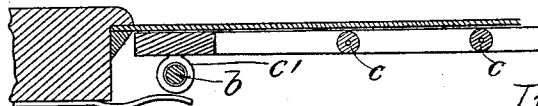
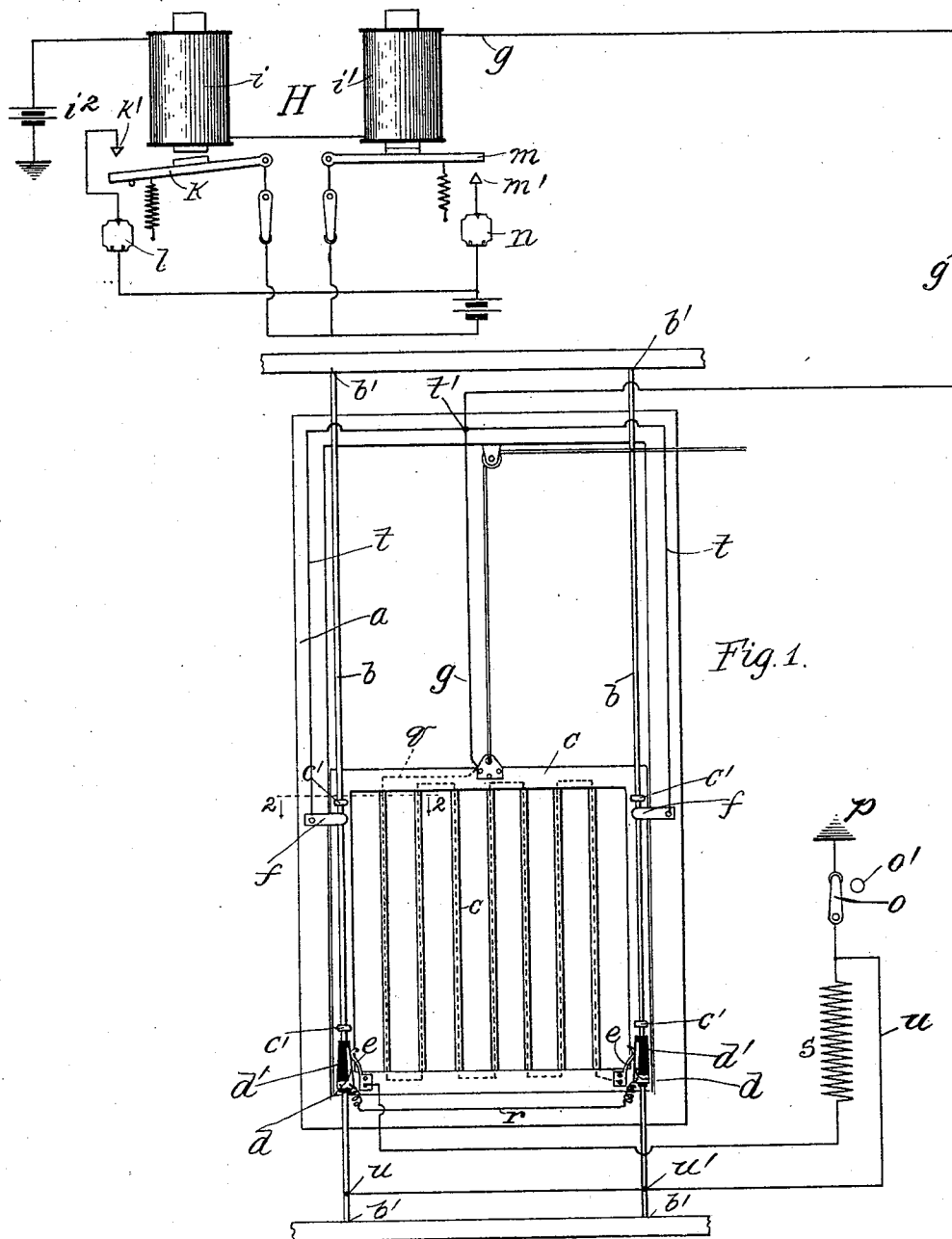


(No Model.)

W. T. ARNOLD.
BURGLAR ALARM SYSTEM.

No. 585,171.

Patented June 29, 1897.



Witnesses:
L. M. Tanner.
George L. Cragg

Fig. 2.

Inventor:
William T. Arnold,
By Barton Brown
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM T. ARNOLD, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CHICAGO ELECTRIC PROTECTIVE COMPANY, OF SAME PLACE.

BURGLAR-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 585,171, dated June 29, 1897.

Application filed December 15, 1896. Serial No. 615,813. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. ARNOLD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Burglar-Alarm Systems, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to burglar-alarm systems in which openings or objects are protected by movable covers, and especially to those systems in which the openings or objects are protected by sliding covers.

In a patent issued to Alfred Stromberg, No. 530,975, dated December 18, 1894, is shown and described a burglar-alarm system of the class mentioned in which a circuit-closer is employed comprising a plunger adapted to be depressed by the cover, as a window-sash, to make contact with a circuit-terminal and close the circuit, the plunger at the same time making contact with a contact-terminal to complete the circuit. This device being located upon the window-sill is in a position to become rusted, thereby affording poor contact. Moreover, since the window-sill is subject to considerable dampness, currents have leaked from this device to adjacent iron construction, thereby affording a path of low resistance which shunts the artificial resistance normally in circuit with the line, thereby causing a false indication or alarm.

My invention has for one of its objects to overcome the defects in the Stromberg system above set forth.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a diagrammatic view of a burglar-alarm system equipped in accordance with my invention. Fig. 2 is a sectional plan view of a portion of the apparatus, taken on line 2 2 of Fig. 1.

Like letters refer to like parts in both views.

My invention is shown as being applied to an ordinary window-opening having a suitable casing *a*. Within the structure and before the opening are vertically disposed two

guides *b b*, of wire or other conducting material, anchored at *b' b'*. Within the guarded structure and before the window-opening is placed a vertically-movable screen *c*, (in this instance serving to protect the lower half only of the window,) provided with conductors adapted to guard the opening, as will be set forth hereinafter. The screen is provided with eyes *c' c'*, which inclose the metallic wires *b b* and guide the screen in its vertical travel.

Secured near the lower ends of the guides *b b* are two cone-shaped blocks of insulating material *d' d'*, supporting terminal plates *d d*, which make contact with terminal springs *e e*, supported upon the screen *c*, when said screen is lowered in a position to protect the opening. The insulating-blocks *d' d'* extend slightly above the terminals *d d*, as shown. When the screen is raised, springs *e e* are first brought into contact with the exposed portions of blocks *d' d'* and then in contact with guides *b b*, causing an alarm in each instance if the circuits are in condition to protect the opening, as will be hereinafter set forth. Two contact-terminals *ff* are mounted upon the window-casing and project over the guides *b b* in a position to make contact therewith if the screen should be pushed inwardly from its normal vertical plane, as in the act of entering the guarded structure, whereby an alarm is sounded, as will be set forth.

The line *g*, extending from the central station *H* to the protected district, includes the line instruments *i i'* of the central-office apparatus, which are grounded through a battery *i²*. Associated with magnet *i* is an armature *k*, adapted to close circuit at *k'* through a signal or alarm apparatus *l* when attracted. Associated with magnet *i'* is an armature *m*, adapted to close circuit at *m'*, when unattracted, through signal apparatus *n*.

When the screen is lowered and the system is to be put in condition for protecting the window, switch *o* is thrown from the day-button *o'* to the position shown, whereby the continuity of the circuit from the central-office battery *i²* is completed through to the ground *p* at the protected station, the current passing from line *g*, through the wire *q*, ter-

minals *e* and *d* upon the right of the screen, conductor *r*, terminals *d* and *e* upon the left of the screen, and resistance *s*, to ground. The resistance *s* serves to reduce the current emanating from battery *i*².

A conductor *t* is united at *t'* to the line *g*, the plates *f f* constituting terminals of this conductor. A second conductor *u* is connected between the resistance *s* and ground and attached at *u' u'* to the metal guides *b b*.

The magnets *i i'* are wound to have similar magnetic strength. The armatures *k* and *m* are so adjusted that magnet *i* will not attract its armature when resistance *s* is in circuit, while the armature of magnet *i'* will be attracted thereby. If circuit from battery *i*² is opened, armature *m* will fall, thereby closing circuit at *m'* through the signal *n*. If the current from battery *i*² be increased by shunting resistance *s* from the line, armature *k* will be attracted, thereby completing circuit at *k'* through the signal *l*.

If an attempt be made to gain access to the interior by thrusting the screen aside, either or both of the plates *f f* will be brought into contact with either or both of the metal guides *b b*, thereby establishing a shunt-circuit from *t'* about the resistance *s*, thus causing signal *l* to respond. Terminals *f f* and guides *b b* thus form a circuit closing or changing device adapted to be operated by the screen as it is thrust aside. If the screen be raised, springs *e e* will first be removed from contact with plates *d d* and brought into contact with the exposed portions of blocks *d' d'*, thereby opening the circuit, including battery *i*², causing the operation of signal *n*. As the screen is still further raised the springs *e e* will be brought into contact with wires *b b*, thus establishing a shunt-circuit about resistance *s*, thereby causing the operation of signal *l*. This shunt-circuit may be traced from the point *t'*, through conductor *g*, terminal *e* and wire *b* upon the right or left of the screen, and conductor *u*, to ground. If desired, one of the guides *b* may be made of other material than metal, in which case one of the terminals *f* may be dispensed with.

The conductors *g* are inclosed in incasing strips of wood, secured to the frame of the screen, which are placed close enough together to prevent access between them.

My invention is susceptible of modifications which may be readily made by those skilled in the art and may be applied to the protection of objects as well as openings. I do not therefore desire to be limited to the precise construction shown; but,

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

1. In a burglar-alarm system the combination of a sliding cover adapted to be placed over an opening or object, and having a mounting or support which permits of its ready removal from its normal plane, with a circuit closing or changing device adapted to

be operated by said cover when the cover is shifted from its normal plane, a burglar-alarm circuit including a signal or alarm apparatus adapted to be actuated by the burglar-alarm circuit when altered by the operation of said circuit closing or changing device, substantially as described.

2. In a burglar-alarm system the combination of a sliding cover adapted to be placed over an opening or object, with a burglar-alarm circuit having one terminal mounted upon said cover and a second terminal stationarily supported with relation to said cover adapted to be brought into contact with the aforesaid terminal by the cover when it is shifted from its normal plane whereby the condition of said circuit is altered, and a signaling or alarm apparatus adapted to be actuated by the burglar-alarm circuit when thus altered, substantially as described.

3. In a burglar-alarm system the combination of a sliding cover adapted to be placed over an opening or object, and having a mounting or support which permits of its ready removal from its normal plane, with a burglar-alarm circuit including alarm or signal apparatus and an artificial resistance, a circuit changing or closing device adapted to be operated by said cover when the cover is shifted from its normal plane, and a shunt-circuit about said resistance adapted to be closed by said circuit changing or closing device when thus operated, said signal apparatus being adapted to be operated by the burglar-alarm circuit when thus altered, substantially as described.

4. In a burglar-alarm system the combination of a sliding cover adapted to be placed over an opening or object, and a metallic guide *b* adapted to direct said cover in its travel, with a plate *f* stationarily supported and adapted to be brought into contact with guide *b* by said cover when it is shifted from its normal plane, a burglar-alarm circuit including alarm or signal apparatus and an artificial resistance and a normally open shunt-circuit about said resistance having its terminals in guide *b* and plate *f*, substantially as and for the purpose described.

5. In a burglar-alarm system the combination of a sliding cover adapted to be placed over an opening or object, with a metallic guide *b* to direct said cover in its travel, terminal *d* supported upon but insulated from said guide, terminal *e* carried upon the cover, a burglar-alarm circuit normally completed through terminals *d e* said guide *b* being connected with said circuit, alarm or signal apparatus included in said circuit, said terminal *e* being adapted to be removed from contact with terminal *d* to open the circuit, and then brought into contact with conductor *b* to alter the circuit when the cover is being moved said signal apparatus being adapted to respond when the circuit is opened and altered, substantially as described.

6. In a burglar-alarm system the combina-

tion of a sliding cover adapted to be placed over an opening or object, with a metal guide *b* to direct said cover in its travel, terminal *d* supported upon but insulated from said guide, terminal *e* carried upon the cover, a burglar-alarm circuit including alarm apparatus and an artificial resistance normally completed through said terminals *d e*, said guide *b* and terminal *e* constituting terminals of a normally open path of low resistance about said artificial resistance, said terminal *e* being adapted to be removed from terminal *d* and brought into contact with conductor *b* as the cover is moved to first open the circuit

and then shunt the resistance therefrom, thereby causing the actuation of the signal apparatus in each instance, said apparatus being adapted to respond both when the burglar-alarm circuit is opened and when the artificial resistance is removed from said circuit, substantially as described.

In witness whereof I hereunto subscribe my name this 10th day of December, A. D. 1896.

WILLIAM T. ARNOLD.

Witnesses:

ALBERT LYNN LAWRENCE,
GEORGE L. CRAGG.