

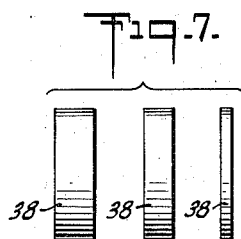
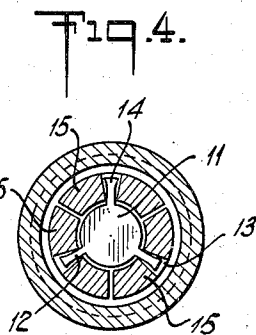
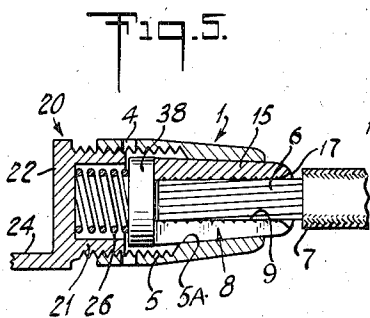
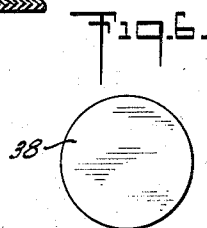
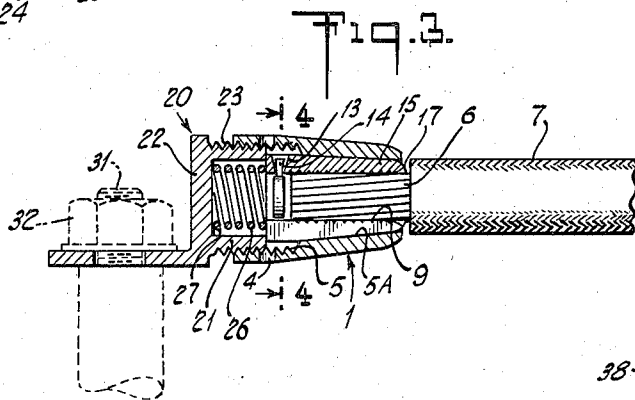
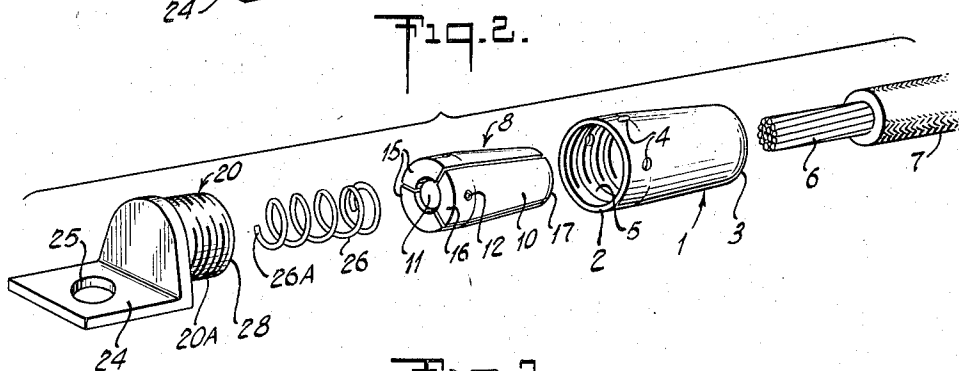
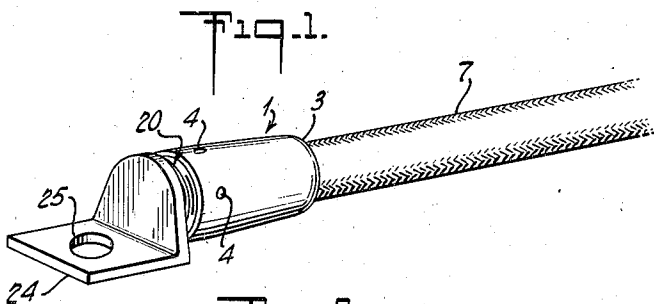
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CABLE LOCK CONNECTOR

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CABLE LOCK CONNECTOR

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2 Claims. (Cl. 287—83)

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This invention relates to an electrical connector device more especially of the type wherein an electrical conductor or cable is gripped by the jaws of a chuck located within a sleeve.

It is an object of the invention to provide means whereby the cable is not only gripped but also locked within the connector the locking means being readily released or unlocked when desired.

Another object is to provide means whereby in addition to the above-mentioned locking action, the bore of the chuck is accommodated to cables or conductors of different sizes or diameters.

These and other objects and advantages will be apparent from the following description and the appended drawings, which are intended to illustrate the principles of the invention. Various changes may be made without departing from the principles and scope of the invention which will be defined in the claims.

In the drawings,

Fig. 1 is a view of the assembled device,

Fig. 2 is an exploded view showing various parts,

Fig. 3 is a longitudinal sectional view,

Fig. 4 is a transverse section on line 4—4 of Fig. 3,

Fig. 5 is a view similar to Fig. 3 showing a positioning element in operative position,

Fig. 6 is a front view of a positioning element, Fig. 7 shows side or edge view of positioning elements adapted for cables of different sizes.

The sleeve 1 has two ends one of which may be identified as the outer end 3 and the other the inner end 2. The sleeve has an internal bore 5A which is tapered toward the end 3 and an internally threaded portion 5 extending from the end 2 toward the tapered bore. Holes 4 are provided to accommodate a spanner wrench.

The chuck or gripping member 8 is composed of segments 15 having outer surfaces 10 tapered to correspond with the internal tapered surfaces 5A of the sleeve 1. When grouped together as shown, the interior surfaces of the segments provide a substantially cylindrical bore 9, those surfaces being provided with serrations or other suitable configurations adapted to grip a cable or conductor, for example, the cable 6 having an insulated portion 7. The chuck 8 has two ends, one of which may be termed the outer end 17 and the other the inner end 16. Each segment 15 is provided near the end 16 with a tapered or countersunk hole 13 in which is received a pin 12

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having an enlarged head 14. The pins 12 extend radially from a circular plate, disk or hub 11.

The segments 15 are therefore capable of radial movement or adjustment within limits. The extent of this movement or adjustment and the effective size of the bore 9 of the chuck is dependent upon the axial position of the chuck 8 in relation to the sleeve 1.

Means are provided to lock the jaws 15 of the chuck 8 within the sleeve 1 after a cable has been inserted into those jaws and thereby to lock the cable in firm mechanical and electrical engagement with the connector. This means may take the form of an element 20 having a male threaded portion 20A adapted to engage the inner or female threaded portion 5 of sleeve 1 and having edges 28 adapted to bear against ends 16 of the jaws 15 or, as in Fig. 5, against a spacing or positioning member 38 which in turn bears against ends 16 of jaws 15. Element 20 may be cup shaped with a bottom 22 and side walls 21 constituting a housing for a resilient member 26 secured to the bottom 22 as at point 27.

Member 20 in addition to its locking function also preferably performs a securing function for which purpose it may have securing or connecting means such as the lug 24 provided with hole 25 through which a threaded stud or bolt 31 may extend, provided with nut 32.

In assembling the device it will be understood that the end 26A of the spring 26 is secured to element 20 as, for example, at the point 27. The chuck 8 is inserted into the sleeve 1 and element 20 is joined to the sleeve until the threads 20A engage threads 5. The spring 26 then forces the chuck 8 as far as it will go toward the end 3 of the sleeve and the bore of the chuck is then contracted to its minimum size. The cable 6 is then inserted into the jaws 15 of the chuck and expands them, the chuck at the same time moving axially toward the end 2 of the sleeve to permit radial expansion of the jaws, the axial movement being against the bias of the spring.

To cause locking action, the element 20 is screwed into the sleeve as far as it will go. The edges 28, in the construction shown in Fig. 3, bear against the ends 16 of the jaws and provide a screw thrust which forces the jaws 15 into locking engagement with the cable 6 and sleeve 1 under high pressure. The spring 26 then plays a minor part, if any, in this locking action, the principal or sole part played by the spring being to assist in the positioning of the parts during assembly.

It has been found convenient and desirable, at

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least in some cases, to employ a spacing element to be interposed between the ends 16 of the jaws and the edges 28 of the element 20 in order better to accommodate the jaws to different sizes of cables and to facilitate locking action. These spacing elements may have different sizes properly marked to indicate the sizes of cables to be used therewith.

What is claimed is:

1. A cable connector of the character described comprising a hollow cup-shaped bushing having a bottom and side walls said side walls terminating in an annular edge portion at the top of said bushing the interior surfaces of said side walls and bottom defining a receiving space for a spring, a spring in said receiving space, the side walls of the bushing having male threads exteriorly thereof, a sleeve having an inner end, an internal bore tapering from the inner end toward the outer end and being internally threaded adjacent to the inner end to engage the male threads on the bushing, segmental cable gripping chuck members nested within said sleeve, said members having internal cable gripping surfaces, radially enlarged inner end portions and outer end portions of reduced radial dimensions and tapered external surfaces to engage the tapered internal surfaces of said sleeve the said members being axially and radially displaceable within said sleeve, the internal diameter of said bushing being less than the maximum external diameter of said segmental chuck members to provide for engagement of the annular edge portion of said bushing with the enlarged inner ends of the chuck gripping members, the said spring resiliently biasing the gripping chuck members toward the outer end of the sleeve during the mounting of a cable, and said spring being compressed and confined within said housing when a cable is inserted within said chuck gripping members and the bushing and sleeve are fully engaged by mutual screw action by the mutual screw engagement of the sleeve and bushing, the chuck members then compressing and gripping said cable to the full extent of said screw action.

2. A cable connector of the character described comprising a hollow cup-shaped bushing having a bottom and side walls said side walls terminating in an annular edge portion at the top of said bushing the interior surfaces of said side walls and bottom defining a receiving space for a spring, a spring in said receiving space, the

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side walls of the bushing having male threads exteriorly thereof, a sleeve having an inner end and an outer end, an internal bore tapering from the inner end toward the outer end and being internally threaded adjacent to the inner end to engage the male threads on the bushing, segmental cable gripping chuck members nested within said sleeve and adjustably mounted on a guide element said members having internal cable gripping surfaces, radially enlarged inner end portions and outer end portions of reduced radial dimensions and tapered external surfaces to engage the tapered internal surfaces of said sleeve the said members being axially and radially displaceable within said sleeve, the internal diameter of said bushing being less than the maximum external diameter of said segmental chuck members to provide for engagement of the annular edge portion of said bushing with the enlarged inner ends of the chuck gripping members, the said spring resiliently biasing the gripping chuck members toward the outer end of the sleeve during the mounting of a cable, and said spring being compressed and confined within said housing when a cable is inserted within said chuck gripping members and the bushing and sleeve are fully engaged by mutual screw action by the mutual screw engagement of the sleeve and bushing, the chuck members then compressing and gripping said cable to the full extent of said screw action.

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