(No Model.)

F. RITCHIE.

ANNUNCIATOR.

No. 459,615. Patented Sept. 15, 1891.

Fig. 1.

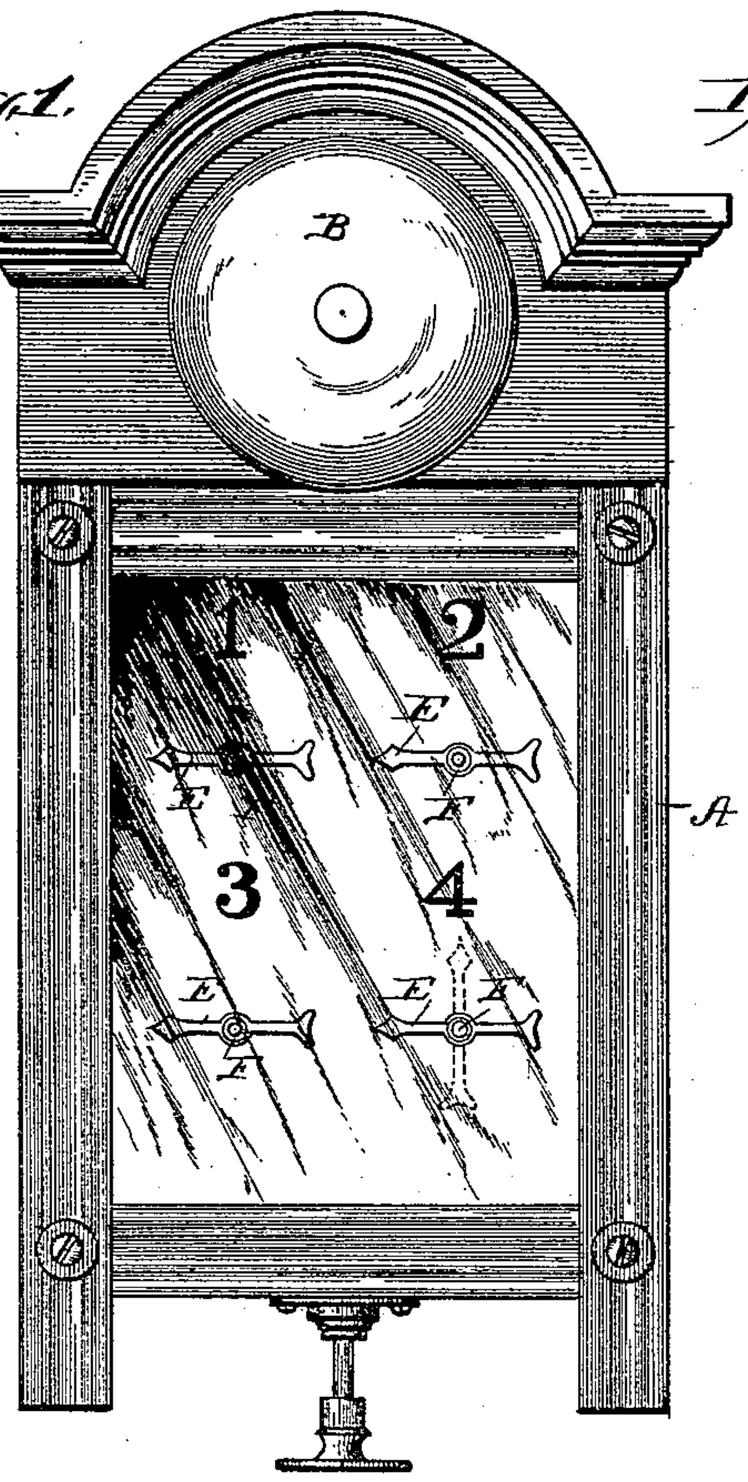

Fig. 2.

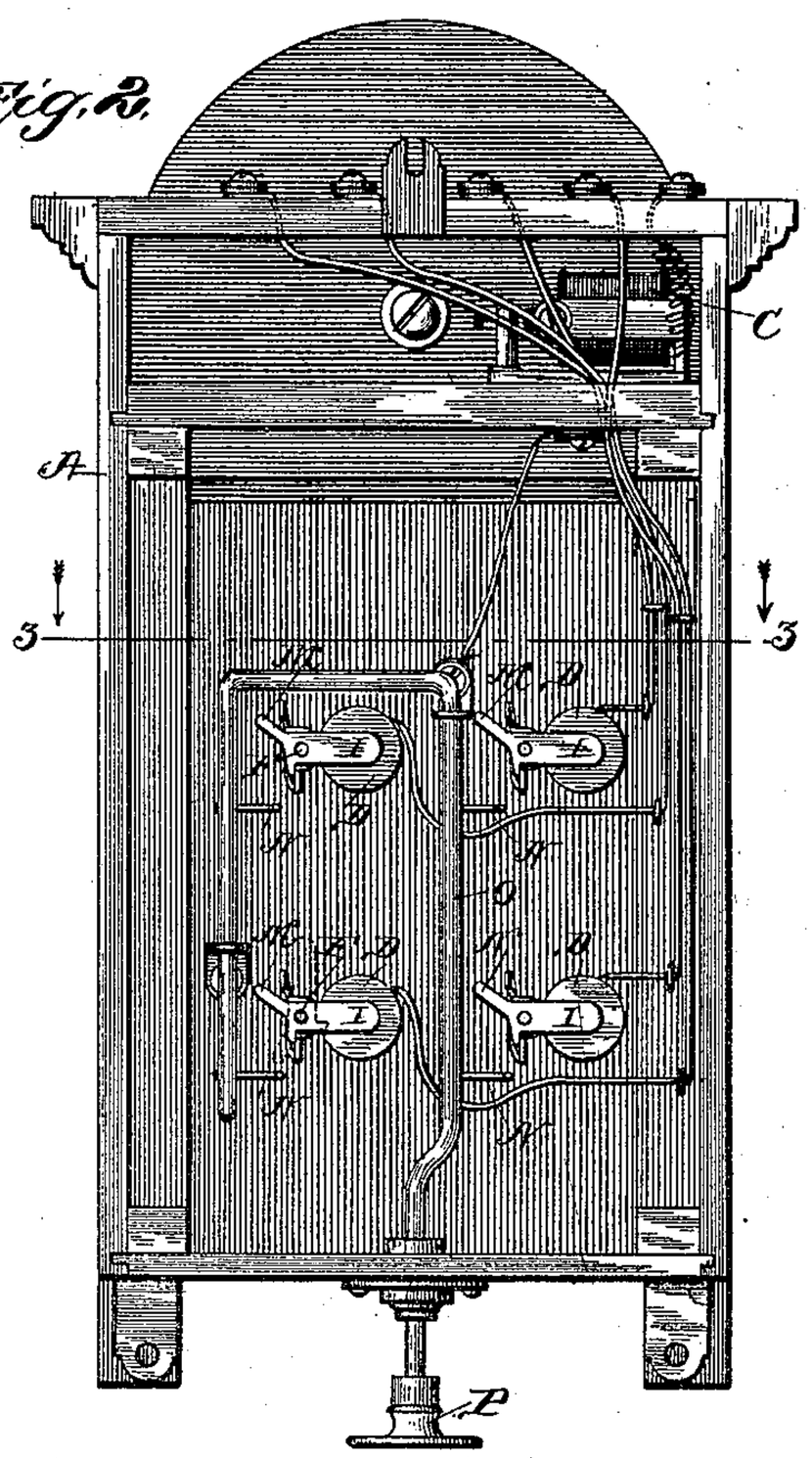

Fig. 3.

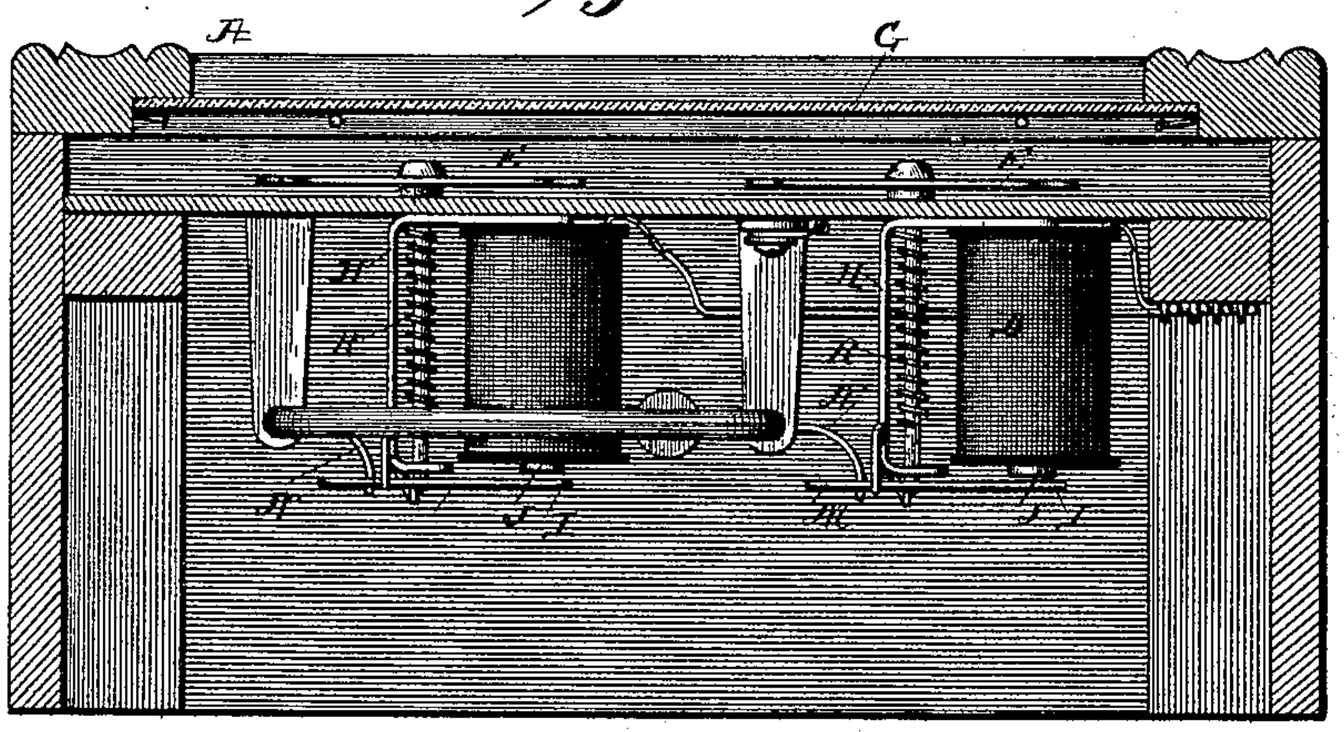

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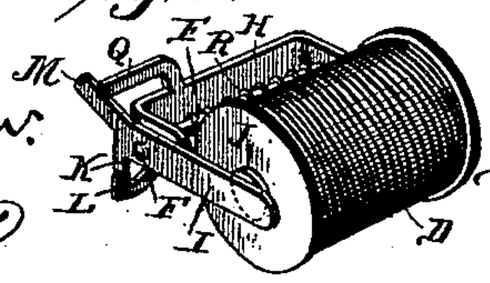
Fig. 4.



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UNITED STATES PATENT OFFICE.

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ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 459,615, dated September 15, 1891.

Application filed December 29, 1890. Serial No. 376,050. (No model.)

To all whom it may concern:

Be it known that I, FOSTER RITCHIE, a citizen of the United States, and a resident of Highland Park, Lake county, Illinois, have invented certain new and useful Improvements in Annunciators, of which the following is a specification.

This invention relates to improvements in annunciators, and has for its prime object to simplify the construction and thereby reduce the cost of manufacture and at the same time promote the effectiveness of the device.

Other objects are to have the heel-piece of the electro-magnet of the annunciator of such character that it subserves the further purpose of a catch and stop for the armature and support for the armature-shaft and to have the spring actuating the armature-shaft subserve the double purpose of moving the shaft endwise to cause the engagement of the armature with the catch and of revolving the shaft when the armature is disengaged from the catch. These objects are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of an annunciator embodying my invention; Fig. 2, a rear elevation thereof; Fig. 3, a horizontal section on the line 3 3 of Fig. 2, and Fig. 4 a detail perspective view of an electro-magnet with its accompanying armature and heel-piece.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the frame or casing of my annunciator of any suitable form, dimensions, or material, having secured to the front face thereof a bell B, operated by an electro-magnet C in the usual manner, which bell-operating magnet is included in the circuit of each electro-magnet D, located within the casing for causing the actuation of the indicator E, mounted upon the ends of the armature-shafts F of said magnets and working behind the usual glass front G, which serves to exclude the dust. The armature-shaft of each magnet is loosely journaled in the heel-piece H thereof at one side of the magnet, and has rigidly mounted on its inner end the armature I, which extends laterally therefrom so as to oppose with its free end the core or pole J of the magnet, and at the opposite side of the shaft is provided with a shoulder K, adapted and arranged to engage the catch L, formed by bending an extension of the heel-piece, and with a tail-piece or trigger M, projected into the path of movement of fingers N on a vertically-movable resetting-rod O, the lower end of which projects through the casing and has a cap P thereon for convenience of manipulation, it being understood that the magnets, with their accompanying heel-pieces and armatures, are arranged in vertical series, and that the resetting-rod is provided with one or more extensions or branches corresponding with the number of series, and on each branch, as well as the main body thereof, is provided with fingers for restoring the armatures to their normal position, thus enabling the resetting of any number of indicators at a single operation. The heel-piece is also provided with another extension Q, designed to subserve as a stop for limiting the movement of the armature when the shaft F thereof is rotated; but obviously this extension might be dispensed with, and the tail-piece or trigger M may subserve the further purpose of such a stop by engaging the catch L, which is located in its path of movement. Upon each of the sliding armature-shafts is sleeved a coil-spring R, one end of which is secured to the heel-piece and the other end to the shaft in such manner that the torsion and resiliency of the spring will tend to revolve the shaft, while at the same time its tension, due to the longitudinal compression, will cause an endwise movement of the shaft in its bearings, which it is free to have, but in which it is limited by a shoulder thereon, a traverse-pin, or in any other well-known and convenient manner. The sliding or endwise movement of the shaft under the influence of the spring is utilized to cause the engagement of the shoulder K on the armature with the catch L on the heel-piece whenever the armature is restored to its normal position opposing the pole on the electro-magnet D by the resetting device, while the rotary influence of the spring is utilized to rotate the shaft whenever the shoulder on the electro-magnet on

the armature, carrying with it the armature and also the indicator, by which the point from which the call was sent is indicated by the annunciator. Thus it will be understood that with all the indicators in position shown in the drawings, which is their normal position ready for action, if the electric circuit be closed at the point with which any of the electro-magnets is connected—say the one numbered 4 in the drawings—the corresponding electro-magnet will be energized, attract its armature so as to overcome the tension of the spring R, and release the shoulder on such armature from its catch, when the spring will immediately cause the rotation of the shaft and the corresponding indication of the point from which the call was sent upon the face of the annunciator, as indicated by the dotted lines in Figs. 1 and 2, and so on with any number of calls which may be sent from the various other points, either simultaneously or in succession, and whenever desired the operator may restore all the armatures and indicators to their normal position by a single operation of the resetting device.

I may here state that while it is preferable to have the coil-spring R upon the armature-shaft subserve the double purpose of imparting both an endwise and a rotary movement to the shaft the duties of this spring may be different, and it may be utilized simply to impart an endwise movement to the shaft and the tail-piece M on the armature be weighted so as to cause the rotation of the shaft, or the coil-spring may be divided into two parts, one of which causes the rotation and the other the endwise movement, or the coil-spring may cause the rotation only of the shaft and the endwise movement be imparted by a flat spring engaging the shaft, all of which changes are so obvious as not to require illustration or a more detailed description herein.

An annunciator constructed in accordance with my invention is of the simplest and cheapest form, besides being durable in construction, and has no parts which are liable to get out of order with ordinary usage, besides having the minimum number of parts necessary in such a device, and securing a twofold service for each member thereof—that is to say, the armature serves as a catch and release—the armature-shaft imparts an endwise and rotary movement to the armature, which it is induced to do by the spring coiled thereon, while the heel-piece serves as a bearing or support for said shaft and also as a catch and stop for the armature.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an annunciator, the combination, with an electro-magnet, of a sliding rotatable shaft carrying the armature for said magnet and an indicator, substantially as and for the purpose described.

2. In an annunciator, the combination, with an electro-magnet, of a sliding rotatable shaft carrying the armature for said magnet and an indicator and means for imparting an endwise and a rotary movement to said shaft, substantially as described.

3. In an annunciator, the combination, with an electro-magnet and a sliding rotatable shaft carrying the armature for said magnet and an indicator, of a catch and stop for said shaft, and means for imparting an endwise and a rotary movement to said shaft, substantially as described.

4. In an annunciator, the combination, with an electro-magnet and a sliding rotatable shaft carrying the armature for said magnet on the ends thereof, respectively, of a coil-spring sleeved upon said shaft for causing an endwise and a rotary movement thereof and a catch and stop for said armature, substantially as described.

5. In an annunciator, the combination, with an electro-magnet and the heel-piece thereof, of a sliding shaft loosely journaled in said heel-piece to one side of the magnet, an indicator secured to one end of said shaft, an armature for said magnet secured to the opposite end of said shaft, a catch and stop for said armature, and means for imparting an endwise and a rotary movement to said shaft, substantially as described.

6. In an annunciator, the combination, with an electro-magnet and the heel-piece thereof provided with a catch and stop for the armature of said magnet, of a sliding shaft loosely journaled in said heel-piece to one side of the magnet, an indicator secured to one end of said shaft, an armature secured to the opposite end of said shaft, adapted and arranged to engage said catch and stop upon the heel-piece, and means for imparting an endwise and a rotary movement to said shaft, substantially as described.

7. In an annunciator, the combination, with an electro-magnet and the heel-piece thereof, of a sliding shaft loosely journaled in said heel-piece, an indicator and an armature secured to the ends, respectively, of said shaft, and a coiled spring sleeved upon said shaft and secured at its ends, respectively, to said shaft and the heel-piece, and a catch and stop for said armature, substantially as described.

8. In an annunciator, the combination, with an electro-magnet, the armature thereof, and a rotatable sliding shaft carrying said armature on one end and an indicator on the other, of a heel-piece for said magnet constituting the bearings for said shaft, and a catch and stop for the armature, and a spring coiled upon said shaft for causing both an endwise and rotary movement of said shaft, substantially as described.

9. In an annunciator, the combination, with an electro-magnet, the heel-piece thereof, and a catch formed on and projecting from said heel-piece, of a sliding shaft loosely journaled in said heel-piece, an indicator mounted upon one end of said shaft and an armature upon

the other end of said shaft, a coiled spring sleeved upon said shaft and secured at its ends, respectively, to the shaft and the heel-piece, and a shoulder on the armature for engaging the catch on the heel-piece, substantially as described.

10. In an annunciator, the combination, with an electro-magnet, the heel-piece thereof, a catch formed on and projecting from said heel-piece, and a stop also formed on and projecting from said heel-piece, of a sliding shaft loosely journaled in said heel-piece, an indicator mounted upon one end thereof and an armature secured to the opposite end of said shaft, a coiled spring sleeved on said shaft and secured at its ends, respectively, to the shaft and the heel-piece, a shoulder on the armature for engaging the catch on the heel-piece, a trigger or tail-piece projecting from the armature, and a resetter for engaging the tail-piece, substantially as described.

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