

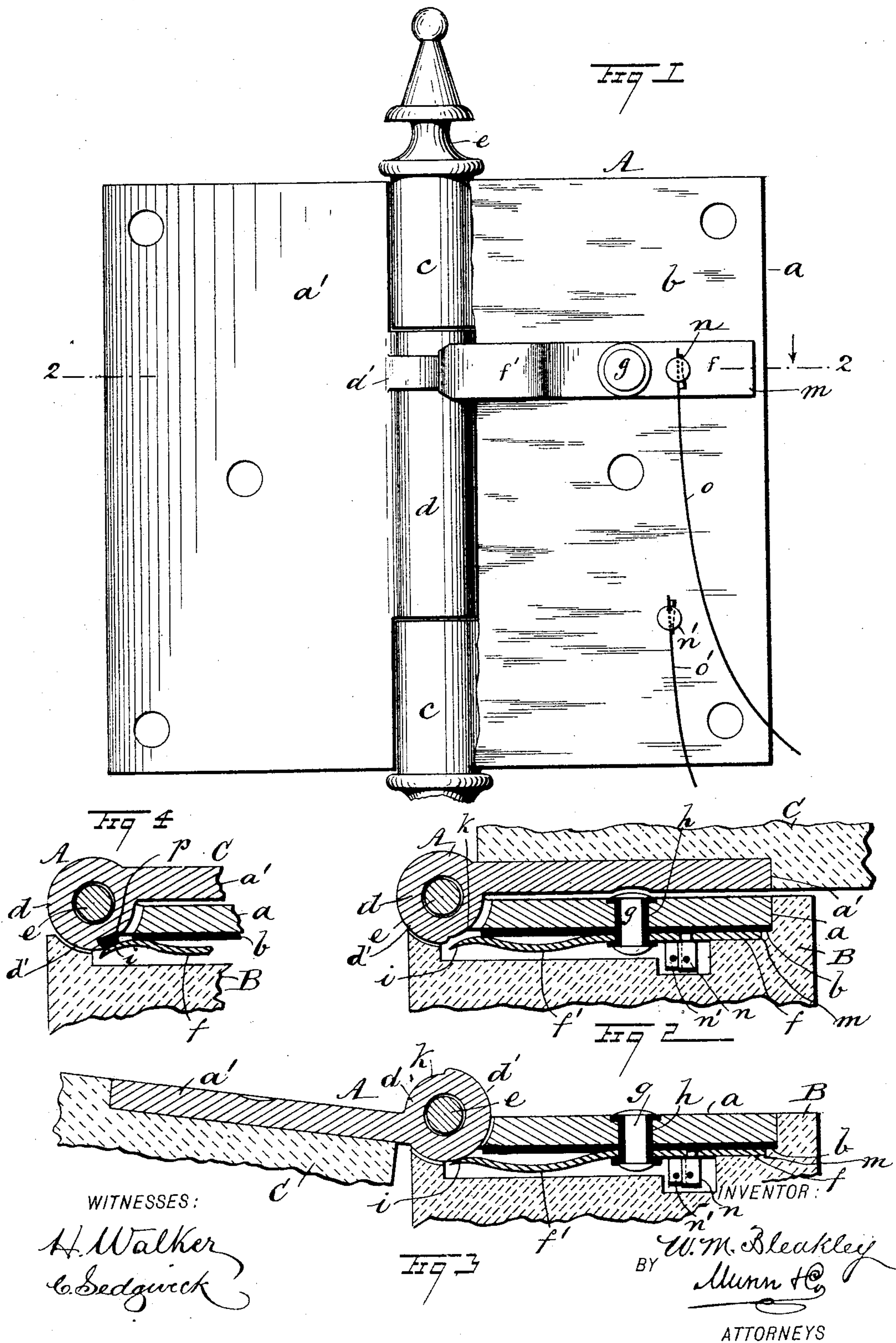
(No Model.)

W. M. BLEAKLEY.

CIRCUIT CLOSING HINGE FOR ELECTRIC BURGLAR ALARMS.

No. 426,705.

Patented Apr. 29, 1890.





# UNITED STATES PATENT OFFICE.

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## CIRCUIT-CLOSING HINGE FOR ELECTRIC BURGLAR-ALARMS.

SPECIFICATION forming part of Letters Patent No. 426,705, dated April 29, 1890.

Application filed February 15, 1890. Serial No. 340,618. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. BLEAKLEY, of Verplanck, in the county of Westchester and State of New York, have invented a new and Improved Circuit-Closing Hinge for Electric Burglar-Alarms, of which the following is a full, clear, and exact description.

This invention relates to an improvement in connections for burglar-alarms, and has for its object to provide means whereby the local battery-circuit used to ring an alarm will be instantly closed when a door to be guarded by the alarm is moved on its hinges.

To this end my invention consists in certain features of construction and combination of parts, as hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the hinge and attached parts that are features of the invention. Fig. 2 is a cross-section of the device, taken on the line 2 2 in Fig. 1, the hinge being secured to a door and its casement in closed adjustment. Fig. 3 represents the hinge and attached parts in section, taken on the line 2 2 in Fig. 1, these being secured on a door and its casement and in a nearly open position; and Fig. 4 is a broken view of the hinge folded and in relative position on a door-casement, showing a modified form of construction.

Any butt-hinge of approved form may be adapted to receive the improved circuit make and break device.

A represents a butt-hinge of enlarged dimensions, so made to clearly display the attachments thereto.

On one leaf *a* of the hinge A any suitable insulating material *b*, in the form of a thin sheet, is applied—such as card-board which has been protected from moisture by a coating of shellac-varnish—this side of the hinge-leaf being designed to lie upon the casement and be thereto secured in the ordinary way, it being properly embedded. The hinge A has the usual knuckle-joint conformation, consisting of the axially-perforated hubs *c c*, through which the pintle *e* is inserted, one

leaf *a'* having a hub *d* extending from its central portion, which is introduced between the mating hubs *c c* on the other leaf *a*. For convenience in the attachment of other parts the leaf *a*, having two hubs *c*, is affixed to the jamb of the casement B, the other leaf *a'* being secured to the edge of the door C.

Upon the insulating material *b* the leaf-spring *f*, made of metal which is a good electrical conductor, is applied at a point where it may project toward and engage the hub *d* of the leaf *a'* at a proper time, as will be further explained. It is necessary for the proper action of the device that the spring *f* be insulated where it is secured to the leaf *a*. Simple means for such a non-electrical connection of the spring and leaf (shown in Figs. 2 and 3) is comprised of a rivet *g*, enveloped by a suitable insulating material *h* and inserted in the leaf *a*, to which it is secured, thus holding the leaf-spring *f* at this point in close contact with the insulating material and firmly engaged with the leaf *a*.

The spring *f* is curved flatwise at *f'*, affording a proper "set" to the same, its free end *i* being adapted to have a bearing upon the hub *d* by its engagement with a slight projection *d'*, formed on said hub, which annular flattened rib is cut away for a short distance near the leaf *a'*, thus producing a recess *k* at that point, which prevents a contact of the spring *f* with the hub *d* when the hinge A is folded, as shown in Fig. 2.

At a suitable point between the rivet *g* and the end *m* of the spring *f* a stud or binding-post *n* is inserted through the material *b* into the leaf *a*, to which it is fastened by screw-thread engagement or riveting in place, as may be preferred. The post, having metallic contact with the leaf, serves to connect one wire *o* of a local-battery circuit with the spring *f*. Another binding-post *n'* is secured to the hinge-leaf *a* at any preferred point, so as to electrically connect the other terminal *o'* of a battery-circuit thereto. The binding-posts *n n'* may be of any desired form and the wires *o o'* be thereto attached by any suitable means, such as binding-screws, wedges, or by simply twisting the wire ends tightly to embrace the posts after they are introduced through holes in the posts. As shown in Fig.



1, the wires are keyed to the posts by small wedges inserted with them in transverse perforations of the post-bodies.

In placing the hinge for service the leaf *a* 5 is embedded within a recess cut for it in the casement-jamb B and a clearance afforded for the spring *f* and posts *n n'* in the bottom of this recess, the leaf being attached to the jamb by screws. The other leaf *a'* is similarly 10 secured to the edge of the door C, and as but one hinge of this peculiar construction need be used for a door the hinged support of the door upon the casement-jamb B may be completed by using an ordinary hinge of otherwise 15 duplicate form, the circuit-closing hinge A being placed near the upper or lower edge of the door, as may be preferred. When the wires *o o'* are connected to a local battery or other source of electricity, either singly or 20 in series with other loops from the same electrical generator, these circuit-wires having connection with any approved form of burglar-alarm which will be put in operation by a closed circuit energizing said apparatus, it 25 is evident that when the door C is in closed adjustment, as shown in Fig. 2, the free end *i* of the contact-spring *f* will be removed from contact with the hub *d* and the circuit remain open until a door provided with the circuit-closing hinge A and connected by wires, 30 as herein stated, is opened partly or fully, which movement of the door will instantly close the circuit, energize the burglar-alarm device, and set it in operation to sound an alarm. 35

In Fig. 4 an insulating-block *p* is inserted in a retaining-groove formed in the hub *d* of the hinge-leaf *a'* at such a point with regard to the spring end *i* that the latter-named will 40 bear upon this insulating material when the door C is closed, a slight movement of said door upon its hinges closing the circuit and sounding the alarm in an obvious manner.

This device, as has been illustrated and described, operates when a burglar-alarm is 45 sounded by closing the circuit. There are alarms which are operated when the circuit is opened. The improvement can be readily adapted to sound the latter-named burglar-alarm by reversing the position of the enlargement *d'* on the hub *d*, so that when the 50 door C is closed the spring end *i* will bear on said enlargement of the hub and produce a normally-closed circuit that will be broken 55 when the door is opened and the spring end is removed from said enlargement and has contact with an insulating material or is located over a recess.

Having thus described my invention, what 60 I claim as new, and desire to secure by Letters Patent, is—

1. In a circuit-closing hinge, the combination, with one leaf thereof provided with a circuit-closer, of an insulated contact-spring on the other leaf, substantially as set forth. 65

2. The combination, with a hinge-leaf and an insulated leaf-spring thereon that is adapted to make and break electrical connection with a mating hinge-leaf, of an electrical conductor-terminal secured to the insulated leaf-spring and a circuit-completing electric-conductor terminal secured to one of the hinge-leaves, substantially as set forth. 70

3. In a circuit-closing hinge, the combination, with a hinge-leaf and an insulated contact-spring, of a hinge-leaf on which the contact-spring will bear when the hinge is partly or fully opened and avoid electric contact when the hinge is completely closed, substantially as set forth. 75 80

4. In a circuit-closing hinge, the combination, with a hinge-leaf, an insulated contact-spring thereon, and a terminal end of an electric-circuit-closing conductor attached to the contact-spring, of a hinge-leaf which will 85 make electrical connection with the contact-spring when the hinge is partly or fully opened, and a completing electric-circuit terminal secured to one of the hinge-leaves, substantially as set forth. 90

5. In a circuit-closing hinge, the combination, with a hinge-leaf, an insulating-piece on this leaf, a contact-spring thereon which is secured to the leaf by an insulated connection, and a terminal of an electric-circuit wire 95 secured in electric contact with the spring, of a hinge-leaf which will have electric contact with the spring end when the hinge is partly or fully opened and break contact when said hinge is fully closed, and a completing electric-circuit-wire terminal secured to one of 100 the hinge-leaves, substantially as set forth.

6. In an electric-circuit-closing hinge, the combination, with a hinge-leaf, a thin insulating-sheet placed on this leaf, a contact-spring 105 secured to this leaf by a non-electric connection, a binding-post on the contact-spring, and a battery-circuit-wire terminal attached to the binding-post, of a mating hinge-leaf, the joint hub of which will have electric contact with 110 the spring end when the two hinge-leaves are slightly separated, said spring end engaging an insulator embedded in the joint hub when the hinge-leaves are closely folded, a binding-post on the hinge-leaf, to which the contact-spring is connected, and a completing battery-circuit wire secured on this post, substantially as set forth. 115

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Witnesses:

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