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V. R. DESPARD

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WEATHERPROOF SWITCH

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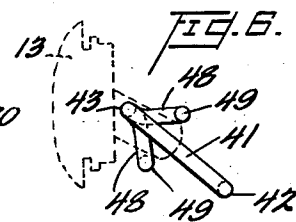
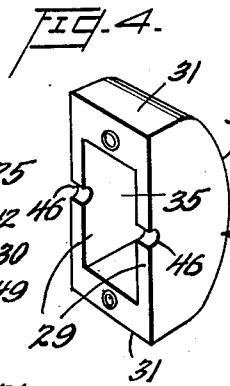
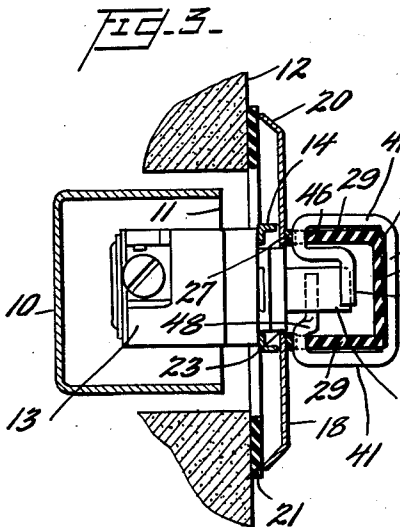
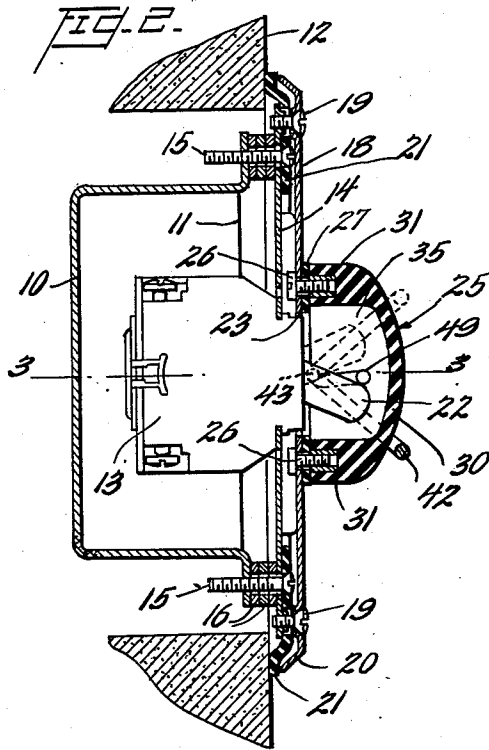
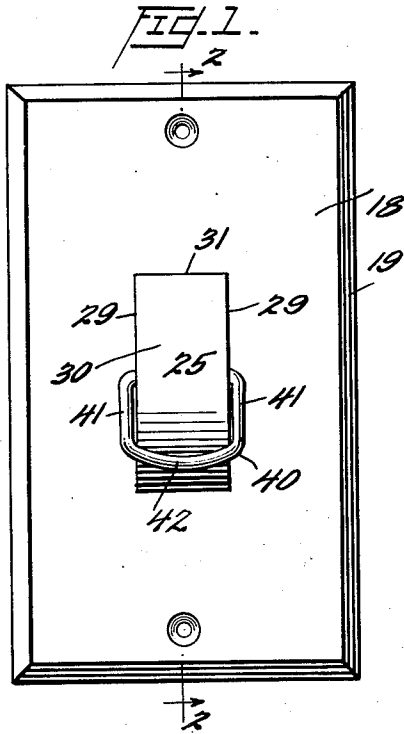


FIG. 6.

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WEATHERPROOF SWITCH

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11 Claims. (Cl. 200—153)

This invention relates to electric switches and more particularly to flush mounted wall switches of the moisture-proof type.

It is a general object of the present invention to provide a cover plate and switch operator for application to the conventional toggle type wall switch to render the same moisture-proof.

More particularly it is an object of the invention to provide an attachment for the conventional flush mounted wall type toggle switch which provides a moisture-proof cover and hood for the switch and its handle together with an operator outside of the hood and extending to within the same to engage the handle for operating it in either direction.

More specifically, the invention comprises a hood adapted for moisture-proof attachment to the usual cover plate for a toggle type switch and carrying a bail-like operator with portions extending to the interior of the hood to engage on opposite faces of the toggle handle of the switch to actuate the same upon movement of the bail.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawing and following specification wherein is disclosed a single exemplary embodiment of the invention with the understanding, however, that the same may be applied to other switches of the same general type and in such manners as fall within the scope of the appended claims without departing from the spirit of the invention.

In said drawing:

Figure 1 is a face view of a cover plate and attached hood and operator constructed in accordance with the present invention;

Figure 2 is a section on line 2—2 of Figure 1 showing the parts mounted on the front of an outlet box carrying a conventional toggle switch;

Figure 3 is a section on line 3—3 of Figure 2;

Figure 4 is a perspective view of the hood looking from beneath when the same is separated from its cover plate;

Figure 5 is a perspective view of the bail and switch handle operator; and

Figure 6 is a diagrammatic view showing the cooperation of the operator with the handle of the switch.

There are a great many places about the home and about store, industrial and office buildings and the like, where there is a requirement for a switch of moderate capacity which is substantially moisture-proof, which can be used outdoors; on porches; in garages; in laundries and

the like, to provide satisfactory operation under adverse conditions. Heretofore moisture-proof switches were especially built of cumbersome and costly construction and were decidedly unsightly.

In accordance with the present invention it is proposed to convert any of the various standard-sized tumbler or toggle switches of the flush mounted type into a satisfactory moisture-proof switch for most uses by attaching to the usual face plate thereof a hood or housing enclosing the space swept by the handle of the switch and mounted in a water-proof manner on the plate. The hood is provided with an external operator extending through a packed opening to the interior for cooperation with the switch handle. While the hood and its operator may be marketed as a unit and applied to a conventional face or cover plate, it is preferred to mount the hood and its operator on a cover plate at the factory because of the necessity for several openings in the plate for the attaching means for the hood.

Referring now to the drawing for a better understanding of the invention, there will be seen in Figure 2 a standard form of conduit or outlet box 10 mounted in any well known manner to have its open front face 11 at or slightly below the surface 12 of the plaster or other wall finish. In the customary manner a standard tumbler or toggle switch 13 has its mounting strap 14 spanning the face of the box and is secured there by screws 15, the requisite number of adjusting washers 16 being interposed if necessary to raise the switch to a suitable level in respect to the surface 12.

A face or cover plate 18 of the usual type is adapted to be mounted over the face of the switch to close the opening in the wall surface in which the box is mounted. Such a cover plate is attached by means of screws 19 which are received in tapped openings in the mounting strap 14, all in the conventional manner. In order that there may be no leakage of water into the switch between the wall surface and the inclined flange 20 at the periphery of the plate, a suitable compressible gasket 21, of rubber or the like, is arranged between its edge and the surface of the wall and extends only a short distance beyond the periphery of the plate so as not to be conspicuous. This gasket is readily compressed by tightening the screws 19 to insure a close fit.

The switch 13 has the usual tumbler or toggle handle or lever 22 movable from the solid line position to the dotted line position as seen in Figure 2 to turn the switch "on" or "off." The

face or cover plate 18 has the usual opening 23 therein through which the handle 22 passes loosely and in order to water-proof this without interfering with the operation of the switch a hood or housing 25 is mounted against the outer face of the plate 18 as by means of screws 26 passing from the rear of the plate through openings therein and received in tapped holes in the hood as shown. A suitable compressible gasket 27 between the lower edge of the hood and the face of the plate or cover insures water tightness.

The hood shown is conveniently molded of some synthetic insulating material of suitable composition and for convenience and appearance sake has a pair of parallel walls 29 extending substantially at right angles to the surface of the plate 18 and parallel to the longer edges thereof. A substantially arcuate or cylindrical wall 30 connects these two and at the ends 31 may be substantially at right angles to the surface of the face plate.

A recess 35 coinciding with the opening in the plate makes the hood hollow and provides clearance and space for the unobstructed movement of the switch handle within the hood. Obviously the hood and plate can be made unitary if desired.

A simple and effective operator for the switch handle comprises a bail 40 formed of heavy wire bent to have the substantially parallel arms 41 slightly spaced from the flat side walls 29 of the hood and connected by the cross part or handle 42 having a sufficient clearance from the arcuate surface 25 of the hood to permit it to be readily grasped. The portions 41 at their lower ends are bent inwardly at right angles forming the pivot sections 43 as seen in Figure 5. These have bearing in notches 46, which are semi-cylindrical to closely fit the upper halves of the pivots. These notches are in the lower edges of the side walls 29 of the hood and the pivots are held in position therein by cooperation with the upper surface of the gasket 27 which being springy is compressed to receive the lower halves of the pivots pressing them tightly into the notches and insuring a substantially water-tight joint. The wires beyond the pivots 43 are bent at right angles to form the radial arms 48 which are not parallel to each other but diverge oppositely from a plane passing through the portions 41. Again, the wires are bent at right angles to form the switch handle engaging arms 49 parallel to each other and spaced apart a distance just slightly greater than the thickness of the switch handle. The yoke or fork thus formed fits over the handle and engages the upper and lower faces thereof as seen in Figure 6. It will be clear also from Figure 6 that movement of the bail upwardly will cause rotation of the pivots 43 and corresponding movement of the lower arm 49 to lift the switch handle and throw it to its opposite position. Since the pivots 43 are not quite in alignment with the fulcrum of the switch handle there must be some slight clearance between the arms 49 and the handle faces to prevent binding.

It will be seen that the mechanism just described is applicable to any switch whose handle is of the proper dimensions to be received in the hood and between the arms 49 which are not of such stiff material as to prevent slight bending if necessary to accommodate thinner or thicker arms. The whole mechanism does not increase the size of the conventional switch substantially and does not require any complicated

additional parts nor any change whatever in the standard form of switch. The bail is very convenient to operate and can even be flipped with the elbow if the hands are otherwise engaged.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a weather-proof switch, in combination, a conventional wall type tumbler switch having the usual operating handle of insulation, said switch being adapted for flush mounting, a cover plate and gasket to weather-proof the switch and its mounting, a small opening in said plate for the free passage of said handle, a hood closing said opening in a weather-tight manner and providing space for movement of said handle, an operator extending through the side walls of said hood closer to the plate than the end of the handle and engaging said handle to operate the same in either direction, and a bail on said operator adapted to closely sweep the exterior of said hood when moved to operate said handle.

2. A combined cover and switch operator for a switch box comprising in combination, a substantially flat plate adapted to close the open side of such a box, a hood on said plate projecting outwardly therefrom and open on the inner side loosely to receive the operating lever of a toggle type switch mounted in said box, an operator movable in the same plane as the switch handle in an arc above the surface of said hood, said operator having a portion pivoted in and extending through said hood substantially at its junction with said plate and means on said portion loosely engaging said lever to operate the same.

3. A combined cover and switch operator for a switch box comprising in combination, a substantially flat plate adapted to close the open side of such a box, a hood of lesser dimensions mounted on said plate, projecting outwardly therefrom and open on the inner side loosely to receive the operating lever of a toggle type switch mounted in said box one surface of said hood being arcuate and substantially concentric to the arc of movement of the switch lever, a switch operator having a handle portion movable in an arc substantially concentric to the exterior surface of said hood and a portion connected thereto and movable thereby in a corresponding arc within said hood, said second portion cooperating with said switch lever to operate the same, said operator being supported from said plate.

4. A combined cover and switch operator for a switch box comprising in combination, a plate adapted to be secured in closing relation to the open side of a switch box and having an opening for the passage of a handle of a toggle type switch mounted in said box, a housing projecting outwardly from the plate and having a recess loosely to receive said handle, a rocker straddling said handle to operate the same when moved to follow the arc of movement thereof, a bail movable outside of said housing and pivot means extending through opposite walls of the housing with their axes intersecting the area swept by said handle and connecting said rocker and bail for movement in unison.

5. Means for converting a conventional flush mount toggle switch and flat cover plate into a moisture-proof switch including a gasket for the periphery of said plate, a hood to enclose the space swept by the switch handle, means to

secure the hood to the face of said plate for support thereby, a gasket between the hood and plate, and a one piece operator including a bail movable outside of and over the hood and a rocker straddling said switch handle to operate the same.

6. Means for converting a conventional flush mount toggle switch and cover plate into a moisture-proof switch including a gasket for the periphery of said plate, a hood to enclose the space swept by the switch handle, means to secure the hood in a moisture-proof manner to said plate, and a single piece bent wire operator including a bail to sweep over the exterior of said hood, spaced arms to straddle said handle in operative manner and pivot sections connecting said bail and arms.

7. Means for converting a conventional flush mount toggle switch and cover plate into a moisture-proof switch including a gasket for the periphery of said plate, a hood to enclose the space swept by the switch handle, means to secure the hood in a moisture-proof manner to said plate, a single piece bent wire operator including a bail to sweep over the exterior of said hood, spaced arms to straddle said handle in operative manner and pivot sections connecting said bail and arms, said hood having notches in the face which confronts said plate to form bearings for said pivot sections.

8. Means for converting a conventional flush mount toggle switch and cover plate into a moisture-proof switch including a gasket for the periphery of said plate, a hood to enclose the space swept by the switch handle, means to secure the hood in a moisture-proof manner to said plate, a single piece bent wire operator including a bail to sweep over the exterior of said hood, spaced arms to straddle said handle in operative manner and pivot sections connecting said bail and arms, said hood having notches

in the face which confronts said plate to form bearings for said pivot sections, said notches conforming to the shape of and receiving one-half the pivot thickness, said moisture-proof means beneath said hood constituting a compressible gasket and the remaining portions of said pivot sections being accommodated therein.

9. Moisture-proofing equipment for a flush mounted toggle switch having a projecting handle and a separate cover plate, comprising a hood having a moisture-proof connection to said plate and covering the space normally swept by said handle, a bail pivoted between said hood and plate and movable over the hood, the pivot portions of said bail extending into the hood and engaging opposite faces of said handle to operate the same when the bail is rocked.

10. The combination with an outlet box and a switch mounted therein having a tiltable handle extending out of the open face of the box, of a cover plate mounted on said box and having an opening for said handle a gasket between said box and plate, a hood fully closing said opening and providing space for movement of said handle and an operator pivoted beside and straddling said handle and extending to the outside of said hood between the same and said plate.

11. For use with a flush mounted switch having a tiltable handle extending out through an opening in a cover plate, a cup-like hood for mounting with its edges against the outer face of said plate to completely close said opening and house said handle, a relatively thick gasket between the hood edges and the front face of said plate, an operator outside of said hood, means within the hood cooperating with said handle and a connection between said operator and said means extending beneath the edge of said hood and pressed into said gasket.

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