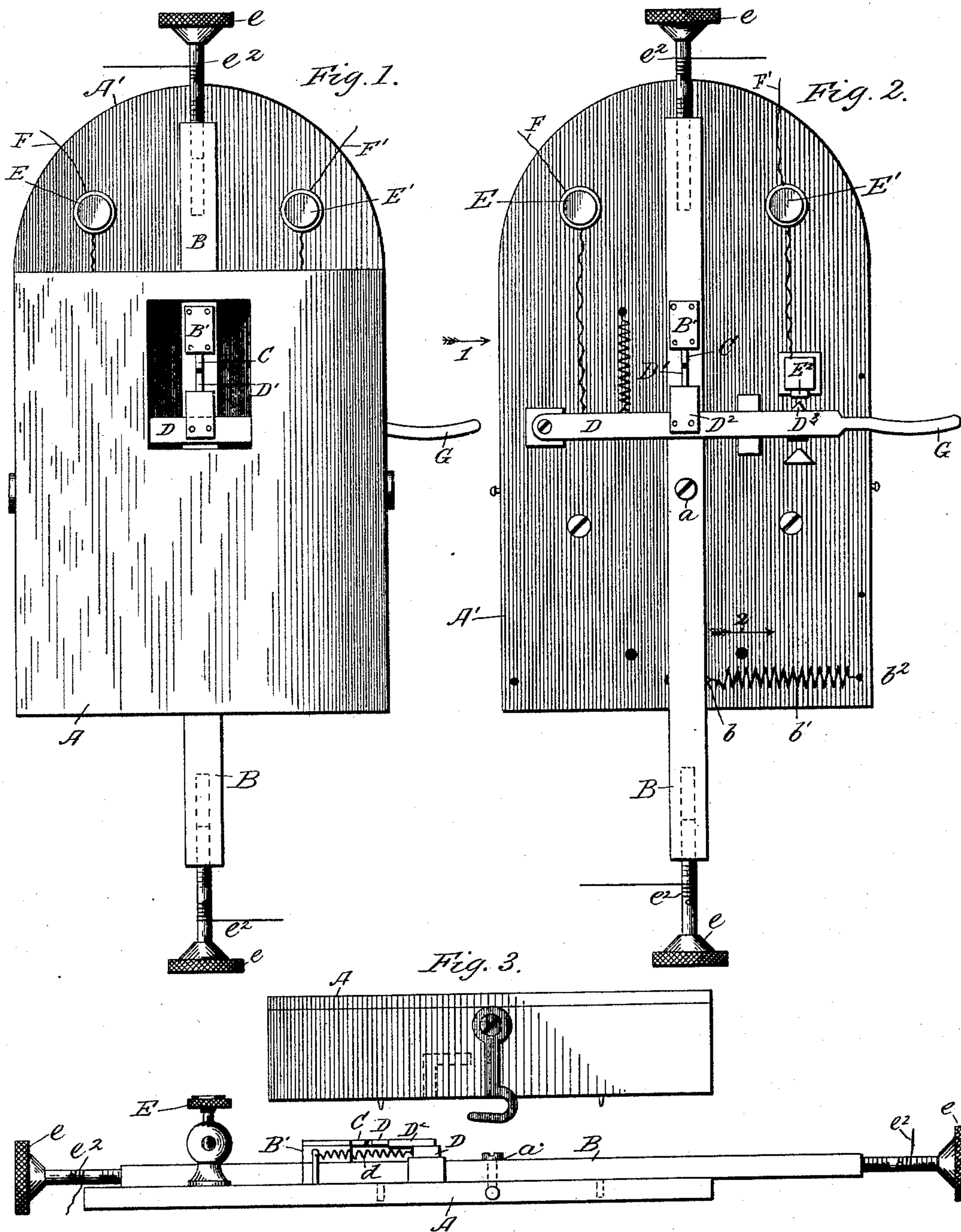


N. M. HOPKINS.
BURGLAR ALARM CONTACT.

No. 483,844.

Patented Oct. 4, 1892.



Witnesses:

Tom R. Stuart.

Alex. Scott

Inventor:

Nevil M. Hopkins,

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Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

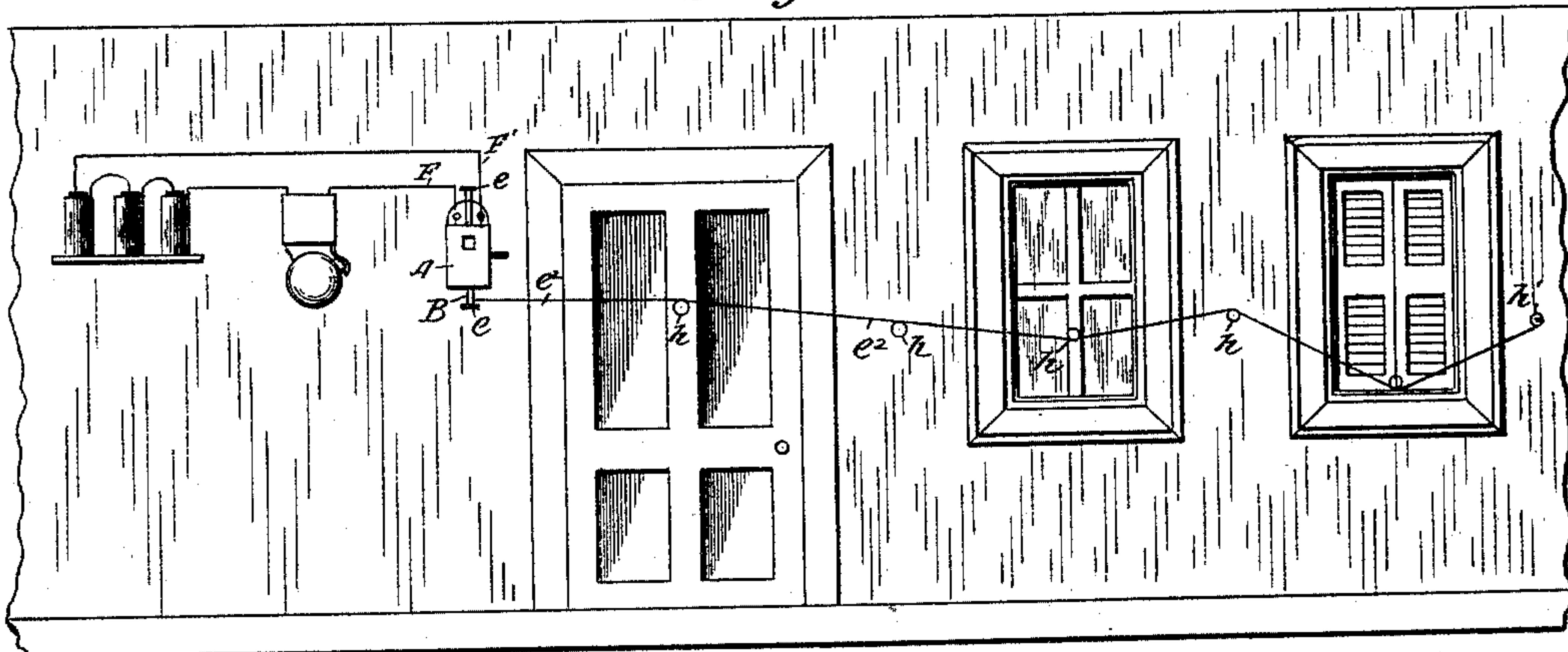
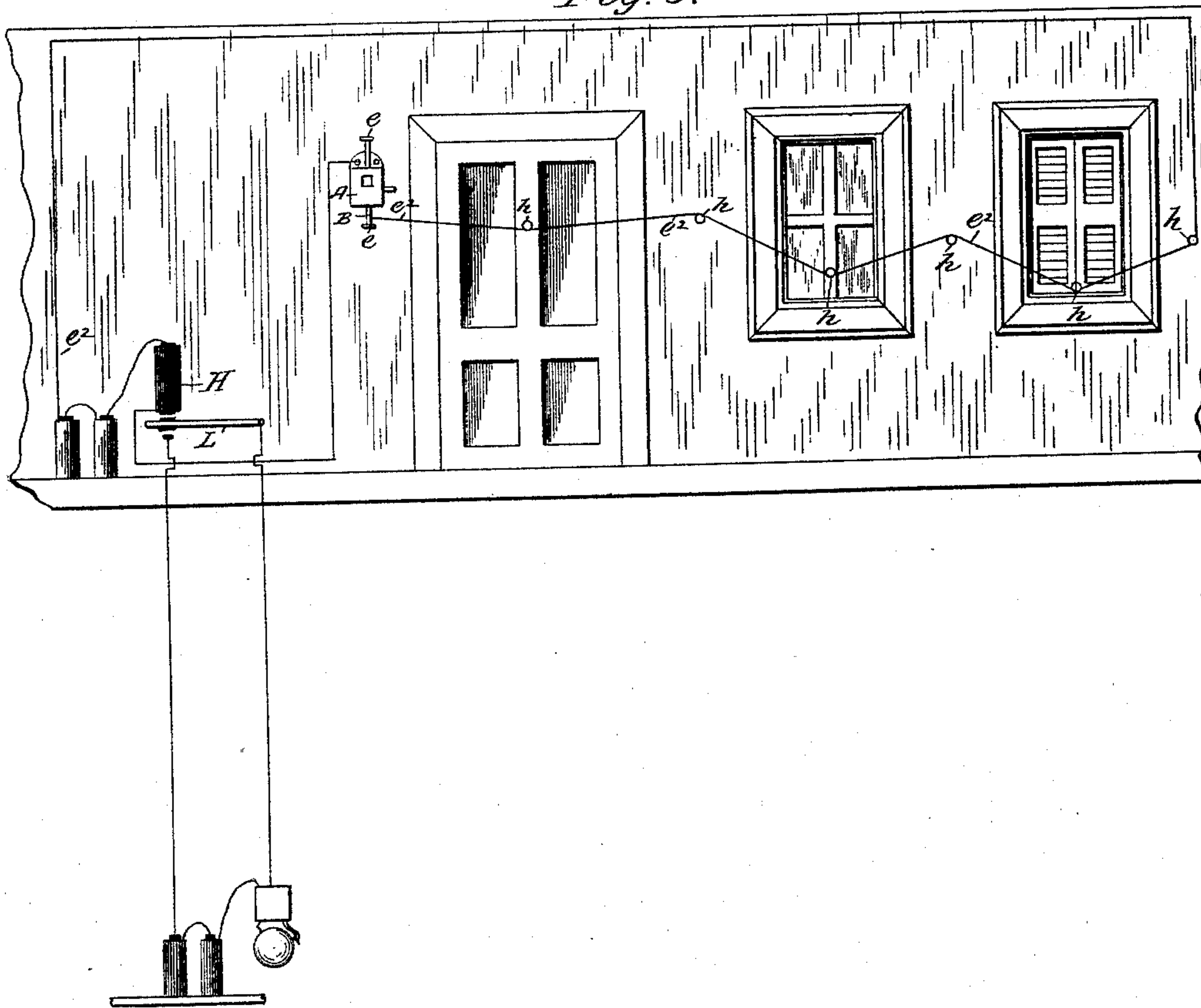


Fig. 5.



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UNITED STATES PATENT OFFICE.

NEVIL MONROE HOPKINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

BURGLAR-ALARM CONTACT.

SPECIFICATION forming part of Letters Patent No. 483,844, dated October 4, 1892.

Application filed May 9, 1892. Serial No. 432,394. (No model.)

To all whom it may concern:

Be it known that I, NEVIL MONROE HOPKINS, a citizen of the United States, residing at Washington, District of Columbia, have invented a new and useful Burglar-Alarm Contact, of which the following is a specification.

My invention relates to that class of electrical devices which are used for the protection of dwelling or other houses against burglars, and is adapted to act automatically to close the line-circuit for giving in an alarm at the main or central station or through a bell or other alarm in the house, and wherein the local circuit is normally closed to hold the main or line circuit open.

My invention consists, first, in the combination, with an alarm-circuit, of a tension device and a trip mechanism to hold the main or line circuit open; secondly, in the combination of a lever or rod forming a part of the local circuit and a trip mechanism yieldingly held in contact, whereby the main or line circuit is normally held open, and upon the yielding or moving of said lever or rod out of its set position the local circuit will be broken and the line-circuit closed; thirdly, in a novel manner of mounting and actuating the lever or rod and the trip mechanism, whose normal tendency is to act to close the line-circuit, so that a normally-closed local circuit or a line or cord held in contact with the windows or doors to be protected will act to hold said lever or rod and said trip mechanism in position to hold said main-line circuit open until the tension of the wire of said local circuit or the tension of the line or cord is increased or decreased, either by deflection or rupture of the same, when the circuit through the main line will be at once closed through the alarm, and, fourthly, in certain novel features of arrangement and construction of the parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of my improved device; Fig. 2, a similar view, the casing being removed to expose the underlying parts; Fig. 3, a side or edge view with the casing raised, looking in the direction indicated by the arrow marked with the numeral 1, Fig. 2. Fig. 4 shows the

practical application of my device to the protection of the windows and doors of a house and adapted to give an alarm in the house, and Fig. 5 shows a similar application, but adapted to give the alarm at a central station.

Similar letters refer to similar parts throughout the several views.

The case or box A, in which the parts of the device are mounted, may be of any preferred form having a plate or back wall A' of any suitable non-conducting material. To the plate A' a metallic lever or rod is pivoted centrally of its length, as at *a*, and extends outwardly both above and below beyond the box or casing, and is formed at each end with a screw-threaded opening extending longitudinally into said lever or rod for the reception of brass thumb-screws *e*, for a purpose which will be described hereinafter. Near one end the lever or rod B is provided with a pin or an eye *b*, to which one end of a spiral spring *b'* is connected, the other end of said spring being secured to an eye or pin *b*², secured to the back plate A', the tendency of the spring being to draw the lever out of a perpendicular line and in the direction of the arrow marked with the numeral 2 in Fig. 2.

The lever B has secured thereto or formed integral therewith a lug B', having projecting out therefrom in line with the lever a contact or bearing point C, for a purpose which will be hereinafter described.

A lever D is pivoted at one end to a block on the back plate and arranged to extend across, but not in contact with, the lever B and at right angles thereto, said lever having connected to an eye at its upper edge one end of a spiral spring *d*, the other end of which is secured to the back wall of the case by an eye or pin similar to that before described for the spring *b'*, and this lever is composed of any suitable conducting material and forms a part of the main-line circuit when the same is closed, as hereinafter described.

The line-lever D is provided with a contact or bearing point D', similar to the bearing-point C, secured to a lug D², which is arranged on said lever D at the point of intersection of levers B and D and at right angles to the lever D and is adapted to engage

the contact-point C on the lever B, the tension of the spring d serving to hold the contact-points D' and C in engagement with each other when the parts are in their normal or set positions, as hereinafter described. Binding-posts E E' are also mounted on the back plate A', to which posts the main-line wires F F' are connected, the wire F from post E being coiled spirally and connected with the lever D, so that the latter can turn on its pivot, while the wire F' from the post E' extends to and is connected with a contact-point E², mounted on the back plate at a point adjacent to the free end of the lever D, and said lever D is provided with a contact-point D³ in such position on the lever as to engage the contact-point E² and through which the contact is made to close the main-line or alarm circuit through the lever.

To one of the thumb-screws e a cord or wire e^2 is attached and extends to and across the windows or doors to be protected and either forms a portion of a local circuit or serves as a tension wire or cord to cross the doors and windows against their opening pressure, the tension of the wire or cord being regulated by the thumb-screw e , to which it is attached, to such a degree as to counterbalance the tension of the spring b' and hold the lever B in a perpendicular position, in order to cause the contact-point C, mounted thereon, to engage the contact-point D' of the lever D, in which position the contact-points are held by the spring d until the lever B is thrown out of a perpendicular line.

The free end of the lever D extends through an opening in the box or casing and is provided at its outer end with a thumb-piece G, by which the lever is lowered to set or fix the contact-points C and D in engagement to close the local circuit and maintain the set tension of the protecting cords or wires.

From the foregoing it will be seen that so long as the degree of tension on the wire or cord extending from the lever B is such as to counterbalance the tendency of the spring b' to move the lever out of a perpendicular line, the lever will be held upright and in its set position and the contact-points of the levers B and D will be maintained in engagement with each other and the main line will be held open; but should the tension of the wire be disturbed even to the slightest degree the lever B will be moved and the contact-points of levers B and D will separate, thus permitting the spring d to draw the lever D up and its contact-point D³ against the contact-point E² and close the main-line circuit through the alarm. It will thus be seen that the device, while fully practical, is so sensitive that even the slightest touch will act to throw on the main line and give the alarm, and at the same time is more delicate in its action than the closed-circuit systems in use, while having all the properties and advantages of the closed-circuit system. The degree of sensitiveness may be regulated or ad-

justed by simply increasing or decreasing the size of the bearing-points C and D' at their points of contact.

In Fig. 4 I have shown my improved device in use with an alarm-circuit located in the house to be protected, in which view a wire or cord e^2 is the controlling means, one of the ends of said wire or cord being connected to one of the thumb-screws e of the lever B, from which the cord or wire extends to and across a door and two windows, antifriction grooved wheels h being employed to support said cord or wire, and having its other end made fast to a pin or post h' in the wall of the room. As shown in this view, the wire or cord is merely led across the door, so that any attempt to open the same which succeeds so far as to move the door inwardly to the slightest degree will act to increase the tension of the wire or cord, and thus draw or turn the lever or rod B and cause the separation of the contact-points, thus releasing the lever D and permitting the spring d to raise the lever and make contact with terminal point B² of the alarm-wire and to close the circuit through the alarm. The same action and result take place upon lifting the sash or opening the shutters of the windows shown in the same figure, the cord or wire e^2 being, as shown in said figure, led downwardly or incliningly from the door to the sash and about a pin secured thereto, and then upwardly to and over the wheel h , and thence downwardly and about or across the fastenings or a pin on the shutters of the next window, and thence upwardly to a pin in the wall, where it is secured.

In Fig. 5 the device is shown connected with a main-line or alarm circuit from the house to a central station and the tension device and trip mechanism, forming a part of a normally-closed local circuit, upon breaking which the main-line circuit is closed. In this arrangement the local circuit starts from the battery to one post of the trip-mechanism box, thence to lever D and through the contact-points C and D' to lever B and the tension-wire e^2 , and through the latter, which extends across the doors and windows, as above described, and through a battery to an electro-magnet H, keeping said local circuit closed until said rod or lever is shifted or released. One terminal of the alarm-circuit connects with an armature L, suspended or arranged in front of the electro-magnet, while the other terminal is arranged in close proximity to said armature, the wire being either grounded from this point or forming the other terminal of a metallic circuit. So long as the local circuit is closed the armature will be attracted to the electro-magnet; but as soon as any disturbance occurs in the local circuit the latter will be broken and the armature, being released, will drop into engagement with the terminal of the line-circuit, closing said circuit through the armature and giving in an alarm at the central station in the manner that will be

readily understood. The thumb-screws *e* are provided at each end of the lever, so that a cord or wire may be attached at either end thereof, the spring *b'* of course being shifted to the other side of the lever or to the upper end of the same in order to apply its tension in the proper direction to antagonize the strain of the wire or cord *e*².

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

1. The combination, in a burglar-alarm system, of an alarm-circuit, a normally-closed local circuit, and a trip mechanism forming part of said local circuit for holding said alarm-circuit open, said trip mechanism being connected with the property to be protected and adapted to be actuated to close the alarm-circuit on a disturbance of the connections with the property, substantially as described.

2. The combination, in a burglar-alarm system, of a rod or lever forming part of a normally-closed local circuit, a tension device forming part of said local circuit, a trip mechanism, and a main-line circuit, said main-line circuit being adapted to be closed by the breaking of the local circuit, substantially as described.

3. The combination, in a burglar-alarm system, of a main-line circuit, a lever or rod, a spring adapted to throw said lever in one direction, a local circuit, and a wire forming part of said local circuit and connected with

said lever or rod to hold the same against the action of the spring, said wire being arranged to be engaged by the doors or shutters or sash of the property to be protected, substantially as described.

4. The combination, in a burglar-alarm system, of a lever or rod forming a part of a local circuit, a trip mechanism, a main-line circuit, a tension device forming a part of the local circuit, and means for adjusting and regulating the tension, substantially as set forth.

5. The combination, in a burglar-alarm system, of a lever forming a part of a local circuit, tension wires or cords, means for connecting the cords or wires to either end of the lever and regulating the tension on said wires or cords, a main or alarm circuit, and means for closing the main-line circuit on the change of tension, substantially as and for the purpose set forth.

6. The combination, in a burglar-alarm system, of a lever forming a part of a local circuit, tension cords or wires in said circuit, a lever forming a part of the main or alarm circuit, means for normally holding the levers in contact, and means for closing the main-line circuit on a disturbance of the tension of the cords or wires, substantially as and for the purpose set forth.

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Witnesses:

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ALFRED F. HOPKINS.