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J. ZILLIOX

WIRE COUPLER

Filed Oct. 22, 1925

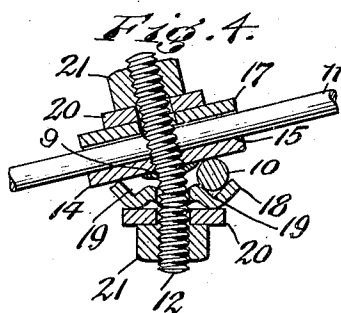
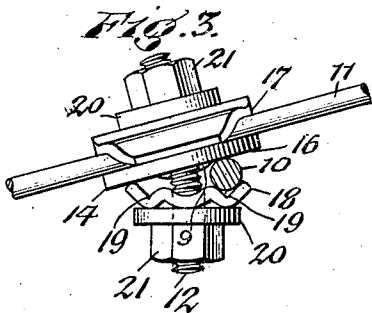
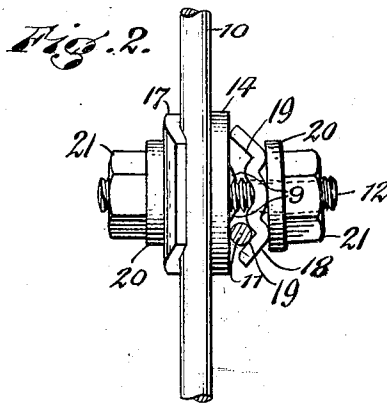
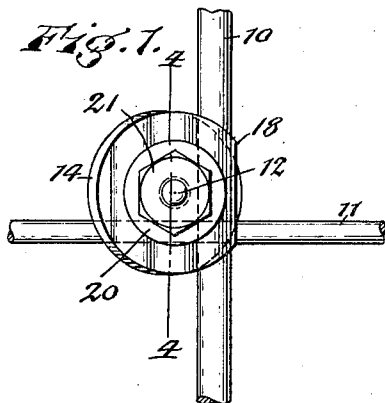


Fig. 5.

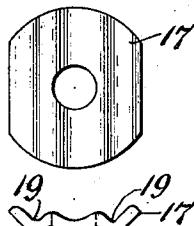
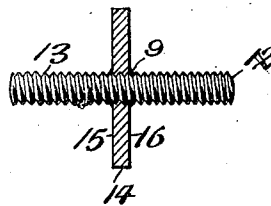


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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WIRE COUPLER.

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This invention relates to a coupler for coupling electric wires with each other and more particularly for connecting wires of different diameters which are arranged at an angle relatively to each other. As is well known the main feed wire of electric conductor lines are usually comparatively large in diameter to properly carry the current, and the branch or service wires whereby current is distributed to customers are usually of smaller diameter and extend laterally at different angles from the main feed wire. Heretofore the connection between such wires has usually been effected by soldering which is not only laborious and wasteful of time as well as dangerous but also unsatisfactory due to likelihood of producing a joint which is imperfect and liable to give way.

It is the object of this invention to produce a coupler for this purpose which can be quickly and easily applied to wires of the same or different diameters and which are arranged either parallel or at an angle relatively to each other, which will produce a good electric connection between the wires to be coupled without the use of solder, and which can be produced at low cost and capable of universal use on all sizes of wires, thereby rendering it unnecessary to select a certain size coupler for particular sizes of wires and also avoiding the necessity of keeping in stock more than one size or extra parts of couplers and thereby reducing the cost accordingly.

In the accompanying drawings:—

Figure 1 is an end elevation of an improved form of coupler embodying my invention.

Figure 2 is a side view of the same.

Figure 3 is a side elevation of the same viewed at right angles to Figure 2.

Figure 4 is a cross section taken on line 4—4, Fig. 1.

Figure 5 is a side view of one of the side clamping plates.

Figure 6 is an edge view of the same.

Figure 7 is a sectional elevation of the inner clamping plate and the tie rod upon which the same is mounted.

Similar characters of reference indicate like parts in the several figures of the drawings.

The numeral 10 represents a main or feed

wire forming part of the line whereby the main electric current is conducted, and one of the branch or service wires whereby part of the current is delivered to customers, said main wire being of comparatively large diameter and said branch wire being of comparatively small diameter. These wires may either be arranged parallel or at an angle relatively to each other and in the drawings they are represented, for example, at right angles to each other.

The preferred form of coupler for connecting these wires embodying my invention and shown in the drawings is constructed as follows:

The numeral 12 is a tie rod which is arranged transversely of the wires to be coupled adjacent to the crossing between the same and preferably constructed of bendable material, such as soft brass and provided with an external screw thread 13 so that this rod in effect is the equivalent of a bolt. Mounted on the central part of the tie rod and preferably secured against rotation thereon is an inner or intermediate clamping plate 14 of metal such as brass which in the preferred construction has the form of a circular disk, the opposite sides 15, 16 of which are flat and adapted to bear against the opposing inner sides of the wires which are to be coupled. The preferred manner of connecting the intermediate clamping plate and the tie rod consists in providing this clamping disk with a central screw threaded opening which receives the thread of the tie rod, and soldering this plate and rod together as shown at 9 in Figs. 2, 3, 4 and 7 so that the same are held against rotation relative to each other and not liable to become displaced while being handled.

On the outer end portions of the tie rod are mounted two outer clamping plates 17, 18, also preferably of disk form and constructed of metal such as brass. Each of these outer clamping plates is provided with a central opening whereby the same is free to slide and rotate on the tie rod, and the same is also provided with corrugations which form parallel grooves 19 on the inner side of this plate, and on opposite sides of the tie rod. Each of these side plates is preferably bent into the desired shape from a sheet of metal of the desired thickness

and each of these plates is adapted to receive in one of its grooves one of the wires to be coupled.

The two outer clamping plates are pressed inwardly for the purpose of firmly engaging the several clamping plates with opposite sides of the wires and forming a good electrical contact therebetween. These pressing means preferably consist of washers 20, 20 mounted loosely on the tie rod and bearing against the outer side of the outer clamping plates, and two screw nuts 21, 21 engaging with the threaded extremities of the tie rod and bearing against the outer side of the washers.

In using this coupler for connecting two wires the screw nuts are first loosened sufficiently to permit the central or intermediate clamping plate to pass between the two wires and the outer clamping plates to each engage a groove on one side of the tie rod with the outer side of the wires. Upon now tightening the nuts each outer clamping plate will be drawn on one side of the rod against the respective wire and on the other side of the rod against the opposing part of the inner clamping plate, whereby the respective end of the tie rod will be bent, as shown on the lower parts of Figures 3 and 4, and the right side of Figure 2, thereby obtaining a firm grip on the wires and producing a good metallic contact between the several parts for properly conducting the electric current through the same. This adaptation of the tie rod varies according to the size of the wire which is being clamped and is possibly due to the tie rod being constructed of bendable metal. When the clamping plates are thus tightened on the wires the latter are engaged by a spring pressure or tension which permits the plates to come and go under variations in temperature and still maintain a firm grip on the wires.

By turning the outer clamping plate on the tie bolt or rod the same can be applied to the wires at any angle at which the same may cross each other and also regardless of the relative diameters of the wires.

Owing to the simplicity of this coupler

and the employment of parts of like construction the same can be manufactured at comparatively low cost.

As the same can be quickly applied to wires it is particularly advantageous for linemen who are obliged to work on poles and other dangerous places, thereby reducing the hazard attending work of this character to a minimum.

I claim as my invention:—

1. A wire coupler comprising a tie rod, an inner clamping plate mounted on the central part of said tie rod and adapted to be engaged on its opposite sides by the inner sides of wires to be coupled, outer clamping plates independent of the inner clamping plate mounted on said tie rod and adapted to engage with the outer sides of the wires to be coupled, and screw means for pressing said outer clamping plates toward opposite sides of said inner clamping plate, said tie rod being constructed of bendable material.

2. A wire coupler comprising a tie rod, an inner clamping plate secured against rotation on the central part of said tie rod, and adapted to be engaged on its opposite sides by the inner sides of wires to be coupled, two outer clamping plates capable of rotation on the end portions of said rod and adapted to engage their inner sides with the outer sides of the wires to be coupled, and means for pressing said outer clamping plates inwardly.

3. A wire coupler comprising an externally screw threaded tie rod, an inner clamping plate screwed on said rod and secured against rotation thereon and having opposite flat sides adapted to engage with the inner sides of the wires to be coupled, outer clamping disks rotatable on said rod and provided on their inner sides with grooves adapted to engage with the outer sides of the wires to be coupled, washers arranged on said rod and engaging the outer sides of said outer clamping disks, and screw nuts arranged on said rod and engaging with the outer sides of said washers.

In testimony whereof I affix my signature.

JOHN ZILLIOX.