July 21, 1925. 1,547,009

C. E. ANDERSON

ELECTRIC SWITCH

Filed June 11, 1924

Fig. 1.

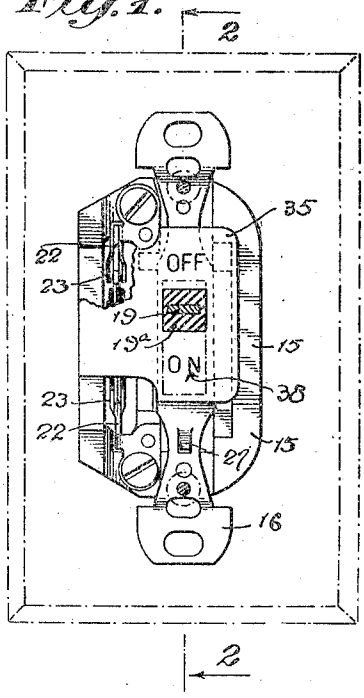


Fig. 3.

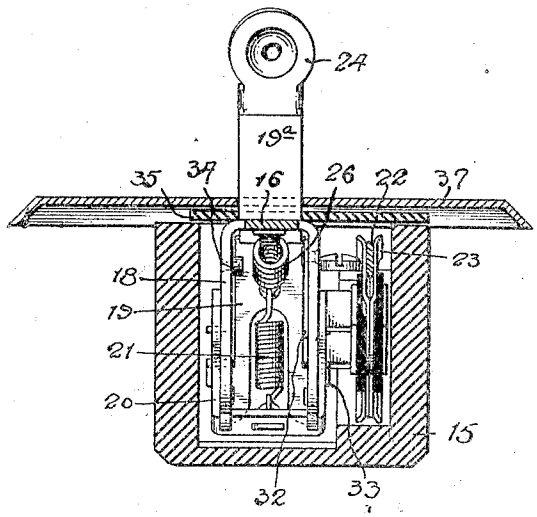
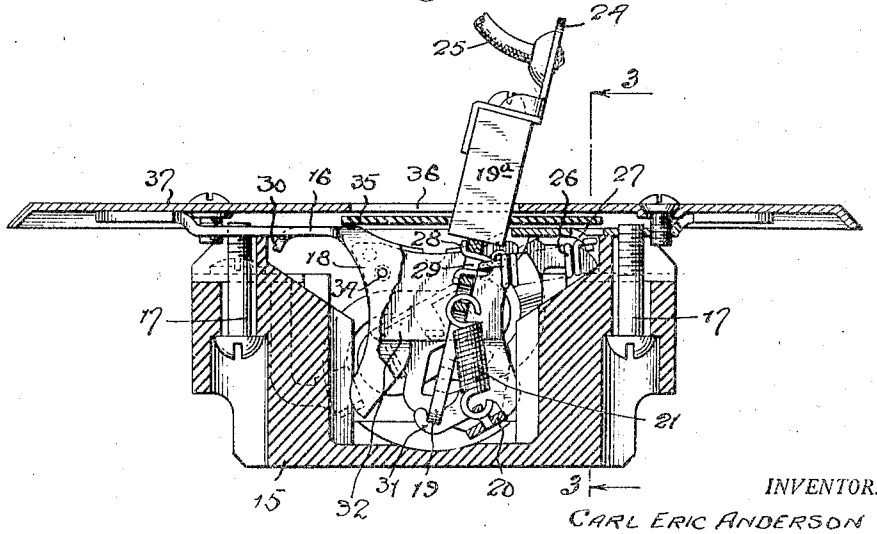


Fig. 2.



INVENTOR.
CARL ERIC ANDERSON
BY
ATTORNEYS.

Patented July 21, 1925. 1,547,009

UNITED STATES PATENT OFFICE.

CARL ERIC ANDERSON, OF STRATFORD, CONNECTICUT, ASSIGNOR TO THE BRYANT ELECTRIC COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

ELECTRIC SWITCH.

Application filed June 11, 1924. Serial No. 719,395.

To all whom it may concern:

Be it known that I, CARL ERIC ANDERSON, a citizen of the United States of America, residing at Stratford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to electric switches, and particularly to a switch having rock lever operated mechanism. The object of my invention, aside from certain improvements in structural details, is to provide a switch of the momentary contact type, and particularly by means of appliances which may be utilized to transform a standard switch construction for this purpose.

In the accompanying drawings—

Fig. 1 is a broken plan of a switch in which my invention is embodied in one form;

Fig. 2 is a section on the line 2—2, Fig. 1; and

Fig. 3 is a section on the line 3—3, Fig. 2.

A switch of the momentary contact type is particularly useful in hospital signal systems, where it is desirable to provide means by which the patient may momentarily open or close a circuit to operate a call signal. While such use of the present switch is particularly contemplated by me, the application of the features of novelty of construction to switches for other uses, or in switches other than the flush type shown, will be obvious to any one dealing with the matter.

As illustrated, my invention is embodied in a flush toggle switch comprising a cup-shaped insulating body 15 adapted to be mounted in an outlet box (not shown) by means of the centrally apertured rigid supporting yoke 16 which extends longitudinally across the open face of the cup-shaped body, and is secured thereto by means of end screw bolts 17. The switch frame, in which the moving parts of the switch mechanism are mounted, is provided by the spaced parallel wings 18 integral with the yoke and offset from opposite side margins of the latter. Mounted to oscillate on the frame after the fashion disclosed in my copending application Ser. No. 509,242, filed October 21, 1921, are the forked operating lever 19 and the switch bar yoke 20 interconnected by the toggle spring 21 straddled by the lever to effect the snap throw of the switch bar carrier. I have shown a switch of the single-pole double-break type, with but a single pair of switch contacts 22 and a single switch bar 23 carried by the yoke 20. It will be obvious that if a double-pole arrangement be desired, a duplication of the contacts and switch bar on the opposite side of the mechanism may be provided as shown in my application above mentioned.

Mounted upon the insulating thumb piece 19^a of the operating lever 19 is a sheet metal bracket 24, provided with a countersunk perforated seat for the reception of a knot in the end of a pull cord 25, by which the lever may be thrown in one direction. To shift the switch lever in opposite direction, I provide a return spring 26, one end of which is anchored to the lug 27 struck inward from the supporting yoke 16, while the other end is attached in any suitable way to the rock lever 19, above the anchorage for the switch spring 21. For this purpose I have shown an anchor clip 28 pasing through a hole 29 in the lever 19 and engaged by the hooked end of the return spring 26. It is obvious that upon the swing of the lever 19 by pull on the cord 25, the stress on spring 26 is increased and is sufficient to automatically return the lever to its original position upon release of the pull cord.

In the construction shown, the throw of the switch, upon operation of the pull cord 25, is to open circuit position. If the signal system is such that a momentary closure of the circuit is desired, it is only necessary to reverse the position of the lever 19 with respect to the mechanism, and to anchor the return spring 26 to the lug 30 at the opposite end of the yoke 16. Alternatively, the bracket 24 on the handle 19^a may be reversed, instead of reversing the lever as a whole.

Omission of the return spring 26 and of the pull cord bracket, leaves the switch in its ordinary condition, in which the rocker 19 must be manually shifted in both directions to make or break the circuit. The presence of the anchor hole 29 in the lever 19, and of the anchor lugs 27 on the yoke 16 in no way affects the mechanism for operation in this fashion, when the return spring 26 and its pull cord 25 are absent. These features may therefore be incorporated as standard features of construction, by which,

on the addition of the return spring 26, bracket 24 and cord 25, the type of switch may be readily changed.

Certain features of improvement in details of the switch mechanism are also indicated. Thus, while the rock lever 19 is normally held in its open bearing 31 in the frame 18 by the stress of the spring 21, it has been possible heretofore to pull the lever outward sufficiently to unseat it from the bearing and to displace it laterally and thus derange the mechanism. To prevent this I provide a locking plate 32 of thin sheet metal which is mounted on the inner face of the frame 18 (after the assembly of the switch mechanism thereon) and overlies the laterally projecting lug 33 of the lever sufficiently closely to prevent the complete displacement of the lever out of its open bearing.

In the construction shown in my copending application above referred to, the throw of the operating lever is halted by the ends of the opening in the yoke 16 through which is passes. I have found it preferable to limit its throw by means of studs 34 projecting inward from one of the side members of the frame 18 to which they are riveted.

A combined indicator and cover sheet 35 is provided, which prevents the entry of dust and dirt into the switch chamber through the opening 36 in the cover plate 37 through which the handle 19^a of the operating lever passes. The sheet 35 is arranged between the supporting yoke 16 and the cover plate 37, and is apertured to accommodate the handle 19^a. On the throw of the lever 19 the plate 35 shifts across the opening 36, but it is of sufficient extent to close the latter at all times. At appropriate points on opposite sides of the handle 19^a legends 38 are provided which are exposed through the opening 36, and disclose the condition of the switch. The rectangular shape of the handle 19^a and the opening in the sheet 35 prevents angular displacement of the sheet and serves to maintain it in proper position. It is supported at its opposite side margins upon the upper surface of the side walls of the cup-shaped body 15.

Modifications in details of structure will readily occur to those skilled in the art, which do not depart from which I claim as my invention.

I claim—

1. In an electric switch, a cup-shaped insulating body, a supporting yoke extending across the open face of the body, a switch mechanism arranged within the chamber of the body and comprising an operating rock lever, together with a return spring anchored at one end to the rock lever and at its other end to the supporting yoke and tending constantly to throw the lever in one direction.

2. In an electric switch, an operating rock lever forked to straddle a switch bar operating spring and having an anchorage adjacent the crotch of the fork for said spring, said lever having a second anchorage, spaced from said crotch of the fork, for a return spring.

3. In an electic switch, a supporting yoke, apertured between its ends to permit the play of a switch operating rock lever, and provide between said lever-way and the end of the yoke with an anchorage for a return spring adapted to be engaged between said lever and yoke.

4. In an electric switch mechanism, a switch frame having an open bearing, a rock lever freely pivoted in said open bearing, and means rigid with the frame for preventing the escape of the lever from said bearing.

5. In an electric switch mechanism, a switch frame having an open bearing, a rock lever freely pivoted in said open bearing, and a lock plate attached to the frame and overlying the entrance to the open bearing therein to prevent the escape of the rock lever therefrom.

In testimony whereof I have signed my name to this specification.

CARL ERIC ANDERSON.