April 27, 1965 N. J. DRISCOLL 3,180,962

ELECTRICAL CONTROL DEVICE AND ENCLOSURE ARRANGEMENT

Filed Nov. 3, 1961

Fig. 1.

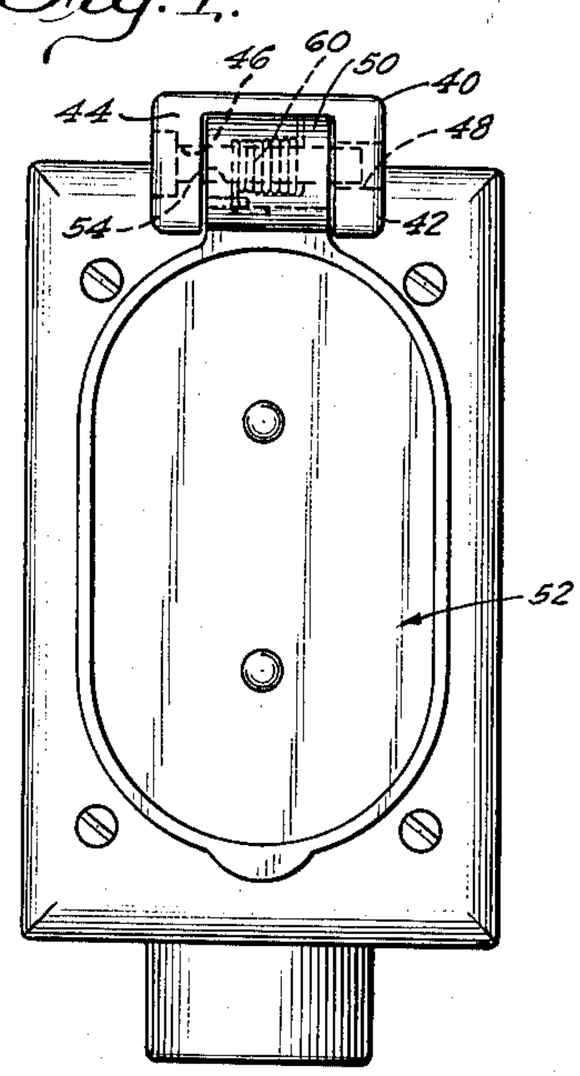


Fig. 2.

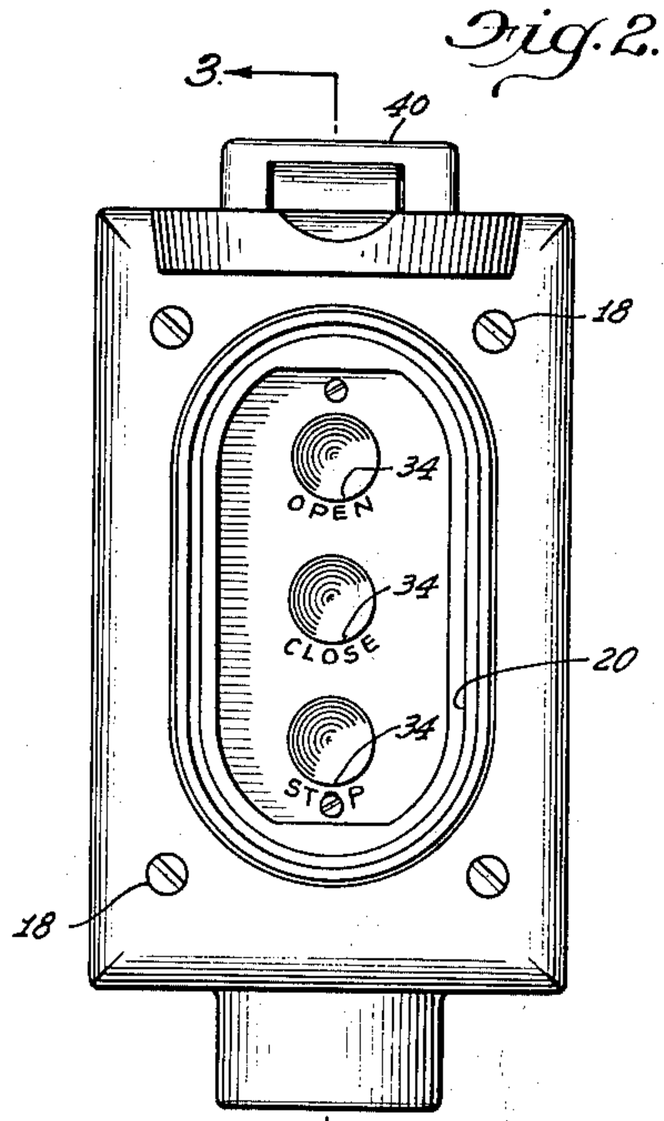





Fig. 3.

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# ELECTRICAL CONTROL DEVICE AND ENCLOSURE ARRANGEMENT

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2 Claims. (Cl. 200—168)

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



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

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 weatherproof 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 overlie 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



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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