Nov. 24, 1959 H. MARTIN 2,913,791

CAPTIVE PLUG COUPLING

Filed Aug. 9, 1955

Fig. 1.

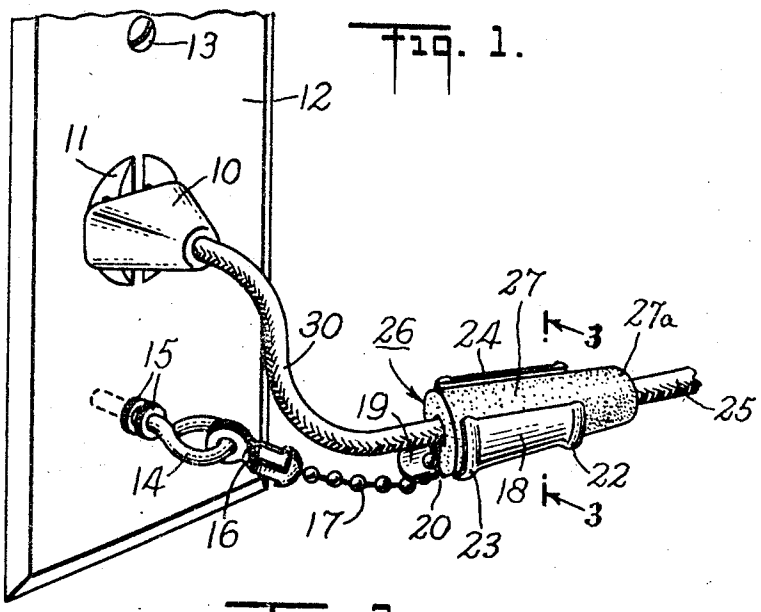


Fig. 2.

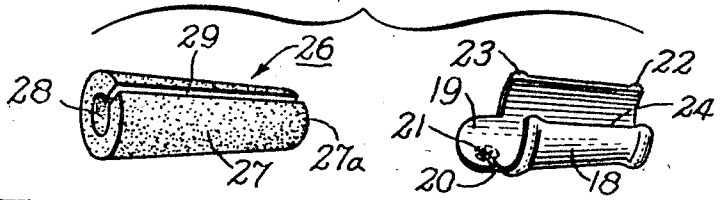


Fig. 3.

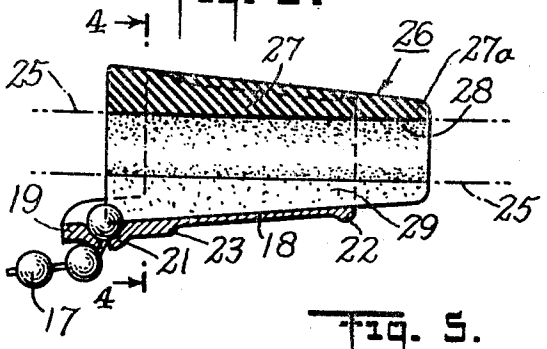


Fig. 4.

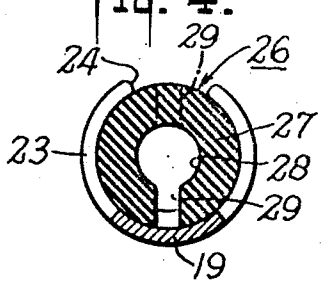
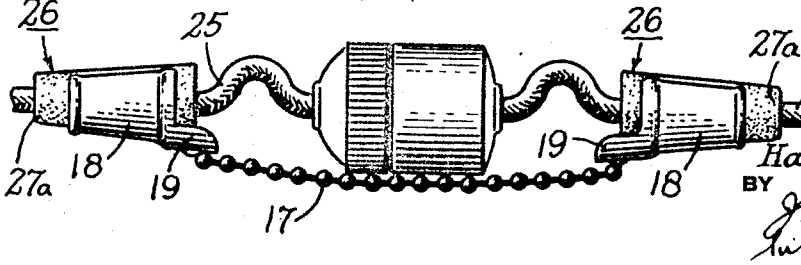


Fig. 5.



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CAPTIVE PLUG COUPLING

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Application August 9, 1955, Serial No. 527,222

1 Claim. (Cl. 24—126)

This invention relates to a captive cord coupling, and more particularly to a conductor cord strain relieving device between the complemental portions of a plug and socket of an electrical coupling assembly.

My invention has for its object the provision of a self-tightening or self-constricting strain relieving device for holding the readily separable plug and receptacle connection of an electrical installation.

My invention more specifically, has for its object the provision of a relatively indistensible connector, one end of which may be anchored, the other end of which serves to hold a conductor engaging coupler member which may be positioned upon a conductor without disassembling the conductor from its installation and which, upon being mounted progressively, constricts the conductor under tension relatively to the connector, where the connector is anchored to a wall where the receptacle is positioned, or coupled to another conductor.

Still more particularly, it is an object of my invention to provide a conductor cord strain relieving device whereby existing installations comprising an electrical, separable plug may be held against accidental displacement, by taking up the strain in holding the plug in position, characterized by a coupling member which may be installed without disassembling the electrical connection and which assures quick release for emergency, holds the electrical conductor against chafing or, optionally, serves as the means for grounding, or alternatively may be used to join a series of extension cords to hold the extension cords against accidental displacement from their coupled position while permitting ready disassembly when circumstances require the same.

To attain these objects, and such further objects as may appear herein or be hereinafter pointed out, I make reference to the accompanying drawing forming a part thereof, wherein:

Figure 1 is a perspective view showing my device installed on a wall receptacle plug connection;

Figure 2 is a perspective exploded view of the coupling portions;

Figure 3 is a magnified fragmentary section on the line 3—3 of Figure 1;

Figure 4 is a section on the line 4—4 of Figure 3;

Figure 5 is a side elevation of another embodiment.

Making reference to the drawing, my invention contemplates, in one form thereof, the provision of a strain relieving device for the electrical plug 10 normally connected to the receptacle 11 of any releasable electrical installation. In the illustration of the exemplified form of my invention, I show the same in connection with a cover plate 12 positioned over a receptacle of an electrical installation which has threaded holes for receiving fastening screws 13. One of the screws 13 is replaced by a fastener 14 at its lower end. The fastener 14 consists of a screw eye having lock nuts 15 for holding the screw in cover plate engaging position, as will be readily understood.

The screw-eye 14 supports a clevis link 16, upon which

may be removably held an indistensible connector 17 comprising a beaded chain. The beaded chain is removably connected to a coupling member 18 by an ear 19 thereof, having a slit 20 and protrusion 21 for releasably connecting the chain to the ear.

The coupling member 18 comprises a tapered shell, preferably frusto-conic in outline, having reinforced edges 22 and 23 to stiffen the sheet of which the shell is made, and a longitudinal slot 24, through which the conductor 25 and the liner to be described may be transversely disposed into axial position.

With the coupling member thus described, there is provided a liner member 26. This member is preferably made of resilient material, such as rubber, and comprises an outer tapered portion 27 and an axial section 28 which may likewise receive the conductor 25. The liner member 26 is preferably split longitudinally at the slotted portion 29, through which slot the conductor 25 may be passed.

With the construction disclosed, the device may be installed as a strain relieving coupling for the conductor 25 without disturbing the plug in any way. For this purpose, one of the customary fastening screws which holds the cover plate 12 in position is removed, and is replaced by the screw-eye and coupling member previously described. In this position, the coupling is assembled by first affixing the liner 26 about the conductor 25 at some convenient point adjacent the plug, leaving a hand gripping loop 30 to permit manipulation and to avoid sharp bends tending to break or chafe the conductor. In this position, the smaller terminal edge 27*a* is nested into the shell member 18, and then rotated to have the closed wall of the shell member 18 cover the slot 29, so that the slots 29 and 24 of the liner and shell are in substantially diametrically opposed position. Strain by the conductor 25 in this position will serve progressively to constrict the grip of the coupling upon the conductor.

It will likewise be observed that where quick disengagement is desired, the coupling 18 may be mounted upon the conductor 25 in a reverse position so that a sudden disengagement of the plug may, at times, be effected, if found desirable, while holding the plug against displacement from the receptacle by its own weight.

It will be observed that while I have described the attachment of the coupling 18 to the conductor 25 by the sequence of first affixing the liner to the conductor and then nesting the liner within the shell 18, I may initially nest the liner in the shell and rotate the liner relatively to the shell so as to align the slots 24 and 29. In this position the conductor may be positioned transversely into the center of the liner and then rotated 180° or thereabouts to position the liner relatively to the shell to close the slot adjacent a continuous wall of the shell, as more particularly shown in Figure 4.

Some degree of constricting action may be secured by slidably moving the liner and shell relatively to each other longitudinally to direct the end 27*a* toward the end 22 of the shell.

In the embodiment above described, the shell is preferably of relatively rigid material, and may be made of plastic or non-conducting material, although, in instances, where it may serve as a ground connection, conducting material may be employed. The liner 26 is preferably made of resilient material, such as rubber, preferably soft and compressible, initially to permit distension of the slot 29 to receive the conductor and to yield under the relative longitudinal slidable movement described to fixedly grip the conductor 25 within the shell 18.

While I have shown and described my strain relieving device as holding a plug 10 within the wall receptacle 11,

I may use my strain relieving coupling for the male and female plugs of an extension cord. This use of my device is more clearly shown in Figure 5 wherein identical parts have been given corresponding numerals.

The terminal portion of the connector may be fixedly attached to one of the extension cord members, or a pair of the strain relieving couplings may be joined at their flanges 19 by a beaded chain 17, as previously described.

While I have shown and described a screw eye or another coupling for anchoring my strain relieving device adjacent the anchorage end of the bead chain or like connector, it will be understood that these are by way of illustration only and that other anchoring means may be employed without departing from the spirit of my invention.

Other inherent novel features of my device will be apparent to those skilled in the art and need not be here enumerated.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is:

A conductor cord strain relieving device comprising (1) a conductor cord engaging assembly having a relatively rigid, slitted, tapered tubular shell which is endwisely unobstructed having one end opening relatively

large with respect to the other end opening, and a slitted, tubular liner of a resilient material fitting within said shell and adapted to receive a conductor cord, and (2) an elongated, flexible, relatively indistensible connector having anchoring means at one end thereof and the other end thereof being attached to said tapered tubular shell near the larger end opening of said shell, whereby when a conductor cord is received by said liner and said liner is fitted within said shell with the respective slits in said shell and said liner being non-coextensive, longitudinal pull applied to said conductor cord in a direction away from the smaller end opening of said shell causes said conductor cord engaging assembly to grip said cord with a force increasing as the force of said longitudinal pull increases.

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