

E. A. HILL.

Improvement in Hotel-Annunciators and Fire-Alarms.

No. 114,007.

Patented April 25, 1871.

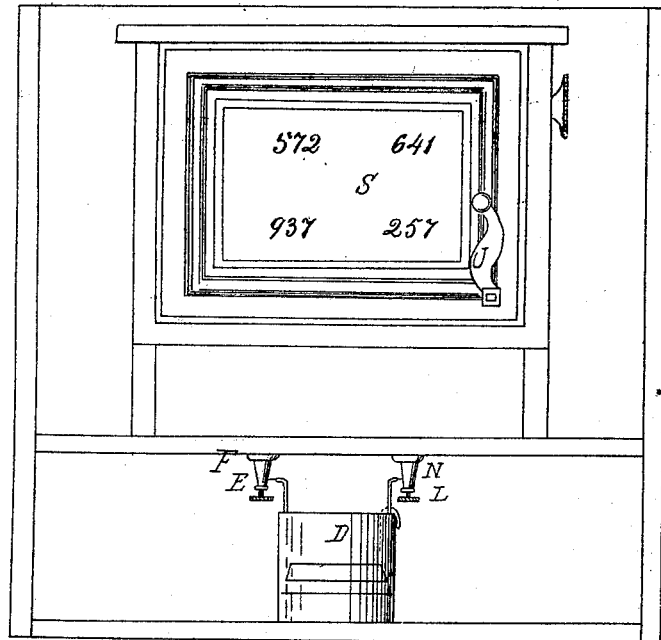


Fig. 1.

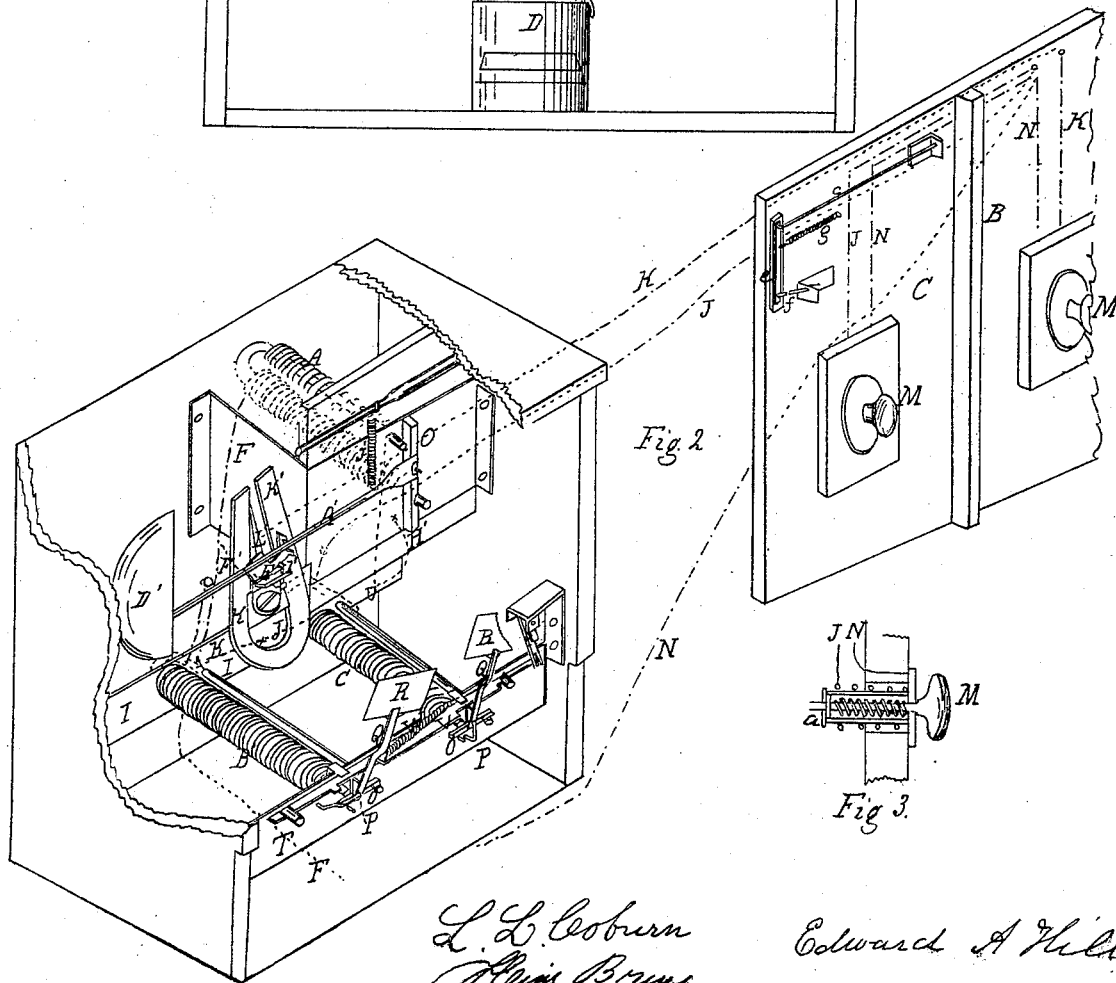


Fig. 2.

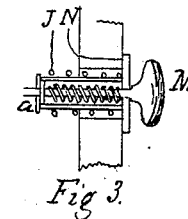


Fig. 3.

L. L. Coburn
Plat. Bruns.

Edward A. Hill.

UNITED STATES PATENT OFFICE.

EDWARD A. HILL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HOTEL-ANNUNCIATORS AND FIRE-ALARMS.

Specification forming part of Letters Patent No. 114,007, dated April 25, 1871.

To all whom it may concern :

Be it known that I, EDWARD A. HILL, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improved Hotel-Annunciator and Fire-Alarm; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the following drawing and the letters and figures marked thereon, which form a part of this specification, in which—

Figure 1 represents a front elevation of my annunciator; Fig. 2, a perspective view, showing the construction of the annunciator and the manner in which it is connected with the interior of rooms in the hotel; and Fig. 3, a sectional view of the knob and its attachments used for closing the circuit in each room.

The nature of my invention consists in the construction and operation of the mechanism hereafter described, by which the curtain or blind is moved to indicate the numbers on the dial of the annunciator designating the room the signal is given from. And it also consists in the combination of the permanent magnet, and the wires connected with it, with the magnet A, so as to shunt said magnet, as hereafter described; and in the fire-alarm mechanism arranged in each room, so that, by the expansion produced by heat, a permanent circuit is formed, which gives a constant alarm, as hereafter described.

To enable those skilled in the art to understand how to manufacture and use my invention, I will proceed to describe the same with particularity.

The same letters of reference refer to the corresponding parts in the different figures.

In the annexed drawing, B and C represent a portion of the interior of two rooms and the annunciator, which is located in the office of the hotel, with three coil-magnets, one of which, A, is a general magnet connected with all the others, and the other two, B' and C', are special magnets to each room, B and C, and are connected directly by wires each with its particular room. I have as many special magnets as I have rooms, each magnet being

connected by a special wire with its particular room.

In the annexed drawing, B' is the special magnet for the room B, and C' for the room C. D is the galvanic battery, one pole of which is connected, through the thumb-screw E and wire F, to the coil-magnet A, that being what I call the general magnet, on account of being connected with all the special or room magnets. It is connected with the special or room magnets by the wire H', which connects it with the plate I, with which all of said magnets are connected, as hereafter described.

The magnet C' has one end of its wire J attached to the plate I, while the other end is connected with the knob M in the room C, and the wire K of the magnet B' has one end also attached to the plate I, while the other end is connected with the knob M in the room B.

There is also a wire, N, which is connected with one pole of the battery through the thumb-screw L, and is connected with the knob M in each of the rooms, so that, when the knob M is pulled, as hereafter described, the circuit is completed through that room and the annunciator.

There is a vibrating armature, O, pivoted in the center, and located between the poles of each coil-magnet in such a manner that when a circuit is closed through any one of the magnets its armature will be vibrated by the ends of the armature being drawn to the poles of the magnet.

To each of the armatures connected with the special or room magnets there is attached an arm or projection, P, which, when the armature is vibrated by the closing of the circuit, strikes against the vibrating arm Q, which supports the blind or curtain R, opposite the number on the dial S corresponding to the number of the room through which the circuit is closed.

The arms Q are so pivoted to the plate T that they will stand in a position to hold the blind R directly behind the numbers on the dial S till they are swung by the projections P, as above described, from behind the number to the position in Fig. 1.

The blinds or curtains are swung back into position by turning the crank U, which slides the piece V, the notches thereon vibrating the arms Q.

W is a spring for holding the piece V away from the operations of the arms Q only when moved by the crank U, as above described.

There is a bell-hammer, A', attached to the armature O of the general magnet A, so that when the armature is vibrated, as above described, it causes the hammer to strike the bell D' and give an alarm; and, as the general magnet A is connected with all the other magnets, whenever the circuit is completed through any of the special magnets it also passes through the general magnet A, and causes the bell to strike, so that the bell strikes and gives the alarm at the same time that the blind falls from behind the number on the dial indicating the number of the room in which the circuit was completed.

The hammer-handle A' passes through a notch in the vibrating arm E', and it is so arranged that just before the hammer strikes the bell the handle A' causes the arm E' to vibrate and close a circuit through the wires F' and H' and the points at I', which shunts the magnet A and relieves the attraction on the armature, when the spring J' raises the hammer.

The permanent magnet K' holds the point L', which is thrown against one of its arms by the vibration of the arm E' as the shunt-circuit is closed, and holds said circuit closed until the hammer-handle is raised nearly its full stroke, when it strikes the side of the notch in the vibrating arm E' and raises it, which opens the shunt-circuit, and the circuit is thrown through the magnet A again, and the strokes of the hammer are repeated so long as the circuit through the room is kept closed.

When there is no circuit closed through any of the rooms the spring J' raises the hammer, and the point or armature L' is held by the permanent magnet, so that the shunt-circuit is held open till the current has passed through the magnet A and caused a stroke of the hammer, as above described.

The shunt above described also serves the additional purpose of increasing the strength of the circuit through the special magnet of the room in which the circuit is closed. When the circuit is first closed it passes through the magnet A, as above described, being weakened by the resistance of that magnet. As soon, however, as the circuit through the shunt is closed, the resistance of the magnet A is avoided, and the force of the circuit in the special magnet correspondingly increased, so that if at first the current is not strong enough to vibrate the armature of the special magnet and tilt the blind or curtain, as above described, the increased force will always effect it.

The circuit is closed in the room by pulling the knob M and bringing the pin a, which is connected with the wire N through the spindle of the knob, in contact with the wire J. When the knob M is released it is thrown back in place by the coil-spring b. c is a wire or rod, one end of which is connected with the wire N, and the other end with the bar e. This rod is made of metal, which expands when heated, and is so connected with the bar e that it holds the points at f apart till it expands, and when it expands the spring g draws the points together and closes the circuit.

If the room becomes sufficiently hot to expand the wire c, and the wire can be so constructed as to expand and close the circuit at any desired increased temperature, the circuit is permanently closed and a constant alarm is given at the office by the striking of the bell D', as above described.

A single signal is given by the occupant of a room by pulling the knob M and releasing it; but, in case of a fire in a room sufficiently hot to expand the wire c, the circuit is permanently closed and a continuous signal given.

The dial S of my annunciator is an ordinary glass, covered on the inside with an opaque substance, such as paint or paper, excepting the outlines of the figures indicating the numbers of the various rooms, they being made in the opaque substance and seen through the glass, the blinds behind the figures being of the color of the opaque covering of the glass, and the figures to be obscure till the blinds are tilted, as above described. This is a cheap, simple way of constructing the dial, and causes the number of the room from which the signal is given to be shown very distinctly.

By pivoting the armatures O they can be vibrated, as above described, without overcoming a weight or the force of a spring, which has heretofore been objectionable on account of the electric force required to move the armature.

Having thus fully described the construction and operation of my hotel-annunciator, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the pivoted armatures O and tilting blinds or curtains R, when constructed and operating in an annunciator, substantially as and for the purposes specified.

2. The combination of the magnet A and shunt with the special magnets B' C' when so constructed and arranged that the electric current passes alternately through the magnet and shunt automatically, for the purpose of strengthening the currents to the magnets B' C' when the magnet A is shunted.

3. The permanent magnet K', in combination with the shunt-circuit and the alarm-bell, when constructed and operating substantially as and for the purposes specified.

4. The combination of the permanent magnet K', the vibrating arms L', E', and A', when constructed and arranged substantially as described, for the purposes of opening and closing the circuit of the shunt.

5. The dial S, provided with transparent figures, in combination with the shifting blind, as and for the purpose described.

6. The combination of an electro-magnetic

annunciator and fire-alarm, when said fire-alarm is so constructed and arranged that the action of the heat closes the same circuit used by the annunciator, substantially as specified.

EDWARD A. HILL.

Witnesses:

L. L. COBURN,
J. L. COBURN.