide *d*, which is fitted to the handle and is carried backward and forward therewith in the guide formed under the escutcheon. Thus dirt is prevented from falling into the switch about the handle. The block of insulating material *e* is attached below the shelf. This block is preferably of rubber or vulcanite and serves as a frame or support for the different parts of the switch.

The handle is inserted in the cylinder or roller *f*, which is of insulating material, the handle serving to turn the cylinder back and forth in its bearing. On the opposite ends of this roller are mounted the symmetrical springs or levers *g h*. These levers are so adjusted as to press at all times against the contact-pieces *i k*, as shown. The different cords of a pair may be permanently connected with contact-pieces *i k*, and hence with the springs *g h*, respectively. Thus lever *g* will at all times be connected with one cord of the pair, while lever *h* will be always connected with the other cord. The clearing-out shutters may be included between the contact-pieces *l m* and the telephone may be included between the contact-pieces *o p*. As long, therefore, as the switch is in the position shown—that is, with the spring *g* resting against contact *o* and spring *h* against contact *p*—the telephone will be looped into the cords. On moving the handle in the opposite direction the springs *g h* will be separated from the contacts *o p*, respectively, and connected, respectively, with contact-pieces *l m*, thus bringing the clearing-out annunciator into circuit. It will be noted that the springs *g h* are mounted, respectively, on opposite ends of the cylinder *f*, a screw passing through each of said springs into the cylinder. The screw in each case bends its spring inwardly at the center, and thus a uniform and even bearing is obtained between the springs and their contact-pieces, respectively. This is due to the fact that the cylinder upon which the springs are mounted is loose in its bearings and free to move longitudinally, except as prevented by the springs.

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

1. In a loop-switch, the combination, with the handle, of a cylinder of insulating material, two springs mounted near their center, one upon each end of the cylinder, insulated contact-pieces included between one pair of opposing ends of the two springs, and other insulated contact-pieces adapted to be included between the other pair of opposing ends of the two springs when the handle is moved to the proper position, substantially in the manner and for the purpose specified.

2. The combination, with the symmetrical

springs *g h*, of the insulated pieces or terminals *i k*, against which said springs are pressed by their own tension, respectively, and the opposite contact-pieces or terminals *l m* and *o p*, and means for moving said springs back and forth between contact-pieces *l m* and *o p*, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 6th day of January, A. D. 1887.

WILLIAM M. GOODRIDGE.

Witnesses:
WM. M. GILLER,
GEORGE P. BARTON.