B. W. SWEET.

ELECTROMAGNET.

APPLICATION FILED MAY 19, 1906.

902,624. Patented Nov. 3, 1908.

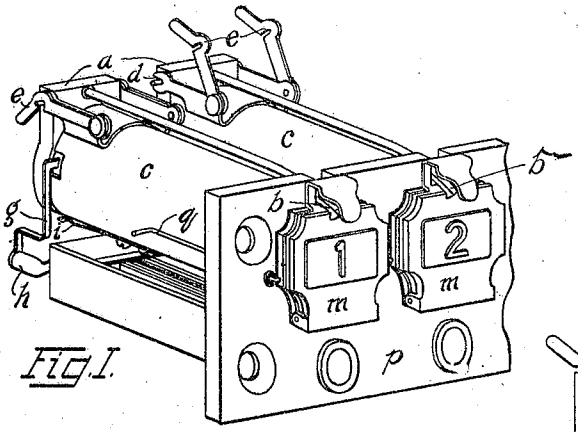


Fig. I.

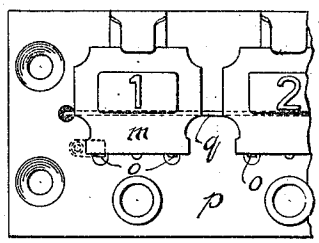


Fig. II.

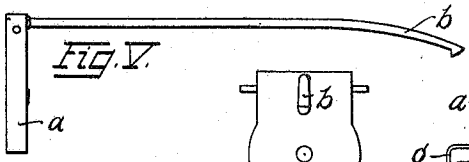


Fig. V.

Fig. VI.

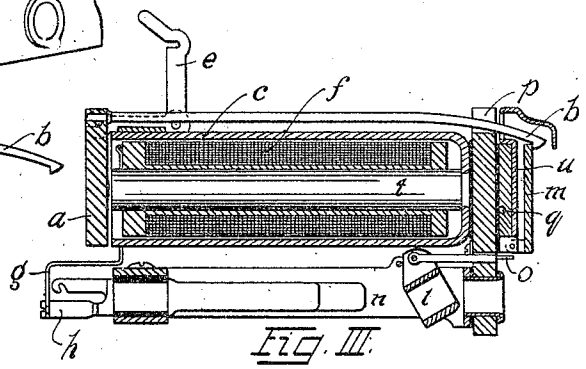


Fig. III.

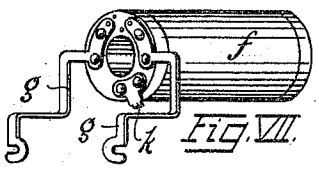


Fig. VII.

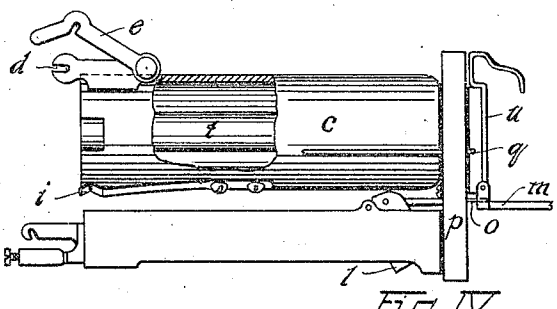


Fig. IV.

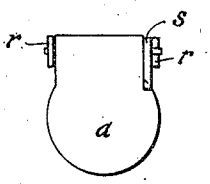


Fig. VIII.

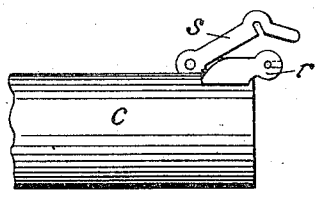


Fig. IX.

Witnesses:
Hubert L. Knight Jr.
Mae E. Carter.

Inventor,
Burton W. Sweet
by Albert G. Davis
his attorney

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.

ELECTROMAGNET.

No. 902,624. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed May 19, 1906. Serial No. 317,732.

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 Electromagnets, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to electro-magnets, and is herein set forth as specifically applied to annunciator drops of the type having a removable coil or winding and armature, and 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 contents, as the inner contacts of a spring-jack switch.

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, 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. VI, is a front view of the same device. 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 upon the right, 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.

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 front 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 of each of the annunciator drops. The terminals of the connected circuit, accordingly, are found in the springs *o* grounded upon the front plate 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 back-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 Fig. VIII., I have shown a removable armature *a*, 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 left 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, and desire to secure by Letters Patent, the following:—

1. In apparatus of the class described, the combination with the actuating electro-magnet, of an armature pivotally mounted before one end thereof, supporting-ears at either side of the armature, one of said ears being slotted to receive the pivotal mounting, and a hook or latch for normally retaining the armature in position, substantially as set forth.

2. In apparatus of the class described, the combination with the actuating electro-magnet, of slotted supporting-ears provided rearwardly thereof, an armature having pivotal mounting-parts entering the slotted ears, and latch-mechanism for retaining the armature removably in position before the end of the electro-magnet, substantially as set forth.

3. In apparatus of the class described, the combination with an interior core and its surrounding shell, of a removable spool carrying the magnet windings and adapted to be slipped upon said core, a rearward laterally-extending part upon the spool, and a spring-actuated detent therefor exteriorly positioned upon the shell and adapted removably to retain the parts in operative relation, substantially as set forth.

4. In apparatus of the class described, the combination with an electro-magnet shell and core, of contact-parts disposed adjacent thereto, an armature, latch mechanism removably mounting it before the core, a removable spool carrying the exciting windings and adapted to be slipped upon said core, terminals rearwardly mounted upon said spool and extending to meet the contact-parts, and means for removably securing the terminals of the spool to said contact-parts, substantially as set forth.

In testimony that I claim the foregoing invention, I have subscribed my name in the presence of two witnesses at Cleveland, this 17th day of May, A. D. 1906.

BURTON W. SWEET.

Witnesses:
MAE E. CARTER,
ALBERT LYNN LAWRENCE.