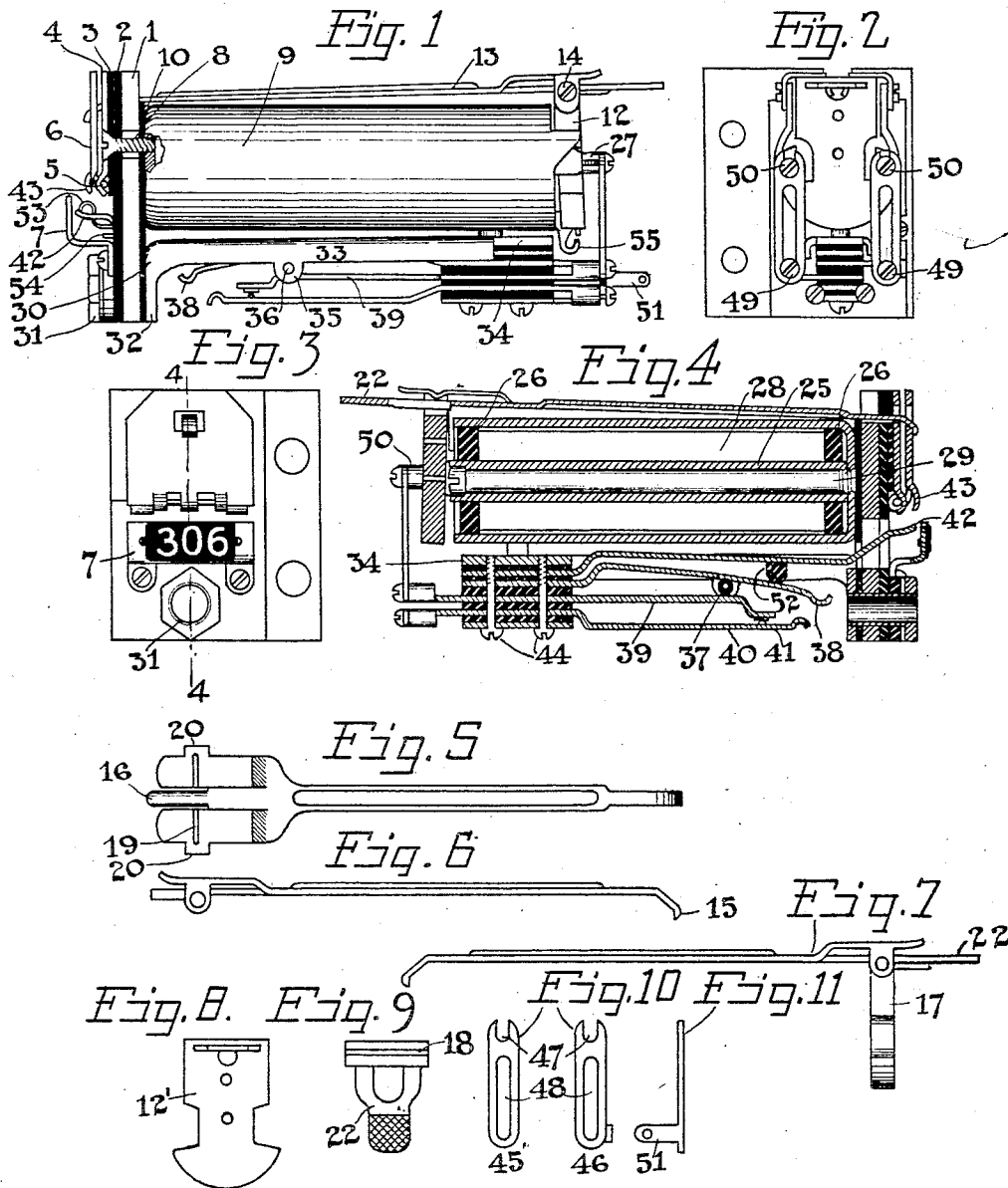


W. LEAVER.
COMBINED DROP AND JACK.
APPLICATION FILED DEC. 9, 1908.

1,131,389.

Patented Mar. 9, 1915.



Witnesses

W. H. Radley
C. C. Broadbent

William Leaver
Inventor
By Curtis B. Smith
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM LEAVER, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINED DROP AND JACK.

1,131,389.

Specification of Letters Patent.

Patented Mar. 9, 1915.

Application filed December 9, 1908. Serial No. 466,611.

To all whom it may concern:

Be it known that I, WILLIAM LEAVER, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Combined Drops and Jacks, of which the following is a specification.

My invention relates to combined drops and jacks for telephone installations and more particularly to the arrangement of the armature for said drop.

It has been found very desirable in practice to provide telephone drops with coils which can be removed from the drop shells without removing the shells from the switchboard, and my present invention accomplishes this result in a novel and efficient manner. It has been customary in the past to secure the armature and drop catch rigidly together and to pivot this structure as a whole upon the rear end of the drop shell. By my present invention I pivotally secure the drop catch to the rear end of the shell and so arrange the armature that it may be readily removed and replaced without in any way disturbing the adjustment of the drop catch.

My invention is illustrated in the accompanying drawing in which—

Figure 1 is a side elevation, Fig. 2 a rear elevation, Fig. 3 a front elevation, Fig. 4 a sectional drawing on the line 4—4 of Fig. 3, Fig. 5 a plan view of the drop catch, Fig. 6 a side view of the drop catch, Fig. 7 a view of the drop catch and removable armature, Fig. 8 a rear view of the armature, Fig. 9 a top view of the armature, Fig. 10 a rear view of the terminal links, and Fig. 11 a side view of the right terminal link.

In this embodiment of my invention the supporting plate 1, which may be an individual mounting plate or may be a gang plate extending either vertically or horizontally to receive a plurality of similar devices, is shown as an individual mounting plate. Immediately in front of the plate 1 is the insulating strip 2 which is preferably of hard rubber and polished to form the face of the switchboard. A second sheet of insulation 3 separates the hinge plate 4 and the strip 2, its purpose being to hold the

hinge pin 5 away from the plate 2, so that the pin may be readily inserted and removed. The drop shutter 6 is loosely pivoted upon the pin 5 and is adapted to rotate about the pin until the outer face of the shutter engages the upper edge of the guard 7. The number of the shutter appears upon said guard plate 7, the upper edge of said plate being disposed relative to the pivot of the shutter, so that the shutter will not obscure a view of the number when down, and resting on the guard plate. Thus, the number of the shutter is visible to the operator at all times, whether the shutter is down or in its normal raised position.

The screws 8 extend through the plates 4, 3, 2 and 1, and thread into the front end of the drop shell 9, this shell being insulated from the plate 1 by a thin sheet of rubber insulation 10. The rear end of the drop shell is the shell itself sawed in such a way that portions of it are bent upwardly to form the pivot supports 12 to which the drop catch 13 is secured by means of the screws 14. This drop catch, shown particularly in Figs. 5, 6 and 7, is provided with a hook 15 at its forward end adapted to engage the shutter 6, and with the tongue 16 at the rear end adapted to extend through an opening in the armature 17, pressing the armature upwardly so that the groove 18 therein is engaged by the V-shaped projection 19, thus holding the armature in a fixed position relative to the drop catch. The rear end of the drop catch is also provided with the ears 20 having holes therein, through which the screws 14 pass, forming the pivot about which the armature and drop catch operate. The armature 12' is provided with the knurled extension 22, which is adapted to be gripped by the fingers or by a pair of pliers to remove the armature from its engagement with the drop catch.

Within the shell, as shown particularly in Fig. 4, is a magnet spool having a hollow core 25 upon the ends of which are fiber heads 26, the rear head being provided with terminal clips 27 for establishing the circuit connections with the coil 28. The soft

iron screw 29 extends through the center of the hollow core 25 and threads into the forward end of the shell to hold the magnet spool in position within the shell.

5 It is often desirable to associate a drop, as here described, with the jack of the same line to which the drop is connected, and to so arrange the mechanical construction that
10 if previously thrown, will be restored to its normal position. In the illustrated embodiment of my invention, I, therefore, show a jack frame 30 secured to the front plate 1
15 31. This jack frame is preferably made of pressed metal and comprises the front supporting portion 32, the rearwardly extending angular portions 33 which rigidly support the switch spring shelf 34. The top of
20 this jack frame is completely open so that the jack springs may extend through. The angular portions 33 carry downwardly extending lugs 35 through which the pin 36
25 extends carrying the insulating sleeve 37. This sleeve provides a normal rest for the jack springs 38 and 39, the spring 38 pressing downwardly upon the upper part of the sleeve, and the spring 39 pressing upwardly
30 is also provided with the spring 40 which normally connects through contacts 41 with the spring 39. This jack is further provided with the restoring spring 42 which is adapted to be pressed by means of the button 52
35 against the cam 43 upon the shutter 6 to restore the shutter to its normal position when a plug is inserted in the jack. These jack springs are all secured together and to the shelf 34 of the jack frame 30 by means of
40 the screws 44, strips of insulation being inserted between the springs to electrically separate them.

In order to facilitate the ready connection and disconnection of the contacts of the
45 drop coil, I provide the terminal links 45 and 46, shown particularly in Fig. 10, these links being provided with the open slots 47 at their upper ends, and with the closed slots 48 at their lower ends, whereby when
50 the screws 49 and 50 are loosened and the links allowed to drop the armature may be readily removed. The link 46 is also provided with a terminal lug 51 to which one of the wires of the switchboard cable may
55 be connected. This drop is also provided with night alarm contacts 53 and 54, the contact 53 being carried to the rear of the drop and there being provided with the hook 55 for establishing the electric connection therewith, the electric connection with
60 the contact 54 being preferably carried through the plate 1. When the shutter falls the spring 53 is pressed downwardly by the lower part of the shutter causing the

contacts carried by the springs to be connected together and completing the circuit of the night alarm bell.

I claim:

1. The combination with a shell, of a drop-catch pivoted thereto, an armature
7 removably secured to the drop-catch and positioned before an end of the shell, a coil within the shell, said armature being adapted to be completely removed without displacing the drop-catch, whereby the coil
7 may be readily removed from the shell, substantially as described.

2. The combination with a shell, of a coil within the shell, a shutter positioned before the front end of the shell, a catch pivoted at
8 the rear end of the shell and engaging said shutter, an armature removably secured to the rear end of the catch and positioned before the rear end of the shell, the removal of said armature facilitating the ready removal of the coil from the shell without displacing the catch, substantially as described.

3. The combination with a shell, of a drop-catch pivotally secured to the rear end of the shell, an armature positioned before
90 said rear end of the shell, means for removably securing said armature to the drop-catch whereby the armature may be forcibly removed, and means secured to said armature and adapted to be gripped for forcibly
95 removing the armature from its engagement with the drop-catch, substantially as described.

4. The combination with a shell, of a coil removably secured in the hollow portion
10 thereof, a drop-catch pivoted at the rear of said shell, a tongue on the rear end of said drop catch, an armature having an opening therein through which said tongue
105 extends when the armature is placed in position, said tongue pressing the armature firmly against other portions of the drop-catch but in a manner permitting the removal of the armature and the coil without disturbing the adjustment of the drop-catch,
110 substantially as described.

5. The combination with a shell, of a coil removably secured in the hollow portion thereof, a drop-catch pivoted at the rear of
115 said shell, a tongue on the rear end of said drop-catch, an armature having an opening therein through which said tongue extends when the armature is placed in position, a groove extending across the top of the armature, a depression upon the under side of the
120 drop-catch adapted to extend into said groove to hold the armature firmly in position, the spring of said tongue permitting the removal of the armature without disturbing the adjusted position of the drop-
125 catch, substantially as described.

6. A drop comprising a shell, a drop-catch pivotally secured thereto, a coil within the

shell, an armature removably secured to said drop-catch and positioned before an end of the shell, said armature being adapted to be removed from connection with said catch without displacement of said catch whereby said coil may be removed from said shell.

Signed by me at Chicago, county of Cook,

and State of Illinois, in the presence of two witnesses.

WILLIAM LEAVER.

Witnesses:

CLIFFORD C. BRADBURY,
MARJORIE E. GRIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."