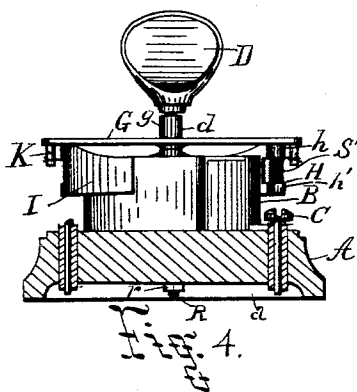
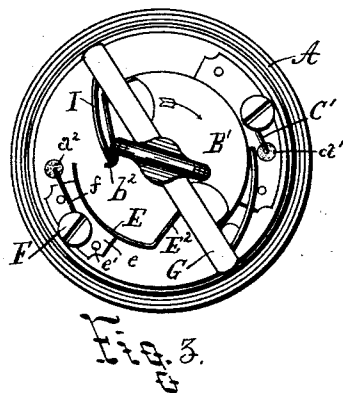
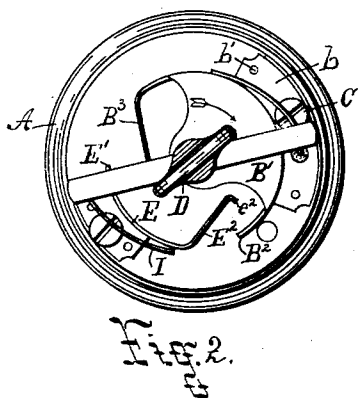
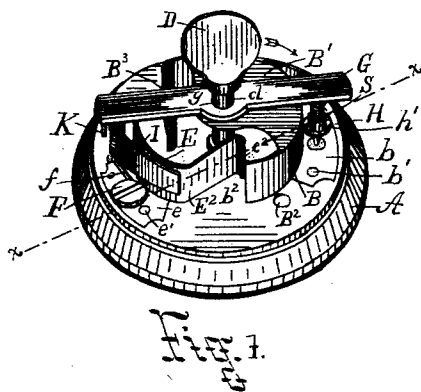


(Model.)

H. E. WERLINE.
ELECTRIC SWITCH.

No. 520,279.

Patented May 22, 1894.



Witnesses
Ella L. Gerhart
D. M. Rothenburger.

Inventor
Henry Elmer Werline
By Attorney
H. M. R. Gerhart

UNITED STATES PATENT OFFICE.

HENRY ELMER WERLINE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF
THREE-FOURTHS TO FRANK S. BARR, OF SAME PLACE, AND EDWIN L.
REINHOLD AND HENRY BURD CASSEL, OF MARIETTA, PENNSYLVANIA.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 520,279, dated May 22, 1894.

Application filed February 15, 1893. Serial No. 462,442. (Model.)

To all whom it may concern:

Be it known that I, HENRY ELMER WERLINE, a citizen of the United States, residing in Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Electric Single-Pole Switches, of which the following is a specification.

This invention relates to that class of electric switches known as "single pole" switches and by which an electric circuit may be opened and closed; and the objects of the invention are, first, to produce a switch in which all the working parts are exposed, so as to render them easy of access; second, to construct a switch with which the circuit can be opened or closed instantaneously; and, third, to prevent the operating parts from turning or being turned backward, and thus preventing injury to the same.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then specifically pointed out in the claims.

The invention is illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective top view of the switch, showing the parts in the position they occupy when the circuit is closed. Fig. 2 is a top plan view of the same, and Fig. 3 a similar view, but showing the parts in the positions occupied by them when the circuit is open. Fig. 4 is a side view of the operating parts and showing the base in section on the line $x-x$, Fig. 1.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A represents an annular base recessed or hollowed out in the bottom, as shown at a , Fig. 4. On and toward one side of the base there is located a shell composed of a vertical contact-plate B curved concentrically with the base, and a lateral plate B' extending and tapering inward toward the center, where it is perforated to form a bearing for the revoluble spindle d of handle D. On the lower outer edge of plate B there is a horizontal flange b , extending to the periphery of the base and through holes in which said shell is secured

to the base by screws or rivets b' . A binding-screw C is attached to flange b and secures thereto the switch-wire C', which is carried through the insulated opening a' . Contact-plate B is extended beyond the sides of lateral plate B'. One of these extensions, B², is cut off squarely, as would be the end of the arc of any plain circle, but the other has its end B³ deflected and extended for a distance inward in a straight line, at the end of which its extremity, b^2 , is turned outward to form a shoulder at approximately right-angles therewith.

Diametrically opposite contact-plate B there is located a similar contact-plate E, having a horizontal flange e fastened to base A by screws or rivets e' , and having a switch-wire f secured thereto by binding-screw F, said switch-wire passing through insulated opening a^2 . Contact plate E is shorter than contact-plate B, and has its square end E' and its deflected end E² located, respectively, opposite the deflected end B³ and the square end B² of contact-plate B. The square end E' laps shoulder b^2 of contact-plate B and the deflected end E² extends within and is lapped by the square end B² of contact-plate B and has a shoulder e^2 formed thereon similar to shoulder b^2 . This deflection of the alternate ends of the contact-plates more fully insures the complete breaking from the adjacent plates of the brushes, to be hereinafter described.

Handle D is shaped as a hand-hold and has formed therewith the spindle d , that extends through the before mentioned perforation in lateral plate B' and down to and through base A, its lower end being threaded and engaged by nut R, bearing against washer r , interposed between said nut and the bottom of the base.

Above contact-plates B and E there is located a conducting brush-bar G, formed with a collar g , rigidly secured on spindle d of handle D. The brush-bar extends horizontally on both sides to and beyond the contact-plates.

On the under side of the brush-bar there are attached downwardly extending pins H. Brushes I, consisting of curved contact-plates, have their butts connected with pins H by bosses h h' , and with them form hinges for

the brushes, which taper therefrom toward their free ends, that bear on the contact-plates B and E. Around the stems of pins H, and between the bosses h and h' , are coiled springs S, the lower ends of which engage the outer faces of the brushes, and the upper, studs K, located on the under side of the brush bar outside of pins H. Springs S act to keep brushes I in engagement with contact plates B and E.

In operating, the brushes are revolved in the direction of the arrows shown in Figs. 1, 2 and 3, whereby, when the opposite brushes are in engagement with the opposite contact plates, the circuit is closed through the medium of said brushes and the conducting brush-bar, and when both brushes are in engagement with contact-plate B, the circuit is open. Accidental retraction of the brushes is prevented by shoulders b^2 and e^2 .

I do not confine myself to the details of construction shown and described, as it is obvious that many changes may be made in the arrangements and connections of the various parts without departing from the spirit of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, the corresponding end of each contact-plate taking inside of the adjacent end of the other plate, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

2. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, one of the contact-plates being of greater length than the other and the corresponding end of each of said plates taking inside of the adjacent end of the other plate, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

3. The combination, with oppositely located curved contact-plates having their corresponding ends deflected from the arcs thereof and lapping but separated from the adjacent ends of said arcs, of a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

4. The combination, with a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar, of oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, the said contact plates being in position to be engaged

by said brushes and having shoulders formed on the ends thereof which receive said brushes as they pass from one contact-plate to the other, substantially as and for the purpose specified.

5. The combination, with a switch-spindle, a conducting brush-bar secured thereto, and spring-actuated brushes attached to the brush-bar, of oppositely located curved contact-plates in position to be engaged by the brushes and having the ends thereof lapping, the alternate ends of said plates being deflected from the adjacent ends of each other, and shoulders formed on said deflected ends, substantially as and for the purpose specified.

6. The combination, with a base, of a contact-plate, as B, curved concentrically therewith and having an inwardly extending plate, a similar curved contact-plate, as E, located opposite contact-plate B and having one end lapping the inside of one end of said plate B and the other the outside of the opposite end thereof, the ends of plate E being separated from the ends of plate B, a switch-spindle journaled in said inwardly-extending plate, a conducting brush-bar secured to the switch-spindle, and spring-actuated brushes attached to the brush-bar and adapted to engage the contact-plates, substantially as and for the purpose specified.

7. The combination, with oppositely located curved contact-plates having their contiguous ends lapping but separated from each other, of a switch spindle, a conducting brush-bar secured thereto, brushes having bosses engaging hinge-pins on the ends of the brush-bar, springs coiled around the hinge-pins between said bosses and having an end of each engaging one of the brushes and the other end a stud on the brush-bar, substantially as and for the purpose specified.

8. The combination, with a base, of a contact-plate, as B, curved concentrically therewith and having an inwardly extending plate, a similarly curved contact-plate, as E, located opposite contact-plate B and having one end lapping the inside of one end of said plate B and the other the outside of the opposite end thereof, the inner end of each contact plate being deflected from the adjacent end of the other contact-plate and having a shoulder formed on the outside of the extremity thereof, a switch-spindle journaled in said outwardly extending plate, a conducting brush-bar secured to the switch-spindle, brushes having bosses engaging hinge-pins on the ends of the brush-bar, springs coiled around the hinge-pins between said bosses and having one end of each engaging one of the brushes and the other end a stud on the brush-bar, substantially as and for the purpose specified.

HENRY ELMER WERLINE.

Witnesses:

J. K. BARR,

WM. R. GERHART.