

(No Model.)

2 Sheets—Sheet 1.

G. J. GALBRAITH.
ELECTRIC ANNUNCIATOR.

No. 545,069.

Patented Aug. 27, 1895.

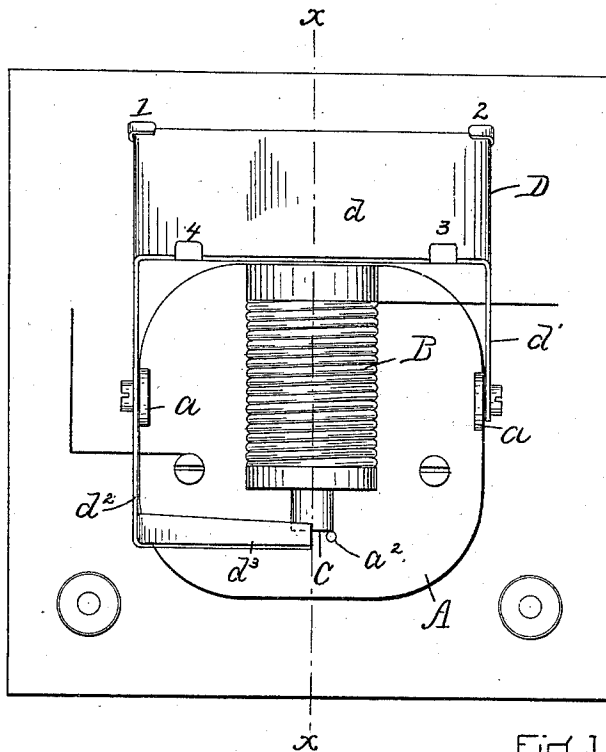


Fig. 1.

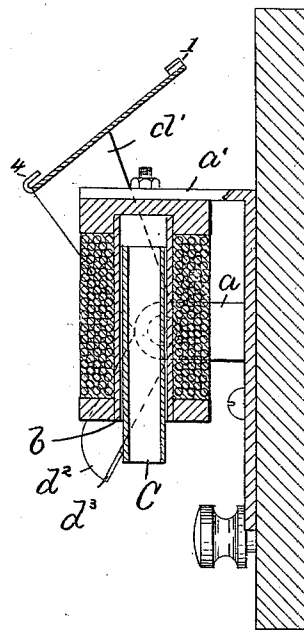


Fig. 2.

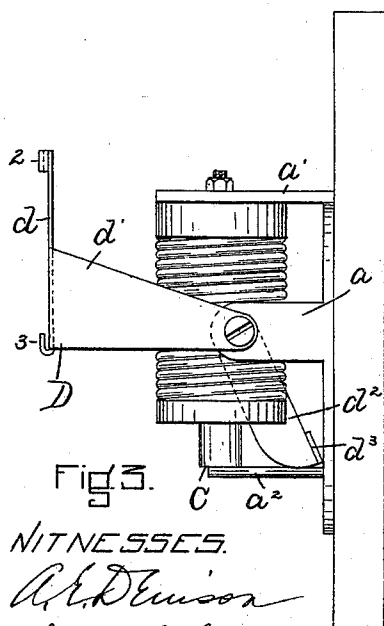


Fig. 3.

WITNESSES.
A. E. Devison
Charles H. Hanson

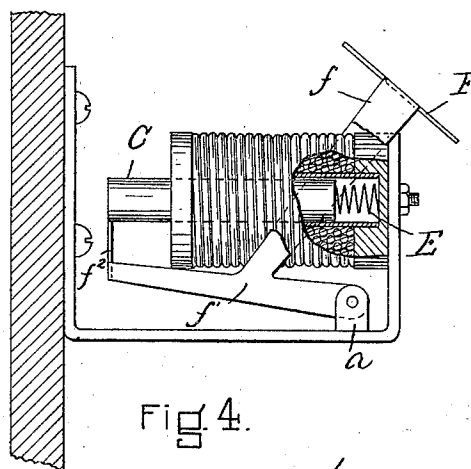


Fig. 4.

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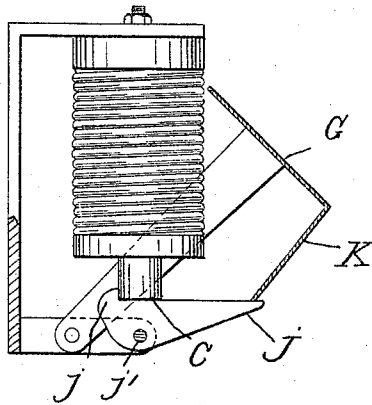


Fig. 5.

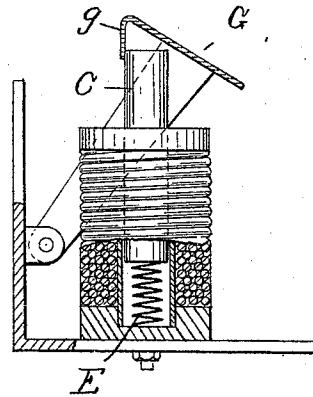


Fig. 6.

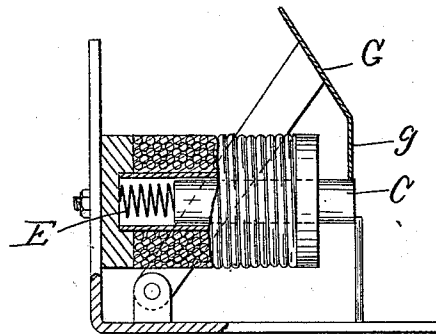


Fig. 7.

WITNESSES.

Al. H. Emerson
Charles H. Hanson

INVENTOR.

Geo. J. Galbraith

UNITED STATES PATENT OFFICE.

GEORGE J. GALBRAITH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
ELECTRIC GAS LIGHTING COMPANY, OF SAME PLACE.

ELECTRIC ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 545,069, dated August 27, 1895.

Application filed April 27, 1895. Serial No. 547,377. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. GALBRAITH, a citizen of the United States, residing at Boston, Massachusetts, have invented a new and useful Improvement in Electrical Annunciators, of which the following is a specification.

My invention relates to electric annunciators in which a visual signal or a plate or frame adapted to bear or carry a name, number, or other announcement is operated by means of an electromagnet.

The object of my invention is to cheapen the cost, lessen the battery power required, and improve the construction and working capacity of such annunciators.

I accomplish my object by means of the devices and their construction, as shown in the accompanying drawings, in which—

Figure 1 is a plan view of the magnet, armature, and drop. Fig. 2 is a section upon line x of Fig. 1. Fig. 3 is a view showing the drop-plate after it has been released by the magnet. Fig. 4 is a view of a different arrangement of the parts, wherein a spring takes the place of gravity, as shown in Fig. 1. Fig. 5 is a view of an arrangement bringing in a lever intermediate between the armature and the drop-plate. Figs. 6 and 7 are views of alternative forms of construction.

My invention will be thoroughly understood from the following description of the drawings.

In Fig. 1, A is a bracket provided with the standards a , in which the drop-plate is to swing and with the support a' to sustain the solenoid or single magnet, and with the stop a^2 to prevent the sliding armature from falling.

B is a solenoid having a hollow core b , in which plays the sliding armature C, which may be solid or hollow and is of such length that when the solenoid is energized it may be drawn into the solenoid in order to release the drop-plate, as hereinafter shown. This solenoid or spool B may be a wooden spool, wound as an ordinary magnet, and its wire have an open-circuit connection with the battery and one of its ends be properly attached to the back of the annunciator-case or to whatever is to serve as its support, as the part a' .

D is the drop, having the face-plate d , the

supporting sides d' , loosely pivoted in the standards a , and the continuation d^2 of one side having an angle-piece d^3 bent at right angles to d^2 and adapted to be caught by the sliding armature C.

The operation of the apparatus as just described will be readily understood to be that, when by the usual push-button being pressed the battery-current is allowed to traverse the wire encircling the said spool or solenoid, the sliding armature C will be drawn within the spool and cease to operate as a detent to the arm d^3 of the drop-plate. When that detent is thus withdrawn, the weight of the face-plate, d of the drop D will cause it to swing downward and out, as in Fig. 3, and so bring the plate part of the drop to rest on the lifting device (not shown) and in front of, for instance, an orifice in a glass case, or otherwise into view.

In some cases it may be desired to have the solenoid in a horizontal position, as shown in Fig. 4. Of course, in such case I can easily substitute for gravity a delicate spring E, as shown in Fig. 4, which will normally hold the sliding armature sufficiently beyond the spool to enable it to act as a detent. A slight change in the construction and arrangement of the drop-plate will be necessary to accommodate it to this change of position, and therefore, instead of the drop-plate D and its parts, as shown in Fig. 1, I substitute, as shown in Fig. 4, the drop-plate F, having the arms f , the connecting arms or parts f' , loosely pivoted upon standards a , and having the part f^2 , connecting the arms f' , which part f^2 normally catches against the sliding armature C, as it is normally held by the spring E. Of course an electrical mechanic will see various mechanical modifications that can be made in construction; as, for instance, the magnet might be vertical, but reversed from its position in Fig. 1, and the sliding armature arranged to hold the drop, as in Fig. 6, in which such sliding armature C is attracted against the force of the spring E and liberates the drop G, having the catch g , against which catch the spring E normally holds the sliding armature; or I may adopt the construction shown in Fig. 7, in which the solenoid is horizontal and the catch g of the drop G normally rests

upon the sliding armature C until the spring E is compressed by the solenoid being energized. In Fig. 5 I have shown the magnet as vertical, the sliding armature C as operating by gravity, and have introduced a lever J, having the cam j and pivoted at j' , upon which lever the sliding armature C is retained, and which lever J also sustains the drop-plate G by means of the part K; but upon withdrawal of the sliding armature C the lever J turns on the pivot j' and releases the part K of drop-plate G, allowing it to fall onto the lifting device. (Not shown).

Whatever particular form of construction may be adopted I contemplate making the drop of aluminum, because it is so light that the pressure which it exerts or the friction which it causes upon the sliding armature is almost unappreciable, and it is one of the advantages of my invention that very slight battery-power—two cells, for instance, of the Samson battery—is ample for its operation. I also contemplate making the face of the drop with the catches 1 2 3 4 whereby a movable card or plate bearing the desired inscription may be supported. The manufacturer frequently does not know what particular inscription the face of the drop is to bear; and by making it in this method I provide a simple arrangement by which the user may easily support whatever word or sign he wishes and change the same at will. I have not thought it necessary, because such solenoid annunciator-drops are frequently used in considerable numbers, to show the case in which they are included, or a drawing of more than one of them and its variation in form, inasmuch as the form of the case, the number of drops, the presence of a gong, and other merely mechanical matters are thoroughly understood by the trade and the electrical fitter; also, I have not shown any lifting device to restore the drop to position, as that is a simple and well-known accessory in whatever form it may be preferred.

Having thus described my invention, I do not claim that any of the individual ingredi-

ents are novel excepting in the form of the drop-plate as adapted to the various arrangements which I have described; but I am not aware that a solenoid and a sliding armature-core have ever before been combined with a multi-armed drop-plate to produce that variety of annunciator in which a face-plate bearing an inscription is used.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. A solenoid annunciator drop composed of a proper support, a solenoid, a sliding armature-core for said solenoid, a swinging multi-armed drop-plate composed of an announcing-disk and extensions or arms for hanging or loosely pivoting the same, and an arm to serve as a catch upon the sliding armature-core, whereby the same are adapted to be alternately retained and released by said sliding armature, and means for limiting the movement of the sliding armature, substantially as described.

2. A solenoid annunciator-drop composed of a proper support, a solenoid B having a hollow core b , a sliding armature C, a stop-pin a^2 , a multi-armed drop D, having the announcing face d , the arms d' , d'' , the arm d^3 , and the angle-piece d^4 , all combined and arranged substantially as and for the purposes described.

3. A solenoid annunciator drop composed of a proper support, a solenoid, a sliding armature-core for said solenoid, a swinging multi-armed drop-plate, adapted to be alternately retained and released by said sliding armature and a swinging lever adapted to both limit the movement of the sliding armature, and to alternately retain and release the drop-plate, according to the movements of the sliding armature, all substantially as described.

In witness whereof I hereunto sign my name this 18th day of April, 1895.

GEO. J. GALBRAITH.

In presence of—

A. E. DENISON,
CHARLES H. HANSON.