No. 681,776. Patented Sept. 3, 1901.

W. F. BOSSERT.

ELECTRIC SWITCH.

(Application filed May 20, 1901.)

(No Model.)

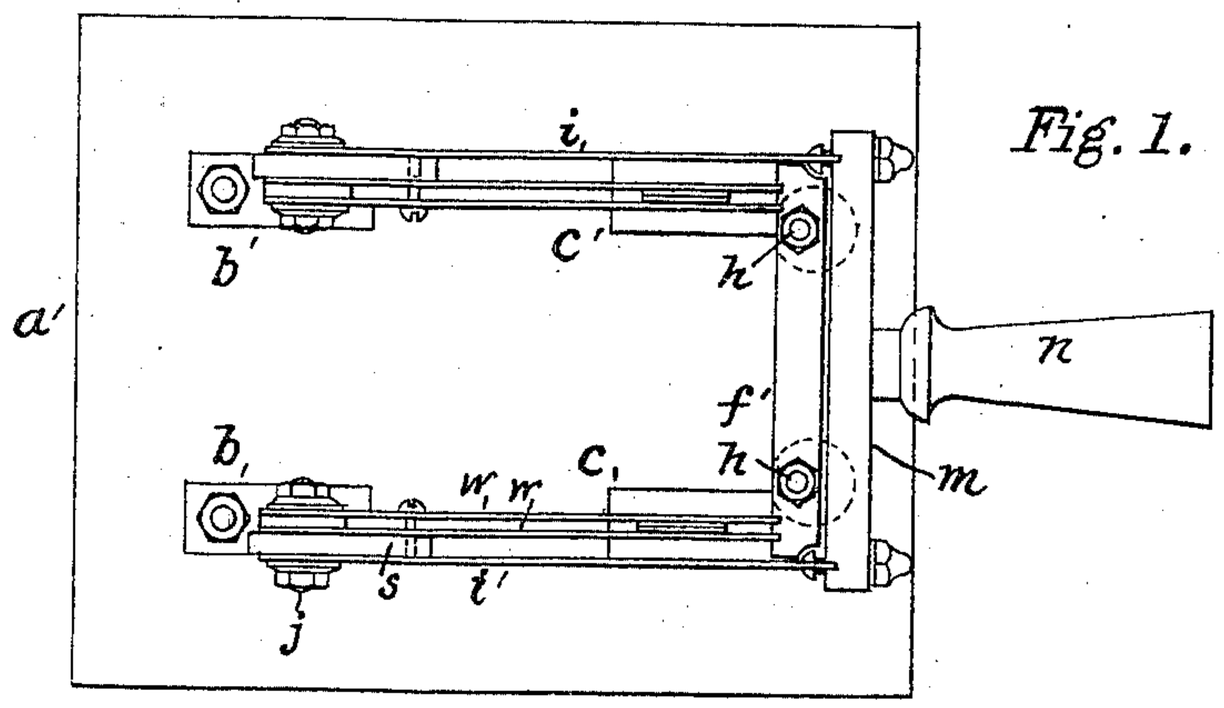

Fig. 1.

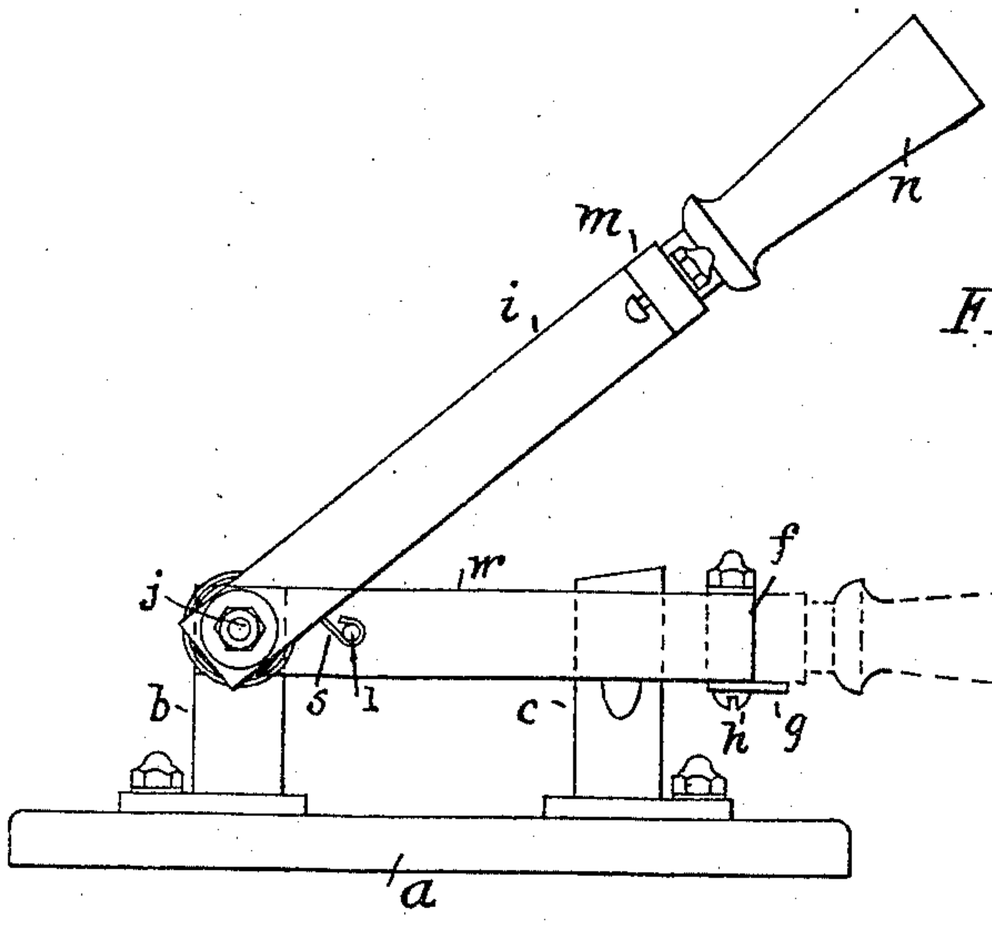

Fig. 2.

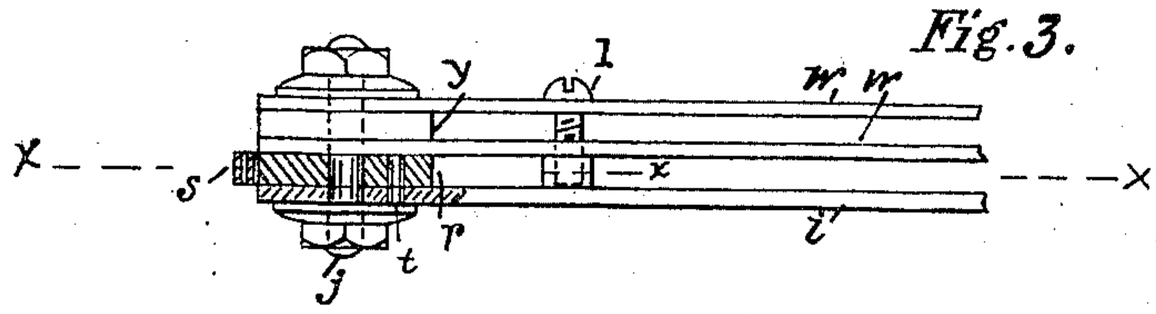

Fig. 3.

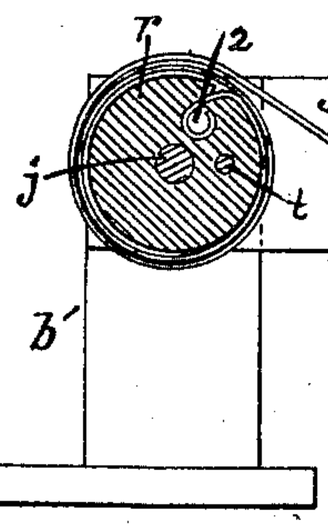

Fig. 4.

WITNESSES:

M. I. Pierce.

James E. Lynch

INVENTOR.

William F. Bossert

BY

Geo. Willis Pierce

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM F. BOSSERT, OF UTICA, NEW YORK.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 681,776, dated September 3, 1901.

Application filed May 20, 1901. Serial No. 60,976. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BOSSERT, residing at Utica, in the county of Oneida and State of New York, have invented certain Improvements in Electric Switches, of which the following is a specification.

The present invention relates to quick-break electric switches employed to control power-currents and is illustrated with the double-pole variety of switches with which the two conductors of a metallic circuit are closed or opened, designed to meet the demand for a quick-break switch for less than one hundred amperes and two hundred and fifty volts.

It is well understood that the object of quick-break switches is to open a live circuit as quickly as possible in order to prevent an arc being formed between the opening-blade and the clips, or at least to reduce such arcing to the least possible amount.

In carrying out the invention I provide hinge-posts, to which the double conducting-blades are pivoted, and with suitable clips, which are tightly embraced by the said blades, the latter being connected at their free ends by a bar of insulating material. Pivoted to the said hinge-posts, one to each post, are metal non-conducting blades, which extend parallel with the said conducting-blades and are connected at their free ends by a bar of insulating material, to the center of which is attached a handle. The said non-conducting blades and handle-bar inclose the conducting-blades and their insulating-bar and are preferably of the same widths as the latter, so as to present a uniform appearance. The non-conducting blades are separated from the conducting-blades, and between their pivoted ends at each hinge-post is a metal disk provided with a slot to hold the end of a volute spring, which incloses the disk with two or three volutes, and its end is carried outward in the space between the said blades and secured by a loop to a pin inserted into the side of the conducting-blade adjacent to the non-conducting blade. The said hinge-posts and clips are secured in the customary manner to a base of marble or slate, all of which I will now proceed to describe, and point out in the appended claims.

Referring to the drawings which illustrate the invention, Figure 1 is a plan view of the switch. Fig. 2 is a side view. Fig. 3 is a plan view, on enlarged scale, of a hinge-post and the blades pivoted thereto, partly in section; and Fig. 4 is a section of the latter figure on line *x x*.

a represents an insulating-base of marble or slate, to which are secured the copper hinge-posts *b b* and the clips *c c*, the hinge-posts and clips being provided with feet or base portions, by means of which they are anchored to the base-plate *a* by means of screws, as is usual.

Each pole of the switch consists of two conducting-blades *w w*, pivoted at one end to the upper part *y* of the hinge-post *b* by a bolt *j* and are separated or spaced from one another by said part *y*. Their opposite ends are firmly fastened to the insulating cross-bar *f*, which unites the two poles of the switch, and the blades are adapted to pass over and inclose the spring-clips *c* and make frictional contact with their outer surfaces. *i i* are non-conducting blades also pivoted by the bolts *j* to the respective hinge-posts *b b* on the outsides thereof, and their free ends are firmly secured into the side of an insulating cross-bar *m*, which is provided with a handle *n*.

Attached to the under side of the cross-bar *f* are the stop-plates *g g*, which project beyond the outer face of the bar. They are secured to the bar by the screws *h h*. When the bar *m* and its handle *n* are in the position shown in dotted lines, Fig. 2, the said bar rests upon the plates *g g*, and when the handle is raised sufficiently, as shown in full lines, the blades *w w* spring upward and are stopped by the plates *g g* striking against the bar *m*, and when the handle is depressed to close the blades upon the clips all of the blades are brought down together.

The outer conducting-blade *w* is separated from its contiguous non-conducting blade *i* by a disk *r*, which is fastened to the latter blade by the pin *t* and moves with it. It is provided with a slot 2, into which is secured the bent end of a flat volute spring *s*, whose opposite end is carried out and bent around a screw I, which extends from the inner conducting-blade through the second blade *w* to nearly touch the non-conducting blade *i*. When the blades are upon the clips *c c*, the

non-conducting blades, with their cross-bar and handle, are parallel with the conducting-blades, as shown in dotted lines in Fig. 2, and in this position the springs *s* are relaxed and there is no pull upon the conducting-blades *w w;* but when it is desired to open the circuits closed by the two pole-switches the handle *n* is raised, and when the non-conducting blades *i i* reach the position shown in full lines in Fig. 2 the blades *i i* will have carried the inner ends of the springs around and wound up their coils upon the disks *r r* and exerted a pull upon the conducting-blades *w w* through their outer ends, and the screws *l l* and the blades *w w* are pulled up toward the upper part of the clips *c c*, where the friction is much less, and then the resiliency of the springs brings the said blades quickly away from the clips and the plates *g g* come against the under side of the cross-bar *m* with a snap. The springs are made sufficiently strong to enable them to bring the blades *w w* away from the clips very swiftly and avoid producing an arc. By means of this construction I am enabled to remodel the ordinary form of springless switch with comparatively small expense.

Although I have described the invention in connection with a double-pole switch, each switch having two conducting-blades, it is evident that it may be applied to a single-pole switch with one conducting-blade and also to a double-pole switch with single conducting-blades.

Having described my invention, I claim—

1. An electric switch consisting of an insulating-base secured to which are one or more hinge-posts and complementary clips, and one or more conducting-blades pivoted to a hinge-post, with a non-conducting blade or blades provided with a handle also pivoted to said hinge-post having attached to its pivoted end one terminal of a volute spring whose opposite end is secured to the adjacent conducting-blade, whereby when the non-conducting blade is raised the spring is wound up and the circuit opened, as set forth.

2. A double-pole electric switch consisting of an insulating-base secured to which are two hinge-posts and two clips, one of each for each switch, the switches severally having two separated conducting-blades pivoted at one end to its hinge-post and adapted to close over its clip with frictional pressure the opposite ends of the blades being secured to an insulating cross-bar; with a non-conducting blade pivoted to each hinge-post the free ends of which are secured to an insulating cross-bar provided with a handle, each non-conducting blade being united to its contiguous conducting-blade by a volute spring, adapted to be wound up when the non-conducting blades are raised, as set forth.

3. An electric switch consisting of an insulating-base secured to which is a hinge-post and a complementary clip, a conducting-blade pivoted at one end to the hinge-post and adapted to close upon the clip with frictional pressure at the opposite end; with a non-conducting blade pivoted to the hinge-post the free end of which is secured to an insulating-handle, the blades being connected together by a volute spring one end of which is attached to the conducting-blade and the other secured to the periphery of a disk upon which it is wound, as set forth.

4. An electric switch consisting of an insulating-base secured to which is a hinge-post and a complementary clip, a conducting-blade pivoted at one end to the hinge-post and adapted to close upon the clip with frictional presure at the opposite end; with a non-conducting blade pivoted to the hinge-post the free end of which is secured to an insulating-handle, the blades being connected together by a volute spring one end of which is attached to the conducting-blade and the other secured to the periphery of a disk upon which it is wound, the said non-conducting blade and disk being integral with each other and are, with the conducting-blade, pivoted to the hinge-post by a common bolt, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of May, 1901.

WILLIAM F. BOSSERT.

Witnesses:

FRANK G. SCOFIELD,

FRED T. FOXENBERGER.