Oct. 11, 1938. F. PENNELL 2,132,967

COUPLING FOR ELECTRIC CONDUCTORS

Filed Aug. 15, 1936

FIG.1

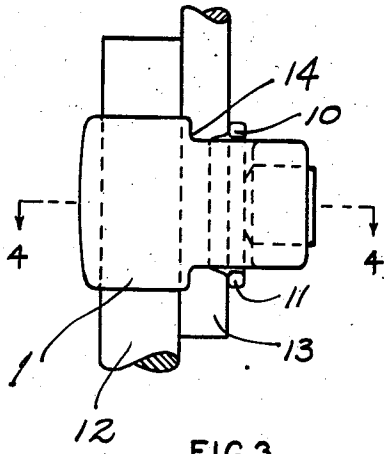


FIG.2

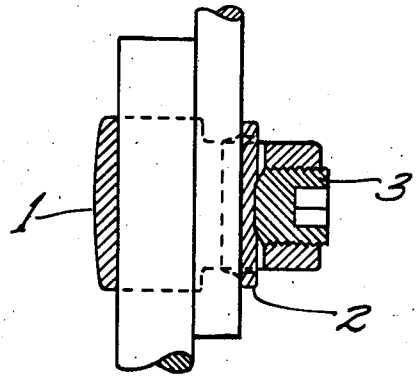


FIG.3

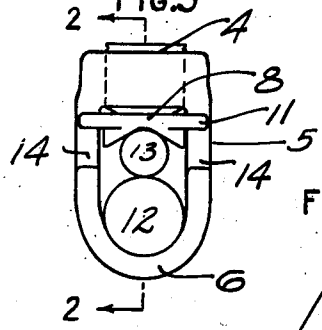


FIG.4

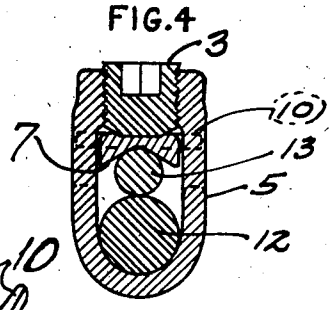


FIG.5

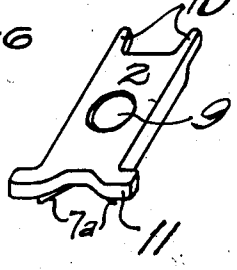


FIG.6

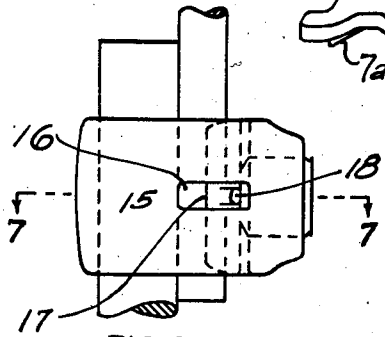


FIG.7

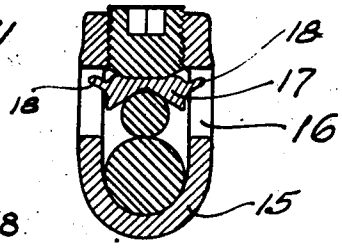


FIG.8

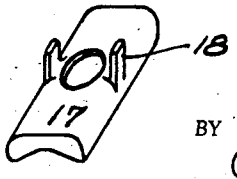
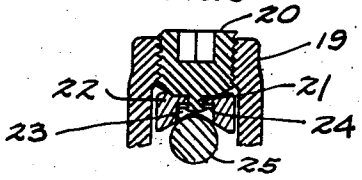


FIG.9



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2,132,967

COUPLING FOR ELECTRIC CONDUCTORS

Ford Pennell, Webster Groves, Mo.

Application August 15, 1936, Serial No. 96,150

3 Claims. (Cl. 173—263)

The invention relates to devices for clamping together the overlapping portions of electrical conductors such as are used, for example, in connecting apparatus grounding wires with ground rods.

The main object of the invention is to securely hold the two conductors together by means which are readily applied and removed and which will be cheap enough to be commercially practical.

Other objects of the invention are to provide extended bearing of the two conductors on each other, to insure their remaining in the intended relation to each other and to avoid cutting or defacing of a conductor by the clamping mechanism.

These and other detail objects of the invention are attained by the structure illustrated in the accompanying drawing, in which—

Figure 1 is a side view of the coupling applied to a ground rod and a grounding wire.

Figure 2 is a longitudinal section through the coupling taken on the line 2—2 of Figure 3 and showing the conductors in elevation.

Figure 3 is an end view of the coupling and conductors.

Figure 4 is a transverse section through the coupling and conductors taken on the line 4—4 of Figure 1.

Figure 5 is a detail perspective on one part of the coupling.

Figures 6, 7 and 8 correspond to Figures 1, 4 and 5 but illustrate a modified structure.

Figure 9 is a detail vertical transverse section through another modification.

The coupling shown in Figures 1 to 5 comprises a sleeve 1, a bearing member 2, and a clamping means 3. Sleeve 1 has a flat top 4, substantially straight sides 5, and a rounded bottom 6, preferably having a radius corresponding to the radius of the larger conductor for which the coupling is intended.

Member 2 is of plate-like formation, having an elongated recessed lower bearing face 7 and a substantially flat upper face 8 which may be provided with a recess 9 to receive the inner end of means 3 which preferably comprises a set screw threaded into the top wall 4 of the sleeve.

Member 2 is formed initially with longitudinally projecting lugs 10 and laterally projecting lugs 11. Lugs 11 will engage the end face of sleeve 1 when the member is slipped into the sleeve, and lugs 10 may be bent outwardly after assembly to retain member 2 in the sleeve. The interengaging elements of sleeve 1 and member 2 provide a sliding mounting of the member in the sleeve whereby it may move freely to and from the rounded portion 6 of the sleeve which forms a seat for the ground rod 12. The elongated recessed face 7 of member 2 forms an opposing seat for grounding wire 13. The opposing seats serve to center the rod 12 and wire 13 in the sleeve and to maintain their parallel relation and thereby avoid the rod and wire assuming an angular relation to each other which would result in a point contact between them instead of a line contact which is preferable.

The recessed bearing in member 2 maintains a straight line thrust from the set screw 3 through the centers of the wire and rod so that all the thrust provided by the set screw is transferred to the wire and rod and is not transmitted in part to the side wall 5 of the sleeve as it might be if the wire was free to move to one side or the other of the rod, which would reduce the efficiency of the device so far as maintaining the tight contact between the wire and rod. Member 2 distributes the thrust of set screw 3 to the wire throughout the length of the sleeve, further assuring extended and permanent contact between the wire and rod and avoiding cutting of the wire by the end of the screw. The ends of the bearing 7 in member 2 may be flared, as indicated at 7a, to guide to the central location the end of wire 13 being inserted into the device.

Preferably the ends of sleeve 1 are recessed as indicated at 14 to accommodate lugs 10 and 11 and maintain a common length of bearing for the rod and wire. These recesses may be omitted, but member 2 must be lengthened accordingly. The upwardly facing shoulders formed by recesses 14 engage lugs 10 and 11 to limit the movement of member 2 downwardly in the sleeve and prevent its removal by tilting transversely of the sleeve.

The modification illustrated in Figures 6, 7 and 8 comprises a similar general arrangement but the sleeve 15 has vertically elongated slots 16 in its side walls and the slidable bearing member 17 has a single pair of lugs 18 projecting through slots 16 to maintain the assembly of the member and the sleeve. Lugs 18 are originally formed as shown in Figure 8 and after the device is assembled these lugs are bent outwardly as shown in Figure 7. The device shown in Figures 6, 7 and 8 functions identically as the device previously described and possesses the same advantages.

It is within the scope of the invention to maintain the assembly of the sleeve and clamping

member by means other than lugs on the clamping member slidably engaging the sleeve, and Figure 9 illustrates such a modification of the invention. In the construction shown in this figure, sleeve 19 mounts the set screw 20 as in the structures previously described, but the latter has a rivet-like projection 21 on its lower end. The clamping member 22 has a recess 23 in its under face and an opening through the top of the member. The rivet 21 projects through the opening into the recess where it is riveted over a washer 24 to hold the clamping member to the set screw. Since the width of the clamping member is greater than the diameter of the opening for the set screw, the latter could not be removed from the sleeve. In this construction, recess 23 preferably is made deep enough so that the grounding wire 25 will engage the sides of the recess before engaging the end of rivet 24.

The device may be varied in other respects than those described without departing from the spirit of the invention and the exclusive use of such modifications as come within the scope of the claims is contemplated.

I claim:

1. In a device of the class described, a rigid body with integral top, bottom and side walls forming a closed annulus, said bottom wall forming a substantially continuous concave bearing from end to end of the body, the front and rear edges of said side walls having upwardly facing shoulders substantially one-half the distance between said top and bottom walls, said top wall having a circular opening, a clamping screw threaded into said opening and movable towards and from said bottom wall, and a plate beneath said screw extending substantially throughout the length of said body and forming a concave bearing opposing said bottom wall bearing, said plate having end lugs projecting over said shoulders and beyond the edges of said body side walls above said shoulders to prevent rotation of said plate in said body and thereby maintain the assembly of said body and plate irrespective of the presence of said screw and to hold said plate spaced substantially from said bottom wall irrespective of the presence of a wire or cable in the device.

2. In a device of the class described, an open ended sleeve in the form of an elongated rigid loop having continuous side and bottom elements, said top element having a circular tapped hole with an axis parallel with the longitudinal axis of said loop, a plate for overlying a conduit passed through said sleeve, said plate being disposed in a plane extending transversely of said axes and being slidable axially of said loop and having ears bent around the ends of said side elements to prevent the plate moving through the open ends of the sleeve, a clamping screw threaded into said hole and engaging said plate, the inside width of said sleeve loop being substantially less than the length of the same, and shoulders formed on the ends of said sleeve side elements substantially intermediate said top and bottom elements and engaging said ears to limit the sliding movement of said plate and to limit its twisting movement out of said plane and thereby prevent said member being disposed with its width extending vertically of said sleeve and free to move outwardly therefrom.

3. In a device of the class described, a rigid body with top, bottom and side walls forming a closed annulus, said bottom wall forming an elongated bearing for a wire or cable inserted through the device, the front and rear edges of said side walls having upwardly facing shoulders intermediate said top and bottom walls, clamping means mounted on said body and movable towards and from said bottom wall, and a plate beneath said means forming a bearing opposing said bottom wall bearing, said plate having end portions projecting over said shoulders and across the edges of said body side walls above said shoulders to prevent rotation of said plate in said body and movement of said plate through the body annulus and thereby maintain the assembly of said body and plate irrespective of said means and to hold said plate spaced substantially from said bottom wall irrespective of a wire or cable in the device.

FORD PENNELL.