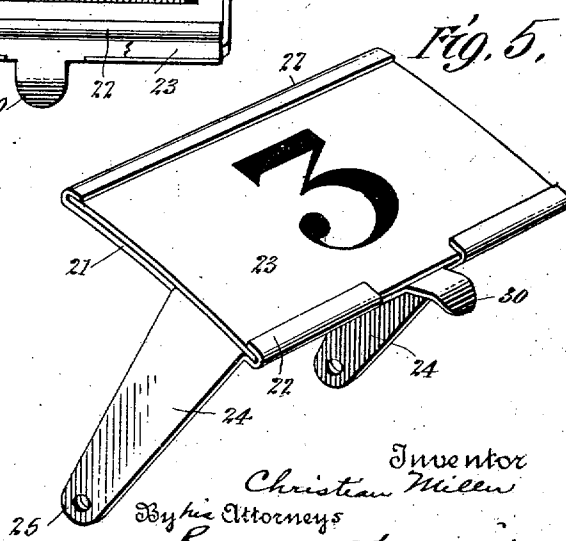
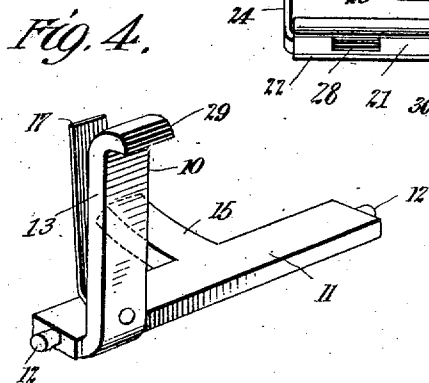
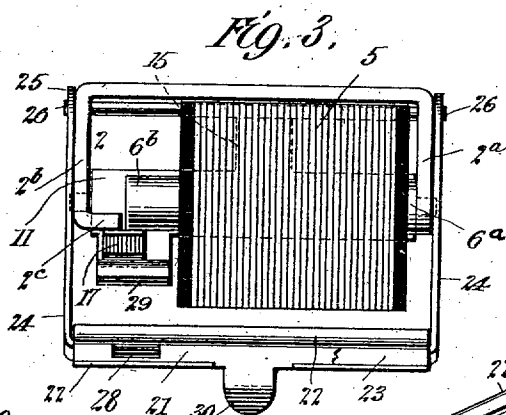
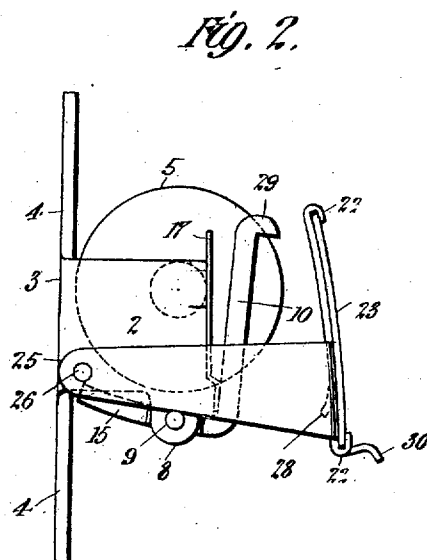
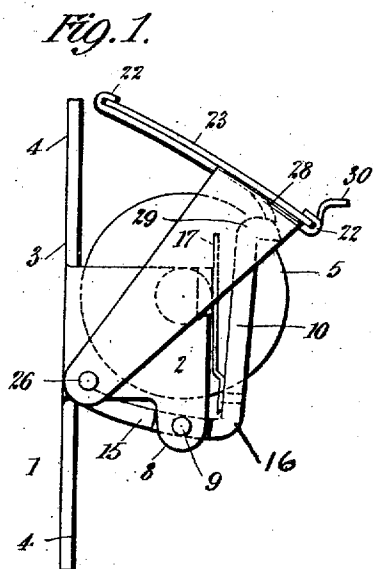


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ANNUNCIATOR.
APPLICATION FILED MAR. 6, 1909.

956,815.

Patented May 3, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 6.

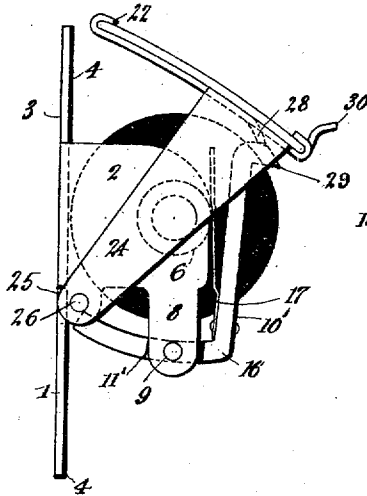


Fig. 7.

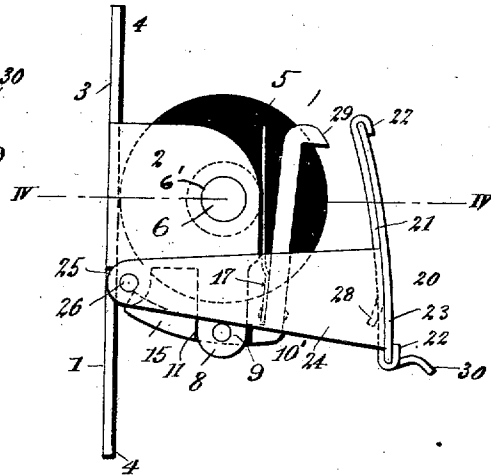


Fig. 8.

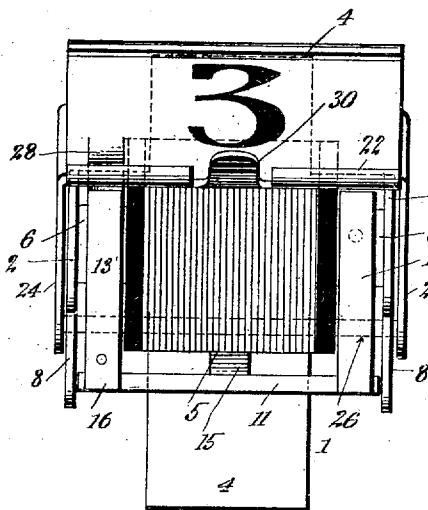


Fig. 9.

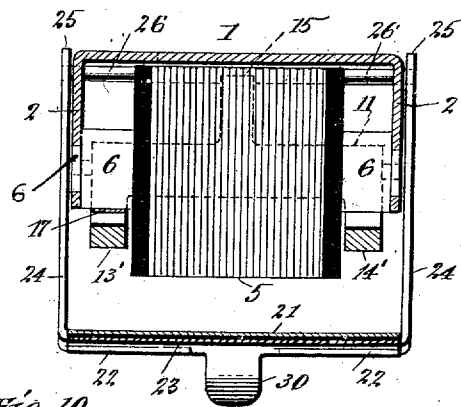
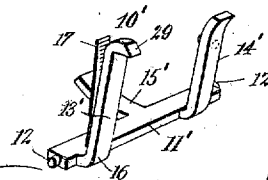


Fig. 10.



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UNITED STATES PATENT OFFICE.

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ANNUNCIATOR.

956,815.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed March 6, 1909. Serial No. 481,746.

To all whom it may concern:

Be it known that I, CHRISTIAN MILLER, a citizen of the United States, residing at the city of New York, in the borough of the Bronx and State of New York, have invented certain new and useful Improvements in Annunciators, of which the following is a full, clear, and exact description.

My invention relates to annunciators and includes a variety of features of improvement over the ordinary constructions of annunciator now in use. Prominent among these matters of improvement is the feature of great compactness, and particularly smallness of depth or thickness in a direction perpendicular to the face of the wall on which the annunciator board is supported. Partly on the ground of appearance and partly on the ground of economy of space, it is desirable that the annunciator board should project or be off-set from its supporting wall by the smallest distance possible.

A second object of the invention is to have as small a number as possible of component parts or elements, and in the construction hereinafter shown there are only four such essential parts or elements in the entire appliance.

A still further object of the invention, is to trip the drop or shutter positively with a minimum expenditure of motive force in the operating circuit, but to have the trip so secure in its normal restraining action on the shutter that the latter will never be jarred out of engagement so as to fall inadvertently.

A still further object of the invention is to provide a shutter which falls prominently into view and which can be easily restored to its raised position.

With the foregoing and other objects in view my invention consists in the features of construction and combination as hereinafter set forth and claimed.

In the drawings: Figure 1 is a side elevation of an annunciator embodying the principles of my invention; Fig. 2 is a similar view showing the shutter dropped into its signaling or indicating relation; Fig. 3 is a top view of the same; Fig. 4 is a perspective view of the armature member; Fig. 5 is a perspective view of the shutter; Fig. 6 is a side view of a modification; Fig. 7 shows the shutter dropped; Fig. 8 is a front view;

Fig. 9 is a section on the line IV—IV of Fig. 7, and Fig. 10 is a perspective view of the armature member.

Referring to the drawings in which like parts are designated by the same reference sign, 1 designates a frame preferably made of stamped sheet iron with laterally deflected ears 2 projecting forwardly on one or both sides of a rear plate 3, which has portions 4 extending vertically from the top and bottom thereof and adapted for attachment to any desired supporting surface.

5 designates an electro-magnet having an iron core riveted at one end 6^a into one of said ears 2^a. The magnet bobbin is located closely against this same ear 2^a, so that the core is exposed at its other end 2^b at a point corresponding to the location of one of the magnet poles. The other magnet pole is formed by an ear 2^c of the frame 1 which projects into proximity to the pole 6^b and operates therewith in the attraction of the armature, later described.

The ears 2 in addition to their functions above described, establish a pivot support for the armature of the electro-magnet. For this purpose the ears 2 have downward extensions 8 at each side, which project below the lower side of said electro-magnet and have aligned holes 9 constituting bearings for the armature.

10 denotes the armature formed of stamped sheet iron or steel, the prominent characteristics being a main central bar 11 reduced at each end to form rounded extremities 12 adapted to fit in the holes 9 above described. This bar 11 has integral projecting arms 13 and 15 extending therefrom in directions transverse to its length, the arm 13 being deflected in a plane substantially at right angles to that of the arm 15. The arm 15 constitutes a stop as later described, and the arm 13 is adapted to project into proximity to the poles 6^b and 2^c of the magnet 5 and be attracted thereby. The arm 13 has an additional function of constituting a latch, trip or detent for the pivoted shutter. I prefer to make the arm 13 sharply bent at a point 16 sufficiently off-set from the lines of the pivot supports 12, to project vertically upward alongside the poles 6^b and 2^c (see Figs. 1 and 3).

17 denotes a spring blade fixed to the arm 13 of the armature and which is adapted to

lie in continuous engagement with the proximate pole 6, so as to impel the armature arm 13 away from the poles of the magnet.

20 denotes a drop or shutter which is stamped of sheet metal with an arcuate front portion 21 having bent over lips or edges 22 on two sides to receive any suitable signal card 23. 24 denotes arms which project rearwardly from the side edges of the plate 21, outside the ears 2, said arms 24 being pivoted to the ears 2 at their inner ends 25, conveniently by a wire 26 extending transversely across the appliance. This wire lies in the path of the arm 15 already described and constitutes a stop to limit the movement of the armature arm away from magnet poles 6. The plate 21 is also inwardly embossed on one side to form a lip 28 which lies directly in the path of an upper forwardly bent extremity 29 of the arm 13. The lip 28 is adapted to be engaged above said bent extremity or detent 29 in the manner shown in Fig. 1, when the armature is in its normal position. When the magnet 5 is energized, and the armature arm 13 is drawn toward the magnet poles, the detent 29 moves rearwardly out of engagement with the lip 28 and permits the drop or shutter to fall. The shutter can be restored to its original position by lifting an attached projecting ear 30 which is integrally formed on or embossed from the material of the plate 21.

In Figs. 6, 7, 8, 9 and 10 a slightly modified construction is shown which is denominated by the above employed reference characters throughout, and to which the foregoing description applies, except for certain changes in the form of the armature and the support of the operating magnet 5. In this case the electro-magnet is inclosed between both the ears 2, and has its iron core riveted into said ears at both of its ends 6'. The magnet bobbin is so positioned between the ears 2 that the core is exposed inside the ears at points corresponding to the location of both the magnet poles. 10' denotes the armature formed of stamped sheet iron or steel with the bar 11' having integral projecting arms 13', 14' and 15' extending therefrom in directions transverse to its length, the arms 13' and 14' being deflected in a plane substantially at right angles to that of the arm 15'. The arm 15' constitutes a stop as later described, and the arms 13' and 14' are adapted to project into proximity to the respective poles of the magnet 5 and be attracted thereby.

It will be observed that the parts of the annunciator are grouped in a very compact way about the central electro-magnet which may be made as small as possible to give the required attractive force with a given operating current. Moreover the power of the electro-magnet is directly impressed on the

armature to move the detent 29 out of engagement with the lip 28. When the shutter falls it swings in a path generally following the curvature of the surface of the electro-magnet, taking up just as little space as possible. The signal card has such a position and arrangement on the movable shutter as to be as large and as conspicuous as can be attained consistent with the dimensions of the remainder of the appliance. On account of the arrangement of the magnet with its longest dimensions parallel with the face of the annunciator board, it is evident that it has its smallest dimensions in the direction of the thickness of the board, and the dimensions of the complete appliance in this direction are scarcely greater than such thickness of the magnet, particularly when the shutter is raised. The feature of security in the shutter restraining trip, is attained by the nature of its angle of abutting engagement on the shutter lip 28 considered with regard to the paths of motion of the respective parts. The weight of the shutter acting downwardly on the detent 29 can have no effect in the absence of any attractive force, than to force said detent farther to the right, making its restraining action more secure. Any shocks or vibrations can never dislodge the shutter and cause it to fall inadvertently, because the preponderating pressure of the shutter on the detent at the instant of such shock, will only make the engagement momentarily more secure. The normal unsupported weight of the shutter is, however, very light, particularly in its raised position, so that the normal resistance to displacement of the detent 29 by the attraction of the electro-magnet, is correspondingly insignificant.

What I claim, is:—

1. In an annunciator, a frame having ears, a magnet fixed between said ears and having an exposed pole, an armature journaled in said frame and having an arm projecting into proximity to said pole and a rearwardly projecting arm constituting a stop, a spring for normally separating said armature from said pole, and a shutter pivoted in said frame and normally engaged by said first mentioned arm and restrained against dropping thereby.

2. In an annunciator, a frame having ears with downwardly projecting portions, a magnet riveted to one of said ears and having an exposed pole between said ears, an armature journaled between said portions and having an arm projecting upwardly in proximity to said pole, a spring fixed to said arm and engaging the pole, and a shutter having rearwardly extending arms extending outside said ears and pivoted thereto, said shutter having a lip engaging the arm of said armature.

3. In an annunciator, a frame having ears, a magnet fixed between said ears and secured to one only of the ears and having an exposed pole in proximity to the other
5 ear, an armature journaled in said frame and having an arm projecting into proximity to said pole and the adjacent ear and having a rearwardly projecting arm constituting a stop, a spring for normally separating
10 said armature from said pole, and a shutter pivoted in said frame and normally engaged by said first mentioned arm and restrained against dropping thereby.

4. In an annunciator, a frame having ears
15 with downwardly projecting portions, a magnet riveted to one only of said ears and

having an exposed pole adjacent to the other ear, an armature journaled between said portions and having an arm projecting upwardly in proximity to said pole and to the
20 adjacent ear, a spring fixed to said arm and engaging the pole, and a shutter having rearwardly extending arms extended outside said ears and pivoted thereto, said shutter having a lip engaging the arm of said
25 armature.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

CHRISTIAN MILLER.

Witnesses:

GEO. H. JANES,

HARRY A. DUNN, Jr.