Jan. 7, 1958 T. Q. McCRAY 2,819,455

BATTERY CABLE CONNECTOR

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Fig 1.

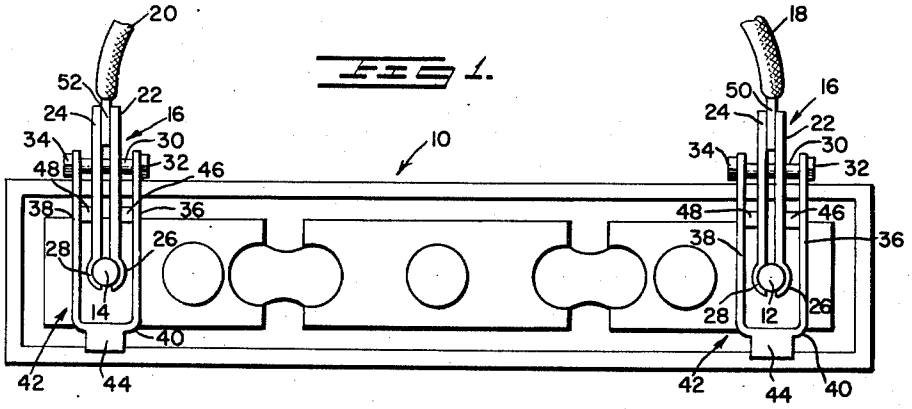


Fig 2.

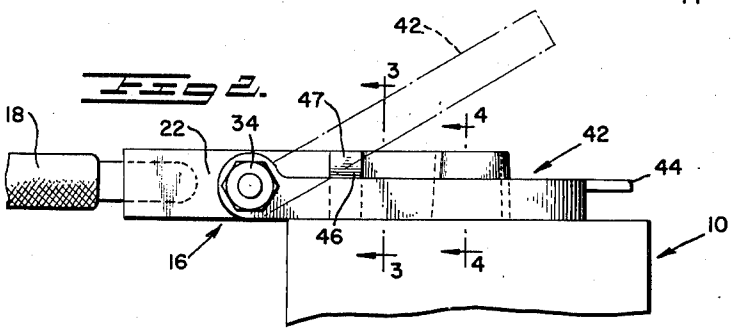


Fig 3.

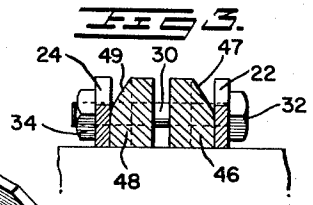


Fig 4.

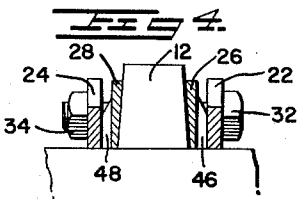


Fig 5.

INVENTOR
THOMAS QUENTIN Mc CRAY

BY Gustave Miller.

ATTORNEY

United States Patent Office

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BATTERY CABLE CONNECTOR

Thomas Quentin McCray, Tucson, Ariz.

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8 Claims. (Cl. 339—225)

This invention relates to a connector assembly for a battery cable and the like, and it particularly relates to a connector of the clamp type which, by a simple manipulation, clamps both the battery terminal post and the cable.

There are various types of battery connectors which have been used heretofore and are still being used; however, they are all subjected to various disadvantages. One of the primary disadvantages of these prior types of connectors is the fact that they tend to damage the battery. For example, many of these devices include the use of a bolt or screw connection. These bolts or screws tend to corrode and are, therefore, very difficult to loosen so as to be able to remove the connector. In order to loosen them, it is necessary to twist and pry and this damages both the cable and battery post.

Other types use teeth which either bite into the cable or into the post itself. These teeth weaken the cables and posts and cause them to break. This is particularly serious with regard to the posts, because a broken post damages the entire battery. Often, these connectors could not be loosened in time to disconnect the cable from the battery and prevent fire. Many of these prior devices also required excessive manipulation in order to first connect the cable and then the battery post to the connector.

It is, therefore, one object of the present invention to provide a connector assembly for battery cables and the like which may be quickly and easily manipulated to connect and disconnect the cable from the battery terminal post.

Another object of the present invention is to provide a connector assembly for battery cables and the like which will not be difficult to loosen because of the effects of corrosion.

Another object of the present invention is to provide a connector assembly for battery cables and the like which will not injure the cable or the battery terminal post when it is attached thereto.

Other objects of the present invention are to provide an improved connector assembly, of the character described, that is easily and economically produced, which is sturdy in construction and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a top plan view showing a battery with the terminal posts thereof connected to cables by means of connectors embodying the present invention.

Fig. 2 is an enlarged, detailed, fragmentary side elevational view of the battery and of the connector of Fig. 1 in position.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2.

Fig. 5 is a perspective view of the connector shown in the previous figures wherein the connector assembly is in open position.

Referring now in greater detail to the drawing wherein

similar reference characters refer to similar parts, there is shown a battery, generally designated 10, having terminal posts 12 and 14. Connected to each of these posts is a connector assembly generally designated 16. These connectors 16 attach their respective posts to a cable, as at 18 and 20.

The connector assembly 16 comprises a pair of elongated plate 22 and 24, each of which is generally straight along its major length but is provided with a laterally offset, concavely-curved clamp portion at one end, as at 26 and 28 respectively. The clamp portions 26 and 28 are generally similar in size and shape but are complementary to each other, whereby they extend laterally in opposite directions.

The plates 22 and 24 are aligned in general parallelism to each other and are connected by a transverse bolt 30. This bolt has a head 32 at one end and a hexagonal nut 34 at the other end. By this construction, the nut may be removed and the bolt withdrawn to disassemble the device, when desired. The plates are loosely held by the bolt 30 so that in the open position they have substantial free play relative to each other.

Also mounted on the bolt 30, externally of the plates 22 and 24, are a pair of pivotal arms 36 and 38 connected by an integral bridge portion 40. These arms and the bridge portion combine to form a generally U-shaped yoke, generally designated at 42. A flat extension 44 extends out from the bridge portion 40 to form a handle.

On the external surface of each plate 22 and 24 there is provided a rib, as at 46 and 48 respectively. These ribs are provided with inclined cam portions, as at 47 and 49 and are positioned intermediate the ends of their respective plates, spaced from the bolt 30. They are adapted to serve as friction engagement members for the arms of the yoke.

In operation, when the cable is to be connected to the terminal post, the terminal portion of the cable, as indicated at 50 and 52, is inserted between the straight ends of the plates 22 and 24. The connector assembly is then attached to the terminal post by engaging each offset clamp portion 26 and 28 around the post. The yoke 42 is then brought down from the dotted line position, shown in Fig. 2, to the full line position. As the yoke moves to this full line position, the arms of the yoke move over the respective inclined cam portions 47 and 49 of the ribs 46 and 48 and then down over the wide bottom portions of the ribs, so that the ribs act as frictional engagement members for the yoke. This causes the plates 22 and 24 to be pressed toward each other, thereby locking the cable terminal and the terminal post within the connector.

When it is desired to remove the cable from the battery, it is merely neecssary to grasp the handle 44 and pull up on the yoke, thereby immediately removing the pressure from the sides of the plates and releasing the battery terminal post and cable.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A connector assembly comprising a pair of elongated plates, each plate having clamping portions, said clamping portions being at both corresponding ends of their respective plates, a generally U-shaped yoke having its arms pivotally connected to said plates by a transverse bolt loosely mounted therethrough at a position intermediate the ends of said plates, and a camming rib extending laterally out from the outer surface of each plate, said ribs being longitudinally spaced from the pivotal connections of said yoke and adapted to be frictionally en-

gaged by the arms of said yoke upon pivotal movement of said yoke into a position wherein the arms of said yoke are generally parallel with said plates.

2. The connector assembly of claim 1 wherein said ribs each have an inclined cam portion and a relatively wider portion.

3. The connector assembly of claim 1 wherein said yoke is provided with a handle.

4. The connector assembly of claim 1 wherein said clamping portions comprise concave members integral with their corresponding plates.

5. A connector assembly comprising a pair of generally parallel, elongated plates transversely connected by a bolt, said bolt being held in position by a nut, said plates being loosely held by said bolt, a yoke comprising a pair of arms, each arm being pivotally mounted on said bolt outwardly of a corresponding plate, there being a bridge member connecting said arms, and a camming rib positioned on the outer surface of each plate, each rib being spaced from the pivotal mounting of said arms on said bolt, longitudinally of said plates.

6. The connector assembly of claim 5 wherein said plates have complementary clamping portions at corresponding ends and other complementary clamping portions at the other ends.

7. A connector assembly comprising a pair of elongated plates having cooperating clamping portions at both ends thereof, and being loosely connected by transverse connecting means, a yoke pivotally mounted on said transverse connecting means outwardly of said plates, and camming ribs extending laterally from the outer surface of each plate in a position to be frictionally engaged by said

yoke upon pivotal movement of said yoke into a predetermined position relative to said plates.

8. A battery cable and post connector assembly comprising a pair of generally parallel elongated plates having bolt receiving apertures spaced from but nearer to one of the ends of each plate than to the other, a bolt loosely extending through said apertures, a nut for securing said bolt in position, a U-shaped yoke comprising a pair of arms and connecting bridge pivotally mounted at the ends of its arms on said bolt outwardly of a corresponding plate, a camming rib on the outer surface of each plate, each rib being spaced from the pivotal mounting of said yoke arms on said bolt longitudinally of said plates, the non-apertured ends of said plates each terminating in clamping portions complementary to a battery post, the other ends of said plates terminating in clamping portions complementary to a battery cable end, whereby a battery cable may be connected to a battery post by placing the clamping portions complementary to a battery post on opposite sides of a battery post, and by placing the other end clamping portions on opposite sides of a cable end, and then camming the yoke downwardly over the camming ribs to firmly secure the post and the battery in good electrical and mechanical connection.

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