

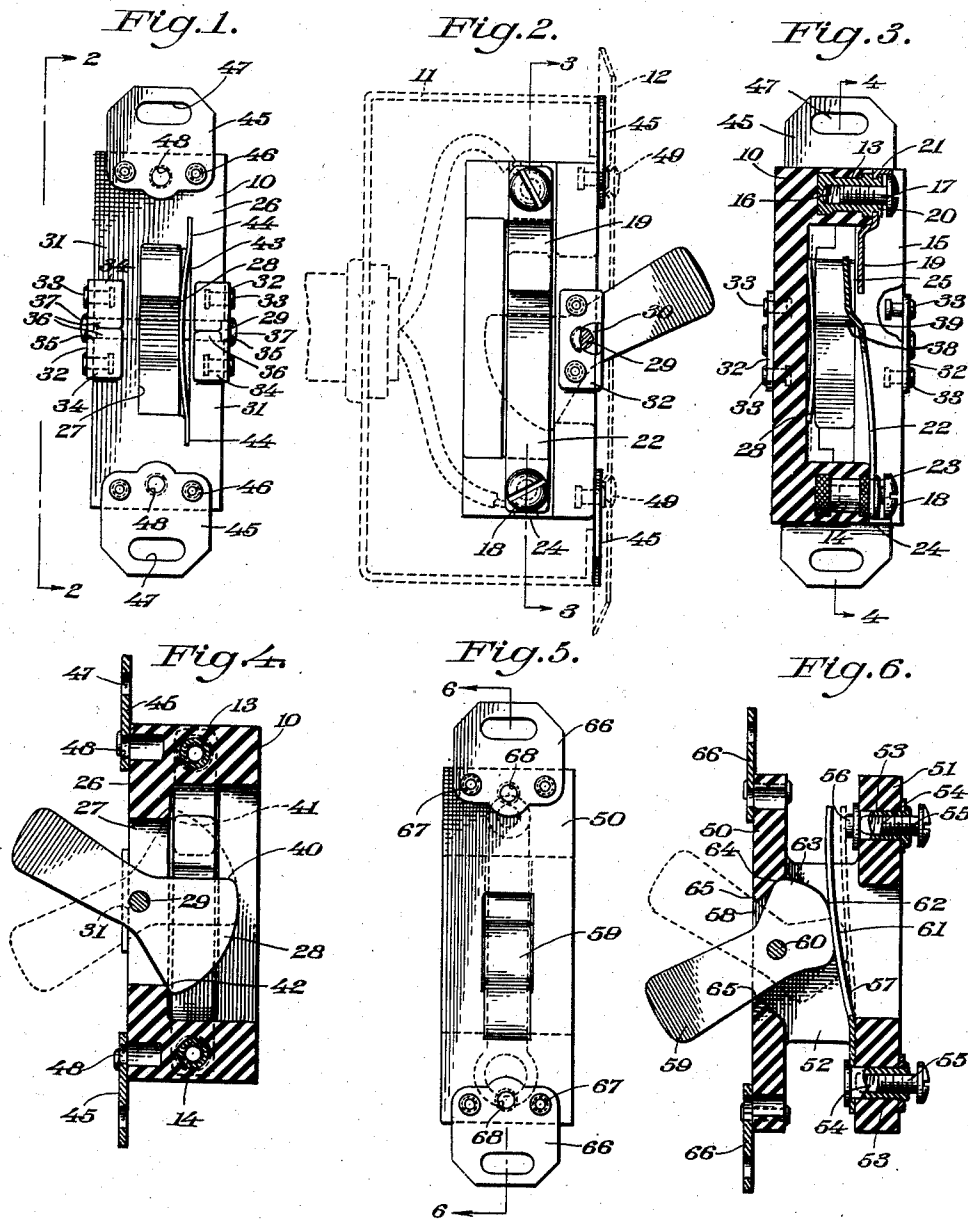
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ELECTRIC SWITCH

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ELECTRIC SWITCH

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1 Claim. (Cl. 200—153)

My invention relates to circuit interrupters, and includes among its objects and advantages the provision of an improved general purpose switch of the silent action type.

In the accompanying drawing:

Figure 1 is a face view of a switch in accordance with the invention;

Figure 2 is a view taken from the position indicated by line 2—2 of Figure 1 but showing the switch associated with the usual outlet box employed for wall installation;

Figure 3 is a sectional view taken along the line 3—3 of Figure 2;

Figure 4 is a sectional view taken along the line 4—4 of Figure 3;

Figure 5 is a face view of a modified form of the switch; and

Figure 6 is a sectional view taken along the line 6—6 of Figure 5.

In the embodiment selected to illustrate the invention, I make use of an insulative switch housing 10 formed of molded composition, which housing is preferably of such size and contour as to operate in conjunction with the usual outlet box 11 employed for wall installation and provided with the usual wall plate 12. Tubular elements 13 and 14 are molded in the end walls of the housing 10, which housing has an opening 15 in one side wall thereof. Both elements 13 and 14 are internally threaded, as at 16, for connection with terminal screws 17 and 18.

A leaf contact 19 is fixedly secured to the element 13, as by riveting 20, and this contact has an ear 21 positioned closely to the head of the terminal screw 17 to hold the looped end of the circuit wire closely to the shank of the terminal screw and underneath the head thereof. To the element 14 is fixedly secured one end of a flexible leaf contact 22, as by riveting 23, and this contact is also provided with an ear 24 for the same purpose as the ear 21.

Fig. 3 illustrates the normal open circuit position of the contact 22, which provides spacing 25 between the contacts 19 and 22. Both contacts 19 and 22 are electrically related to their respective elements 13 and 14.

In the front wall 26 of the housing 10 is provided an opening 27 for the accommodation of a switch lever 28. This lever is pivotally mounted intermediate its ends on a shaft 29 lying in slots 30 in the side walls 31 of the housing. Plates 32 are secured to the walls 31 by rivets 33 molded in the material of the housing. Each plate is provided with two ears 34 positioned at right angles to their respective plates and overlying

the front face of the housing. The ears are cut away at 35 in registration with the slots 30 for accommodation of the shaft 29, and the ears of each plate have meeting tabs 36 which may be bent upwardly to permit the shaft 29 to be pressed into position and then bent downwardly over the shaft to hold it in place. Each end of the shaft is upset at 37 for coaction with the plates 32 to restrain the shaft from relative endwise movement.

The inner end of the switch lever 28 is fan shaped and lies closely to the resilient contact 22. One edge of the inner end is rounded at 38, and the contact is bent to provide a cam run 39 lying in the path of the rounded surface 38. Fig. 4 illustrates the lever 28 in its two extreme positions. In one position, the edge 40 of the lever engages the front wall 26, as at 41, while in the other extreme position, the lever engages the wall 26, as at 42. The lever 28 in Fig. 4 is positioned in accordance with its full line illustration of Fig. 4, at which time the rounded surface 38 is spaced from the cam run 39 so that the contact 22 is in its normal circuit breaking position with respect to the stationary contact 19. Pivotal movement of the lever 28 to its dotted line position of Fig. 4 brings the rounded surface 38 into engagement with the cam run 39 and flexes the contact 22 firmly against the stationary contact 19 for circuit closing purposes.

Adjacent one of the side walls 31 is positioned a bowed leaf spring 43 which bears against one side of the switch lever 28 for pressing the latter against the other side wall to the end that the switch lever may be frictionally supported in its two positions. This spring is pressed into slots 44 in the wall 26 and the tension of the spring is such as to hold the switch lever firmly in either position.

A switch in accordance with my invention is entirely silent in its action. The contact 22 flexes easily into engagement with the stationary contact 19 and all the moving parts operate noiselessly.

Anchor plates 45 are secured to the housing 10 by rivets 46 molded in the material of the housing. These plates are provided with openings 47 for the reception of screws which may be threaded into the outlet box 11 for securing the housing to the box. Each plate 45 is also provided with a threaded opening 48 for the reception of screws 49 which hold the wall plate 12 in position.

Figs. 5 and 6 illustrate a different form of the invention, wherein the top wall 50 and the bot-

tom wall 51 are molded into a unitary structure with the side walls 52, which are considerably shorter in length than the top and bottom walls. The housing of Figs. 5 and 6 conforms to the housing of Figs. 1 through 4 with respect to size and contour.

Tubular elements 53 are secured to the bottom wall 51 and are internally threaded at 54 for the reception of terminal screws 55. One of the tubular elements 53 is provided with a contact 56 engageable by one end of a leaf contact 57 having its opposite end fixedly secured to the other element 53. Contact 57 is of the resilient type and normally spaced from the fixed contact 56.

A slot 58 is provided in the front wall 51 for the accommodation of a lever 59 pivoted intermediate its ends on a shaft 60 secured to the side walls 52. A relatively flat face 61 is fashioned on the inner end of the switch lever 59 for engagement with the spring contact 57 when the latter is in the position of Fig. 6. Face 61 is so angled as to exert pressure on the spring contact 57 for flexing the contact into engagement with the fixed contact 56 when the lever 59 is pivoted to the dotted line position of Fig. 6. The face 61 is provided with a curved camming face 62 which acts on the spring contact 57 to flex it to the dotted line position of Fig. 6, and the curved camming face 62 terminates in a flat face 63 which lies in engagement with the spring contact in the dotted line position of the switch lever for holding the latter firmly against the fixed contact 56.

In the full line position of the switch lever 59, as illustrated in Fig. 6, the inner end has engagement with the front wall 50, as at 64. At the same time, the switch lever may have engage-

ment with the edges 65 of the front wall 50 so as to stop further pivotal movement of the switch lever when it reaches either of its two extreme positions. The switch of Figs. 5 and 6 also operates silently.

Anchor plates 66 are secured to the housing by rivets 67, and these plates are also provided with threaded openings 68 corresponding to the openings 48.

Without further elaboration, the foregoing will so fully illustrate my invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. A switch comprising an insulative body having a face wall provided with an opening and an interior cavity, a fixed contact secured to the insulative body inside said cavity, a flexible contact secured to said body inside said cavity and normally spaced from said fixed contact, a switch lever pivoted to said body and having camming engagement with said flexible contact when pivoted in one direction for bending the flexible contact into circuit closing engagement with said fixed contact but relieving pressure on the flexible contact when pivoted in the opposite direction, said flexible contact comprising a flat strap-like member lying flatwise adjacent one side of the switch lever and having a cam formation lying in the path of the switch lever, and a flat spring bearing flatwise against one side of said switch lever for urging the latter against one wall face defining said opening for frictionally supporting the switch lever against accidental pivotal movement.

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