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R. I. MARKEY

2,331,409

CABLE CONNECTOR

Filed Nov. 11, 1942

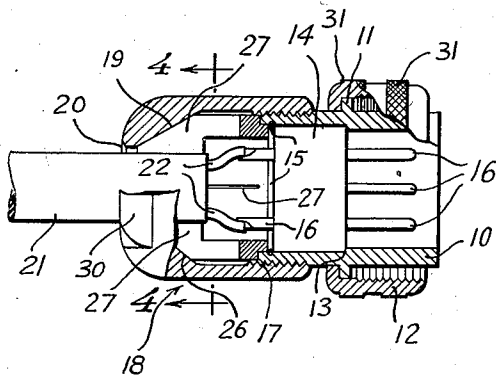


FIG. 1.

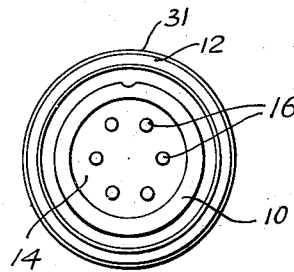


FIG. 2.

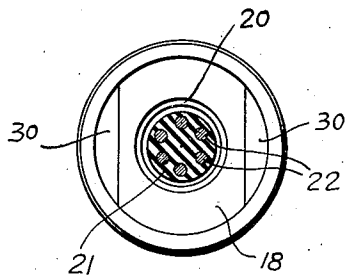


FIG. 3.

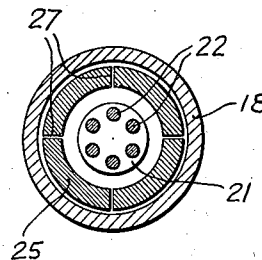


FIG. 4.

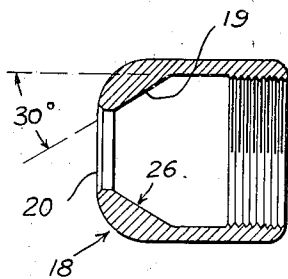


FIG. 5.

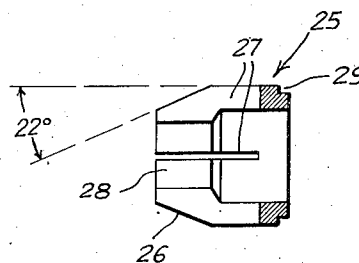


FIG. 6.

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2,331,409

CABLE CONNECTOR

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Application November 11, 1942, Serial No. 465,282

1 Claim. (Cl. 173—322)

The invention relates to cable connectors.

Connectors of this type are used when it is desired to provide a separable connection between two cables each carrying a plurality of electric connecting wires or between one such cable and a stationary member.

The principal object of the present invention is to provide a cable connector of extreme simplicity and having a minimum number of parts so that it readily lends itself to economies of manufacture and ease of assembly. Due to its simplicity the connector is foolproof, short circuiting is avoided and it may be easily taken apart for inspection or repairs.

Other objects and advantages of the invention will become apparent as this specification proceeds. Referring to the drawing forming a part thereof and in which one form of the invention is illustrated:

Fig. 1 is a longitudinal sectional view with parts in elevation;

Fig. 2 is an end elevation;

Fig. 3 is an end elevation, the cable being in section, looking from the opposite end from that illustrated in Fig. 2;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a detail longitudinal section of the shell; and

Fig. 6 is a detail longitudinal section of the bushing.

Referring again to said drawing the reference numeral 10 designates a housing which is provided with a shoulder 11 at its intermediate portion. The shoulder 11 acts to prevent longitudinal movement of a freely rotatable nut 12.

The housing 10 has an internal shoulder 13 against which one end of an insert 14 abuts. A removable locking ring 15 engages the other end of the insert 14 to hold it in position. The conventional contact pins 16 are molded into the insert. These pins contact with openings in a conventional male member (not shown) which is drawn in position and held there by the freely rotatable nut 12.

The housing 10 is threaded at its inner end at 17 for the reception of a shell 18. The end of the shell 18 remote from the threaded portion has a frustro-conical shaped interior 19 which terminates in an opening 20 through which the cable or conduit 21 freely passes. The conductors 22 carried by the cable are soldered to the inner ends of the contact pins 16.

It is essential to provide a means for firmly gripping the cable so as to eliminate any strain

on the connections between the conductors and this means forms an important feature of this invention. A bushing 25 formed of fiber or a plastic, although metal is not precluded, is housed in the shell 18. One end of this bushing is frustro-conical in shape as shown at 26 and engages the frustro-conical shaped interior portion 19 of the shell 18. The bushing has a plurality of slots 27 which extend substantially the length thereof. The bushing might be made in two or more pieces but it is considered advantageous to have it formed of one piece so that when the cable connector is disassembled for inspection or repairs it will remain on the cable.

The bushing has an opening 28 which is of sufficient diameter to permit of the cable passing freely through it when the connector is disassembled. The other end of the bushing engages the inner end of the housing 10 and if desired it may be provided with a shoulder 29, the part beyond this shoulder seating in the housing. It will thus be apparent the bushing is positively confined between the interior frustro-conical shaped portion of the shell and the end of the housing.

From an inspection of Fig. 5 it will be noted that the angle of the frustro-conical portion of the shell in relation to its axis is on the order of 30° and as shown in Fig. 6 the angle of the frustro-conical shaped portion of the bushing in relation to its axis is on the order of 22°. Thus when the shell is screwed home the angle of the frustro-conical shaped portion of the bushing is forced to assume that of the shell as shown in Fig. 1. The bushing will thus be caused to grip the cable with great intensity and thus positively eliminate any strain on the connections between the contact pins and the conductors. Due to the fact of the slots extending substantially the length of the bushing, the effect in reality is that of a plurality of fingers or arms impinging on and tightly gripping the cable about its entire diameter and for an effective length.

The sleeve is slabbed off at its end regions as indicated at 30 in Figs. 1 and 3 to enable a wrench to be applied thereto to screw it into position. In manufacturing cable connectors the practice has always been to use a knurled surface on the outer periphery of the cable or conduit attaching nut. In the present construction the knurling has been eliminated and the wrench seat 30 substituted. The ring nut 12 is provided with knurled gripping surfaces 31 and the attaching nut or shell 18 has a smooth exterior surface. With the foregoing arrangement any

possibility of the workman accidentally breaking the joint at the wrong place is eliminated.

Such changes in details of construction as might be made by one skilled in the art to be considered as coming within the spirit of the invention as set forth in the appended claim.

I claim:

A cable connector having in combination, a housing, a freely rotatable nut mounted on said housing, a shell having one end threaded onto said housing, the end of the shell remote from the threaded portion having a frustro-conical shaped interior, an insert carried by said housing said insert being provided with a plurality of contact pins, a bushing, one portion of which is frustro-conical in shape and the balance cylin-

drical and a plurality of slots extending substantially the length of the bushing, said bushing being confined between the end of the housing and the shell, the end of the cylindrical portion of said bushing abutting the end of the housing and the frustro-conical portion of said bushing engaging the frustro-conical interior portion of said shell so that when said shell is screwed into position the bushing will firmly grip a cable or conduit entering said cable connector, the cylindrical portion of said bushing being provided with a chamber for the reception of the inner ends of said contact pins and the conductors carried by said cable.

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