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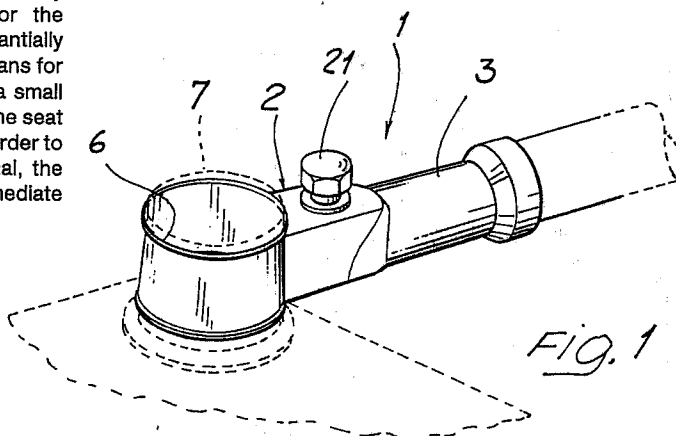
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⑤④ **Electric terminal specifically designed for coupling to a motor vehicle battery terminal.**

⑤⑦ The invention relates to an electric terminal structure specifically designed for coupling to a motor vehicle battery terminal, comprising an end piece defining body for the connection with at least an electrical cable and a substantially circular seat to be coupled to a terminal of a battery, means for locking the body on the battery terminal consisting of a small block having at least a portion thereof flush arranged in the seat and adapted to be displaced with respect to the body in order to vary the terminal clamping force on the battery terminal, the small block being housed in a cavity defined on an intermediate portion of the body.



Description

ELECTRIC TERMINAL SPECIFICALLY DESIGNED FOR COUPLING TO A MOTOR VEHICLE BATTERY TERMINAL

BACKGROUND OF THE INVENTION

The present invention relates to an electrical terminal structure specifically designed for coupling to a terminal of a motor vehicle battery.

As is known, the terminals to be coupled to the terminals or poles of a motor vehicle battery generally consist of an electrically conductive material body which, at one end portion thereof, is provided with jaw elements adapted to substantially encompass the battery terminal and to be clamped thereon by means of a threaded tie rod joining the terminal portions or jaws.

The terminal is clamped with a given force on the battery terminal by screwing on said threaded tie rod along a direction which is substantially perpendicular to the battery terminal.

Known electrical terminals for batteries, however, are affected by some drawbacks since an excessive clamping force by the threaded tie rod may damage the electric terminal jaw elements.

Moreover the mentioned jaw elements, in their clamped condition, frequently lose their resilience characteristics and, because of this reason, they can hardly be detached from the battery terminal.

Another drawback of known electric terminal of the mentioned type, moreover, is that the threaded tie rod which perpendicularly extends to the battery terminal, and the clamping force on said threaded tie rod must be carried out by comparatively complex and long operations.

SUMMARY OF THE INVENTION

Thus, the task of the present invention is to overcome the above mentioned drawbacks by providing an electric terminal structure, specifically designed for coupling to a motor vehicle battery terminal, which may be accurately clamped on the battery terminal, so as to provide very good electrical contact characteristics, with simple and quick clamping operations.

Within the scope of the above task, a main object of the present invention is to provide such an electric terminal structure which can also surely and quickly disengage by the battery terminal.

Another object of the present invention is to provide such an electric terminal structure which can be made starting from a stamped metal sheet and is very reliable and has a comparatively low making cost.

Yet another object of the present invention is to provide such an electric terminal structure which can be easily made starting from easily commercially available elements and materials.

According to one aspect of the present invention to above mentioned task and objects, as well as yet other objects which will become more apparent hereinafter are achieved by an electrical terminal structure, specifically designed for coupling to a terminal of a motor vehicle battery, characterized in that it comprises an end piece defining body for

coupling to at least an electric cable and an essentially circular seat adapted for coupling to a battery terminal and means for clamping said body on the battery terminal, consisting of a small block having at least a portion thereof flush arranged in said seat and effective to be displaced with respect to said body for changing the clamping force of said battery terminal.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed description of a preferred embodiment of an electrical terminal structure, specifically designed for coupling to a battery terminal, according to the present invention and illustrated, by way of an indicative but not limitative example, in the accompanying drawings, in which:

figure 1 is a perspective view illustrating the electrical terminal structure according to the invention;

figure 2 is a cross-longitudinal section view of the same electrical terminal before its clamping on the battery terminal;

figure 3 is another cross longitudinal section view of the subject electrical terminal during its clamping on the battery terminal;

figure 4 is a top plan view illustrating the subject electrical terminal;

figure 5 is an end view illustrating the electrical terminal of the invention; and

figure 6 is a cross-sectional view of the electrical terminal taken along the line VI-VI of fig.4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the figures of the accompanying drawings, the electric terminal structure specifically designed for coupling to a motor vehicle battery terminal according to the present invention, which is overall indicated at the reference number 1, comprises a body 2 which is advantageously made of a brass stamped sheet, either pretinned or copper treated.

The body 2 is provided, at one end thereof, with an end piece 3 which is so shaped so as to clamp an electrical cable, in the case of an electrical terminal to be coupled to the negative terminal of a battery, or two electrical cables 4 and 5, if the electrical terminal must be coupled to the positive terminal of the battery, as shown in fig.6.

The cables 4 and 5 are respectively used for operating the starting motor of the vehicle and for illumination and other purposes.

At its other end the body 2 is provided with a slightly frustum of cone shaped seat 6 for coupling with the terminal 7 of the battery of a motor vehicle.

At its central portion, the body 2 defines a cavity 10, open to the seat 6 and restrained, at the other end, by a slanted abutment member 11.

In this cavity 10 there are housed the locking or clamping means for locking the body 2 on the terminal battery 7 said locking or clamping means practically consisting of a small block 15 which has its shaped end 16 flush arranged in said seat 6 and adapted for contact engaging the battery terminal 7.

At the opposite portion from the shaped end 16 there is provided a coupling slanted abutment member 17 which acts, by contact, against the slanted abutment member 11.

The small block 15 may be displaced parallelly to the battery terminal 7, so as to change the clamping force exerted on the battery terminal.

More specifically, as shown in figures 2 and 3, the displacement of the small block 15 toward the attaching zone of the battery terminal 7, for engaging the coupling slanted surface 17 and abutment member 11, also provides a clamping force component in the radial direction of the battery terminal, thereby providing a firm clamping and locking of the body 2 on said battery terminal 7.

The displacement of the small block 15 is carried out by a bolt 20 the head 21 of which is accessible at the top portion of the electric terminal, said bolt rotatably engages a nut 22 which is affixed at the central portion of the body 2.

The bolt 20, at its end, rotatably engages with the small block 15 so that the rotation of the bolt 20, with respect to the body 2, because of the provision of the nut 22, is transformed into a translation of the small block 15 which, as disclosed, causes said small block to be clamped on the terminal 7 of the battery.

Obviously, as the bolt 20 is rotated in the opposite direction, the small block 15 will be displaced in the opposite direction thereby disengaging it from the battery terminal 7.

With the disclosed arrangement, the clamping of the electric terminal on the battery terminal is carried out by a bolt substantially parallelly arranged with respect to the axis of said battery terminal: thus it will be easily accessible for operation.

Moreover, the locking or clamping force is derived from the radial pushing force exerted on the small block 15, toward the battery terminal 7, because of the coupling between the slanted coupling surface 15 and the abutment slanted member 11, thereby always providing an accurate and quick locking.

From the above disclosure it should be apparent that the invention fully achieves the intended task and objects.

In particular it should be pointed out that an electric terminal structure has been provided which may be easily made starting from a sheet metal and which provides a sure electrical contact owing to the radial clamping force exerted as the small block 15 is displaced.

Moreover, owing to its specific construction, the electrical terminal may be easily and quickly disengaged from the battery terminal since, during the disengagement step, said small block is simply upwardly displaced thereby cancelling the clamping force on the battery terminal.

In practicing the invention the used materials, provided that they are compatible to the intended

use, as well as the contingent shapes and size, may be any according to requirements.

Claims

1- An electric terminal structure, specifically designed for coupling to a terminal of a motor vehicle battery, characterized in that it comprises an end piece defining body, adapted to be coupled to at least an electric cable, and a substantially circular seat adapted for coupling to a terminal of a battery, and means for locking or clamping said body on said battery terminal, said means consisting of a small block having at least a portion thereof flush received in said seat and adapted to be displaced with respect to said body to change the clamping force on said battery terminal.

2- An electric terminal structure according to the preceding claim, characterized in that said small block is housed in a cavity formed on an intermediate portion of said body.

3- An electric terminal structure according to the preceding claims, characterized in that said small block is provided with a shaped end acting on the battery terminal and, at the opposite side, with a coupling abutment member adapted for coupling with a slanted abutment member defined by said body in order to provide a radial displacement component force with respect to said battery terminal for displacing said small block on said body.

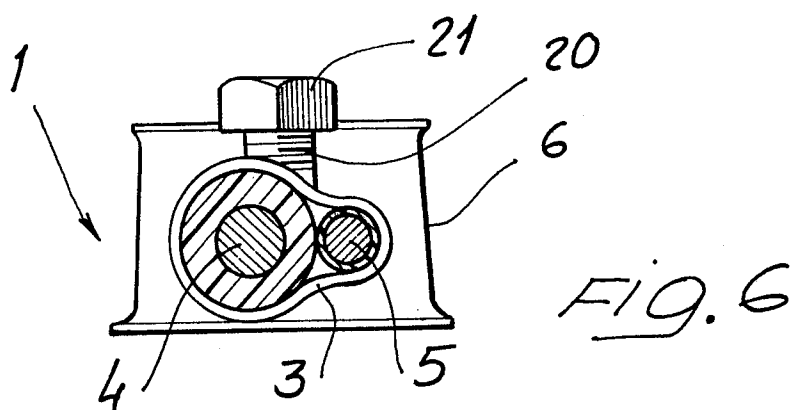
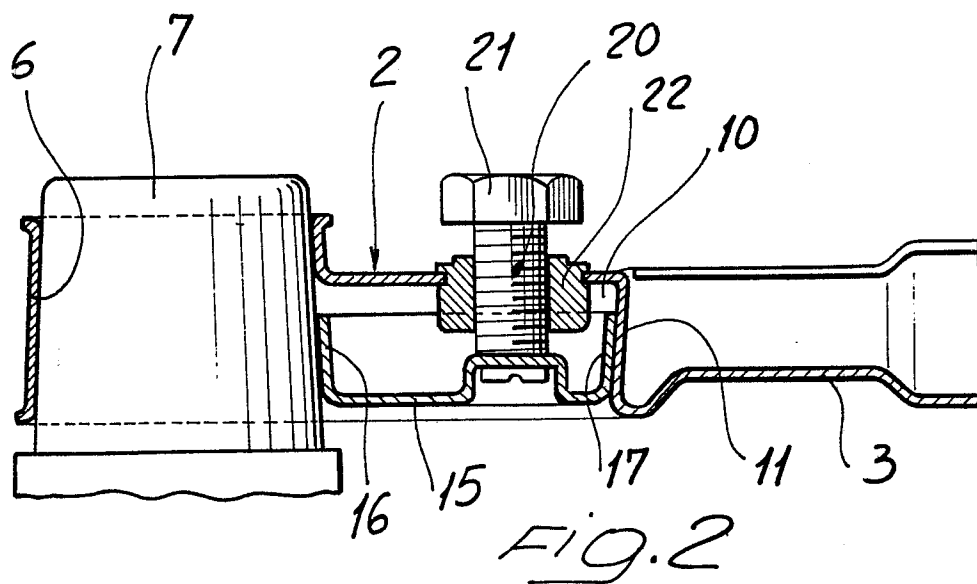
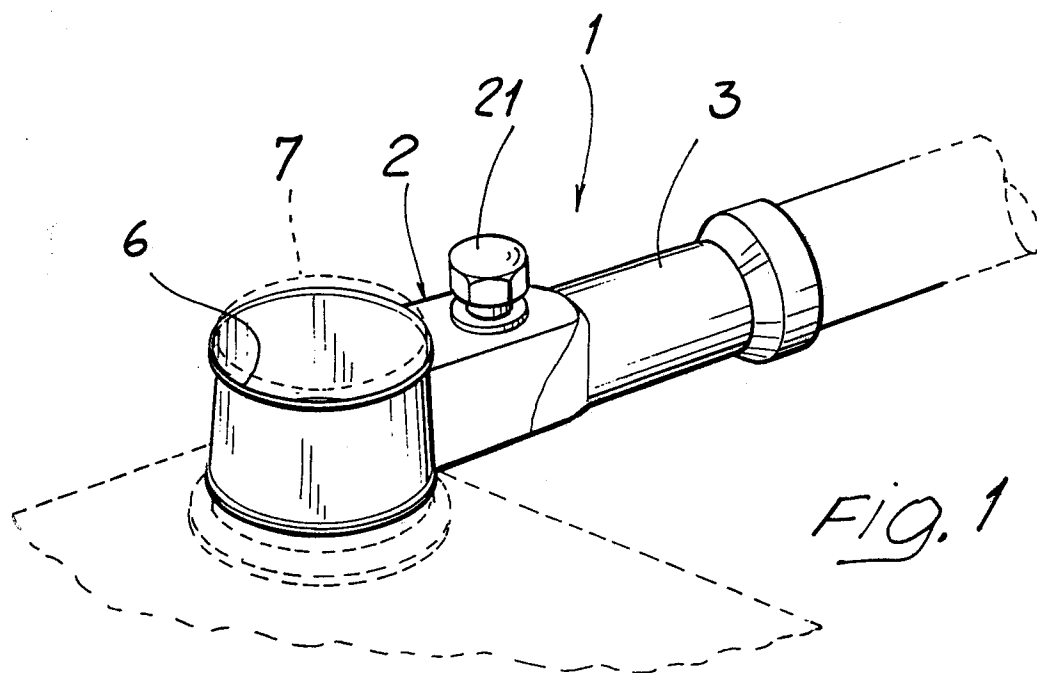
4- An electric terminal structure according to one or more of the preceding claims, characterized in that it comprises means for displacing said small block consisting of a bolt rotatably engaging with a nut affixed on said body, said bolt having one end rotatably engaged with said small block.

5- An electric terminal structure according to one or more of the preceding claims, characterized in that said seat is or substantially frustum of cone shape mating with the frustum of cone shape of said battery terminal.

6- An electric terminal structure according to one or more of the preceding claims, characterized in that said body is made from stamped metal sheets.

7- An electric terminal structure, specifically designed for coupling to a terminal of a motor vehicle battery, according to the preceding claims, and substantially as broadly disclosed and illustrated for the intended task and objects.

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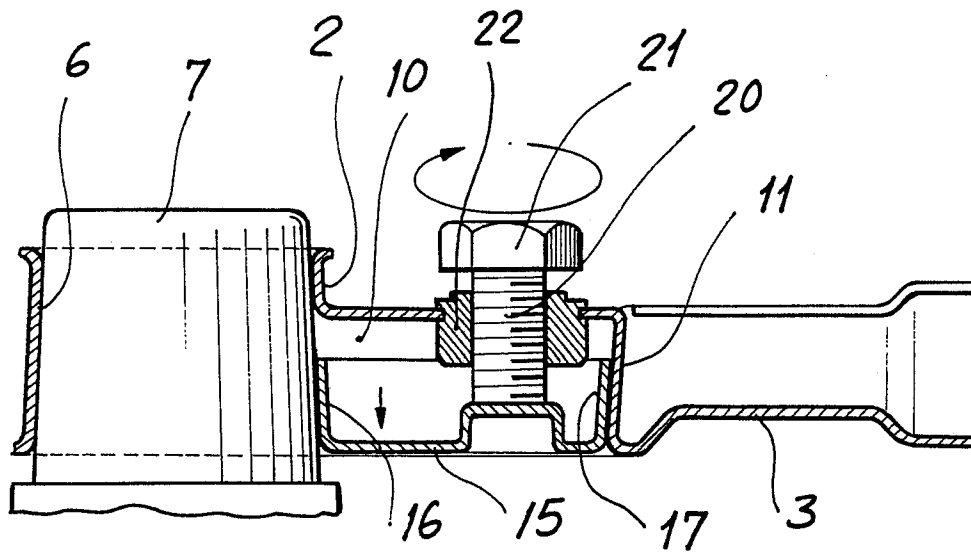


Fig. 3

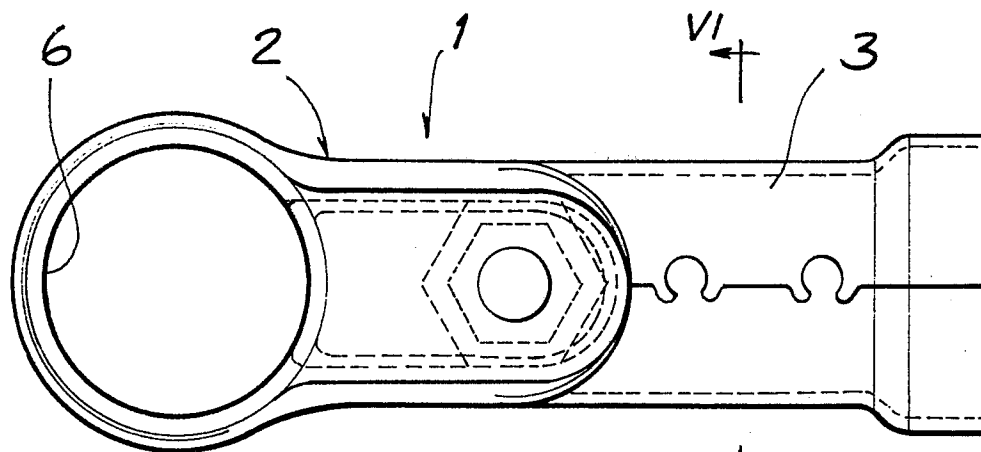


Fig. 4

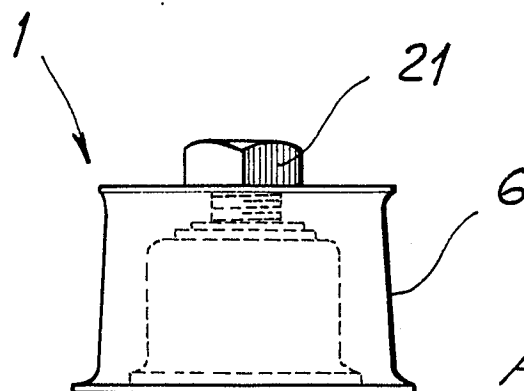


Fig. 5