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CONNECTOR FOR JOINING THE ENDS OF FLEXIBLE INSULATED WIRES

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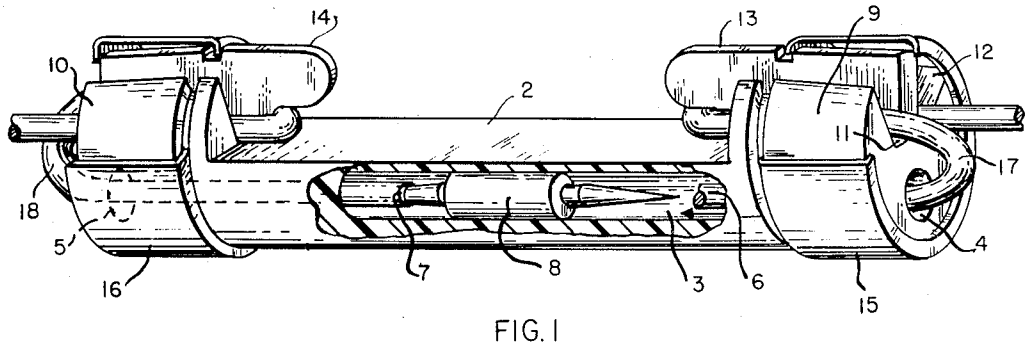



FIG. 1

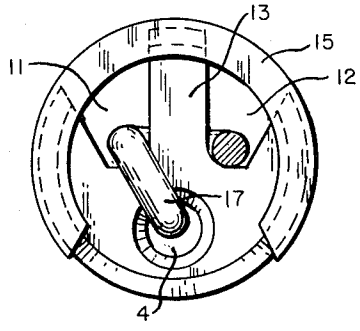



FIG. 2

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# CONNECTOR FOR JOINING THE ENDS OF FLEXIBLE INSULATED WIRES

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4 Claims. (Cl. 339—105)

(Granted under Title 35, U. S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without payment of any royalty thereon.

This invention relates to wire connectors and more particularly to a device for making an electrical connection between flexible insulated wires.

In certain situations, particularly under battle conditions, a wire conductor is required with which armed forces personnel can connect field wire rapidly, preferably without the use of tools. This connector should be such that it is utilizable in all kinds of climate, simple to use, durable, and will not cut the insulation of the wires it is connecting. Other possible characteristics such a wire connector should possess are cheapness of manufacture and reusability.

Heretofore, the wire connectors in use for such purposes have tended to be impractical for field use because of varying defects such as easy breakage, lack of reusability, tendency to cut the insulation upon the wire and difficulty in manipulation.

It is therefore an object of the present invention to provide a wire connector which can be used to connect field wire rapidly and easily.

It is a further object to provide a wire connector which is durable, not subject to breakage, and usable under all climatic conditions.

In accordance with the present invention, there is provided a device for making an electrical connection between wires comprising a body member having a longitudinally disposed notched portion therein. A bore extends longitudinally through this body member, each end of said bore being adapted to receive the discrete ends of the respective wires to be connected. Means for effecting an electrical connection between said wires is provided within said bore. Each end of the body member adjacent the notched portion is provided with longitudinally disposed apertures to position the respective wires to be connected and projections extending from the surface of the notched portion of the body member are provided around which the wires to be connected can be wound, thus securely anchoring them.

Also, in accordance with the present invention, there is provided a device for making an electrical connection between wires comprising a cylindrical body member having a longitudinally disposed notched portion therein. A bore extends longitudinally through this cylindrical body member, each of its ends being adapted to receive the ends of the respective wires being connected. Means for effecting an electrical connection between said wires is provided within this bore. In each end of the body member adjacent the notched portion, there are two longitudinally disposed slots substantially co-linear with the surface of said notched portion separated by a longitudinally disposed projecting finger between them so that the wire to be connected may be positioned in one slot, wound around this finger, and brought back through the other slot. A rotatable split ring is positioned around each end of said body member, each of said split rings having sufficient circumferential gap for readily positioning the wires in the aforementioned slots. With wires in position, the split ring may be rotated to lock the wires positioned in the slots.



For a better understanding of the invention together with other and further objects thereof, reference is to be had to the following description taken in connection with the accompanying drawings in which Figure 1 is an isometric drawing, partially cut away, illustrating a preferred embodiment of the invention with the slots uncovered and Figure 2 is an end view of Figure 1 with the wires locked in position by the split ring.

Referring now to Figure 1, there is shown a wire connector comprising a cylindrical body member **1** having a longitudinally disposed notched portion **2** and a bore **3** extending longitudinally therethrough, the ends **4** and **5** of this bore receiving the respective ends **6** and **7** of the wires **17** and **18** to be connected. Within this bore, there is shown a means for effecting the electrical connection between the wires, said means in this embodiment being a metal pin **8** pointed at both ends as shown. In the respective ends **9** and **10** of the body member adjacent the notched portion **2** there are longitudinally disposed slots such as **11** and **12** substantially co-linear with the surface of the notched portion in which the respective wires are positioned. The wires are wound around fingers **13** and **14** which separate said slots. Rotatable split rings **15** and **16** are circumferentially positioned around the ends **9** and **10** of the body member and are utilized to lock the respective wires **17** and **18** in position in the slots. Said rings have sufficient circumferential gap to provide ready access to the slots.

Referring to Figure 2, wherein an end view of the connector is shown with the split ring rotated so as to be in a locking position, there is shown wire **17**, the end of which has been inserted into lonigtudinal bore **3**, positioned in one slot **11**, wound about the projecting finger **13** and brought back through the other slot **12**. The split ring **15** is shown rotated into a position where it covers slots **11** and **12**, thus securely positioning the wire **17**.

Considering now the operation of the wire connector, the end **6** of a wire **17** to be connected is inserted into the bore **3** extending longitudinally through the body member **1** until it makes contact with the pointed end of the metal pin **8** within the bore **3**. The wire is then positioned in slot **11** in the end of the body member **9** adjacent the notched portion **2**, wound about the projecting finger **13** and brought back through the slot **12**. The other wire to be connected is affixed in the same amnner on the other end of the body member. In this manner, two wires are electrically connected by means of their respective ends making contact with the ends of a metallic pin and are firmly positioned so that this connection is of a secure nature.

The wire connector described hereinabove is a simple, efficient device, easy to use, and reusable. The material used in its manufacture can be any material of a durable nature such as metal, ceramic, molded plastic, etc. Inasmuch as the wires pass back and forth through the positioning apertures and are anchored by being wound around a finger, a hook, or other projecting means, all the physical strain is taken up at this point and the connection of the end of the wire with the end of the metallic pin within bore remains secure.

While there has been described what is at present considered to be the preferred embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and it is therefore aimed in the appended claims to cover all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A device for making an electrical connection between

wires comprising: a body member having a bore extending longitudinally therethrough, the ends respectively of said bore being adapted to receive the discrete ends of said wires; means within said bore for effecting an electrical connection between said wires; each end of said body member having a plurality of longitudinally disposed slots for positioning said wires; projecting fingers between said slots for securely anchoring the wires positioned in said slots; and releasable means operatively associated with the ends of said body member to lock said wires in said slots.

2. A device for making electrical connection between wires comprising: a cylindrical body member having a longitudinally disposed notched portion therein and a bore extending longitudinally through said member, each end of said bore being adapted to receive the discrete ends of said wires; means within said bore for effecting an electrical connection between said wires; each end of said body member adjacent said notched portion having a plurality of longitudinally disposed slots substantially co-linear with surface of said notched portion for positioning said wires; projecting fingers between said slots for securely anchoring the wires positioned therein, and rotatable split rings partially encompassing each end of said body member and having sufficient circumferential gap to permit said wires to be positioned in said slots, said wires being locked in position within said slots when circumferential surface of said ring covers said slot.

3. A device for making an electrical connection between wires comprising: a cylindrical body member having a longitudinally disposed notched portion therein and a bore extending longitudinally through said member, each end of bore being adapted to receive the discrete ends of said wires; means within said bore for effecting an electrical connection between said wires; each end of said body member adjacent said notched portion having two longitudinally disposed slots substantially co-linear with surface of said notched portion for positioning said wires; projecting fingers between said slots for securely anchoring the wires positioned therein; and rotatable split rings partially encompassing each end of said body member and having sufficient circumferential gap to permit said wires to be positioned in said slots, said wires being locked in position within said slots when circumferential surface of said rings covers said slots.



4. A device for making an electrical connection between wires comprising: a body member having a bore extending longitudinally therethrough, the ends respectively of said bore being adapted to receive the discrete ends of said wires, means within said bore for effecting an electrical connection between said wires, said body member having a projecting finger at each end under which each wire may be folded and each end of said body member having upwardly extending projections on each side of each of said fingers forming slots for receiving said wire at each side of the fold about each of said fingers and maintaining the folds for securely anchoring the wires.

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