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2,648,883

WEDGE TYPE WIRE CONNECTOR

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FIG. 1.

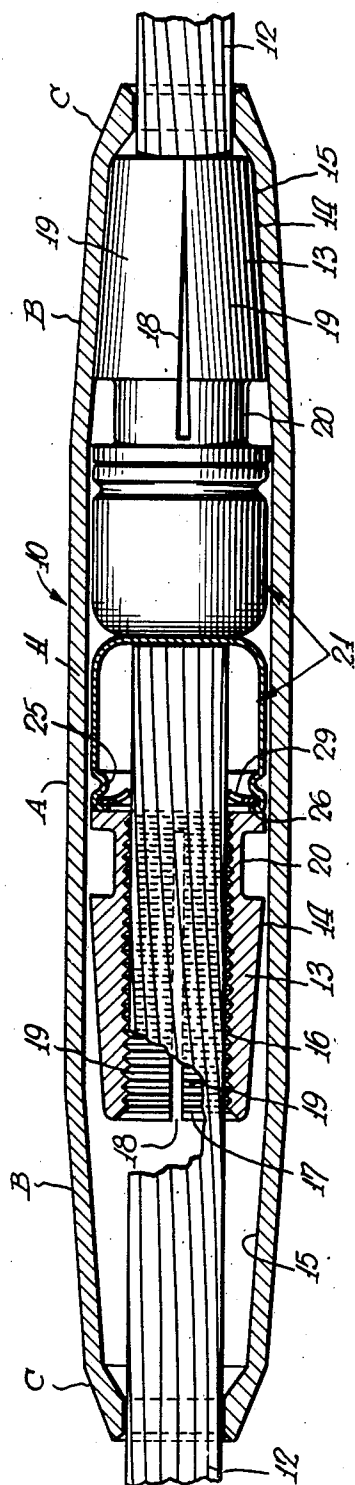


FIG. 3.

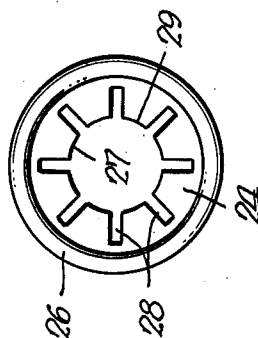
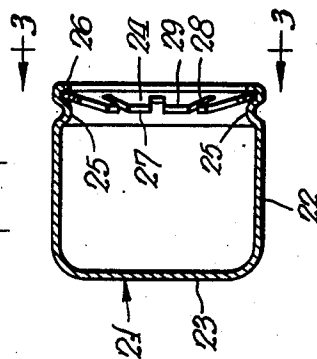


FIG. 2.



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2,648,883

WEDGE TYPE WIRE CONNECTOR

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3 Claims. (Cl. 24—126)

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My invention relates to connectors and more particularly to connectors for splicing wires and is an improvement on the connector set forth in Patents Nos. 2,209,933 and 2,215,072 granted to Julian Rogoff on July 30, 1940, and September 17, 1940, respectively.

In the prior patents there was first disclosed a wire splice type of connector employing springy sheet metal fingers to maintain the jaw members in radially spaced relation and to initially grip a conductor when inserted therein to insure the proper movement of the jaws for the final gripping action.

My present invention consists in an improved form of springy sheet metal gripping fingers, which eliminates the necessity of a coiled backing spring, thus shortening the overall length of the connector, and which insures a more positive initial gripping of the inserted conductors.

Among the principal objects of my invention are to provide in a splice type of connector a better gripping means for insuring positive grip of the conductors when inserted; to provide such a gripping means that can be axially maintained and aligned in position in the connector envelope so that jamming and loosening will be avoided; and to provide a splice type of connector of a simplified construction by eliminating a tensioning spring and attachment means between the gripping means and the jaws resulting in a connector having a minimum number of parts which can be inexpensively manufactured and more easily assembled.

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 claims, and illustrated in the accompanying drawing, in which—

Fig. 1 is the longitudinal cross sectional view of my splice type of connector.

Fig. 2 is a longitudinal cross sectional enlarged view of the self aligning gripping means, and

Fig. 3 is a front elevational view of the gripping means taken along line 3—3 in Fig. 2.

Referring more particularly to the drawing, reference numeral 10 designates a splice type of connector comprising a tubular body or sleeve 11 having a central cylindrical portion A and tapered end portions B, and swaged ends C. The end portions are open to receive the bared end of conductors 12. Each end portion and component parts may be identical with each other providing lateral symmetry and interchangeability of the internal parts. Gripping jaws 13 are mounted

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within each end portion, and have a tapered outer surface 14 to conform to the cone-shaped internal surface 15 of the end portions. Each gripping jaw is longitudinally bored at 16 to receive the bared end of the conductor and may be provided with serrations 17 to grip the conductor more positively.

The gripping jaws are provided with a plurality of longitudinal slots 18 extending from the outer end short of the inner end to form a plurality of circumferential, springy tongues 19. The springiness of the tongues may be increased by providing peripheral grooves 20 at the inner end of each jaw member. An unattached cylindrical conductor initial gripping body 21 is mounted within the cylindrical portion A of the sleeve adjacent the inner ends of the gripping jaws to receive and initially clamp the bared ends of the conductors.

The invention is for the most part incorporated in my novel self aligning body or initial gripping body 21, shown in detail in Figures 2 and 3, which may be constructed of brass and which comprises a cylindrical wall portion 22 closed at the inner side by end wall 23 forming a cup-like receptacle of a depth sufficient to receive the bared end of the conductor and presenting a long cylindrical outer surface. The outer dimensions of the cylindrical outer wall 22 are slightly less than the inner diameter of the central portion A to permit the initial gripping body to slide within the central portion. But because of the long contact surface of the initial gripping body with the inner surface of the central portion of the sleeve, the initial gripping body will always remain axially aligned within the sleeve to prevent canting and jamming, without the need of a tensioning spring previously found necessary.

Gripping ring 24, which may be constructed of phosphor bronze metal, is mounted within the outer end or mouth of the initial gripping body and secured in position between a peripherally formed bead 25 and swaged rim 26. The ring 24 is provided with a central aperture 27, of a diameter less than that of the conductor to be accommodated, with a plurality or radially positioned slots 28 extending from the periphery of aperture 27 short of the outer periphery of the ring to form a plurality of radially extending resilient fingers 29 which may be canted inwardly to facilitate insertion of the conductors. The fingers 29 have sufficient springiness whereby when the conductor is inserted the fingers are pushed inwardly as shown in the left side of Fig. 1. When a tension is applied to the con-

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ductor to withdraw it from the initial gripping body the springy fingers lock the conductor within by a wedge action, which prevents the conductor from being withdrawn, as shown in the right of Fig. 1.

With the bared ends of the inserted conductor initially gripped by the fingers of the initial gripping body, any withdrawal movement of the conductor out of the connector body carries the body outwardly and abuts the inner end or base of the gripping jaws, forcing it outwardly. The outward movement of the jaws causes the jaw tongues to be cammed against the cone shaped internal surface 15 forcing the tongues radially to clamp the conductors securely within the connector sleeve.

In the foregoing device I have illustrated a novel initial gripping body in the form of a cylindrical cup having resilient fingers to initially grip a conductor inserted into a wedge type splice connector. By providing such a gripping body with a long cylindrical contact surface closely fitting within the cylindrical portion of the sleeve, I am able to obtain axial alignment and thus prevent canting and jamming of the initial gripping body within the connector sleeve eliminating the need for an aligning spring formerly used. By providing a split jaw member, I can avoid the necessity of attaching the initial gripping body to the jaw members to maintain them apart and can construct the initial gripping body as a separate piece, facilitating the construction and assembly of the connector. Through the use of my novel gripping body, I can reduce the number of parts and assembly costs achieving an improved connector with a corresponding reduction in manufacturing costs.

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 shown herein and described are only some of the many that can be employed to attain these objects and accomplish these results.

I claim:

1. A wire connector comprising a tubular sleeve having a cylindrical portion and an open end portion, said open end having a cone-shaped internal surface, a gripping jaw slidably mounted within said open end portion and having a tapered outer surface to engage said cone-shaped internal surface and a serrated surface to grip a wire inserted therein, an initial wire gripping body slidably mounted within the cylindrical portion having normally inwardly resiliently

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biased projecting fingers extending therefrom to initially grip a wire inserted into the connector, said gripping body having a smooth cylindrical wall closely aligned with the inner surface of the cylindrical portion of the sleeve, whereby the gripping body may be axially displaced within the cylindrical portion and be maintained in alignment therein.

2. A wire connector comprising a tubular sleeve having a cylindrical portion and an open end portion, said open end having a cone-shaped internal surface, a gripping jaw slidably mounted within said open end portion and having a tapered outer surface to engage said cone-shaped internal surface and a serrated surface to grip a wire inserted therein, an initial wire gripping body unconnected to said gripping jaw slidably mounted within the cylindrical portion having radially projecting resilient fingers extending therefrom to initially grip a wire inserted into the connector, said gripping body having a flat inner end wall adapted to be engaged by the inserted conductor, and a smooth cylindrical wall closely aligned with the inner surface of the cylindrical portion of the sleeve whereby the cylindrical body may be maintained in alignment when axially displaced, said radially projecting fingers being formed in a plate mounted within the open end of the initial wire gripping body.

3. A wire connector comprising a tubular sleeve having a cylindrical portion and an open end portion, said open end having a cone-shaped internal surface, a gripping jaw slidably mounted within said open end portion and having a tapered outer surface to engage said cone-shaped internal surface and a serrated surface to grip a wire inserted therein, an initial wire gripping body unconnected to said gripping jaw slidably mounted within the cylindrical portion having radially projecting resilient fingers extending therefrom to initially grip a wire inserted into the connector, said gripping body having the projecting fingers formed in a plate, and an open end of the body terminating in a radial flange adapted to contact the inner end of the gripping jaw, a projection formed adjacent the flange and spaced therefrom, said plate being securely mounted between the flange and projection, and said body having a smooth cylindrical wall closely aligned with the inner surface of the cylindrical portion of the sleeve, whereby the gripping body may be maintained in alignment when axially displaced.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
575,641	Gerard	June 19, 1897
2,209,620	Berndt	July 30, 1940