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SWITCH ACTUATING MECHANISM

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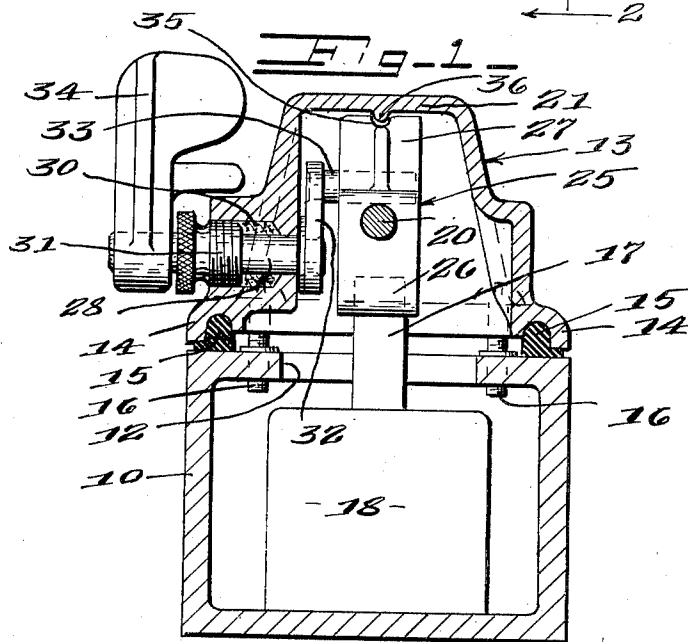
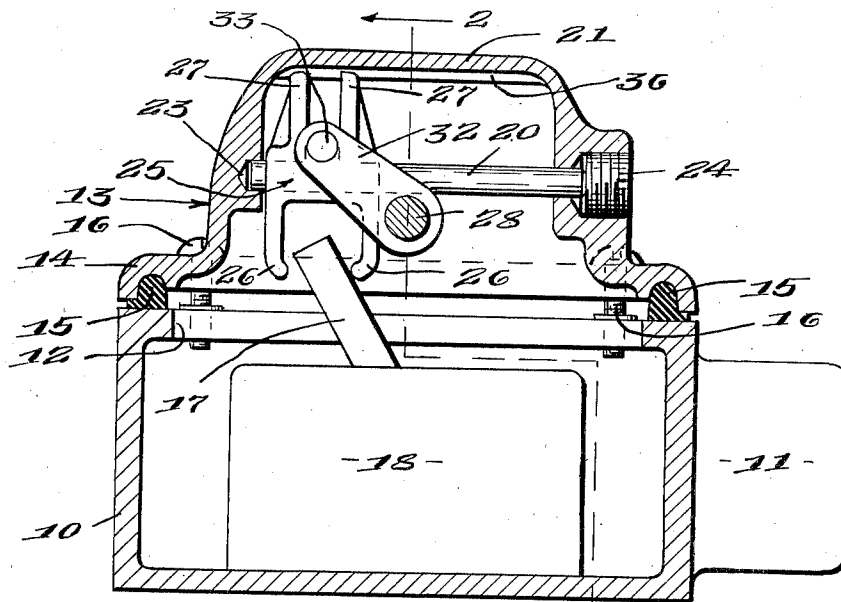


Fig. 2

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SWITCH ACTUATING MECHANISM

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4 Claims. (Cl. 74-96)

This invention relates to switch actuating mechanism, more particularly to switch actuating mechanism arranged in the cover of a switch box or housing, and by which the switch mounted in the housing can be operated or actuated to on and off positions from outside of the housing.

The invention has as an object a particularly simple and economical mechanism which is wholly contained within the cover except for the handle or manual employed to operate the mechanism, and which embodies a construction not subject to corrosion where the switch housing is mounted in a corrosive atmosphere.

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 lengthwise sectional view of a switch housing and cover embodying my invention with parts shown in elevation.

Figure 2 is a transverse sectional view of the switch housing and cover taken on a line corresponding to 2-2, Figure 1.

The switch box or housing may be of any suitable size or construction. As here shown, it consists of a rectangular box 10 of cast metal having one or more hub projections 11 which are threaded internally to receive the conduits in the conventional manner. The top or one side of the housing 10 is provided with an opening 12. The cover 13 is also of cast metal construction and is provided with a marginal flange 14 complementary to the marginal surface about the opening in the housing. A gasket 15 is inserted between the cover and the housing when it is desired that the structure be vapor tight. The cover 13 is detachably secured to the open side of the housing 10 by screws 16. The cover is dome shaped providing a substantial recess in which the switch actuating mechanism is mounted and into which the actuating handle 17 of switch 18 may extend.

The switch actuating mechanism consists of a shaft 20 arranged in the dome portion of the cover and extending across the recess parallel to the plane of the movement of the handle 17 and in spaced apart relation from the top wall 21 of the cover.

Heretofore, it has been conventional practice to slidably mount the shaft in the cover, with one end of the shaft extending outwardly and

provided with a manual with which to effect sliding movement of the shaft. Such structure possesses the disadvantage in that the exposed portion of the shaft is subject to corrosion, and also in the leakage of corrosive vapors and explosive gases through the shaft bearing into the switch housing.

One end of the shaft 20 in the embodiment here shown is arranged in a recess 23 formed on the inner surface of one side wall of the cover. The opposite side of the cover is formed with a recess having an inner reduced portion to receive the opposite end of the shaft 20, and the outer portion of the recess is closed by a plug 24 threaded therein. With this structure there is no possibility of vapors or gases entering the cover 13.

A switch actuating element 25 is slidably mounted upon the shaft 20 and provided with a pair of depending arms 26 arranged in spaced apart relationship and engageable with opposite sides of the switch handle 17. The element 25 also extends upwardly from the shaft 20 and is bifurcated or slotted to form arms 27. A rock shaft 28 is journaled in an aperture formed in one side of the cover on an axis extending at right angles to the shaft 20 and slightly below the same. A suitable packing 30 is arranged about the rock shaft 28 and is compressed by a gland nut 31 threading into the side wall of the cover. A crank arm 32 is secured to the inner end of the shaft 28 and is provided with a crank pin 33 extending in the slot between the arms 27. Accordingly, upon oscillation of the shaft 28 by the manual 34, the switch actuating element 25 is caused to slide axially of the shaft 20 and the switch handle 17 accordingly shifted to on and off positions.

To prevent the possibility of rotation of the element 25 relative to the shaft 20, the upper ends of the arms 27 are provided with notches 35 into which a rib 36, formed on the inner surface of the top wall of the cover, extends.

It will be observed that in the structure described the switch actuating mechanism is entirely enclosed within the cover except for the manual 34 on the outer end of the rock shaft 28. All of the working parts of the mechanism are enclosed and adequately protected from corrosive vapors, and the housing sealed against the entrance of inflammable or explosive gas mixtures.

What I claim is:

1. A switch actuating mechanism for a toggle type switch mounted in a housing having a cover formed with a recess, a shaft mounted in the

cover and extending across said recess parallel to the plane of movement of said switch handle, said shaft being secured against axial movement and in flame tight relation to the end walls of the cover, a switch actuating element slidably mounted on said shaft and having depending spaced apart arms engageable with opposite sides of the switch handle, a rock shaft journaled in one side of the cover and being provided on its inner end with motion transmitting means operatively connected with said actuating element to effect sliding movement of the same upon oscillation of said rock shaft.

2. A switch actuating mechanism for a toggle type switch mounted in a housing having a cover formed with a recess, a shaft mounted in the cover and extending across said recess in a plane parallel to the movement of said switch handle, said shaft being secured against axial movement and in flame tight relation to the end walls of the cover, a switch actuating element slidably mounted on said shaft and having depending spaced apart arms engageable with opposite sides of the switch handle, said element having means cooperable with the bottom wall of said recess to prevent rotation of said element on said shaft, a rock shaft journaled in one side of the cover and being provided on its inner end with motion transmitting means operatively connected with said actuating element and being operable to effect sliding movement of said element upon oscillation of said rock shaft.

3. A switch actuating mechanism for a toggle type switch mounted in a housing having a cover formed with a recess, a shaft mounted in the cover and extending across said recess in spaced apart relationship from the top wall thereof and parallel to the plane of movement of said switch handle, said shaft being secured against axial movement and in flame tight relation to the end

walls of the cover, said element being formed with spaced apart depending arms engaging opposite sides of the switch handle and with spaced apart upwardly extending arms, the top wall of said recess being formed with a rib extending parallel with said shaft, and the ends of said upwardly extending arms being formed with a groove to slidably receive said rib, a rock shaft journaled in the side of the cover, an arm secured to the inner end of said rock shaft and having a crank pin extending between said upper arms to effect sliding movement of said element upon oscillation of said rock shaft.

4. A switch actuating mechanism for a toggle type switch mounted in a housing having a cover formed with a recess, a shaft mounted in the cover and extending across said recess in a plane parallel to the movement of said switch handle, said shaft being secured against axial movement and in flame tight relation to the end walls of the cover, one end of said shaft terminating within the thickness of the side wall of the cover, the opposite end of said shaft being arranged in an aperture extending through the opposite wall of the cover and a plug arranged in the outer end of said aperture, a switch handle actuating element slidably mounted on said shaft and being formed with depending spaced apart arms engageable with opposite sides of said switch handle and operable upon sliding movement of said element to actuate said switch handle into on and off positions, said element being also formed with a vertically extending slot, a rock shaft journaled in one side of the cover on an axis extending at right angles to the axis of said first mentioned shaft, a crank arm secured to the inner end of said rock shaft with the crank pin of said arm arranged in the slot in said element.

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