

EXAMINED

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No. 843,327.

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L. CHARBONNEAU.  
AUTOMATIC CIRCUIT CLOSER.  
APPLICATION FILED NOV. 21, 1906.

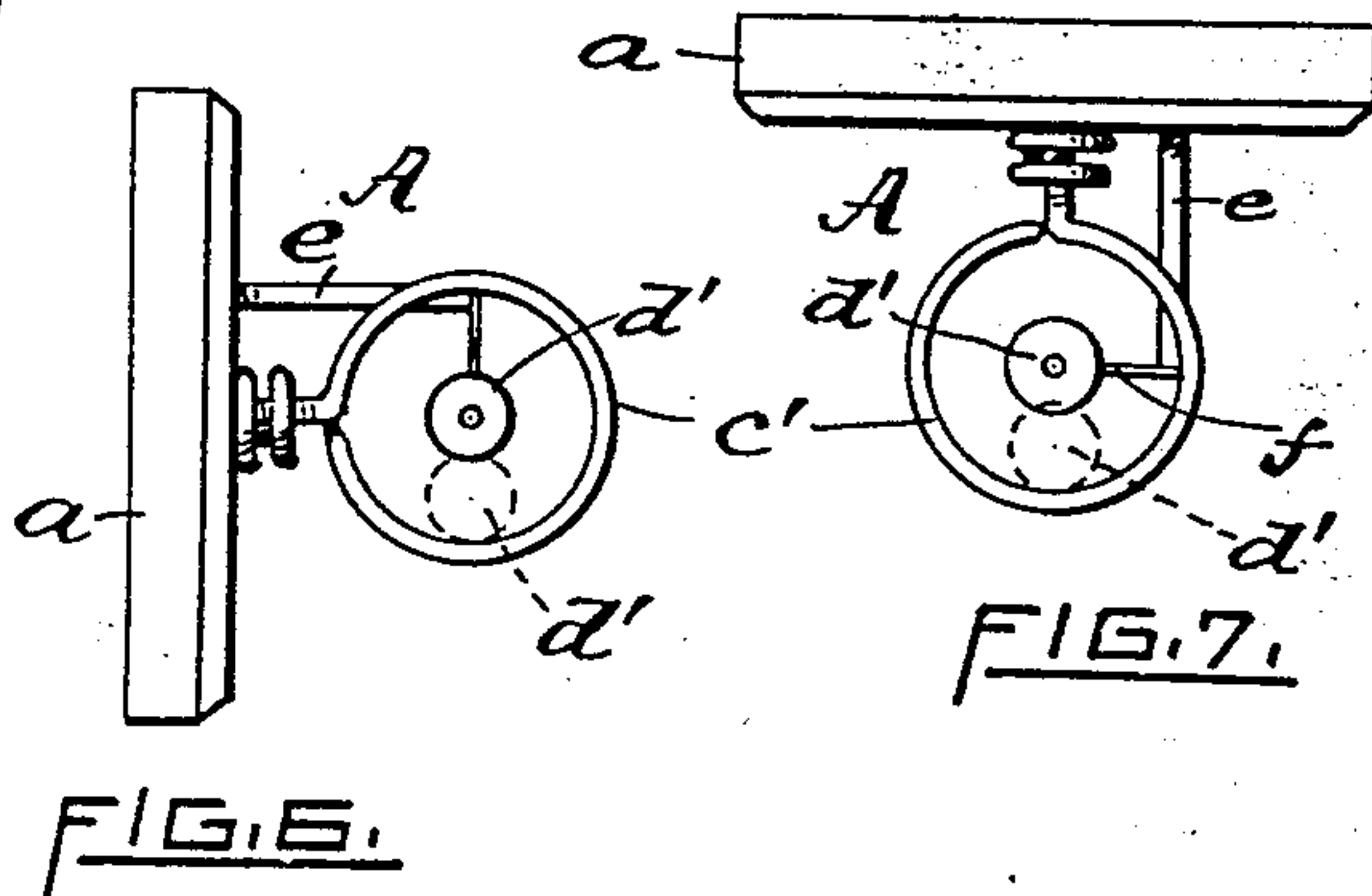
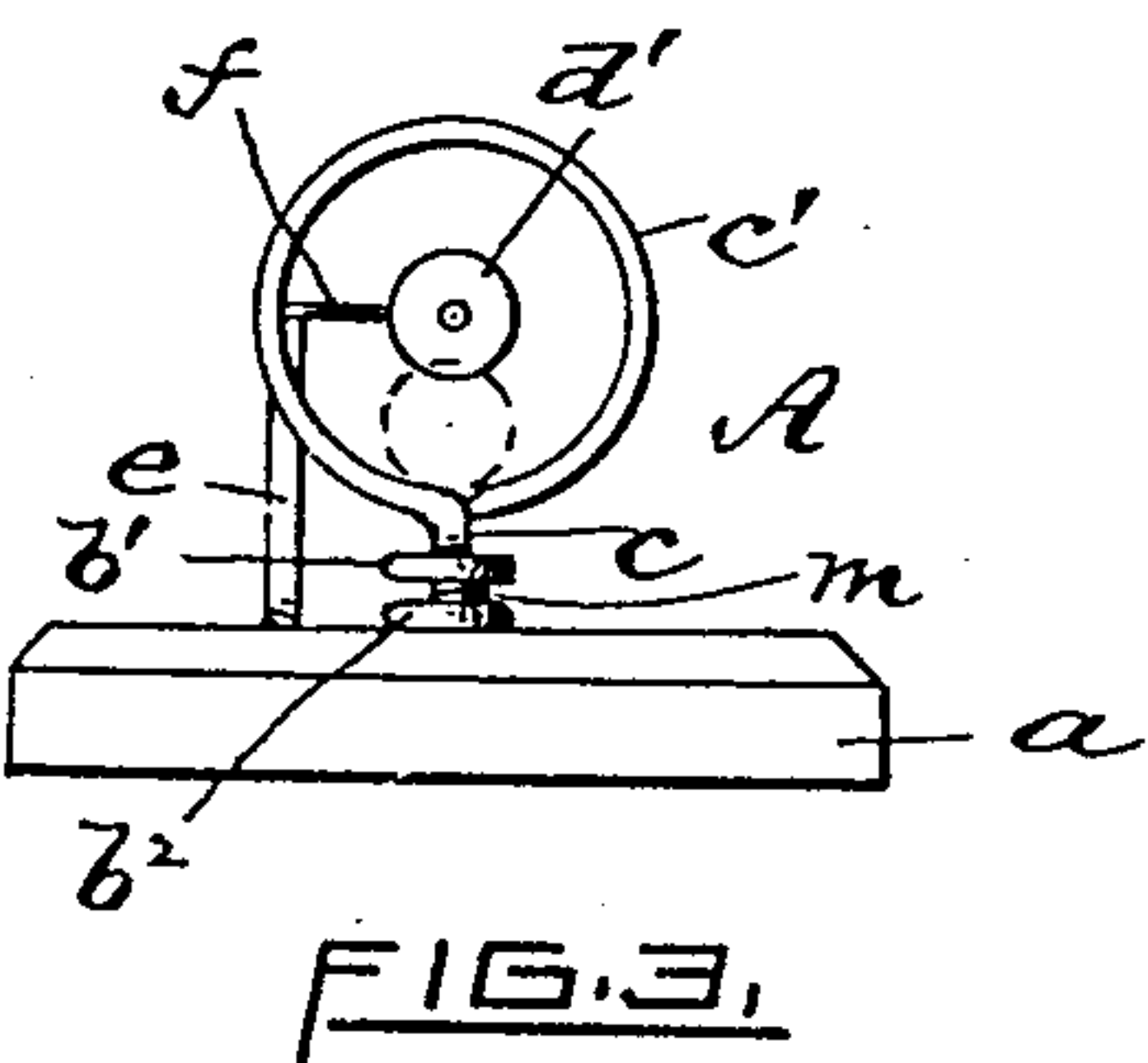
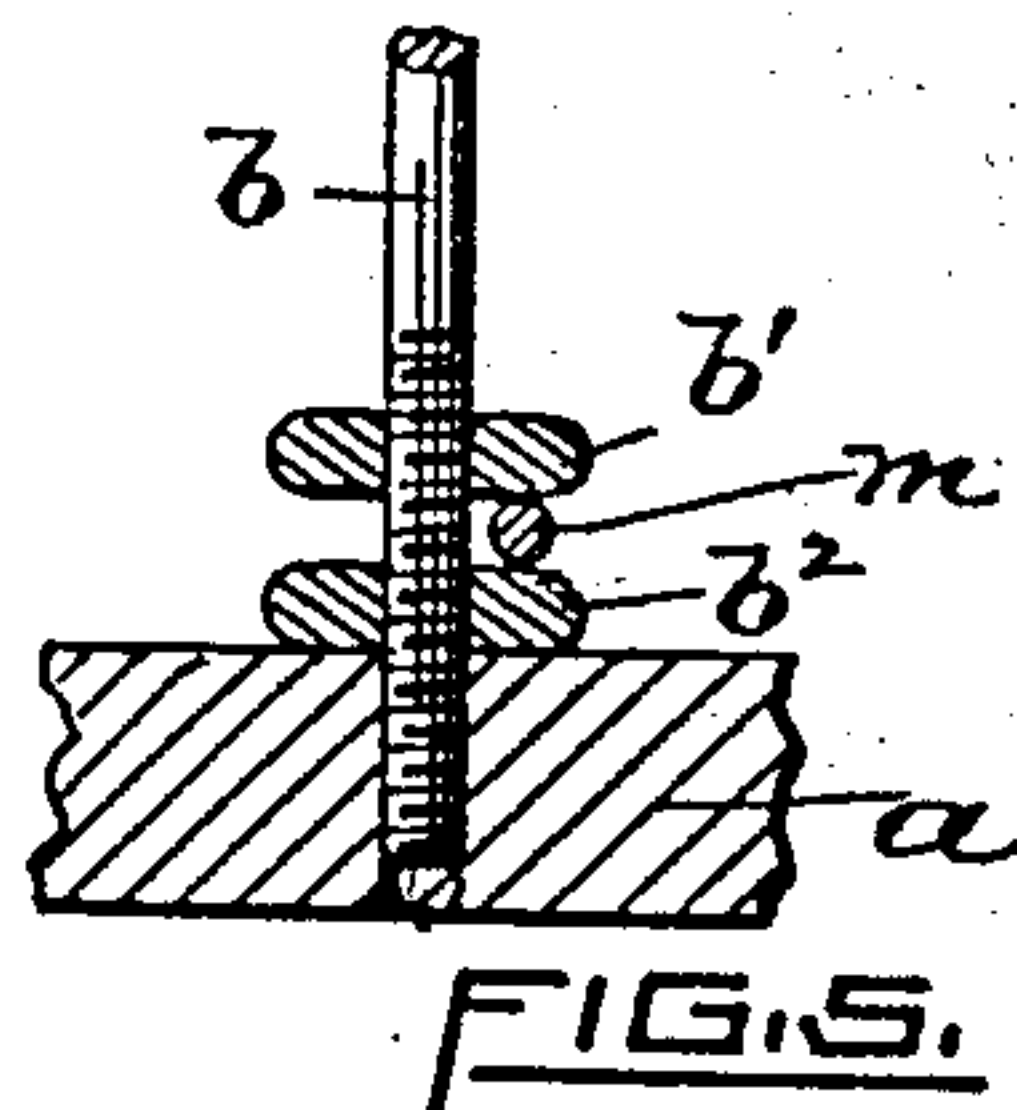
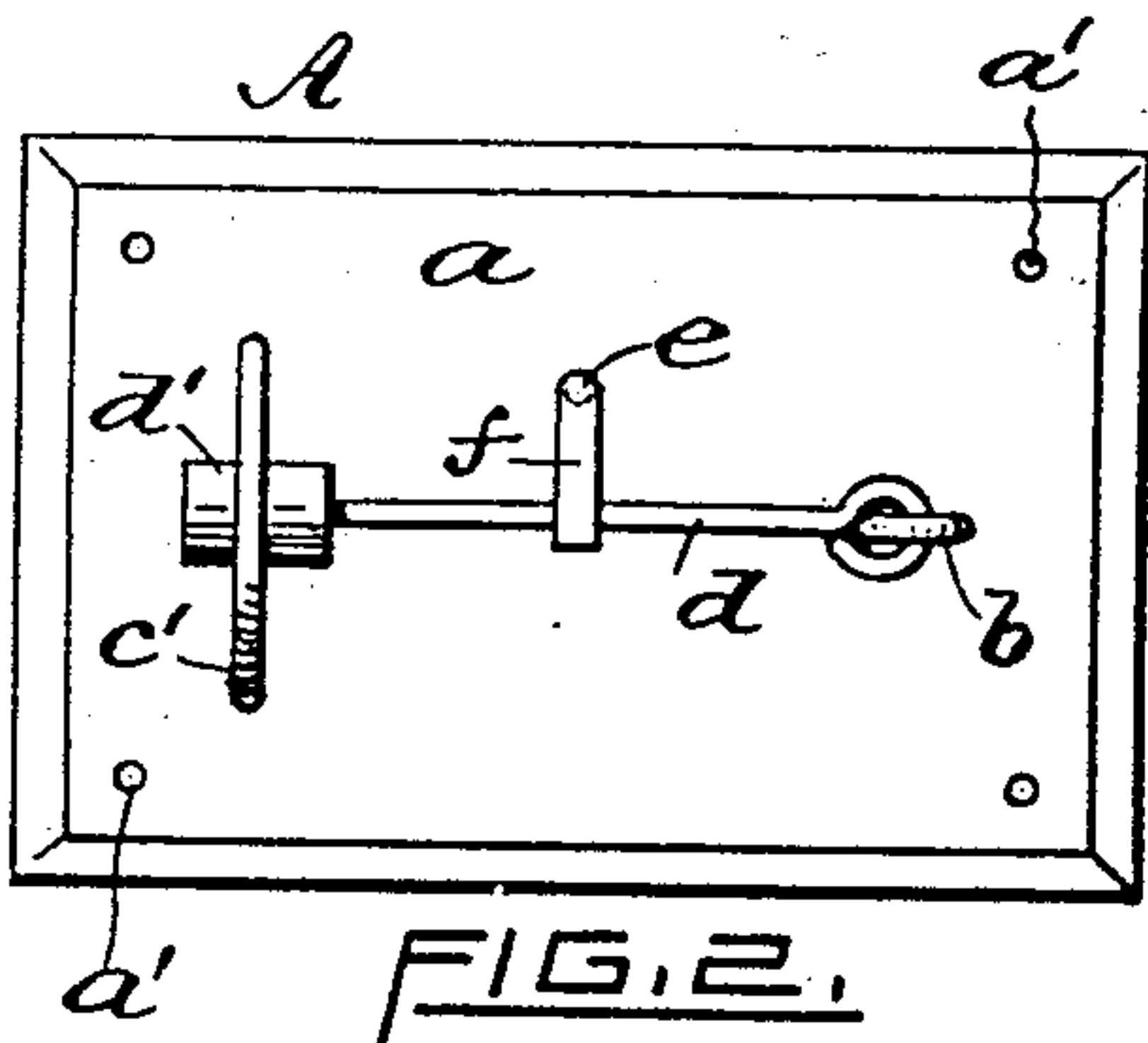
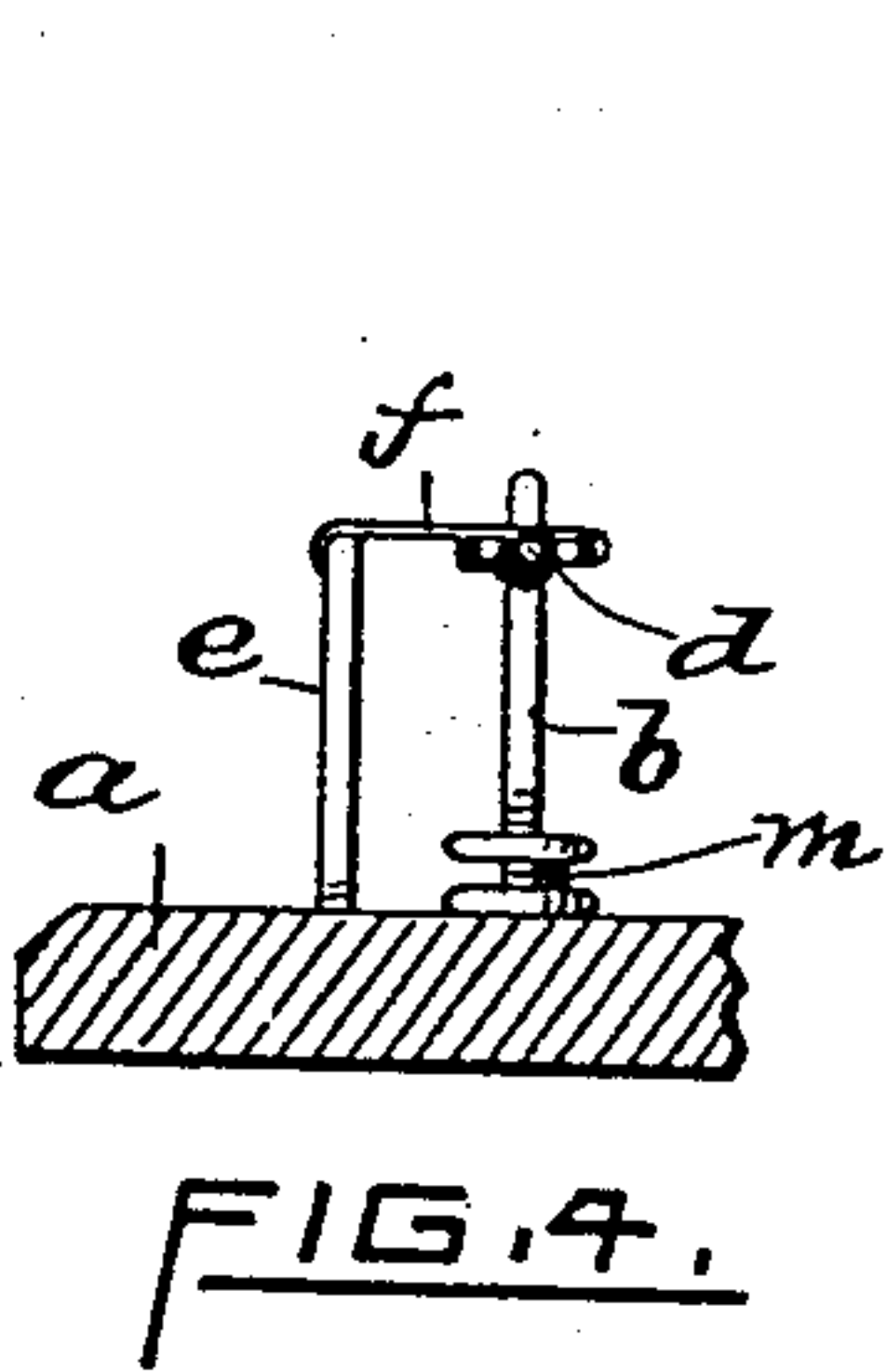
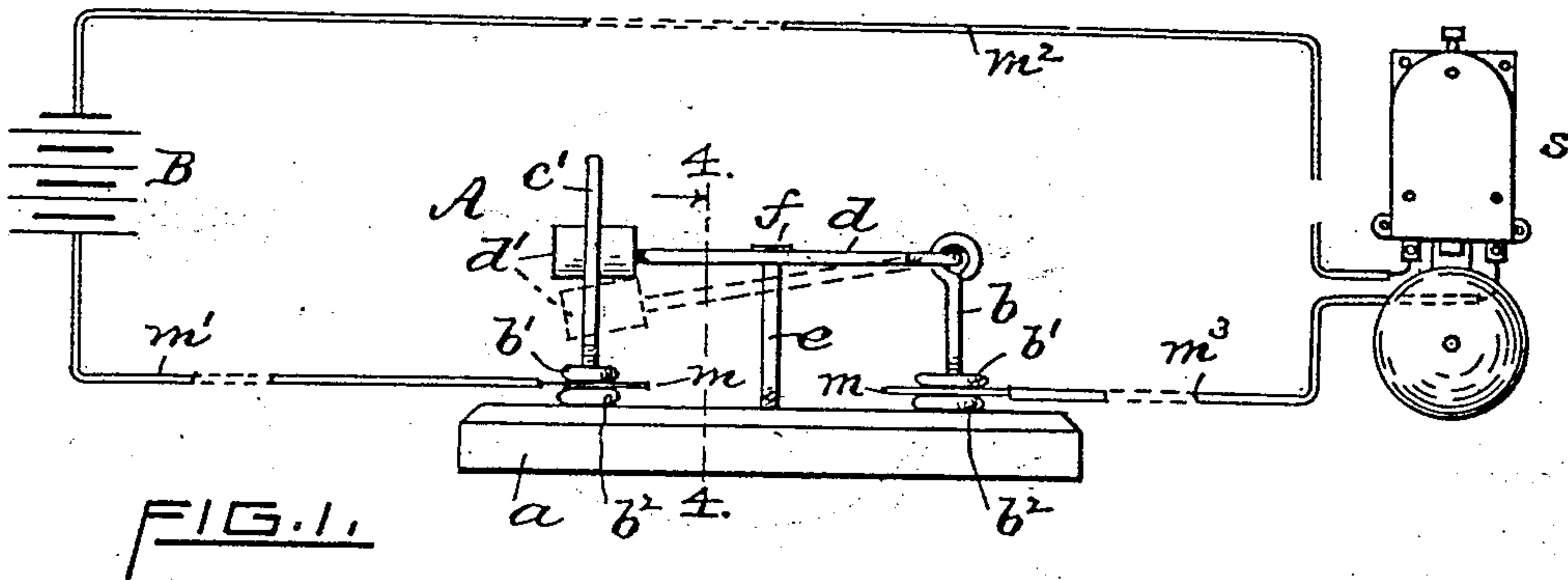


FIG. 7.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC CIRCUIT-CLOSER.

No. 843,327.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed November 21, 1906. Serial No. 344,512.

*To all whom it may concern:*

Be it known that I, LEANDRE CHARBONNEAU, a citizen of the United States of America, and a resident of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Circuit-Closers, of which the following is a specification.

My invention relates to improvements in circuit-closers or thermostats of the fusible type employed in electric signaling and adapted to become automatically operative upon the breaking out of a fire in or contiguous to a room in which the device is located.

The invention consists in the combination of a pair of suitably-mounted laterally-separated current-conducting posts, each provided with means for clamping or securing thereto the respective terminal of the main conductors or wires of an electric circuit, a self-dropping swinging current-conducting arm or lever jointed to one of the said posts, having its free end extending through a loop or ring of the other post, and a suitably-supported fusible connection joined to said lever for maintaining the latter in the normal central position in said loop, the electric circuit then being open and inoperative.

In devices of the class which relate to my invention the electric current supplied from any suitable source flows through a circuit having a signal bell or alarm located therein and capable of being energized or made operative when the circuit is closed. As usually devised the movable contact member is actuated by means of a spring at the instant the supported connecting medium of low-fusing metal melts—as, for example, in the case of a fire.

The object I have in view is to produce a simple and inexpensive circuit-closing device in which the movable contact member thereof when freed from the fusible connection drops by gravity action alone, the said action being equally responsive and efficient irrespective of the position of the device—that is to say, it may be inverted or placed at any angle as desired and still be thoroughly operative, assuming the movable contact member to lie in a horizontal or substantially horizontal plane.

In the accompanying sheet of drawings, Figure 1 represents a side elevation of my improved circuit-closer as located in an electric circuit provided with a battery and a signal-bell, the circuit being normally

open. Fig. 2 is a plan view of the device, the battery, bell, and main conductors being omitted. Fig. 3 is an end elevation. Fig. 4 is a transverse section taken on line 4-4 of Fig. 1. Fig. 5 is a partial vertical section, in enlarged scale, showing a manner of securing the post members to the base; and Figs. 6 and 7 represent the device mounted in two different positions as in use, the views corresponding with Fig. 3.

The following is a more detailed description of my improved automatic circuit-closing device A: The base *a*, made of wood or other suitable non-conducting material, is adapted to be secured to a wall or other surface by means of nails or screws passing through holes *a'*, formed in the base. To the latter is secured the two perpendicular laterally-separated independent current-conducting posts *b* and *c*. As drawn, the shank or stem portion of each post is screw-threaded and screwed into the base and also provided with a pair of current-conducting nuts or collars *b'* *b''*, adapted to firmly hold or bind the free end or terminal of the corresponding main conductor, as clearly shown. The upper portion of the post *c* is provided with an integral annular eye or ring *c'*, having a comparatively large diameter. To the corresponding end of the fellow post *b* is jointed a swinging current-conducting horizontal arm or lever *d*, its free end extending centrally through said ring *c'* and as drawn having a cylindrical weight *d'* fixed thereon. At a point—say midway of the lever *d*—the latter has soldered or otherwise secured thereto a short connection *f* of low-fusing metal, in turn secured to the vertical supporting-post *e*, fixed in the base, the construction and arrangement of the several members being such that the lever *d* when in the normal position will lie in a horizontal plane and centrally of the ring *c'*, substantially as represented in the various figures of the drawings.

Assuming my improved circuit-closing device A to be suitably mounted and cut in or interposed in one (*m'* *m''*) of the main conductors of an electric circuit which includes a battery B and signal-bell S, the manner of its operation may be described as follows: The current from the battery charges the main conductor *m''*, leading to the bell, and also charges the portion *m'* of the fellow main conductor, as well as the post *c* and its ring or eye *c'*, all being in continuous electrical connection with the battery, the other portion



$m^3$  of the main conductor leading to the bell and the post  $b$  and lever  $d$  then being normally uncharged. Now upon the breaking out of a fire contiguous to the device the heat therefrom will fuse the solder or connection  $f$ , thereby freeing the lever  $d$  from the support  $e$ , at which instant the lever swings downwardly by gravity until its free end is arrested by frictional contact with the inner side of the said conducting-ring  $c'$ . (See corresponding position, indicated by dotted lines in Figs. 1, 3, 6, and 7.) The action of the falling lever at the same time, too, automatically closes the circuit and charges the previously-uncharged members and energizes the bell, thereby sounding an alarm and completing the operation. The device may be readily reset by simply lifting the lever to the horizontal central or normal position and resecuring it to the support  $e$  by means of a new fusible connection  $f$ .

My improved circuit-closing device  $A$  is adapted to be placed as represented in Fig. 1 or inverted, as shown in Fig. 7, or even in any intermediate position, without changing or modifying its construction at all, the device being equally efficient and operative in any of said positions. This I consider a most important feature.

It may be added that in most cases I deem it advisable to permanently secure the terminals held between the binding members  $b'$   $b^2$  by soldering all the adjacent parts together, thereby preventing any liability of the conductors from becoming accidentally loosened.

What I claim as my invention, and desire to secure by United States Letters Patent, is—

1. As an improved article of manufacture, the automatic circuit-closing device substantially as herein described, the same comprising a plurality of independent suitably-mounted current-conducting binding-posts adapted to be located in an electric circuit and also adapted to be secured to the respective terminals of a main conductor, a substantially horizontal self-dropping current-conducting contact member in continuous engagement with one of the said posts and extending through but normally disengaged from the fellow post, and means secured to the said movable contact member capable of being fused at a comparatively low degree of

heat so as to release the latter from its normal position and close the circuit by gravity action, said action being irrespective of the plane in which the posts are located with respect to the said movable member.

2. As an improved article of manufacture, the circuit-closing device substantially as herein described, the same comprising a base member, a pair of binding-posts fixed therein arranged to firmly hold the respective terminals of a main conductor of electricity, a swinging self-dropping conductor member jointed to one of said posts and extending horizontally therefrom, a fusible connection for maintaining the said movable member in the normal inoperative position, and having the other one of said posts terminating in an enlarged eye or ring having the free end portion of the movable member located centrally of and extending through the eye of said post.

3. In a device of the character described, the combination with the base, a binding-post secured therein, and a self-dropping current-conducting arm jointed thereto, of a suitably-supported fusible connection for maintaining said arm in a normally fixed substantially horizontal position, a fellow binding-post also secured to the base having its free end terminating in an integral ring or eye, and having the outer end of said arm passing transversely through the center of said ring, substantially as hereinbefore set forth.

4. In a device of the character described, the combination of a suitably-mounted current-conducting swinging arm  $d$ , a connection fusible at a low degree of heat fixed to the arm and adapted to maintain the latter in the normal inoperative position, and a fixed conducting post or member having an integral eye through the center of which the free end portion of said arm freely extends, constructed and arranged so that the arm drops by gravity and contacts with the adjacent surface of said eye to close the circuit whenever the said fusible connection is melted, substantially as described.

Signed at Providence, Rhode Island, this 20th day of November, 1906.

LEANDRE CHARBONNEAU.

Witnesses:

GEO. H. REMINGTON,  
JOSEPH E. BROCHU.