

R. M. BILLINGS.
Burglar and House-Alarms.

No. 146,641.

Patented Jan. 20, 1874.

Fig. 1.

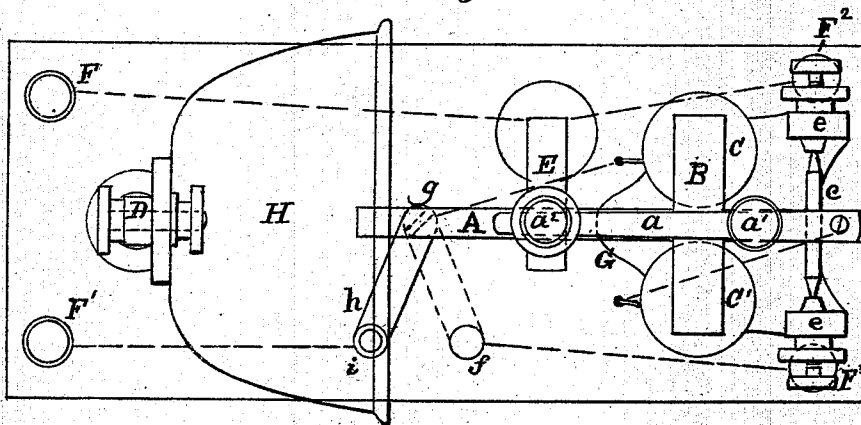
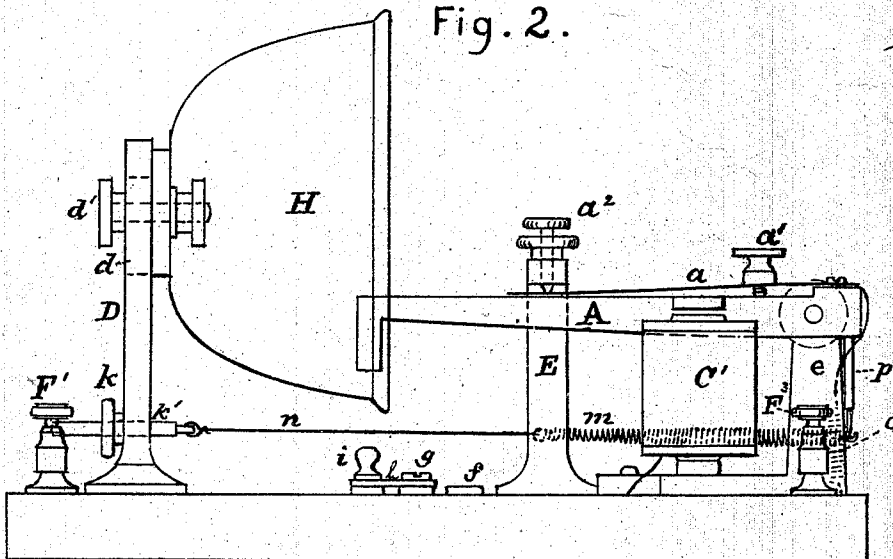


Fig. 2.



Witnesses:

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Inventor:

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Fig 3

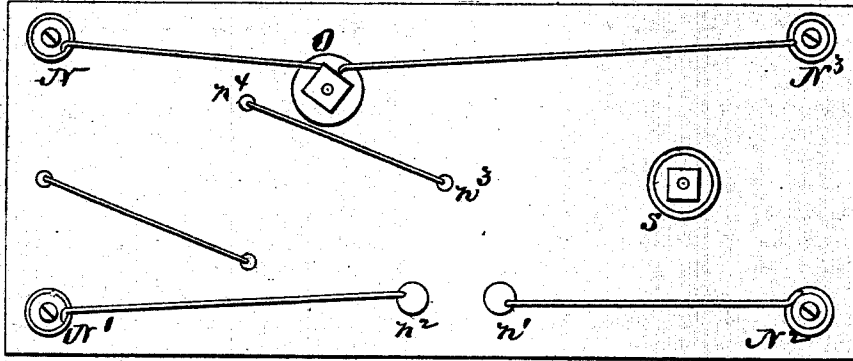


Fig 4

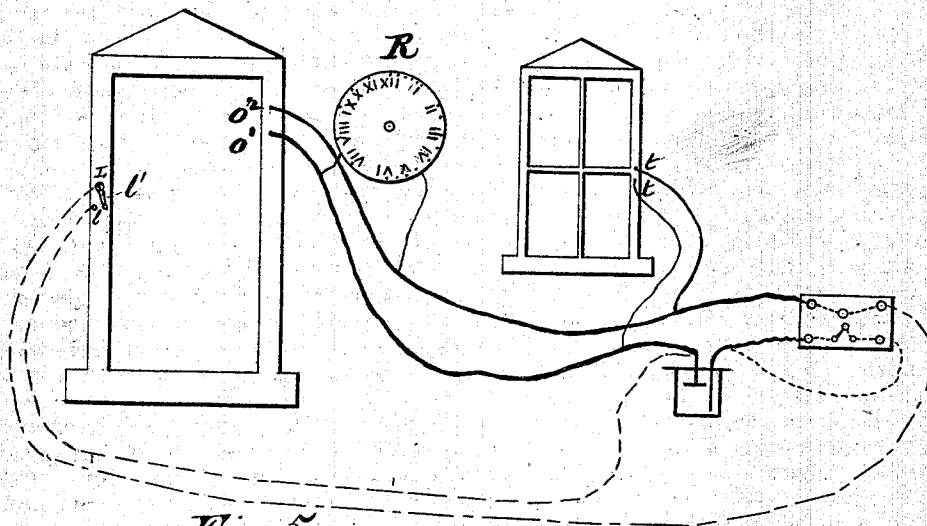
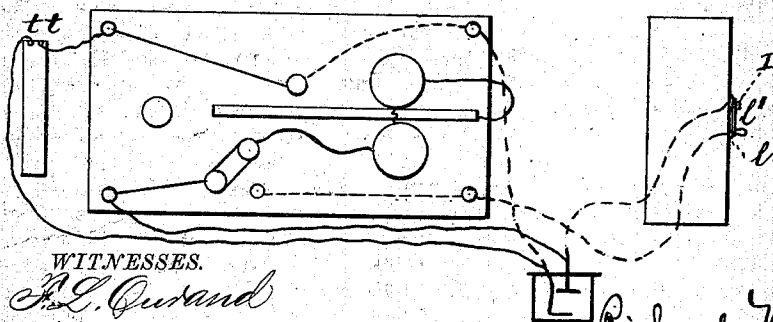


Fig 5



WITNESSES.

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UNITED STATES PATENT OFFICE.

RICHARD M. BILLINGS, OF TOWANDA, PENNSYLVANIA.

IMPROVEMENT IN BURGLAR AND HOUSE ALARMS.

Specification forming part of Letters Patent No. **146,641**, dated January 20, 1874; application filed June 27, 1873.

To all whom it may concern:

Be it known that I, RICHARD M. BILLINGS, of Towanda, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Electric Alarms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

The nature of my invention consists in the construction of an improved direct-acting electric alarm, worked with a horizontal lever in a glass gong, the spring on the armature-lever and the glass gong being both adjustable for the purpose of regulating the stroke of the lever in the gong. My invention also consists in combining, with a single battery and alarm apparatus, circuit and circuit-closing devices for a burglar-alarm at night, and circuit and circuit-closing devices for a day-bell or door-alarm, and a switch for throwing one system in and the other out of connection with the battery and alarm. It also consists in connecting the wires to a clock in the room, the face of said clock being perforated, within any one of which perforations is placed a movable pin, so that as the hour-hand comes in contact therewith the circuit is closed, and the alarm caused to sound, all as more fully hereinafter set forth. My alarm is worked on an open circuit.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 represents a plan view of my electric alarm. Fig. 2 represents a side elevation of the same. Fig. 3 represents a bottom view of the bed-plate of the alarm, showing the connections of the wires. Fig. 4 represents a view showing the connections to the door, window, clock, and alarm. Fig. 5 represents a circuit diagram of the wires and their connections with the bed-plate of the alarm.

A is a horizontal lever, made of wood or metal, which is used to strike within a gong, H. This gong I prefer to make of glass. The

lever A is hung upon the journal or shaft c, said shaft being supported between two standards, and said standards are a part of and attached to the base G, which base also supports electro-magnets C C'. The gong H is hung on the post D, and is secured to the same by means of adjusting-screws. The slot d in the post D admits of said gong being raised or lowered on said post, so as to regulate the stroke of the lever A. The gong is constructed in concave form, and is so hung on the post D as to be secured to the same firmly by means of said adjustable screws and a bolt, the bolt passing through the glass gong and said post D, and an adjustable screw at each end of said bolt. B is an armature screwed on the top of the lever A at right angles thereto, and directly over the electro-magnets C C'. a is a flat spring on the lever A, and secured to the same by a screw at the end of said lever. E is an angular standard arranged on the base G so as to come over the lever A, and at such distance above it as to allow the adjustable set-screw a² to go through the same and reach the spring a. a¹ is also a screw on said spring, which passes through the spring and into the lever A. Under the head of this screw a¹ is a rubber washer, or any other elastic substance, of any thickness required. By means of said adjustable screws a¹ and a², the length of the stroke of said lever A can be regulated as desired. m is a spiral spring, and n is a cord or wire, which are attached to each other. The cord or wire n is also attached to a screw-bolt, k, which passes through the post D, and on the end of which is a nut, k, for adjusting the upward throw of the lever A. p is an arm projecting downward from the rear end of the lever A, and is provided with a hook at its end, to which is connected the spring m on the wire or cord n. o is a conducting-wire, which passes through the platform of the instrument, and is attached to the end of the lever A, at or near the shaft c. F F¹ F² F³ are four binding-posts, erected at the four corners of the platform of the instrument. i and f are connecting-points, and g pivot for the switch h. This switch is allowed to turn backward and forward on the connecting-points i and f, by means of which the circuit can be changed. The object of this two-pointed switch is to not

only disconnect the alarm from electrical connection with the doors and windows during the day, but also to make use of the alarm for a door-bell by turning the switch upon the other point. Fig. 3 is a bottom view of said instrument, and N N^1 N^2 N^3 represent the bottom of the four binding-posts F F^1 F^2 F^3 . O is the bottom of the standard E , and n^1 , n^2 , and n^3 the bottoms of the connecting-points i g f , and n^4 is the bottom of wire of coil C . o^1 and o^2 are connecting-points, so placed on the contact-plate of the door-frame that, when the door is shut, it will come against said connecting-points. A spring is screwed to the door-frame, and extends up to and against the point o^2 . When the door is closed, the spring is pressed down and entirely disconnected from the point o^2 , thus breaking the circuit; but the moment the door is opened in the least, so as to relieve the pressure on the spring, it will immediately come in contact with the point o^2 , and thus complete the circuit, and cause the armature-lever to strike in the glass gong till the door is closed. t and t are connecting-points on the inside of a window-frame. On the inside of the window-sash, on the same side of the window, is a piece of metal screwed to said sash, extending from the bottom of the frame up to and so nearly against the connecting-points t and t that, when the window is raised in the slightest, the said metal strip will come at once in contact with said connecting-points, and cause the gong to strike till the window is lowered, and in case any window is left up, or door open, as soon as the points are connected the gong will strike the alarm, and continue until the door or windows are closed.

My clock attachment is made by attaching a small wire to the brass or iron frame which holds the works of the clock in place. I next connect a wire to the dial of the clock, which is made of zinc or other material which is a good conductor of electricity. Small holes, about the size of a pin, are punched in the dial around in the circle described by the hands.

To set the alarm, all that is necessary is to stick a small metal plug (made of copper wire) into any of the small holes in the dial. The peg is made short, so that the minute-hand shall pass over it without touching it; but when the hour-hand, which is nearer the face of the clock, comes around, it strikes the peg, and thus closes or completes the electric circuit, which before had remained broken, and

sounds the alarm, which will continue until the pin is taken out, or until the switch is turned on the alarm-stand. L and l are connecting-points attached to the battery, and, as shown in Fig. 4, are applicable on the outer frame of the door for use with the door-bell handle. V is a door-bell crank or handle, which is arranged as a switch by means of being hung at one end on a pivot at the connecting-point L , and when the other end, or the end of the knob of said handle, is brought onto l , (the other connecting-point,) the circuit is then complete, and the alarm will strike until the knob is removed from l .

As heretofore stated, the said instrument is attached to a battery by means of two wires at any two of said binding-posts, which, together with the other posts, standard, and armature-lever, are made of cast-steel or brass, or other conductible material. The arm h , or rather switch, can be left off of either connecting-points i and f , so that the alarm will not strike at all.

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

1. The combination, in an electric alarm, of a gong adjustable upon a vertical standard, and a horizontal and adjustable lever for striking the gong, all substantially as and for the purposes herein set forth.

2. The combination, with a single battery and alarm apparatus, of a circuit and circuit-closing devices for a burglar-alarm, and a circuit and circuit-closing devices for a day or door alarm, and a switch for throwing one system in and the other out of connection with the battery and alarm, substantially as and for the purposes herein set forth.

3. The combination, with an electric alarm, of a clock connected to said alarm by wires, and provided with perforations on its face, within which a pin is inserted, and against which pin one of the clock-hands comes in contact, and thereby closes the circuit and causes the electric gong to sound, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of June, 1873.

RICHARD M. BILLINGS.

Witnesses:

GEO. A. KING,

H. G. MCGONEGAL.