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SWITCH HOUSING AND OPERATING MECHANISM

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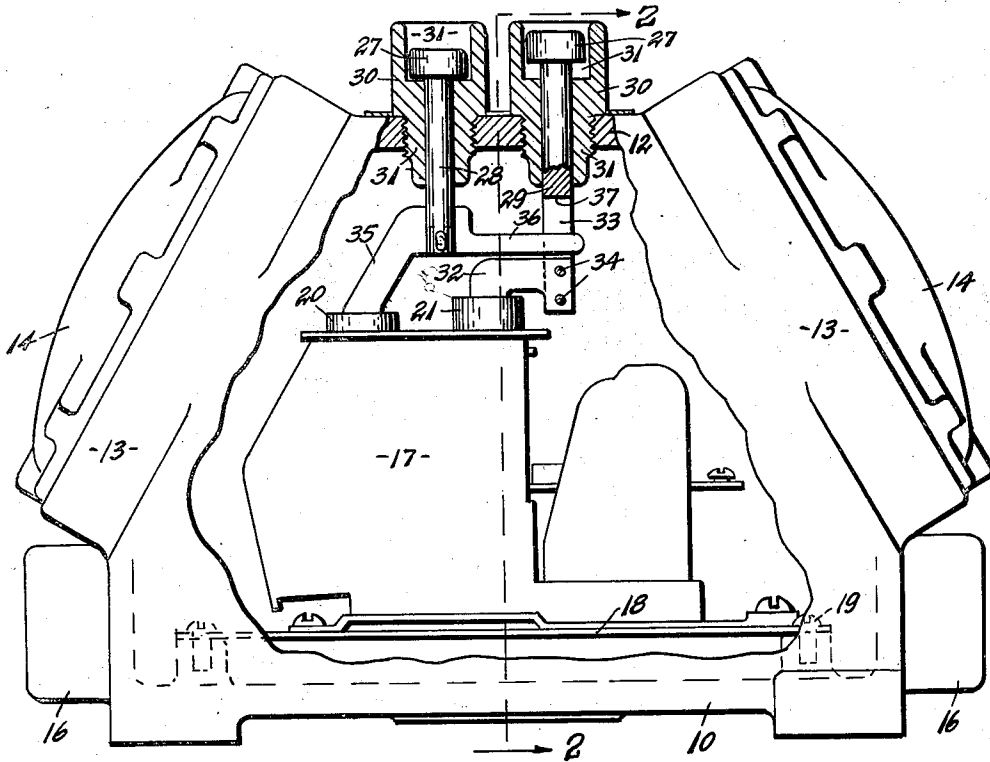


Fig. 1 -

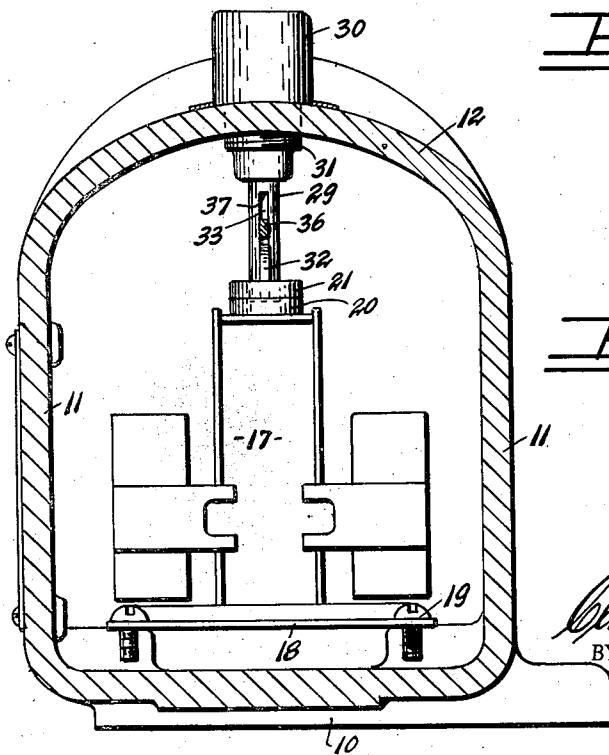


Fig. 2 -

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SWITCH HOUSING AND OPERATING
MECHANISM

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6 Claims. (Cl. 200—172)

This invention relates to switch operating mechanism and particularly to switch operating mechanism for switches mounted in enclosed explosion proof housings, and the housing and the operating mechanism is so devised and constructed that switches of different sizes and designs are accommodated avoiding the necessity of constructing a separate housing for each size and type of switch.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevation with one side wall of the housing partly broken away and parts in section showing the switch and its operating mechanism in elevation.

Figure 2 is a sectional view of the housing taken on lines 2—2, Figure 1, and with the switch shown in end elevation.

The housing consists of a base 10, side walls 11, and top wall 12. The ends 13 of the housing are formed circular and truncated on planes extending at an angle to the base. The ends are threaded internally to receive the threaded caps or covers 14 which, when removed, permit the switch to be installed and wired. Internally threaded hubs 16 are located below each of the ends 13 to receive the conduit lines enclosing the circuit connected to the switch.

The switch 17 is mounted on a base 18 which is secured to the bottom wall of the housing by means of screws 19. The operating mechanism of the switch, here shown, is of the push button type. Depression of the button 20 operates the switch to "on" position, and depression of the button 21 operates the switch to "off" position.

In Figure 1, the switch is shown in "on" position. When the button 21 is depressed and the switch actuated to "off" position, the button 20 will rise substantially the same height as the button 21. The button 21 is returned by spring pressure. The mechanism for operating the buttons 20, 21, consists generally in a pair of buttons having elongated stems or shanks, the lower end of which is provided with means for coacting with the buttons. It will be observed that the top wall of the housing is comparatively short, due to the ends of the housing being truncated on angles converging towards the top. The structure of the housing is such to afford easy and convenient access to the apparatus located

within the housing, and at the same time provide vapor proof joints at the openings, and joints which will be explosion proof within the requirements. This type of enclosed explosion proof housing has secured exceptionally great popularity from the trade.

The switch shown is of such design and construction that when mounted in the housing, the push buttons 20, 21 are located at one side of the center of the housing, the switch proper being substantially in one end of the housing.

By my invention, I provide a cheap, economical and efficient means or mechanism for operating the push buttons of the switch from without the housing. The upper wall of the housing is provided with spaced apart plungers 27 formed or provided with stems or shanks 28, 29 which extend through the wall of the housing into the interior thereof. As here shown, the plungers 27 are carried by and operable in bushings 30 which are provided with threaded shanks 31 which are screwed into threaded openings in the wall 12. The upper portion of the bushings is formed with a recess 31 to receive the plungers or buttons 27. The lower portion of the bushings is formed with a bore concentric with the recess 31 to slidably receive the stems 28, 29. The stem 29 is formed or provided with an offset portion 32 which coacts with the surface of the button 21 to actuate the same upon operation of the plunger 27. As here shown, the portion 32 consists of a piece of flat stock of proper formation and secured in a lengthwise centrally located slot 33 formed in the lower end of the stem 29. This piece may be secured in the stem in any desired manner as by the rivets 34 or the stem may be formed with an integral arm. The stem 28 also has an offset and depending portion 35 coacting with the surface of the push button 20 to actuate the same in a similar manner and the stem also has a horizontal portion 36 extending substantially parallel to the surface of the buttons 20, 21 and having its end extending into the elongated slot 33 in the stem 29. The slot 33 extends a considerable distance from the end of the stem 29, its end wall being indicated at 37.

It will be observed that with this construction, the offset portions 32, 35 are held in alinement and either plunger 27 may be operated without interfering with the other. In assembling the mechanism, the plungers are inserted in the bushings 30 and the pieces constituting the portions 32, 35 and 36 are secured to the ends of the stems, or if these portions are formed integral

with the stems, the buttons 27 are screwed onto the stems, after the stems have been passed through the bores of the bushings 30. The stem 28 and its depending portion is then passed 5 through the opening in the top wall 12 and its bushing screwed into place. The stem 29 and its depending portion is then passed through the other opening and its bushing screwed into place.

Obviously, the construction described is very economical to manufacture and assemble, and when once assembled is entirely trouble proof. The operating mechanism can not come out of alinement with the buttons 20, 21 due to the fact that the portion 36 projects through the slot 33.

What I claim is:

1. The combination of an enclosed explosion proof housing having a bottom wall and a comparatively short top wall arranged centrally over the bottom wall, a switch of the push button type mounted in the housing and offset endwise relatively to the top wall, push button operating mechanism carried by the top wall, and having offset portions arranged to coact with the push buttons of the switch, and means for maintaining said mechanism in alinement with the push buttons of the switch.

2. The combination of an enclosed explosion proof housing having a bottom wall and a comparatively short top wall arranged centrally over the bottom wall, a switch of the push button type mounted in the housing and offset endwise relatively to the top wall, push button operating mechanism carried by the top wall including spaced apart push buttons having stems extending toward the push buttons of the switch and offset relatively thereof, one of said stems being provided with an angular arm, one end of which coacts with one push button of the switch, and the opposite end coacts with the stem of the other button, the second stem being provided with an arm coacting with the other operating button of the switch.

3. The combination of an enclosed explosion proof housing, a switch of the push button type mounted in one end thereof with the push buttons extending toward one side wall of the housing, push button operating mechanism mounted in said wall and including spaced apart plungers having stems extending into the housing toward the switch, one of said stems having an offset portion coacting with one push button of the switch, the stem of the other plunger having a portion extending downwardly at an angle to

coact with the other push button of the switch, said stem also having a portion extending substantially parallel to the faces of the push buttons and coacting with the stem of the other plunger to maintain the offset portion of the stems in alinement with the push buttons of the switch.

4. The combination of an enclosed explosion proof housing, a switch of the push button type mounted in one end thereof with the push buttons extending toward one wall of the housing, push button operating mechanism carried by said wall of the housing and operable from the exterior of the housing, said operating mechanism including spaced apart plungers extending into the housing and being provided at their ends with offset portions coacting with the push buttons of the switch, and means for maintaining the offset portions of the stems in alinement with the push buttons of the switch.

5. The combination of an enclosed explosion proof housing, a switch of the push button type mounted in one end thereof with the push buttons extending toward one wall of the housing, push button operating mechanism carried by said wall of the housing and operable from the exterior of the housing, said operating mechanism including spaced apart plungers extending into the housing and being provided at their ends with offset portions coacting with the push buttons of the switch, and means for maintaining the offset portions of the stems in alinement with the push buttons of the switch and permitting the operation of one plunger without moving the other.

6. The combination of an enclosed explosion proof housing having a bottom wall and a comparatively short top wall arranged centrally over the bottom wall, a switch of the push button type mounted in one end of the housing with its operating buttons extending toward the short wall of the housing, push button operating mechanism carried by the top wall of the housing and operable from the exterior thereof including bushings mounted in said top wall, plungers having stems operable in said bushings, the lower ends of said stems having offset portions coacting with the respective push buttons of the switch, said bushings being separably removable together with the plungers and means for maintaining said offset portions in alinement with the push buttons of the switch.

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