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PUSH BUTTON FOR ELECTRIC SWITCHES, ETC

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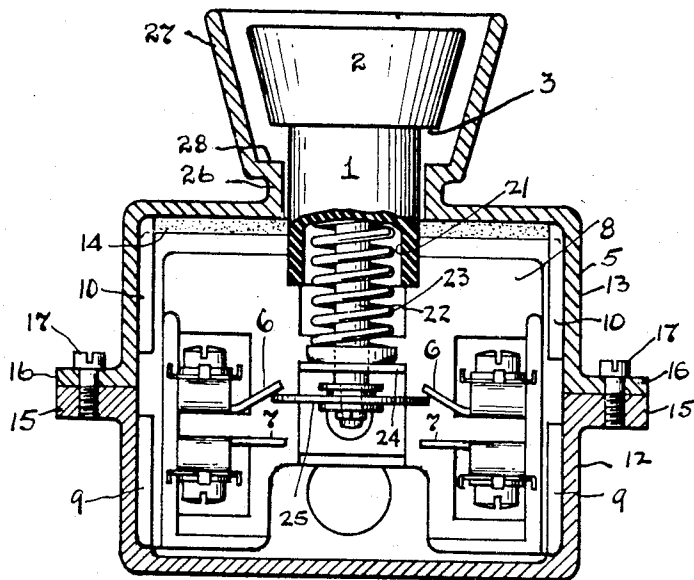


Fig. 1

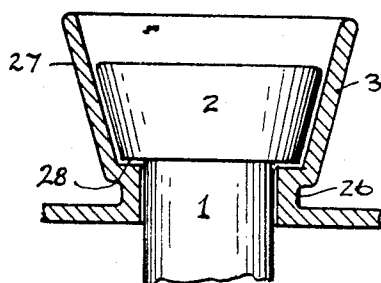


Fig. 2.

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## UNITED STATES PATENT OFFICE.

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PUSH BUTTON FOR ELECTRIC SWITCHES, ETC.

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This invention relates to a push button for electric switches. More particularly it comprises a button having an enlarged head with conical sides, said head being off-set from the body portion of the button to provide a shoulder, said button operating in a socket having a cylindrical wall and a flaring portion off-set therefrom so as to receive the flaring head of the button when the same is depressed.

The object of the invention is to provide a push button type of switch which may not be tampered with in the manner which is customary with push button switches having cylindrical buttons operating in cylindrical sockets. In such switches it is common practice to wedge matches, nails and similar material between the body of the switch and the socket so as to retain the switch in its depressed position. Where a switch of the cutout type is to be held in the depressed position only momentarily during the starting operations of the motor or similar apparatus and where the release of the switch reestablishes the circuit through the safety devices, the wedging of the switch in the depressed position serves to defeat the purpose of the switch as a safety device. Other objects of the invention will appear in the course of the following description. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a central vertical sectional elevation showing the improved type of push button applied to a cutout switch with the button in its normal elevated position, and Fig. 2 is a fragmentary view of the push button in its depressed position.

As is clearly shown in the drawing, the push button comprises a body portion 1 of cylindrical shape, having a head 2 of larger diameter than the diameter of the body so as to provide an annular shoulder 3 on its under side. The side portion of the head is beveled inwardly so that the top of the head is of larger diameter than the lower

portion thereof. The body portion of the push button is received within a circular opening 4 in the casing 5 and closes the usual switch contacts 6, 6, and 7, 7, of the cutout switch. The contacts, as shown, are mounted upon a non-conducting plate 8 vertically slidable between flanges 9, 9, and 10, 10, in the half sections 12 and 13, respectively, of the casing. When the upper half of the casing is seated in position, a piece of felt 14 bears against the upper edge of the plate of non-conducting material and holds the same against movement. Projecting ears 15, 16, at the sides of the casing halves provide means for securing said sections together by means of screws 17.

The push button is formed of non-conducting material and is provided with a cylindrical recess 21 on its under side. A central stud 22 is secured to the body of the push button and is surrounded by a spring 23, the upper end of which is housed within the recess. The lower end of the spring bears against an angle plate 24, which is centrally apertured to permit the passage of the stud therethrough. At the lower end of the stud a contact disc 25 is provided, said disc being of sufficient diameter to bridge the space between either of the pairs of contacts 6, 6, and 7, 7, accordingly as the push button is in its normal or in its depressed position.

Surrounding the opening in the upper half of the casing through which the push button operates, a short cylindrical flange 26 is provided, at the upper end of which an outwardly flared collar 27 is formed, said collar being off-set outwardly from the cylindrical flange so as to provide an annular shoulder 28 at their meeting point.

As is clearly shown in Fig. 2 of the drawing, the push button when depressed leaves very little space between its beveled side portion and the correspondingly beveled inner wall of the collar. Thus, any person operating the switch would find it impossible to maintain the same in depressed position by merely wedging a piece of wood or similar object between the beveled faces, inasmuch as forcing a wedge into such space would tend to move the push button outwardly rather than hold it in inward position. The offsetting of the enlarged head from the body portion of the push button prevents anyone from bending a wire so as to wedge the cylindrical body portion of

the push button in the circular opening through which it operates. Thus, the push button is one which may not be readily tampered with and any safety connections through the switch to which it is attached would be operative at all times, except when the push button was momentarily depressed.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In an article of the character described, the combination of a push button having a cylindrical body portion and an off-set upwardly and outwardly beveled head portion, a switch casing providing an opening to receive said body portion, and an upwardly and outwardly beveled flange on said casing off-set from said opening and presenting a surrounding ledge extending in under the off-set of the head of said push button and spaced in close juxtaposition to the beveled portion of said head.

2. In an article of the character described, the combination of a push button having a cylindrical body portion and an upwardly and outwardly beveled head off-set from

said cylindrical body portion so as to provide an annular shoulder on its under side, a switch casing providing an opening to receive said body portion of the push button, an upwardly and outwardly inclined extension off-set and presenting a surrounding ledge extending in under the off-set of the head of said push button to prevent access past the head of said push button to the space between said cylindrical body and the casing, a central stud secured in the recess of the aforesaid body and carrying a contact piece, a spring surrounding said stud and having one end housed in the recess. and a plate against which the other end of the spring bears.

3. In an article of the character described, the combination of a push button having a cylindrical body portion and a head, a casing in which said push button is mounted, said button and said casing being cooperatively shaped to prevent entry of a wedging article therebetween, a contact piece carried by said button, coacting contacts in said casing, a non-conducting plate supporting said last-named contacts, and means for removably securing the plate, said means including flanges in said casing on which the said plate is slidable.

Signed by me, this 8th day of July, 1924.

BUELL W. NUTT.