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(54) Method for the collective protection of the small staples in a flat cable

(57) The invention relates to a sheet of polyester or other material, specially designed for covering the welding produced between two flat cables to which previously had been eliminated in a selective way the covering sheets, in order to be able to superimpose two or more cables of said characteristics and produce the welding of the conductive portions.

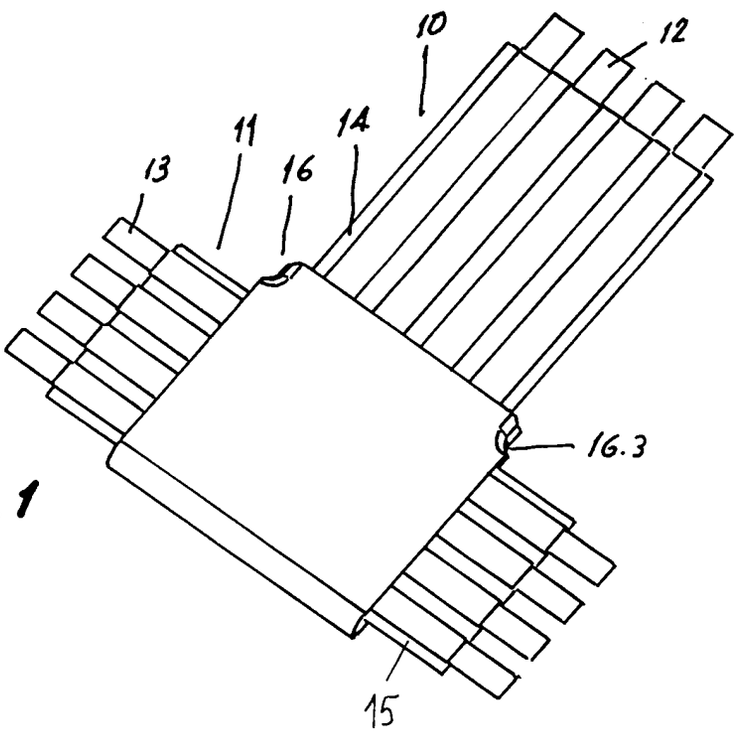

FIG. 1

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Description

[0001] The present application for a Patent of Invention consists, as indicated in its title, in a "METHOD FOR THE COLLECTIVE PROTECTION OF THE SMALL STAPLES IN A FLAT CABLE", which novel characteristics of manufacturing, shaping and design fullfill the object for which had been specifically designed with a maximum of safety and efficiency.

[0002] More particularly, the invention relates to a sheet of polyester or other material, specially designed for covering the welding produced between two flat cables to which previously had been eliminated in a selective way the covering sheets, in order to be able to superimpose two or more cables of said characteristics and produce the welding of the conductive portions.

[0003] There exist in the market and therefore can be considered the state of the art a plurality of flat cables which contain a plurality of copper, aluminium or similar leads, arranged in parallel and insulated with the corresponding sheet which, when it is desired to connect same, when forming a complex electrical installation of the automobile, are electrically connected between them by the corresponding small staples, which join in a selective way said conductive zones or portions, being possible in such a way to estabilish a multiplicity of contact points between different cables of same nature and making possible with that a multiplicity of services in different parts of the automobile.

[0004] Later and also being part of the state of the art said small staples system was substituted for what is the object of the Patent of Invention No. 9 802 629 to same applicant, which replaced the small staples by a welding method consisting in the selective peeling of the insulating zones, the spatial placement of the cables ones on top of the others and the welding by ultrasonic sources of the conductive parts of same.

[0005] Anyhow, when said cables interconnected by such a method must work in complex electric installations same are submitted to a series of stresses and strains which in some cases may be the cause of strong strains on said welding unions, as well as depending on the situation where said type of wiring and unions are installed same may be exposed to undesired actions such as that of humidity, projection or vertical fall of water and gas presence, because of which it may be necessary a protection of the union and welding zones, in such a way that same are kept fully safe of said undesired actions, which is obtained by a sheet or sheets of dielectric material, which cover the ultrasonic welding zone in a global way, i.e., covering all interconection zones of two or more copper tracks at the same time. These are joined by fusion of the ends by heat.

[0006] When we need that it be fully watertight there is incorporated silicone or HOT-MELT and afterwards is heated. In that way the welding zones remain protected at a 100%.

[0007] The proposed polyester sheet or sheets plies over themselves and over the union of the two flat welded cables, in such a way that they join over themselves and by their free ends the wires with the insulating sheet by fusion by heat application.

[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) flat cable, (11) flat cable, (12) leads, (13) leads, (14) covering, (15) covering, (16) sheet, (16.1) upper flat zone, (16.2) lower flat zone, (16.3) chamfers, (17) edges, (18) welding zones).

[0010] Figure 1 is a perspective view of the proposed ollective protection, consisting in enveloping the welding zone by a sheet of dielectric material (16), welded at the edges (17).

[0011] Figure 2 is un upper plan view of two superimposed flat cables (10, 11) and on which has been produced the peeling in a selective way of the zones (18) where afterwards is performed the welding of the conductive portions (12, 13).

[0012] Figure 3 is a section through the zone were the free ends of the flat upper zone (16.1) and the lower flat zone (16.2) of the sheet (16) are joined.

[0013] In one of the preferred embodiments of what is the object of the present application of a Patent of Invetion and as can be seen in Figure 2, the flat cables (10, 11) are formed with a set of flat leads (12, 13), arranged longitudinally and parallel between them covered with insulating coverings (14, 15), in said Figure both cables (10, 11) are sperimposed and welded at the zones (18) by the methodd disclosed in the Patent of Invention 9 802 629 to same asignee.

[0014] In order to protect said welding zones (18) has been designed the sheet (16) with a noticeably rectangular configuration which folds over itself hiding the common zone to the lead or cable (10, 11), being joined at its free ends and more precisely at the edges, which are welded from a chamfer (16.3) to the opposed one, in such a way that they form a continuous whole with the insulating covering (14), and proceeding when there is needed a watertight union to a previous impregnation with silicone HOT-MELT and to a later heating, obtaining therefore a perfect protection of the welding (18) as well as strengthening the union perfomed by the welding and avoiding that same and because of an undesired strain on the cable (10 and/or 11) may breack by the weakest points, i. e., the welding points (18).

[0015] Enough disclosed what the present application for a Patent of Invention is in agreement witn the at-

tached figures, it s 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.

Claims

1. "METHOD FOR THE COLLECTIVE PROTECTION OF THE SMALL STAPLES IN A FLAT CABLE" of those formed with a series of leads (12 and 13) arranged longitudinally and parallel between them, electrically connected by the method disclosed in the Patent of Invention No. 9 802 629, characterized in that the union points or zones (18) remain covered by a sheet (16) which folds over itself, of a noticeably rectangular configuration and whose upper flat zone (16.1) and lower flat zone (16.2) are joined by welding at the edges (17) from a chamfer (16.3) to the opposed one.

2. "METHOD FOR THE COLLECTIVE PROTECTION OF THE SMALL STAPLES IN A FLAT CABLE" as per the Claim 1 characterized in that, when the protection should be against the vertical fall of water, the fore faces of the flat zones (16.1 and 16.2) will be impregnated with silicone or hot-melt.

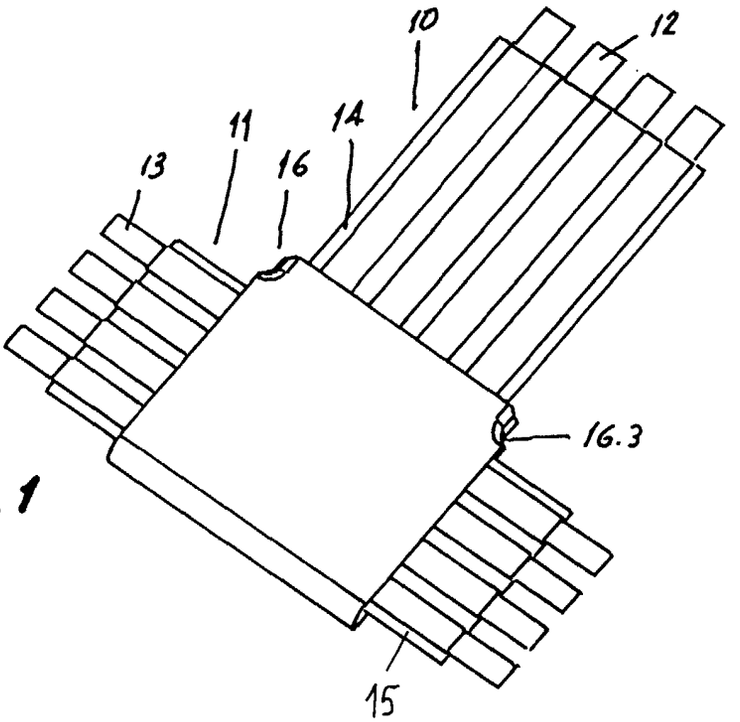

FIG. 1

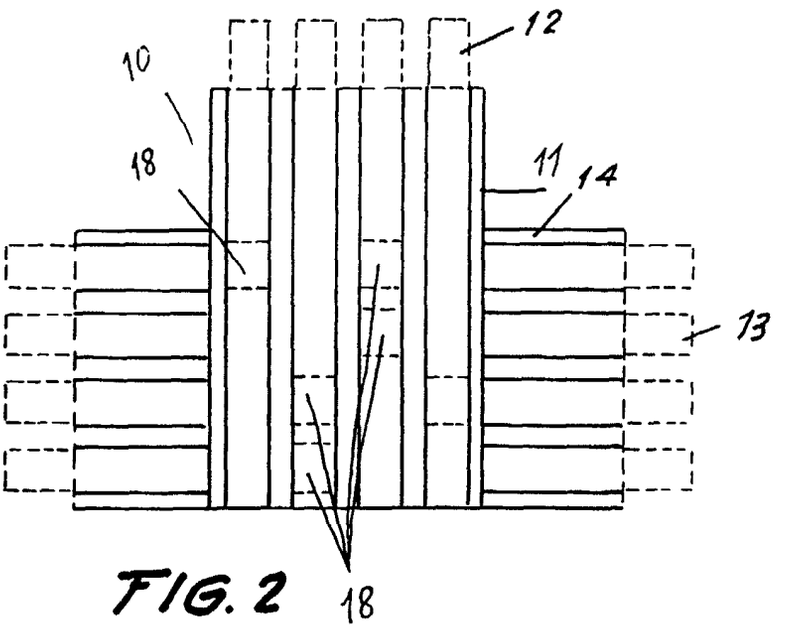

FIG. 2

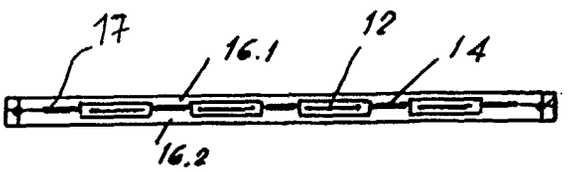

FIG. 3