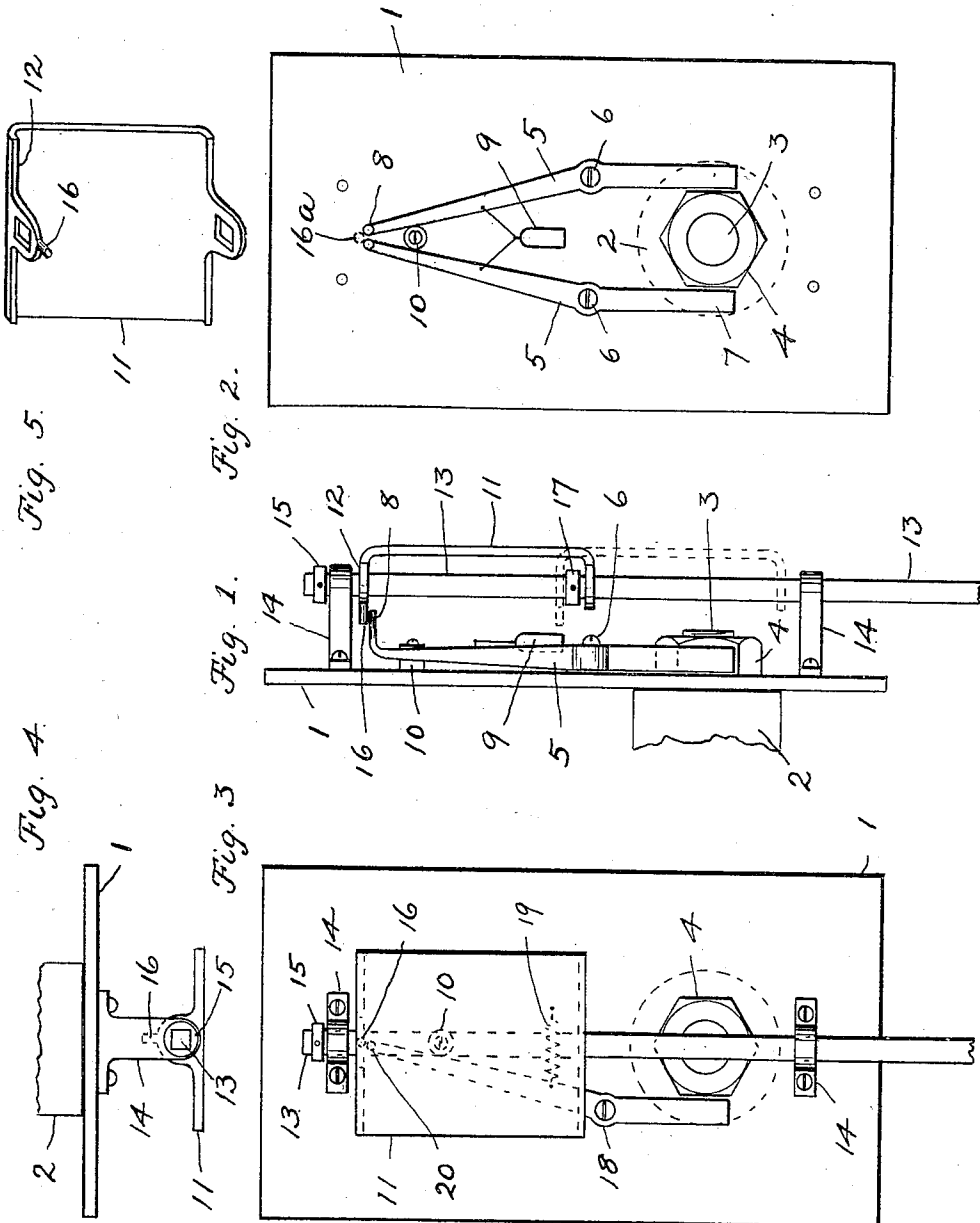


A. J. SMITH.
ELECTRIC ANNUNCIATOR.
APPLICATION FILED OCT. 29, 1908.

935,935.

Patented Oct. 5, 1909.



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UNITED STATES PATENT OFFICE.

ARTHUR J. SMITH, OF BATH, MAINE, ASSIGNOR TO ELECTRIC GOODS MANUFACTURING COMPANY, A CORPORATION OF MAINE.

ELECTRIC ANNUNCIATOR.

935,935.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR J. SMITH, a citizen of the United States, residing at Bath, in the county of Sagadahoc and State of Maine, have invented certain new and useful Improvements in Electric Annunciators, of which the following is a specification.

My invention relates to electric annunciators having a drop or indicator which is normally retained in one position by magnetically actuated catches until released from such position by the actuation of said catches through the energization of a magnet embodied in the circuit to which the annunciator is applied; the change of position of such drop indicating the fact that current has passed through the said circuit.

The object of my invention is to produce an annunciator of the sliding gravity-drop type adapted to occupy a minimum of superficial area, and one in which the working or moving parts are embodied in a form which permits an extremely shallow construction, necessitating a minimum of projection of the annunciator from the wall or other surface on which it is mounted.

Furthermore my invention embodies improvements in the drop catches or means by which the annunciator drop is retained in its normal or raised position, and in the manner in which the same are actuated by the magnet to release the said drop.

Improvements in the drop mounting and raising mechanisms are also employed in the construction of my annunciator. All these improvements enable me to produce an annunciator occupying a minimum of space, and one of inexpensive construction; the annunciator at the same time being one embodying a reliable drop retaining mechanism of extreme sensitiveness and requiring a minimum of electrical disturbance in the circuit to which it is applied in order to operate the same.

Referring to the drawings which accompany this specification, Figure 1 is a side elevation of an annunciator embodying the preferred form of my invention; only the magnet and the working or moving parts of the annunciator being shown therein. Fig. 2 is a plan view of the same with the drop, the drop guides, and the drop guide supports, removed from the annunciator, in order to show more clearly the formation

and arrangement of the drop catches. Fig. 3 is a plan view showing a modified form of my invention. Fig. 4 is a view looking toward the top of Fig. 3, showing only the base plate, the drop, the drop guide, and the drop guide supports. Fig. 5 is a view in perspective of the preferred form of drop.

Similar numerals refer to similar parts throughout the several views.

Referring to Figs. 1 and 2, 1 is the base plate of the annunciator, and 2 is the magnet, connected into the circuit to which the annunciator is applied by electrical connections, not shown in the drawings. The said magnet preferably extends rearwardly from said base plate 1, and is secured thereto so as to lie substantially perpendicular to the same; the end 3 of the magnet core being adapted to project through the said base plate 1 for a short distance so as to permit the screwing on the same of a nut 4 adapted to hold the magnet fixedly upon the base plate. In consequence of the arrangement just described the base plate of the annunciator may be fastened upon the wall or other surface upon which it is mounted so as to be flush with the same, a recess being first formed in the wall of a size adapted to allow the magnet to freely slip thereinto. As a result of this disposition of the magnet the amount of the projection from the wall surface of the annunciator is much less than is possible in any other annunciator of which I am aware.

The drop catches are shown at 5, 5; there being two of such catches in the preferred form of my invention, as shown in Figs. 1 and 2, the same being mounted on the base plate 1 so as to swing about the pivots 6, 6. Said catches are preferably symmetrically formed and are adapted to lie symmetrically on either side of the magnet core end or of the nut 4 screwed thereupon. Said catches embody armature ends 7, 7, which are positioned so as to lie laterally adjacent preferably to diametrically opposite faces of the nut 4 as shown but having a capacity for a slight movement to and from the same. The other, or drop engaging ends, 8, of said catches are bent outwardly for a short distance, as shown. The ends 8 are normally held in close proximity by means of a weight 9, or other suitable means, there being a stop 10 provided to normally locate said ends in the desired position.

The drop is composed of a strip of suitable material preferably stamped into the shape shown in Fig. 5, so as to embody a face portion 11 with lips 12 bent in at the top and bottom of the same. In such lips are formed holes in which guide bar 13 slides. Said guide bar 13 is preferably rectangular or polygonal in section, and the holes in the lips of the drop are similarly shaped in order to hold the drop face in substantial parallelism with the annunciator base. In this manner it is possible to guide the drop with the use of a single guide bar 13. Said guide bar 13 is carried by supports 14 secured to the annunciator base plate, said supports having the holes through which the drop guide bar 13 passes of a similar form to the section of the drop guide 13, and adapted to slide freely with reference to the same. A collar 15, secured to the drop guide bar limits the downward movement of the said drop bar so as to prevent the same from dropping out from its bearing in the supports 14.

Projecting from the drop is a pin 16, which in the form of drop shown projects from the upper lip of the drop. Said pin 16, in the raised position of the drop occupies the position 16^a, indicated by broken lines in Fig. 2, in which position it is adapted to simultaneously rest upon the adjacent ends 8, of the drop catches; said ends being bent outwardly sufficient to engage the said pin 16. In such position the catch ends 8 are prevented by weight 9 from spreading apart sufficiently to allow the drop pin 16 to slip downward between the same. However when current passes through the magnet the attraction of the magnet upon the armature ends of the drop catches is strong enough to overbalance the pull exerted by the weight 9, while the amount of lateral movement of such armature ends of the drop catches with reference to the end of the said magnet is sufficient to permit the drop engaging ends, 8, to separate sufficiently until they no longer support the drop pin 16, allowing the said pin 16 to pass between the ends 8, and in consequence permitting the fall of the drop.

Preferably the downward movement of drop 11 is limited by the collar 17, fixed upon the guide bar 13, the drop then occupying the position indicated by the broken lines in Fig. 1. To restore the drop to its raised position guide bar 13 may be pushed upwardly, carrying with it the drop, which rests upon collar 17, said bar thus serving as the drop lifter by which the drop 11 may be raised into its original position. As pin 16 in its upward journey comes into engagement with the lower surfaces of the drop ends 8, said ends will freely separate and allow the pin 16 to pass between the same. On releasing the drop guide 13 it will fall down

to its original position as shown in Figs. 1 or 3.

The annunciator above described is of exceedingly compact construction, while the fact that its working parts alone are located on the front of the base plate, reduces the amount of its projection from the surface to which it is secured to a minimum. The drop releasing mechanism embodies in a very simple form, an efficient means of sustaining the drop in its raised position until the energization of the magnet, and affords an unusually sensitive and effective release which is responsive to a very slight flow of current in the magnet.

In Fig. 3 is shown an annunciator embodying a slight modification in its construction in the employment of a single drop catch 18 in place of the double arrangement of drop catches shown in Figs. 1 and 3. Where a single catch is used it is formed and mounted upon the base in a similar manner to that just herein above described in connection with the description of the annunciator employing double catches. Where the single catch type of annunciator is used a spring 19, or some analogous device, may be advantageously employed to normally retain the drop engaging end 20 of catch 18 in the proper position to support the drop pin 16.

Having described my invention, I claim as new and desire to secure by Letters Patent,

1. In an electric annunciator, in combination with a base, a magnet mounted upon said base so as to lie substantially perpendicular to the same, a drop longitudinally movable with reference to said base, and a drop catch swingingly mounted on said base, said drop catch having an armature portion lying laterally adjacent the core of said magnet, and having a capacity for lateral movement with reference thereto within predetermined limits, and a drop-engaging portion adapted to engage said drop when the armature portion of the catch is at one limit of its lateral movement, and to become disengaged from the same when the armature portion of said catch is at the other limit of its lateral movement, substantially as described.

2. In an electric annunciator, in combination with a base, and a magnet mounted upon said base substantially axially perpendicular to the same; a drop longitudinally movable with reference to said base and in substantial parallelism therewith, and a drop catch pivotally mounted on said base, said catch having an armature end lying laterally adjacent to the end of the core of said magnet, and having capacity for lateral movement with reference thereto within fixed limits, the other end of said catch being adapted to engage the said drop when the armature end of the catch is at one limit

of its lateral movement, and to be disengaged therefrom when the armature end of said catch is at the other limit of its movement.

5 3. In an electric annunciator in combination with a base, and a magnet mounted upon said base substantially axially perpendicular to the same and having the end of its core partially projecting through the said base; a drop longitudinally movable with reference to said base and substantially parallel therewith, said drop being provided with a projecting pin, and drop catches pivotally mounted on said base and lying substantially parallel thereto, said catches having armature ends located on either side of said magnet's core end, and having a capacity for movement to and from the same between fixed limits, the other ends of said catches being adapted to simultaneously engage the pin projecting from the drop when the armature ends of said catches are at one limit of their movement, and to become dis-

engaged therefrom when the armature ends of said catches are at the other limit of their movement. 25

4. In an electric annunciator in combination with a base, a magnet mounted on said base substantially axially perpendicular to the same and a drop longitudinally movable with reference to the base and in substantial parallelism therewith and provided with a pin projecting therefrom, a pair of drop catches pivotally mounted upon said base and lying substantially parallel therewith, 30 said catches embodying armature ends lying laterally adjacent the end of the magnet core on opposite sides of the same, and having drop engaging ends normally lying side by side and jointly engaging said drop pin. 35 40

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR J. SMITH.

Witnesses:

ALBERT FRIEDMANN,
FOLLMER HEP.