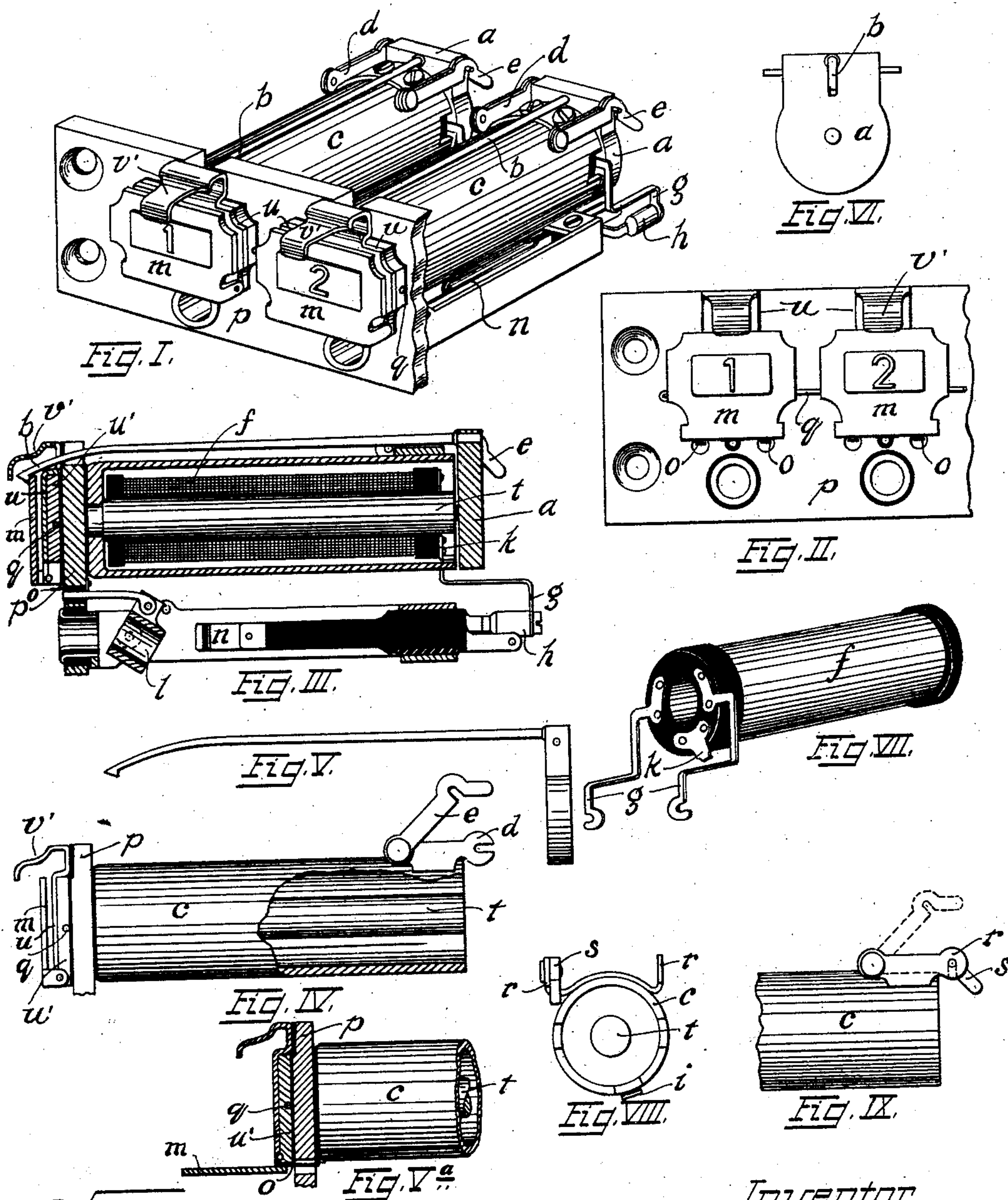


B. W. SWEET.
ANNUNCIATOR DROP.
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Patented Aug. 3, 1909.

930,324.



Witnesses:
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UNITED STATES PATENT OFFICE.

BURTON W. SWEET, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CENTURY TELEPHONE CONSTRUCTION COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

ANNUNCIATOR-DROP.

No. 930,324.

Specification of Letters Patent.

Patented Aug. 3, 1909.

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To all whom it may concern:

Be it known that I, BURTON W. SWEET, a citizen of the United States of America, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Annunciator-Drops, of which the following is a specification.

My invention relates to annunciator drops of the type having a removable coil or winding and armature, and is herein set forth in association with restoring mechanism for actuating the shutter-drop upon the insertion of a connecting-plug in a corresponding spring-jack switch.

The object of my invention has been to provide means for removably mounting the armature and exciting coil of a telephone annunciator, and to improve upon the structural features thereof in further particulars, which will be made apparent by the following specification.

It is a feature of much importance to be able to remove or replace a defective winding in electro-magnetic apparatus, without disturbing soldered connections or dismantling the apparatus as mounted for use, and as ordinarily constructed, telephone annunciator drops do not easily lend themselves to this purpose. It is impracticable to remove the spool carrying the windings from the forward end of the annunciator drop, and at the rear, the armature is closely positioned adjacent to the magnetic core and shell. Accordingly, I have devised means for removably, yet securely holding the armature in place, and for disconnecting the magnet winding from its associated contacts, as the inner contacts of a spring-jack switch.

In order to protect the latch or hook of the shutter-drop from accidental displacement, I preferably form the mounting plate of the latter with an integral overhanging extension, forming a springlike shield, which avoids the accidental release of the shutter-drop, and protects the latch from accidentally becoming bent or misadjusted.

Another improvement to which I may advert, is the means employed for closing the night bell or other signaling circuit, upon the fall of the shutter-drop. These, and other features of my invention will be more readily understood upon making reference to the

accompanying sheet of drawings, as explained by the specification annexed.

Figure I of said drawings is a view in perspective of two combined annunciators and spring-jacks, mounted at the left end of a bank of such devices. Fig. II is a face view thereof. Fig. III is a vertical sectional view through one of said appliances. Fig. IV is a view of the device partially broken away, and having the armature and exciting coils removed. Fig. V is a side view of the removable armature and shutter-hook. Fig. V^a is a detail showing the contacts. Fig. VI is a front view of the armature and hook. Fig. VII shows in perspective, the removable exciting coil with its connecting-parts. Fig. VIII illustrates by a rear view, a modified mounting for the removable armature; and, Fig. IX is a side view of this modified construction.

Throughout the several figures of the drawings, I have employed the same character of reference to indicate similar parts.

In describing these drawings, I shall endeavor to refer but incidentally to the features of construction not containing my invention. Considering first Figs. I and IV, it will readily be seen that the oscillating armature *a*, with its hook *b*, are removably mounted at the rear of the magnet-shell *c*, by means of the laterally-slotted ears *d*, and the co-acting pivoted hooks *e*. When the hooks are depressed, as shown in the device upon the left, Fig. I, the armature is securely held in its operative position, while upon raising said hooks as indicated in the appliance shown below, said armature may readily be removed as best indicated in Fig. IV. After the armature has been removed, the exciting-coil *f*, with its connections *g*, which normally are secured by screws to the terminals *h* of the inner contact springs of the associated jack, may in turn be removed, and its appearance and construction may best be gathered by referring to the perspective view thereof, Fig. VII. A spring or latch *i* normally engages the lug *k* provided upon the spool of said exciting-coil, and prevents the same from being accidentally removed or displaced. The shutter-drop *m* is forwardly pivoted upon the plate *u*, and thus is in electrical contact with the several front pieces *u'*, as will be explained. Each of the plates *u*

is provided with an extension v' integral therewith which protrudes upwardly, forwardly and outwardly in turn, to form a protective shield or hood for the free end of the armature latch or hook b . By means of said shield, the hook is prevented from being accidentally displaced, through the manipulation of the connecting plug, or damaged by anything falling against the face of the annunciator board. At l is indicated the pivoted restoring device for automatically raising the shutter-drop m , upon the insertion of a connecting-plug within the jack n , as will be well understood by those conversant with the art. Disposed beneath the shutter-drop m , but normally out of contact therewith, when retained in its upright position by the hook b , are two contact-springs o , mounted in electrical contact upon the mounting strip p , in position to be engaged by the shutter-drop and electrically close the connected circuit, as the night bell circuit, by means of wire q , which is grounded upon the insulated front pieces u' of each of the annunciator drops. The terminals of the connected circuit, accordingly, are found in the springs o grounded upon the mounting-strip and in the shutter-drop and its connected parts, which are electrically united with the other drops by the wire q . These springs, as best shown in Fig. II, extend freely through openings in the front-plate, and are adapted to be clamped between the shutter-drop and the lower edge of the mounting plate u , immediately the former falls upon its release from the hook following the sending of a signal and excitation of the winding, thereby closing the connected circuit between the parts m o , and sounding the night bell or other alarm apparatus.

In Figs. VIII and IX of the drawings is shown an analogous support, wherein a removable armature is adapted to be mounted between two rearwardly extending ears r , and held in position by an interiorly engaging and relatively wide hook s , whereby, upon the release of a single hook, the armature may be moved laterally to an extent which will free the pivot from the right hand support r , and permit the withdrawal of the armature as above explained.

From the foregoing, it will be understood that the armature with its attached hook, is made readily removable from the annunciator drop structure, thereby clearing the rear end of the device and permitting the exciting-coil or winding to be slipped from its core t , interiorly positioned within the magnet-shell c , upon releasing the screw connections of the coil and its spring detent; whereupon the entire construction may be readily inspected or repaired, or a new coil substituted for the one removed.

Having now described the preferred embodiment of my invention, I claim as new

in this application, which is a division of my application, Serial No. 317,732, filed May 19th, 1906, (Patent No. 902,624, November 3rd, 1908) the following features present in my improved structure.

1. In an annunciator drop, the combination with the electro-magnet, of a forwardly positioned shutter-drop and mounting-plate and a rearwardly positioned armature, a hook thereon controlling the shutter-drop, and an electrical contact-spring, disposed beneath the mounting-plate in position to be engaged by the shutter-drop and clamped against the mounting-plate upon the fall of said shutter-drop, substantially as set forth.

2. In an annunciator-drop, the combination with a magnet-shell and its interiorly positioned core, of a removable exciting winding or coil, adapted to be slipped upon said core, rearwardly positioned slotted lugs, an armature removably pivoted between said lugs, a forwardly positioned shutter-drop, and a hook upon the armature engaging the shutter-drop, and normally retaining it in its undisplayed position, substantially as set forth.

3. In an annunciator-drop, the combination with a magnet-shell and its interiorly positioned core, of a removable exciting winding or coil adapted to be slipped upon said core, rearwardly positioned slotted lugs, an armature removably pivoted between said lugs, latch-mechanism for retaining the armature normally in position, a forwardly positioned shutter-drop, and a hook upon the armature engaging the shutter-drop, and normally retaining it in its undisplayed position, substantially as set forth.

4. In a device of the class described, the combination with a conductive mounting-plate, of a pivoted drop thereon, an insulated contact-spring extending freely adjacent to said plate in position to be actuated against the same by the drop, an electro-magnet, and a hook and armature actuated by the magnet and thereby controlling the position of the drop, substantially as set forth.

5. In a device of the class described, the combination with an electro-magnet comprising a removable exciting winding and a rearwardly-open shell of iron, of slotted supporting-lugs, an armature removably pivoted between said lugs before the open shell, and signaling mechanism positioned at the opposite end and controlled by the actuation of said armature, substantially as set forth.

6. An electro-magnetic annunciator, equipped with a shutter-drop, and a plate comprising a part of the mounting therefor and extended to form a shield for protecting the free end of the armature-lever of said annunciator, the same being rearwardly slotted to accommodate said lever, substantially as set forth.

7. An electro-magnetic annunciator, equipped with a shutter-drop, and an integral plate comprising a part of the mounting therefor and extending upwardly, forwardly and outwardly thereabout to form a protective hood for the free end of the armature-lever of said annunciator, substantially as set forth.

8. In a device of the class described, the combination with a conductive mounting plate, of a pivoted shutter-drop thereon, an insulated conductive mounting strip, a plurality of contact springs thereon extending

in positions adjacent to said plate, an electro-magnet, and a hook and armature actuated by the magnet, whereby the drop may be released to engage the contact springs therebetween and said mounting plate, substantially as set forth. 15

Signed at Cleveland, this 7th day of February 1907 in the presence of two subscribing witnesses. 20

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Witnesses:

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