Oct. 21, 1947. J. ROGOFF 2,429,585

PRESSED INSULATED CONNECTOR

Filed June 6, 1944

Fig. 1.

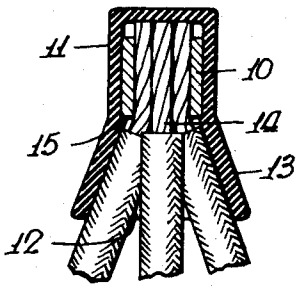


Fig. 2.

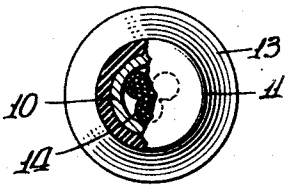


Fig. 3.

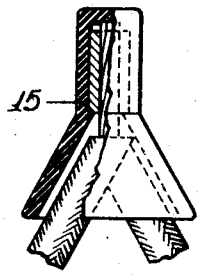


Fig. 4.

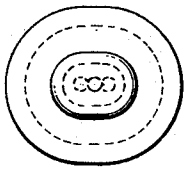


Fig. 5.

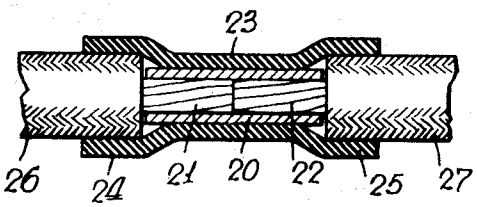


Fig. 6.

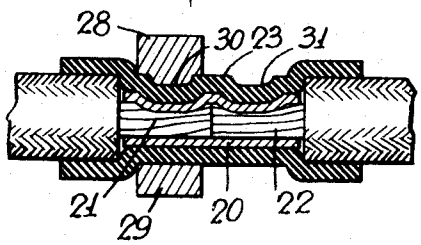


Fig. 7.

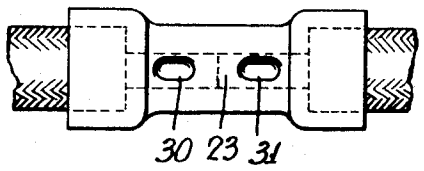


Fig. 8.

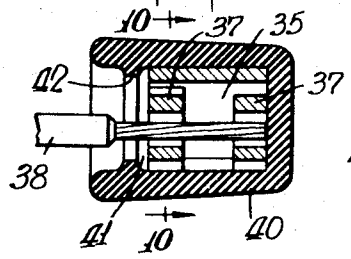


Fig. 9.

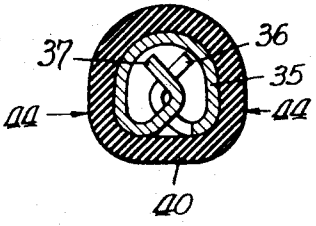
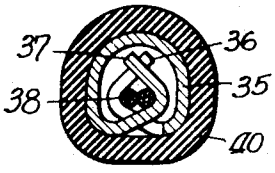


Fig. 10.



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2,429,585

PRESSED INSULATED CONNECTOR

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1 Claim. (Cl. 174—84)

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My invention relates to insulated wire connectors, and the principal object of my invention is to provide an insulation-covered electrical connector whereby a connection can be established by simply inserting the wires into the covered connector and compressing the connector through the insulation cover to establish an efficient mechanical and electrical connection.

I accomplish these and other objects and obtain my new results as will be apparent from the device described in the following specification, particularly pointed out in the claim, and illustrated in the accompanying drawing in which:

Fig. 1 is a side elevation of one form of my insulation covered connector with wires inserted therein and before crimping.

Fig. 2 is a top view thereof, partially in section.

Fig. 3 is an end view after crimping.

Fig. 4 is the top view thereof.

Fig. 5 is a longitudinal cross-sectional view of a modified form before indentation.

Fig. 6 is a similar view after indentation.

Fig. 7 is the top view thereof.

Fig. 8 is a longitudinal cross-sectional view of a further modified form employing a spring type of connector.

Fig. 9 is a cross-sectional view of the same, taken through 9—9 of Fig. 8.

Fig. 10 is a similar view illustrating the conductors positioned therein.

Referring more particularly to Figs. 1 and 2 of the drawing, reference numeral 10 designates a tubular copper sleeve which may be force-fitted into an insulating cover 11. The cover is provided with an opening 12, through which the sleeve 10 is inserted. A skirt 13 peripherally extends from the cover, about the opening, to insure proper insulation of the exposed wires 14 at the point of connection.

Where a plurality of wires are to be joined into a single connection, the exposed ends may be twisted together before insertion and thereafter a tool may be applied to the body 11 of the cover compressing the wall thereof, and forcing the sleeve to be securely indented to the wires. This is shown in Figs. 3 and 4.

Various methods of securing the insulating cover to the metal sleeve may be employed. As has been indicated, one method is to force fit the sleeve into the cover. Another method is to cement the two together by a suitable adhesive. Depending on the type of insulation used, other types of well-known bonding methods may be employed involving heat. A shoulder 15 may also be moulded inside the cover or moulded about

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the sleeve to prevent removal thereof, as shown in Figs. 1 and 3.

The insulation itself may be of any well-known type which can withstand a compression, indentation, or crimping without cracking or cutting the insulation, such as rubber, a copolymer of vinyl chloride, vinyl acetate, etc. In some cases the insulating material may be baked on the sleeve.

Where an end to end connection is desired, the cover may have the skirted section on both ends of the open sleeve, as shown in Figs. 5, 6 and 7. Here the sleeve 20 is of sufficient length to allow the exposed wires 21 and 22 to be inserted into the ends of the sleeve. The body of the insulation cover 23 extends over the sleeve 20 and overlaps the wire ends 21 and 22, to form skirts 24 and 25 where the wire insulation 26 and 27 is cut to expose the wires.

As shown in Fig. 6, an indenting tool provided with jaws 28 and 29 compresses the sleeve 20 to the wire ends 21 and 22, through the cover 23, forming indentations 30 and 31. The sleeve should be made of thick-walled malleable stock to withstand the indenting action.

In Figs. 8, 9 and 10, I have shown a modified form of connector wherein a removable type of spring-flexed gripping means is employed for securing the wires, operated by compressing the flexible walls of the insulating cover, by a compression tool.

The gripping means comprises a sheet metal clip 35, of Phosphor-bronze material capable of developing a high degree of resiliency for securing the end of the wires. The two ends of the strip are notched to form jaws 36 and 37 and which will interlock with wires 38 and retain them by spring pressure. The clip 35 is inserted into a moulded cup-shaped cover 40, having a hollow portion 41 for containing the clip, a peripheral shoulder 42, for securing it therein, with an extending skirt 43 for covering the exposed entering wires 38.

The flexible cover 40 is compressed at points 44, which causes the clip 35 to open to permit the wires 38 to be inserted into the hollow portion 41 and between jaws 36 and 37. Upon releasing the pressure on the cover, the jaws will grip the wires, retaining them.

The cover may be opened at both ends to permit end to end connection as shown in Fig. 5.

In the foregoing devices, I have illustrated a wire connector provided with a flexible insulating cover attached thereto, the walls of the cover be-

ing compressible to secure the enclosed metal connector to a conductor inserted therein, thereby permitting the insulated metal connectors to be used for establishing electrical connection without the necessity of first removing the insulation from the connector before securing the wire to the connector and thereafter replacing the insulation.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claim, and by means of which, objects of my invention are attained and new results accomplished, as it is obvious that the particular embodiments herein shown and described are only some of the many that can be employed to attain these objects and accomplish these results.

I claim:

A connector for use in a crimped joint comprising a cylindrically shaped metal body portion having an open end for receiving a conductor therein; a substantially non-elastic insulating cover thereon, said insulating cover having the

physical properties of permitting an indenting tool to be applied externally to the insulation and causing the metal body underneath to be indented in the form of a recess to a conductor therein, and of retaining the shape of the recess in the insulation after the tool has been withdrawn.

JULIAN ROGOFF.

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