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A. VAN RYAN

2,432,635

CLAMP TYPE CONNECTOR

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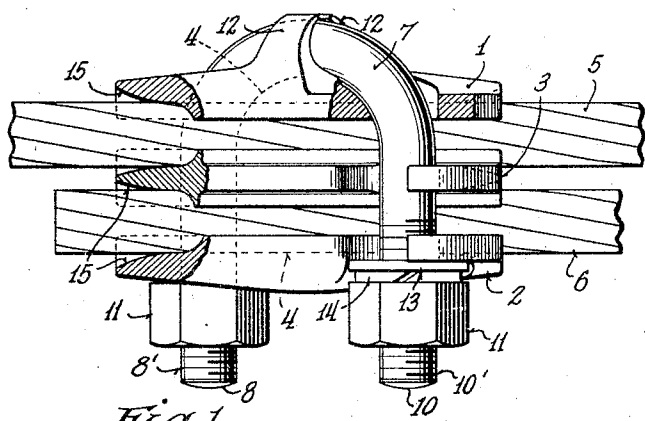


Fig. 1

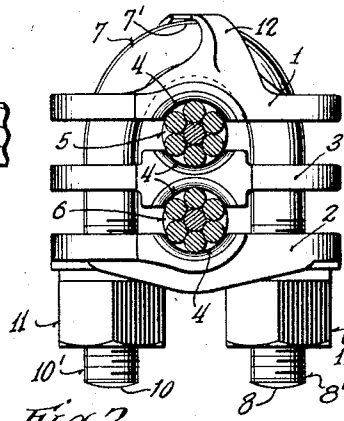


Fig. 2

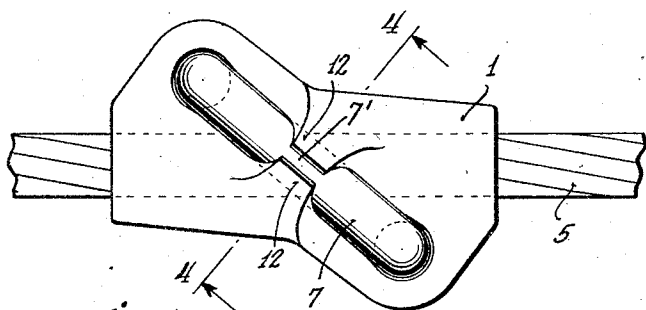


Fig. 3

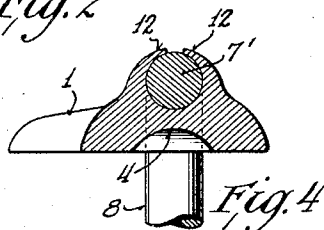


Fig. 4

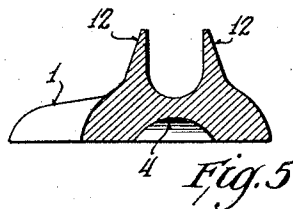


Fig. 5

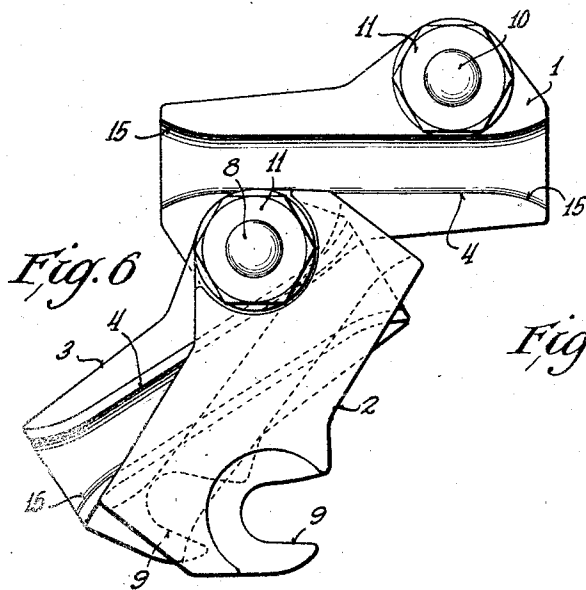
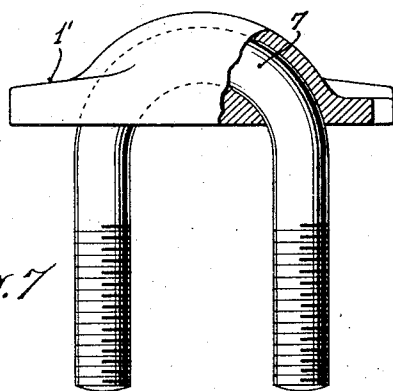


Fig. 6

Fig. 7



INVENTOR.
ANTHONY VAN RYAN

BY

Arthur P. T. Toole
ATTORNEY.

UNITED STATES PATENT OFFICE

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CLAMP TYPE CONNECTOR

Anthony Van Ryan, South Milwaukee, Wis., assignor to Kyle Corporation, South Milwaukee, Wis., a corporation of Wisconsin

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1 Claim. (Cl. 24—135)

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This invention relates to clamp type connectors.

Objects of this invention are to provide a clamp type connector which is adapted to connect conductors, guy wires, or other members of this type, and which is so made that a single U-bolt is employed and yet is associated with the elements of the connector so that the stresses from the U-bolt are not localized but are distributed throughout substantially the entire body of the connector.

In greater detail objects of this invention are to provide a connector having outer members and an intermediate member associated with a slantingly arranged U-bolt so that the ends of the U-bolt are spaced laterally and longitudinally of the connector, and in which the U-bolt is permanently attached to one of the outer members of the connector and has one arm pivotally related to the other outer member and to the intermediate member, such other outer member and the intermediate member having notches for the reception of the other arm of the U-bolt, thus permitting the positioning of the U-bolt on the conductors without detaching any portion of the connector from the other portions thereof.

Further objects are to provide a clamp type connector which is of simple construction and which may be easily made and may be easily applied to or removed from the conductors.

Embodiments of the invention are shown in the accompanying drawings, in which:

Figure 1 is a side elevation of the connector, with parts broken away and parts in section.

Figure 2 is an end view of the connector.

Figure 3 is a top view of the connector.

Figure 4 is a sectional view on the line 4—4 of Figure 3.

Figure 5 is a view corresponding to Figure 4 showing a portion of the connector before the ears have been bent over around the U-bolt.

Figure 6 is a view from the underside of Figure 1 showing the connector as it appears when opened out prior to positioning over the conductors.

Figure 7 is a view of a portion of a modified form of connector with a part in section.

Referring to the form of the invention shown in Figures 1 through 6, it will be seen that the connector comprises three main members—a pair of outer members 1 and 2 and an intermediate member 3. These members are each provided with channels 4 to receive the conductors or cables 5 and 6. These conductors or cables may be of any type. The outer members 1 and 2 receive between them the conductors 5 and 6 and the intermediate member 3 is positioned between the conductors, as shown in Figures 1 and 2.

A U-bolt 7 has one of its legs 8 pivotally related to the intermediate member 3 and the outer member 2. This leg 8 passes through holes in the

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members 2 and 3 so that such members are free to pivot about such leg. The other ends of the members 2 and 3 are provided with notches indicated at 9 which are adapted to receive the other leg 10 of the U-bolt. The ends of the legs 8 and 10 of the U-bolt are threaded and these threaded end portions 8' and 10' receive the clamping nuts 11.

The legs of the U-bolt pass through holes in the outer member 1 and the U-bolt is permanently attached to the member 1. This is accomplished by bending the ears 12, which are integral with the member 1, over the transverse portion 7' of the U-bolt 7. The initial position of the ears is shown in Figure 5 and the material of which the member 1 is composed is sufficiently ductile to allow the ears to be bent over, as shown in Figure 4.

An ordinary washer and a lock washer indicated at 13 and 14 respectively are positioned between each nut 11 and the outer member 2, as indicated in Figure 1.

The outer ends of the channels 4 formed in the members 1, 2 and 3 are flared as indicated at 15 in Figure 1 so that when the cable bends due to swaying or other causes, it will not be cut by the connector as a gradually rounded or flaring terminal portion is provided for each of the channels 4 in the three main members of the connector.

The conductors may be made of relatively soft material, such as stranded aluminum cable or of stranded copper or other material. The connector is made relatively elongated so as to have an extensive bearing area on the conductors so that the pressure per unit area will not be high enough to mar or damage the connectors. However, though the connector is relatively elongated, a single U-bolt is employed and serves adequately to distribute the pressure or stresses imparted to the connector without localizing such stresses at any restricted zone. This is accomplished by placing the U-bolt in a slanting manner with respect to the channels 4 and the cables or conductors 5 and 6, as shown in Figures 1 and 3. One leg of the U-bolt is positioned laterally of the other leg and in a longitudinally advanced position with respect to the other leg. In other words, the U-bolt is so positioned, as shown most clearly in Figure 3, that it exerts its pressure substantially throughout the entire effective zone of the members 1, 2 and 3 and thus, though a single U-bolt is employed, the pressure is not localized but is relatively evenly distributed throughout the entire body of the connector.

Another important feature of this invention is the facility with which the connector may be applied to the conductors. It is not necessary to remove the nuts 11 from the lugs 8 and 10 of the U-bolt. The U-bolt is permanently attached to the member 1, as described hereinabove, and the

leg 8 of the U-bolt is permanently pivotally related to the members 2 and 3 as it passes through holes through such members. When the nuts 11 are loosened without removing them from the legs 8 and 10 of the U-bolt, the members 2 and 3 are swung about the leg 3, as shown in Figure 6, and the connector is placed over the conductor 5 and thereafter the intermediate member 3 is swung back into its normal position and the notch 9 receives the leg 10 of the U-bolt. Thereafter the second conductor 6 is positioned and the outer member 2 is then swung back to its initial position, the notch 9 therein receiving the leg 10 of the U-bolt. The nuts 11 are then tightened to firmly clamp the connector in place.

It is apparent that none of the parts will become detached or lost in the ordinary manipulation of the connector either in applying it to the conductors or removing it therefrom.

It is to be understood that the members 1, 2 and 3 of the connector may be of any suitable material, such as aluminum, copper, bronze or alloys thereof, and they may be die cast or otherwise formed as desired. The U-bolt 7 is preferably a galvanized steel bolt.

It is obvious that other means may be employed for permanently attaching the U-bolt 7 to one of the outermost members. For instance, instead of forming the ears 12 and subsequently bending them over as previously described, the outermost member 1 of Figure 7 corresponding to the member 1 of Figure 1 may be die cast about the bolt 7 and may either partially or wholly enclose the transverse portion of the bolt 7, the latter form being shown in Figure 7.

While the connector has been described throughout as designed to connect conductors, it is to be distinctly understood that the connector could be used not only for the primary purpose of electrically connecting conductors but could be used for the mechanical connection of members such as the adjacent portions of guy wires, for instance, and therefore the expression "conductors" is not to be interpreted as a limiting term.

It will be seen that a novel form of connector has been provided by this invention in which a single U-bolt is employed for clamping the several parts of the connector together and is so associated with the elements of the connector that the stresses produced by the U-bolt are distributed throughout a very substantial portion of the elements making up the connector.

It is to be noted that the slanting arrangement of the U-bolt produces an effect which is equivalent to having two widely spaced U-bolts at opposite ends of the connector for it will be seen that the slanting arrangement provides clamping means at each end of the connector at longitudinally, widely spaced points in the form of nuts screwed on the threaded ends of the U-bolt and also provides an extended bearing member, namely, the transverse portion of the U-bolt. However, only two nuts are employed and only a single U-bolt is used.

It will be seen further that by having the U-bolt arranged in the slanting manner hereinabove set forth, the two ends of the U-bolt are spaced not only laterally of the connector but also longitudinally of the connector.

The connector has the additional advantage in that it prevents the inadvertent loss of parts of the connector for during the positioning of the

connector on the conductors it is not necessary to remove any part of the connector as all of the parts of the connector stay attached to each other during this operation and the intermediate and one of the outer members are merely pivotally moved or rocked about one arm of the U-bolt until the other end of such members engages the other arm of the U-bolt without requiring detaching of any part of the connector during this operation.

It will be seen further that the connector is of very simple construction and may be easily produced and easily applied.

While the invention has been described as embodying a connector having two outer members and a single intermediate member, it is, of course, within the province of this invention to employ two or more intermediate members depending on the number of conductors it is desired to connect. While it is preferable to employ an intermediate member as described in detail, nevertheless it is within the province of the invention to dispense with the intermediate member and use merely the two outer members, thus causing the cables or conductors to bind one against the other, though this is not the preferred construction.

Although this invention has been described in considerable detail, it is to be understood that such description is intended as illustrative rather than limiting, as the invention may be variously embodied and is to be interpreted as claimed.

I claim:

A clamp type connector for connecting a pair of conductors, said connector comprising three members consisting of a pair of outer members adapted to receive the conductors between them and an intermediate member adapted to be positioned between said conductors, each of said outer members having a groove on its inner side and said intermediate member having grooves on opposite sides, a U-bolt having its transverse portion bearing against one of said outer members, such outer member having holes adjacent opposite ends and on opposite sides and said U-bolt having its legs projecting through the holes in such outer member, the other outer member and the intermediate member having a hole for the reception of one of the legs of said U-bolt to provide pivotal mounting of the said other outer member and said intermediate member on the said leg of the U-bolt and said other outer member and said intermediate member each having a notch for the detachable reception of the other leg of said U-bolt, said U-bolt being arranged in a slanting manner with reference to said members with the legs of the U-bolt spaced both laterally and longitudinally of said members and straddling said grooves and having threaded ends, and nuts screwed on said threaded ends.

ANTHONY VAN RYAN.

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