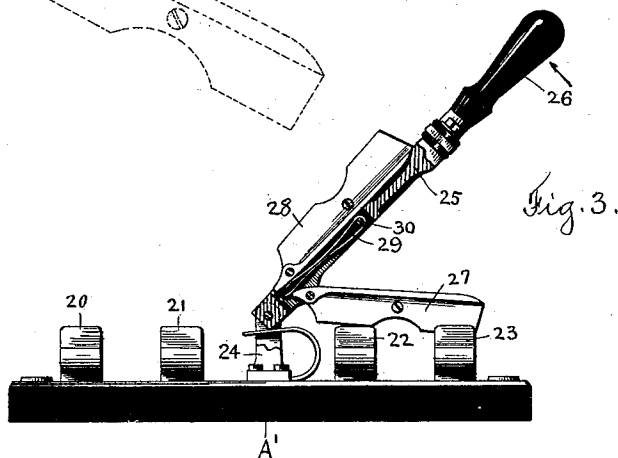
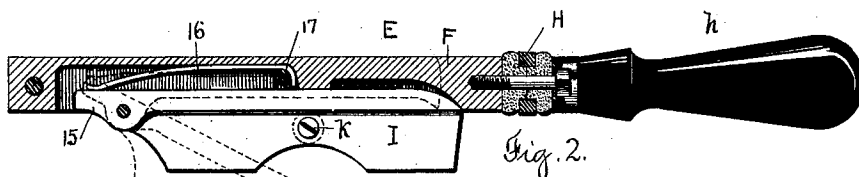
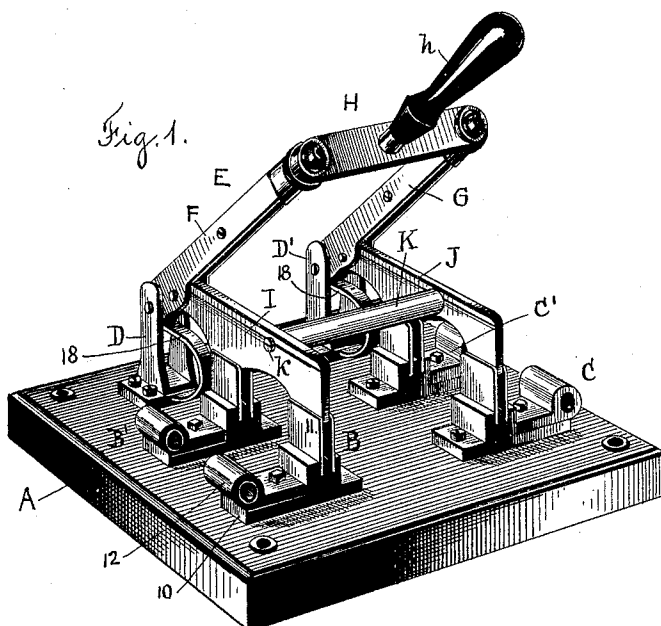


(No Model.)

G. E. LINTON.
ELECTRIC SWITCH.

No. 546,821.

Patented Sept. 24, 1895.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE E. LINTON, OF WORCESTER, MASSACHUSETTS.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 546,821, dated September 24, 1895.

Application filed January 4, 1895. Serial No. 533,808. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. LINTON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Electric Switches, of which the following is a specification.

The object of my invention is to improve the construction of electric switches; and the especial object of my invention is to provide an electric switch with means for moving the switch-blades quickly out of engagement with the contact-pieces, thus overcoming the tendency to produce sparking when the connections are broken.

To this end my invention consists of the parts and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of a double-pole switch constructed according to my invention. Fig. 2 is a detail sectional view of the pivoted switch-frame, and Fig. 3 illustrates a modified form of construction.

Referring to the drawings and in detail, A designates a base-plate, which is preferably constructed of marble or other insulating material and is provided with two sets of contact-pieces B and C and B' and C'. These contact-pieces may be of any desired or approved construction, and, as shown in the drawings, they are provided with a base-plate 10, supporting a pair of copper jaws 11, and have a socket or terminal 12 secured thereto.

Secured in the base-plate A in line with the contact-pieces I provide two independent stands D and D'. The switch-frame E is pivoted in the stands D and D', and, as illustrated, the switch-frame consists of two longitudinally-slotted side bars F and G, which are connected together at their outer ends by means of an insulated cross-bar H, carrying the operating-handle h.

The switch-blades I and J are pivoted in the side bars of the switch-frame, the pivots of said switch-blades being arranged eccentrically with reference to the pivots of the switch-frame.

As shown most clearly in Fig. 2, the switch-knives I and J are provided with tail-pieces

15, which extend beyond the pivots of said switch-blades and are engaged by suitable springs 16, which are located in recesses in the side bars of the switch-frame and are secured in place by means of bolts or studs 17.

Secured in the stands D and D' and engaging the ends of the side bars of the switch-frame I provide U-shaped springs 18, as shown. As the ends of the side bars of the switch-frame are substantially rectangular, it is obvious that the U-shaped springs may engage the base or either side of the side bar of the switch-frame to hold the switch-frame in the desired position.

In order to cause the switch-blades I and J to move simultaneously, I provide an insulated connecting-bar K, which may be secured in place by means of screws k.

The operation of a switch as thus constructed may be briefly described as follows: Whenever it is desired to break the circuit the pivoted switch-frame is raised by means of the handle h. The friction between the contact-pieces and the switch-blades I and J will overcome the tension of the flat spring 16, and the switch-blades will remain in engagement with the contact-pieces until the switch-frame has been turned into such a position that the tailpieces 15 will engage the bottom of the recesses in the side bars of the switch-frame, as illustrated by dotted lines in Fig. 2. The switch-blades I and J will then be positively actuated or turned, and when said switch-blades have been moved out of engagement with the contact-pieces the spring 16 will quickly restore them to their normal positions, as illustrated by the full lines of Fig. 2. It is obvious that the pivots of the switch-frame may also serve as the pivots for the switch-blades; but I prefer to provide independent pivots for the switch-blades a short distance away from the pivots of the switch-frame. The object of this construction is to cause the switch-blade to be moved simultaneously out of engagement with both of its contact-pieces.

Inasmuch as the switch-blade extends an equal distance down into each of its contact-pieces, it is obvious that if the switch-blade turns about a fixed pivot it will be first disengaged from the contact-piece which is farthest from its center of motion. In my pre-

ferred construction, however, the switch-blades are not pivoted upon a fixed center; but, as illustrated in Figs. 1 and 3, it will be seen that the pivots of the switch-knife will first be raised, thus raising the rear end of the switch-knife, and the parts are so proportioned that the switch-knife is simultaneously disengaged from both of its contact-pieces.

Switch-blades which are constructed and mounted according to my invention are especially applicable to double-throw switches, and I have illustrated such a construction in Fig. 3. Referring to this figure, A' designates a base-plate, which is provided with two sets of contact-pieces 20 and 21 and 22 and 23, which are located on either side of central stands 24. Pivoted in the central stands 24 is a switch-frame 25, which may be actuated by means of an insulated handle 26. Pivoted in the switch-frame 25 are the switch-blades 27 and 28, which are arranged back to back, as shown. Engaging with the tail-pieces of the switch-blades is a double or hair-pin-shaped spring 29, which is secured in place by means of a stud or screw 30. The operation of this form of switch is substantially the same as that hereinbefore described, except that it is to be noted that when the switch-frame is raised by means of the insulated handle 26 the tail-piece of one of the switch-blades will engage with the corresponding tail-piece of the other switch-blade instead of engaging the bottom of the recess in the switch-frame, as in the construction before described.

While I have illustrated double or multi-polar switches, it is obvious that certain features of my invention can be advantageously employed in single-pole switches, and it is obvious that in a single-throw switch the switch-frame would consist of a single pivoted bar instead of two side bars and an insulated cross-piece, and where I use the term "switch-frame" in the claims I do not wish to be limited to the form of switch-frame which I have illustrated.

I am aware that other changes may be made in the construction of the device by those who are skilled in the art, and I do not wish, therefore, to be limited to the construction which I have shown and described; but

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

1. In an electric switch, the combination of a base-plate, a plurality of contact pieces, stands arranged in line with said contact pieces, a pivoted switch-frame having slotted side-bars pivoted in said stands, an insulated cross-bar for said side-bars, switch-knives pivoted in said side-bars, springs for said switch-knives, and an insulated connection between said switch-knives for causing them to turn together, substantially as described.

2. In an electric switch, the combination of a base-plate A, contact pieces mounted upon said base-plate, a stand arranged in line with said contact pieces, a switch-frame pivoted in said stand, a U shaped spring for engaging said switch-frame and holding the same in the desired position, a switch-blade having its pivot eccentrically arranged with reference to the pivot of the switch-frame, said switch-blade having a tail-piece 15 for engaging the switch-frame and causing said switch-blade to turn therewith, a flat spring 16 for said switch-blade, and a stud 17 for securing said spring in place, substantially as described.

3. In a double-throw electric switch, the combination of a base-plate, a plurality of contact pieces, a pivoted switch-frame, a plurality of independently movable switch-knives arranged back to back in said switch-frame, said switch-blades having engaging tail pieces, and a spring for actuating said switch-blades, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE E. LINTON.

Witnesses:

PHILIP W. SOUTHGATE,
LOUIS W. SOUTHGATE.