E. GRAY.

Electric Annunciator.

No. 162,057. Patented April 13, 1875.

Fig. 1

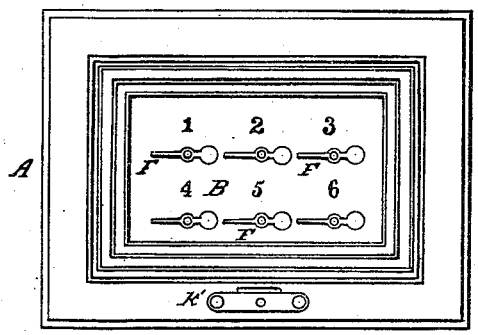


Fig. 2

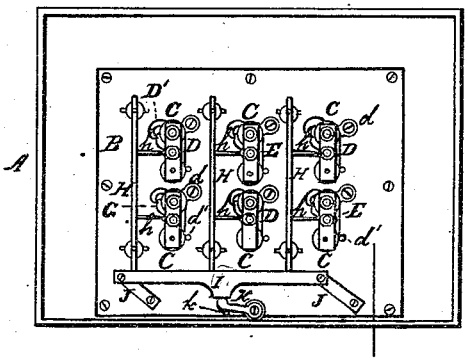


Fig. 3

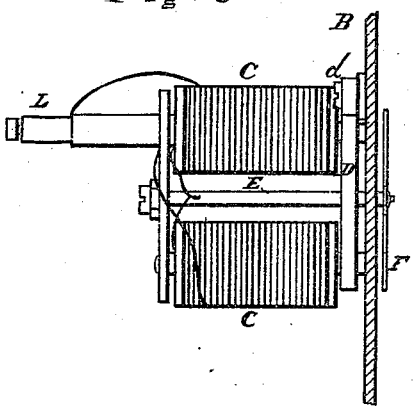
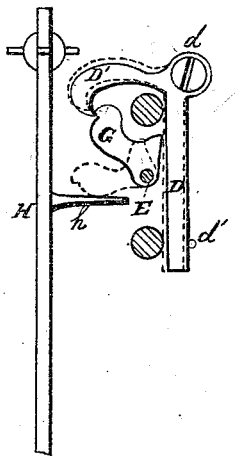


Fig. 4



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UNITED STATES PATENT OFFICE.

ELISHA GRAY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ELECTRIC ANNUNCIATORS.

Specification forming part of Letters Patent No. **162,057**, dated April 13, 1875; application filed September 24, 1874.

To all whom it may concern:

Be it known that I, ELISHA GRAY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrical Annunciators, of which the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part hereof, and in which—

Figure 1 is a front elevation of an annunciator embodying my invention. Fig. 2 is a rear elevation of the same; Fig. 3, a vertical cross-section of the plate to which the poles of the magnet are attached, certain other parts being shown in elevation; and Fig. 4, a rear elevation of certain parts shown in Fig. 3, the magnets being removed.

Like letters of reference indicate like parts.

My object is to simplify and improve the construction and operation of that class of electrical annunciators usually employed for sending calls from the rooms to the office in hotels and other buildings, and for similar purposes; and to that end my invention consists in certain novel features, substantially as hereinafter described, relating to the method and means employed for the purpose of accomplishing the object above set forth.

In the drawing, A represents the case of the annunciator. The numerical characters in Fig. 1 designate the various rooms in the building. B is a brass plate attached to the case. C C are ordinary electro-magnets, the poles of which are attached at one end to the plate B. D D are soft-iron armatures, each pivoted to the plate, as shown at *d d*. D′ D′ are armature-levers, rigidly attached to the armatures D D. The outer or free ends of these levers are made hook-shaped, as shown. *d′ d′* are stop-pins, against which the armatures rest when in their normal position, a small space then existing between the armatures and the poles of the magnets. The hook-shaped armature-levers are the essential novel features in connection with the armatures. E E are spindles passing freely through the plate B, and to the outer ends of these index-hands or pointers F F are rigidly attached. These spindles are capable of a free rotary movement. G G are irregularly-shaped arms, rigidly attached to the spindles E E. The form of these arms is such that they may be engaged by the armature-levers when the armatures rest against the stops *d′ d′*, and such that they may also then rest nearly against the armatures, as is plainly shown in Fig. 4. H H are vertically-sliding bars provided with the lateral arms *h h*, extending sufficiently for contact with the parts G G when the said bars are moved for the purpose of restoring the index-hands to their normal position, and sufficiently to support the parts G G when the latter are not engaged by the levers D′ D′, as will hereinafter more fully appear. The bars H H rest on the horizontal bar I, pivoted at each end to the parallel inclined arms J J, the lower end of which latter are pivoted to the plate B. The bar I rests on the crank-arm K, and K′ is a crank arm or lever arranged externally to the case, and attached to the same rod or shaft to which the arm K is fastened. *k* is a stop-pin, on which the arm K rests. The battery may be arranged in any convenient place. One end of the wire of each magnet is carried to an insulated binding-post, L, there being one of the latter to each magnet, and the other end is carried to the heel of the same magnet, thus connecting the latter with the plate B. A circuit-wire is carried from the plate B to each room, and another from each room to a corresponding binding-post, L. These circuits may be connected by means of a common key arranged in each room. The battery-wire may be arranged in the circuit in the usual manner.

When the key in the room No. 1, for example, is depressed, the current will pass through a corresponding magnet in the annunciator, and the armature of this magnet will be attracted to the poles of the same magnet. By this means the lever of the armature so attracted releases the piece G, operating in connection with it, and this piece falls upon the next lower arm *h*, and, in falling, moves a corresponding pointer, F, toward the figure 1, thus indicating that a call is made from room No. 1. A call from any other room may be made in like manner.

In order to set the indicator after one or more calls have been made, the lever K′ is so moved as to raise the bar I, thus also rais-

ing the bars H H, and lifting such of the pieces G G as may have fallen upon the arms *h h*, thus pushing the armatures from the poles, and allowing the armature-levers to engage the parts G G and hold them up, thereby restoring the pointers to their normal position.

When the lever K′ is released the annunciator will be set, it being understood that the circuit through the magnet is broken by releasing the key in the room. Curtains may be employed instead of the pointers, and various means may be used to restore the parts G G to their engagement with the armature-levers. The normal position of the armatures is against the pins *d′ d′*.

It will be observed, from the foregoing description, that no springs are employed in connection with any of the moving parts; also, that all the pieces G G are slightly moved each time any of them is set, thus preventing the spindles to which they are attached from becoming rigidly set on account of rust, dust, or hardened grease and grit, and keeping them in free working condition at all times. The armatures are pushed from their poles through the instrumentality of mechanism employed to restore the pointers to their normal position.

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

1. The armature D, provided with the hooked levers D′, in combination with the tilting piece G, rigidly connected to the index, and constructed and arranged substantially as shown and described, to be struck by the restoring mechanism, to strike the said armature, and to be engaged by the said lever, as and for the purposes set forth.

2. The combination of the pivoted armature D, provided with the hooked lever D′, the tilting piece G, rigidly attached to the spindle or sleeve of the index, and the sliding bar H, provided with the extensions *h h*, the piece G being constructed and arranged to be struck by the said extensions, to strike the said armature, and to be engaged by the said lever, all substantially as and for the purposes specified.

Witnesses: ELISHA GRAY.

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