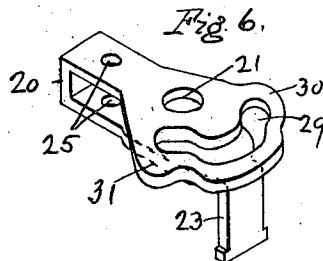
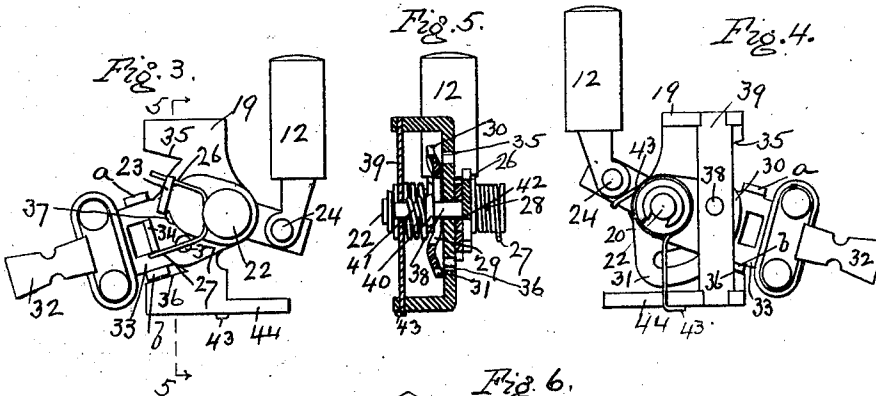
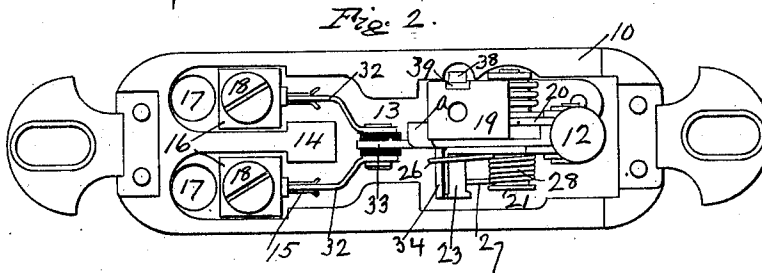
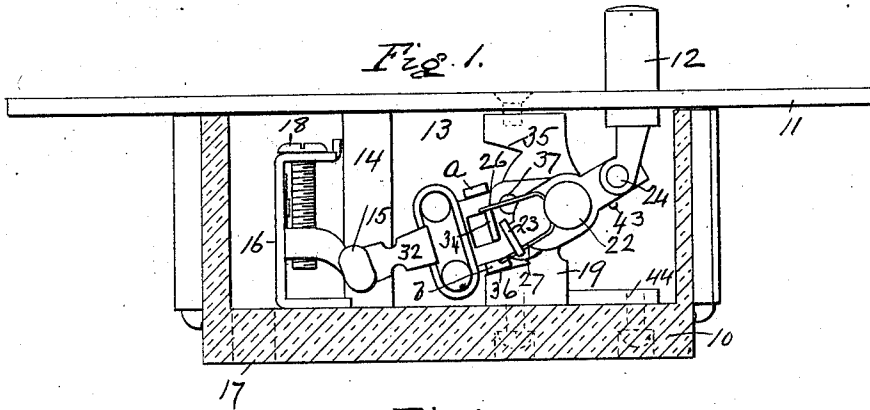


E. ANDERSON.
ELECTRIC PUSH SWITCH.
APPLICATION FILED DEC. 21, 1911.

1,030,860.

Patented July 2, 1912.



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ELECTRIC PUSH-SWITCH.

1,030,860.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed December 21, 1911. Serial No. 667,133.

To all whom it may concern:

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

My present invention relates to electric push switches and particularly to the type thereof commonly known as door switches, the object of my invention being to provide an improved actuating mechanism for a switch of this character.

In the accompanying drawings, Figure 1 is a longitudinal elevation of my improved switch, one side of the casing being removed and showing the switch mechanism in one position; Fig. 2 is a plan view with the face plate removed; Fig. 3 is a side elevation of the switch mechanism alone and in a different position from that shown in Fig. 1; Fig. 4 is a side elevation of the switch mechanism in the position shown in Fig. 1, but from the opposite side thereof; Fig. 5 is a vertical section on the line 5-5, Fig. 3; and Fig. 6 is a perspective of the rock bar drawn to an enlarged scale.

The switch illustrated comprises a switch box 10 of insulating material, with metal cover plate 11, through which the push button 12 projects. Within the switch chamber 13 a wall 14 of insulating material is arranged to form a barrier between the switch terminals, symmetrically arranged on each side thereof, only one, 15, being shown in Fig. 1. These terminals are preferably carried by standards 16 arranged adjacent the wire apertures 17, through which the circuit wires are led to the binding screws 18.

Extending between the cover plate 11 and the base of the box 10 and secured thereto, I arrange an upright frame 19 on which the switch mechanism is pivoted. This mechanism comprises a rocker bar 20 pivoted at 21 (Fig. 6) on the spindle 22, which passes through and is supported in the standard 19. As will be more clearly noted from Fig. 6, the rocker bar 20, in the form shown, comprises a blank of sheet metal folded back upon itself in U-form with a lug 23

projecting at right angles from one arm thereof. This rocker bar embraces the standard and is supported by the pivot pin 22 thereon. At one end of the rocker bar the push button 12 is pivoted on a pin 24 passing through the perforations 25 (Fig. 6). One arm of the rocker bar carries the lug 23 which is straddled by the extended ends 26, 27, of the switch spring 28 coiled upon the pivot pin 22. The other arm of the rocker bar is expanded into a fan-shaped end which is slotted at 29 and offset at 30 and 31 to form cams, the utility of which will be hereinafter described.

The switch blades 32 are carried upon a pivoted arm 33 swiveling upon the pivot pin 22. A lug 34 is struck up from this arm and in assembled position is straddled by the ends of the spring 28 in like manner as the lug 23 of the rocker bar. The extent of oscillation of the switch arm is limited by the shoulders 35 and 36 formed in the standard 19 against which the overturned stop lugs *a* and *b* impinge. In assembled position the switch arm lies between the standard 19 and the branch of the rocker bar which carries the spring engaging lug 23, and the respective lugs 23 and 34 are spaced radially different distances from the center of oscillation on the pivot pin 22, so that they are free to pass each other.

Detent-engaging holes 37 are punched in the switch arm to cooperate with the transverse laterally movable detent pin 38 carried by the upright 39 extending between the top and bottom flanges of the standard 19. This detent pin is provided with a shoulder 40, Fig. 5, between which and the upright 39 is arranged a spring 41 which tends to press the pin through slot 29 in the rocker bar and the guide hole 42 in the standard and into engagement with one or the other of the holes 37 in the switch arm. The shoulder 40 bears against the cammed portion of the fan-shaped arm of the rock lever 20, and in the "out" position of the bottom 12 the pin is pressed toward the upright 39 against the action of the spring 41 and the switch-arm engaging end of the detent is moved out of the hole 37 so that the switch arm is subjected to the unrestrained action of the spring 28. Upon the initiation

of the inward movement of the button 12, the cam 30 passes from beneath the shoulder 40 on the detent pin 38, and the latter is pressed by its spring 41 into one of the holes 37 of the switch arm and holds the latter against movement during the depression of the button, as illustrated in Fig. 5. After a sufficient inward travel of the button 12 to put the spring 28 under the desired tension, the cam 31 comes into play against the button 40 to force the pin 38 out of engagement with the switch arm, whereupon the latter snaps into the off position under the influence of the spring 28.

The return of the switch to the "on" position is secured by means of spring 43, which is more powerful than the spring 28 and which is arranged on the opposite end of the pivot pin 22. One end of the spring 43 engages the rock bar 20 adjacent the button 12, and the other end is engaged beneath the bottom flange 44 of the standard 19. In the expanded position of the spring, the button 12 is in the "out" position.

The operation of the switch is readily understood. In its normal position, when installed, in a door sill with the door closed, the button 12 is depressed by the door stile and the switch is off. As the door is opened, the spring 43 operates to throw the switch into the position illustrated in Fig. 1, with the snap action explained. As the door is closed again, the circuit is broken with a snap action by the depression of the button 12 in like manner.

I claim as my invention:—

1. In a snap switch, a frame member, and a switch arm pivoted on one side thereof, a laterally movable detent pin passing through said frame member, and engaging the switch arm, in combination with an actuating spring, a spring tensioning lever pivoted adjacent the switch arm, a cam pivoted on the opposite side of the frame and means in connection with the latter to free said detent after the spring has been put under tension.

2. In a push button switch, a frame member, a rocker bar comprising a spring tensioning arm and a cam, straddling said frame member and pivoted thereon, a switch arm adjacent said spring tensioning arm on one side of the frame member, an actuating spring and a detent pin arranged on the other side of said frame and passing there-through to engage the switch arm, and means in connection with said cam arm for freeing the detent pin after the spring has been put under tension.

3. In a push switch, a frame and a pivot pin mounted therein, a return spring on one end of said pivot pin, and a switch spring on the opposite end of said pin, in combination with a switch arm and a spring tensioning lever on one side of the frame, and a detent pin and pivoted cam on the other side

of said frame, said pin piercing the frame and engaging the switch arm, in combination with means in connection with said cam arm for freeing said detent pin.

4. In a push switch, a U-shaped rocker bar having one arm offset at its free end to form a switch spring engaging lug, and the other arm cammed to cooperate with a detent, substantially as described.

5. In a push switch, a frame member, a U-shaped rocker bar straddling the same, and pivoted thereon, a switch arm engaged between one arm of said rocker bar on the frame and pivoted on the latter, in combination with an upright on the opposite side of the frame, a detent pin supported therein, a shoulder on said pin and a spring interposed between said shoulder and upright, tending to press said pin into engagement with the switch arm, one arm of the rock lever being cammed to force said detent pin out of engagement with the switch lever in predetermined position.

6. In a push switch, a U-shaped rocker bar, having one arm fan shaped, slotted and cammed to operate a detent and the other arm offset at its free end to form a switch spring engaging lug, substantially as described.

7. In a push switch, a frame member, a switch arm pivoted thereon, a U-shaped rock lever mounted on said pivot and straddling the frame and confining the switch lever between one of said arms and the frame, the other arm of said rock lever being cammed in combination with a detent pin passing through said frame to engage the switch lever, a spring tending to press said detent pin into engagement with said switch lever and means in connection with said cam arm of the rock bar for freeing said detent.

8. In a push switch a standard, a cam plate on one side thereof and a switch lever on the opposite side thereof, a laterally movable detent pin piercing said standard and cam plate, and means in connection with the latter for moving said pin out of engagement with the switch lever.

9. In a push switch, a standard with top and bottom securing flanges, an upright extending between the latter, a detent pin piercing said upright and standard, a cam arm arranged between the latter for moving said pin and a switch lever on the opposite side of said standard engaged by the detent pin.

10. In a push switch, a standard with top and bottom securing flanges, an upright extending between the latter, a detent pin piercing said upright and standard, a shoulder on said pin, a spring arranged on said pin between said upright and shoulder and tending to press said pin through the standard, a cam arm interposed between said standard and shoulder and bearing against

the latter to actuate the detent pin, in combination with a switch lever arranged on the opposite side of said standard in position to be engaged by said detent pin, substantially as described.

11. In a push switch, a standard, a rocker bar embracing the standard and pivoted thereon, a switch lever, a transverse detent, a cam on the rocker bar to actuate said de-

tent, and a spring to act on the switch lever and to be tensioned by the rocker bar.

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

ERIC ANDERSON.

Witnesses:

G. W. GOODRIDGE,
GEORGE B. THOMAS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."