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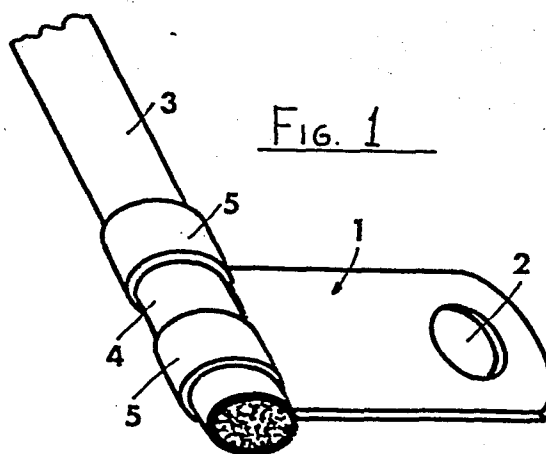
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54 A device for coupling to ground an electric cable, particularly for motor vehicles.

57 The device comprises an electrically conducting plate-like element (1) in which a throughgoing hole (2) is defined for engaging with a ground pin member associated to the motor vehicle frame, the plate-like element further comprising clamping means for clamping and contacting the electrical cable (3), formed at the opposite end to the hole (2) and consisting of a central tab (4) adjoining side tabs (5) obtained by punching the plate-like element (1).



The present invention relates to a device for coupling to ground an electric cable, particularly for motor vehicles.

As it is known, in motor vehicles in general and other electric applications therein a c.c storage battery or accumulator battery is used, a terminal of the battery is coupled to ground by means of a conductor cable which is electrically connected to a given point of the vehicle body or frame.

In a known approach, in order to perform the mentioned ground coupling, one end of the cable connected to the battery terminal is peeled and then associated with a pin member formed on the vehicle frame, said peeled end being wound about the pin and clamped thereto.

In that approach it is necessary to use cable locating members, for preventing the cable from displacing and contacting metal parts of the vehicle, with consequent shorts.

More specifically that approach, though broadly adopted, has several drawbacks, the main whereof is that the ground coupling operations are rather cumbersome, since the coupling of the cable peeled end to the pin, while being a comparatively simple job, requires a lot of time negatively affecting a large scale production, considering the large number of connections to be made.

Another drawback is that, frequently, the vibrations from the engine may cause the ground connection to disengage, since the cable clamping nut is to be tightened with a set force, the value

whereof should be less than the value which would cause the cable to break at the connection region.

Accordingly, the task of the present invention is to overcome the above mentioned drawbacks, by providing such a device for coupling to ground an electric cable, particularly for motor vehicles which is so designed as to afford the possibility of performing the ground coupling without winding one end of the cable on a pin, but simply using an already cable coupled element, effective to facilitate the coupling job.

Within the above task, it is a main object of the present invention to provide such a device for coupling to ground an electric cable which, owing to its specifically designed structure, is able of firmly locating the cable, thereby obviating the need of applying further affixing elements and reducing to a minimum the mounting labour.

Another object of the present invention is to provide such a device for coupling to ground an electric cable which, owing to its specifically designed structure, is very reliable and safe in operation.

According to one aspect of the present invention, the above task and objects, as well as yet other objects which will become more apparent thereafter are achieved by a device for coupling to ground an electric cable, particularly for motor vehicles, characterized in that it comprises a plate-like element made of an electrically conducting

material and provided with a throughgoing hole, clamping means being provided at one edge of said plate-like element for clamping and electrically contacting an electrical cable or wire.

Further characteristics and advantages of the device according to the present invention will become more apparent hereinafter from the following detailed description of a preferred embodiment whereof, with reference to the accompanying drawing, where:

fig.1 is a perspective view illustrating the device according to the present invention;

fig.2 is an exploded view illustrating the electrical cable or wire as well as the plate-like element provided for application to one end of the cable.

With reference to the figures of the accompanying drawing, the device for coupling to ground an electric cable, particularly for motor-vehicles, comprises a plate-like element, indicated overallly at 1, which is made of an electrically conducting material.

The plate-like element which, preferably though not exclusively, is of elongated shape, defines at one end whereof, a throughgoing hole 2, provided for association with a pin or the like member, as conventionally provided on the vehicle frame, for the ground coupling.

At the opposite end to the hole 2, the plate like element 1 is provided with clamping means for clamping and electrically contacting an

electrical cable 3.

More specifically the above mentioned clamping means consist of a central tab 4 adjoining side tabs or strips 5, which are formed by punching from the plate like element 1 and provided for encompassing the electrical cable.

In order to couple the plate-like element 1 to the cable 3, the cable sheath is peeled away, at a restricted region 6, near the cable end to be coupled to the ground.

Then, after the punching of the tabs 4 and 5, at the end of the plate-like element 1, said tabs are caused to encompass the cable 3, and are tightly clamped in such a way that the central tab 4 is caused to encompass the peeled region 6 and electrically contact the cable 3.

The tabs 5, on the other hand, are bent and tightly clamped on the sheath of the cable, thereby accurately and firmly anchoring the plate like element 1 to the cable 3.

Thus, the plate like-element 1 will be firmly coupled to the cable 3, the ground coupling being simply performed by connecting the plate-like element 1 through the hole 2.

Since the plate like element 1 is made of an electrically conducting material, the electrical coupling occurs on a broad contacting area, thereby remarkably reducing the contact resistance which, in many cases, is susceptible to provide a poor ground coupling.

Moreover the firm coupling obtained by the plate like element 1 affords the possibility of properly locating the cable 3, which will be surely held in its set position, with the advantage of eliminating any other affixing step.

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

In particular the fact is to be pointed out that the device for coupling to ground an electrical cable according to the invention, which is preferably directly applied to the cable in the making step of the device itself, affords the possibility of greatly reducing the coupling labor, since it will be sufficient to clamp the nut to the pin which is threaded in the hole 2 of the plate like element 1.

Moreover it is possible to tightly clamp the plate like element 1 which, being made from a metal material having a rather large thickness, will be not damaged during the clamping operation, while providing a very satisfactory electrical coupling, jointly to a firm mechanical coupling.

In practicing the invention, the used materials as well as the specific shapes and size will be any, according to the needs.

C L A I M S

1- Device for coupling to ground an electric cable, particularly for motor vehicles, characterized in that it comprises a plate-like element made of an electrically conducting material and provided with a throughgoing hole (2), clamping means (4,5) being provided at one edge of said plate-like element (1) for clamping and electrically contacting an electrical cable (3) or wire.

2- A device for coupling to ground an electric cable, particularly for motor vehicles, according to the preceding claim, characterized in that said plate-like element (1) has a substantially elongated shape and said throughgoing hole is defined at one end of said plate like element.

3- A device for coupling to ground an electric cable, particularly for motor vehicles according to the preceding claims, characterized in that said means for clamping and electrically contacting said electrical cable (3) consist of a central tab (4), adjoining two side tabs (5), as formed on said plate-like element (1) at the opposite side to said hole (2).

4- A device for coupling to ground an electric cable, particularly for motor vehicles, according to one or more of the preceding claims, characterized in that said tabs (4,5) are obtained by punching said plate-like element (1).

5- A device for coupling to ground an electric

cable, particularly for motor vehicles, according to one or more of the preceding claims, characterized in that said central tab (4) is located at a peeling region of the insulating sheath of said electric cable.

6- A device for coupling to ground an electric cable, particularly for motor vehicles, according to one or more of the preceding claims, characterized in that said tabs (4,5) are effective to encompass said cable (3).

