No. 850,101. PATENTED APR. 9, 1907.

W. H. ROBINS.

DROP FOR ELECTRIC CIRCUITS.

APPLICATION FILED DEC. 6, 1905.

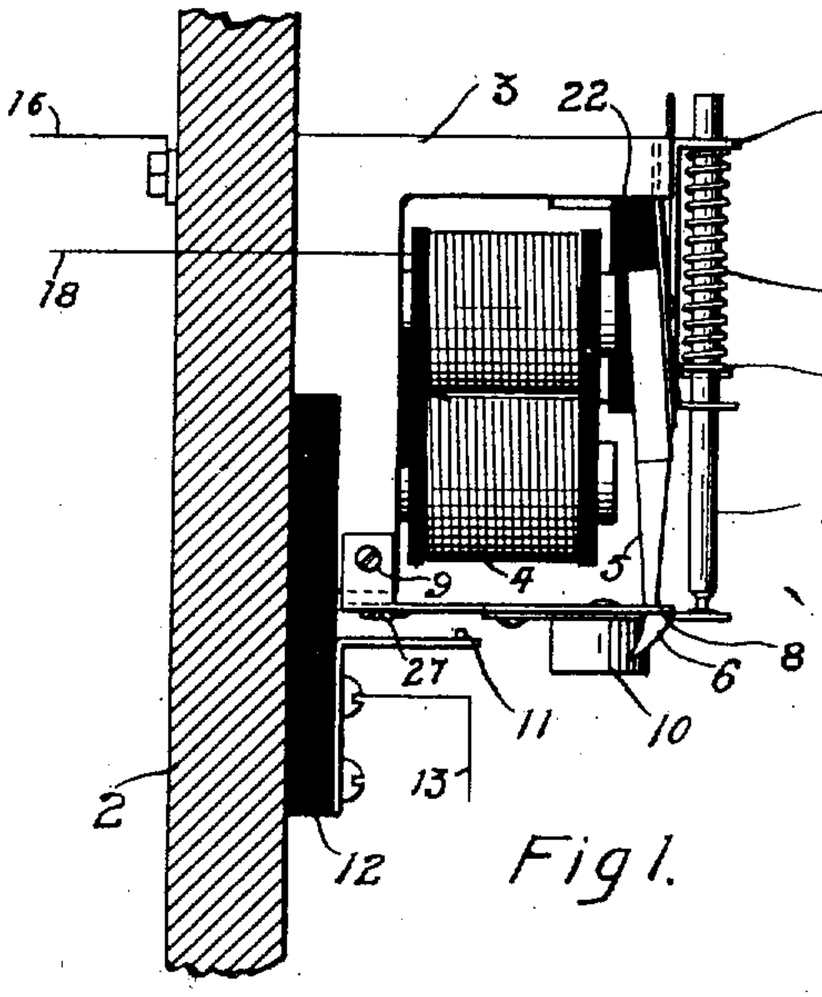

Fig 1.

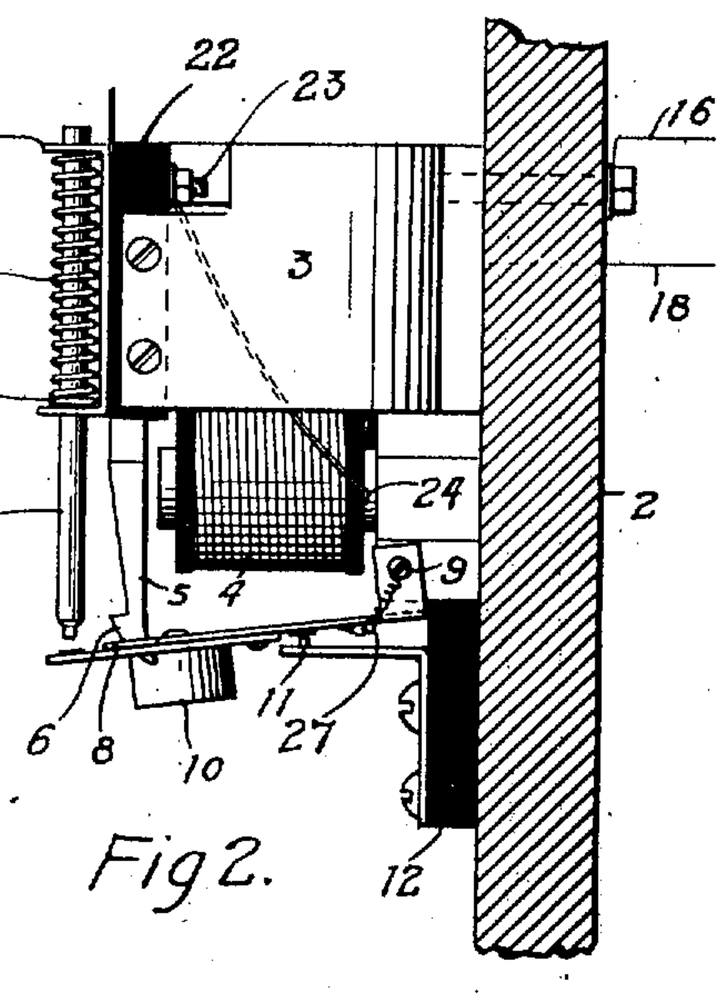

Fig 2.

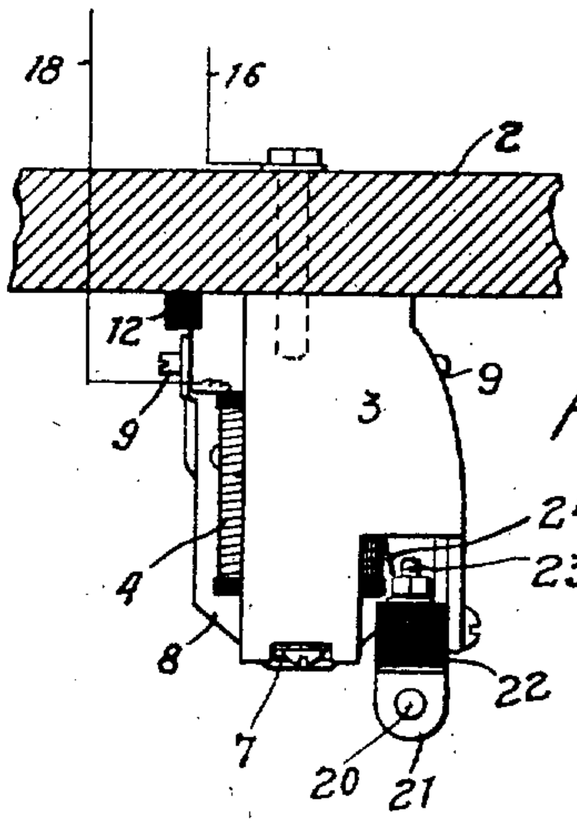

Fig 4.

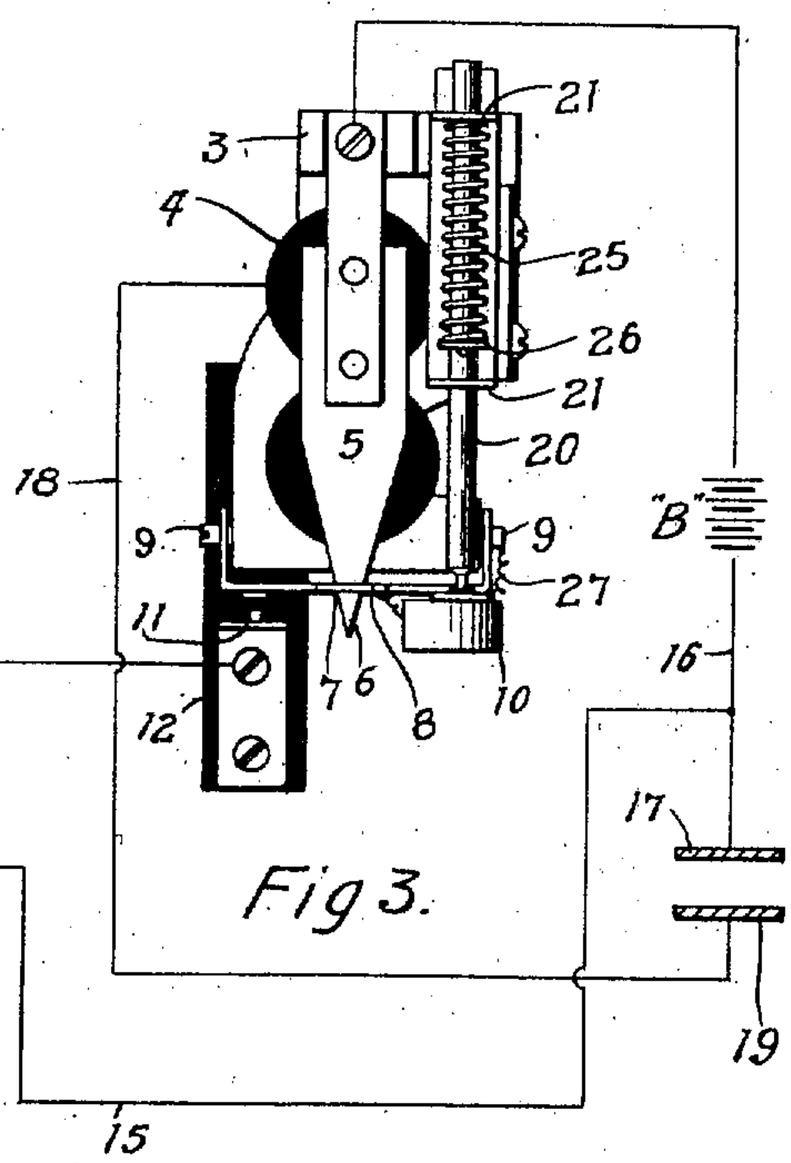

Fig 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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DROP FOR ELECTRIC CIRCUITS.

No. 850,101. Specification of Letters Patent. Patented April 9, 1907.

Application filed December 6, 1905. Serial No. 290,570.

To all whom it may concern:

Be it known that I, WILLIAM H. ROBINS, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Drops for Electric Circuits, of which the following is a specification.

My invention relates to signaling drops used in connection with electric circuits, and particularly to those circuits used in burglar-alarm systems; and the object of my invention is to provide means whereby when the local circuit is closed the drop will surely operate to close the primary or alarm circuit.

A further object is to provide means for breaking the circuit quickly when the drop is released, and thereby prevent arcing at the contact-points.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a detail view of the drop in its normal position with the primary circuit broken or open. Fig. 2 is a similar view showing the drop released to close the primary circuit. Fig. 3 is a view illustrating the drop connected with the alarm-gong. Fig. 4 is a detail view showing the construction of the drop.

In the drawings, 2 represents a suitable base, whereon the metallic frame 3 of the drop is secured.

4 represents the magnets of the drop, 5 the armature having a hook 6 at end adapted to project through a slot 7 in a drop-plate 8, which is pivoted at 9 on said frame and carries a weight 10 to insure the quick positive fall of the plate when released. A contact 11 is provided in the path of the plate 8, mounted on a block 12 of insulating material and connected by a wire 13 to one side of the electric gong 14. The other side of the gong is connected by the wire 15 with a wire 16, which leads from the frame 17 through a battery B to the frame 3 of the drop. The magnets 4 are connected by a wire 18 with the lining 19 of a vault, (not shown,) the numerals 17 and 19 in Fig. 3 representing sections, respectively, of the vault frame and lining. A sliding pin 20 is mounted in guides 21 on a block 22 of insulating material, and a contact-post 23 in said block is connected by a wire 24 with the magnets, and said post is in circuit with the pin 20, and said pin is normally held in contact with the plate 8 by a spring 25, arranged on said pin between one of the guides 21 and a stop 26. When, therefore, contact is made between the frame and lining and the circuit is closed through the magnets 4, the armature 5 will be attracted to release the pivoted plate 8. As the current passes through the pin 20 and the plate 8 the circuit will not be broken immediately upon the release of said plate, but will remain closed and hold the armature against the magnets until the plate 8 and the sliding pin are separated. This separation will not take place until the pin has moved to the limit of its travel and the button 26 has engaged the contiguous guide. The tension of the spring 25 will be exerted to press the pin 20 forward into contact with the plate 8, and hold it in such contact with a yielding pressure and insure the immediate movement of the plate as soon as the armature is actuated and prevent arcing between the pin and plate, which frequently results when the plate drops by gravity alone, and as the circuit is not broken until the plate has been moved out of its point of engagement with the hook on the armature it follows that if the circuit through the magnets is once closed and the armature attracted the drop must surely be disengaged from the armature-hook and close the circuit through the gong. Furthermore, the yielding pressure of the pin 20 on the drop-plate will overcome any friction or sticking between the armature-hook and the plate and positively actuate the said plate as soon as it is released to close the alarm-circuit. As soon as the plate 8 has engaged the contact 11 a new circuit will be established through the frame of the drop and the plate 8 to the contact 11 and from thence through the wire 13 to the gong.

To insure a good connection between the plate 8 and the frame of the drop, I prefer to provide a wire 27, connecting said plate with its pivot-pin, which is mounted in said frame. With this apparatus the local circuit through the magnets will remain closed a sufficient length of time to insure the disengagement of the drop-plate from the armature, and there-

by the operation of the drop will be made more certain and the efficiency of the device materially increased.

I claim as my invention—

1. The combination with a normally open alarm-circuit, of a normally open local circuit, a circuit-closer in said local circuit having a drop arranged when relased to close said alarm-circuit, and a spring-pressed pin in said local circuit normally in contact with said drop and having a limited movement with the same when released, substantially as described.

2. The combination with a normally open alarm-circuit, of a normally open local circuit, a circuit-closer in said circuit having a drop arranged when released to close said alarm-circuit, a sliding pin in said local circuit, guides for said pin, a spring coiled on said pin and arranged to hold the same in yielding contact with said drop, and a stop for limiting the movement of said pin, substantially as described.

3. The combination, with a normally open alarm-circuit, of a normally open local circuit, a circuit-closer in said local circuit having a drop arranged when released to close said alarm-circuit, guides 21 provided on said circuit-closer, a pin 20 slidably mounted in said guides and having a stop 26 and a spring coiled on said pin between said stop and one of said guides, and said pin normally bearing with a yielding pressure on said drop and having a limited travel therewith when said drop is released, substantially as described.

4. The combination, with a normally open alarm-circuit, of a normally open local circuit, a circuit-closer comprising electromagnets, a drop-plate and an armature arranged to engage and normally lock said plate, a contact-point in the path of said plate and a sliding spring-pressed pin normally contacting with said plate and bearing thereon with a yielding pressure, and said pin being in said local circuit, whereby the circuit will continue unbroken for a predetermined period after the release of said plate by the movement of said armature, substantially as described.

5. The combination, with a normally open alarm-circuit, of a normally open local circuit, a circuit-closer in said local circuit, and having a drop arranged, when released to close said alarm-circuit, an insulating-block, a sliding pin mounted in guides on said block and connected with said local circuit, means for yieldingly holding said pin in engagement with said drop and means permitting a limited movement of said pin when said drop is released, whereby the said pin will follow said drop for a predetermined distance, and the circuit between them will be unbroken, substantially as described.

In witness whereof I have hereunto set my hand this 22d day of November, 1905.

WILLIAM H. ROBINS.

Witnesses:
RICHARD PAUL,
C. MACNAMARA.