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D. WOODHEAD

2,276,557

ELECTRIC CONNECTOR

Filed July 22, 1939

Fig. 1

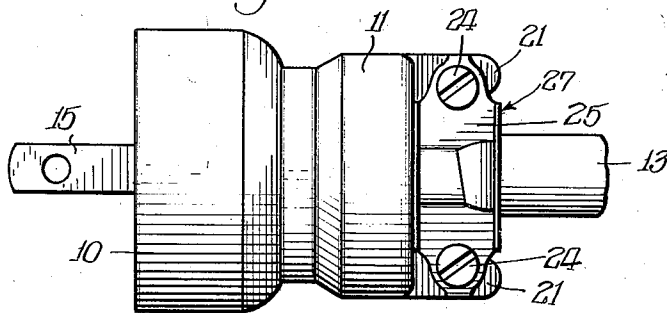


Fig. 2

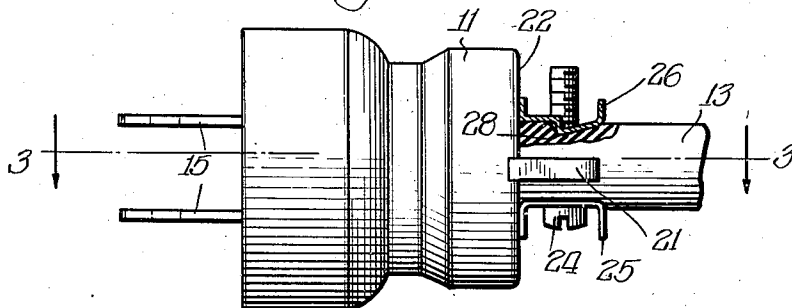


Fig. 3

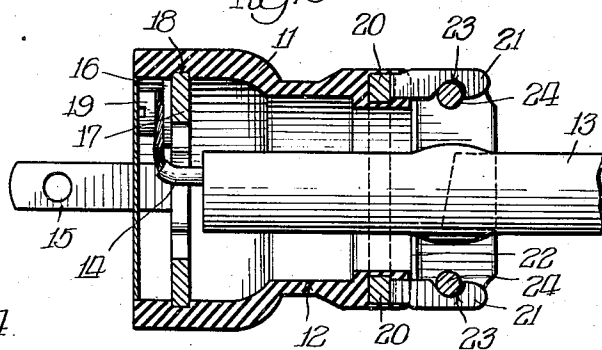
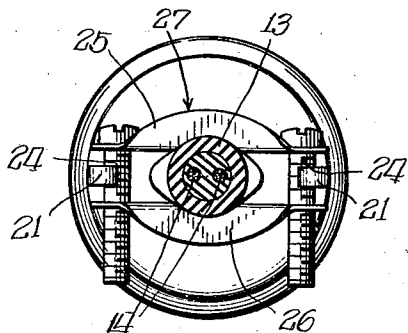


Fig. 4



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ELECTRIC CONNECTOR

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1 Claim. (Cl. 173—322)

This invention relates to electric connectors and includes the type of connector which carries a socket, as well as the type which carries prongs for making electrical contact to an electrical receptacle or outlet box.

The primary object of the invention is to provide an electric connector having new and improved means for preventing any strain on the cord or cable carrying the conductors from being transmitted to the electrical contacts to which the conductors are connected.

Another object of the invention is the provision of an electrical connector having a new and improved strain releasing element, whereby any strain on the conductor carrying cable is transmitted to posts embedded in the body of the connector.

A further object of the invention is the provision of an electrical connector or electric plug, having embedded therein a plurality of upstanding rigid members detachably securing a clamp providing a strain relief element to prevent any strain applied to the conductors or conductor carrying cable from being transmitted to the conductor connections.

Still another object of the invention is the provision of a rubber connector plug, having a ring embedded in the body thereof with strain relief posts formed integral with the ring.

Still another object of the invention is the provision of a connector plug having electrical contact prongs projecting from one end thereof and rigid posts embedded in the plug body, there being detachably connected to these posts a strain relief element or clamp so as to cause any strain applied to the conductors, or the sheath encasing the conductors, to be transmitted directly to the embedded posts, thereby preventing any strain on the connections where the conductors are electrically connected to the contacts.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawing illustrates a selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a detail elevational view of an electrical connector plug and embodying the invention;

Fig. 2 is a view at right angles to Fig. 1, parts being broken away for the sake of clearness;

Fig. 3 is a longitudinal sectional view through the improved plug on the line 3—3 of Fig. 2; and

Fig. 4 is a top plan view of the plug and the cable plant.

The particular electric connector herein shown

comprises an electric plug 10, having a body portion or housing 11, which is preferably made of rubber or rubber-like material to make the body relatively resilient, although the body may be constructed of any other suitable insulating material. The housing or body 11 is provided with a longitudinal opening or central bore 12, Fig. 3, through which a cable or sheath 13, carrying electric conductors 14, is adapted to extend a predetermined distance through one end of the plug. Electrical contacts or prongs 15 extend through the outer end of the casing, the opposite end through which the cable 13 extends. These prongs are provided with offset portions 16, which are locked in any suitable manner to a disk 17 which is secured in position by engaging an annular groove 18, Fig. 3, formed in the body of the casing or housing 11. Contacts 19 threadedly engage the offset portions of the prongs 16 for making electrical contact from the conductors 14 to the prongs 15.

A ring 20, Fig. 3, is embedded in the rubber body 11, being molded therein during the process of manufacture. This ring 20 holds the body in the proper shape and configuration and makes the body strong and rigid. A pair of oppositely disposed upstanding posts 21 are rigidly formed with the ring 20 and extend a predetermined distance outwardly from the end 22 of the rubber body. These posts are provided with notches or cut-outs 23 which face each other and are adapted to receive and engage screws 24 which fasten together the two parts 25 and 26 of a clamping member 27. The parts 25 and 26 are adapted to engage and clamp a cable therebetween. The members 25 and 26 are each provided with aligned openings or holes at their ends to receive the screws 24. The holes in the member 26 are threaded so that the screw members 24 will threadedly engage the clamp section 26. The screws, therefore, lock the clamp sections 25 and 26 together to clamp the cable 13 tightly, and as the screws 24 engage the openings 23 in the posts 21, any strain or pull which is applied to the cable 13 will be transmitted directly to the posts 21, the strain on the cable 13 being transmitted to the clamp 27 and then through the screws 24 to the posts 21. Therefore, no strain will be on the electrical connectors 14.

The invention provides an electrical connector having a body which is preferably made of rubber-like material and having a ring embedded about one end thereof to which outstanding posts are rigidly and integrally connected. The clamp is made of two parts which are separate and de-

tachable to be readily and quickly applied to the device. The device may be assembled by merely loosening one screw so as to release a screw from under the lip which surrounds the opening 23. The parts 25 and 26 may be provided with an offset or biting portion 28 to dig into the cable body to prevent any slippage between the clamp parts and the cable 13. The ring 20 and its integral posts 21 are adapted to be molded in the rubber body of the casing, and the clamping parts 25 and 26 are adapted to be stamped from sheet metal. Instead of making one of the cable clamps with a threaded opening, the openings could be smooth and nuts applied to the screws.

The invention provides a rugged, highly serviceable plug of simple construction, having a strain relief element formed as an integral part thereof, there being separately formed detachable clamp members cooperating with the posts for locking the parts together and clamping the cable in position, whereby any strain applied to the cable will be transmitted directly to the post and its integrally embedded metal ring.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacri-

ficing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claim.

The invention is hereby claimed as follows:

- 5 An electrical connector of the character described comprising a flexible and resilient molded body made of rubber-like material, a neck on said body having a longitudinally extending bore adapted to receive a conductor-carrying cable therein, a rigid ring embedded in said neck in
10 surrounding relationship with respect to said bore, a pair of spaced posts rigidly attached to said ring and extending outwardly from the end of said neck, the outer ends of said posts having
15 notches provided therein, a pair of clamp members adapted to clamp about opposite sides of a cable when inserted in said body, and a pair of screw means passing through said clamp members to draw said members into tight clamping
20 engagement with the cable and engageable with said notches in said posts to connect the clamping members to the posts and provide a strain relief member whereby any strain on the cable will be transmitted to the posts and to said em-
25 bedded ring.

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