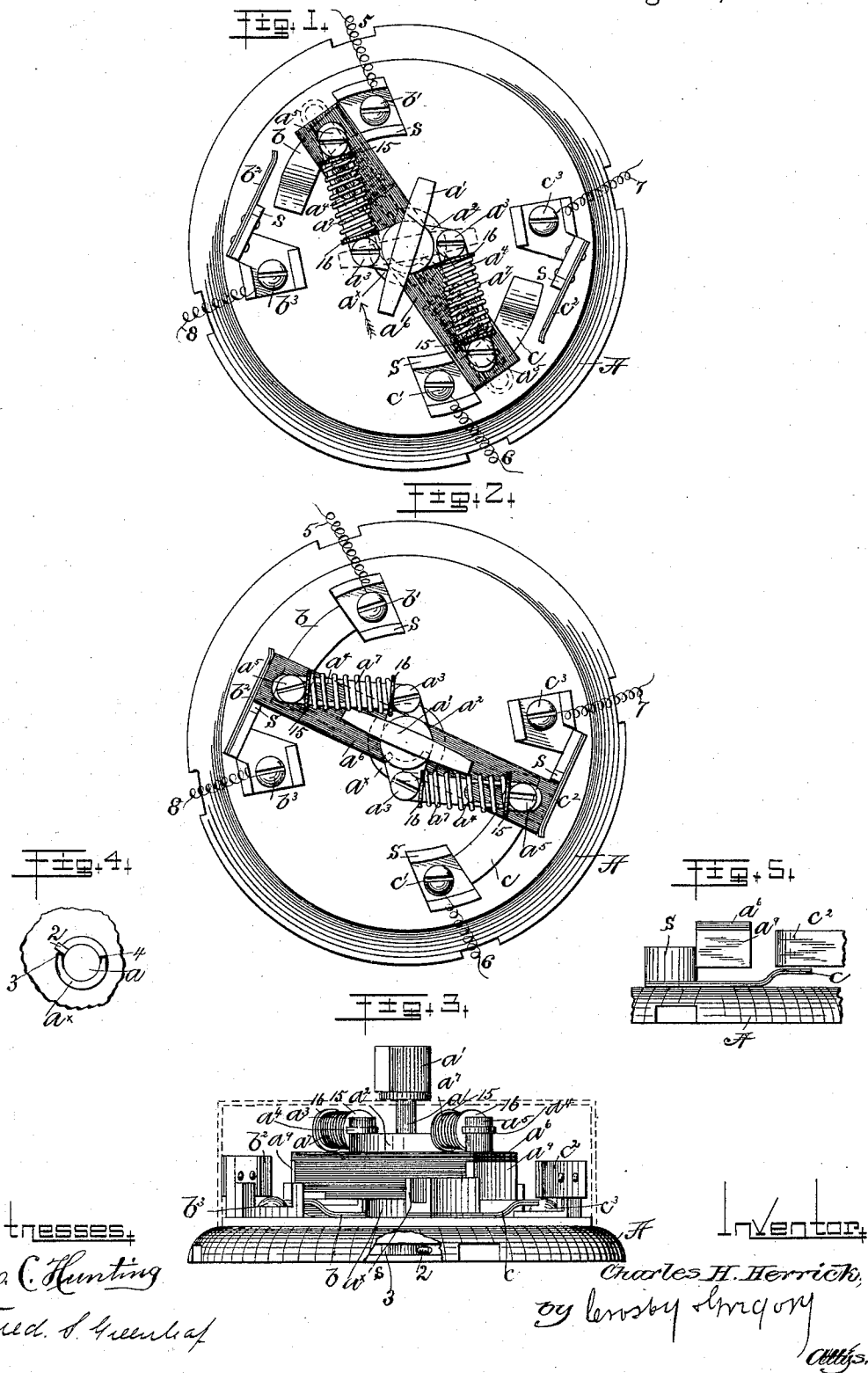


(No Model.)

C. H. HERRICK.
ELECTRIC SWITCH.

No. 435,093.

Patented Aug. 26, 1890.



UNITED STATES PATENT OFFICE.

CHARLES H. HERRICK, OF WINCHESTER, MASSACHUSETTS.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 435,093, dated August 26, 1890.

Application filed May 16, 1890. Serial No. 352,057. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HERRICK, of Winchester, county of Middlesex, State of Massachusetts, have invented an Improvement in Electric Switches, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to improve electric switches of the class wherein the switch-bar is thrown from one to the other position quickly by the action of a spring to avoid forming an arc.

15 In accordance with this invention the switch-bar is mounted loosely upon a central shaft or spindle, and at its ends the said switch-bar is preferably acted upon by two springs carried by two oppositely-extended arms fixed
20 to or forming a part of the central spindle, rotation of which carries the said arms to one or the other side of the center line of the switch-bar, causing the springs to act to throw the said switch-bar into one or another of
25 the two positions.

My invention therefore consists in the combination, with a spindle having an arm, of a switch-bar mounted on said spindle and a spring interposed between the end of said
30 switch-bar and said arm, as will be described.

Other features of my invention will be hereinafter described, and pointed out in the claims.

Figure 1 is a plan view of my improved
35 switch with the cover removed; Fig. 2, a similar view with the switch-bar in another position; Fig. 3, a side elevation of the switch shown in Fig. 1; Fig. 4, a partial under side view, to be referred to; Fig. 5, a partial side
40 view, to be referred to.

Referring to the drawings, the base A has a suitable bearing a^x for the spindle a , having at its outer end a suitable handle a' and at its lower end a stop 2, which moves between the limiting-blocks 3 4 formed in said bearing, as shown in Fig. 4, and the said spindle, as represented, has formed upon it the oppositely-extended arms a^2 , provided at their ends with screws or studs a^3 , on which are
45 pivoted the bars a^4 , loosely connected at their outer ends to projections a^5 , preferably made as screws or studs and attached to opposite
50

ends of the switch-bar a^6 , preferably of insulating material, loosely mounted on the spindle a' , the said bars a^4 being surrounded
55 by spiral springs a^7 , which bear at opposite ends against the said projections or against washers 15 16, interposed as shown. The ends of the switch-bars a^6 are fitted with conducting contact-plates a^9 , adapted to engage
60 when in its position, as shown in Fig. 2, the fixed main-line contact-pens $b^1 c$, and the auxiliary contact-pens $b^2 c^2$, and when in other position, as shown in Fig. 1, said contact-plates are out of engagement with all of said
65 pens, as shown in Fig. 5; but if desired the main line-contact-pens $b^1 c$ may be so shaped and located that the contact-plates a^9 will always be in engagement therewith and the auxiliary contact-pens alone be cut in or out
70 by movement of the switch-bar. It will be seen that the main line and auxiliary pens overlap each other, so that when in one position, as in Fig. 2, the contact-plates a^9 will engage both the main line and auxiliary
75 pens, while in its other position, as shown in Figs. 1 and 5, both contact-pens are out of engagement and contact with the plates a^9 , both the local or branch line and the main line being in this instance interrupted or cut
80 out.

Referring to Fig. 1, the switch-bar a^6 is shown in its normal position with the contact-plates a^9 out of contact with the pens. Now, if the handle a' be turned in the direction of arrows 25, the arm a^2 will be moved
85 into their dotted-line position, Fig. 1, directly in line with the switch-bar a^6 , pressing the springs a^7 , the stops s preventing the switch-bar from moving in that direction; but as soon
90 as the arms a^2 are moved beyond the center line of the switch-bar a^6 the springs a^7 will act from the opposite side of the center line to throw said bar immediately over into the position shown in Fig. 2 in contact with both
95 main line and auxiliary pens, the operation being the reverse, but precisely the same, to throw the switch back into its normal position, Fig. 1, the stop 2 on the spindle a' retaining the same and its arms a^2 from rotation beyond a certain point in either direction. Therefore the entire strength of the
100 springs is exerted to keep the switch-bar in one or the other position. It is only neces-

sary to turn the handle a' sufficiently to carry the arms a^2 beyond the center line of the switch-bar, when the springs will immediately throw the same to its extreme position, although the handle be held in that position.

In practice a shell or cover incloses the operating parts, to exclude dust, &c., as shown by dotted lines, Fig. 3.

In some classes of switches I shall employ only one arm a^2 , its spring a^4 acting upon one end only of the switch-bar; and in what are known as "single-pole switches" I may employ only one set of pens, as b and b^2 .

I do not desire to limit my invention to the particular construction shown, as the same may be varied without departing from the scope of this invention.

I claim—

1. The combination, with the rotatable spindle a , having an arm a^2 , of a pivoted switch-bar a^6 of greater radial length than the said arm a^2 , a spring interposed between and carried by the said arm and the outer end of the said switch-bar, and the co-operating contacts, to operate substantially as described.

2. The combination, with the rotatable spindle a , having an arm a^2 , and the shoulders 3 4 and the co-operating stop 2, of a pivoted switch-bar a^6 , of greater radial length than the said arm a^2 , the spring a^7 , and co-operat-

ing contacts for said switch-bar, all to operate substantially as described.

3. The combination, with the rotatable spindle a , having an arm a^2 , and the shoulders 3 4 and the co-operating stop 2, of a switch-bar a^6 , of greater radial length than the said arm a^2 , the spring a^7 , contacts b b^2 , and stops s , substantially as described.

4. The rotatable spindle, its arm a^2 , having studs, and the pivoted switch-bar having projections moving in arcs of greater radius than the studs on the arms a^2 , combined with links loosely connecting the said studs and projections, the interposed springs, and contacts for said switch-bar, all to operate substantially as described.

5. The rotatable spindle a , having oppositely-extended arms a^2 , combined with the pivoted switch-bar a^6 , of greater radial length than the said arms a^2 , springs interposed between said arms and the ends of the said switch-bar, and the contact-pens b c b^2 c^2 , to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. H. HERRICK.

Witnesses:

FREDERICK L. EMERY,
BERNICE J. NOYES.