C. J. HENSCHEL.

ANNUNCIATOR.

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989,970.

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Fig. 1.

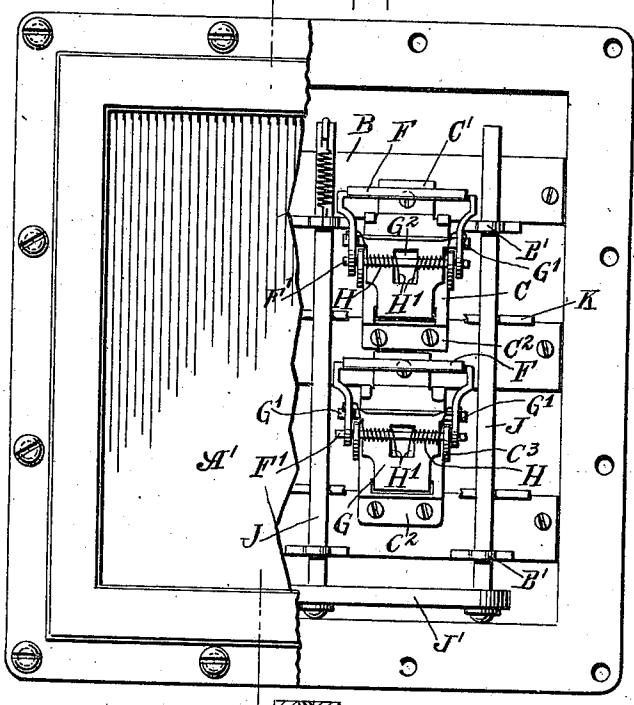


Fig. 3.

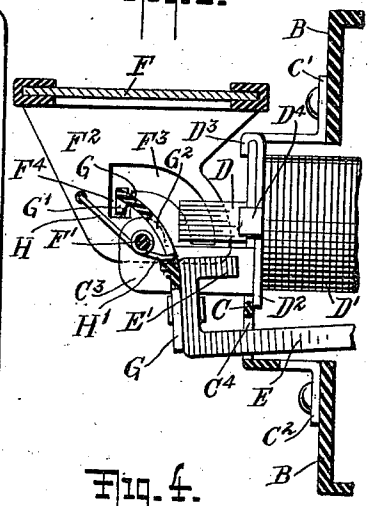


Fig. 4.

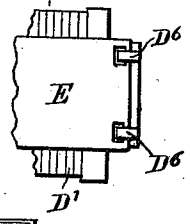
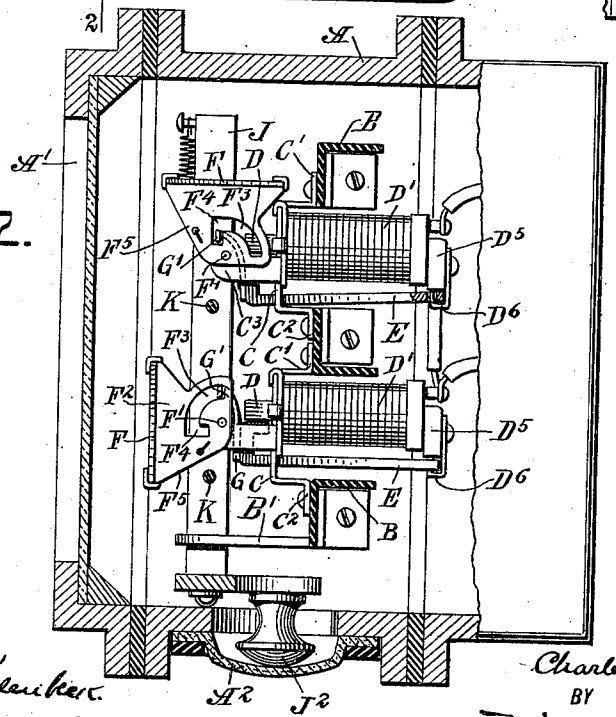


Fig. 2.



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ANNUNCIATOR.

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To all whom it may concern:

Be it known that I, CHARLES J. HENSCHEL, a citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Annunciators, of which the following is a specification.

My invention relates to electrical annunciators, and has for its object to provide a very simple and compact construction of this character.

The invention consists in a particular novel arrangement of magnet, armature and drop, and also in a special manner of supporting the individual elements of the annunciator.

A specific embodiment of my invention will now be described with reference to the accompanying drawings, and the novel features will then be pointed out in the appended claims.

Figure 1 is a front elevation of a four-drop annunciator embodying my invention with the front of the casing partly broken away; Fig. 2 is a vertical section on line 2—2 of Fig. 1; Fig. 3 is an enlarged view showing the drop proper and its connection with the magnet and Fig. 4 is an enlarged inverted plan view of the rear end of the armature lever.

A is a suitable casing or box having a transparent pane A′ at its front. Within said box are secured horizontal carrier bars B of which there are two for each row of drops, although, when there are several rows of drops, one carrier bar may be used in conjunction with two adjacent rows, so that with two rows as shown, three carrier bars will be sufficient. These carrier bars are preferably L-shaped, some of them being used in an inverted position as shown. On the carrier bars are secured by means of screws or otherwise, brackets C, each having an upper lug C′ and a lower lug C^2. These brackets serve as exclusive supports for the drops, magnets and armatures, so that by unscrewing a bracket from the two carrier bars which support it, said bracket may be removed together with the corresponding magnet, armature and drop, these three parts carried by the bracket remaining in the same position relatively to each other. Each magnet has a core D the forward end of which projects through a suitable opening in the bracket C, said core carrying the customary spool or coil D′ in the rear of the bracket. In order to attach the magnet to the bracket a plate D^2 is fitted between the bracket C and the coil D′ and this plate has two hooks D^3 projecting downward over the upper edge of the bracket's central portion and also side hooks D^4 fitting over the side edges of said central portion. The form of the brackets C as shown best in Fig. 3 is substantially that of a U. At the rear or free end of the magnet is located a plate D^5 carrying two hooks D^6 which engage apertures at the rear end of the armature lever E which is thus fulcrumed on the ends of said hooks. The forward end of said lever carries the armature proper E′ arranged adjacent to the projecting end of the magnet core and adapted to be attracted upward. It will be understood that the armature lever extends lengthwise of the magnet and is pivoted at the end of the magnet opposite to that at which the armature is arranged. Each of the brackets C is formed with two forwardly projecting lugs C^3 in which the drop F is pivoted at F′. The side arms F^2 which connect the drop with its pivots are made with slots, each of which has a portion F^3 curved according to the arc of a circle whose center is at F′ and a forward extension F^4 at one end of said curved slot. In each of these slots is adapted to move a lug G′ projected laterally from a locking plate G, which is rigidly secured to the front end of the armature lever.

A spring H is coiled on the pivot rod F′ the ends of said spring being connected with the arms F^2 and its central portion being formed with a projecting arm H′ which fits into an aperture G^2 of the locking plate G. When the drop is in its raised position as shown in Figs. 2 and 3, the spring H tends to throw it downward and the lugs G′ being in the slot portions F^4, the drop is locked in its upper position. If the magnet D is energized the armature E′ will move upward so that the lugs G′ will be carried into the curved portions F^3 of the slots. The spring H will then start the drops forward and then gravity will cause them to drop into the customary lower position in which they display numbers or letters. During this downward movement the bend H′ of the spring H may come out of contact with the locking plate G, but this is immaterial since

the purpose of the spring H is to start the drop in its downward movement, and when the drop is in its raised position to press the armature away from the magnet and the drop into locking engagement with the lugs G′. The bracket C has an opening C^4 in which the armature lever E may move up and down.

Figs. 1 and 2 of the drawing also show a resetting mechanism which consists of a series of bars J movable vertically in guide brackets B′ projected from some of the carrier bars B, said vertical bars being connected at intervals by horizontal rods K which are adapted to engage the inclined edges F^5 of the drops F when the latter are in their lower position, so that by moving the bars J upward any drop which should happen to be in the lower position will be restored to the upper position. The lower ends J are connected by a plate J′ which is provided with a knob J^2 adapted to be operated from the outside casing A, being preferably provided with a flexible cover A^2 for the opening in which the knob J^2 is located.

I claim:

1. In an annunciator, the combination of a casing, parallel carrier bars therein, U-shaped brackets extending from one carrier bar to the next, an annunciator drop mechanism carried by each of said brackets and located partly at the front and partly at the rear of said brackets.

2. In an annunciator, a casing, parallel carrier bars therein, brackets each of which is secured to two adjacent carrier bars, an annunciator drop mechanism carried by each bracket between the carrier bars, said mechanism being located partly at the front and partly at the rear of said brackets.

3. In an annunciator, a support, an electromagnet carried thereby, an armature arranged to be attracted by the magnet, an armature lever spaced from and carrying said armature and arranged below said magnet and extending lengthwise thereof, said armature lever being fulcrumed adjacent to the end of the magnet opposite to that which coöperates with the armature, a drop controlled by the movement of said armature and means for giving said drop an initial movement as the armature is attracted by the magnet.

4. In an annunciator comprising a magnet, an armature movable adjacent thereto, a movable drop provided with a slot extending in a plane parallel with the axis of the magnet and having an enlargement at one end, and a projection carried by said armature at an angle to the axis of said magnet and adapted to enter the enlargement of said slot to lock the armature in its normal or inoperative position.

5. In an annunciator, an electromagnet, an armature controlled thereby, a pivoted drop provided with a slot having a portion curved in the arc of a circle, the center of which is at the pivot of the drop and extending in a plane parallel with the axis of the magnet, said slot being provided with an inward extension and a stop device carried by the armature at an angle to the axis of said magnet and adapted to lie in said extension and lock the drop in the normal position thereof, but to pass into the curved slot portion and release the drop when the armature is attracted.

6. In an annunciator, an electromagnet, an armature controlled thereby, a locking member carried by the armature and provided with lugs, a pivoted drop provided with oppositely arranged slots, each of which has a curved portion concentric with the pivot and an inward extension at one end of said portion, the lugs of said locking device projecting into the slots of the drop, and a spring connected with the drop having a tendency to start it toward the operative position when the armature is attracted.

7. In an annunciator, a support, an electromagnet carried thereby, an armature arranged to be attracted by the magnet, an armature lever carrying said armature and spaced therefrom and extending lengthwise of the magnet and fulcrumed adjacent to the end of the magnet opposite to that which cooperates with the armature, a drop controlled by the movement of said armature, and means for giving said drop an initial movement as the armature is attracted by the magnet.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES J. HENSCHEL.

Witnesses:

JOHN A. KEHLENBECK,

GEORGE V. RASMUSSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."