H. G. PAPE.

ELECTROMAGNETICALLY OPERATED DEVICE.

APPLICATION FILED MAY 27, 1914.

1,124,796.

Patented Jan. 12, 1915.

Fig. 1.

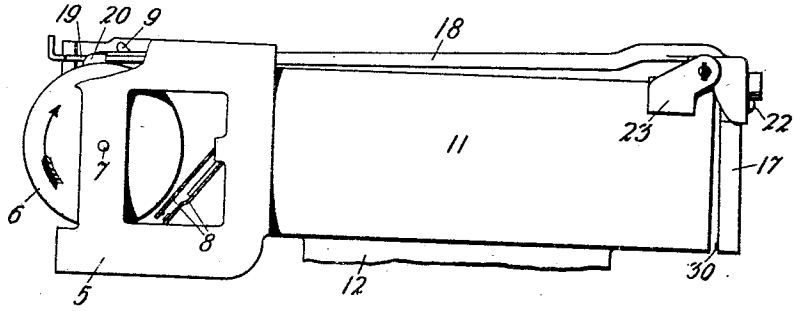


Fig. 2.

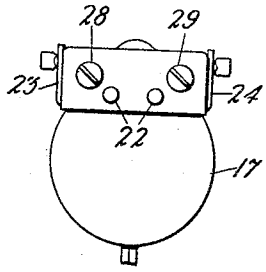


Fig. 4.

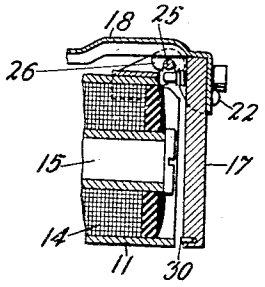
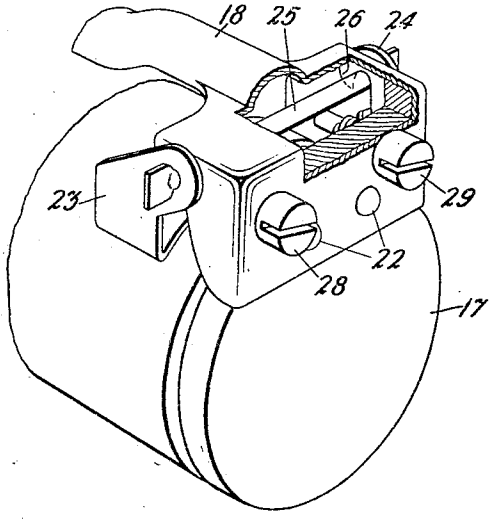


Fig. 3.



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Att'y.

UNITED STATES PATENT OFFICE.

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ELECTROMAGNETICALLY-OPERATED DEVICE.

1,124,796. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed May 27, 1914. Serial No. 841,232.

To all whom it may concern:

Be it known that I, HERMAN G. PAPE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electromagnetically-Operated Devices, of which the following is a full, clear, concise, and exact description.

This invention relates to electromagnetically operated devices, and is particularly applicable to annunciators and telephone "drops," although it may be used in connection with other kinds of electromagnetically operated apparatus.

The general object of the invention is to provide a new and improved electromagnetic structure, in which the armature member can be readily removed and replaced without affecting the adjustment thereof.

When embodied in an annunciator or telephone drop, the invention is useful in that it facilitates assembling and the replacement of damaged magnet coils.

The invention is herein shown embodied in an annunciator or telephone drop of the type in which the frame of the actuating magnet is in the form of a shell within which is located a coil which, when energized, magnetically moves an armature member pivotally mounted at one end of the shell. With this type of drop, the magnet coil is removable from the end of the shell at which the armature is located; and if the armature normally covers the end of the shell, it must be moved out of the way in order to permit the removal of the coil.

As embodied in the device illustrated, the invention comprises a new and improved arrangement whereby the armature member is pivotally supported on the magnet shell so as to permit its easy removal and replacement from the back of the drop without disturbing the adjustment of the armature member with relation to the other parts of the device.

In the accompanying drawing; Figure 1 is a side elevation of a telephone drop embodying this invention, certain parts which have no relation to the invention being omitted; Fig. 2 is an end elevation of the armature end of the drop; Fig. 3 is a perspective view of the armature end of the drop, certain parts being broken away; and Fig. 4 is a side elevation, partly in cross-section, of the armature end of the drop.

Referring to the drawing, the drop frame is shown at 5 supporting a signal member 6 of the ball type mounted on the axis 7. The signal ball 6 is so weighted that, when released by a latch hereinafter referred to, it revolves in the direction of the arrow, thereby giving not only a visible signal owing to the exposure of a different portion of the ball surface which is usually painted a different color from the surface normally exposed; but also, if desired, giving an electrically-operated audible or visible signal by the closure of the contacts 8, owing to the engagement of one of them by the cam 9 carried by the signal ball. To the back of the frame 5 is secured the frame of the actuating magnet which is in the form of a shell 11, which may be made of sheet metal and may have ears 12 extending from its lower side and adapted to support terminals and contact springs not illustrated. Within the magnet frame or shell 11 is a magnet coil 14, the terminals of which may be brought out either at the front or the rear end of the shell, these not being shown as they form no part of the invention. The coil 14 is retained within the magnet shell 11 by a core of magnetic material in the form of a screw 15, which passes through said coil and enters the back of the frame 5.

The armature member of the drop comprises the armature proper 17 and a latch portion 18 secured thereto and extending forwardly and near its forward end provided with a slot 19 with which a lug 20 on the ball signal engages. The latch portion of the armature member may be of sheet metal stamped to the form shown, and secured by rivets 22 to an extension of the armature 17. Secured to the top of the magnet shell near its rear end is a sheet metal bracket in the form shown, having lugs 23 and 24 which support in horizontal position a pivot pin 25 which passes through holes in said lugs 23 and 24 and is permanently secured therein, as, for example, by having its ends upset, as shown. The armature member is pivotally and removably mounted upon the pivot pin 25 by the engagement of the hooked portion 26 on its latch portion, with the upper side of said pivot pin; and by removable means carried by said armature

member consisting of one or two screws 28 and 29 which pass through the back of said armature member and extend slightly below the bottom of the pivot pin 25. With this arrangement, the armature member is pivotally supported on the pin 25 in a manner which allows but little friction. The armature member is easily removed when the screws 28 and 29 are screwed out until their ends cease to engage the pin 25, and can be replaced without any loss of adjustment. Replacement of the coil 14 by a new coil is, therefore, an easy matter. The small pin shown at 30, inserted near the lower edge of the inner face of the armature proper, is of brass, and is a well-known expedient for preventing the armature from "freezing" to the back of the magnet frame or shell 11.

It is to be noted that one of the advantages of this invention resides in the fact that, even when telephone drops provided with it are mounted in closely arranged rows and tiers, an armature member can be easily removed and replaced, in spite of the limited clearance spaces which exist between one drop and those adjacent to it.

What is claimed is:

1. In an electromagnetically operated device, a magnet frame, an armature member coöperating therewith and having hooked portions, and means for removably and pivotally supporting said armature member comprising a pivot pin mounted on said frame engaged by the hooked portions of said armature member, and movable means carried by said armature member engaging said pin and preventing disengagement of said hooked portions of the armature member.

2. In an electromagnetically operated device, a magnet frame, an armature member coöperating therewith and having hooked portions, and means for removably and pivotally supporting said armature member comprising a pivot pin mounted on said frame engaged on one side by the hooked portions of said armature member, and movable means carried by said armature member engaging said pin on its other side and preventing disengagement from said pin of the hooked portions of the armature member.

3. In an electromagnetically operated device, a magnet frame, an armature member coöperating therewith and having hooked portions, and means for removably and pivotally supporting said armature member comprising a pivot pin mounted on said frame engaged on one side by the hooked portions of said armature member, and a movable screw carried by said armature member engaging the other side of said pin and preventing disengagement from said pin of the hooked portions of the armature member.

In witness whereof, I hereunto subscribe my name this 25 day of May A. D., 1914.

HERMAN G. PAPE.

Witnesses:

E. EDLER,

K. L. STAHL.