June 23, 1953 E. C. SCHESSER 2,643,136

OUTLET BOX CABLE CONNECTOR

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Fig. 1

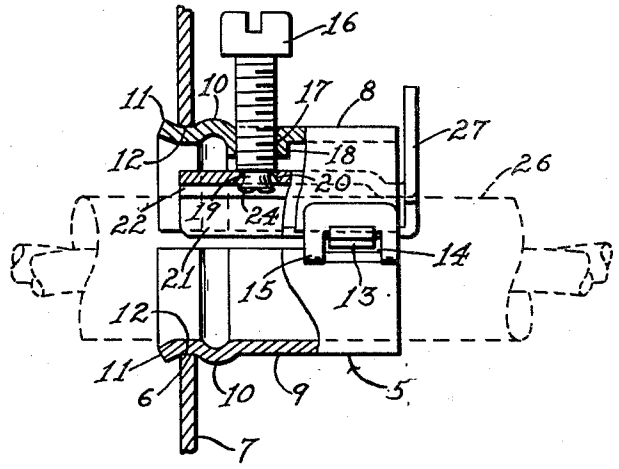


Fig. 2

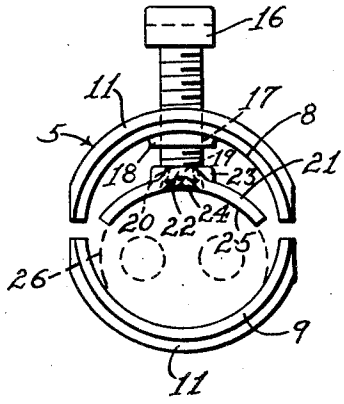
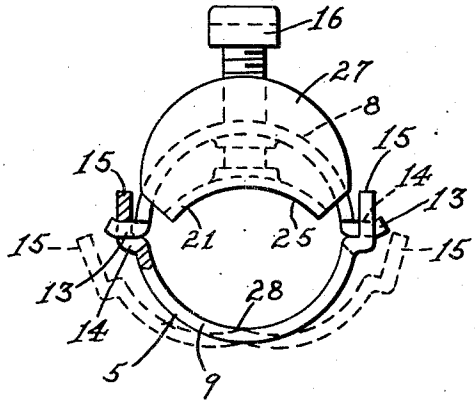


Fig. 3



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OUTLET BOX CABLE CONNECTOR

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5 Claims. (Cl. 285—6.5)

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This invention relates to cable connecters for connecting flexible electrical cables to outlet boxes.

The principal object of my invention is to provide a cable connecter made up of a few sheet metal stampings of relatively simple and economical construction capable of being quickly and easily put together at low cost, and which, when assembled, are not apt to come apart in shipment and handling, although the parts are so loosely connected that there is ample play to enable quickly and easily attaching the same to the wall of the outlet box and clamping the end of a cable therein, the tightening of a single easily accessible screw serving the double purpose of clamping the cable between a clamp and one-half of the body and simultaneously expanding the body at the outlet box end to take a good hold in the hole in the wall of the outlet box.

A salient feature of the present connecter is the provision of outwardly projecting, diametrically opposed lugs on the outer end of one of the two semi-cylindrical halves of the connecter body, which lugs are received loosely in slots provided therefor in diametrically opposed upwardly projecting ears provided on the outer end of the other semi-cylindrical half of the connecter body, the latter half being given a preliminary form between dies prior to the final assembling operation, so that the lugs can be entered in the slots in the ears as this half of the body is bent along a center line to bring the ears into closer spaced relation in abutment with the sides of the other body-half, thereby permanently connecting the body halves together without any likelihood of their subsequently coming apart regardless of the extent of rough handling to which these connecters may be subjected, the lug and slot connections at the same time affording enough freedom of movement of the halves with respect to one another so that the other end of the body, which is annularly beaded and flared to form a suitable bearing for engagement in the hole in the wall of the outlet box, can be, first of all, closed to be entered through the hole and then split apart in the subsequent tightening of the screw for a good connection with the box.

Another salient feature of my invention is the provision on the clamp of an outwardly projecting longitudinally extending rib to lend stiffness

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to this part, and the provision in the ribbed portion of a downwardly flared hole designed to receive a reduced cylindrical tip portion on the end of the clamp screw, the end of which tip portion is swedged to fasten the clamp permanently to the screw while yet allowing considerable freedom of movement between the clamp and the screw, as required in service, the recess afforded by the rib on the conduit clamping face of the clamp enabling keeping the swedged end of the screw out of contact with the cable regardless of how tightly the cable may be clamped.

The invention is illustrated in the accompanying drawing, in which—

Fig. 1 is an enlarged view, partly in side elevation and partly in longitudinal section, of a cable connecter made in accordance with my invention, shown installed in the hole in the wall of an outlet box and indicating the cable in dotted lines, and

Figs. 2 and 3 are end views taken from opposite ends, Fig. 3 showing a portion in section to better illustrate the construction and having indicated in dotted lines the preliminary shape of the lower half of the connecter body to facilitate assembling the two halves together.

The same reference numerals are applied to corresponding parts in these three views.

The drawing shows the connecter, indicated generally by the reference numeral 5, enlarged to about twice the actual size, inserted in the hole 6 in the wall 7 of an outlet box, from which the usual knock-out slug has been punched. The generally cylindrical sleeve body of the connecter is formed by two substantially semi-cylindrical halves 8 and 9 that are stamped from sheet metal and formed between dies. An annular bead 10 is formed in both halves near the inner end, the inner end portion being flared, as indicated at 11, so as to define an annular bearing groove 12 between the bead and the flared end portion to engage in the hole 6 for secure anchorage of the connecter to the wall of the outlet box. At the outer end of the connecter body, the upper half 8 has a pair of diametrically opposed outwardly projecting lugs 13, which are entered loosely in slots 14 provided in ears 15, provided on diametrically opposite sides of the lower half 9 of the connecter body, so as to provide a permanent connection between the two parts, but one which

is loose enough to allow the two halves to be brought together for insertion of the flared inner end 11 through the hole 6 in the wall of the outlet box, after which the halves are spread apart to be interlocked with the wall, in the manner shown in Fig. 1. The lug and slot connection at 13–15 forms the pivot about which the two halves of the connecter body move in the spreading-apart. The two halves of the connecter are spread apart by the tightening of a screw 16, which is threaded in a hole 17 provided in an inwardly extruded portion 18 of the wall of the upper half 8 of the connecter body next to the bead 10. This screw has a reduced cylindrical tip portion 19, which is entered freely through the small end of a downwardly tapered hole 20, provided in the wall of an elongated, transversely arcuate, sheet metal clamp 21. The hole 20 is provided in the middle of a longitudinally extending reinforcing rib 22, and there is, furthermore, a circular embossing 23 concentric with the hole 20, so that when the inner end of the reduced tip portion 19 is swedged, as indicated at 24, to prevent disconnection of the clamp 21 from the screw, the swedged end 24 is outside the radius of the arcuate inner clamping surface 25 of the clamp 21 that comes into tight contact with the cable 26 when the screw 16 is tightened, for the double purpose of fastening the connecter 5 to the wall 7 of the outlet box and clamping the cable 26 in the connecter. A substantially vertical end wall 27 is formed on the outer end of the clamp 21, so that there will be no opening left through the connecter 5 after a cable has been connected to the outlet box, regardless of the size of the cable. It is manifest that when the screw 16 is tightened to apply clamping pressure to the cable, the equal and opposite reaction, in so far as the two-piece connecter body is concerned, causes the flared inner end 11 of the halves 8 and 9 to be spread apart to take hold of the wall 7 of the outlet box just as tightly as the clamp 21 grips the cable 26.

As indicated in dotted lines in Fig. 3, the lower half 9 of the connecter body is first given a substantially W-shape, in order to have the diametrically opposed ears 15 far enough apart to receive the outwardly projecting lugs 13 therebetween. Then the half 9 is bent along the middle portion 28 of the W, to bring the ears 15 closer together with the lugs 13 projecting through the slots 14, and not only permanently connect the two halves 8 and 9 together but give the lower half 9 a semicylindrical shape, like the upper half 8.

In operation, it should be clear from the foregoing description that the present connecter offers several advantages over prior constructions. The clamp 21, being securely swiveled on the inner end of the screw 16, is always in assembled relation to the connecter, and is always positioned properly with respect to the screw and the rest of the connecter, so that it will function correctly without having to be moved one way or another by the electrician; and, of course, there is no assembling operation to attend to in the first instance before the connecter can be attached to the outlet box. In other words, there is nothing about the connecters that is apt to be lost or mislaid; the connecter comes ready for instant use, and the electrician has no difficulty in figuring out how to use it, in the event he has not used this type of connecter before.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. A connecter for the purpose described, comprising a pair of elongated sheet metal members of arcuate cross-section adapted together to loosely embrace an electrical cable that is to be clamped between said members, one of said members having diametrically opposed openings provided therein in one end portion thereof, the other of said members having diametrically opposed lugs projecting outwardly from the corresponding end portion thereof and received loosely in said openings to loosely pivotally connect the members together at one end and keep the members in permanently assembled relationship, anchoring means formed integral with the other free end portion of said members arranged to be disposed in position for anchoring of that end of said members within an opening in an outlet box, or the like, when the members are spread apart after entry in said opening, an elongated sheet metal clamp element disposed between the aforesaid members and adapted to cooperate with one of said members to clamp therebetween the electrical cable, and a screw threaded in a hole provided in the other of the aforesaid members intermediate the ends thereof and permanently swivelly connected at its inner end to said clamp element intermediate the ends thereof so as to keep the clamp element in permanently assembled relationship to the rest of the connecter and operate the same to grip the cable and spread the free ends of said members to effect anchorage thereof in the aforesaid opening.

2. A connecter as set forth in claim 1, wherein the clamp element has a longitudinally extending reinforcing rib provided thereon along its longitudinal center-line, the swivel connection between the screw and said clamp element being in the ribbed portion so that the inner end of the screw is spaced radially outwardly with respect to the cable being clamped.

3. A connecter as set forth in claim 1, wherein the clamp element has a longitudinally extending reinforcing rib provided thereon along its longitudinal center-line, the swivel connection between the screw and said clamp element being in the ribbed portion so that the inner end of the screw is spaced radially outwardly with respect to the cable being clamped, the inner end portion of the screw being of reduced cylindrical form so as to define an annular shoulder on the screw for abutment with the outside of the rib and the clamp element having an inwardly flared hole provided in said rib to receive the reduced end portion of the screw, and only the extremity of the reduced end portion of said screw being enlarged to prevent withdrawal through the small outer end of said hole.

4. A connecter as set forth in claim 1, wherein the clamp element has an outwardly embossed portion provided thereon along its longitudinal center-line, the swivel connection between the screw and said clamp element being in the embossed portion so that the inner end of the screw is spaced radially outwardly with respect to the cable being clamped.

5. A connecter as set forth in claim 1, wherein the clamp element has an outwardly embossed portion provided thereon along its longitudinal center-line, the swivel connection between the screw and said clamp element being in the embossed portion so that the inner end of the screw

is spaced radially outwardly with respect to the cable being clamped, the inner end portion of the screw being of reduced cylindrical form so as to define an annular shoulder on the screw for abutment with the outside of the embossed portion, and the clamp element having an inwardly flared hole provided in said embossed portion to receive the reduced end portion of the screw, and only the extremity of the reduced end portion of said screw being enlarged to prevent withdrawal through the small outer end of said hole.

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