

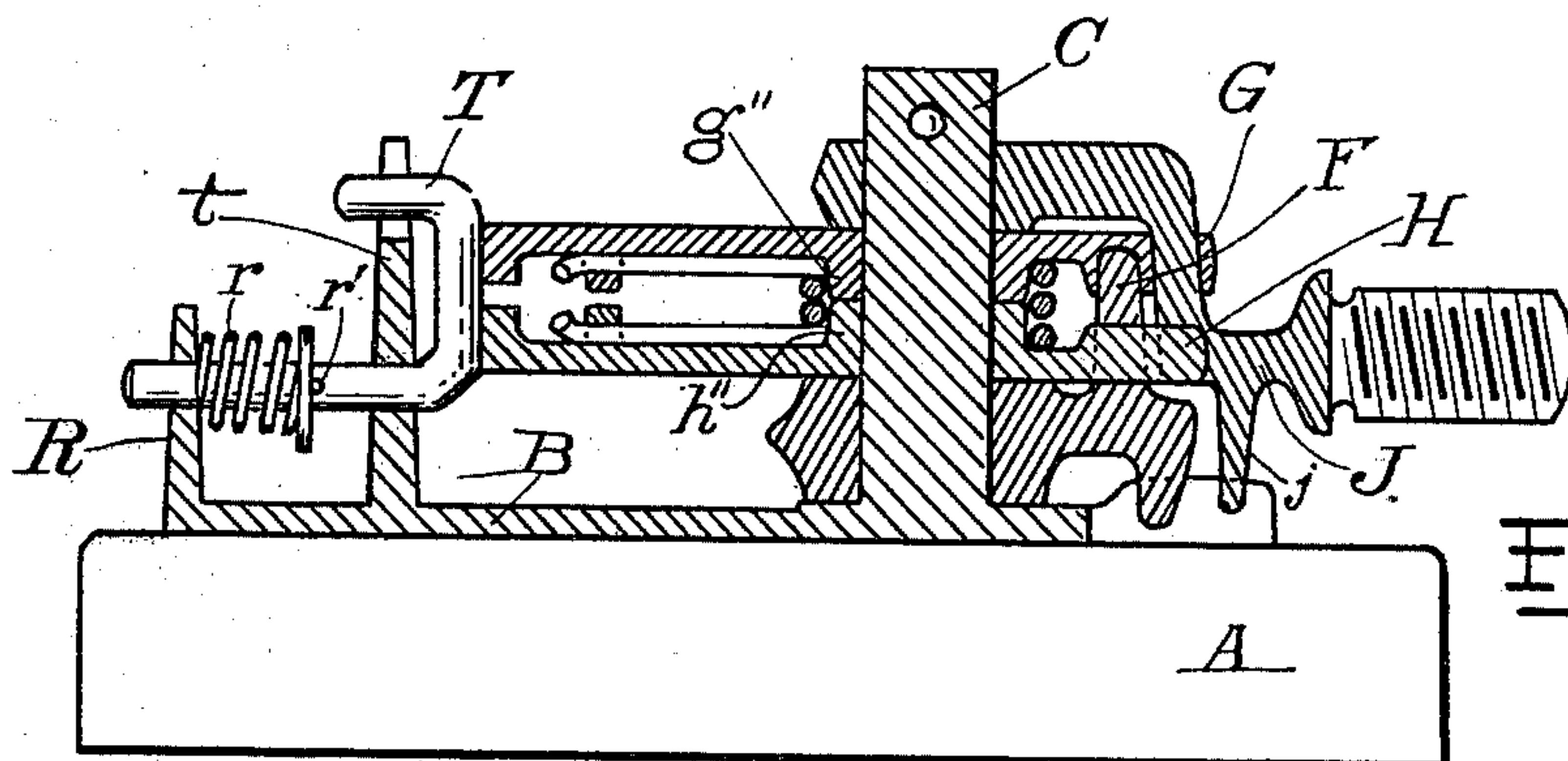
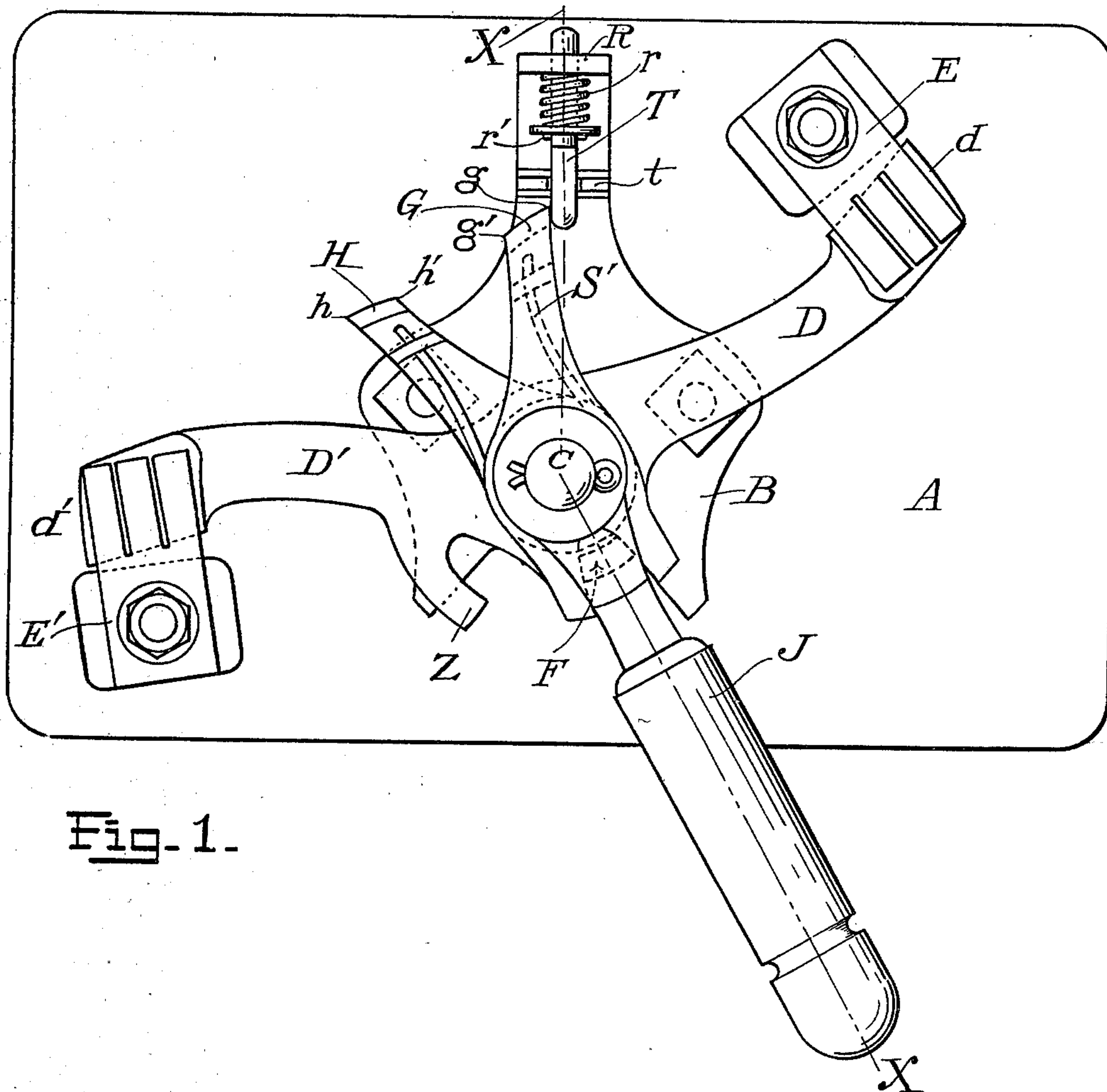
No. 672,513.

Patented Apr. 23, 1901.

J. REID, JR.
ELECTRIC SWITCH.

(Application filed Jan. 28, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES REID, JR., OF WATERVLIET, NEW YORK, ASSIGNOR TO CONSOLIDATED CAR-HEATING COMPANY, OF ALBANY, NEW YORK.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 672,513, dated April 23, 1901.

Application filed January 28, 1899. Serial No. 703,745. (No model.)

To all whom it may concern:

Be it known that I, JAMES REID, Jr., a citizen of the United States of America, and a resident of Watervliet, in the county of Albany and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to electric switches; and the object of my invention is to provide a snap-switch in which contact is made and broken suddenly with force and without the possibility of arcing or sparking. I attain this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan, and Fig. 2 is a section along lines *xx* on Fig. 1.

Similar letters refer to similar parts in both views.

Considerable injury and danger in the use of snap-switches have occurred because of the fact that although switches have been made to snap out of contact when desired, such snap action has not been made reversible, and when contact is being made in such a switch the action has been so slow that arcing has occurred and consequent damage accrued. In order that a switch may be made which is extremely simple in its construction and operation and which shall be positive in action, preventing any possibility of arcing either at the time of making contact or of breaking same, I have provided the switch illustrated in the drawings and which I now proceed to describe.

To the block A, I secure the plate B in any suitable manner, which plate B is provided with a post C, on which is mounted the switch, which is provided with two arms D D', carrying contacts *d d'*, adapted to engage with the contact-plates E E', although but one arm and one set of contacts may be used without departure from my invention. On the arms of the switch, about midway between their ends and adjacent to the post C, I arrange an upwardly-projecting lug F, extending between the ends of the spring-actuated arms G and H, between which arms G H and in contact therewith is arranged a portion of the handle J. The spring-actuated

arms G H have secured to each of them one end of the spring S', which spring has one or more turns about the hubs *g'' h''*, mounted on the post C.

T is a resilient stop arranged to engage with the ends of the spring-arms G and H, respectively. It will be noticed that the ends of the arms G H are slightly curved in opposite directions, as shown in Fig. 1. The arm G has a projecting toe *g* in contact with the stop T, the opposite edge of the end of said arm G being retreating from said toe, while the spring-arm H has its retreating portion toward the stop T. As thus arranged a movement of the handle J will force the arm H beneath the arm G. The retreating portion *h'* on the end of the spring-arm H will pass in contact with the end of the resilient stop T, causing said stop T to be pressed away from the toe *g* on the spring-arm G, and the resiliency of the spring S, which has accumulated because of the movement of the spring-arm H and reached its maximum tension at the moment when said stop T is pressed out of the way, will force the switch-arms D D' suddenly and with energy from contact with the blocks E E'. A movement in the opposite direction may then take place. The toe *h* on the spring-arm H will then be in contact with the side of the stop T, and the movement of the handle J, forcing the spring-arm G over the spring-arm H, bringing the heel *g'* on the spring-arm G in contact with the end of the resilient stop, will contract the spring on said stop and release the spring-arm H, which in turn will force the switch-bars D D' suddenly and with great force into their contact-blocks E E'.

On the switch-arm D', I preferably arrange a lug Z, with which the lug *j*, depending from handle J, will come in contact when the handle J is moved in the direction which normally opens the switch. The pressure of the lug *j* upon the lug Z as the movement of the handle continues moves the contact-plates *d d'* toward the outer edge of the brushes E E', thus loosening the contact-plates if they are inclined to stick and making it easier for the spring S to break the contacts and open the circuit abruptly and positively. Should the spring S', however, be broken or for any

other reason fail to operate, the switch is not thereby rendered useless, because the lug *j*, pressing upon the lug *Z* with the continued movement of the handle *J*, will force the switch-arms *D D'* to such a position that the contacts will be broken at *E* and *E'* and the circuit opened thereby.

The resilient stop *T*, I preferably construct of a piece of wire mounted to reciprocate within the block *t*, mounted on the plate *B*, having its shank passing through a projecting lug *R* and provided with a spring *r* on the shank, said spring having its seat against the lug *R* at one end and a suitable plate or other fastening contrivance *r'* at the other end. I do not, however, limit myself to the construction of the resilient stop as described, since any arrangement of the stop which may be operated by the movement of the spring arms or handle would fall within the scope of my invention.

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

1. In a snap-switch, a switch-arm pivoted upon a post; an upwardly-projecting lug on said switch-arm; two spring-actuated arms mounted on said post adapted to engage with said lug; a spring placed about the hubs of said arms, the ends of said spring being attached to said arms, respectively; a switch-handle adapted to engage with the ends of said spring-actuated arms near their ends adjacent to said lug, so arranged that a movement of the switch-handle will tend to move one of said spring-actuated arms and place

said spring under tension; a resilient stop arranged to hold one of said spring-actuated arms until it is pressed out of engagement therewith by the other of said spring-actuated arms after said spring has received its maximum tension, substantially as described.

2. In a snap-switch, a switch-arm mounted on a vertical post; an upwardly-projecting lug on said switch-arm; two spring-actuated arms mounted one above the other on said vertical post; a spring coiled about the hubs of said spring-actuated arm; the ends of said spring attached to said spring-actuated arms, respectively; a switch-handle arranged to engage with said spring-actuated arms near their ends; a resilient stop with which said spring-actuated arms engage; a projection on said switch-arm adapted to engage with the projection of said switch-handle, substantially as described.

3. In a snap-switch, a switch-arm mounted on a post; a lug on said switch-arm; two spring-actuated arms; a spring having its ends attached to said arms; said spring mounted on said post; a switch-handle arranged to move said spring-actuated arms and place said spring under tension; a resilient stop; substantially as described and for the purpose set forth.

Signed by me at Albany, New York, this 27th day of January, 1899.

JAMES REID, JR.

Witnesses:

W. W. ERWIN,
CHAS. B. MITCHELL.