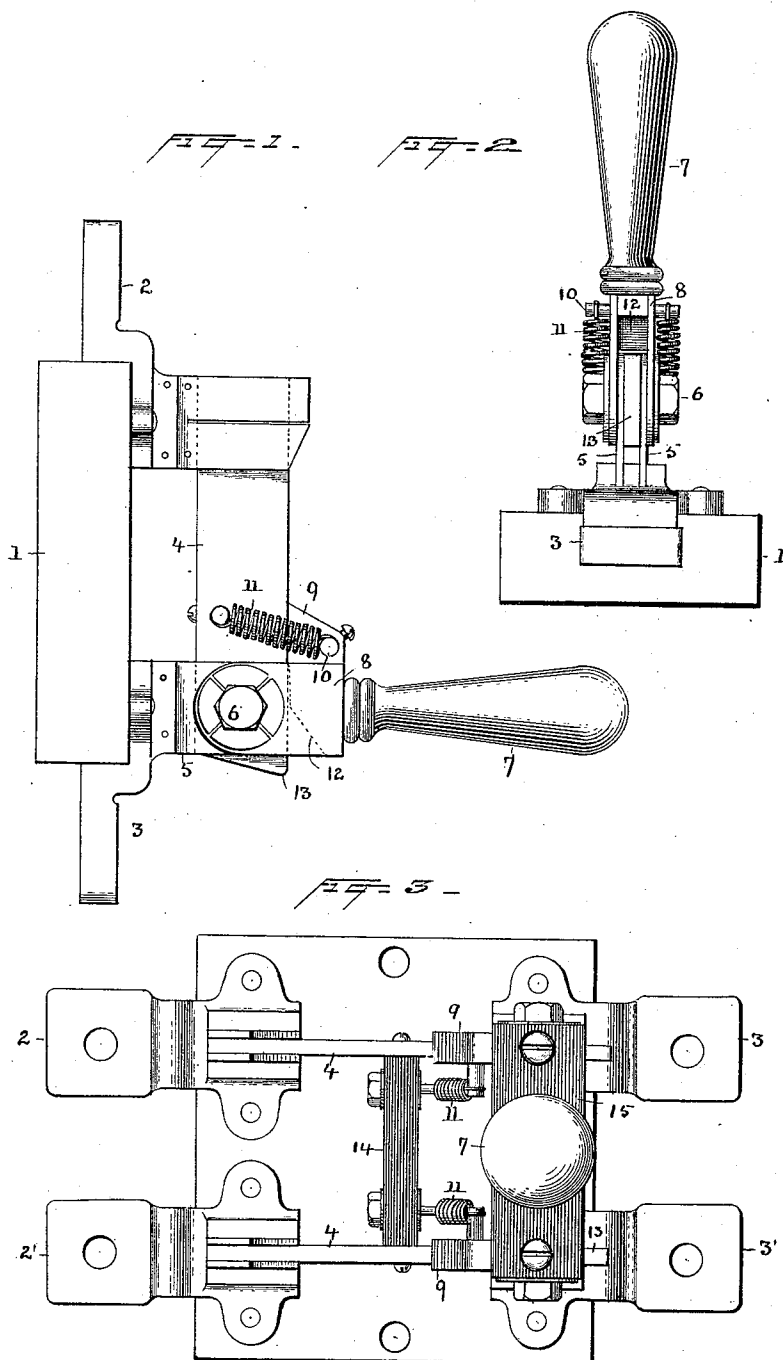


(No Model.)

W. S. ANDREWS.  
ELECTRIC SNAP SWITCH.

No. 465,511.

Patented Dec. 22, 1891.



Witnesses  
Norris A. Clark  
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Inventor  
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# UNITED STATES PATENT OFFICE.

WILLIAM S. ANDREWS, OF NEW YORK, N. Y., ASSIGNOR TO THE EDISON  
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## ELECTRIC SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 465,511, dated December 22, 1891.

Application filed May 7, 1891. Serial No. 391,874. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. ANDREWS, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a certain new and useful Improvement in Snap-Switches, of which the following is a specification.

The present invention relates to that class of switches now in common use in electric-lighting and other systems employing heavy currents, commonly known as "snap-switches;" and the main object of the invention is to provide a simpler and more inexpensive construction of switches of this character; and the invention consists in the several features and combinations hereinafter specifically set forth.

In the accompanying drawings, Figure 1 is a side view of a single-pole switch made according to my improvement. Fig. 2 is an end view of the same, looking from the right of Fig. 1; and Fig. 3 is a plan view of a double-pole switch embodying the same improvement.

1 is a base of slate or any suitable insulating material on which circuit-terminals 2 3 are mounted. The terminal 2 consists of two upright perpendicular springs, between which the switch-arm 4 is wedged when the circuit is closed. Terminal 3 is provided with two upright standards 5, between which one end of the switch-arm 4 is pivoted by means of a bolt 6. The handle 7 is provided with two projecting flanges 8, which fit over the standards 5, and are provided with holes through which the bolt 6, already referred to, passes. From one side of the handle projects a lug 9, adapted to bear on the upper edge of the switch-arm. Through this lug passes a pin 10, and to each end of the pin is connected a spiral spring 11, the opposite ends of which are connected to the switch-arm 4. When the switch is operated, this spring is put under increased tension by being elongated, and acts in a straight line, as distinguished from an action due to further coiling of the spring. The lower face of the part 9 is cut away, as indicated at 12. The switch-arm 4 is extended to the rear of the pivot 6, as indicated at 13.

In Fig. 3 the construction is similar to that

already described; but instead of the two terminals 2 3 four terminals 2 3 2' 3' are used. A side view of this switch would be the same as the side view of the single-pole switch, except that neither of the springs 11 would appear, since they are arranged between the two switch-arms. In this switch the two arms are connected by an insulating-plate 14 and a second insulating-plate 15, to which the handle is connected. The first-mentioned insulating-plate carries two devices, to which the springs 11 are connected. In both of these switches the pivoted arm is connected by the pivot-bolt directly to one of the switch-terminals in a manner to form an excellent conducting-path for the current. The spiral springs 11 are also so connected as to improve the conductivity of this part of the switch. The springs are so mounted that they are easily put in place, and easily replaced if new springs become necessary, without separating any of the other parts of the switch, and are preferable to flat springs heretofore used in similar switches.

The operation of the switch is as follows: To open the circuit, the handle 7 is pulled toward the right, turning it on its pivot 6 and putting the springs 11 under tension. When the handle has been moved far enough to bring face 12 into contact with the upper edge of the switch-arm at the rear of the pivot, thus forming a positive connection between said parts, any further movement of the handle must also move the switch-arm, and when said arm has been partially withdrawn from the terminal 2 the springs 11 suddenly throw said arms and break the circuit instantaneously, for a purpose well understood by persons familiar with the art.

What I claim is—

1. The combination, in a switch or circuit breaker, of a base, terminals mounted on it and extending perpendicularly therefrom, a switch-arm pivoted to one of the terminals and movable in a plane at right angles to the base, a handle pivoted to the same terminal and movable independently of the switch-arm, a spiral spring connecting the handle and switch-arm, means for positively communicating motion from the handle to the switch-arm after the former has made a par-

tial movement, and a second terminal in position to co-operate with the switch-arm, substantially as described.

2. The combination, in a switch or circuit breaker, of a circuit-terminal, a switch-arm pivoted thereto, a handle pivoted to the same terminal, but movable independently of the switch-arm, a lug projecting from the handle and connected to the switch-arm by one or more spiral springs, said handle being provided with an inclined face 12, adapted to strike the switch-arm and move it after the springs have been put under tension, and a second terminal in position to co-operate with the switch-arm, substantially as described.

3. The combination, in a switch or circuit breaker, of a circuit-terminal, a switch-arm pivoted thereto, a handle pivoted to the same terminal, but movable independently of the switch-arm, a lug projecting from the handle and connected to the switch-arm by one or more spiral springs, said handle having means on the opposite side of the pivot to the lug and springs to engage the switch-arm and move it after the springs have been put under tension, and a second terminal in posi-

tion to co-operate with the switch-arm, substantially as described.

4. The combination, in a two-pole switch, of two terminals, a switch-arm pivoted to each terminal, a handle common to both arms and pivoted to the same terminals, but moving independently of said arms, one or more spiral springs connecting said handle and switch-arms, and two other terminals in position to co-operate with said switch-arms, substantially as described.

5. The combination, in a switch or circuit closer, of circuit-terminals, switch-arms pivoted to said terminals, said arms being rigidly connected together, but insulated from each other, a handle common to said switch-arms and pivoted to the same terminals, but movable independently of the switch-arms, and one or more springs connecting said handle and switch-arms, substantially as described.

This specification signed and witnessed this 30th day of April, 1891.

WILLIAM S. ANDREWS.

Witnesses:

CHARLES M. CATLIN,  
J. A. YOUNG.