

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 505 335 B2

(12)

NEW EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the opposition decision:

28.04.2004 Bulletin 2004/18

(51) Int Cl.7: **H01R 13/52**, H01R 43/00

(45) Mention of the grant of the patent:

17.12.1997 Bulletin 1997/51

(21) Application number: **92830133.2**

(22) Date of filing: **19.03.1992**

(54) **Continuous protective sheat for electrical cables**

Durchgehende Schutzhülle für elektrische Kabel

Enveloppe de protection continue pour câbles électriques

(84) Designated Contracting States:

DE ES FR GB PT

(30) Priority: **22.03.1991 IT MI910237 U**

(43) Date of publication of application:

23.09.1992 Bulletin 1992/39

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- **DATABASE WPI Week 8547, Derwent Publications Ltd., London, GB; AN 85-293393 & JP-A-60 202 163(HITACHI) 12 OCTOBER 1985**

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a continuous protective sheath for wiring electric cable including, at a handle element thereof comprising an electrical contact bearing block, a sealing structural element.

[0002] As is known, an electric system of a motor vehicle usually comprises a plurality of electric and electronic components, either of the active or of the passive type, which are power supplied by means of a plurality of insulated electrical cables.

[0003] The power supply of the mentioned components is controlled by a suitable central control unit, which is provided with a plurality of male blade contact elements, to which there are electrically coupled corresponding female blade contact elements.

[0004] The latter are advantageously embedded in a contact or terminal block which, in turn, is housed in a so-called "handle" having any suitable constructions.

[0005] Prior coupling systems for coupling the electric cable sheath and the mentioned handle do not assure, however, a perfectly sealed connection of the several component portions of the system.

[0006] Moreover, in conventional coupling systems, between the end portions of the electric cables and the related electric contact bearing blocks there are formed discontinuous regions.

[0007] Accordingly, water can leak through the electric cables which is susceptible to hinder a proper operation of the blade contact elements of the central control unit or enter the latter so as to cause it to malfunction.

[0008] The document DD-B-148 547 discloses a protective sheath for electric cables having substantially the features of the preamble of the main Claim.

SUMMARY OF THE INVENTION

[0009] Accordingly, the aim of the present invention is to overcome the above mentioned drawbacks, by providing a continuous protective sheath, for coating electric wiring cable bundles, which is so designed and arranged as to provide a perfect sealing with the contact block or handle.

[0010] Within the above mentioned aim, a main object of the present invention is to provide such a continuous protective sheath, for coating wiring electric cable bundles, in which the handle element is safely insulated from its encompassing environment.

[0011] Another object of the present invention is to provide such a continuous protective sheath, for coating electric cable bundles, which allows to provide very reliable electric connections.

[0012] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by the features of the charac-

terizing part of the main Claim.

BRIEF DESCRIPTION OF THE DRAWING

[0013] Further characteristics and advantages of the continuous protective sheath for electric cables according to the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment thereof, which is illustrated, by way of an indicative but not limitative example in the accompanying drawing, where:

Figure 1 is a schematic view showing a sealing structural element applied to an end portion of the sheath according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] With reference to the Figure of the accompanying drawing, the continuous protective sheath for wiring electric cables, which has been generally indicated at the reference number 1, is provided, at one portion thereof connected to the handle element 2, with a foamed region 3, which is made of any suitable plastic materials.

[0015] This plastic foamed region substantially defines waterproof continuous construction, which is perfectly bound both to the endportion of the coating 4 of the electrical cable bundle 5, and to the corresponding portion of the handle element which houses, in a perfectly sealed way, the electric contact bearing block 6.

[0016] As shown, the above mentioned foamed region further comprises extended portions 3' which are suitably extended to possible branchings of the coating 4 which, in turn, can be of a smooth type, as shown in the figure, or, if desired, of a suitably corrugated type.

[0017] In this connection it should be apparent that the mentioned foamed region, or sealing structural element 3, which includes a substantially parallelepipedal body, can be formed as an insert element or, preferably, it can be formed directly during the protective sheath making method.

[0018] From the above disclosure and the figure of the accompanying drawing it should be apparent that the invention fully achieves the intended aim and objects.

[0019] While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof, it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will come within the scope of the appended claims.

Claims

1. A wiring assembly protected against penetration of moisture comprising:

1.1 an elongated handle element (2) having an electric contact bearing block (6) provided for connection to mating electric contacts of a motor vehicle electric system,

1.2 said elongated handle element (2) having a substantially parallelepipedal configuration, 5

1.3 on a minor face of said elongated handle element (2) is defined an inlet to be protected against penetration of moisture,

1.4 in said inlet on said minor face of said elongated handle element (2) is engaged one end portion of an electric cable (5) having an outer sheath (4) and a plurality of electric inner conductor wires, 10

characterized in that 15

1.5 said wiring assembly (1) further comprises, near said inlet of said handle element (2), a foamed plastic sealing structural element (3) for protecting said inlet against penetration of moisture, 20

1.6 said sealing structural element (3) including a substantially parallelepipedal body,

1.7 said end portion of said outer sheath (4) being embedded, together with a corresponding portion of said handle element (2), in said sealing structural element (3), 25

1.8 said substantially parallelepipedal body of said sealing structural element (3) is perfectly bound both to said outer sheath (4) of said electric cable (5) and to a corresponding portion of said handle element (2), 30

1.9 said handle element (2) is housing, in a perfectly sealed manner, said contact bearing body (6). 35

2. A wiring assembly according to Claim 1, **wherein** said formed plastic sealing structural element (3) is foamed as a separated insert element. 40

3. A wiring assembly according to Claim 1, **wherein** said foamed plastic sealing structural element (3) is formed in a single piece with said sheath (4) of said cable. 45

4. A wiring assembly according to the preceding claims, **wherein** said foamed plastic sealing structural element (3) has at least an extending portion encompassing a branch of said sheath (4). 50

Patentansprüche 55

1. Eine gegen das Eindringen von Feuchtigkeit geschützte Kabelvorrichtung, welche folgendes um-

fasst:

1.1 Ein längliches Griffteil (2) mit einem elektrische Kontakte tragenden Block (6) der für den Anschluss an passende elektrische Kontakte eines elektrischen Systems eines Kraftfahrzeugs bereitgestellt ist,

1.2 wobei dieses längliche Griffteil (2) im wesentlichen die Form eines Parallelepipeds besitzt,

1.3 wobei auf einer Nebenfläche des länglichen Griffteils (2) ein Eingang definiert ist, der gegen das Eindringen von Feuchtigkeit geschützt werden soll,

1.4 wobei in dem Eingang auf der Nebenfläche des länglichen Griffteils (2) ein Ende eines elektrischen Kabels (5) mit einer äußeren Umhüllung (4) und einer Vielzahl innerer elektrischer Drähte eingelassen ist,

dadurch gekennzeichnet, dass

1.5 diese Kabelvorrichtung (1) nahe diesem Eingang dieses Griffteils (2) weiterhin ein abdichtendes Strukturteil (3) aus geschäumtem Kunststoff zum Schutz dieses Eingangs gegen das Eindringen von Feuchtigkeit umfasst,

1.6 das abdichtende Strukturteil (3) einen im wesentlichen parallelepipedalen Körper einschließt,

1.7 das Ende der äußeren Umhüllung (4) zusammen mit einem entsprechenden Abschnitt des Griffteils (2) in das abdichtende Strukturteil (3) eingebettet ist,

1.8 der im wesentlichen parallelepipedale Körper des abdichtenden Strukturteils (3) vollständig sowohl mit dieser äußeren Hülle (4) dieses elektrischen Kabels (5) als auch mit einem entsprechenden Bereich des Griffteils abschließt, 1.9 das Griffteil (2) diesen die elektrischen Kontakte tragenden Block (6) auf perfekt abdichtende Weise umgibt.

2. Eine Kabelvorrichtung nach Anspruch 1, worin dieses abdichtende Strukturteil (3) aus geschäumtem Kunststoff als gesonderter Einsatz gebildet ist.

3. Eine Kabelvorrichtung nach Anspruch 1, worin dieses abdichtende Strukturteil (3) aus geschäumtem Kunststoff aus einem Stück mit dieser Umhüllung (4) dieses Kabels gebildet ist.

4. Eine Kabelvorrichtung nach den vorhergehenden Ansprüchen, worin dieses abdichtende Strukturteil (3) aus geschäumtem Kunststoff mindestens einen abstehenden Bereich besitzt, der einen Anschnitt dieser Umhüllung (4) umgibt.

Revendications

1. Dispositif de câblage protégé contre la pénétration de l'humidité comprenant :

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1.1 une poignée allongée (2) dotée d'un bloc (6) portant des bornes électriques destiné à la connexion à des bornes électriques correspondantes d'un système électrique d'un véhicule motorisé,

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1.2 ladite poignée allongée (2) ayant en substance la forme d'un parallélépipède,

1.3 sur une face secondaire de ladite poignée allongée (2) est formée une entrée destinée à être protégée contre la pénétration de l'humidité,

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1.4 dans ladite entrée de ladite face secondaire de ladite poignée allongée (2) est insérée une extrémité d'un câble électrique (5) comprenant un enveloppe extérieure (4) et une pluralité de conducteurs électriques intérieurs,

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caractérisé en ce que

1.5 ledit dispositif de câblage (1) comprend de plus, au voisinage de ladite entrée de ladite poignée (2), un élément structurel (3) d'étanchéité en matière plastique moussée pour protéger ladite entrée contre la pénétration de l'humidité,

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1.6 ledit élément structurel d'étanchéité (3) comprenant un corps en substance parallélépipède,

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1.7 ladite extrémité de ladite enveloppe extérieure (4) étant intégrée, avec une partie correspondante de ladite poignée (2), dans ledit élément structurel d'étanchéité (3),

1.8 ledit corps en substance parallélépipède dudit élément structurel d'étanchéité (3) est parfaitement lié à la fois à ladite enveloppe extérieure (4) dudit câble électrique (5) et à une partie correspondante de ladite poignée (2),

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1.9 ladite poignée (2) loge, de manière parfaitement étanche, ledit corps (6) portant les bornes.

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2. Dispositif de câblage selon la revendication 1, dans lequel ledit élément structurel d'étanchéité (3) en matière plastique moussée est formé comme un insert séparé.

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3. Dispositif de câblage selon la revendication 1, dans lequel ledit élément structurel d'étanchéité (3) en matière plastique moussée est formé on une seule pièce avec ladite enveloppe (4) dudit câble.

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4. Dispositif de câble selon les revendications précédentes, dans lequel ledit élément structurel d'étanchéité (3) en matière plastique moussée comprend au moins une partie allongée renfermant une branche de ladite enveloppe (4).

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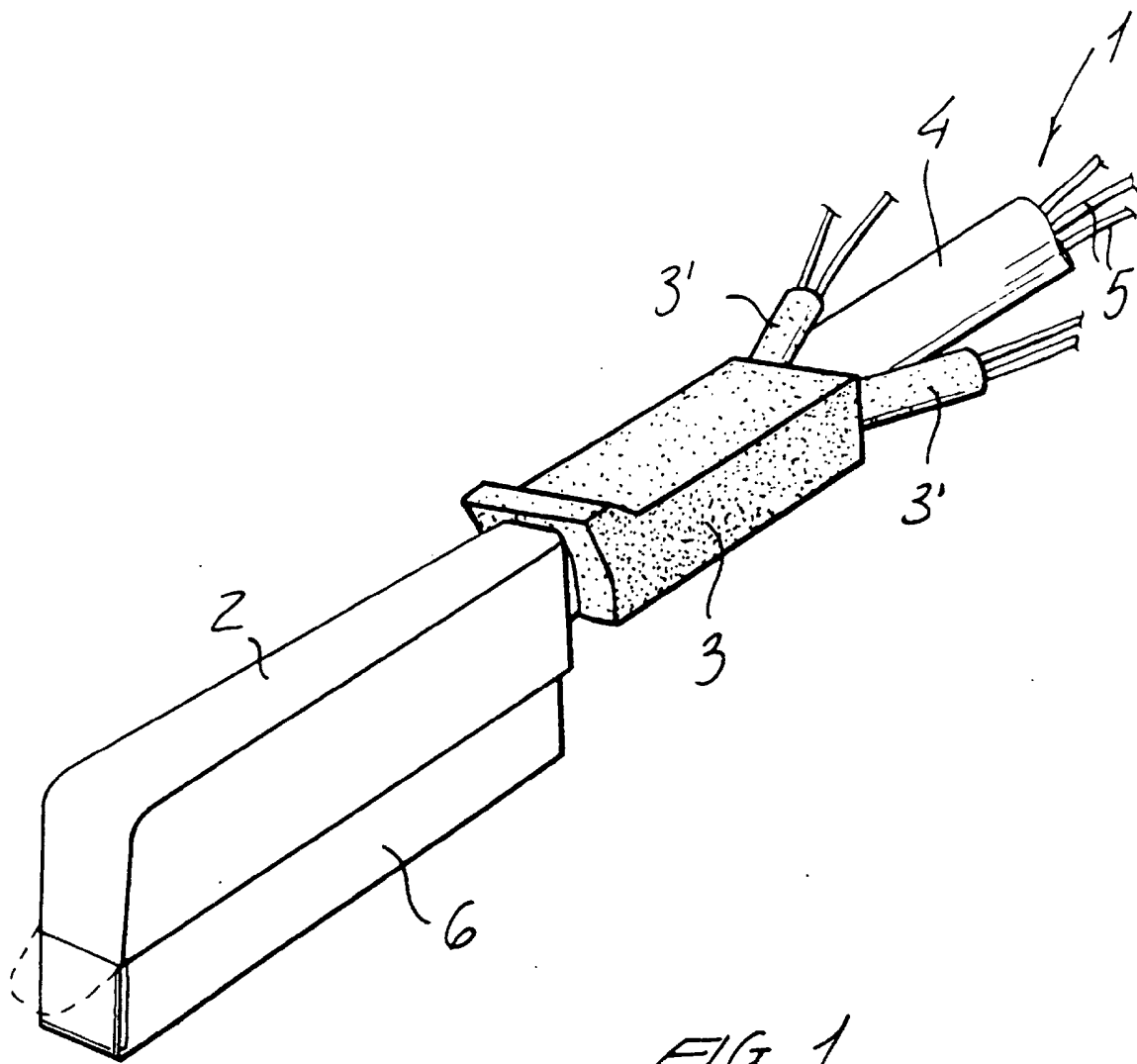


FIG. 1