

Sept. 22, 1942.

W. C. KLEINFELDER

2,296,443

WIRE CONNECTOR

Filed May 31, 1941

FIG. 1

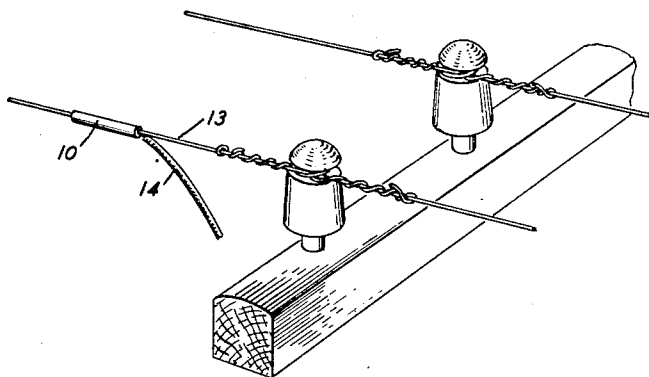


FIG. 2

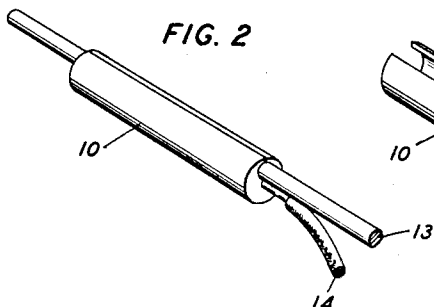


FIG. 3

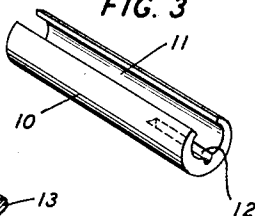


FIG. 4

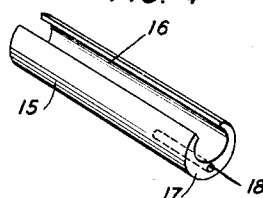


FIG. 5

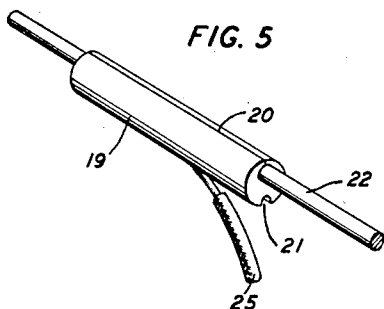
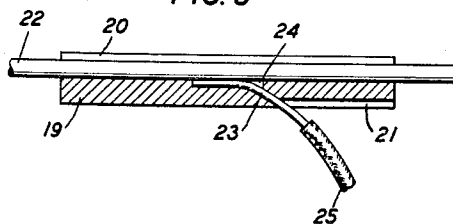


FIG. 6



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2,296,443

WIRE CONNECTOR

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Application May 31, 1941, Serial No. 395,930

7 Claims. (Cl. 287-78)

This invention relates to connectors for attaching electrical conductors to each other and more particularly to devices for bridging branch or drop wires to main line wires.

An object of this invention is the provision of a simple and inexpensive connector by which a reliable mechanical and electrical connection may be readily made between two or more wires.

Another object of this invention is the provision of a simple and inexpensive connector which may be used for joining together wires of dissimilar metals.

In accordance with one embodiment of my invention, which contemplates the provision of a connector for joining bridle wires to line wires in which the wires to be joined are firmly secured together by having the connector compressed thereon, my connector comprises a soft metal cylindrical member having a pair of longitudinally extending wire receiving grooves therein, one of said grooves adapted to receive the line wire and the other to receive the branch wire, said branch wire receiving groove being located in the bottom of said line wire groove and extending only a portion of the length of said cylindrical member.

In a modification of my connector I provide a longitudinally extending bore in the wall of the connector, adjacent the bottom of the line wire receiving groove, for the reception of the branch wire.

In a further modification of my connector and for use with wires of dissimilar metals, I provide the cylindrical member with a longitudinally extending line wire receiving groove having at its bottom and mid-way between its ends, a recess portion, said recess communicating with a branch wire receiving groove located diametrically opposite said line wire groove and extending to the periphery of the cylindrical member. In this type of connector, the main or line wire, which may be of galvanized steel, will not be in contact with the branch wire which may be of copper, at the end of the connector. It is desirable that these wires be separated at this point to avoid electrolytic corrosion. The connector in this case will be made of a material which will tend to be sacrificed at the point where it contacts both the zinc of the line wire and the copper of the branch wire. As shown, the branch wire is bent downward to provide a wire separation between it and the main or line wire.

The wire connectors of my invention may be compressed or forced into intimate contact with the wires to be connected by means of any suit-

able tool, for example, by the use of the tool shown and described in the Patent No. 1,863,048 to W. S. Hayford, June 14, 1932.

These and other features of my invention will be readily understood from the following detailed description made with reference to the accompanying drawing in which:

Fig. 1 is a fragmentary view, in perspective, of a cross-arm with a pair of line wires positioned thereon and having connected to one of said line wires, by means of the connector of this invention, a branch wire;

Fig. 2 is a perspective view of the preferred form of my wire connector with a fragment of branch wire secured to a fragment of line wire;

Fig. 3 is a perspective view of the connector shown in Figs. 1 and 2 before it is installed;

Fig. 4 is a perspective view of a modification of the connector shown in Fig. 3;

Fig. 5 is a further modification and shows in perspective a fragment of copper branch wire secured to a fragment of steel line wire; and

Fig. 6 is a longitudinal cross-sectional view of the connector shown in Fig. 5 with a fragment of line wire and branch wire located therein.

In accordance with the preferred form of my invention, I have provided as shown in Figs. 1, 2 and 3 a cylindrical metal member 10 preferably made from soft metal, with a longitudinal line wire receiving groove 11 of fairly large diameter and a somewhat smaller branch wire receiving groove 12 located adjacent the bottom thereof.

As shown in Figs. 1 and 2, the main or line wire 13 is positioned in the large groove and the small or branch wire 14 is positioned in the small groove 12. With the wires positioned in their respective grooves a suitable tool is applied to the cylindrical member 10 to constrict the grooves and force the member into intimate contact with the wires 13 and 14 located in the grooves 11 and 12, thereby providing a reliable electrical and mechanical connection between the wires 13 and 14. It is readily apparent that the size of the grooves may be varied to accommodate wires of different diameters.

The modified connector 15 shown in Fig. 4, like the connector 10 shown in Figs. 1, 2 and 3, is provided with a longitudinally extending wire receiving groove 16, of large diameter, for the reception of the line wire. However, in this connector I have provided in the wall section 17, adjacent the bottom of the groove 16, a short longitudinally extending bore 18 of small diameter for the reception of the branch wire.

The application of this connector to the line

wire and the securing of the branch wire therein follows the same procedure as that described heretofore with regard to the connector shown in Figs. 1, 2 and 3.

In the modification shown in Figs. 5 and 6 I have provided a connector which is particularly adaptable for use in joining together wires of dissimilar metal, for example, in joining a copper branch wire to a zinc coated steel line wire. In joining together wires of dissimilar metal and where the joint is to be exposed to the elements, it is desirable not to have the two wires in contact at a point which is exposed and subject to electrolytic corrosion. A connector of this type is preferably made of a metal or alloy which will tend to be sacrificed at the point of contact between the zinc and the copper, thereby avoiding the weakening of the wire. This is desirable since the amount of metal in the connector is sufficient to allow a large amount of corrosion without weakening the joint.

In the modified connector shown in Figs. 5 and 6, I have provided a long path between the end of the connector where it joins the steel line wire and the point where the copper wire joins the steel line wire.

As shown in Figs. 5 and 6, I have provided a cylindrical member 19 with two longitudinally extending wire receiving grooves 20 and 21. One of the grooves 20 extends the full length of the member 19 and is adapted to receive the large line wire 22 in the same manner as the connectors heretofore described. The groove 21 is smaller in diameter and extends only a portion of the length of the member 19 and is provided with a slanting bore 23 which communicates with a wire receiving recess 24 located in the bottom of the groove 20 which is adapted to receive and hold the end of the branch wire 25 in close contact with the line wire 22 as shown in Fig. 6.

The application of this connector to the line wire 22 and the branch wire 23 is substantially the same as that described with regard to the connectors shown in Figs. 1, 2, 3 and 4 except that after the branch wire 25 is positioned in the communicating bore 23 with its end lying in the recess 24 and the connector forced into contact with the two wires the branch wire 25 is bent downward and away from the connector thereby providing a wide separation between the wire 25 and the end of the connector 19.

While the applicant has shown and described the preferred form of his invention, it is to be understood that various modifications may be made therein without departing from the spirit of the invention and he is only limited by the scope of the appended claims.

What is claimed is:

1. A wire connector comprising a cylindrical member having a longitudinal wire receiving groove extending the full length thereof, and a longitudinal wire receiving aperture located in the wall of said member and extending but a portion of its length and having a diameter substantially less than that of the wire receiving groove, said cylindrical member adapted to be compressed to close said groove and said aperture for securely connecting one wire to another.

2. A wire connector comprising a cylindrical member having a longitudinal wire receiving groove extending the full length thereof and a second wire receiving groove, in said member communicating with said first groove and terminating at the end of said member and having a diameter substantially less than said first groove, said cylindrical member adapted to be compressed to close said grooves for securely connecting one wire to another.

3. A wire connector comprising a cylindrical member having a pair of longitudinally extending wire receiving grooves therein, one of said grooves extending the full length of the member and the other extending only a portion of its length and a bore connecting said grooves, said cylindrical member adapted to be compressed to close one of said grooves and said bore for securely connecting one wire to another.

4. A wire connector comprising a cylindrical member having a pair of longitudinal wire receiving grooves therein, one of said grooves extending the full length of the member and having a recess located therein and the other of said grooves extending only a portion of the length of said member and having a bore connecting said groove with said recess in said first groove, said cylindrical member adapted to be compressed to close one of said grooves and said bore for securely connecting one wire to another.

5. A wire connector comprising a cylindrical member having a pair of longitudinally extending wire receiving grooves therein, one of said grooves having a large diameter and extending the full length of the member and the other groove having a smaller diameter and extending only a portion of the length and a bore connecting the small groove with the large groove, said cylindrical member adapted to be compressed to close the large groove and said bore for securely connecting one wire to another.

6. A wire connector comprising a cylindrical member having a pair of longitudinally extending wire receiving grooves therein, one of said grooves having a comparatively large diameter, extending the full length of the member and having a recess located therein, the other groove being of smaller diameter and extending only a portion of the length of said member and a bore connecting said small groove with the recess in said large groove, said cylindrical member adapted to be compressed to close said large groove and said bore for securely connecting one wire to another.

7. A connector for joining a branch wire to a main wire which comprises an elongated cylindrical member having a longitudinal groove extending the full length thereof, a second groove diametrically opposite said first groove and extending but a portion of the length of said member, and terminating at the end thereof, said second groove communicating with said first groove whereby the branch wire is firmly held between the line wire and the bottom portion of the connector when the connector is compressed about the wires to be joined.

WALTER C. KLEINFELDER.