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2,276,969

SERVICE ENTRANCE CABLE CONNECTOR

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Fig. 1

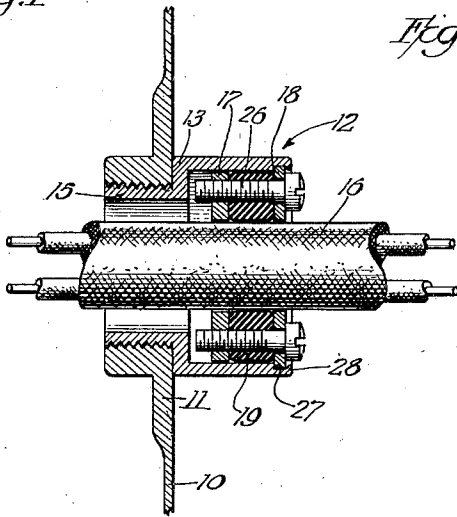


Fig. 2

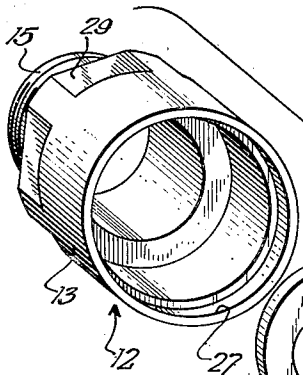
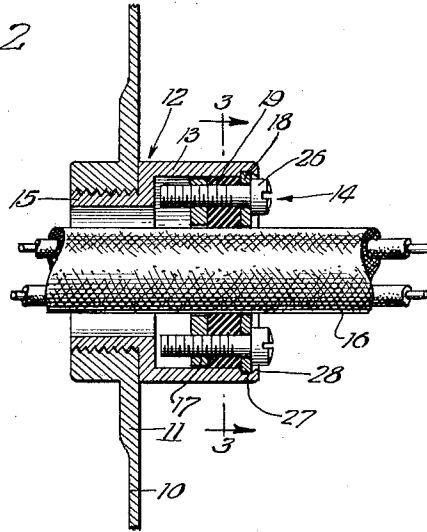
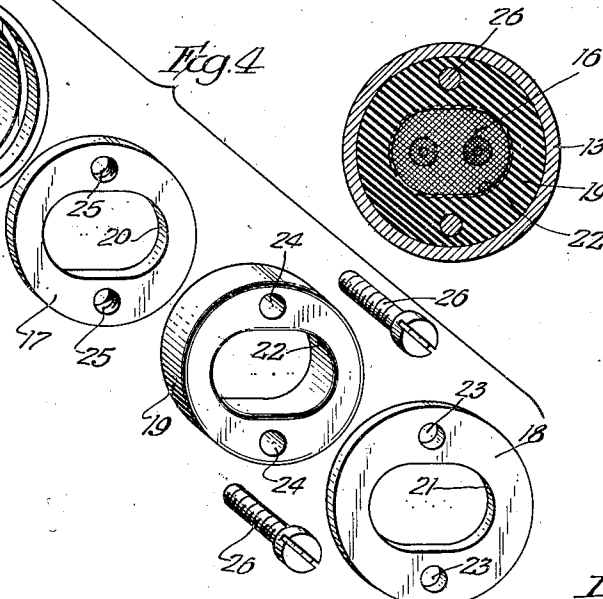


Fig. 3

Fig. 4



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SERVICE ENTRANCE CABLE CONNECTOR

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2 Claims. (Cl. 285—6.5)

The invention relates to service entrance cable connectors and has as its general aim the provision of new and improved means for establishing a secure, water-tight connection between the entering portion of a service cable or the like and an electrical device or fitting as, for example, an outdoor meter.

Another object of the invention is to provide a new and improved device of this character which is of simple inexpensive construction and is conveniently adjustable for proper association with the cable.

Another object is to provide a novel connector which embodies a casing enclosing an assembly through which the service cable extends, the assembly being rotatably supported by the casing for adjustment to receive the cable and including means for compressing a distortable member by a force applied in a straight axial line into gripping engagement with the cable and with the casing to establish a secure connection.

Other objects and advantages will become apparent in the following description and from the accompanying drawing, in which:

Figure 1 is a view in axial section through a connector device embodying the features of the invention.

Fig. 2 is a similar view showing the parts in cable securing position.

Fig. 3 is a transverse sectional view taken along the line 3—3 of Fig. 2.

Fig. 4 is an expanded view showing the parts of the device in perspective.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawing and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

The entrance of service cables to such electrical devices as meters, particularly those located out of doors, offers difficulties since the entrance opening must be tightly sealed against moisture, and the cable must be firmly secured to the electrical device, yet the connector must be inexpensive and easy and convenient to use. According to the present invention, a connector is provided which meets and fulfills these difficulties and requirements and possesses other advantageous features as will hereinafter be more particularly set forth.

In the exemplary form of device which illustrates the features of the invention, the numeral 10 designates the outer wall of an electrical device, such as an outdoor meter, and the wall is provided with an internally screw threaded boss 11 defining an entrance opening. The connector, in the present instance, includes a tubular, generally cylindrical casing, indicated generally at 12, having an enlarged outer end 13 in which the connector assembly 14 is mounted and a reduced inner end 15 externally screw threaded for engagement with the screw threads on the bosses 11. The internal diameter of the reduced casing end 15 is ample to permit a cable 16 to pass freely through it.

The connector assembly 14, as shown in Fig. 4, preferably is a unitary arrangement of several elements including inner and outer compression members 17 and 18, respectively, and an intermediate member 19 formed of a resilient material, such as rubber, which is characterized in that it is readily distortable and compressible. All of the members 17, 18 and 19 are, in the present instance, in the form of circular disks dimensioned to fit snugly yet relatively freely within the larger or outer end of the casing. The inner and outer members may be fashioned of metal or other material which is sufficiently sturdy and rigid to stand the strains imposed thereon.

All of the members 17, 18 and 19 have enlarged, centrally located apertures 20, 21 and 22, respectively, of approximately the same size and shape. Herein these apertures are illustrated (Figs. 3 and 4) as being somewhat elongated to receive a cable that is generally oval in cross section. It will be evident, however, that the shape of the openings may be varied to accommodate other types of cables. The outer, intermediate and inner members 18, 19 and 17 have corresponding diametrical apertures 23, 24 and 25, respectively, to receive headed screws 26 which extend loosely through the apertures 23 and 24, and have screw threaded engagement with the apertures 25 in the inner member. These screws are the means by which the compression members are drawn together to exert a compressing, distorting force on the intermediate member 19.

The intermediate member is of such thickness that compression thereof produces a substantial lateral expansion both outwardly of its periphery and inwardly of the opening 22. Hence, when the compression disks are drawn together, the intermediate member will be distorted into secure binding engagement with the internal wall

of the casing and with the external surface of any type of cable extending through the connecting assembly. The relative positions of the parts before and after distortion of the intermediate member is shown respectively in Figs. 1 and 2. It will be noted that the distortion of the rubber disk is produced by a force applied in a straight line, axial direction and that the disk is never subjected to the tearing, shearing action that would result from compression by means of relatively rotatable members. The rubber disk, therefore, has a long life and the connection with a cable may be repeatedly made and broken without injuring the disk.

The connector assembly may be suitably secured to the casing to maintain assembly of the parts when the device is not in use. Thus, the outer disk 18 is somewhat larger in diameter than the inner disk 17 and the marginal portion of the outer disk is arranged to seat in a rabbeted groove 21 formed internally of the casing at the outer end thereof. Preferably, the outer margin of the casing is inwardly distorted, as at 28, into overlying relation to the face of the outer disk. This arrangement holds the connector assembly within the casing and against axial movement relative thereto. Preferably, however, the connection is loose to permit the connector assembly to be rotated relative to the casing. This arrangement enables the user to adjust the connector assembly to any position of an oval cable and avoids the necessity of twisting the cable so that it may properly enter an electrical device through a receiving opening having a fixed position.

From the foregoing, it will be evident that a novel service entrance cable connector has been provided which is of simple and inexpensive construction yet is efficient in operation. In use, the connector is screwed into the boss 11 by means of a tool supplied to flats 29 formed externally of the casing. The cable is then led into the electrical device through the openings 21, 22 and 20 in the connector assembly, the assembly being rotatably adjusted to align the cable openings therein for proper reception of the cable. The cable is finally secured to the connector by tightening the screws 26 to compress the disk into a secure, water-tight, holding engagement with the cable and the inner wall of the casing.

I claim as my invention:

1. A service entrance cable connector comprising, in combination, a hollow casing having an open outer face, and a connector assembly mounted in said casing adjoining and traversing said open face, said assembly having a central opening therein to receive a cable and permit it to extend through said casing and including inner and outer compression members, an intermediate distortable member, and screw means extending through said outer and intermediate members and engaged with said inner member, said casing having an internal rabbeted groove at the open outer face end thereof, said outer member being larger than the other of said members to engage said groove, and said casing being distorted over the outer margin of said outer member to secure said assembly for rotation and against axial movement relative to said casing.

2. A service entrance cable connector construction comprising, in combination, an open ended tubular casing having a threaded inner end portion of reduced diameter for connection to a meter box, and an enlarged internally cylindrical opposite end portion; a cable-engaging assembly including a pair of round compression disks of different diameters and a compressible member interposed between said disks and of substantially the same diameter as the smaller of the disks; said disks and said member having registering apertures therethrough dimensioned closely to encircle a cable of non-circular cross section extending through the casing; said smaller disk and said compressible member being wholly received within said chamber; an internal rabbet groove at the outer end of said casing providing a seat for the larger of said disks; outer marginal portions of said casing being turned over to secure said larger disk in place for rotary but non-axial adjustment to accommodate any disposition of said non-circular cross section of the cable within said casing; and a plurality of screws extending into said casing in freely rotatable relation through said larger disk and said member and having threaded engagement with said smaller disk to draw the latter toward the larger disk and distort said member by compression into binding engagement with said casing and the cable.

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