Feb. 7, 1956 L. M. AVERY 2,734,097

HOUSING FOR ELECTRICAL APPARATUS

Filed Sept. 18, 1951 2 Sheets-Sheet 1

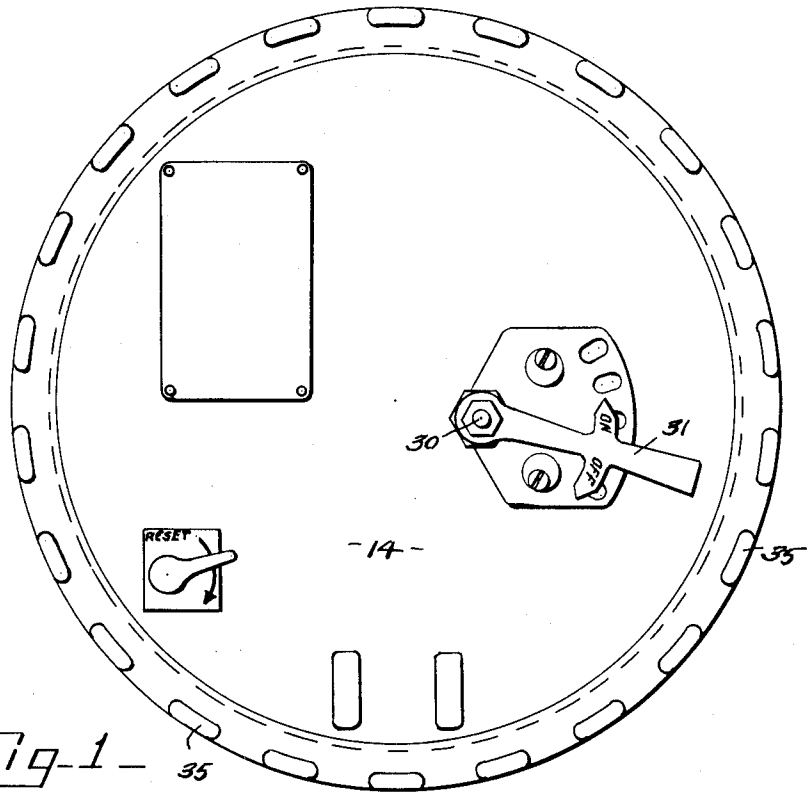


Fig. 1

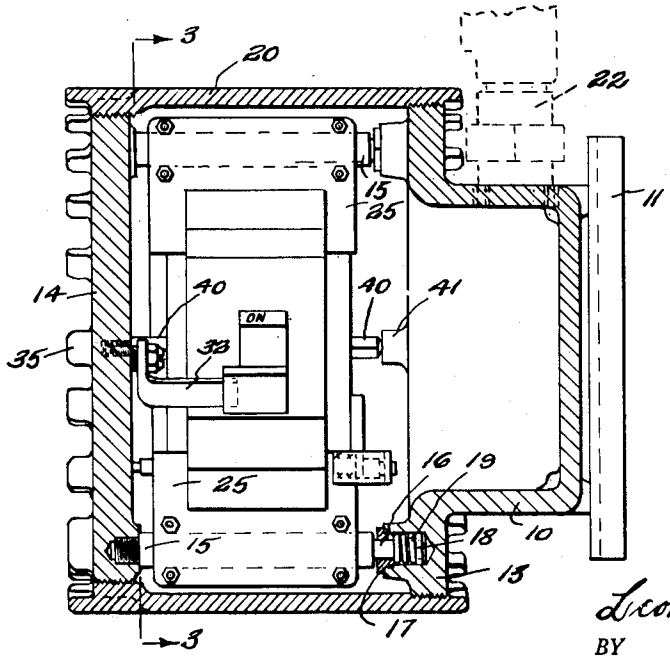


Fig. 2

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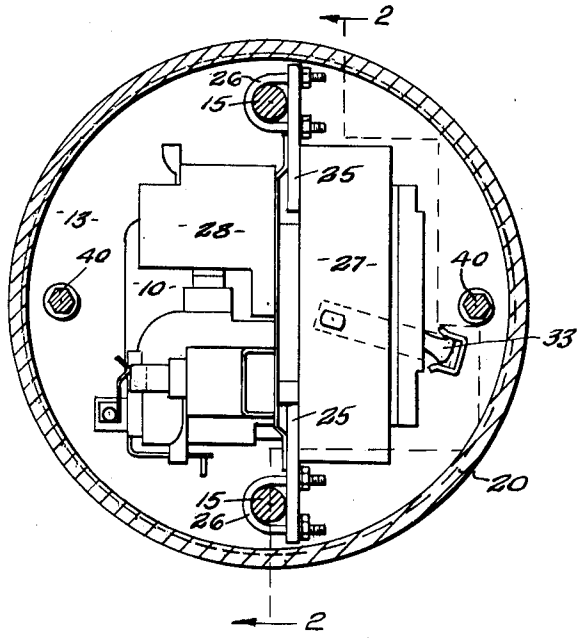


Fig. 3

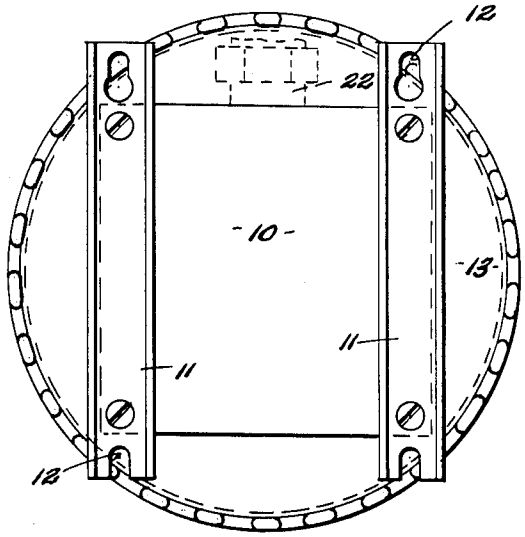


Fig. 4

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HOUSING FOR ELECTRICAL APPARATUS

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Application September 18, 1951, Serial No. 247,160

5 Claims. (Cl. 174—52)

This invention relates to a housing for electrical apparatus, such as circuit breakers, motor starters, switches, etc.

The invention has as an object a housing of the type referred to embodying a structure by which the housing is explosion proof and whereby the exterior of the housing may be quickly and conveniently removed and when removed, the electrical apparatus mounted in the housing is completely exposed for repair, or adjustment.

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 drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a front elevational view of a housing for electrical apparatus embodying my invention.

Figure 2 is a sectional view taken on a line corresponding to line 2—2, Figure 3.

Figure 3 is a view taken on line 3—3, Figure 2.

Figure 4 is a rear elevational view.

The housing consists of a base member **10** which may be of rectangular formation and provided with mounting bars **11** formed with apertures **12** for the convenient mounting of the housing on a wall, or other vertical surface.

The base **10** is formed with a radial flange **13** forming a circular portion provided with a threaded periphery. The front wall of the housing is formed by a plate member **14** of circular form and also threaded on its periphery. The plate member **14** is supported in spaced relation to the base by a plurality of studs **15** carried by the base and extending forwardly therefrom. The plate **14** is fixedly secured to the outer ends of the studs **15**, as by the studs being threaded into the plate. The inner ends of the studs are slidably mounted in the circular portion **13** of the base. The inner ends of the studs are formed with stem portions **16** of reduced diameter slidably mounted in bushings **17** threaded into apertures formed in the circular portion **13**. The inner ends of the stem portion **16** are formed with collars **18** and helical compression springs **19** encircle the stem portions **16** and are interposed between the bushings **17** and the collar **18**, whereby the studs and the plate member **14** carried thereby are yieldingly urged towards the base member. The housing is completed by a tubular member **20** provided with internal threads at each end for threaded engagement with the circular portion **13** of the base and the front plate wall **14**. The threadedly engaging portions of the tubular member **20**, plate **14** and circular member **13**, are of the same pitch. However, the diameter of the plate member **14** is slightly less than the diameter of the circular flange **13**. This arrangement permits the tubular member **20** to be sleeved directly over the plate **14** to bring the threaded portions into engagement, and requiring relatively few turns to thread the tubular member on both the base member and the plate **14**. This structure provides an explosion proof enclosure. In the

event the threaded portions of the member **20** do not engage the threaded portions of the plate **14** and the circular portion **13** of the base in pitch, the plate will move axially because of the manner in which the studs **15** are spring mounted on the base. This greatly simplifies the threading operations in the manufacture and assembly of the parts.

The base **10** may be provided with one or more threaded openings for connection to the conduit line, as shown in dotted outline at **22**, Figures 2 and 4. The housing is provided with mounting plates **25** detachably secured to the studs **15** by U bolts **26**. A switch **27** and a motor starter **28**, or other electrical apparatus, may be mounted upon the plates **25**. In the event the electrical apparatus mounted within the housing requires manual operation, such actuating mechanism is mounted on the end plate **14**. For example, in connection with the switch **27**, a shaft **30** is journalled in the plate **14** and provided at its outer end with an operating lever **31**, and at its inner end with an angle bar **32** operatively engaging the switch handle **33**.

The ends of the tubular member **20** may be formed with a series of axially extending projections **35** for the reception of a bar or tool to tighten or loosen the member. As shown in the drawings, the front plate **14** is carried by a pair of studs **15** to assure the plate **14** being maintained in true parallelism with the base **10**. In view of the fact that the studs **15** are slidably mounted in the base, the plate **14** may be provided with a pair of studs **40** threaded into the plate **14** and at their inner ends engaging bosses **41** formed on the base of the flange portion **13** of the base. The studs **40** function to maintain the plate **14** parallel to the base when the studs **15** are acted upon by the springs **19**.

The housing is particularly advantageous in that a plurality of the housings may be mounted in close adjacency on a panel, or other vertical support. This is due to the fact that the tubular members **20** are removed from the housings in an axial direction outwardly from the base member, this obviously being accomplished without any interference with the adjacent housings. The tubular members are quickly and conveniently removed and when removed, the apparatus is completely exposed, whereby it is convenient to make wiring connections and otherwise service the apparatus.

What I claim is:

1. A housing for electrical apparatus comprising a base member having a circular portion, a circular plate member, means for supporting said plate member in spaced relation to the base and in axial registration with the circular portion thereof, said supporting means permitting limited axial movement of the plate relative to the base, and a tubular member encircling said plate member and the circular portion of the base member and having threaded connection with said members.

2. A housing for electrical apparatus comprising a base member having a circular portion, a plurality of studs projecting from the base member, a circular plate member fixedly secured to the outer ends of said studs, the inner ends of said studs being connected to the base for a limited axial movement relative thereto, and a tubular member encircling said plate member and the circular portion of the base member and having threaded connection with said members.

3. A housing for electrical apparatus comprising a base member having a circular externally threaded portion, a circular plate member formed with threads on its periphery, a plurality of studs mounted on said base member and extending outwardly therefrom, said studs being slidably mounted in the base member and being fixedly secured to said plate member and positioning the latter in axial registration with the circular portion of the base,

a tubular member threaded on said plate member and the circular portion of said base member, and means yieldingly urging said studs toward the base member.

4. A housing for electrical apparatus comprising a base member formed with an externally threaded circular portion, a plurality of studs slidably mounted in the base and extending outwardly therefrom, a mounting plate secured to said studs, a circular plate member fixedly secured to the outer ends of said studs in axial registration with the circular portion of the base member, and a tubular member threaded on said plate member and the circular portion of said base member.

5. A housing for electrical apparatus comprising a base member formed with an externally threaded circular portion, a plurality of studs slidably mounted in the base and extending outwardly therefrom, a circular plate fixedly secured to the outer ends of said studs in axial registration with the circular portion of the base member, the inner ends of said studs being connected to the base for limited axial movement relatively thereto, means yieldingly urging said studs toward the base member, said plate and base member having means cooperable to maintain said plate in parallelism with the base, a tubular member encircling said plate member and the circular portion of the base and having threaded connection with said plate and base.

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