

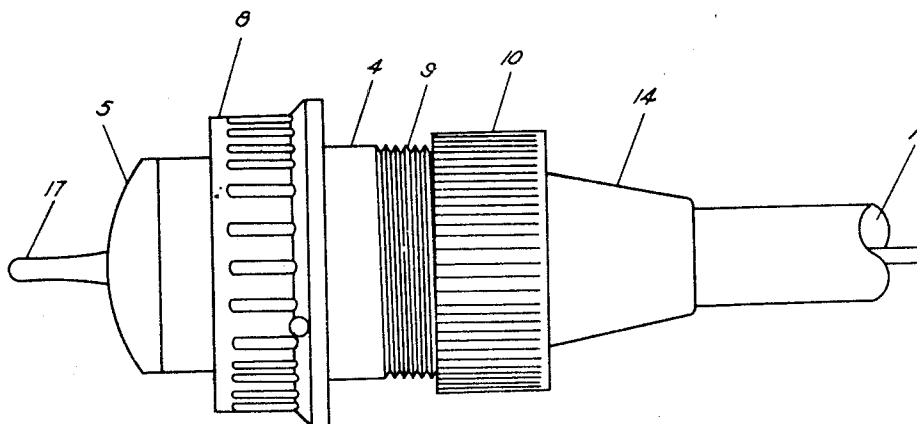
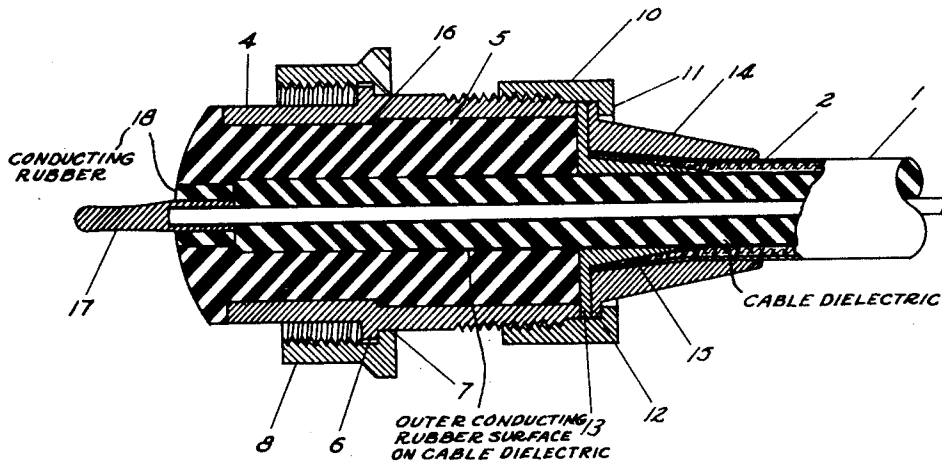
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K. McGEE ET AL

2,460,304

CONNECTOR

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CONNECTOR

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

The invention to be hereinafter described relates to connectors and more particularly to cable connectors for high voltage use.

It has been common practice to provide cable connectors made integrally with cable ends, the connectors being built into or onto the cable ends at the particular plant. In such instances, the general method has been to vulcanize the outer dielectric layer of the connector to the next adjacent dielectric layer and then apply the coupling shell and cooperating collar. Where a single coupling, only, is involved, this construction is acceptable though, even for a single connection, it has disadvantages. There are a great many installations, especially in connection with air planes and various military uses, in which cables are provided having a large number of connectors distributed throughout the length of the cable either at uniformly spaced intervals or at irregularly spaced intervals. The connections are all prefabricated or vulcanized, as above indicated and, therefore, inseparable parts of the cable. In many cases, various changes make it desirable to change some of the prefabricated connectors. This means complete destruction of the respective connector, with great loss of time and labor and, frequently, an inadequate or, at least, poorer connector in its place. There is a great demand for a connector which may be readily, quickly, adequately and reliably attached to and detached from a cable, so that the connection or connections may be applied at any desired point in the length of the cable, instead of being limited to the predetermined points established by prefabrication.

The present invention completely avoids all of the above and other objections and provides a simple, compact, efficient and economical, detachable connector which may be quickly, easily and reliably applied to and removed from a cable at any desired point.

In order to more clearly disclose the construction, operation and use of the invention, reference should be had to the accompanying drawings forming part of the present applica-

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tion. Throughout the several figures of the drawings like reference characters indicate the same parts in the several views.

In the drawings—

Fig. 1 is a central, longitudinal cross section of the invention, applied; and

Fig. 2 is a side elevation of the same.

Referring to the drawings in detail 1 indicates a cable having the usual outer cover or sheath 2. In the present invention, the connector includes a cylindrical shell 4, and a cylindrical dielectric body 5 within said shell and adapted to slidably receive a comparatively close fit, the cable 1 with its sheath 2 removed. Shell 4 may be provided with an outer annular shoulder or rib 6 adapted to engage and act as a stop for the radial annular flange 7 of the coupling ring 8. Shell 4 is also provided with a threaded portion 9 adapted to receive the cooperating threaded section of a clamping ring or cap nut 10 the radial flange 11 of which is adapted to overlap and engage the radial flanges 12 and 13 of the conical clamping ferrules 14 and 15 between which the cable sheath is clamped. By turning up tight the ring 10, the ferrules 14 and 15 will clamp the cable securely to the connector shell while also adequately grounding the cable through the shell 4. At the same time, an internal annular shoulder 16 engaging 5 tends to draw the dielectric cylinder firmly against the flange of the inner ferrule and securely seats it in operative position about the cable. Preferably, the dielectric body 5 is rubber. In assembling, it is lubricated. Its larger diameter 35 may be deformed so that it then may be forced through the small diameter of cylinder 4 into the larger diameter where it will expand behind shoulder 16.

In the preferred construction, the cable 1, as 40 a cable does not extend the full length of the dielectric 5 which, it will be noticed, projects slightly beyond the open or plug end of cylinder 4 and is rounded off. It ends just short of or within the cylinder. The cable bore through 5, from that point, receives a short cylindrical body or plug 18 of conducting rubber (rubber-graphite compound) which is molded about the central conductor of the cable. Plug 18 is vulcanized in and to the dielectric 5 and becomes integral therethrough, completely eliminating

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any air space between it and the dielectric 5 as might be the case where a metal cap would be substituted as a modification, for instance.

The outer conducting rubber of the cable, between the cable and dielectric 5, is stripped back from the outer end a distance approximately one half the inside length of the shell 4, as will be seen on reference to Fig. 1.

Preferably, and as an economy in manufacture and handling, as well as a convenience in handling and application, shell 4 is made as one piece or unitary.

The plug end 17 of this plug member of half of the coupling is part and parcel of the central conducting rod or cable core element and, as in all such connectors, is adapted for plugging into the cooperating socket member of the connector, not shown.

The construction, operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement and disposition of the several parts of the invention within the scope of the appended claims without departing from the field of the invention and it is meant to include all such within this application wherein only one preferred form has been illustrated, along with one modification, purely by way of example and with no thought or intention to, in any degree, limit the invention thereby.

Having thus described our invention, what we claim and desire to protect by Letters Patent is:

1. In an electrical cable connector, a substantially cylindrical outer shell having an inner peripheral shoulder intermediate its length, the internal diameter of said shell being reduced forward of said shoulder, a removable compressible resilient dielectric body seated within said shell under compression by the shell wall throughout the length of the shell, said dielectric body closely fitting the internal wall of said shell and in manually yieldable locking engagement with the aforementioned shoulder, said dielectric body being formed with a central longitudinal bore for slidably receiving the cable conductor, and means for releasably attaching the outer braid of said cable to said outer shell.

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2. In an electrical cable connector, a substantially cylindrical outer shell having an inner peripheral shoulder intermediate its length, the internal diameter of said shell being reduced forward of said shoulder, a removable compressible resilient dielectric body seated within said shell under compression by the shell wall throughout the length of the shell, said dielectric body closely fitting the internal wall of said shell and in manually yieldable locking engagement with the aforementioned shoulder, said dielectric body being formed with a central longitudinal bore for slidably receiving the insulated cable conductor, a cylindrical plug of electrically-conductive material in the front end of said dielectric body bore, said plug also having a longitudinal bore for slidably receiving the bared cable conductor, the outer periphery of said plug closely fitting the bore wall of said dielectric body and integrally secured thereto, whereby said dielectric body and said plug form a unitary assembly for manual insertion into the outer shell of the connector, and means for releasably attaching the outer braid of said cable to said outer shell.

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