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R. GRAHAM

2,307,216

CONNECTOR

Filed April 21, 1941

Fig. 1

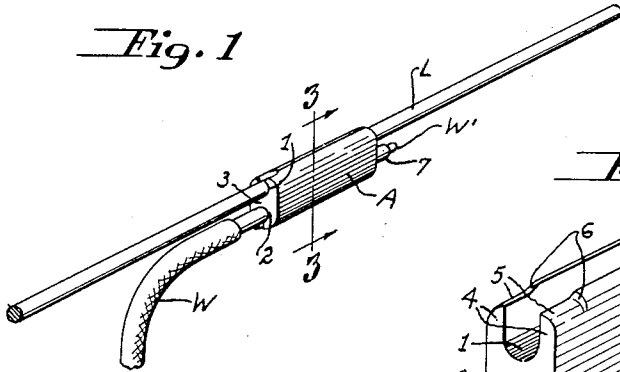


Fig. 2

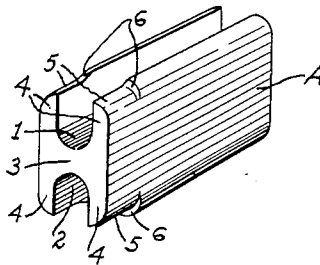


Fig. 3

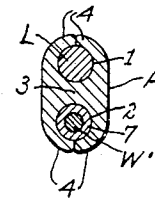


Fig. 4

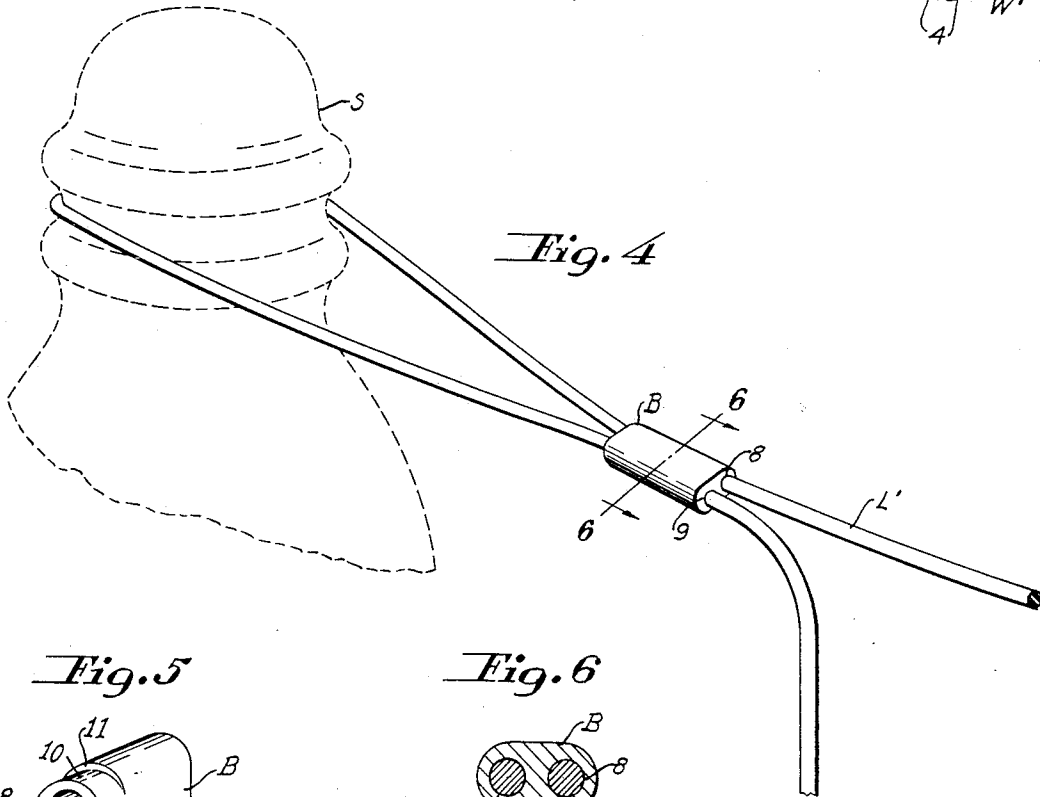


Fig. 5

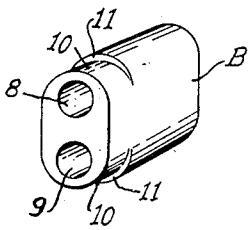
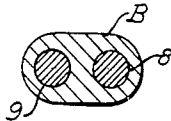


Fig. 6



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2,307,216

CONNECTOR

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2 Claims. (Cl. 173-273)

This invention relates generally to wire connectors and more specifically to an improved and simplified connector adapted particularly for use in electrically and mechanically connecting tap-off and other wires to electric lines and for connecting together portions of electric lines for the purpose of dead ending same, the predominant object of the invention being to provide an extremely simple and inexpensive connector which is capable of performing its intended function in a highly efficient manner.

Fig. 1 is a perspective of an assembly showing one form of the improved connector in use connecting a tapoff or other wire to an electrical power line.

Fig. 2 is an enlarged perspective of the form of the invention illustrated in Fig. 1 but showing the connector as it appears before being applied to a power line.

Fig. 3 is an enlarged cross section taken on line 3-3 of Fig. 1.

Fig. 4 is a perspective of an assembly showing another form of the invention in use dead ending an electric line.

Fig. 5 is a perspective of the connector shown in Fig. 1 but illustrating same before it is applied to an electric line.

Fig. 6 is an enlarged section taken on line 6-6 of Fig. 4.

In the drawing, wherein are shown for the purpose of illustration, merely, two embodiments of the invention, A designates in Figs. 1, 2, and 3 the connector illustrated therein generally. The connector A is formed from copper, bronze, or other suitable material which is characterized by being a good conductor of electricity and by being malleable so that its shape may be readily altered by pressure applied thereto. The connector A is of elongated shape, as shown in Figs. 1 and 2, and has formed therein a pair of channels 1 and 2, said channels extending from end to end of the connector, and before the connector is put in use, being open at the top and bottom of the connector, respectively, as shown in Fig. 2. The channels 1 and 2 are preferably provided with rounded inner ends and they are of such height that a web of material 3 separates the inner rounded ends thereof. The opposed side walls of the channels are provided by portions 4 of the connector A, these side walls being straight before the connector is put in use as shown in Fig. 2. At one end of the connector A the height of said connector is reduced slightly, as shown at 5 in Fig. 2, to provide shoulders 6 spaced inwardly from the end of the connector 55

which serve a purpose to be hereinafter referred to.

When the improved connector is employed to connect a tapoff or other wire W to an electric power line L, as shown in Fig. 1, the insulation of the wire W is removed from the wire proper to expose a bare portion W' thereof, and the connector and wire W are assembled with the power line L so that the power line extends through and is seated in the channel 1 and so that the bare portion W' of the wire W extends through and is seated in the channel 2. The connector is then subjected to pressure with the aid of a suitable tool which shapes the portions 4 of the connector about the power line L and about the bare part of the wire W as shown to the best advantage in Fig. 3, the pressure applied to the connector being sufficient to cause the re-shaped portions 4 to very securely grip the power line L and the bare portion W' of the wire W so as to rigidly secure said power line and wire together to provide the required mechanical attachment therefor and to provide the necessary intimate electrical connection between the power line L, connector A, and wire W.

The widths of the channels 1 and 2 are preferably approximately the same, and if the diameter of the bare portion W' of the wire W, which is received within the channel 2, is substantially less than the diameter of the power line L, a sleeve 7 may be arranged in embracing relation with respect to said bare wire portion which is of the approximate diameter of the power line. When this arrangement is followed the power line L and the sleeve 7, with the bare wire portion W' extended therethrough are seated in the channels 1 and 2 of the connector, and because of the presence of the sleeve the portions 4 of the connector are all subjected to approximately the same movement to deform them to their gripping positions. This arrangement eliminates the necessity of subjecting the portions 4 of the connector, which are deformed about the bare portion W' of the wire W, to greater movement as would be the case if said bare wire portion W' were of substantially less diameter than the power line L and no sleeve were employed. When the sleeve 7 is used as described the pressure which deforms connector portions 4 about the sleeve to cause said sleeve to be gripped mechanically by the connector also deforms the sleeve itself and causes it to securely grip the bare wire portion extended therethrough to provide the required mechanical attachment between the sleeve and said bare wire portion.

Various types of pressure devices may be employed to compress the connector A on the power line L, and on the wire portion W', or on the combined wire portion W' and sleeve 7, one such device being the roller pressure device disclosed in United States Letters Patent No. 2,039,635, issued on May 5, 1936. In this connection it has been found that when roller-type pressure devices are employed to compress the connector A on power lines and wires as has been described above, the pressure-imparting action is improved because of the presence of the shoulders 6 which aid the rollers in taking hold of the connector portions to be deformed by the pressure-imparting operation. When the pressure-imparting operation is being performed with the aid of a roller-type tool, such as that disclosed in the patent referred to above, the rolling action is started from the end of the connector at which the reduced portion 5 is located, and the shoulders 6 provide for initial biting action between the rollers of the tool and the connector.

In Figs. 4, 5, and 6 of the drawing a slightly different form of the invention is illustrated. This type of the invention is intended for use particularly in dead ending an electric line, and it differs from the form of the invention shown in Figs. 1, 2, and 3 in that it is not provided with passageways which are open at the top and bottom of the connector, such as the passages 1 and 2 shown in Figs. 1, 2, and 3. In other words the connector B of Figs. 4, 5, and 6, which is generally of the same shape as the connector A of Figs. 1, 2, and 3, is provided with passages 8 and 9 which are of circular cross-sectional shape and are open at the opposite ends of the connector. Also the connector B is provided with a reduced end portion 10 which produces shoulders 11 thereon.

In the use of the form of the invention illustrated in Figs. 4, 5, and 6, the end portion of the electric line L' to be dead ended is passed through one of the passages 8 or 9 of the connector and said end portion of said line is then passed about a support, such, for instance, as an insulator S, and the return portion of said end portion of the line L' is passed through the other of said passages 8 and 9. The connector B is then subjected to compressive force, with the aid of a suitable tool, to deform said connector and force portions thereof into tight gripping contact with the portions of the line L' within the passages 8 and 9

to provide the required mechanical attachment and electrical connection between the portions of said line L' which are connected by the connector B.

I claim:

1. A connector comprising a body formed of material characterized by being malleable and a good conductor of electricity, a pair of substantially parallel passages formed longitudinally of said connector and open at opposite ends thereof and adapted to receive conductors to be mechanically and electrically connected with the aid of the connector, said connector being adapted to be subjected to compressive force which deforms said connector and causes it to securely grip the portions of the conductors which are disposed in said passages, and means comprising a reduced portion and shoulder means formed on said connector adapted to facilitate deformation of the connector with the aid of a tool, said reduced portion having a surface which is extended substantially parallel with respect to the axis of the body of the connector and said shoulder means being extended at an angle relative to said surface of said reduced portion.

2. A connector comprising a body formed of material characterized by being malleable and a good conductor of electricity, a pair of substantially parallel passages formed in said body longitudinally thereof, said passages being open at opposite ends of the connector body with one thereof open also at the top of the connector body and the other open also at the bottom of said connector body from end to end of the connector body and being adapted to receive conductors to be mechanically and electrically connected with the aid of the connector, said connector being adapted to be subjected to compressive force which deforms portions of said connector to cause them to securely grip the portions of conductors which are disposed in said passages, and means comprising a reduced portion and shoulder means formed on said connector body adapted to facilitate deformation of the connector with the aid of a tool, said reduced portion having a surface which is extended substantially parallel with respect to the axis of the body of the connector and said shoulder means being extended at an angle relative to said surface of said reduced portion.

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