Oct. 26, 1965 S. T. DEAKIN 3,214,512

ELECTRICAL TERMINAL ASSEMBLIES

Original Filed June 11, 1962

FIG. 1 —

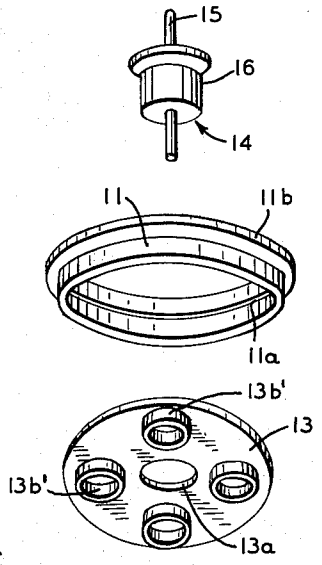
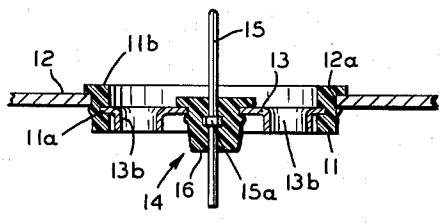


FIG. 2



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ELECTRICAL TERMINAL ASSEMBLIES

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Continuation of application Ser. No. 201,480, June 11, 1962. This application Nov. 23, 1964, Ser. No. 414,517
8 Claims. (Cl. 174—153)

This application is a continuation of application Serial Number 201,480 filed June 11, 1962 and now abandoned.

The invention concerns electrical terminal assemblies and in particular relates to an insulated lead through terminal.

It is among the objects of the present invention to provide a terminal assembly of simple form which may be readily, applied to, for example, a through hole in a housing.

According to the present invention an electrical terminal assembly adapted to be applied to a housing or the like comprises a tubular bushing, an outwardly directed peripheral flange adjacent one end, and a peripherial channel in the inner face of said bushing, and a generally circular metallic plate whose periphery is positioned within said channel, said channel being spaced axially of the bushing in relation to the flange, and said plate or like formation being of such dimensions as to cause said bushing, initially of such dimension as to be an interference or close fit in the hole in said housing, to assume an increased cross sectional dimension inwardly of said housing thus to restrain removal therefrom, the plate being further adapted to receive electrical wires or the like.

Preferably according to the invention the assembly includes a further bushing having moulded integral therewith a conductor pin, the said plate being adapted to receive the said further bushing, the said bushing being an interference fit in said plate and the said conductor pin including a protuberance adapted to cause an effective increase in cross-sectional dimensions of the bushing thus to prevent or hinder withdrawal thereof from the plate.

The invention will now be described further, by way of example only, with reference to the drawings which illustrate one particular embodiment thereof and in which:

FIG. 1 is an exploded perspective view of an electrical terminal assembly according to the invention.

FIG. 2 is a longitudinal section of the arrangement shown in FIG. 1.

Referring now to the drawings an electrical terminal assembly comprises a bushing **11** of such dimensions as initially to be an interference fit in a through hole **12***a* in a housing **12**, a metallic plate **13** in engagement with a peripheral groove **11***a* in the inner radial face of the bushing and an insulated lead-through unit **14** in engagement with a through hole **13***a* centrally of said plate **13**. The bushing **11** is of polytetrafluoroethylene (PTFE) and has a radially directed peripheral flange **11***b* at one end thereof, such flange, when the assembly is located in position, abutting the outer surface of the housing.

The metallic plate **13** is of a diameter slightly in excess of the diameter of the channel and thus the bushing **11** is deformed slightly upon engagement therewith of the plate. Centrally of the plate **13** is the through hole **13***a* whilst at 90° intervals around the annulus thus formed are some four more holes **13***b*, said holes **13***b* each having a peripheral flange **13***b'*.

The lead-through unit **14** comprises a conductor pin **15** moulded integral with an insulating PTFE bushing **16**, said conductor pin **15** having a protuberance **15***a* so disposed relative to the ends thereof as to lie, when the unit **14** is in position, just inwardly of the inner surface of the plate **13**. The unit **14**, initially is an interference fit in the through hole **13***a* and thus after location in such hole the deformation due to the protuberance resists withdrawal.

In use, the assembly is made up prior to application to a housing and upon such application the compression of the bushing by the walls of the hole cause a bulge to form adjacent the inner surface of the housing, the formation of such bulge being assisted by the position and relative dimensions of the plate.

The lead-through unit may be applied to the plate either before or after assembly as preferred.

The invention is not restricted to the particular features of the embodiment hereinbefore described since alternatives will readily present themselves to one skilled in the art.

For example, the plate may be of any form as determined by the use to which it is to be applied, and may, for example, take the form of an eyelet.

What is claimed is:

1. An electrical terminal assembly to be received in a hole in a housing in interference fit relation, said assembly including a generally circular bushing of resilient insulating material and having an annular flange at its upper end to engage the upper wall of the housing and limit downward movement of the bushing into the housing, said bushing also having an internal annular recess near its lower end, a generally circular plate whose periphery is positioned within said annular recess and being of greater diameter than the recess before the plate is inserted so as to form on the outer periphery of the bushing an annular rib which engages the lower wall of the housing to restrain upward travel of the bushing, the plate having an opening therein, a lead-through unit comprising a second resilient bushing of greater diameter than said opening mounted therein in interference fit relation, and a conductor pin mounted within the latter bushing.

2. An assembly as claimed in claim **1** wherein said plate has a plurality of openings, at least one of which has an integrally formed downwardly extending annular flange.

3. An assembly as claimed in claim **1** wherein said plate has a plurality of openings including a central, through opening and a plurality of eccentrically located openings with downwardly extending annular flanges.

4. An assembly as claimed in claim **1** wherein the conductor pin is molded within the second resilient bushing and is provided with a protuberance positioned within said second resilient bushing to resist withdrawal of the pin from the second bushing.

5. An electrical terminal assembly to be received in a hole in a housing in interference fit relation, said assembly including a generally circular bushing of resilient insulating material and having an annular flange at its upper end to engage the upper wall of the housing and limit downward movement of the bushing into the housing, and an annular rib below the housing to restrain upward movement of the bushing, said bushing also having an internal annular recess near its lower end, a generally circular plate whose periphery is positioned within said

annular recess, the plate having an opening therein, a lead-through unit comprising a second resilient bushing of greater diameter than said opening and positioned therein in interference fit relation, and a conductor pin mounted within the latter bushing.

6. An assembly as claimed in claim 5 wherein said plate has a plurality of openings, at least one of which has an integrally formed, downwardly extending, annular flange.

7. An assembly as claimed in claim 5 wherein said plate has a plurality of openings including a central, through opening and a plurality of eccentrically located openings with downwardly extending annular flanges.

8. An assembly as claimed in claim 5 wherein the conductor pin is molded within the second resilient bushing and is provided with a protuberance positioned within said second resilient bushing to resist withdrawal of the pin from the second bushing.

No references cited.

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