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DOOR SWITCH OR THE LIKE

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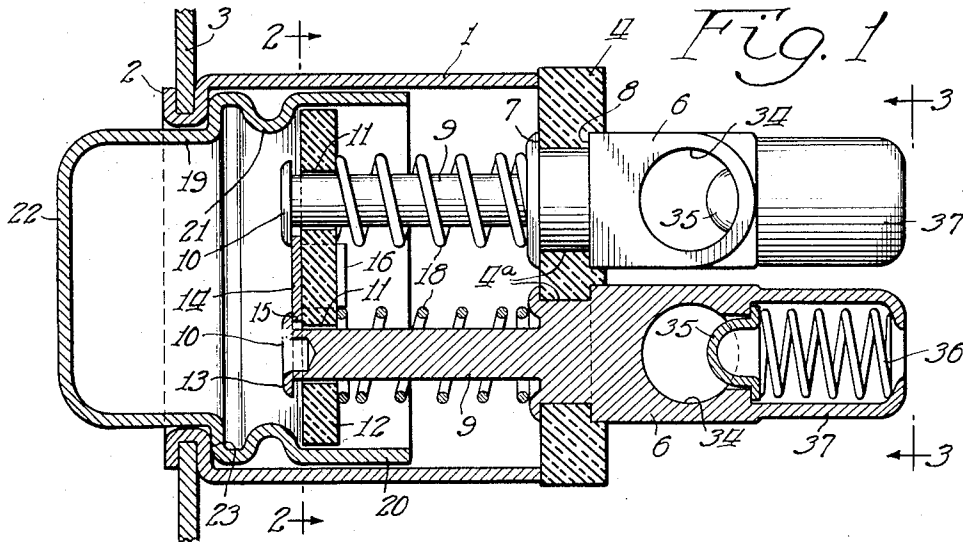


Fig. 2

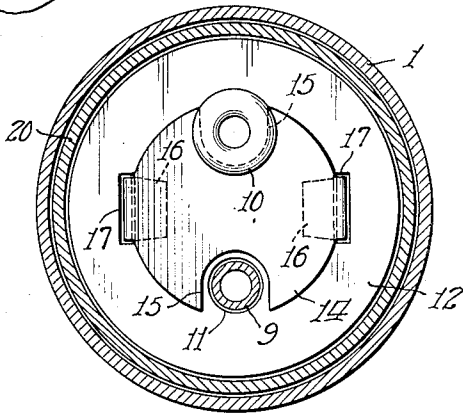


Fig. 3

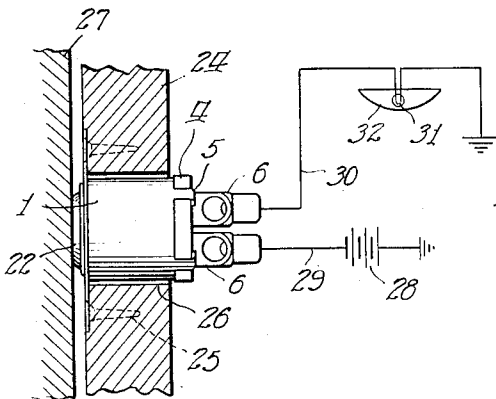
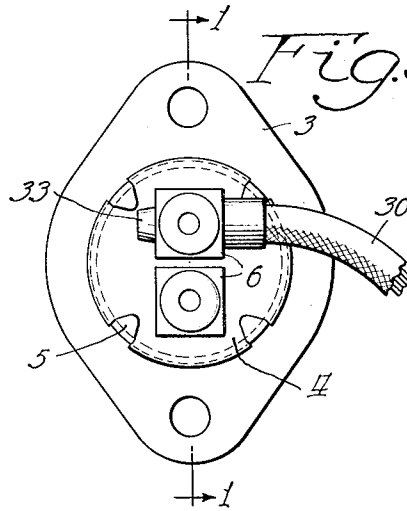


Fig. 4

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DOOR SWITCH OR THE LIKE

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This invention relates to door switches or the like in which a circuit is discontinued when the door is closed and is automatically continued when the door is opened.

5 The invention aims to provide an improved switch which is simple in construction and in which the moving parts are so guided that positive operation is secured.

10 The invention will be more fully explained by reference to the embodiment shown in the accompanying drawing, in which—

Figure 1 is an axial section taken on the line 1—1 of Figure 3, the attaching plate being broken away;

15 Figure 2 is a cross section taken on the line 2—2 of Figure 1;

Figure 3 is an end elevation taken on the line 3—3 of Figure 1; and

20 Figure 4 is an assembled view showing diagrammatically an illustrative circuit.

Referring to the figures of the drawing, the illustrative switch includes a metallic casing 1, which is preferably cylindrical and has a double flange as at 2 at one end by which the casing is secured to a suitable attaching plate 3, the double flange being crimped about a central aperture in the plate.

30 One end of the casing 1 is closed by an insulating mounting 4, which is secured in place as by having fingers 5 integral with the casing bent over the periphery of the mounting.

35 The insulating mounting 4 carries two current conducting terminals 6 which are rigidly secured to the mounting 4 as being passed through suitable apertures 4a in the mounting and having the margins of these apertures clamped between the spaced apart shoulders 7, 8 formed on the terminals 6. The terminals 6 thus extend in parallel direction upon the exterior of the casing 1.

40 Rigidly secured to each of the terminals 6 is a metallic contact member 9 which in this instance is cylindrical and is formed integrally with the terminal 6. The two contact members 9 thus extend in parallel relation within the interior of the casing 1 but insulated therefrom and from each other.

50 The free ends 10 of the contact members 9

are passed slidably through circular holes 11 in an insulating disc 12 which is thus movable axially of the casing 1 guided by the contact members 9.

65 The free ends 10 of the contact members 9 are enlarged transversely, as here shown by having the annular flanges 13 formed thereon. To provide a current conducting bridge between the contact members 9, the face of the disc 12 carries centrally thereof a metallic bridge member 14 which desirably has cut out portions through which the contact members pass, the arcuate margins 15 of the cut out portions of the member 14 margining the margins of the holes 11 and, in one position of the disc 12, engaging the flanges 13 of the members 9, as shown in Figure 1. The member 14 may be fixedly secured to the disc 12 as by having ears 16 formed integrally with the member 14 and passed through the slots 17 in the face of the disc to be bent upon the other side thereof.

70 To urge the disc 12 to the position shown in Figure 1 in which the switch is closed and a circuit continued therethrough, I desirably provide a compression coil spring 18 surrounding each of the members 9 between the disc 12 and the insulating mounting 4 and thus pressing the bridging member 14 into engagement with the flanges 13 of both the members 9. Thus the springs 18 function independently but with substantially equal pressure pressing the disc 12 substantially equally in the vicinity of the members 9.

75 To retract the disc 12 against the force of the springs 18, I provide an actuator in the form of a cup 19 slidably carried by the end of the casing opposite the insulating mounting 4 and having an elongated cylindrical skirt portion 20 which snugly telescopes within the casing to be guided by the inner surface thereof. The skirt portion 20 of the actuator receives therein the disc 12 and the free ends 10 of the members 9. To cause movement axially of the actuator to effect movement of the disc 12 on the member 9 I provide an abutment such as the internal annular bead 21 in the skirt portion 100

20 which axially abuts the periphery of the disc 12. Movement of the actuator 19 inwardly of the casing 1 thus causes the bridge member 14 to be disengaged from the flange 5 13 and discontinues the circuit through the members 9. To facilitate retraction of the actuator 19 I may form it with an integral reduced button portion 22 which projects through the end of the casing. A shoulder 10 23 between the portion 22 and portion 20 of the actuator limits movement thereof outwardly of the casing.

When used as a door switch, the attaching plate 3 may be conveniently mounted 15 substantially flush with the surface of a door jamb 24 by means of the attaching screws 25, the casing 1 being disposed in a cut-out 26 in the jamb and the button 22 being disposed so as to be abutted of the 20 edge of the door 27, thus placing the switch in "off" position. When the door is opened the springs 18 cause the switch to move to "on" position as described and a circuit is continued, for example, through the grounded 25 battery 28, conductor 29, terminals 6, conductor 30 and grounded filament 31 of a lamp 32.

The conductors 29 and 30 are here shown as wires which may be each connected to 30 one of the terminals 6 as by being provided with a plug termination 33 which is received in the socket 34 of the terminal 6 and yieldingly retained therein by friction with the detent 35 pressed thereagainst by the 35 spring 36 carried in the spring barrel 37 formed integrally with the terminal 6.

Having described my invention, I claim:

1. As an article of manufacture, a door 40 switch or the like, comprising in combination, a metallic casing; an insulating mount-

ing forming a closure for one end of the casing; two current conducting terminals carried by the mounting and extending in parallel relationship upon the exterior of the casing; a contact member attached to each 70 of the terminals and extending in parallel relationship rigidly within the interior of the casing; an insulating disc in the casing, said contact members having their free ends passing slidably through the insulating disc; 75 a transverse enlargement at the termination of each of the free ends of the contact members; a metallic bridging member carried by the face of said disc and engageable with the transverse enlargements of the contact 80 members to provide a current conducting bridge therebetween; a coil spring surrounding each of the contact members between the disc and the insulating mounting and pressing the bridging member against the transverse enlargements; and a cup-like actuator 85 slidably carried by the end of the casing opposite the insulating mounting and having a skirt portion telescoped within the casing, said skirt portion receiving therein the disc 90 and the free ends of the contact members and having an internal abutment engaging the disc axially of the casing, said cup-like actuator having a button portion projecting through an aperture in the end of the casing 95 opposite the insulating mounting.

2. The structure of claim 1 wherein the contact members are cylindrical and pass snugly through circular apertures in the insulating disc which is guided thereby, and 100 wherein the bridging member is cut out arcuately to receive the contact members therethrough and to margin the holes in the disc.

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