

L. FINGER.

Electric Hotel-Annunciators.

No. 154,029.

Patented Aug. 11, 1874.

Fig. 1.

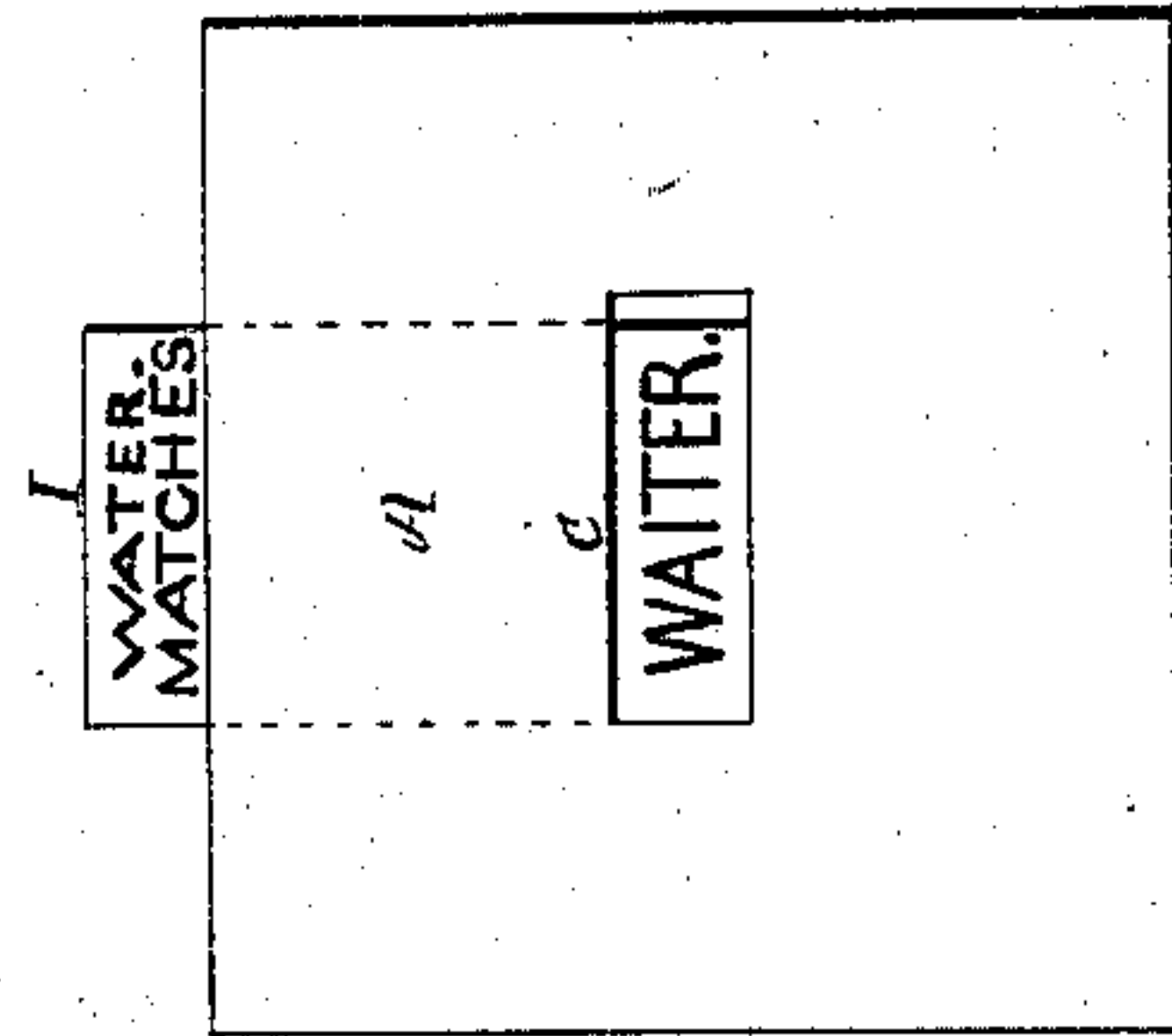


Fig. 4.

Enlarged.

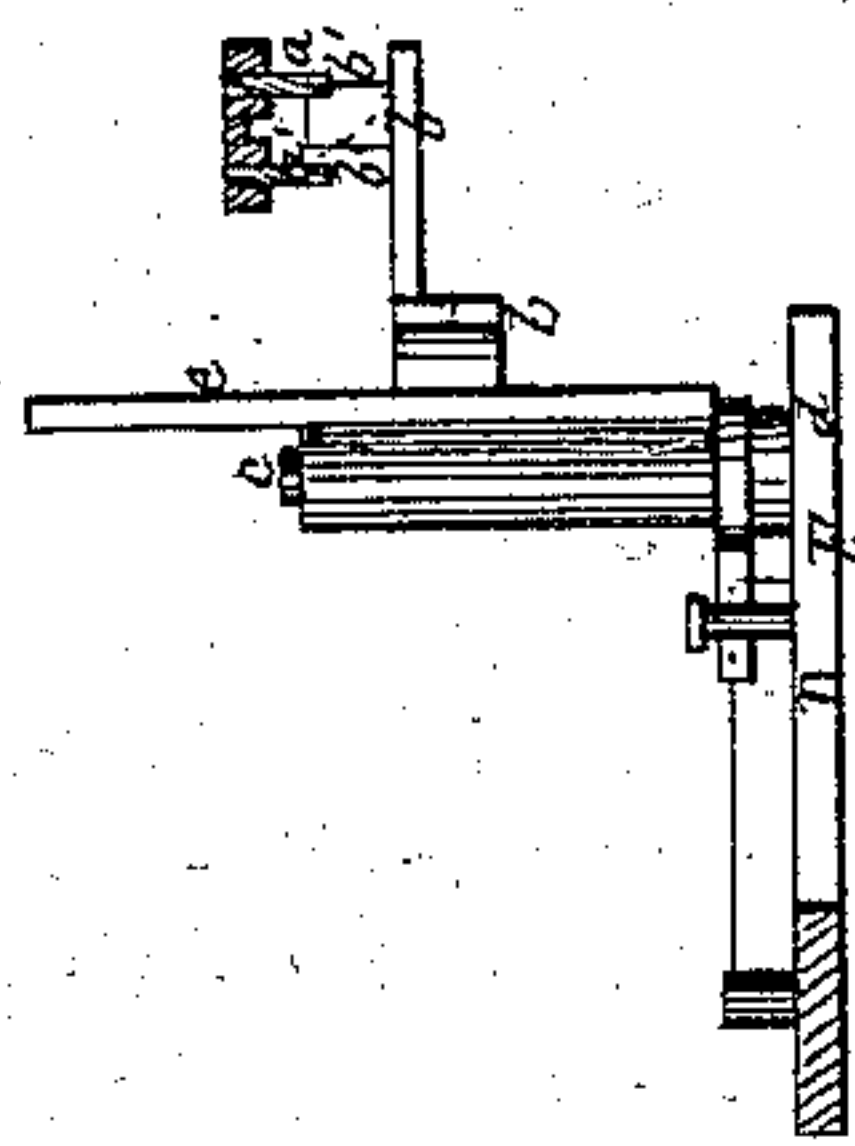


Fig. 3.

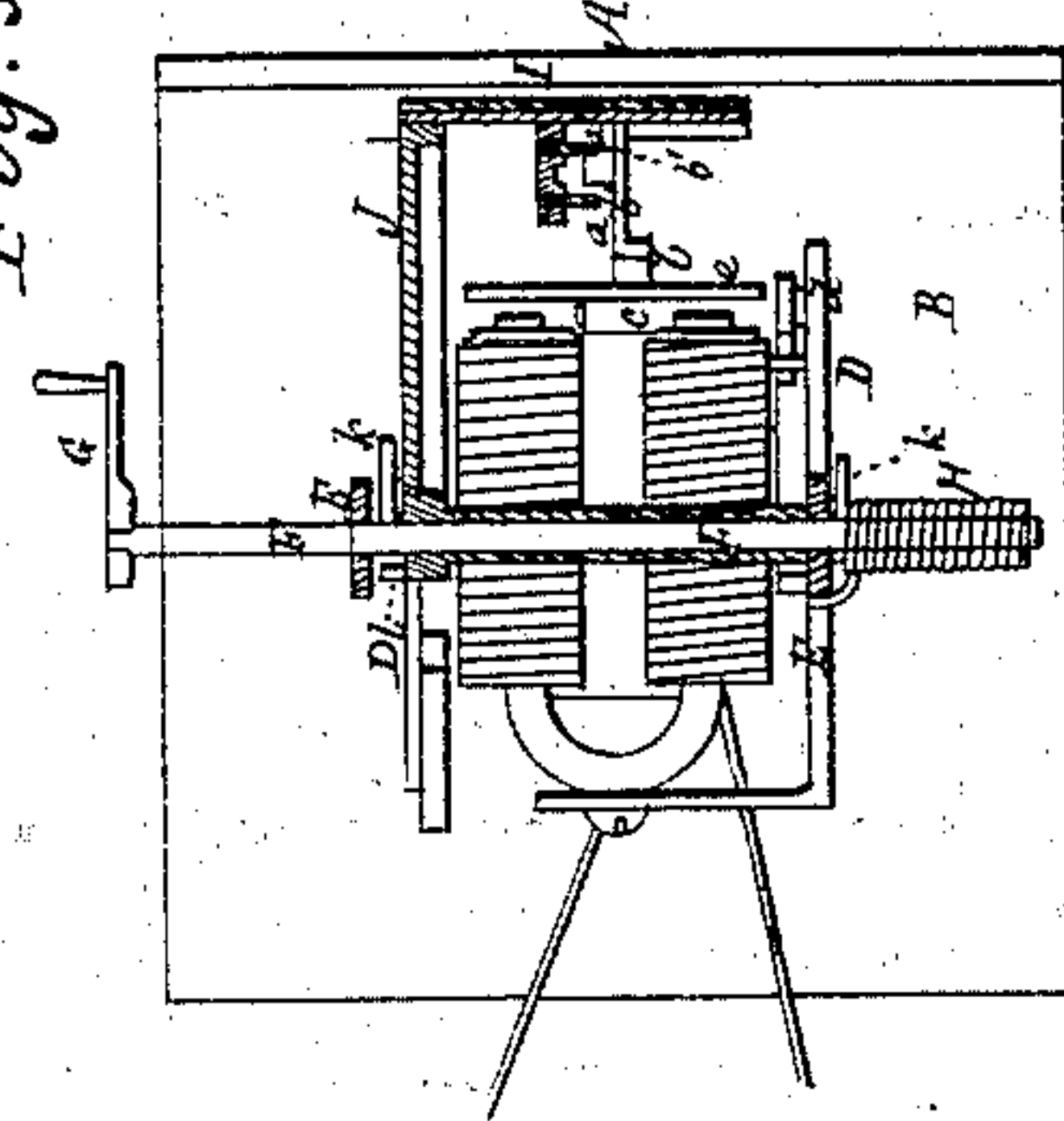


Fig. 2.

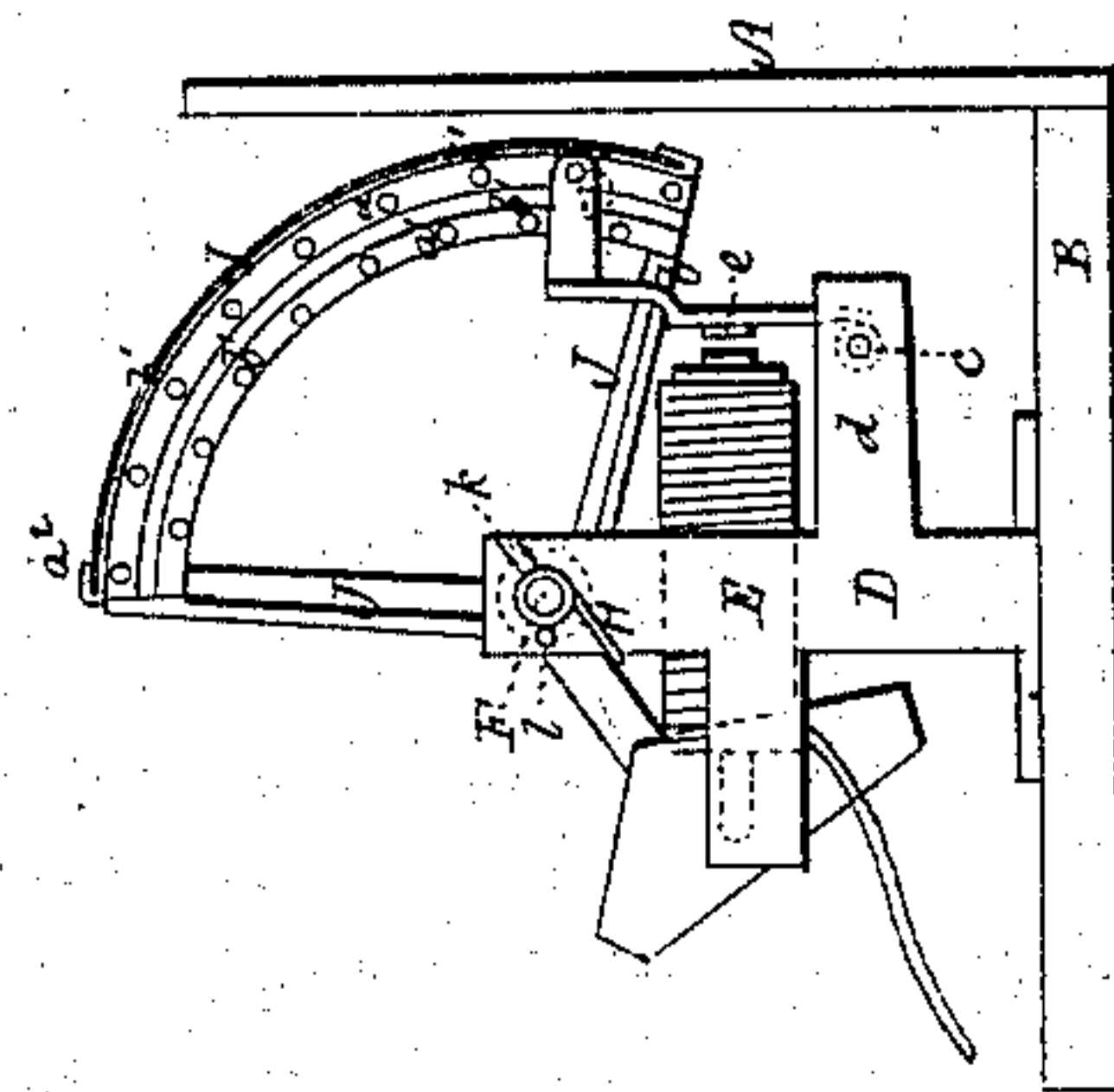


Fig. 5.

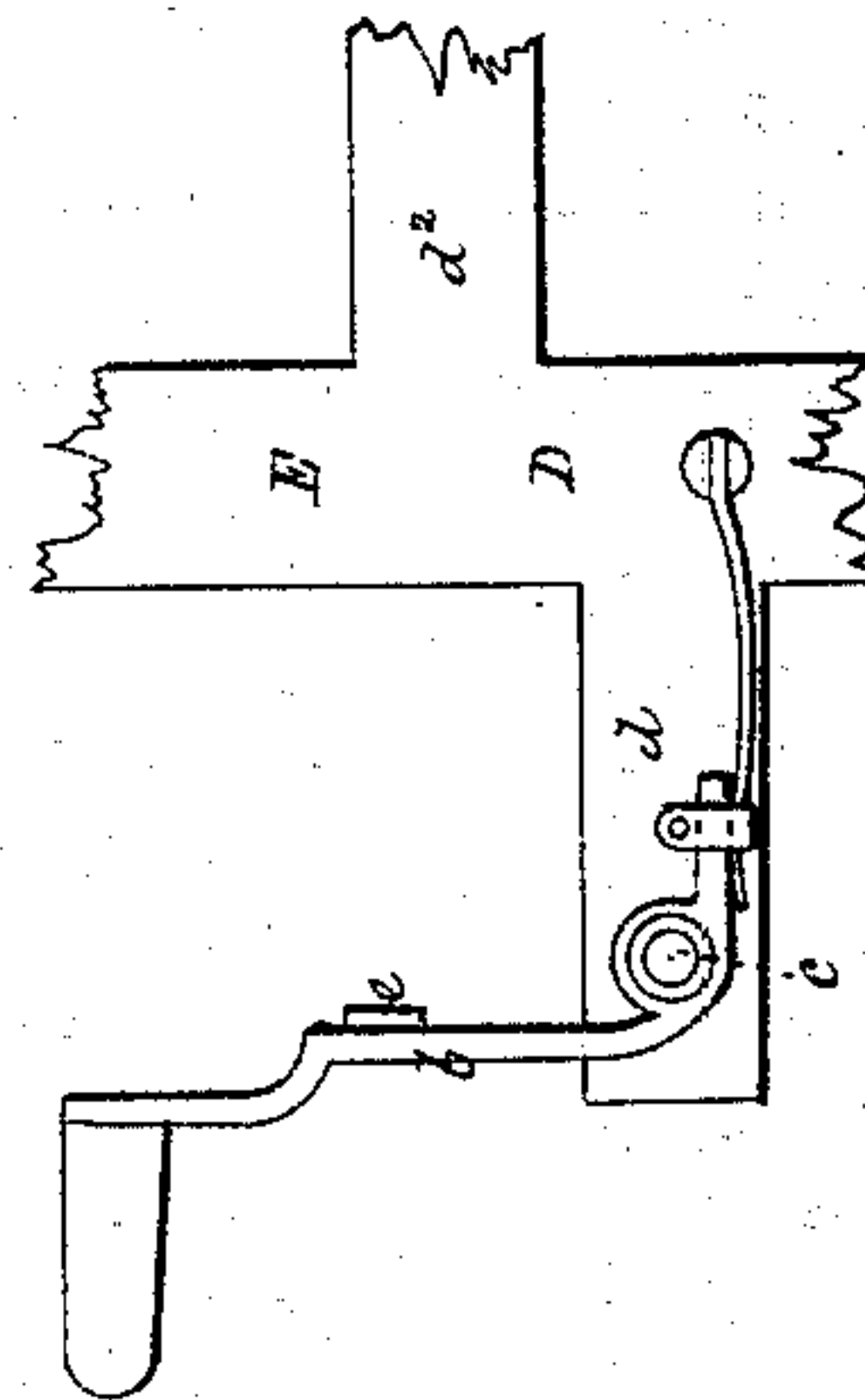
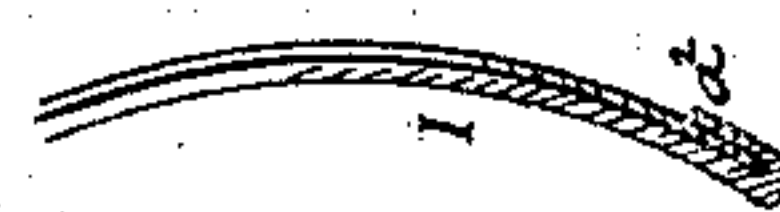


Fig. 6.

Enlarged.



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IMPROVEMENT IN ELECTRIC HOTEL-ANNUNCIATORS.

Specification forming part of Letters Patent No. **154,029**, dated August 11, 1874; application filed December 31, 1873.

To all whom it may concern:

Be it known that I, LOUIS FINGER, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Electro-Magnetic Annunciators, of which the following is a specification:

My invention relates to electro-magnetic annunciators of the kind shown and described in Letters Patent granted to me on the 27th of January, 1874, and may be considered as an improvement on the said patented invention.

My present invention relates especially to the arrangement of the character shield or plate, and its combination with the shaft by which, after being operated through by the electro-magnet, it may be brought back to its normal position; also, to the structure and arrangement of the escape and pallet movement through which the shield is operated by the movement of the armature.

The drawings accompanying this specification represent, in Figure 1, a front view, in Fig. 2 an end view, and in Fig. 3 a horizontal section, of an apparatus embodying my improvements. Fig. 4 is a plan, and Fig. 5 an elevation, of the armature and its mechanism, while Fig. 6 is a section of the character card or shield.

In these drawings, A represents a portion of the front of the case of an annunciator, to the rear of which a horizontal shelf, B, is secured, an aperture or window, C, being created in the front A, through which some one of the characters, to be hereinafter referred to, may be seen as it is exposed by the action of the electric current governed by the caller. In rear of the front A, and upon the shelf B, I erect a suitable frame, D, composed of two upright standards, E E', and within the upper part of this frame I mount a horizontal shaft, F, provided at one end with a crank, G, for readily returning the characters to their normal position, a spiral spring, H, being coiled about the shaft, and attached to it and the frame in such manner as to impel the shaft in one direction, for purposes hereinafter explained. I represents a curved or semi-cylindrical shield or card, composed of a thin, flat band, formed into the

segment of a circle, of which the shaft F is the axis, this shield being mounted upon the shaft by suitable arms J J and a hub, J', in such manner as to turn freely upon it in the arc of a circle. Upon the outer periphery of the shield I, I inscribe, engrave, or otherwise affix a series of words or characters, designating the person or article wanted, such as waiter, matches, cigars, water, &c., these characters being placed horizontally upon the shield, and so as to intercept or coincide with the window C, the size of the latter being such that but one character is at a time visible through it. A weighted arm or lever, K, projects rearward from the shaft F, and serves to about counterbalance the weight of the shield I, in order that very little power is necessary to attract the armature and release the pin from the escape-wheel. To the rear side of the shield I I affix a rib, L, and to one side of this rib I affix two series, *a a'*, of horizontal pins, *b' b'*, &c., which extend laterally from the rib, the two rows of pins being placed a short distance apart, and the pin of each row being equidistant from one another, while the disposition of the entire number is such that each pin of one series is equidistant between the two opposite pins of the other series, as shown in Fig. 2 of the drawings, the rib and pins thus arranged constituting practically an escape-wheel, which is governed by a pallet making part of the armature of the magnet. This armature is composed of an upright bar, *b*, pivoted at bottom to a horizontal fulcrum, *c*, extending toward the shield from a lateral shelf or extension, *d*, of the standard E', a horizontal bar or plate, *e*, being attached to or making part of the bar *b*, and being disposed opposite the ends of an electro-magnet, *f*, which is disposed in rear of the shield I and supported by the frame D. The upper extremity of the armature-bar *b* terminates in a lateral horizontal spur or pallet, *g*, which intercepts some one of the pins *b'* of the escape-wheel, the fulcrum of the armature being preferably so disposed with respect to the two series of pins that the pallet shall naturally stand between them, the extent of movement of the armature in one direction being estopped by the magnet which attracts

it, and in the other direction by a suitable stop, *h*, against which it abuts by its own gravity.

One wire, *i*, of the magnet extends to a suitable electrical battery, and the other to the room *j*, from which the call is to be made, a suitable blank wire connecting the room-wire with the battery-wire, by which the electric current with the battery is closed or opened at the will of the caller, while a knob or button is attached to the end of the wire within the room, by which connection with the battery is established.

When a call is made the shield *I* drops to a greater or less extent, and to return it to its legitimate position *I* attach to the shaft *F* a pin, *k*, which operates in connection with a second pin, *l*, affixed to one of the arms of the shield, as shown in Fig. 3 of the drawings, the spring *H*, hereinbefore named, serving to return the shaft and its crank to their original positions and out of the way of the pin *l*, in order that the shield may be free to drop.

A series of instruments or devices, as above explained, is to be placed within the case of the annunciator, corresponding in number with the number of apartments with which communication is to be established, and all the shields or indicators of one row (as there may be several rows) are to be actuated by one shaft and crank, in order that any given shield, after falling and indicating the want of the caller, may be set back by such crank. When the shield or character card *I* stands at its highest position, the lowermost pin of the series rests upon the top of the pallet *g*, and the lowermost character upon the face of the shield is above the window *C* and not visible through it.

Within each apartment, and immediately adjacent to the wire knob, *I* place a card giving the proper directions for effecting the call—that is to say, directing the caller to press the knob once when he desires waiter, two when he desires cigars, three for coach, &c.; and the characters upon the shield are to be arranged in the order, beginning at the bottom, with the instructions within each apartment.

If two or more rows of instruments are employed, the cranks of each series are to be mounted upon one shaft, or connected in a suitable manner, so that the register or display card of any instrument may be set back by one crank.

The operation of my apparatus, as above explained, is as follows, it being supposed that the shield is at its highest point, as last stated, the armature away from and unobstructed by the magnet, and the electrical circuit with the battery open: A caller desiring a waiter, for instance, places his thumb or finger upon the knob, and by pressing upon it establishes communication with the battery and closes electrical circuit with the mag-

net, which attracts the armature and removes the pallet *g* from below the pin *b*, which rests upon it, and moves such pallet inward below the next succeeding pin in the opposite series, where it remains until the pressure upon the knob is removed, when the pallet returns to its original position by the opening of the circuit, and allows the shield to drop a distance sufficient to bring the word "waiter" in front of the window *C*, and thus indicates to the attendant in the office the want of the caller, each window, of course, being numbered to correspond with the number of the room connected with it.

If cigars, or article No. 2, whatever it may be, is wanted, the caller presses the knob twice, which effects a second pulsation of the armature, and repeats the closing and opening of the electrical circuit, and brings the second character in view through the window, and so on throughout the series of characters.

One battery, which may be maintained at trifling expense, will suffice to operate a large number of instruments, as the only labor the magnet has to perform is to release the pallet from one of the pins of the escape-wheel. As the shield is very light and is nearly counter-balanced, the power required to release the pallet is very slight.

My present device may be operated by the ball descending from one to the other of a series of inclined tilting steps, as shown in my Letters Patent hereinbefore referred to.

A modification of this mode of signaling would be to employ a number of stops and branch wires equal to the number of articles designated on the register, and a register-card so placed or combined with the stops that each of the latter shall have a name to which it belongs—that is, one stop to water, another to matches, &c., so that a person desiring a given article shall press the knob corresponding to such article. In this way but one pressure of the knob would be necessary to call for any given article on the register.

In lieu of a shield composed of a cylinder or portion of a cylinder turning upon a horizontal axis, as herein shown, the register may be affixed to a flat rotary disk having the articles arranged in radial lines about it.

The sheet of paper upon which the register or list of articles is pivoted or inscribed is secured to the shield at each end by turning down upon it the extremity of the shield, as shown in Fig. 6 of the drawings at *a*², which constitutes a cheap and perfectly secure attachment.

I claim—

1. The combination of the rotating character shield or plate, or a series of such shields, with a single shaft, which at once constitutes the axis of said shield or series of shields, and the means whereby the said shield or shields, after having been actuated by the

electro-magnetic apparatus, may be returned to its or their normal position, as shown and set forth.

2. The rotating shield or character plate, and escape-pins projecting laterally from said plate, in combination with the magnet, armature, and pallet carried by said armature, constructed and arranged for joint operation, as shown and set forth.

3. The combination of shaft F, register I, pins *k* and *l*, or their mechanical equivalent, and spring H, arranged for joint operation, as shown and set forth.

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Witnesses:

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