

(No Model.)

F. W. ROSS.
ELECTRICAL ANNUNCIATOR.

No. 521,046.

Patented June 5, 1894.

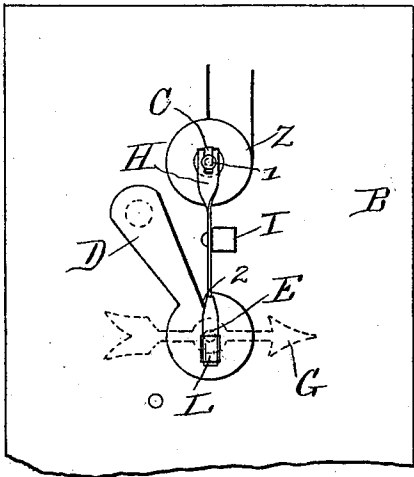


Fig. 1.

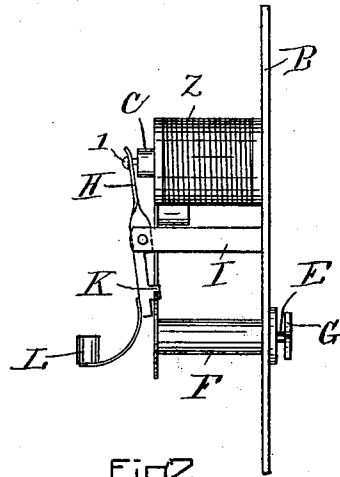


Fig. 2.

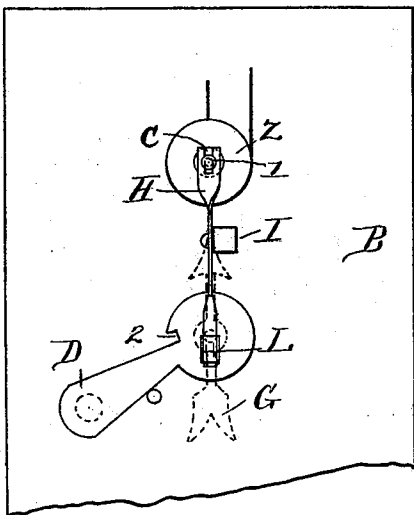


Fig. 3.

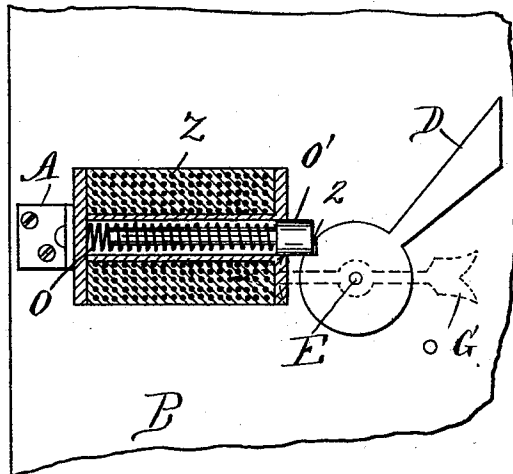


Fig. 4.

WITNESSES.

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ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 521,046, dated June 5, 1894.

Application filed January 12, 1894. Serial No. 496,634. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. ROSS, a citizen of the United States, residing at Boston, Massachusetts, have invented a new and useful Improvement in Electrical Annunciators, of which the following is a specification.

This invention relates to electrical annunciators in which an index-hand is controlled by a lever, and the movements of the lever are controlled by the armature of a single electro-magnet to release the same and thereby move an index-finger; the apparatus being replaced by means of a lift; and being an improvement upon or variations from such apparatus as is shown in my application of October 6, 1893, Serial No. 487,372, wherein Letters Patent were allowed November 14, 1893.

My present invention consists in the construction of certain of the parts and in the combination of the parts and is illustrated in the accompanying drawings, wherein similar letters and numerals refer to similar parts, which are properly constructed and combined into an operative apparatus, several of which are usually connected within a case having a face-plate with the index-fingers upon the outer side, according to a construction too well-known to require further explanation.

Under my invention, I am enabled to use some modifications in sub-combination which will also be illustrated in the drawings.

Figure 1 is a front view of one form of construction showing the helix and its armature core, when said core operates by force of gravity. Fig. 2 is a side view of the same. Fig. 3 is the front view after the magnet has been energized retracting the core and allowing the index-finger to fall. Fig. 4 is a sectional view of a form of construction wherein the armature core is controlled by a spring instead of by gravity, in which it will be understood that the core is drawn within the magnet against the force of the spring instead of against the force of gravity as in Fig. 3.

To explain the construction of my invention, the standard A is properly fastened to the back of the face-plate B—or, of course, the helix may be directly attached—as in Fig. 2. The helix Z is preferably a wooden

spool. The armature core C is movable within the spool and is made to normally protrude slightly therefrom by means of gravity, as in Figs. 1, 2 and 3, or by a spring as in Fig. 4, and to thereby engage directly or indirectly with lever D, mounted upon one end of a spindle E supported by and rotating within a sleeve F and carrying the index-finger G upon the front of the plate B as shown by dotted lines. Lever D in substantially the form shown is so constructed that when the apparatus is in normal condition, if constructed as in Figs. 1, 2 and 3, the catch K on the extension of lever H controlled by armature core C, or if constructed as in Fig. 4, the armature core itself, will catch in the ratchet 2 of lever D. The falling end of lever D is made heavy enough to secure that result. If desired to operate by gravity as in Figs. 1, 2 and 3, upon the end of the movable armature core C is a small pinhead I, which fits into a slot in the top of a flat lever H, pivoted loosely upon a standard I, whose extension below the same is provided with a catch K at about half its length below which is attached a weighted end L. The fan-shaped end of weighted lever D has a ratchet 2 cut therein, into which the catch K is adapted to gear to retain the weighted lever ready for operation. If desired to operate by a spring instead of gravity, the armature core is moved by a spring which is shown as a helical spring O, which holds the armature core somewhat projecting from the helix by means of its head O', the use of which will, of course, make unnecessary the pinhead I and spring H with its ratchet and weighted end as an intermediate connection between the armature core and the weighted lever.

Whichever modification of this construction may be preferred, the operation of the apparatus is as follows, it being assumed that one or more of these devices are placed in an annunciator case and properly connected with a battery in the manner too well-known to require explanation. When any helix Z is energized, its armature core C will be drawn into the helix against the resistance of either gravity or a spring and it, or the intermediate connecting piece, will consequently be withdrawn from the ratchet 2, al-

lowing the heavier end of the lever D to drop, revolving the spindle E and so turning the index finger G upon the face-plate to point in any desired direction. Upon the helix being
 5 de-energized, the spring or gravity will withdraw the armature core to normal position. Restoration of the lever D, to normal position may be accomplished by an ordinary
 10 "lift" whose handle protrudes below the case and whose arms elevate the weighted lever until caught by the armature or its intermediate connection by means of the ratchet 2, thus restoring the apparatus to a condition
 15 in circuit with the helices being placed in a well known manner in the annunciator case.

Having thus described my invention, what I claim, and seek to protect by Letters Patent, is—

20 1. In an electrical annunciator, the combination of a single helix horizontally attached to the face-plate; a horizontal movable armature-core of said helix; and means normally operating to hold said core partially
 25 beyond said helix; a tripping lever with ends of unequal weight and provided at one end with a ratchet; an index-spindle supported outside of said magnet, and one end carrying said tripping lever; an index-finger upon the
 30 opposite end of said index-spindle a sleeve or support for said index-spindle; all so combined that electrically energizing said helix will draw said core farther within the same

and will release the tripping lever; substantially as described. 35

2. In an electrical annunciator, a single helix having a sliding armature-core and mounted horizontally upon the face-plate; a device for holding said core normally beyond
 40 said helix; an unequally balanced lever carried upon a spindle, and having a ratchet adapting it to be tripped by said core; a sleeve, outside of said helix, and attached to the face-plate and a spindle within the same, one
 45 end carrying said lever; an index-finger carried upon the opposite end of said spindle; all substantially as described.

3. In an electrical annunciator, the combination of a horizontal magnet and a core movable therein, and means for normally holding
 50 said core beyond said magnet, an unequally weighted lever upon the opposite side of the magnet from the index-finger, and adapted to be normally retained by means of said core; an index-finger and a spindle properly mounted
 55 outside of said horizontal magnet, and serving to both carry said index-finger and said lever upon its opposite ends, all substantially as described.

In witness whereof I hereunto sign my
 60 name, in the presence of two witnesses, this 4th day of January, 1894.

FREDERICK W. ROSS.

Witnesses:

EDW. P. PAYSON,
 A. E. DENISON.