(No Model.)

L. TOWNSEND.

COMBINED ANNUNCIATOR AND SPRING JACK.

No. 310,750. Patented Jan. 13, 1885.

Fig. 1.

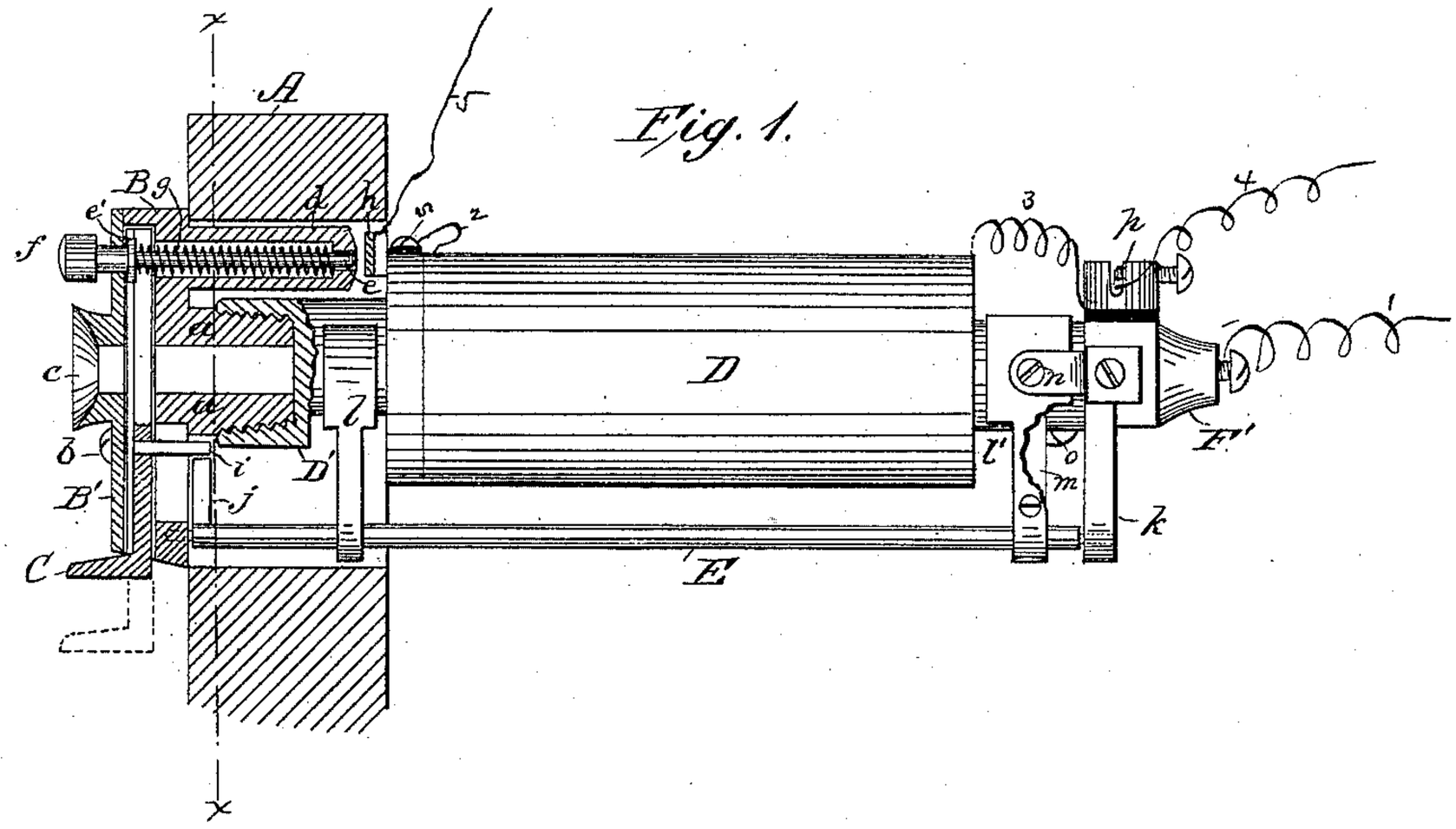


Fig. 2.

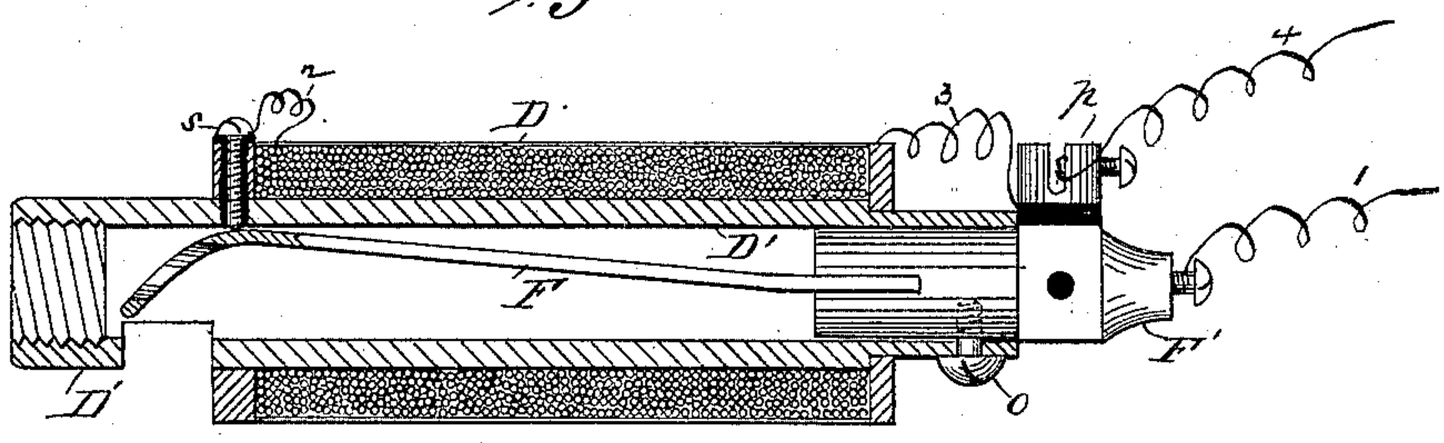
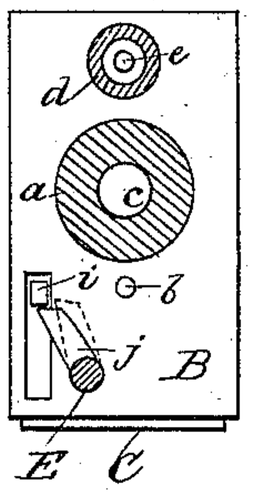


Fig. 3.



WITNESSES:

W. W. Hollingsworth

Edw. W. Byrn.

INVENTOR:

L. Townsend

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

LOUIS TOWNSEND, OF EVANSVILLE, INDIANA.

COMBINED ANNUNCIATOR AND SPRING-JACK.

SPECIFICATION forming part of Letters Patent No. 310,750, dated January 13, 1885.

Application filed June 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, LOUIS TOWNSEND, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented certain new and useful Improvements in Combined Annunciator and Spring-Jack for Telephone Switch-Boards, of which the following is a description.

Figure 1 is a side view of the device, partly in section. Fig. 2 is a longitudinal section of the magnet and its hollow core. Fig. 3 is a cross-section through the line *x x* of Fig. 1.

The object of my invention is to so combine an annunciator and spring-jack for telephone switch-boards as to make a single compact device thereof, and so economize space, which is a great desideratum in telephone switch-boards.

To this end my invention consists, chiefly, in constructing the magnet which operates the annunciator-drop with a hollow core and placing in this hollow core the spring-jack.

It also consists in the peculiar construction of these parts in detail, as hereinafter fully described.

In the drawings, A represents the telephone switch-board, to the front side of which is fastened the hollow metal frame B B′, containing the annunciator-drop C. The frame B has a hollow sleeve, *a*, on its rear side, which is screw-threaded on its exterior, and projects through the switch-board, while the face-plate B′ is fastened to the frame B by screw *b* and retains the drop-slide C. In the center of the face-plate is a hole, *c*, with a tapering mouth, which registers with the sleeve in the frame-plate B, and gives passage to the connecting-plug, when inserting the same into the spring-jack, which is placed within the hollow core of the magnet, as hereinafter described.

On the frame-plate B there is also formed a rearwardly-projecting barrel, *d*, containing a spring-seated push-pin, *e*, whose insulated head or button *f* projects through the face-plate, and which, when forced in against the spiral spring *g*, wound around it, causes the inner end of the pin to pass into electrical contact with a metal plate, *h*, to close the ringing-circuit, as hereinafter described. On this pin is a collar, *e′*, which, by striking against the face-plate, stops the outward movement of the push-button.

D is the electro-magnet, which is made with a hollow core, D′, which projects beyond the end of the magnet, and is screw-threaded upon the inside, so as to fit upon the exterior screw-thread upon the rearwardly-projecting sleeve *a* of the plate B. This screw-threaded connection serves to clamp the switch-board between the frame B B′ and the magnet, and holds these parts firmly in place.

On the rear side of the annunciator-drop is a stud, *i*, that projects through the plate B into range of engagement with an arm, *j*, on a rock-shaft, E, which is arranged parallel to the magnet, being journaled in a bearing in the plate B in front, and in a hanger, *k*, at the rear. This rock-shaft has at each end an upwardly-projecting arm, *l* and *l′*, which at their ends are flattened out to form armature-plates, that operate laterally against the opposite poles of the hollow magnet-core. A spring, *m*, holds these armatures away from the core, and a set-screw, *n*, regulates and limits the play of the said armatures. When the magnet is not charged by an electrical current, the armatures are held away from the poles of the core by the spring *m*, and the short arm *j* of the rock-shaft rests beneath the stud *i* of the drop-plate and holds the latter up with its number obscured, as in Figs. 1 and 3. When, however, the electro-magnet is charged by a current of electricity, the core attracts the armatures *l* and *l′*, and this rocks the shaft E and removes the arm *j* from beneath the stud *i* of the drop-plate, and allows the latter to fall, exposing its number.

Inside the hollow core of the magnet is arranged the spring-jack F, which is attached to the rear plug, F′, and is held in the core by screw *o*.

The circuits are made as follows: The current comes in at line-wire 1 and passes through spring-jack F, (which rests against insulated screw *s*, as in Fig. 2,) thence through wire 2, through the coils of the magnet to wire 3, binding-post *p*, and to the earth through wire 4, which passage of the current charges the magnet and allows the drop to fall. When the plug is put in, the spring F is removed from contact with screw *s*, and the current passes through the plug to the other subscriber. To ring up a subscriber, the exchange-operator puts in the plug, thus cutting out coil D from

spring F, and then pressure on knob *f* throws plate *h* and wire 5 (which are connected to the generator) into electrical contact with the metal parts of the frame and the core of the magnet, which latter is in electrical connection with plug F′ and the line-wire.

Having thus described my invention, what I claim as new is—

1. An annunciator electro-magnet formed with a hollow core, in combination with a spring-jack located within said core, as and for the purpose described.

2. The combination, with an annunciator-frame having a rearwardly-projecting screw-threaded sleeve, *a*, and switch-board, of an electro-magnet having a screw-threaded connection with said sleeve, and arranged upon the opposite side of the switch-board from the annunciator-frame, so as to clamp the board between them, as described.

3. The frame for the annunciator, consisting of the face-plate B′ and the frame B, with barrel *d*, in combination with the push-pin *e* and spring *g*, as and for the purpose described.

4. The combination of the magnet, the drop-slide C, having rearwardly-projecting stud *i*, the rock-shaft E, arranged parallel to the magnet, and having arm *j* and armatures *l l′*, and a spring for rocking the shaft, as shown and described.

5. The combination of the annunciator-frame B B′, having drop-slide and central hole, the magnet having hollow core, and the spring-jack arranged within the hollow core, as and for the purpose described.

LOUIS TOWNSEND.

Witnesses:
WM. E. HOLLINGSWORTH,
J. W. NEXSEN.