May 12, 1936. H. EULBERG 2,040,250

BATTERY TERMINAL CLAMP

Filed April 18, 1932

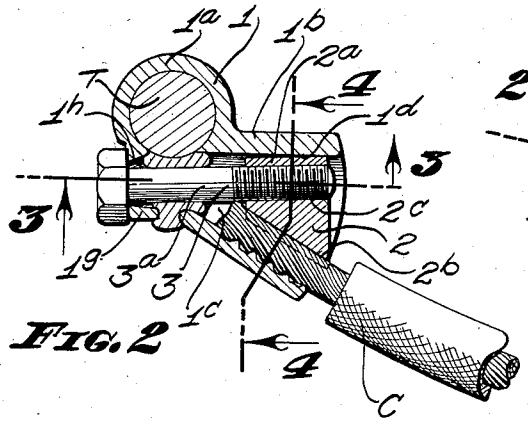


FIG. 2

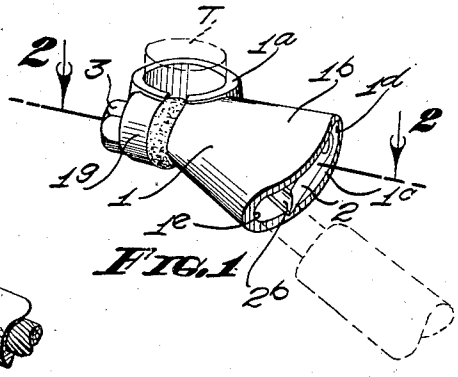


FIG. 1

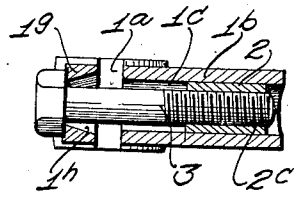


FIG. 3

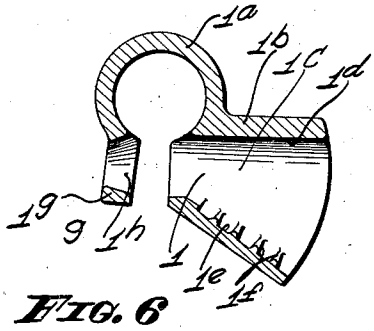


FIG. 6

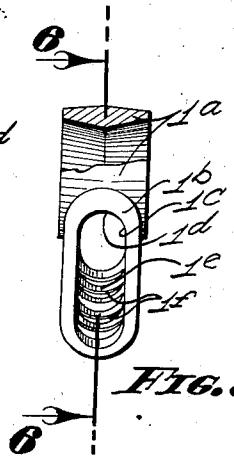


FIG. 5

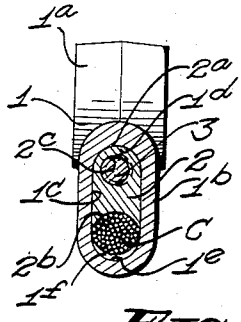


FIG. 4

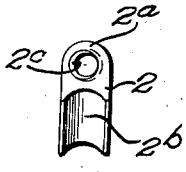


FIG. 7

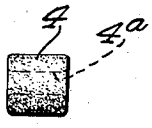


FIG. 8

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BATTERY TERMINAL CLAMP

Henry Eulberg, Ocean Beach, Calif., assignor to Louise D. Eulberg

Application April 18, 1932, Serial No. 605,853

11 Claims. (Cl. 173—259)

My invention relates to battery terminal clamps, and the objects of my invention are:

First, to provide a clamp of this class which not only firmly clamps the terminals of the battery but also at the same time secures itself rigidly and positively to the end of a cable;

Second, to provide a clamp of this class which eliminates the need of a soldered, brazed or welded joint between the battery cable and the terminal clamp;

Third, to provide a clamp of this class which incorporates a novel wedge member adapted to engage the end of a cable and provide adequate contacting surface;

Fourth, to provide a clamp of this class which requires only one tool in order to secure or remove the clamp, thus enabling one to reach into awkward places and with one hand remove the clamp;

Fifth, to provide a clamp of this class which incorporates a novel means adapted to prevent corrosion around the securing bolt so that said bolt may be tightened or withdrawn even though the clamp has been in use for a considerable period of time;

Sixth, to provide a clamp of this class in which the tendency to corrode is reduced to a minimum, which may be placed either side up upon the battery terminal, and fits either the positive or negative terminal of a battery;

Seventh, to provide a double acting battery terminal clamp adapted to simultaneously clamp both the battery terminal and a cable, wherein the securing bolt may be released sufficiently to allow removal of the clamp from the binding post or terminal post of the battery without necessitating a disconnection between the clamp and the cable, and

Eighth, to provide on the whole a novelly constructed battery terminal clamp which is durable, efficient in its action, and which will not readily deteriorate or get out of order.

With these and other objects in view as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawing and to the characters of reference thereon which form a part of this application, in which:

Figure 1 is a perspective view of my novel battery terminal clamp showing the cable and battery terminal or post by dotted lines; Fig. 2 is a sectional view substantially through 2—2 of Fig. 1, with parts and portions shown in elevation and with the battery terminal post and cable shown in solid lines; Fig. 3 is a sectional view through 3—3 of Fig. 2 with parts and portions shown in elevation; Fig. 4 is a sectional view through 4—4 of Fig. 2; Fig. 5 is an end elevational view of the clamp member with a portion thereof broken away and in section; Fig. 6 is a sectional view of the clamp member taken through 6—6 of Fig. 5; Fig. 7 is an end elevational view of the wedge member, and Fig. 8 is an elevational view of the corrosion preventing packing.

Similar characters of reference refer to similar parts and portions throughout the several views of the drawing.

Clamp member 1, wedge member 2, bolt 3, and packing member 4, constitute the principal parts and portions of my novel battery terminal clamp.

The clamp member 1 comprises an open loop portion 1*a*. One extremity of the loop portion is provided with an integral hollow arm portion 1*b* which extends laterally therefrom, that is at right angles to the axis of the loop portion 1*a*. The forementioned extremity of the loop 1*a* which forms the secured end of the arm 1*b* extends radially outwardly or substantially so from the normal surface of the loop 1*a*. The arm 1*b* diverges from this end so that its extremity is enlarged in the plane of the loop 1*a*. The opening, designated 1*c*, formed in the arm 1*b* is provided with diverging side walls 1*d* and 1*e*, the side wall 1*d* extending at substantially right angles to the open or slitted portion of the loop 1*a*. The upper and lower walls of the opening 1*c* are parallel, as shown best in Figs. 4 and 5. The forementioned side walls 1*d* and 1*e* are preferably rounded and the side wall 1*e* is provided with a plurality of transverse ridges 1*f*.

The remaining end 1*g* of the loop 1*a* extends approximately radially. The end 1*g* is provided with a hole 1*h*, the side walls of which diverge slightly towards the inner side of the end 1*g*, that is towards the adjacent or inner end of the arm 1*b*. The axis of the hole 1*h* is in approximate alinement with the center of curvature of the side wall 1*d* of the opening 1*c*.

The annular opening formed by the loop 1*a* is adapted to fit over a battery terminal T, as shown in Figs. 1 and 2. In order that the loop may be fitted either side first the walls of its opening diverge towards the center of the loop, as shown in Fig. 5.

The opening 1*c* is adapted to receive a wedge member 2. The side walls of the wedge member 2 are flat so as to fit loosely but snugly between

the upper and lower walls of the opening 1c. The wedge member when viewed from one of its sides is substantially trapezoidal in form. One edge, designated 2a, is rounded and is adapted to fit adjacent the side wall 1d of the opening. The opposite edge forms an acute angle and is provided with a concave surface, designated 2b, which approximately complements the curvature of the side wall 1e of the opening. The concave edge 2b is substantially parallel with the wall 1e when the edge 2a is adjacent the wall 1d, as shown best in Fig. 2. The wedge 2 is provided with a threaded bore 2c therethrough extending from its smaller or inner end to its larger or outer end in parallel disposed adjacent relation with the edge 2a.

A bolt 3 is provided which includes a shank portion 3a threaded at its extremity, and a head 3b. The bolt 3 extends through the hole 1h and into the opening 1c. The threaded end of the shank 3a is adapted to screw into the threaded bore 2c. It will be noted that the shank of the bolt fits loosely in the hole 1h as well as the smaller end of the opening 1c.

Before inserting the bolt a packing member 4 composed of felt or other compressible material and normally having the cylindrical form shown in Fig. 8, is wedged in the slit formed between the extremities of the loop 1a. The bolt is then thrust through the opening, designated 4a, provided in the packing member.

The wall 1e of the opening 1c which is corrugated by reason of the ridges 1f, and the concave, sloping side or edge 2b of the wedge 2 together form clamping surfaces which are adapted to engage opposite sides of a cable C such as the conventional cable used to connect an automobile battery with other portions of the automobile. As the bolt 3 draws inwardly upon the wedge 2 the cable C is tightly secured so that it cannot fall out. The ample contacting surfaces provided between the cable and the terminal clamp insures positive electrical connection between the clamp and cable. The loop 1a is sufficiently stiff to enable the bolt 3 to be tightened until the cable is secured sufficiently to permit handling of the cable and terminal clamp as a unit while installing them. When the clamp is positioned on the battery terminal and the bolt is further tightened a particularly rigid connection between the clamp and the cable is assured. During the clamping action the packing member 4 wedges into the space allowed between the bolt and the holes or openings through which it extends. By applying a suitable lubricant to the packing member a bolt is maintained in a condition which permits its ready removal when desired. In fact this is the case even though no lubricant or the like is applied to the packing member by reason of the fact that the packing member is located at the place where corrosion usually occurs and inasmuch as the packing member fills this space, obviously corrosion cannot take place, and hence cannot bind the bolt.

Though I have shown and described a particular construction, combination and arrangement of parts and portions, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A battery terminal clamp comprising, a battery terminal receiving loop member, a bolt and a separate wedge shaped nut for constricting said loop member, and a cable engaging and clamping means including a first clamp element formed by one side of said nut, and a second clamp element integral with said loop member, said loop member being of sufficient strength to withstand a predetermined constricting force whereby said clamping means secures said cable before said loop member is constricted.

2. A battery terminal clamp comprising, a battery terminal receiving loop member, a bolt and a separate wedge-shaped nut for constructing said loop member, a cable clamping means including a first clamp element formed by one side of said nut, and a second clamp element integral with said loop member conforming to the side of said nut, said loop member loosely fitting the shank of said bolt, and a compressible packing member formed of non-metallic material disposed in the space between said loop member and said shank.

3. A battery terminal clamp comprising, a battery terminal receiving loop member, a bolt and a separate wedge shaped nut for constricting said loop member, and a cable clamping means including a first clamp element formed by a side of said nut, and a second clamp element integral with said loop member conforming to the side of said nut, said loop member being of sufficient strength to withstand a predetermined constricting force whereby said clamping means secures said cable before said loop member is constricted, said loop member loosely fitting the shank of said bolt, and a compressible packing member formed of non-metallic material disposed in the space between the loop member and said shank.

4. A battery terminal clamp comprising, a slitted loop member shaped to fit a battery terminal, a hollow arm extending from an extremity of said loop member, the opening therein diverging from said loop member, an apertured lug at the other extremity of said loop member, a bolt extending through said lug into said hollow arm, a tapered wedge member slidable in said hollow arm and forming a nut for said bolt, one side of said wedge member conforming with a wall of said hollow arm to form a cable clamping means which upon tightening of said bolt causes a clamping action upon a cable end disposed in said hollow arm as well as constriction of said loop member.

5. A battery terminal clamp comprising, a slitted loop member shaped to fit a battery terminal, a hollow arm extending from an extremity of said loop member, the opening therein diverging from said loop member, an apertured lug at the other extremity of said loop member, a bolt extending through said lug into said hollow arm, a tapered wedge member slidable in said hollow arm and forming a nut for said bolt, one side of said wedge member conforming with a wall of said hollow arm to form a cable clamping means which upon tightening of said bolt causes a clamping action upon a cable and disposed in said hollow arm as well as constriction of said loop member, said loop member being of sufficient strength to withstand a predetermined constricting force whereby said clamping means secures said cable before said loop member is constricted.

6. A battery terminal clamp comprising, a slitted loop member shaped to fit a battery terminal, a hollow arm extending from an extremity of said loop member, the opening therein diverging

from said loop member, an apertured lug at the other extremity of said loop member, a bolt extending through said lug into said hollow arm, a tapered wedge member slidable in said hollow arm and forming a nut for said bolt, one side of said wedge member conforming with a wall of said hollow arm to form a cable clamping means which upon tightening of said bolt causes a clamping action upon a cable end disposed in said hollow arm as well as constriction of said loop member, said lug and hollow arm loosely fitting said bolt shank thereby forming a space therearound, and a compressible, non-metallic packing member disposed in said space.

7. A battery terminal clamp comprising, a slitted loop member shaped to fit a battery terminal, a hollow arm extending from an extremity of said loop member, the opening therein diverging from said loop member, an apertured lug at the other extremity of said loop member, a bolt extending through said lug into said hollow arm, a tapered wedge member slidable in said hollow arm and forming a nut for said bolt, one side of said wedge member conforming with a wall of said hollow arm to form a cable clamping means which upon tightening of said bolt causes a clamping action upon a cable end disposed in said hollow arm as well as constriction of said loop member, said loop member being of sufficient strength to withstand a predetermined constricting force whereby said clamping means secures said cable before said loop member is constricted, said lug and hollow arm loosely fitting said bolt shank thereby forming a space therearound, and a compressible, non-metallic packing member disposed in said space.

8. A split clamp member to fit on a support, and combined biting and constricting means carried by the clamp member and having a head, said member having a socket sufficiently oversized to simultaneously contain the head and any one of a variety of sizes of cable ends.

9. A split clamp member to fit on a support, and combined biting and constricting means carried by the clamp member and having a head with a concavity along one side, said member having a socket sufficiently oversized to simultaneously contain the head and any one of a variety of sizes of cable ends a portion of which occupies the concavity.

10. A split clamp member to fit on a support, and combined biting and constricting means carried by the clamp member and having a head with a concavity along one side, said member having a socket which is rounded along at least one extremity to confront the concavity, said socket being sufficiently oversized to simultaneously contain the head and any one of a variety of sizes of cable ends between the concavity and rounded extremity.

11. A split clamp member having an opening to fit on a support, and combined biting and constricting means carried by the clamp means and having a head, said member having a socket isolated from the opening and sufficiently oversized to simultaneously contain the head and a cable end.

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