Dec. 1, 1970 R. HERES RUIZ 3,544,955

CABLE CONNECTOR

Filed March 28, 1967

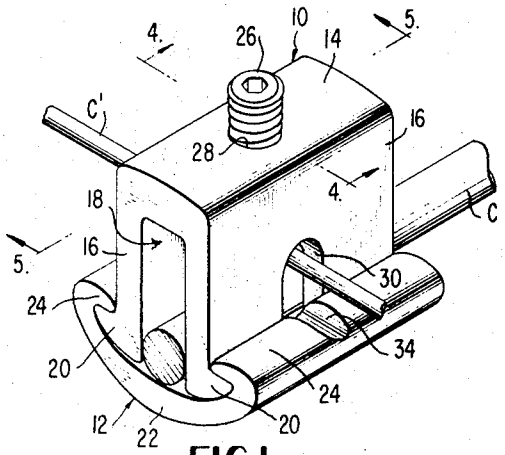


FIG.1

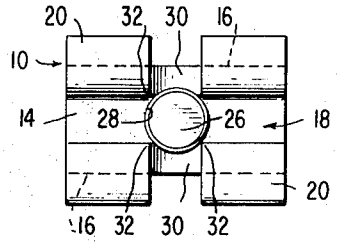


FIG.2

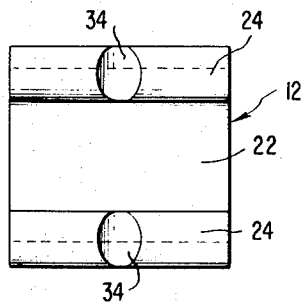
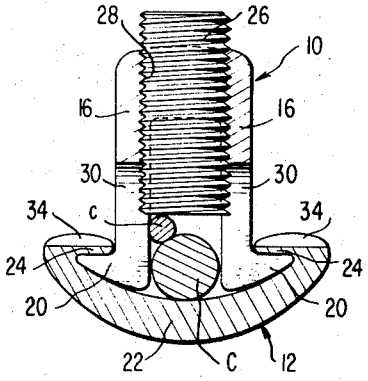


FIG.3

FIG.4



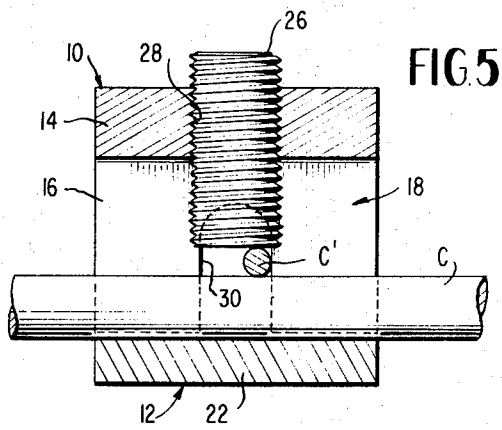


FIG.5

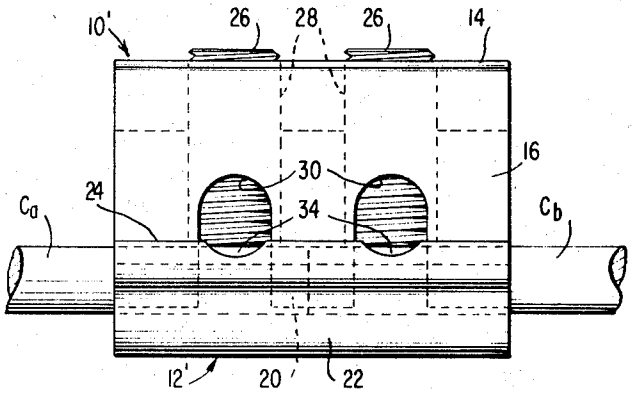


FIG.6

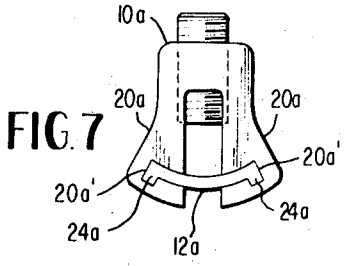


FIG.7

INVENTOR

RAUL HERES RUIZ

BY Irvine & Smiley

ATTORNEYS

United States Patent Office 3,544,955 Patented Dec. 1, 1970

3,544,955

CABLE CONNECTOR

Raúl Heres Ruiz, Calle Cerro Macuiltepec 89, Colonia Campestre Churubusco, Mexico City 21, Mexico

Filed Mar. 28, 1967, Ser. No. 626,590
Int. Cl. H01r 7/08
U.S. Cl. 339—244 6 Claims

ABSTRACT OF THE DISCLOSURE

The electrical connector includes a body portion having a cable receiving channel, a slidably engaged closure portion and a screw threaded into the channel to clamp cables therein and the two portions together. The body may be provided with a transverse passageway to accommodate cross cables.

BACKGROUND OF THE INVENTION

Cable connector clamps of the general type with which the present invention is concerned are well known, for example, see Pat. No. 1,741,804. The prior connectors are capable of accommodating only aligned cables of the same size and approximately the width of the channel in the connector. Moreover, the "in line" connectors are not capable of accommodating cross cables so that special connectors are employed for the latter purpose.

BRIEF SUMMARY OF INVENTION

A connector according to the invention includes a body portion in the form of a U-shaped saddle having outstanding flanges at the free ends of its branches. A clamp screw is threaded through the bight portion into the channel between the branches of the saddle. A closure portion generally in the form of a C-shaped stirrup having inturned flanges, slidably spans the open side of the saddle with the respective flanges interengaged. The diameter of the clamp screw is at least as great as the width of the channel so that cables of diameters less than the width of the channel positively will be clamped by the screw against the stirrup to clamp the saddle, cables and stirrup firmly together.

The saddle may be provided with a transverse passageway through its branches and aligned with said clamp screw. The width of the passageway is not greater than the screw diameter and is completely spanned by the screw. Preferably, the passageway is formed by a channel opening through the open side of the saddle so that the saddle can be fitted over cables and avoid the necessity of threading cables through the device. The connector may be elongated and provided with a plurality of cross channels and a corresponding plurality of clamp screws. The number of such cross channels and screws may be selected according to the requirements of the particular arrangement.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a view in perspective of a connector in accordance with the present invention;

FIG. 2 is a plan view of the open or inner side of the body portion or saddle;

FIG. 3 is a plan view of the open or inner side of the closure portion or stirrup;

FIG. 4 is a transverse cross-sectional view taken on line 4—4 of FIG. 1;

FIG. 5 is a longitudinal cross-sectional view taken on line 5—5 of FIG. 1;

FIG. 6 is a side view in elevation of a modified connector according to the invention, and

FIG. 7 is an end view of another modification of the connector.

DETAILED DESCRIPTION OF INVENTION

Referring now to the drawing in detail, specifically to FIG. 1, a connector in accordance with the present invention comprises a body portion **10** in the form of a U-shaped saddle and a closure portion **12** in the form of a C-shaped stirrup. The saddle **10** includes a bight **14** and two substantially parallel branches **16** extending from said bight and defining a cable receiving channel **18** therebetween. Flanges **20** extend outwardly from the free edges of said branches **16**. The stirrup **12** includes a body **22** that preferably is curved or bowed, and inwardly extending flanges **24** spaced from the body **22** and slidably receiving therebetween the saddle flanges **20**. A clamp screw **26** is provided to clamp one or more cables C within the channel **18**.

The foregoing description is generally characteristic of clamp connectors of the present type, and in which the diameter of the clamp screw is less than the width of the channel so that the screw may be threaded through either part of the connector into the channel. As a consequence such connectors are limited to use with cables whose diameters approximate the width of the channel because smaller diameter cables can slip between the side of the screw and the side wall of the channel, resulting in a poor connection.

In accordance with the present invention, however, as best shown in FIG. 2, the diameter of the screw **26** is at least as great as the width of the channel **18** so that regardless of the size of cable in the channel **18** it will be clamped by the screw. Because of the fact that the screw **26** completely spans the channel **18**, the screw preferably is threaded through an internally threaded bore **28** in the bight **14** of the saddle **10** so that the threads can be extended into the inner walls of the branches **16**, if necessary. Preferably, the threads are very narrow and fine so that they substantially are self locking.

Another feature of the invention resides in providing the saddle with a transverse passageway **30** to accommodate a cross cable C'. While the passageway **30** can be an opening through the branches **16**, preferably it is constituted by a channel opening through the free edges of the branches **16** and flanges **20** so that the saddle can be fitted over crossed cables rather than having to thread the cross cable C' through the device. Preferably, the cross channel **30** is of the same dimensions as the channel **18**, and the channel **30** is transversely aligned with the clamp screw **26** so that the screw can clamp the crossed cables, one against the other.

Thus, the center planes of the channels **18** and **30** intersect at the axis of the screw **26** and the latter spans both channels. As clearly shown in FIG. 2, the diameter of the screw **26** is such as to almost engage the corners **32** of the branches **16** at the channel intersections. By this arrangement, the screw will completely span the channels but the cutting of threads in the branches is avoided.

Due to the thickness of the flanges **20** and **24** their combined thicknesses may be greater than the diameter of the cable C seated against the inner surface of the stirrup **12**, in which event, contact between a cross cable C' and the cable C might not be as firm as desirable. To preclude such a possibility, the stirrup flanges **24** each are provided with aligned cross grooves **34** to accommodate a cross cable C'.

Whereas the connector illustrated in FIGS. 1–3 has only one screw **26** and one cross channel **30**, the saddle **10** and stirrup **12** may be elongated and provided with a plurality of corresponding clamp screws and cross channels in any desired number. As shown in FIG. 6, a saddle **10'** may be provided with a plurality of clamp screws **26** and a corresponding plurality of cross channels **30**, and the stirrup **12'** may be provided with a corresponding plu-

rality of grooves **34** in the flanges **24**. Each corresponding screw **26** and cross channel **30** will have the same relationship as described hereinbefore.

According to a modification of the connector, as shown in FIG. 7, the flanges **20***a* of the saddle **10***a* are formed back upon themselves to define a channel **20***a'* therebetween, and the flanges **24***a* of the stirrup **12***a* are adapted to slidably engage in the channels **20***a'*. In other respects, the connector is as described hereinbefore.

OPERATION AND USE

In the operation and use of the invention, the stirrup **12** is slidably removed from the saddle **10** and the saddle is placed astride the cables to be connected, the stirrup **12** is slidably replaced along the saddle **10** and the clamp screw **26** is threaded inwardly to clamp the cables, stirrup and saddle together. If the cables are of different diameters, the saddle is positioned so that the larger cable is toward the open side of the channel **18** and engages the stirrup. In this manner, the clamp screw will press only on the smaller cable and the larger main cable is not subject to scratching or damage by the screw **26**.

As shown in FIG. 4, the present connector is particularly adapted to connect cables of different diameters ranging from a cable C having a diameter substantially equal to the width of the channel **18** to a cable *c* whose diameter is many times less than that of the cable C. The only limitation is that the diameter of the cable *c* must not be so small that it could fit within the cavity between the side wall of the channel **18** and the transverse inner end surface of the screw **26** when it engages the surface of the cable C. Due to the fact that the screw **26** completely spans the channel, the cables are clamped regardless of size.

The foregoing comments apply equally to cross cables C' due to the fact that the relation of the cross-channels **30** to the screw **26** are the same. The plural clamp connectors have the advantage of accommodating a plurality of cross wires, but with at least two clamp screws **26**, the two in-line cables C*a* and C*b* can be secured in end abutment as shown in FIG. 6.

Although certain specific embodiments of the invention have been shown and described, it is obvious that many modifications thereof are possible.

What is claimed is:

1. In a cable connector, including a U-shaped body portion defining a saddle and presenting a bight and spaced branches defining a cable receiving channel therebetween,

a channel closure portion in the form of a stirrup including a body and flanges on the sides thereof slidably interengaged with said branches, and

a clamp screw threaded through said bight to project into said channel and clamp cables within said channel while securing said portions together,

the improvement comprising the diameter of said screw being greater than the width of said channel and opposed portions of said branches having partial threads therein receiving said screw, whereby said screw will clamp a cable regardless of the size of such cable said saddle branches being provided with aligned openings defining a cross passageway aligned with said screw and of a width substantially the same as the width of said channel whereby the cross passageway is completely spanned by said screw.

2. A connector according to claim **1** wherein

said saddle is provided with a plurality of cross channels spaced longitudinally thereof and a corresponding plurality of clamp screws.

3. A connector according to claim **1** wherein the free ends of said branches define inwardly opening channels and said stirrup flanges slidably engage in said last mentioned channels.

4. A connector according to claim **1** wherein the free ends of said branches are provided with outwardly extending flanges and said stirrup flanges are inwardly directed to nest said outwardly extending flanges.

5. A cable connector including

a body portion constituted by a U-shaped saddle including a bight having spaced branches defining a cable receiving channel therebetween and outwardly extending flanges on the free edges of said branches,

a channel closure portion in the form of a stirrup including a body and flanges on the sides thereof and slidably interengaged with said stirrup flanges,

a clamp screw threaded through one of said portions into said channel to clamp cables within said channel and secure said portions together,

the improvement comprising:

the diameter of said screw being at least as great as the width of said channel and said screw completely spanning said channel, whereby said screw will clamp a cable regardless of the size of such cable,

said screw being threaded through the bight of said saddle,

said saddle branches being provided with aligned openings defining a cross passageway aligned with said screw and completely spanned thereby,

said openings being constituted by cross channels opening through the free edges of said branches and flanges thereon, said cross channels being of substantially the same dimensions as said main channel between said branches, the center plane of said main and cross channels intersecting at the axis of said screw, said stirrup flanges overlying said saddle flanges and being provided with aligned grooves registering with said cross channel.

6. A connector according to claim **5**, wherein

said saddle is provided with a plurality of cross channels spaced longitudinally thereof and a corresponding plurality of clamp screws, and said stirrup flanges are provided with a plurality of cross grooves corresponding to said cross channels.

References Cited

UNITED STATES PATENTS

2,429,448	10/1947	Bakke	24—125(N)
3,144,293	8/1964	De Smidt	339—244
1,648,887	11/1927	Armen	339—272(U)
1,741,804	12/1929	Zilliox	339—272(U)X
2,196,383	4/1940	Buchanan	339—272(U)X
2,551,636	5/1951	Ratigan	339—272(U)X
2,713,672	7/1955	Allen	339—272(U)X
2,732,535	1/1956	Hammerly	339—272(U)
3,335,399	8/1967	Rys	339—272(U)X
3,339,174	8/1967	Walter et al.	339—272X

FOREIGN PATENTS

1,012,800	4/1952	France	339—272(U)
932,580	7/1963	Great Britain	339—272(U)
473,771	8/1952	Italy	339—272(U)

MARVIN A. CHAMPION, Primary Examiner

J. H. McGLYNN, Assistant Examiner

U.S. Cl. X.R.

24—135; 339—249, 272