(No Model.)

A. F. STANLEY.

ANNUNCIATOR.

No. 438,390. Patented Oct. 14, 1890.

FIG. 1.

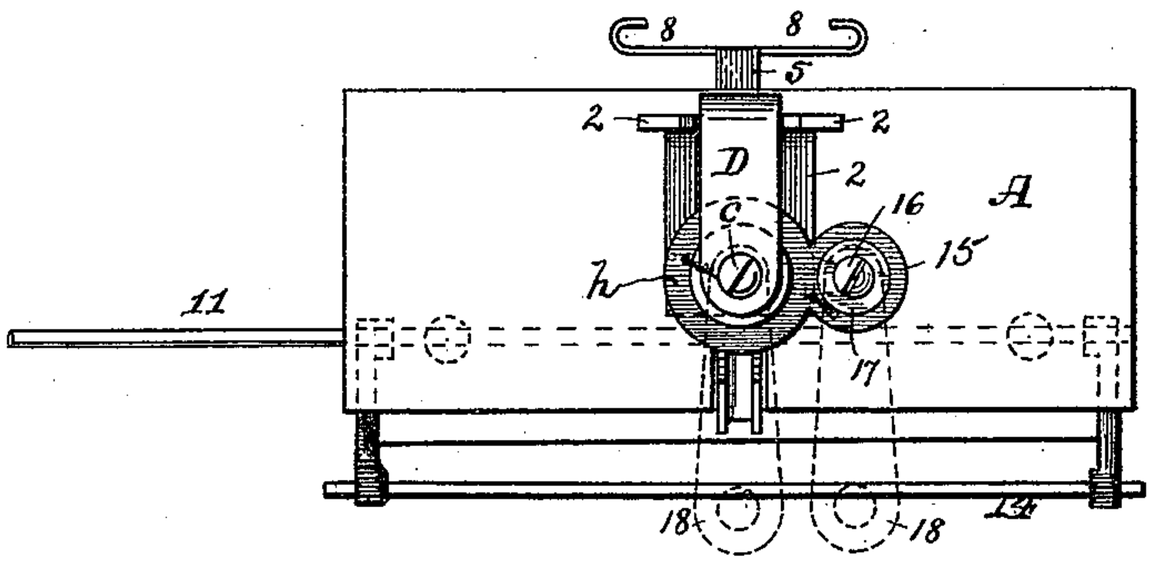


FIG. 2.

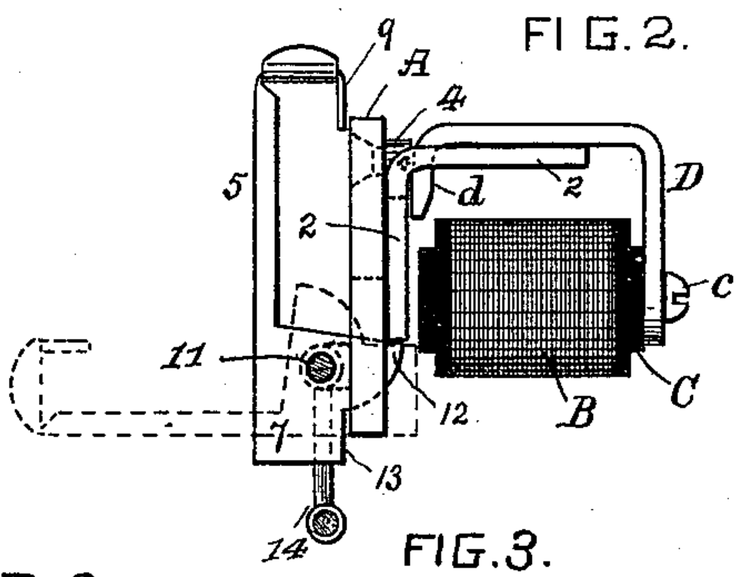


FIG. 3.

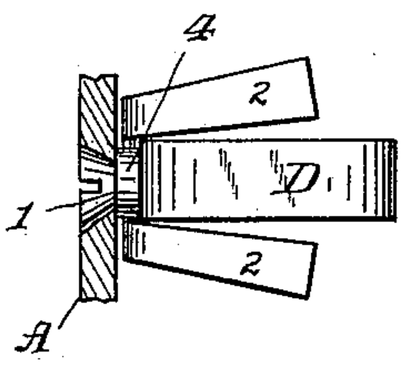


FIG. 4.

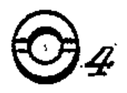


FIG. 5.

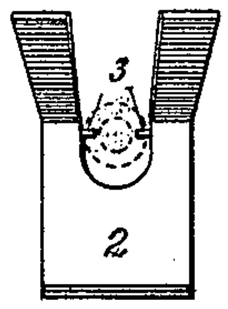


FIG. 9.

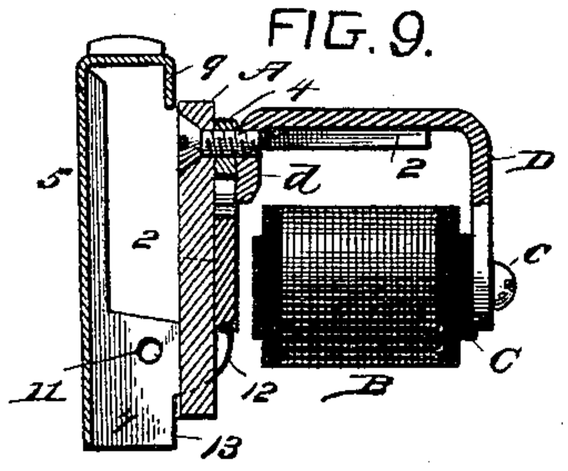


FIG. 7.

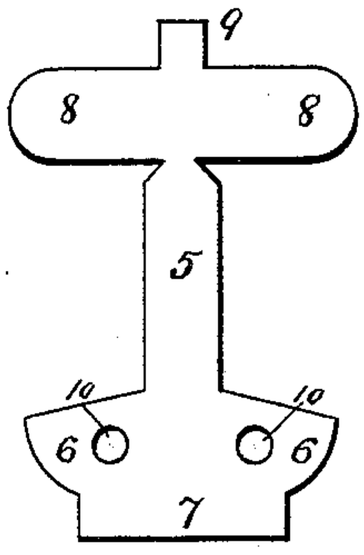


FIG. 8.

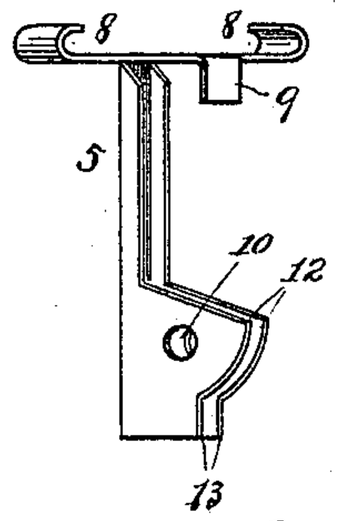
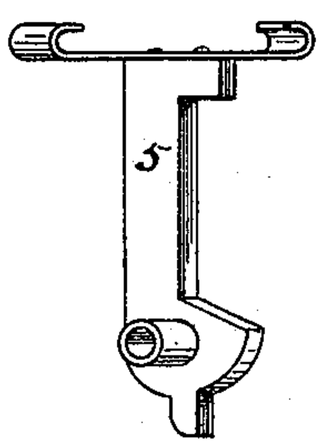


FIG. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

ARTHUR F. STANLEY, OF NEW YORK, N. Y.

ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 438,390, dated October 14, 1890.

Application filed May 29, 1890. Serial No. 353,597. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR F. STANLEY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Annunciators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in annunciators and drops therefor; and it consists in the construction and combination of parts, substantially as hereinafter more fully described and claimed.

In the accompanying drawings, which form part of the specification, Figure 1 is a rear view of the plate on which the annunciator magnet and drop are mounted. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view showing the armature and the polar extension of the magnet. Fig. 4 is a detail showing the slotted washer which forms the bearing for the pivoted armature. Fig. 5 is a perspective showing the peculiar form of the pivoted armature which I have adopted. Fig. 6 is a perspective of the form of drop upon which part of this invention is an improvement. Fig. 7 is a plan of the blank which I use in constructing my improved sheet-metal drop. Fig. 8 is the completed drop ready for use.

A is a plate to which usually a row of annunciator-magnets is attached, and this plate in turn is fastened in the usual manner against the back wall of the annunciator-case, which is ordinarily provided with spring-tongues of brass or copper, forming the terminals of the circuits, it being desirable to be able to dismount the plate A at any time without disconnecting any wires. For that purpose the plate A is held against the back wall of the annunciator-case by means of suitable screws or other supports.

The magnet B has attached to its core C the U-shaped extension D, one leg *d* being shorter than the other and being turned toward the outer end of the core C and perforated and threaded for the reception of a screw 1. The armature consists of the bifurcated plate 2, bent at a right angle, so that the bifurcations clear the polar extensions D *d*, and is fitted with the pivot-pins 3, as shown in Fig. 5, these pins projecting inwardly from the slot forming the bifurcation. I construct a washer 4 with a slot cut across its face, and in attaching the structure to the plate A, I first place the washer 4 in position, then place the armature 2 with the pins 3 resting in the slots of washer 4, then bring the portion *d* of the magnet against the washer, and fasten the combination by means of the screw 1, which passes through plate A and washer 4 into the threaded hole in the polar extension *d*. By this means a very compact and substantial fastening for the magnet is secured, and at the same time a pivot-bearing for the armature 2. The armature has sufficient clearance between the plate A and the core of the magnet B to permit a considerable movement.

The above construction of the armature serves a twofold purpose. First, the bifurcations arranged as stated permit of comparatively strong attractive force in the magnetic field, owing to the broad surfaces and close proximity of adjacent portions of the magnetic system, and, second, the L shape of the armature allows the upper or horizontal member to serve as a retracting-weight to insure the retraction of the armature on cessation of current and to prevent "sticking," due to residual magnetism. With such construction the drop shown in Fig. 6 may be used, if desired; but I prefer that shown in Figs. 7 and 8, which when put together is of the same general shape, and acts in the same manner as to gravitation and restoration. I take a blank of the form shown in Fig. 7, having the body 5, the wings 6, the base 7, wings 8, and projection 9, occupying the relative positions shown. The wings 6 are punched so as to have the corresponding holes 10. I first bend up the blank into the form of a channel-bar, so that the two holes 10 come into alignment, and the edges of the body 5 are also folded up so as to stiffen the structure. The part indicated at 8 and 9 is then bent at right angles to the other portion, the ends 8 8 are folded back on themselves to form clips for the reception of the indicator card or number, and the projection 9 is bent backwardly, forming a stop, as will be understood.

Referring now to the complete device

shown at Fig. 8, taken in connection with Figs. 1 and 2, the drop is placed in position by inserting the horizontal rod 11 through the holes 10 in the various drops, so that the latter may swing freely on the rod 11, the plate A being slotted to receive the lower end of the drops and permit their movement. The construction is such that the edges 12 form a detent for the engagement of the lower end of the armature 2, and the shoulders 13 form a stop for the purpose of causing the drop to stop at such position as will place the indicator cards or numbers vertically and opposite the windows in the front of the case. The curved edges between the shoulder 13 and the detent 12 are constructed for the purpose of riding under the edge of the armature in the operation of restoring the parts to their position.

The normal position of the parts is shown in Fig. 2, where the armature 2 stands with its lower end resting against the back of plate A and away from the core of the magnet B. The drop stands vertically, with the projection 9 preventing it from going any farther back, and the detents 12 are engaged under the edge of armature 2, thus holding the drop securely in its upright position. On arrival of a current impulse through the magnet B the armature 2 is immediately attracted, the action being twofold—that is to say, the adjacent end of core C attracts the lower end of the armature and the induced magnetism at the outer end of the extension D attracts the two bifurcated ends of the armature 2. This attraction draws the armature out of engagement with the detents 12, whereupon the drop which has been in a position of unstable equilibrium falls until the shoulder 13 strikes the lower end of armature 2, and in this position the card or number borne by the drop is in a vertical position opposite the window of the annunciator-case and the body of the drop is in a horizontal position. The usual lifting-bar 14 is now brought into requisition to swing the drop upwardly into its normal position, and in doing so the curved edges between detent 12 and shoulder 13 ride easily under the armature 2 and permit it to ride into the detent 12. Obviously a bolt and nut may be substituted for the machine-screw 1.

In constructing the magnet B C, I form the outer insulating-head *h* with the lug or extension 15, having the binding-screw 16, and I prefer to also use a metallic washer 17. One end of the magnet-wire is connected to the screw *c* and the other end to the screw 16, as shown in Fig. 1, the screws *c* and 16 thus forming the terminals of the magnet. They are connected into the circuit by being pressed against spring-metal contact-strips 18, as shown by broken lines in Fig. 1, such strips being usually fixed in pairs on the back board of the case and forming the terminals of the respective circuits.

I claim as my invention—

1. In an annunciator, the combination of the plate A, the yoke D, carrying the magnet B C, the bifurcated armature 2, provided with pivot-pins 3, the slotted washer 4, and an attaching screw or bolt extending through the washer and holding it and the yoke firmly to the plate A.

2. In an annunciator, the combination, with the plate A and pivoted armature 2, of the horizontal rod 11 and a drop constructed of a single piece of sheet metal bent, as described, to form the card-holder 8, the channel-body 5, pivot-holes 10, detents 12, and stop-shoulders 13.

3. In an annunciator, the plate A, carrying the drops and magnets, each magnet having the outer insulating-head *h*, provided with an extension 15, and having the binding-screws *c* and 16, forming the magnet-terminals, in combination with a fixed part, such as the back board or wall of the annunciator-case, provided with corresponding contact-strips or plates 18, forming the circuit-terminals, substantially as described.

4. The combination, with an annunciator-drop, of the horizontally-arranged magnet B C and its yoke D *d*, with the pivoted and bifurcated L-shaped armature, the bifurcated portion being arranged horizontally to act as a weight.

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

ARTHUR F. STANLEY.

Witnesses:

T. J. McTIGHE.

J. C. SPAETH.