(No Model.)

J. GEARY.

CIRCUIT CLOSER.

No. 438,234. Patented Oct. 14, 1890.

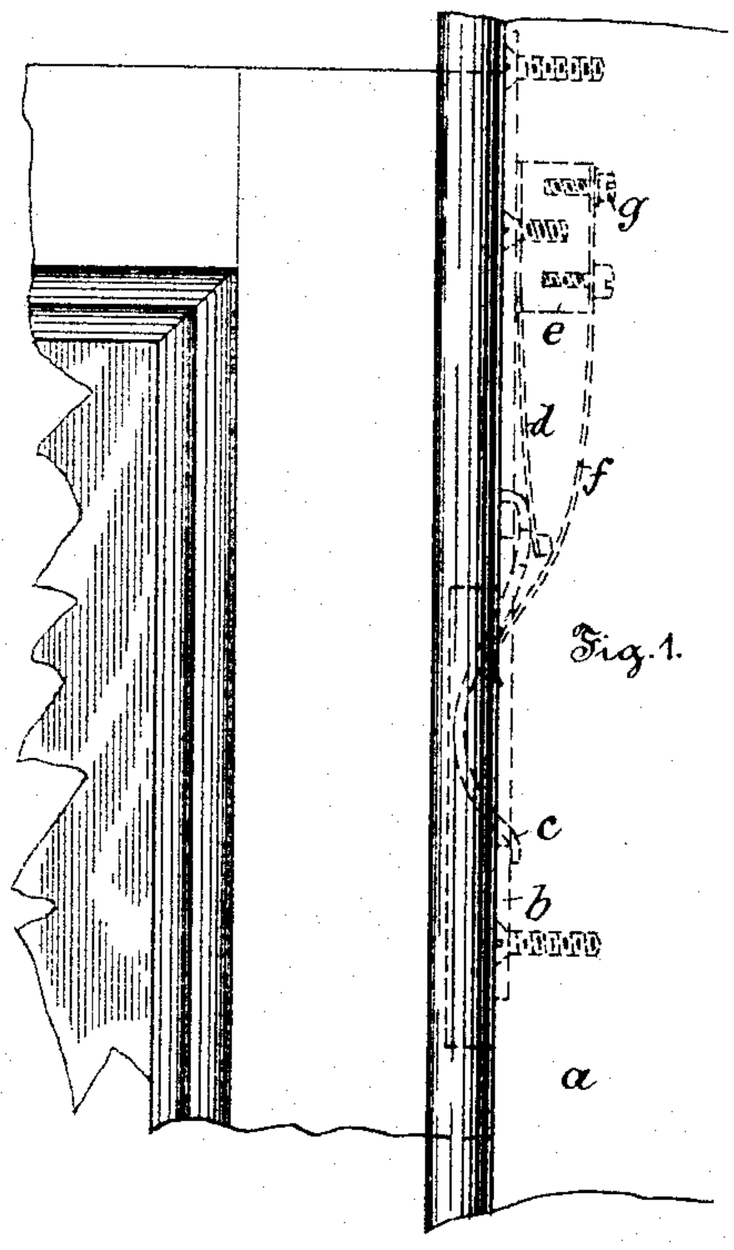


Fig. 1.

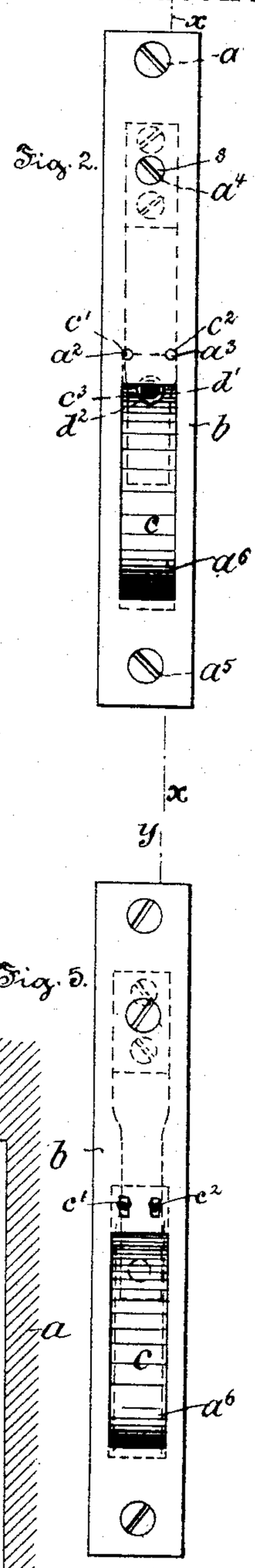


Fig. 2.

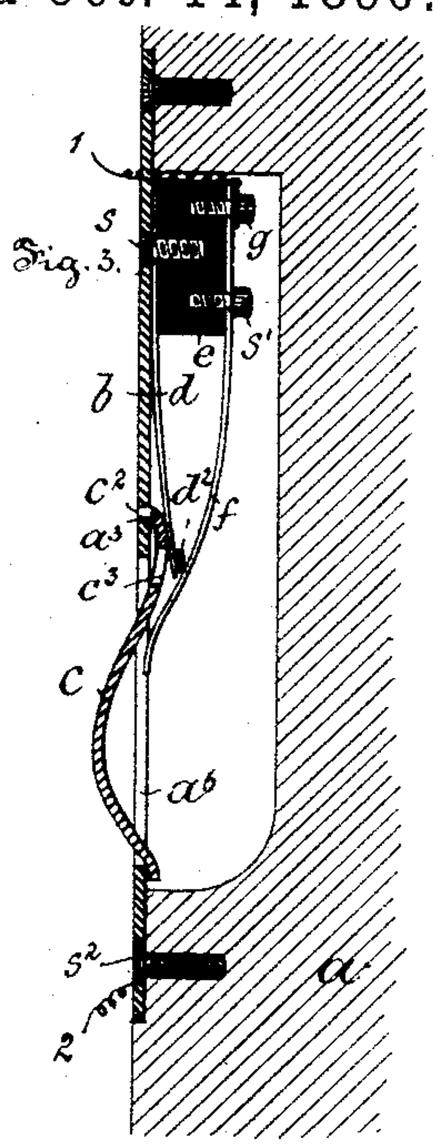


Fig. 3.

Fig. 4.

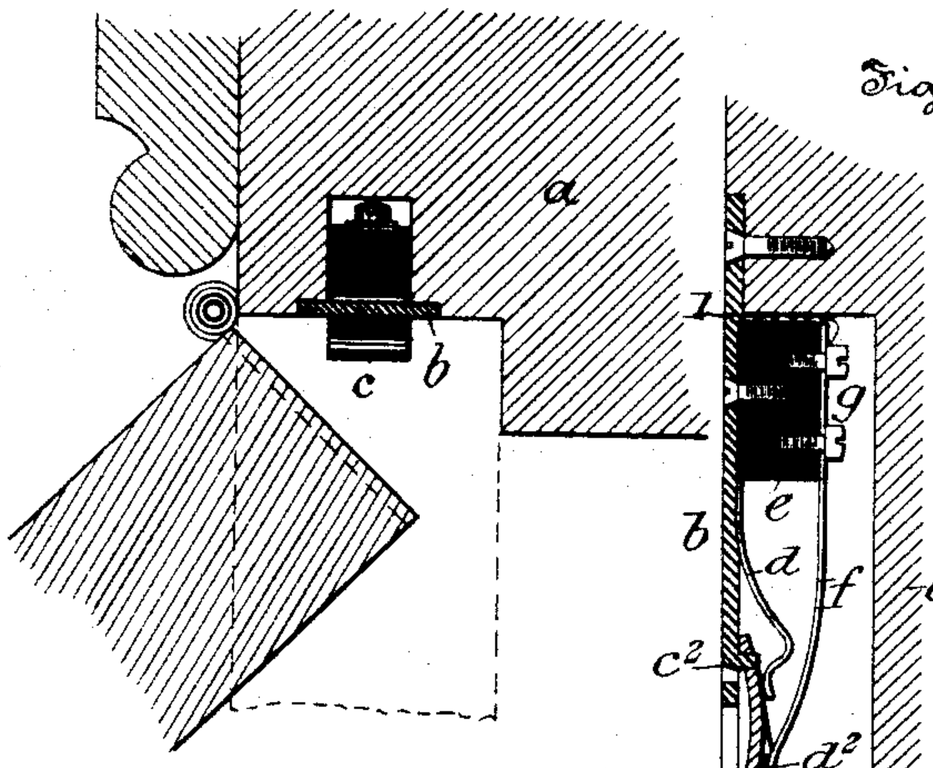
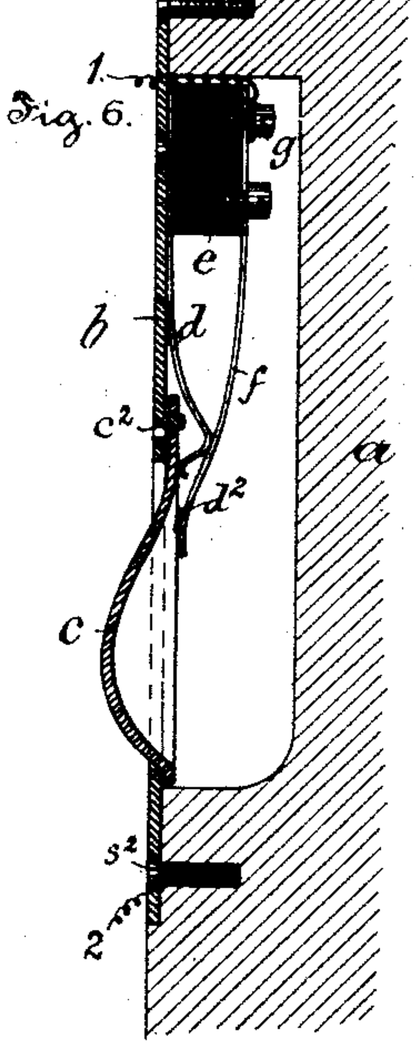


Fig. 7.

Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 438,234, dated October 14, 1890.

Application filed March 3, 1890. Serial No. 342,481. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEARY, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Circuit-Closing Devices, of which the following is a specification.

My invention relates in general to circuit-closing devices and more particularly to those adapted for use in connection with burglar-alarms.

Heretofore circuit-closing devices have been provided with a tongue pivotally secured to a plate or housing and held normally in position by means of a spring; but such type of circuit-closers necessitated the employment of a thick piece of metal in order that the pivots for supporting the tongue might be secured thereto. Moreover, the contact-spring in no way assisted in retaining the movable tongue to place and was liable to be accidentally brought into contact therewith, thus closing the circuit and causing false alarms to be given.

The principal objects of my invention are, first, to overcome the above-mentioned disadvantages; second, to provide an inexpensive, durable, and efficient circuit-closing device which is applicable to closed as well as open circuits; third, to so arrange the parts of a circuit-closer as that the contact-spring assists at all times in maintaining the movable tongue to place.

The nature and characteristic features of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part thereof, and in which—

Figure 1 is an elevation of a portion of a window jamb and sash with a circuit-closing device embodying the principal features of my invention applied thereto and said device arranged for use in connection with an open circuit. Fig. 2 is a front elevation of the circuit-closing device. Fig. 3 is a transverse sectional view on the line $x\ x$ of Fig. 2, showing in detail the arrangement of the parts of the circuit-closing device and also its application to a window-jamb. Fig. 4 is a horizontal section of a door and jamb having applied thereto the circuit-closing device of the type illustrated in Figs. 1, 2, and 3 and arranged for use in connection with a closed circuit. Fig. 5 is a front elevation of a circuit-closing device embodying a modification of my invention and arranged for use in connection with a closed circuit. Fig. 6 is a transverse sectional view on the line $y\ y$ of Fig. 5, showing the circuit-closing device applied to a window-jamb; and Fig. 7 is a similar view showing the position of the parts of the device when the circuit is broken.

In the drawings, a is a portion of a window or door jamb.

b is the frame or plate of the circuit-closer. This frame b is formed, preferably, of a thin sheet of metal, so that the apertures a' a^2 a^3 a^4 a^5 and the slot a^6 may be readily stamped therein.

c is a movable tongue curved, as shown in the drawings, for contacting with the door or window and provided with lugs c' and c^2 for engaging with the apertures a^2 and a^3 of the frame or plate b. This tongue c is also provided with a slot c^3 for permitting of the insertion of pliers or other suitable tools in order to adjust the insulating-traveler d^2.

d is a strip of spring metal provided with an aperture d' and secured to the plate b by means of the screw s. This spring-strip d contacts with and presses against the movable tongue c and maintains the latter normally in the position illustrated in Figs. 1, 2, 3, and 4.

e is a block of insulating material secured to place upon the spring d by means of the screw s.

f is a contact strip or spring secured to the upper surface of the block of insulating material e by means of the screw s'. This contact-strip f is bent forward at the extremity thereof, so as to normally contact with the insulating-traveler d^2, secured in the aperture d' of the spring d.

g is a binding-post secured to the insulating-block e.

The construction of the modification of my invention illustrated in Figs. 5, 6, and 7 of the accompanying drawings is the same as above described with reference to Figs. 1, 2, 3, and 4, with the following exceptions: First, the insulating-traveler d^2 is secured in a recess formed in the contact-spring f instead

of in the spring-strip *d;* second, the spring *d* is bent upward, so as to normally engage with the contact-spring *f*, and, third, the extremity of the contact-spring *f* is bent upward, and the traveler d^2 is not in contact with the tongue *c*, so that the latter may be moved a short distance by the vibrations of the window without contacting with the traveler d^2, thus raising the spring *f* out of contact with the strip of spring metal *d*. Of course when the tongue *c* is forced all the way into the frame *b* the contact-spring *f* and strip of spring metal *d* are separated, Fig. 7, and the circuit is broken.

In use the window-jamb *a* is mortised out at a point some ten or twelve inches from the top of the sash for the reception of the block of insulating material *e* and the parts secured thereto, and a slot several inches long is cut in the window-frame for the reception of the tongue *c* when the window is closed. The frame of plate *b* is mounted flush with the surface of the window-jamb and secured thereto by means of screws inserted through the apertures a' and a^5. The device is then included in an open circuit, Figs. 1, 2, and 3, adapted to actuate a burglar-alarm by means of the wires 1 and 2, secured to the binding screw or post *g* and to the screw or post s^2. It is obvious that when the window-sash is closed the movable tongue *c* will extend into the receptacle formed in the window-sash, and that when opened said movable tongue *c* will be forced into the receptacle in the jamb *a*. This movement of the tongue *c* raises the contact-spring *f* from the insulating-traveler d^2 and forces the end thereof into close and good electrical contact with the tongue *c*, thus closing the circuit and causing an alarm to be given. The device as illustrated in Figs. 1, 2, and 3 is shown in a closed circuit and in application to a door in Fig. 4, and the mode of operation of the device is as follows: When the door is closed, the movable tongue *c* is forced into the recess formed in the door-jamb, thereby contacting with the spring *f* and establishing a closed circuit. If the door be opened, the tongue *c* is forced forward, breaking the circuit and causing an alarm to be given.

The mode of operation of the modified form of the invention as illustrated in Figs. 5, 6, and 7 is substantially the same as above described with reference to Figs. 1, 2, 3, and 4, except that it is applicable to a closed circuit, so that when the window is closed the movable tongue *c* normally occupies a position in the recess of the window-sash and with the spring *f* in contact with the spring *d*, thus completing the circuit, and when the window is opened the movable tongue *c* is forced into the recess formed in the window-jamb *a*, thereby breaking the contact normally existing between the contact-spring *f* and the spring *d* and causing an alarm to be given.

Although I have described my invention in connection with burglar-alarm circuits, still it is applicable to various other types of circuits, and it will be obvious to those skilled in the art to which it relates that modifications may be made in details without departing from the spirit thereof—for example, the lugs c' and c^2 may be formed integral with the plate *b*, and the tongue *c* may be provided with apertures for engaging with said lugs. Hence I do not limit myself to the exact construction and arrangement of the parts in the device as hereinabove set forth.

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

1. The combination, in a circuit-closing device, of a metal frame provided with a slot, a curved tongue afforded a freedom of movement in or through said slot and attached to said frame by vertical lugs fitting into apertures, a strip of spring metal secured to said frame and contacting with said tongue beyond the point of its suspension with reference to an insulating-block, and said strip, while adapted to force said tongue outward, holding said frame and tongue in their relative positions and the said block secured to said frame and strip of spring metal, a contact-spring mounted on said block, and an insulating-traveler adapted to break the electrical contact between said tongue and contact-spring, substantially as and for the purposes set forth.

2. The combination, in a circuit-closing device, of a plate provided with a slot and two lugs, a tongue affording a freedom of movement in said slot and provided with two apertures engaging with said lugs, a strip of spring metal secured to said plate and contacting with said tongue, a contact-spring secured to and insulated from said plate and normally contacting with said strip of spring metal, an insulating-traveler interposed between said tongue and contact-spring, and circuit-connections with said plate and contact-spring, substantially as and for the purposes set forth.

3. The combination, in a circuit-closing device, of a plate of thin metal provided with a slot and two lugs, a curved tongue afforded a freedom of movement in and through said slot and provided with two apertures engaging with said lugs, a strip of spring metal secured to said plate and contacting with said tongue, a contact-spring secured to and insulated from said plate and normally contacting with said strip of spring metal, and an insulating-traveler secured to said contact-spring and contacting with said tongue, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JOHN GEARY.

Witnesses:
GEO. W. REED,
THOMAS M. SMITH.