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ELECTRICAL CONTROL DEVICE AND ENCLOSURE ARRANGEMENT

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Fig. 1.

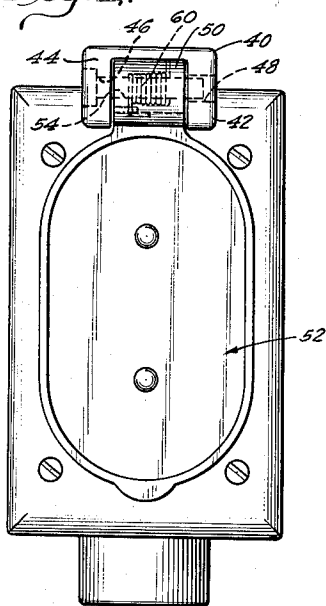


Fig. 2.

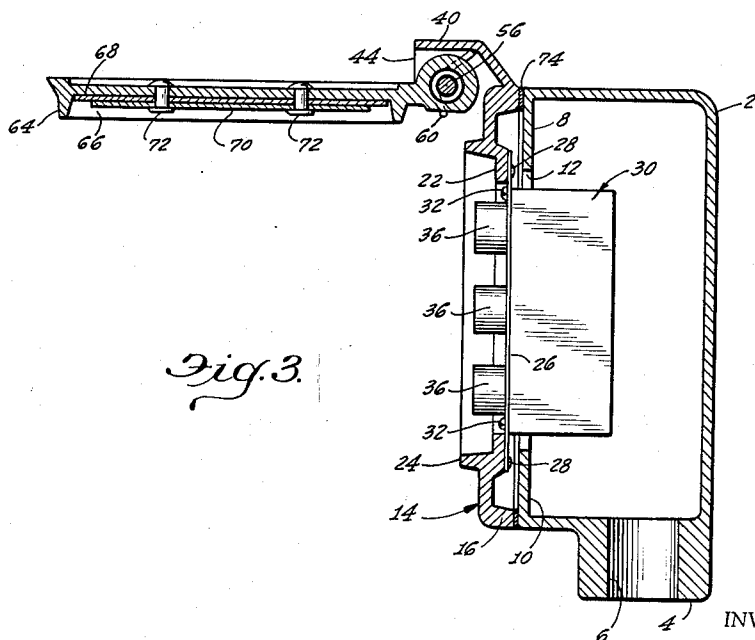
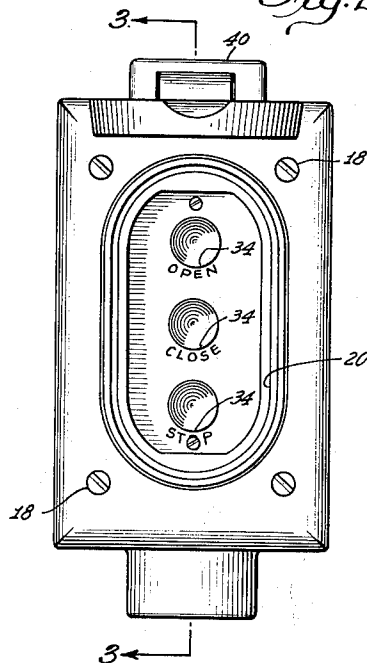


Fig. 3.

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ELECTRICAL CONTROL DEVICE AND ENCLOSURE ARRANGEMENT

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The invention relates to control stations generally, and particularly to a station applicable to the lower voltage range and usable under a variety of climatic conditions.

The disclosed invention constitutes an improvement over the station disclosed in my copending application Serial No. 25,078 filed April 27, 1960, now abandoned for control device and reference is had thereto for a specific detail construction of operating features.

Those skilled in the art of control arrangements will understand that devices of this nature are subject to two general criteria, that is, the specific voltage range for which a device may be designed and, secondly, the ambient or climatic conditions under which the device will be operated. These criteria are interrelated in that a device suitable for indoor operation within a given voltage range may be unsuitable for operation within that same range under, for example, outdoor climatic conditions. On the other hand, a device suitable for operation under outdoor climatic conditions within the voltage range may not be suitable for such operation within a higher voltage range. Accordingly, it is the purpose of the herein disclosed invention to offer a control device specifically designed for operation in lower voltage ranges and suitable for that operation within those ranges under all normally encountered climatic conditions.

The invention particularly comprehends a solid wall enclosure having an open side and a cover demountably and sealingly arranged to be secured to said open side. The cover defines an elongated cavity having a plurality of apertures therethrough through which may be projected appropriate push-buttons telescopically received within the enclosure and secured to the cover for ease in demounting and wiring. A secondary cover is preferably pivotally associated with the first mentioned cover in such a manner so as to be spring biased into sealing engagement with the defined cavity. In this manner, the control device specifically directed to lower voltage ranges is sealed under all normal conditions of use from any climatic action such as snow, rain, ice or the like. The switch unit, being of the momentary contact type, may be manually actuated by raising of the secondary cover and appropriate depression of the now exposed push-buttons.

These and other objects of the invention will become apparent in the course of the following description and from an examination of the associated drawing wherein:

FIGURE 1 is a front elevational view of the control here under consideration;

FIGURE 2 is a front elevational view, similar to FIGURE 1, wherein the secondary cover has been moved to open position; and

FIGURE 3 is a sectional side elevational view of the structure taken along line 3-3 of FIGURE 2.

Describing the invention in detail and directing attention to the associated figures, it will be understood that the numeral 2 indicates a solid wall enclosure, preferably a casting such as a cast aluminum box. One or more conduit coupling hubs 4 having appropriate conduit receiving aperture 6 may be integrally formed with the enclosure 2. The front face of the enclosure 2 is partially delineated by fragmentary walls 8 and 10 which define therebetween an appropriate opening 12.

A primary cover 14, again preferably of cast aluminum or the like, comprises an annular ridge 16 congruently

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arranged with the front face of the enclosure 2 to uniformly fit thereon. In the assembled relation between the primary cover 14 and the enclosure 2, it will be understood that a plurality of screws 18, 18 may be arranged to be received through the cover 14 and in appropriate threaded engagement (not shown) with the box 2. The cover 14 further comprises a central cavity 20 formed of a lower indented wall 22 and an upstanding continuous wall 24 surrounding the cavity 20 and projecting upwardly from the surface of the cover 14. A secondary wall 26 may be integrally formed with the indented wall 22 or may comprise a separable plate element secured to the wall 22 in any convenient manner, as for example, by drive screws 28, 28. A switch device indicated generally at 30 (as for example, that shown in my copending application) is secured to the wall 26, as for example, by means of screws 32, 32 so that the main portion of the switch device 30 is telescopically received within the enclosure 2. The wall 26 is provided with appropriate apertures 34, 34 which receive projecting push-buttons 36, 36. The push-buttons 36 are operatively associated with the switch device (not shown) as will be clearly taught by the disclosure of the above referenced copending application.

The primary cover 14 further includes a projecting bifurcated boss 40 which comprises two spaced lugs 42 and 44. The lugs 42 and 44 are provided with aligned apertures 46 and 48, said lugs receiving therebetween a cylindrical boss 50 integrally formed with a secondary cover, indicated generally at 52. The boss 50 of the secondary cover 52 has an aperture 54 therein which, in the assembled condition, is aligned with the apertures 46 and 48. Pivot pin 56 is received within the apertures 46 and 48 as well as aperture 54 to pivotally connect the secondary cover 52 to the primary cover 14. A torsion spring 60 surrounds the pin 56 and has its opposed ends in pressured interposition between the boss 40 of the cover 14 and the boss 50 of the secondary cover 52 whereby the spring 60 is effective to normally resiliently bias the secondary cover 52 toward the cover 14.

The secondary cover 52 additionally comprises a continuous ridge 64 defining a second cavity 66 within the inner surface of the cover 52. A seal element 68 is disposed within the cavity 66, continuously covering the bottom wall thereof and may be secured thereto in any convenient manner as, for example, by the plate 70 and the rivets 72, 72. The seal element 68 is preferably made of an appropriate fiber or flexible material which will sealingly engage the outer surface of the ridge 24 when the secondary cover 52 is biased toward the primary cover 14 and provide long service life. In addition, a second sealing element 74 may be interposed between the cover 14 and the enclosure 2 so that upon final assembly of the primary cover 14 to the enclosure 2, the point of juncture is effectively sealed.

Thus, it will be understood by those skilled in the art that the arrangement here described provides a means for effectively sealing the switch device 30 from outside atmospheric conditions when the secondary cover is biased into engagement with the primary cover so that the secondary cavity 66 telescopically receives the annular wall 24, the latter being sealingly engaged by the element 68 of the secondary cover 52. In the event momentary actuation of a push-button is required, the operator merely biases the secondary cover 52 to the position shown in FIGURE 2, accomplishes a push-button actuation and then the cover will again bias automatically into sealing engagement with the wall 24. As a further feature of the invention, it is preferable that the lug 40 be located at the top side of the enclosure 2 so that in the event of failure of the torsion spring 60, gravity will normally

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bias the secondary cover into appropriate sealing relation with the primary cover 14.

The above disclosed arrangement has been found to have particular utility in providing a suitable weather-proof control device especially applicable to voltages in the lower ranges which are most frequently experienced in actual commercial installations and offers a control device that is economical in initial cost as well as offering long service life.

The invention as disclosed is by way of illustration and not limitation and may be subject to various modifications without departing from the spirit thereof or the scope of the appended claims.

I claim:

1. In a control station and enclosure arrangement, a solid wall enclosure having a generally planar open face, a first cover for said enclosure means to demountably secure said cover to said enclosure and overlies said open face, seal means interposed between the cover and the enclosure, said cover comprising a planar base wall generally paralleling said open face, a continuous annular wall integrally formed with and arranged in generally perpendicular relation to the base wall and directed outwardly of the enclosure and in outwardly projecting relation with the outer surface of said base wall, the continuous annular wall defining an elongated cavity within the cover having a longitudinal axis substantially greater than the transverse axis thereof, said annular wall projecting inwardly of the general plane of the base wall, an inner wall secured to the inward projection of the annular wall and defining the inward limit of said cavity, switch means

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mounted on said inner wall for telescopic reception in said enclosure, a plurality of push buttons carried by the switch means and projecting through aperture means in the inner wall and into said cavity, a second cover pivotally connected to the first cover, said pivotal connection being disposed in alignment with said longitudinal axis and transversely thereof, said second cover being pivotally moveable toward and away from the first cover, said second cover including an annular ledge defining a second cavity within the second cover, said second cavity telescopically receiving the outer rim of said annular wall upon pivotal movement of the second cover toward the first cover, seal means in said second cavity to engage the outer rim of said annular wall, and spring means to normally bias the second cover toward the first cover.

2. A control station and enclosure arrangement according to claim 1, wherein the inner wall is secured to the inward projection of the annular wall by drive screws.

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