Oct. 4, 1927. 1,644,302

J. C. LEDBETTER

CABLE CONNECTER

Filed July 1, 1925

Fig. 1

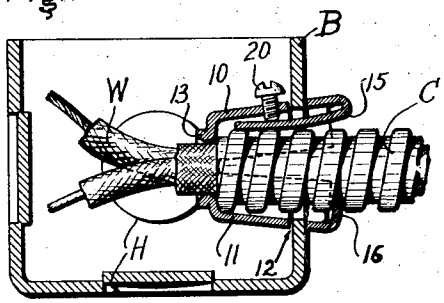
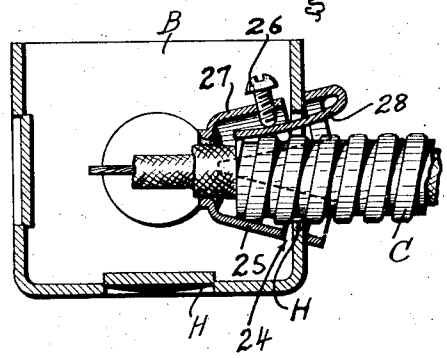


Fig. 10



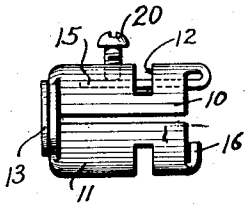


Fig. 2

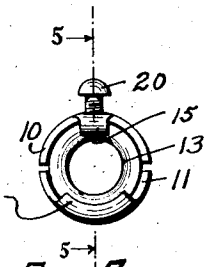


Fig. 3

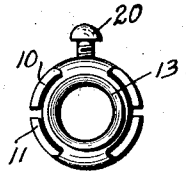


Fig. 4

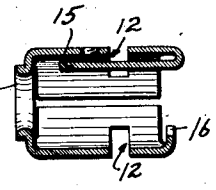


Fig. 5

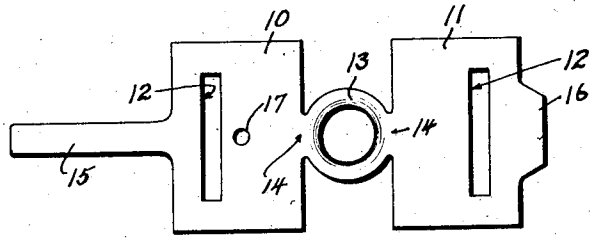


Fig. 6

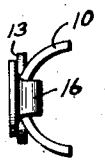


Fig. 8

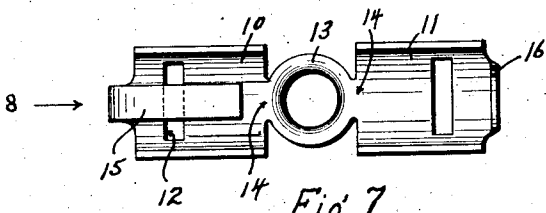


Fig. 7

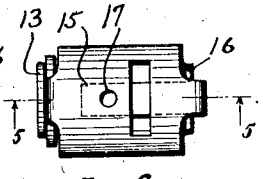


Fig. 9

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ATTORNEYS

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UNITED STATES PATENT OFFICE.

JAMES CAMROD LEDBETTER, OF NEW YORK, N. Y., ASSIGNOR TO THE THOMAS & BETTS CO., OF ELIZABETH, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CABLE CONNECTER.

Application filed July 1, 1925. Serial No. 40,749.

This invention relates to cable connecters and more particularly to an improved type of wholly one-piece cable connecter which is stamped from a single sheet of metal and fashioned into a tubular split sleeve formed integrally on a full-fashioned complete circular wire bushing.

Among the objects of this invention, one purpose is to produce a connecter which has a full unsplit bushing combined with a split sleeve and combined with an improved bearing clamp plate to protect the cable from being crushed or damaged by a clamp screw.

A further object of the invention is to improve a cable connecter in respect to the cable clamp means, and to this end the invention, among other things, embodies a flexible bearing plate free at one end and integral at the other end with the sheet metal connecter.

The accompanying drawings illustrate preferred forms of the connecter structure wherein:

Figure 1 shows a box, a cable, and a connecter assembly in longitudinal section.

Figure 2 shows a side view of the connecter removed from the box.

Figures 3 and 4 show front and rear end elevations of the connecter.

Figure 5 illustrates a longitudinal sectional view of the connecter after the stamping is fashioned into a connecter sleeve.

Figure 6 illustrates the flat sheet metal blank before it is fashioned and drawn into sleeve form; and Figure 7 shows the stamping subject to the first operation whereby it is fashioned into two sleeve sections; and Figure 8 shows an end view of Figure 7. Figure 9 illustrates a top view of the connecter in complete form.

Figure 10 shows the connecter with cable gripping rib removed therefrom showing how the rim or edge of the box hole directly engages the cable to cooperate with the clamp screw to secure a cable in the box as well as in the connecter.

Electrical installation work requires that the armor or tubular wall C of electrical cable carrying wires W must be securely fixed in the cable opening or hole H of an outlet or junction box B and it is desirable that connecters for this purpose be inexpensive to manufacture and positive in their operation and to these ends, this invention is addressed.

In Figure 6 there is shown a sheet metal stamping punched or cut from sheet steel or other suitable metal and comprising rectangular shaped sleeve sheet sleeve forming plate parts 10 and 11 which are provided with suitable connecter and box anchorage means for securing itself, the connecter, in a box and to this end box wall entrant slots 12 are punched therein, although other forms of box hole edge anchorage means may be used. The flat sheet sleeve parts 10 and 11 are integrally stamped on a full circular type uncut ring bushing 13. This ring 13 is formed between the two rectangular sleeve parts 10 and 11 and holds them together along a bending zone 14. The two parts 10 and 11 are adapted to bend at the ring on the bending zone or neck 14 thus enabling the two sleeve sections, after being fashioned into half-round circular parts, to move or bend relatively on the ring 13.

The flat stamping also carries a tongue 15 integral therewith which is formed into a bearing clamp plate 15 after it is turned back alongside the sheet part 10 which arrangement leaves one end thereof flexibly free and the other end integrally attached to the sleeve. This clamp plate protects the armor wall of the cable C from being damaged by a cable clamp screw as will be seen. A screw hole 17 is made in the stamping to receive a cable clamp screw 20 which is in line with the clamp plate 15.

A cable gripping rib or jaw 16 is integrally formed in the stamping at one end thereof so that the cable C rests directly against the rib or jaw 16 at the point of entry into the sleeve. This jaw aids greatly in securing the cable in the connecter.

By reference to Figures 7 and 8 is observed how the above described flat sheet metal blank is first fashioned into a lengthwise trough-like device whereupon the parts 10 and 11 are folded at the bending neck 14 to complete the connecter as shown by top view in Figure 9. The jaw 16 formed at one edge of the sheet 11 is turned up to provide the cable pinching or engaging jaw rib 16 projected from the end of the trough-like connecter member 10—11.

The connecter is installed in the box as shown in Figure 1 by first inserting the tubular sleeve part 10—11 in the box hole H whereupon the cable armor C is thrust through the box hole and the screw 20 is

brought to bear on the cable clamp plate 15 with the result that the plate distributes pressure along the cable surface thereby very tightly pinching the jaw rib 16 into the armor of the cable, and it is observed how the screw simultaneously causes the split sleeve parts 10 and 11 to expand thereby forcing the wall entrant slots 12 to move outwardly past the edge or rim H of the box hole causing said rim to be embraced or confined within the slots 12 of each sleeve part 10 and 11. This mode of operation causes the cable to be not only gripped by the turned up or struck-up jaw 16 but the cable is gripped by the clamp plate 15 as well thereby securely fastening the cable in the connecter sleeve. Both functions are simultaneously executed by the screw operating means at one and the same operation thereby securing the cable C in the connecter and the connecter in the sleeve as well.

In Figure 10, the connecter is shown made without the jaw rib 16 heretofore described and in such case the rim H of the box hole edge is forced far enough into the connecter sleeve 25 through the wall entrant slot 24 thereof as will forcibly engage and pinch the rim of the box hole H against the cable C. Operating means such as a screw 26 is carried in the sleeve section 27 and bears the clamp plate 28 down with great force onto the cable C thereby expanding the split connecter sections 25 and 27 in the box hole H simultaneously with the clamping of the cable by the bearing clamp plate 28 and by the rim H of the box hole.

While box wall entrant slots 12 are shown cut into the connecter sleeve by which it secures a firm hold on the box, it is to be understood that other anchorage means may be used for this purpose, as for example a groove or the like in the sleeve will suffice.

The full fashioned bushing ring 13 is integrally formed on either one or both of the sleeve parts, between the two parts in this disclosure, in order that one or both of the sleeves may readily bend and move relatively thereto when assembling the connecter in service position.

A connecter of this type has the advantage of a full fashioned, uncut, circular bushing to protect the insulation on the wires when drawn through the connecter, is very simple in design, comprises a one-piece structure only, and employs a single clamp screw operating means by which the cable is secured in the connecter and by which the connecter is anchored in a box hole all in the same and one operation.

The connecter thus includes a full fashioned bushing at one end and a cable clamp plate at the other end, all parts being unitary in construction. The cable C within the connecter may be gripped between the connecter jaw 16 and operative clamp means comprising plate 15 and screw 20, or the cable may be gripped between the exposed box hole edge H and the clamp plate 28 and/or screw 26. While the connecter member 10—11 is shown in sleeve form, it may assume other forms of construction.

What I claim is:

1. A cable connecter adapted to anchor cable in a box hole comprising, a member adapted to be inserted in a box hole and embrace a cable received into said box hole, a bearing clamp plate comprising a strip of metal integrally formed with and turned back alongside the member and bendable thereon, operating means to force the clamp plate against a cable to grip the cable between the clamp plate and the member, and box hole anchorage means included on the member rendered effective by the operating means by which the connecter is fixed in a box hole.

2. A cable connecter adapted to anchor cable in a box hole comprising, a sleeve adapted to be inserted in a box hole and embrace a cable received thereinto, a bearing clamp plate comprising a strip of metal integrally formed with and turned back alongside the sleeve and bendable thereon, a screw threaded through the sleeve adapted to bear the clamp plate against a cable to grip the cable between the clamp plate and the sleeve, and box, hole anchorage means rendered effective by the screw by which the connecter is fixed in a box hole.

3. A cable connecter adapted to anchor cable in a box hole comprising, a member adapted to be inserted in a box hole and embrace a cable received into said box hole, a bearing clamp plate comprising a narrow strip of metal integrally formed with and turned back alongside the member and bendable thereon, operating means adapted to bear the clamp plate against a cable to grip the cable between the clamp plate and the member, anchorage means cooperating with the operating means by which the connecter is fixed in a box hole, and a struck-up jaw part formed on the member adapted to bite into the cable cooperating with the aforesaid clamp plate to fix the cable within the connecter.

4. A cable connecter adapted to anchor cable in a box hole comprising, a member including an expanding end adapted to fit into a box hole and embrace a cable therein received, expanding connecter anchorage means carried with the member by which it is anchored in a box hole, a jaw included on the expanding end of the member against which the cable lies, and a screw threaded through the member adapted to bear the cable against the jaw and expand the connecter to render effective the anchorage means.

5. A cable connecter adapted to anchor

cable in a box hole comprising, a member adapted to fit into a box hole and embrace a cable therein received, connecter anchorage means carried on the member by which it is fixed in a box hole, a jaw turned up on one end of the member against which the cable lies, a screw carried by the member adapted to bear the cable against the jaw, and a bearing clamp plate made bendably integral with the member turned back alongside the member and disposed between a cable and the screw.

6. A cable connecter adapted to anchor cable in a box hole comprising, a flat sheet metal one piece stamping embodying, a central ring which is fashioned into a cable stop and wire bushing, a number of rectangular sheet parts integral with the central ring and which are fashioned into sleeve sections, connecter anchorage means formed into the plates by which the sleeve sections are adapted to be fixed in a box hole, and a screw mounted in one of the sleeve sections and acting to secure a cable in the connecter and simultaneously operate the aforesaid anchorage means to anchor the sleeve in a box hole.

7. A cable connecter as defined by claim 6 further characterized by a bearing clamp plate forming part of the aforesaid stamping and made on one of the sheet parts, said clamp plate bent back alongside the sleeve sections and disposed between the screw and cable.

8. A cable connecter adapted to anchor cable in a box hole comprising, a flat sheet metal one piece stamping embodying, a central ring which is fashioned into a cable stop and wire bushing, a number of rectangular sheet parts integral with the central ring and which are fashioned into sleeve sections, box wall entrant slots punched in the sheet parts at the ends thereof furthest from the central ring and adapted to embrace the rim of a box hole to anchor the connecter and cable in said box, and a screw mounted in one of the sleeve sections adapted to apply pressure on a cable and expand the wall entrant slots outwardly over the rim of a box hole.

9. A cable connecter adapted to anchor cable in a box hole comprising, a flat sheet metal one piece stamping embodying, a central ring which is fashioned into a cable stop and wire bushing, two rectangular sheet parts integral with the central ring and which are fashioned into sleeve sections, box wall entrant slots punched in the sheet parts at the ends thereof furthest from the central ring and adapted to embrace the rim of a box hole to anchor the connecter and cable in said box, a screw mounted in one of the sleeve sections adapted to apply pressure on a cable and expand the wall entrant slots outwardly over the rim of a box hole, and a jaw on the end of one of the sleeve sections adapted to rest against the cable and thus cooperate with the screw to fasten the cable in the connecter.

10. A cable connecter adapted to anchor cable in a box hole comprising, a flat sheet metal one piece stamping embodying, a central ring which is fashioned into a cable stop and wire bushing, two rectangular sheet parts integral with the central ring and which are fashioned into sleeve sections, box wall entrant slots being punched in the sheet parts at the ends thereof furthest from the central ring and adapted to embrace the rim of a box hole to anchor the cable in said box, a screw mounted in one of the sleeve sections adapted to apply pressure on a cable and expand the wall entrant slots outwardly over the rim of a box hole, a jaw turned up on the end of one of the sleeve sections adapted to rest against the cable and thus cooperate with the screw to fasten the cable in the connecter, and a bearing clamp plate integral with one of the sleeve sections and turned back on the inside thereof between the screw and cable and being flexible at one end to move under pressure of the screw.

11. A cable connecter adapted to anchor itself in a box hole and secure cable in itself comprising, a sheet metal stamping embodying rectangular sheet parts provided with wall entrant slots therein punched, a full circular cable stop and bushing ring integrally formed with the aforesaid sheet parts, said sheet parts fashioned into a split sleeve integrally formed on the aforesaid full circular bushing ring and expansibly movable in relation to the bushing ring by reason of the split construction to cause the wall entrant slots to pass over the rim of the box hole thereby bringing said box hole rim into engagement with the cable, a flexible bearing clamp plate integrally formed on one of the split sleeve sheet parts and flexibly disposed alongside the cable, and a screw carried by one of the sleeve parts bearing against the clamp plate serving to force the cable against the rim of the box hole and serving to simultaneously expand the split sleeve aforesaid.

12. A cable connecter adapted to anchor cable in a box hole comprising, a flat sheet metal one-piece stamping embodying; a ring which is fashioned into a one piece full circular bushing, a rectangular sheet sleeve part integral with the ring bushing and fashioned into a circular part to embrace a cable, connecter anchorage means carried by the sleeve to secure it in a box hole, and operating means carried with the connecter to fix cable in the sleeve.

13. A cable connecter adapted to anchor cable in a box hole comprising, a pair of integrally stamped one piece flat sheet metal parts which are fashioned into a split cable receiving sleeve, a circular stamped piece

disposed in between and integral with the aforesaid pair of sheet parts and forming one end of the connecter, connecter anchorage means formed on the sleeve, said split cable receiving sleeve adapted to have its ends opposite to the circular piece expand to render operative the aforesaid anchorage means, and a screw carried in the connecter to fix a cable in the sleeve.

14. A connecter comprising, a member adapted to be inserted in a box hole, anchorage means carried with the member to engage the edge of a box hole and thus anchor the member to the box, a bearing clamp plate consisting of a strip of metal integrally formed with and turned back alongside the member and bendable thereon and adapted to extend through the box hole, and operating means carried by the member to force the clamp plate against a cable to grip said cable against the box hole edge and reacting to render effective the anchorage means by engaging the latter against the box hole edge.

15. A connecter comprising, a member adapted to fit into a box hole and including anchorage means to engage the box hole edge and thereby secure the connecter to a box, a bushing ring carried at one end of the member, a bearing clamp plate consisting of a strip of metal carried on the other end of the member and flexible thereon and adapted to extend through a box hole toward the bushing ring, and operating means carried on the member to force the clamp plate against a cable and reacting to render effective the anchorage means.

16. A connecter comprising; a connecter member fashioned from sheet metal and including, a bushing ring, plates integral with the bushing ring and disposed in separated relation by said ring which is thereby placed between the plates, said plates being bent at the bushing to place the latter at one end of the connecter member, while the other ends of the plates are movably free, and box hole edge anchorage means carried with and proximate the free ends of the plates; and operating means to grip a cable in the connecter member and reacting to expand the free ends of the plates to render effective the anchorage means to secure the connecter to a box.

In testimony whereof I affix my signature.

JAMES CAMROD LEDBETTER.