

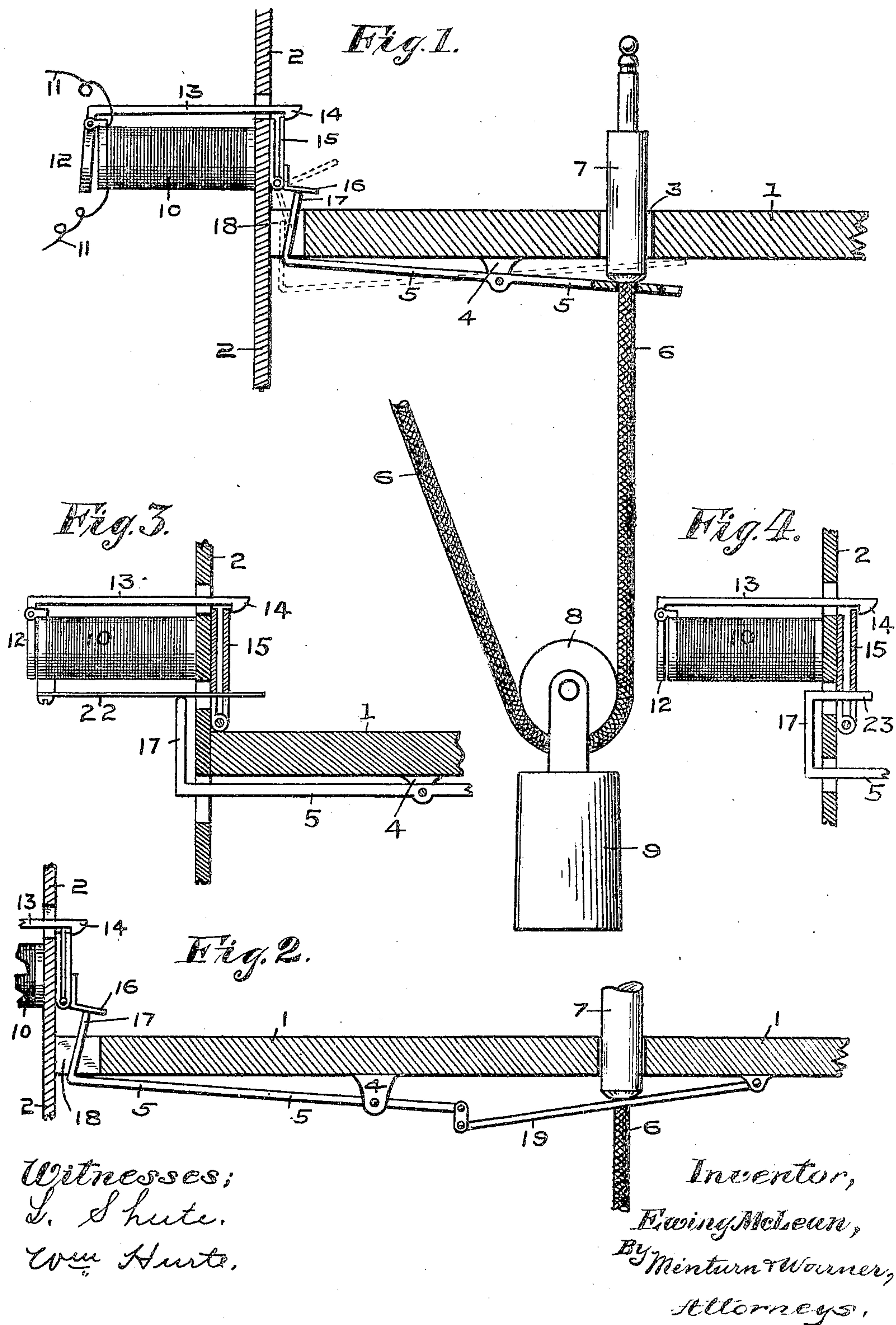
No. 807,575.

PATENTED DEC. 19, 1905.

E. McLEAN.

## MEANS FOR RESTORING RING-OFF DROPS FOR SWITCHBOARDS.

APPLICATION FILED NOV. 21, 1904.





# UNITED STATES PATENT OFFICE.

EWING McLEAN, OF GREENCASTLE, INDIANA.

## MEANS FOR RESTORING RING-OFF DROPS FOR SWITCHBOARDS.

No. 807,575.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed November 21, 1904. Serial No. 233,663.

*To all whom it may concern:*

Be it known that I, EWING McLEAN, a citizen of the United States, residing at Greencastle, in the county of Putnam and State of Indiana, have invented certain new and useful Improvements in Means for Restoring Ring-Off Drops for Switchboards, of which the following is a specification.

This invention relates to improvements in telephone-switchboards, and particularly to means for automatically restoring the shutter or target of a "ring-off" or "disconnect" drop or annunciator to its normal raised position after it has been dropped by the subscriber as a signal to the operator to disconnect.

The object of the invention is to utilize the weight of the plug and the weight attached to the plug by means of the cords usually employed for returning and holding the plug in its normal position on the shelf.

I accomplish the object of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a detail in vertical section of a portion of a switchboard with my invention applied thereto, showing a simple lever as a part of the operating device. Fig. 2 is a like sectional detail showing a modified construction of my invention in which a compound lever is used. Both views show the shutter in its raised position with the plug in the socket on the shelf or table. Fig. 3 is a detail in vertical section of a modified form of compound lever in which the second lever passes through a slot in the shutter and obviates the necessity of the shutter extension shown in Figs. 1 and 2 and is itself acted on by the main lever extension, similar to that shown in Fig. 2; and Fig. 4 is a detail showing a modification of the device illustrated in Fig. 1, whereby a bent end of the lever is made to take the place of the shutter extension.

Referring to the drawings, 1 is the shelf or table in front of the switchboard, and 2 is a vertical member at the back of the shelf to which the shutter and ring-off drop or annunciator is fastened. The shelf will have a number of perforations equal to the number of series of connecting-plugs used in that switchboard, one of which perforations or openings is shown at 3 in the drawings.

Secured to the under side of shelf 1 are

suitable supports, such as ears 4, to which the lever 5 is pivotally secured. This lever extends across the openings 3 and is perforated or forked for the passage through said lever of the cord 6, which is one member of a pair of cords such as are in common use on switchboards and of which there may be several, one end of said cord being attached to the end of the connecting-plug 7 and the other end attached to a permanent connection.

8 is a pulley mounted on the cord 6 and from which the weight 9 is suspended.

The plug, cord, pulley, and weight are of the usual and well-known construction.

10 is the magnet, to which the line-wires are connected in the usual manner to the windings of said magnet.

12 is the armature, which is pivotally secured to the spool of the magnet 10, and fixed to the armature 12 is the lever 13, which extends through the vertical member 2 of the switchboard and is terminated with a hooked end 14, which serves as a fastening means to lock and hold the shutter 15 when the latter is in its vertical or closed position, as shown in full lines in the drawings. This shutter furnishes the signal to the operator in the usual manner.

Attached to the lower end of the shutter 15 adjacent to its hinge is the lateral outer extension 16, which when the shutter is in its vertical and closed position extends over an opening 18 in shelf 1. Through this opening the upwardly-bent end 17 of the lever 5 is projected into contact with the said extension 16, so that by the oscillatory movement of the lever 5 on its pivot the contact of the bent end 17 of said lever with the shutter extension 16 will raise said shutter, and by lowering of the bent end 17 the shutter will be allowed to fall by gravity when it is released from hook 14.

The plug 7 rests upon the lever 5 and presses that end of the lever down by its own weight and the weight of the pulley 8 and weight 9, and when the plug is raised and placed in any jack in the switchboard for the purpose of connecting subscribers the lever 5 is released and its inner end 17 being the longer and heavier drops down by gravity, allowing the shutter to follow it, when the subscriber having ended his conversation shall ring off. By the withdrawal of the



plug from its jack and allowing it to drop into its socket the weight of it and its attached parts operate the lever so as to raise the shutter to its normal position under hook 14.

5 In the modification shown in Fig. 4 the bent end 17 of the lever has the right-angle extension 23, which is passed through a slot in the shutters 15 and raises the latter without the requirement of the extension 16 of  
10 Fig. 1.

The invention is capable of various other modifications—such, for example, as that shown in Fig. 2, in which a second lever 19 is pivoted at its outer end to the shelf or table and is connected, by means of a link at its  
15 other end, with the lever 5 and in which the plug 7 rests its weight on the lever 19 instead of upon the lever 5. The operation of this compound system of levers will be  
20 readily understood from Fig. 2. Other modifications are possible, such as that shown in Fig. 3, in which a spring bar or lever 22 has its far end extended through a slot in the shutter to raise the latter and has  
25 the end 17 of lever 5 bearing against lever 22, and it is therefore not desired to limit the invention to the exact construction shown in the drawings; but

What I claim as new, and desire to secure by Letters Patent of the United States, is— 30

In a telephone-switchboard, a shutter occupying a normal vertical position, said shutter being hinged at its lower end and adapted to swing down on its hinge as a signal to the operator, said shutter having an outwardly-projected extension at its hinge end, a magnet having windings connected with the telephone line-wires, an armature pivotally supported upon said magnet, an arm carried by said armature having a terminal  
40 hook to secure the shutter in its normal vertical position, a connecting-plug, a cord attached to an end of said plug, a weighted pulley supported on said cord, a pivoted lever having one arm contacting with the shutter  
45 extension, and having the other arm forming a support for said plug when the latter is in its socket.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this  
50 20th day of October, A. D. 1904.

EWING McLEAN. [L. s.]

Witnesses:

L. SHUTE,  
F. W. WOERNER.