Oct. 17, 1950 J. ROGOFF 2,526,277

COMPRESSIBLE INSULATED CONNECTOR

Original Filed June 6, 1944

Fig. 1.

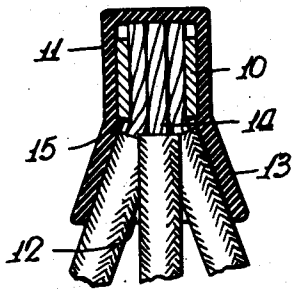


Fig. 2.

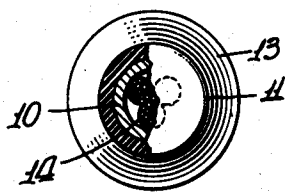


Fig. 3.

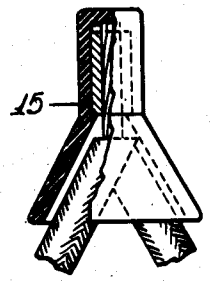


Fig. 4.

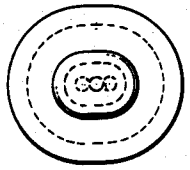


Fig. 5.

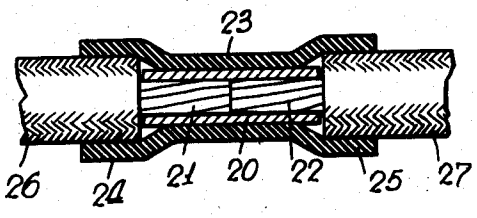


Fig. 6.

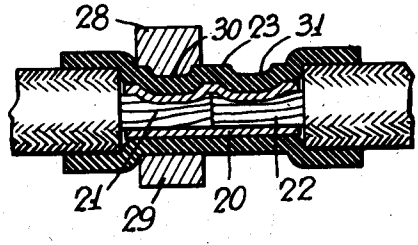


Fig. 7.

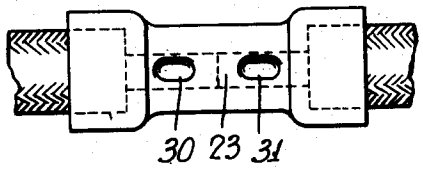


Fig. 8.

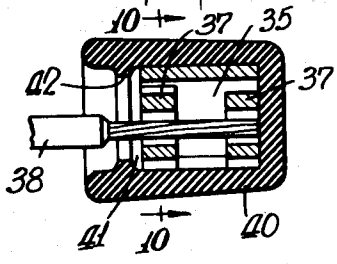


Fig. 9.

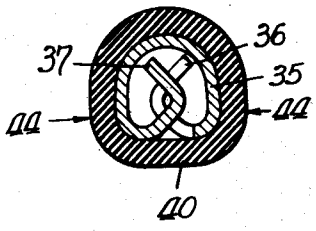
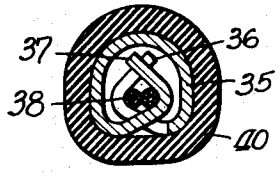


Fig. 10.



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COMPRESSIBLE INSULATED CONNECTOR

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Original application June 6, 1944, Serial No. 538,991. Divided and this application August 21, 1947, Serial No. 769,934

1 Claim. (Cl. 174—87)

1

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. This application is a division of Ser. No. 538,991 filed June 6, 1944 issued as Patent No. 2,429,585 October 21, 1947.

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.

2

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 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 being 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 claims, 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:

An electrical connector for joining the bared wire ends of a plurality of insulated electrical conductors, comprising an insulating cover made of flexible material, a sleeve mounted within the cover and adapted to receive the wire ends, said sleeve having walls made of resilient material to enable the walls to be compressed toward each other, gripping means contained within said inner sleeve and integral therewith and having oppositely acting engaging arms extending transversely of said sleeve to engage said wire ends, one of said engaging arms being positioned between the other engaging arm and the wall to which said other engaging arm is secured to enable the arms to be separated to form an opening to receive the wire ends therebetween when the walls are compressed, and to resiliently grip the wire ends when the pressure on the walls is released.

JULIAN ROGOFF.

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