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A. ALSAKER ET AL

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ELECTRICAL DISTRIBUTION CONNECTER

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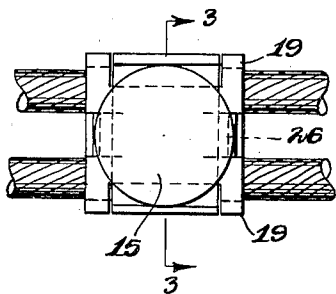


Fig. 2

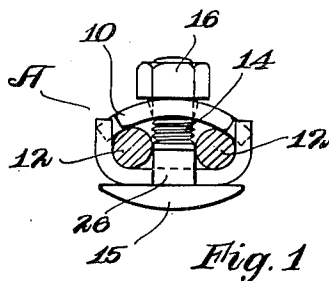


Fig. 1

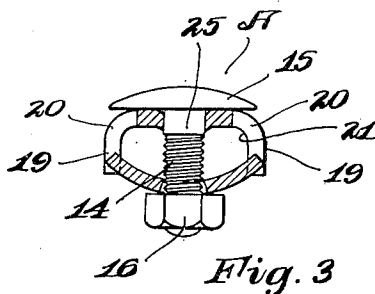


Fig. 3

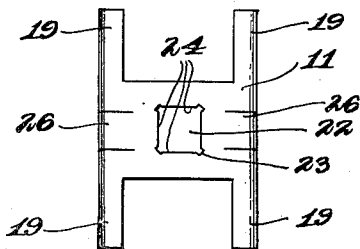


Fig. 4

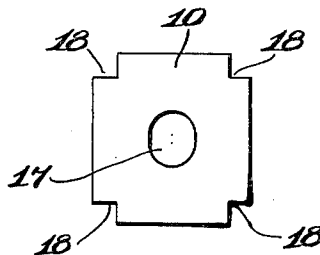


Fig. 5

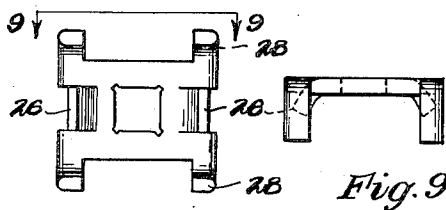


Fig. 8

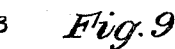


Fig. 9

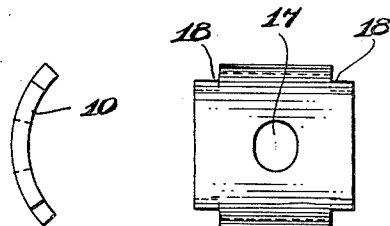


Fig. 7

Fig. 6

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ELECTRICAL DISTRIBUTION CONNECTER

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Application July 23, 1930, Serial No. 470,132

6 Claims. (Cl. 173—263)

This invention relates to an electric distribution connector for electrical cables or wires. The connector is formed of two main parts which are stamped out to provide clamping plates. A bolt connects the plates together and the structural formation of the parts is of importance in the features of the connector. A feature resides in a square hole in one of the connector members which is formed with spring-like edges adapted to engage the square shank of the connecting bolt frictionally to hold the bolt as a unit with the connecting member having the square hole.

The connector is formed with certain portions rounded to prevent cutting of the wires. The formation of the connector plates is such that they fit or mesh one with the other which holds the connector plates together against slipping and turning in attaching the same to the electric wires and in holding the parts firmly in place when the connector is in use.

One of the clamping plates of the connector is of an arcuate formation and is provided with an elongated opening through which the threaded end of the bolt passes. This permits the arcuated plate to adjust itself over the wires held by the connector. The formation of the plates of the connector also causes the electric wires to fit in proper relation in the connector spaced apart by the shank of the connecting bolt and the lugs of the respective parts. A feature resides in an electrical distribution connector which has a strong bolt with a substantial large mushroom-like head which fits closely to the connector plates so that it may be taped about when it is desired, or covered with any suitable insulation without making a large or bulky undesirable joint.

The various features will be more vividly pointed out in the specification and claims.

In the drawing forming part of our specification:

Figure 1 is an end view of our electric distribution connector.

Figure 2 is a bottom view of the same.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a geometrical development of the flat layout of the bottom member of the connector.

Figure 5 is a geometrical flat development of the top of the connector.

Figure 6 is another view of the top after it has been arcuated to the desired shape.

Figure 7 is an edge view of Figure 6, showing the arcuated shape of the top.

Figure 8 illustrates the bottom member when formed up into the desired shape.

Figure 9 is an edge view of Figure 8, on the line 9—9 of Figure 8.

The distribution connector A is formed with a top plate 10 and a bottom plate 11. These plates are stamped from sheet copper or other material having a high electrical conductivity and may be of any suitable size to receive the electrical wires 12 and clamp them securely together. The plates 10 and 11 are held together by the clamping bolt 14 which is formed with a large flat mushroom head 15. A suitable nut 16 engages against the outer surface of the top plate 10 to rigidly connect the two plates 10 and 11 together.

The top plate 10 is formed with an elongated bolt hole 17 through which the threaded end of the bolt projects. This elongated opening permits the plate 10 to shift into the proper adjustment to fit over the electric wires or cables 12. The plate 10 is notched out in the corners at 18 so as to receive the lugs 19 of the bottom plate 11. After the plate 10 has been stamped out as illustrated in Figure 5, it is curved to provide an arcuated shape to the entire plate 10, such as is more clearly illustrated in Figure 7.

The bottom plate 11 is first formed as illustrated in Figure 4 with the corner lugs 19 projecting from the body of the plate. These lugs 19 are bent so that the outer ends extend virtually at right angles to the body of the plate while the portion 20 which adjoins the body of the plate is curved to form a recess 21 into which the wires 12 fit when held by the connector A. The connector plate 11 is also formed with a square bolt receiving hole 22, the corners of which are notched out at 23 so as to form spring edges 24. The spring edges or lips 24 frictionally engage the square shank 25 of the bolt 14 so as to connect the bolt with the plate 11 as a unit and hold the same against disengagement therefrom. This provides a lower plate 11 with the bolt 14 as a unit which may be easily connected with the top plate 10 when it is desired. The structure providing the spring edges 24 formed by notching the corners 23 in the plate 11 accomplishes a new result in holding square shanked bolts 14 in a simple manner. To connect the bolt and the plate 11 it is only necessary to drive the bolt into the opening 22. The edges 24 will spring sufficiently to frictionally engage and hold the bolt in place. This simple structure is important in the practical carrying out of our connector.

The bottom plate 11 is slit to form lugs 26 which are bent up on the opposite sides to the projection of the lugs 19. These lugs extend

angularly from the body of the plate 11 and assist in holding the electric wires 12 separate from each other in the connector A.

The connector A operates to connect the electric wires such as 12 between the plates 10 and 11. The unit assembly of the plate 11 with the bolt 14 permits the electrician to connect the wires 12 together by placing them in the grooves on each side of the bolt 14 and then placing the plate 10 over the same, and by the nut 16 the plate 10 is clamped firmly against the wires 12. The plate 10 in its arcuated formation provides sufficient spring to work against the nut 16 to act as a lock in holding the nut tight after it has been attached to the bolt and also in providing the necessary spring clamping means against the electric wires 12. The lugs 19 fitting in the notches 18 hold the clamps 10 and 11 in alinement and intermesh together so that the clamping strain in connecting the wires 12 is not directed to the wires even in the tightening of the clamping plates 10 and 11. This permits the connector A to be made in a very small form for small electric wires and overcomes any twisting on the wires in making an electrical connection. The outer edges 28 of the lugs 19 are rounded so as to prevent cutting of the wires 12. The simple, inexpensive structure with the detailed features of the interfitted parts and unit assembly of our electrical distribution connector are of primary importance. The small compact formation permits easy taping of the same when it is desired without any bulky projections from the connector.

In accordance with the patent statutes the details and structure of our electrical distribution connector is fully set forth in a form which we believe to represent the best embodiment, however, we are aware that those skilled in the art may observe obvious variations and we desire to include the same within the scope of the following claims.

We claim:

1. In combination, a pair of sheet-like copper plates, one of said plates having a square opening, spaced spring edges formed in said opening adapted to frictionally engage the square shank of a clamping bolt, notches formed in the corners of the other of said plates, and lugs extending from the first plate fitting into said notches to interconnect said plates in a manner to provide electric wire receiving recesses between said lugs and said plates to clamp the wires together.

2. In combination, a clamping bolt having a square shank adjacent the head thereof, a plate

having a square opening with separate spring side edges forming lips adapted to engage the square shank of said bolt to hold said plate and bolt together as a unit, an arcuated plate, an elongated bolt opening through said plate, lugs projecting from said first plate, and recesses for receiving said lugs in said arcuated plate to provide an electric connector through which electric wires can extend between said plates and spaced on either side of said bolt.

3. An electric distribution connector comprising, a clamping bolt, a clamping plate for receiving said bolt having spring lip means for holding said bolt connected with said plate as a unit, sides projecting from said plate, a second clamping plate having an elongated bolt receiving hole therethrough, and notches for engaging the sides of said first plate to hold said plates intermeshed and provide an electric wire receiving recess on either side of said bolt.

4. The combination, a clamping bolt, a plate having an opening for receiving said bolt to connect the same with said plate as a unit, lugs projecting from the corners of said plate, marginal lugs formed in opposite sides by slitting the edge of said plate, said marginal lugs forming spacers to space electric wires apart and hold the same against said corner lugs, and a cover plate adapted to extend over said bolt and meshing with said lugs to lock electric wires together between said marginal lugs and said corner lugs.

5. An electrical clamp including, a plate having a rectangular formation, lugs projecting from two sides of said plate, marginal lugs formed in the other two sides of said plate, a square bolt receiving hole formed in the center of said plate, separate spring side edges formed in said hole for engaging the square shank of a bolt under spring tension, a clamping bolt fixed to said plate by said flanges, and a cover plate having a bolt hole extending therethrough and adapted to engage said first plate to be held against turning, the edges of said first plate having a rounded formation to prevent cutting of the wires held between said plates.

6. An electrical connector including, a pair of clamping plates, a bolt for clamping said plates together, an aperture in each of said plates through which said bolt may extend, a series of spring lips formed in the edges of one of said apertures, said lips being bent under spring tension as the bolt is inserted and acting to prevent removal of the bolt from one of said apertures.

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