# United States Patent

**Thomas**

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[54] **CONNECTOR FOR BATTERY TERMINALS**


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[52] **U.S. Cl.** .....**339/114,** 339/230 R

[51] **Int. Cl.**.....**H01r 11/26**

[58] **Field of Search** .....339/114–115, 224–240



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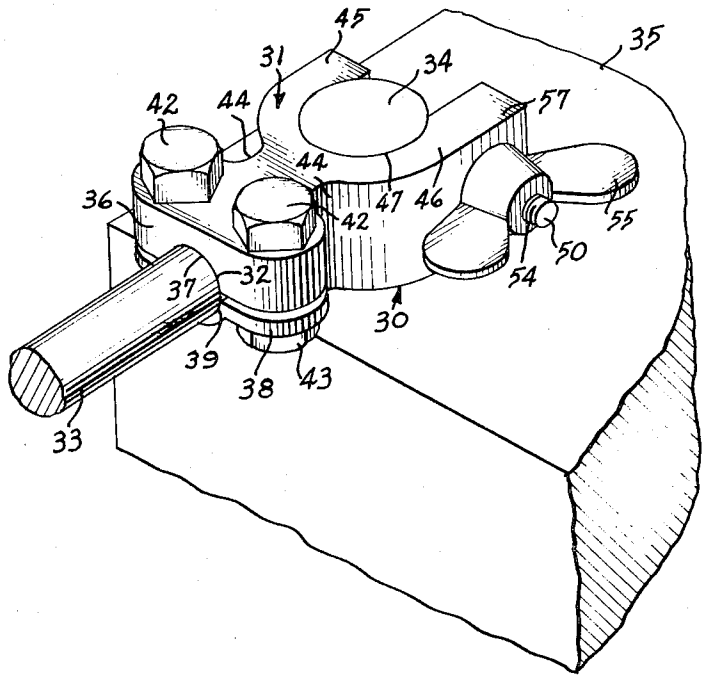
*Attorney*—Sherman Levy



[57] **ABSTRACT**

A connector for battery terminals having the means for preventing corrosion, locking or freezing to a battery post, and wherein there is provided a means for permitting the battery terminal connector to be installed or removed by the hand with no tools required.


**1 Claims, 9 Drawing Figures**



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SHEET 1 OF 2

FIG. 1

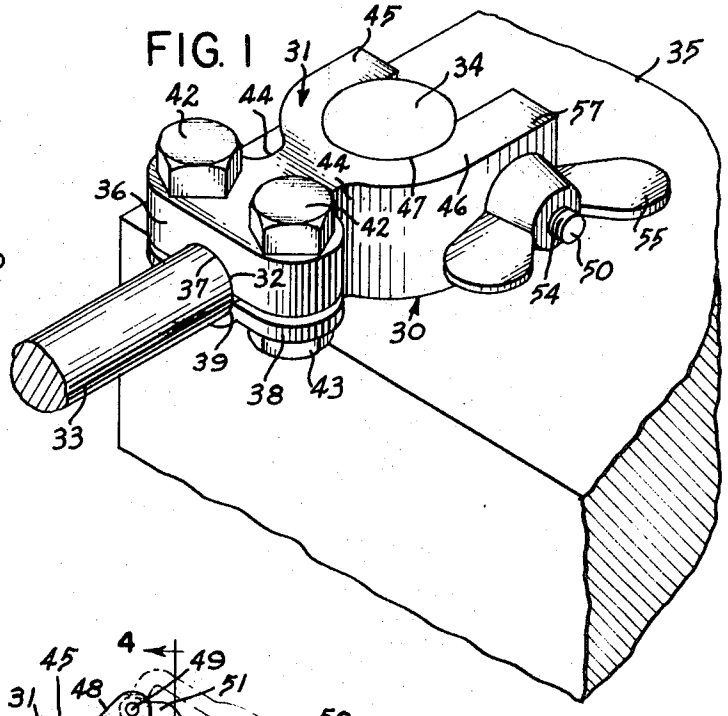



FIG. 5

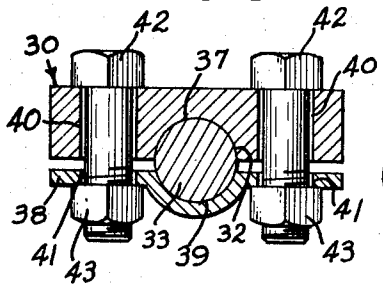



FIG. 2

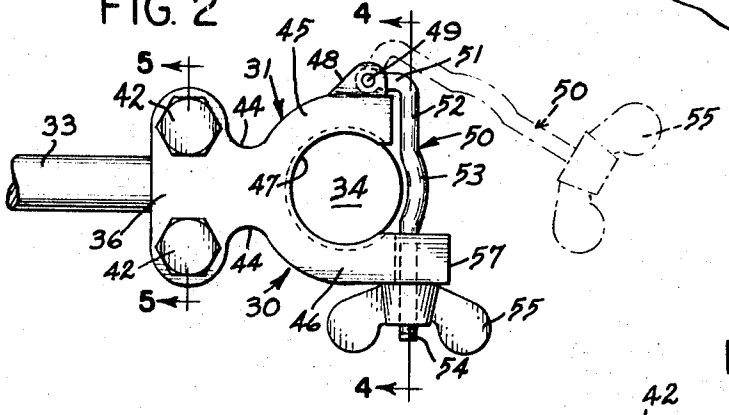
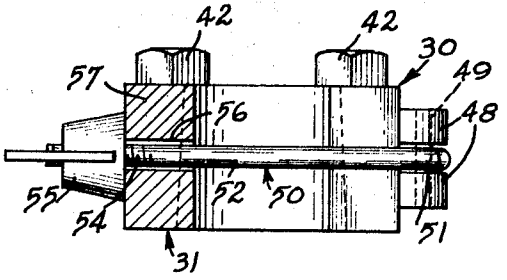



FIG. 4



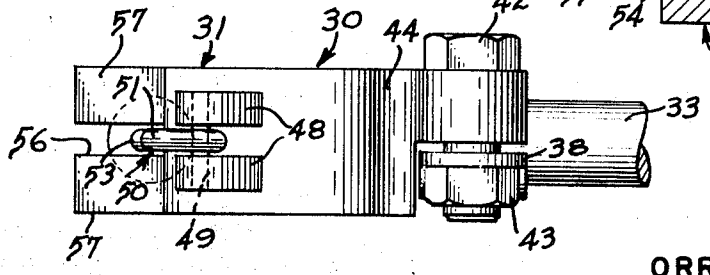
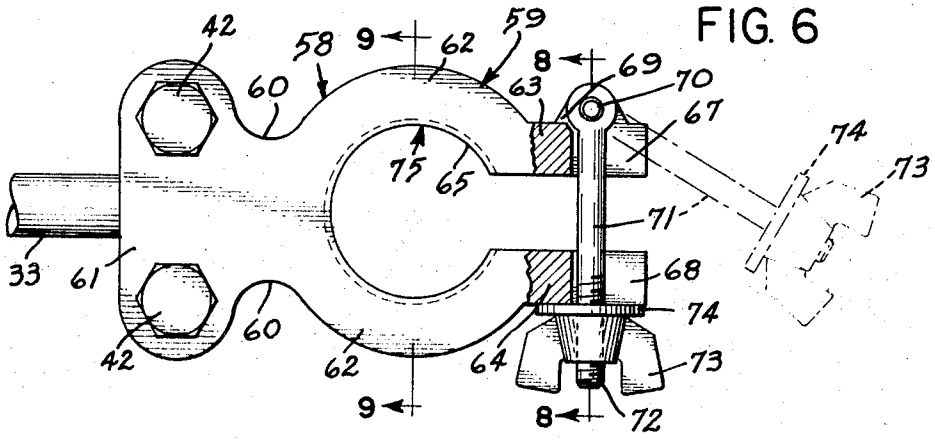




FIG. 3

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FIG. 6



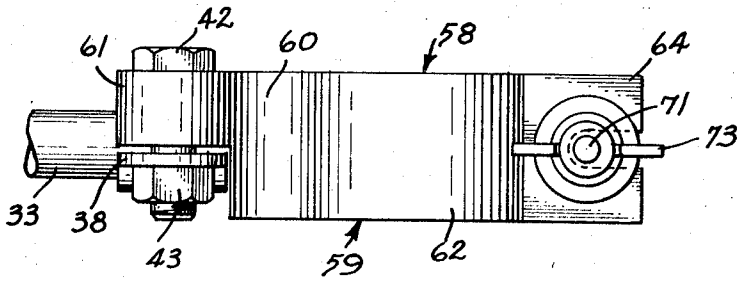
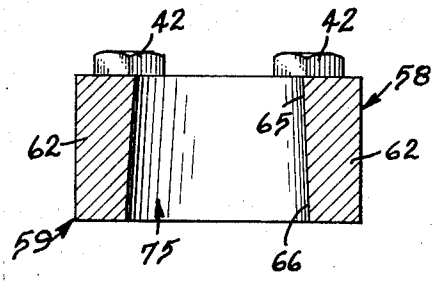




FIG. 7

FIG. 9



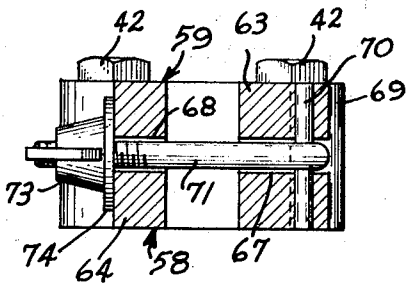




FIG. 8

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# CONNECTOR FOR BATTERY TERMINALS

The present invention relates to battery terminal connectors.

An object of the present invention is to provide a battery terminal connector that can be easily installed or removed by hand without requiring the use of special tools such as wrenches, pliers or the like, and wherein the connector will not corrode, lock or freeze to a battery post.

Another object is to provide a battery terminal connector that protects the battery and all electrical units, as well as assuring efficient starting and less crank case dilution, the connector including a stainless steel lock pin that assures free movement of the swinging arm, and wherein the connector is made of a unique noncorrosive alloy that is strong and tough and durable.

Further objects and advantages are to provide improved elements and arrangements of a device of the character described that is economical to produce, durable in form and conducive to the most economical use of materials and uniformity of members formed therefrom.

Still further objects and advantages will become apparent in the subsequent description in the specification.

In the drawings,

FIG. 1 is a perspective view illustrating the battery terminal connector of the present invention in use with a cable and portion of a battery such as the battery of a vehicle.

FIG. 2 is a top plan view thereof.

FIG. 3 is an enlarged side elevational view.

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

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 2.

FIG. 6 is a top plan view of a modification, with parts broken away and in section.

FIG. 7 is a side elevational view of the device of FIG. 6.

FIG. 8 is a sectional view taken on the line 8—8 of FIG. 6.

FIG. 9 is a sectional view taken on the line 9—9 of FIG. 6.

Referring in detail to the drawings, the numeral 30 indicates the battery terminal connector of the present invention that includes a portion or body member 31 that has a recess 32 therein for receiving an end of a cable 33. The numeral 34 indicates a conventional post of a battery 35 which may be used in a vehicle or other member.

As shown in the drawings, the body member 31 includes an end portion 36 which is provided with a recessed section 38 for receiving or engaging a portion of the cable 33. The numeral 38 indicates a plate that has an intermediate arcuate portion 39 that is in alignment with the recessed portion 37 for engaging a portion of the cable 33. The end portion 36 and plate 38 are provided with registering openings 40 and 41 and securing elements 42 extend through these registering openings 40 and 41, and the securing elements 42 have fasteners or nuts 43 thereon.

As shown in the drawings, there is provided on opposite sides of the body member 31, diametrically opposed recessed areas or portions 44. The body member 31 further includes first and second leg or clamping portions 45 and 46, and these portions 45 and 46 define therebetween a tapered opening 47 for receiving a battery post 34. In the form of the invention shown in FIGS. 1–5 the leg portion 46 is longer than the end portion 45 for a purpose to be later described.

The leg portion 45 has a pair of ears or lugs 48 secured to the exterior thereof or formed integral therewith and a stainless steel pivot pin 49 extends through the lugs 48, FIG. 2. The numeral 50 indicates a swinging arm that includes a first portion 51 that is pivotally connected to the pin 49. The arm 50 further includes a second portion 52 that is arranged substantially at right angles to the portion 51 and the portion 52 has an intermediate curved section 53 which is in alignment with the post 34 when the parts are in the solid position of FIG. 2. The arm 50 further includes a threaded end portion 54 which has a fastener such as a wing nut 55 arranged in engagement therewith. The extended portion 57 of the leg 46 has a slot 56 therein for receiving the portion 52 of the arm 50 when the device is in clamped or closed position.



Referring now to FIGS. 6–9 of the drawings, there is illustrated a modified battery terminal connector that is indicated generally by the numeral 58 and the connector 58 includes a body portion 59. The connector 58 is adapted to be used for connecting an electrical cable such as the cable 33 to the usual post such as the post 34 of the battery 35. The body member 59 has diametrically opposed arcuate recessed portions 60 as well as an end portion 61 which has a plate 38 cooperating therewith to clamp the cable 33 in place, and securing elements such as the bolts 42 are provided for the same purpose as previously described. The body member 59 includes arcuate body or clamping portions 62 that define a tapered opening 75 therebetween for receiving a battery post. As shown in FIG. 9, the opening 75 has a generally tapered formation so that the upper portion 65 is of less diameter than the lower portion 66. Extending outwardly from the arcuate portions 62 is a pair of spaced parallel extensions or legs 63 and 64, and the first and second legs 63 and 64 are provided with aligned slots 67 and 68. Ears or shoulders 69 are secured to or formed integral with the exterior of the leg 63, and a stainless steel pivot 70 extends through the ears 60. The numeral 71 indicates a swinging or pivotal arm that has an end portion thereof pivotally connected to the pin 74, and the arm 71 has a threaded portion 72 on which is mounted a fastener such as the wing nut 73. The numeral 74 indicates a washer which is adapted to be arranged on the arm or bolt 71 as shown in the drawings, and the washer 74 may be of the type that is impregnated with a lubricant so that when the fastener 73 is tightened lubricant or oil or the like will be expelled from the washer to help lubricate the adjacent parts.

From the foregoing it will be seen that there has been provided a terminal connector, and with the parts as shown in the drawings, and in particular as shown in FIGS. 1–5, a cable such as the cable 33 can be conveniently connected to a post such as the post 34 of the battery 35. The cable 33 is firmly held in place due to the provision of the bolts 42, nuts 43, plate 38 and adjacent portion 36 of the body member 31. The device is adapted to be connected to the post 34 as shown in solid lines in FIG. 2. When it is desired to disconnect the device, it is only necessary to loosen the wing nut 55 whereby an arm 50 can be swung outwardly through the slot 56 so that the parts can move from the solid line position to the broken line position of FIG. 2. The arm 50 has substantially an L-shape whereby the arm 50 can pivot about an axis through the pin 49. The pivot connection 49 is arranged slightly off center of the post 34 so that the most efficient and maximum amount of clamping or holding pressure is asserted on the post 34. When using the device of FIGS. 6–9, the body member 59 is adapted to be clamped on a post such as the battery post 34, and then the device is clamped on the post so that the parts are in the solid line position of FIG. 6. When it is desired to remove the device from the battery post it is only necessary to loosen the wing nut 73 whereby the arm 71 can pivot about an axis extending through the pin 70. The slots 67 and 68 provide clearance for the arm to move into and out of locked or unlocked position.

It is to be understood that the parts can be made of any suitable material and in different shapes or sizes as desired or required.

It will therefore be seen that there has been provided a heavy-duty solderless terminal which is in the form of a hand-operated battery terminal connector that can be readily installed or removed with only a twist of the wrist. The lock pin 49 or 70 is of stainless steel so as to assure free movement of the swinging arm 50 or 71. The opening such as the opening 47 or 75 is precision cast. Heavy plated cable bolts 42 and nuts 43 are used. The body member is adapted to be made of noncorrosive alloy that is strong, tough and durable. The wing nut such as the wing nut 75 or 73 is of the heavy-duty type that is heavily plated or forged.

The hand-operated battery terminal connector of the present invention will not corrode, lock or freeze to the battery post, and the device protects the battery and all electrical

units. Thus, the battery and electrical units of an automobile, truck or the like will not be weakened by faulty terminal clamps. Corrosion builds up restriction and restricts proper current to the starter and other electrical units, but the terminal connector of the present invention will not corrode. In addition, when clamped terminals are hammered on and off battery posts, severe damage is done to the battery covers and sealing compound. Also, when clamp terminals are tightened with a wrench, the post is often loosened in its seal and battery life is shortened. The terminal of the present invention requires only the twist of the wrist to install or remove it, and yet it is mechanically secure and electrically tight. The terminal or connector will not have to be removed with a puller since it will not corrode, lock or freeze to the battery post. Also, the jaws will follow the contour of the post and will touch the post of all surfaces. The battery terminal connector is especially suitable for automotive vehicles, farm tractors, boats, stationary engines and the like.

The present invention provides adjustment for different sizes of posts and maintains a positive electrical connection. The off center arrangement of the pivot pin with respect to the post assures that the most efficient clamping action will be assured, and wherein finer adjustments can be made with less pressure than is usually required.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

1. A battery terminal connector embodying a body member having an end portion of reduced thickness, a plate contiguous to said reduced end portion of the body member, securing members connecting the plate and the body member together, said plate and body member having a cable received therebetween, diametrically opposed recessed portion in the sides of the body member, said body member including arcuate legs defining therebetween a tapered opening for receiving a tapered battery post, said legs terminating in spaced parallel first and second fingers that are of the same length, there being registering slots in said fingers, ears integral with said first finger, a pivot pin of stainless steel extending through said ears, an arm having an end portion pivotally connected to said pin, said arm having a threaded end portion, a fastener mounted on the threaded end portion of the arm and adapted to be arranged adjacent the outer surface of the second finger, and a washer impregnated with a lubricant circumposed on said arm and arranged contiguous to the fastener.

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