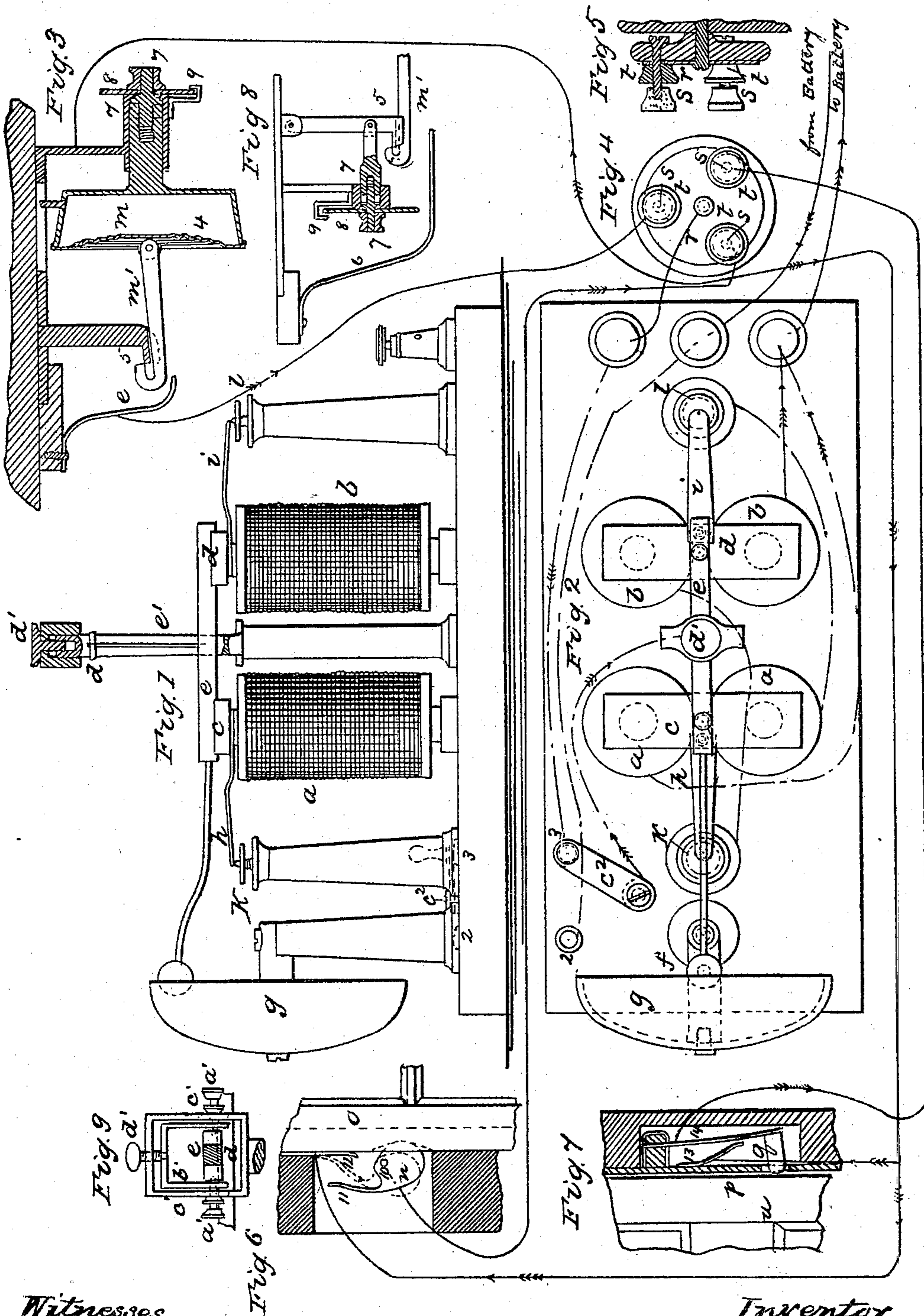


J. H. GUEST.
Fire and Burglar Alarm.

No. 79,973.

Patented July 14, 1868.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN H. GUEST, OF BROOKLYN, NEW YORK.

IMPROVED ELECTRO-MAGNETIC BURGLAR AND FIRE ALARM.

Specification forming part of Letters Patent No. 79,973, dated July 14, 1868.

To all whom it may concern:

Be it known that I, JOHN H. GUEST, of Brooklyn, in the county of Kings and State of New York, have invented and made a certain new and useful Improvement in Fire and Burglar Alarms; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is an elevation of the magnets and bell. Fig. 2 is a plan of the same. Fig. 3 is a section of the thermal circuit-closer. Fig. 4 is an elevation, and Fig. 5 a section, of the designating and disconnecting apparatus. Fig. 6 is a section of the circuit-closer that is connected with a window, to close the circuit when said window is opened. Fig. 7 is a section of the circuit-closer that is employed with a door or other swinging article.

Similar marks of reference denote the same parts.

This apparatus is arranged upon the generally-known plan of giving an alarm by a bell whenever the circuit of a galvanic battery is closed by the movement of any device that should remain stationary, thus giving an alarm and indicating that some portion of the apparatus is not in a normal condition.

I will first describe my alarm-bell, which consists in two magnets, *a* and *b*, with two armatures, *c* and *d*, on one lever, *e*, that is hung to oscillate, and is connected with the hammer *f* that strikes the bell *g*. *h* and *i* are springs to the adjustable circuit-closers *k* and *l*.

By reference to the lines in Fig. 2, indicating the wires of the electrical circuit, it will be seen that when the electricity passes through the helix of the magnet *a* the attraction of its armature will separate *i* and *l* and break the circuit to itself, and at the same time close *h* and *k*, and cause the magnet *b* to attract its armature *d*, and thereby reverse the circuits, and this is done with the utmost rapidity, causing the hammer to strike the bell, and that without depending on springs to produce the reverse movement, as heretofore.

The lever *e* is suspended either by a spring, *e'*, as shown in Fig. 1, from the screw *d'*, by which the position of the armatures is adjusted, or said lever *e* may be centered by screws *a'* in a yoke, *b'*, that is adjusted vertically by the screw *d'*, and the centering-screws *a'*, passing

through slots in the frame *c'*, prevent lateral motion, so that the armatures are free to vibrate, but cannot easily become displaced. Fig. 9 represents this variation in the mode of hanging the armatures.

The switch *c'*, when standing between the studs 2 and 3, causes the whole apparatus to be inoperative. When upon the stud 2 the apparatus is in position for use when either of the alarm circuit-closers are brought into action, and by turning the switch to the stud 3 the bell may be rung to test the battery, to see if it is in order, without actually examining the same.

The thermal circuit-closer, Fig. 3, consists of an air-tight box, *m*, that is formed with an expanding head, 4, of thin metal, corrugated concentrically, and near the center of this is hinged the circuit-closer *m'*, that, in a normal condition, is sustained by the hook 5, but when the air in the box *m* expands by the temperature of the apartment in which it is applied, rising beyond a certain point, the head 4, being pressed outwardly in its center, causes the closer *m'* to unlatch, and it drops upon the arm 6, to which one wire of the circuit is connected, while the other is connected to the box *m*, thus closing the circuit and ringing the bell.

In Fig. 3 I have shown the box *m* and arm *m'* movable, so that they may be adjusted by a screw, 7, to any desired point, so that the alarm will be given at a definite temperature, and 8 is a dial upon which figures may be marked to indicate at a fixed pointer, 9, the degree of heat at which the apparatus will become operative.

In Fig. 8 I have shown the screw 7, dial 8, and pointer 9, as applied to the hook 5, to adjust that instead of the box *m*.

The circuit-closer, which becomes a temperature or fire alarm, is to be located in any desired part of a building. It is preferable that the same be attached to the ceiling, as being in a position to be most likely to operate by changes of temperature.

The circuit-closer for a window, Fig. 6, is made of a hanging pendulum, *n*, upon a fulcrum, 10, to which one wire of the battery is applied. The upper end, 11, of this pendulum is a spring, and when the window-sash *o* is in its normal or closed position the pendulum *n* hangs freely in a notch in the side of the sash;

but as soon as the sash is raised the pendulum *n* is moved, and the spring 11 comes into contact with the block 12, to which the other wire of the battery is connected, and thereby the circuit is closed and the alarm given.

The device for acting with a door or other swinging article, Fig. 7, consists in a plate, *p*, to which the spring 13 is attached, and also one the wires of the battery.

14 is a second spring insulated from the plate *p*, but, for convenience, connected thereupon, and to this the other battery-wire is connected.

The door *w*, acting against the pusher *q* upon the spring 14, separates the springs 14 and 13 when the door is closed; but when it is opened the two springs come together and close the circuit.

The designating and disconnecting apparatus (shown in Figs. 4 and 5) consists in a plate, *r*, to which one of the battery-wires is connected. Through this plate there are as many holes as there are points to be designated by the connections of the battery, such as "fire," "window," "door," or other sub-designations, and in each of these holes is placed a screw-stud, *s*, that is insulated from said plate by being smaller than the hole, so as not to touch it, and said stud receives its support from the wooden or other non-conducting base of the plate *r*.

A wire from the different points to be designated leads to the different studs *s*, and on each stud is a nut *t*, and the button-head of the stud may be appropriately engraved or marked with the name required.

All the nuts *t* should be kept screwed upon the plate *r*. If the alarm-bell rings, the attendant unscrews first one nut, *t*, and then another, until he arrives at the particular circuit that

has been closed and is operative, which he knows by the separation of *t* and *r*, stopping the bell by breaking that particular circuit, and thus it is known what part of the premises requires attention.

In place of a metal air-box the corrugated disk forming the circuit-closer might be set in a wooden rim, and act by its expansion as the thermal circuit-closer.

What I claim, and desire to secure by Letters Patent, is—

1. A pair of magnets and armatures arranged and acting in the manner specified, in combination with a hammer and bell, the former being attached to the lever of the armature, for the purposes, and as set forth.

2. An expansive corrugated disk and hinged arm forming a thermal circuit-closer, substantially as set forth.

3. The adjusting-screw 7, in combination with the thermal circuit-closer, as and for the purposes set forth.

4. The pendulum and spring, in combination with the circuit-wires and notched sash or slide to close the circuit, as specified.

5. The two springs 13 14, connected with the circuit-wires, in combination with the pusher *q*, for the purposes, and as set forth.

6. The plate *r*, screw-studs *s*, and nuts *t*, constructed substantially as specified, in combination with the circuit-wires, to form a designating or disconnecting apparatus in a fire or burglar alarm, substantially as set forth.

In witness whereof I have hereunto set my signature this 28th day of March A. D. 1868.

J. H. GUEST.

Witnesses:

CHAS. H. SMITH,
GEO. D. WALKER.