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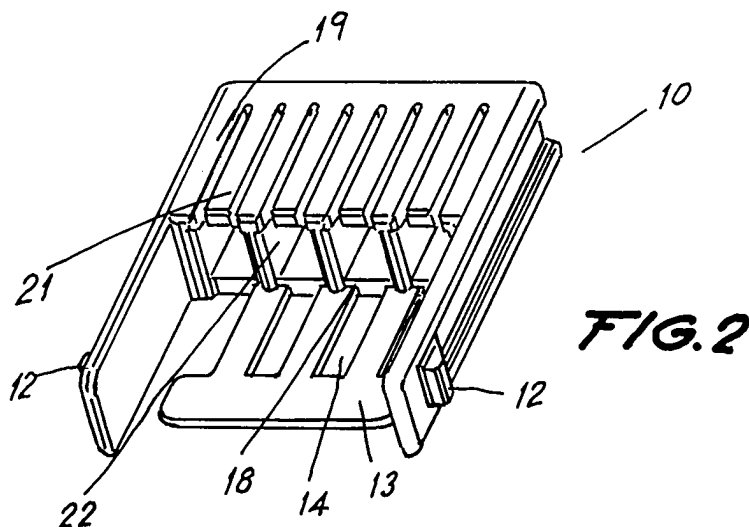
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(54) **Flat cable connector for ultrasonic welding**

(57) The invention relates to a connector specially designed for receiving flat cables, such as those formed with a plurality of copper, aluminium or similar material leads entirely flat and provided longitudinally and in parallel, and spaced between them by two sheets in the

way of insulating sheaths, which design is due to the characteristics of the cable itself and which cavities for receiving the corresponding terminals have been designed as a function for receiving the number of flat leads of the flat cable.



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Description

[0001] The present application for a Patent of Invention consists, as indicated in its title, in a "FLAT CABLE CONNECTOR FOR ULTRASONIC WELDING", which novel characteristics of manufacturing, shaping and design fulfill the object for which had been specifically designed with a maximum of safety and efficiency.

[0002] More particularly, the invention relates to a connector specially designed for receiving flat cables, such as those formed with a plurality of copper, aluminium or similar material leads entirely flat and provided longitudinally and in parallel, and spaced between them by two sheets in the way of insulating sheaths, which design is due to the characteristics of the cable itself and which cavities for receiving the corresponding terminals have been designed as a function for receiving the number of flat leads of the flat cable.

[0003] There exist in the market and therefore can be considered the state of the art a plurality of types of connectors which object is that of being able to group at a given point of the electric equipment of the automobile or similar a set of electric cables or wires of a circular cross-section, at which ends are attached the corresponding terminals male and female, said connectors had been specifically designed for such type of cable.

[0004] The proposed connector is provided with a support for the flat cable where is made the attachment of same, either by glue or fixing pivots. The openings on the support have been designed for allowing the ultrasonic welding of the cable and the terminal. The electronic welding is performed acceding at the upper and lower portion of the connector needing therefore a free access. This connector is inside a receptacle or container, which protects the welding zone since it covers same. This receptacle is fixed by the lateral wings which are provided with catches and can deflect in order to extract it from the place where it is lodged.

[0005] The connector is provided in its lateral minor bases with self-aligning guides and with chamfers in order to ease its guiding into the entrance of said receptacle or container element.

[0006] The holding catches of the terminals once inserted into their cavities hold same strongly and avoid that same remain in a behind position, as well as any strain action on the cable that may provoke the undesired exit of a terminal from the interior of the cavities, which had been designed for lodging the welded terminals in the ends of the of the leads forming the flat cable.

[0007] The connector shows a noticeably prismatic configuration which has a lower portion or more exactly a prismatic box of the connector, which major lateral bases have a series of cuts which produce on said minor bases a series of flexible tongues provided at the ends of the corresponding catches, and limit as well another set of tongues perpendicular to the walls which limit and divide the interior of said body in cavities for lodging the corresponding male or female terminals.

[0008] Other details and characteristics of the present application for a Patent of Invention will be manifest through the reading of the description given herebelow, in which reference is made to the figures attached to this description where the above details are depicted in a rather schematic way. These details are given as an example, referring to a case of a possible practical embodiment, but is not limited to the details outlined; therefore this description must be considered from an illustrative point of view and with no limitations whatsoever.

[0009] There follows a detailed report of the several elements named in the present application: (10) connector, (11) minor lateral bases, (12) catches, (13) support, (14) openings, (15) box, (16) cuts, (17) mouths, (18) step, (19) fixed tongues, (20) protuberances, (21) movable tongues, (22) walls, (23) recesses, (24) chamfers.

[0010] Figure 1 is a rear perspective view of the connector (10).

[0011] Figure 2 is a front perspective view of the connector (10).

[0012] Figure 3 is a detail of the recess (21) provided with protuberances (20).

[0013] In one of the preferred incorporations of what is the object of the present application for a Patent of Invention and as can be seen in Figures 1 and 2, the connector (10) is formed with a body or box (15) of a noticeably prismatic configuration, one of which major bases extends in a sort of support for the flat cable (13) having windows (14), whilst the other major base has a series of longitudinal and parallel cuts (16) bordering a set of tongues, some fixed (19) and the others movable (21), these last (21) having at their ends a series of protuberances (20) that, when the male or female terminals enter inside of the cavities (17), function as catching elements avoiding that same remain in a behind position.

[0014] The other fixed tongues (19) are provided perpendicularly to a set of walls (22) perpendicular to said major bases and bordering the interior cavities of the connector (10), at which ends is the mouth (17).

[0015] The minor lateral bases (11) of the body or box (15) extend as per the minor lateral bases (11) that are fully smooth in their interior face whilst at the outer face are provided with a catch (12) and at the remainder of them with channels (25) whose function is that to serve, in combinations with the chamfers (24), as self-sliding guides and as means for channeling towards the inside of a catch or containing element, not shown in the Figures.

[0016] The support (13) has been specially designed in order to be able to support and fix on same a flat cable of those having flat electric leads surrounded with the corresponding insulating sheaths, at which ends are placed the corresponding terminals, which will enter through the corresponding mouth (17).

[0017] The flat cables remain fixed on the support in grace to the corresponding welding made by the upper and lower portions, as well as remaining positioned in

grace to the step (18) provided in the upper portion of the box (15).

[0018] The cuts (16) provided in one of the major bases of the connector (10) allow the movement and elasticity of the tongues (21), which will deflect adequately when the terminal enters inside the cavities of the connector (10), making possible in that way that the catches (20) fit with the corresponding recess (23) provided in same and not shown in the Figures. 5

[0019] Enough disclosed what the present application for a Patent of Invention is in agreement with the attached figures, it is understood that can be introduced in same any detail modifications regarded as convenient, always provided that any the modifications entered do not depart from the essence of the present Patent of Invention as summarized in the following claims. 10 15

Claims

- 20
1. "FLAT CABLE CONNECTOR FOR ULTRASONIC WELDING", designed for receiving in its interior and in the cavities designed for that in same the corresponding male and female terminal welded at the ends of the conductive portions of aluminium or copper of said cable covered with an insulating sheet through the mouth (17), characterized in that said connector (10) shows a body or box (15) noticeably prismatic, delimited by a flat and continuous major base and another also flat major base but affected by a set of longitudinal and parallel cuts (16) which delimit a set of fixed tongues (19) and other movable tongues (21) whilst the minor lateral bases (11) show an interior base fully smooth whilst the outer face is defined by self-aligning guides in the way of recesses (23) at which end are catches (12) with possibilities for remaining at the interior of the corresponding holes provided in a container element or housing inside which the connector (10) is lodged. 25 30 35 40
2. "FLAT CABLE CONNECTOR FOR ULTRASONIC WELDING", as per the Claim 1 characterized in that one of the flat faces or major bases of the box (15) extends as per a support (13) having a set of longitudinal and parallel openings (14) and at a different level in grace to the step (18). 45 50 55

