

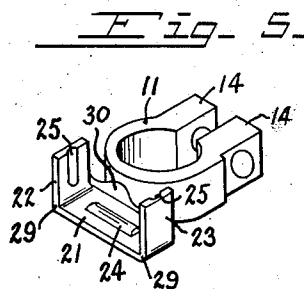
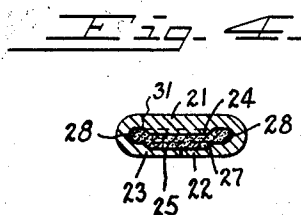
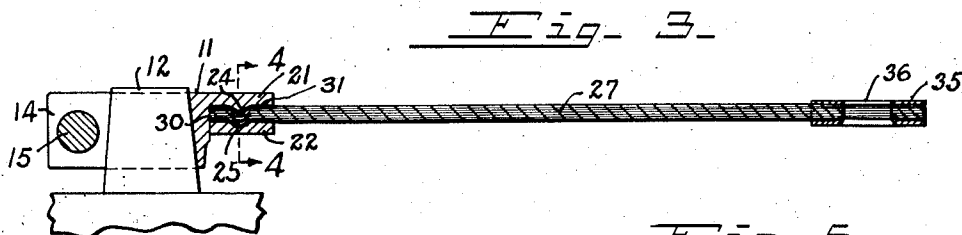
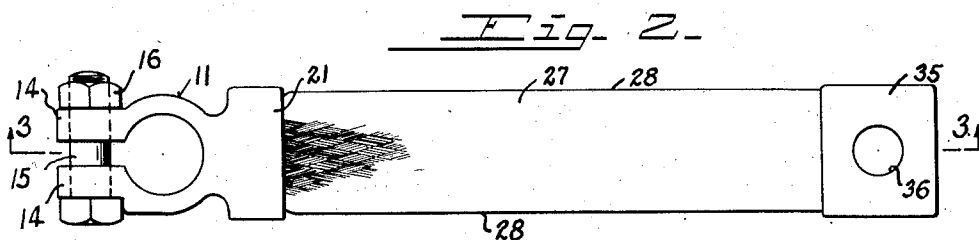
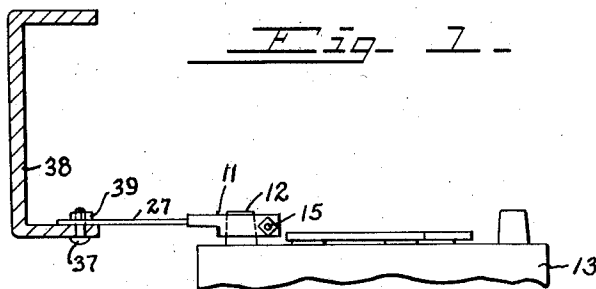
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H. C. TERRELL ET AL

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BATTERY TERMINAL CONNECTION

Filed July 30, 1928



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UNITED STATES PATENT OFFICE

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BATTERY-TERMINAL CONNECTION

Application filed July 30, 1928. Serial No. 296,233.

Our invention relates to battery terminal connections and is exemplified as a terminal connection of this character employed for grounding the battery, but is applicable in other relations. It is a desideratum in connections of this character that the connections shall be firm and shall be of maximum current carrying capacity for preventing loss in current transmission and insuring that all parts of the electric conductor shall be utilized in such transmission.

It is the object of our invention to provide a new and improved connection of this character; and, further, to provide such connection in compact manner and so that looseness in the connection shall be avoided.

The invention will be further readily understood from the following description and claims, and from the drawings, in which latter:

Fig. 1 is a side elevation of our improved device shown applied in forming a ground connection for a storage battery, for instance of an automobile.

Fig. 2 is a plan view of our improved device.

Fig. 3 is a longitudinal section of the same on the line 3—3 of Fig. 2.

Fig. 4 is a cross-section of the same, taken in the plane of the line 4—4 of Fig. 3; and,

Fig. 5 is a perspective view of the clamp of our improved device with its clamping arms in raised relation.

An attaching portion, exemplified as a split clamping ring 11 is arranged to be received about the terminal post 12 of an electric storage battery 13. The clamping ring is provided with clamping wings 14, provided with holes through which a bolt 15 is received, the bolt being threaded in a nut 16, and the bolt and nut clamping the clamping wings toward one another for clamping the split clamping ring about the terminal post.

A shelf 21 projects from the attaching portion or body of the attaching means. Clamping arms 22, 23, extend from the respective ends of the shelf. The attaching portion, shelf and clamping arms are preferably made as a casting of usual electro-conductive material. The shelf is exemplified as provided

with a tongue 24 and the clamping arms are exemplified as provided with grooves 25. These grooves are exemplified as merging into each other when the clamping arms are in clamping position.

The tongue and the groove are complementary to each other for acting on a flat electric conductor 27, the end of which is received between the shelf and the clamping arms, the clamping arms being bent upon the flat electric conductor for clamping the flat electric conductor between the shelf and said clamping arms. The side edges 28 of said flat electric conductor are held between the bases 29 of said clamping arms, thereby confining the flat electric conductor laterally between said arms.

The flat electric conductor is exemplified as a flat woven wire structure, but may be a laminated strip or any other usual form of electric conductor. The extreme end of the flat electric conductor extends beyond the tongue and groove toward the split ring, so that the tongue is pressed into the body of the end portion of the flat electric conductor. This construction squeezes the wires of the flat electric conductor inwardly laterally toward each other, confining the wires between the bases of said clamping arms, the clamping arms being bent downwardly upon the flat woven wire structure for squeezing the tongue into said structure and causing bending of the wires about said tongue and into the cavity of the groove, so as to follow the cross-sectional curvature of the groove and also forcing said tongue into said structure intermediate of the side edges of the flat electric conductor. The tongue and the groove in the present exemplification extend crosswise of the flat electric conductor.

This construction causes crowding of the wire strands upon one another, squeezing of the wire strands together for intimate electric connection, and clamping of the wires compactly and intimately between the shelf and the clamping arms, and prevents the squeezing of the wires out of the space between said shelf and said clamping arms, and insures maximum surface contact between the wires and the terminal for preventing

loss in current transmission. It further insures rigid connection between the flat electric conductor and the terminal, and prevents the pulling out of the flat electric conductor from the terminal, and prevents looseness and air gaps in any part of said connection.

An end wall 30 is at the end of the shelf 21, the end of the flat electric conductor being received against said end wall for positioning the same. When a tongue and groove is employed on the clamping means, said end of said flat electric conductor is squeezed between the tongue 24 and said end wall for additionally securing said flat electric conductor in place and insuring intimate electric contact with out improved connection.

To further insure a rigid connection, the shelf and arms as well as the flat woven wire electric conductor bent into said groove by said tongue, are soldered together, as indicated by the film of solder shown at 31, which film permeates all the interstices in said connection and between said shelf and arms and the walls of said groove and tongue and said flat electric connection.

The opposite end of the flat electric conductor is provided with means whereby the same may be attached to the automobile, aeroplane or other thing which forms, for instance, the ground for the electric circuit. This opposite end may be provided with an inclosing band 35 soldered to the flat electric conductor, the flat electric conductor and the band being provided with a hole 36. A bolt 37 is arranged to pass through said hole and through a registering hole in a metal frame member 38 of the automobile or other thing with which the connection is to be made. A nut 39 is threaded about the bolt for clamping the parts together.

Our improved device is simple in construction and is especially firm and durable.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is:

1. A battery terminal connection comprising an attaching portion arranged to be attached to a battery terminal post, a shelf projecting from said attaching portion and provided with a shoulder proximate to said attaching portion at the inner end of said shelf, clamping arms extending laterally from the respective sides of said shelf and beyond the lateral sides of said shoulder, and a flat electric conductor having an end portion whose end butts against said shoulder, said flat electric conductor extending perpendicularly from said shoulder, said shelf and said arms provided with a complementary tongue and groove extending crosswise of said flat electric conductor adjacent to the end of said flat electric conductor, and said clamping arms bent across and upon said end portion of said flat electric conductor

with said flat electric conductor bent into said groove by said tongue and clamped between the lateral walls of said tongue and said groove, and said end portion of said flat electric conductor maintained in substantial flat form and encompassed at its end, top, bottom and side edges by said shoulder and said shelf and said clamping arms respectively.

2. A battery terminal connection comprising a split clamping ring arranged to be received about a battery terminal post, a shelf projecting from said split clamping ring, clamping arms extending from the respective sides of said shelf, said shelf and said clamping arms provided with complementary tongue and groove extending lengthwise of said shelf and arms, and a flat woven wire electric conductor, the end portion of said flat woven wire electric conductor located between said shelf and said clamping arms with the extreme end of said flat woven wire electric conductor extending past said tongue and groove toward said split clamping ring, said tongue and groove extending crosswise of said flat woven wire electric conductor, said clamping arms bent across the outer side edges of said flat woven wire electric conductor for confining said side edges between the bases of said arms and clamping said end portion of said flat woven wire electric conductor between said clamping arms and said shelf while maintaining said end portion in substantial flat form with the woven wire structure of said conductor bent into said groove by said tongue, and said shelf, arms and flat woven wire electric conductor soldered together, and constructed and arranged for preventing spreading of said flat woven wire electric conductor by the clamping thereof and for fixing the same lengthwise between said wings and said shelf.

3. A battery terminal connection comprising a body including an attaching portion and a shelf projecting radially therefrom, clamping arms extending laterally from the respective sides of said shelf, said body provided with a shoulder between said clamping arms, said clamping arms and said shelf respectively provided with complementary tongue and groove, and a flat electric conductor having an end portion whose extreme end abuts against said shoulder, said end portion located between the bases of said clamping arms for confining the lateral edges of said end portion, and said end portion clamped between said clamping arms and said shelf, the lateral walls of said tongue pressing the portion of said end portion deflected thereby against the lateral walls of said groove.

In testimony whereof, we have hereunto signed our names.

HAROLD C. TERRELL.
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