

(18)



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number:

**0 109 365
B1**

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **25.03.87**

(51) Int. Cl.⁴: **H 01 R 4/70, H 01 R 9/26**

(21) Application number: **83830195.0**

(22) Date of filing: **07.10.83**

(54) **Cap member for protecting and insulating electric cable lugs.**

(30) Priority: **18.10.82 IT 2322382 u**

(43) Date of publication of application:
23.05.84 Bulletin 84/21

(45) Publication of the grant of the patent:
25.03.87 Bulletin 87/13

(84) Designated Contracting States:
AT BE CH DE FR GB LI NL SE

(50) References cited:
**DE-A-1 781 058
DE-U-6 938 749
GB-A-2 024 768**

(73) Proprietor: **Apostolo, Carlo**
Via Marcellino, 25
I-22055 Merate (Como) (IT)

(72) Inventor: **Apostolo, Carlo**
Via Marcellino, 25
I-22055 Merate (Como) (IT)

(74) Representative: **Cicogna, Franco**
Ufficio Internazionale Brevetti Dott.Prof. Franco
Cicogna Via Visconti di Modrone, 14/A
I-20122 Milano (IT)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

EP 0 109 365 B1

Description

The present invention relates to a cap, for protecting and insulating electrical cable lugs.

As it is well known there are presently commercially available cap members for protecting and insulating female lugs for terminating electrical cables, which consist of a sleeve body, made of a plastics material, generally polyethylene, effective to be snap engaged onto the contact terminal of the electrical cable.

These known cap members however cannot be applied to electrical cables already provided with end lugs at either or both ends thereof, mainly as the cable has a not accessible end.

Moreover these known cap members, in particular, have the further drawback that as they are associated to the female lugs of the electrical cables, they cannot be easily identified, with consequent difficulties in the wiring thereof to terminal boards and electrical apparatus in general.

In fact it is not possible to quickly and surely identify the electrical cables with the terminal applied thereto and, accordingly, tedious operations are to be carried out in order to apply to the electrical cable an identifying member, before applying the lug.

Yet another drawback of the known cap members is that, because they do not offer the possibility of identifying said electrical cable, after the assembling of the lug, a lot of time is consumed, mainly in the case where the cables are to be numerated at the wiring operations.

For example, the DE—U—6 938 749 Patent discloses an insulating cap where, because of the necked construction of its inside, the end lug is to be generally affixed to the cable *after* the introduction of the cable into the cap member, thereby wasting a lot of time, considering the very high number of connections which are to be made, for example in an electric system of a motor vehicle. In particular that cap cannot be applied to electrical cables already provided at one end with the end lug and having their other end not accessible.

Accordingly, the task of the present invention is to overcome the abovementioned drawbacks, by providing a cap member, for protecting and insulating electrical lugs, which is effective to be applied in a quick and easy way to a lug in its assembled condition on the cable, while affording the possibility of applying identifying marks to the electrical cable itself.

Within that task it is a main object of the invention to provide such a cap member which is effective to provide great advantages during the assembling step, while having a comparatively simple structure.

Yet another object of the present invention is to provide such a cap member affording the possibility of using fully automatic apparatus, for applying the lugs to the electrical cables, thereby greatly reducing the manufacturing costs.

Yet another object of the present invention is to provide such a cap member which, owing to

the constructional features thereof, is very reliable and safe in operation.

According to one aspect of the present invention, the above mentioned task and objects, as well as yet other objects which will become more apparent hereafter, are achieved by a cap member for protecting and insulating electrical cable lugs, including a sleeve body effective to be slid onto a lug, precoupled to an electrical cable end, comprising, as an extension of said sleeve body, a tubular portion provided for receiving thereon identifying marks of said electrical cable, characterized in that said sleeve body is provided, in its inside, with a projection for snap engaging said lug in its precoupled or crimped condition to said electrical cable, and with an abutment edge for locking said lug inside said sleeve body, and in that said identifying mark receiving portion is included between an annular forward projection having a lead-in slanted surface and a further annular rear projection spaced a given distance from said front projection.

Further characteristics and advantages will become more apparent from the following detailed description of a cap member for protecting and insulating electrical cable lugs, as illustrated, by way of an example and not of limitation, in the accompanying drawings, where:

Figure 1 is a schematic longitudinal cross-section illustrating the cap member according to the invention;

Figure 2 is an exploded perspective view illustrating the cap member and related lug, in its applied condition to an electrical cable;

Figure 3 is a perspective view illustrating the cap member as applied to an electrical cable; and

Figure 4 schematically illustrates the step of applying the identifying marks to the electrical cable.

With reference to the mentioned Figures, the cap member for protecting and insulating electrical cable lugs, according to the invention, which is overall indicated at the reference number 1, comprises a sleeve body 2 provided with means, consisting of a projection 3, effective to afford the possibility of snap engaging a female lug 4, in its coupled or crimped condition to an electrical cable 5.

At one end thereof, the sleeve body 2 is provided with an abutment edge 6, for locking the lug inside said sleeve body 2.

A main feature of the invention is that, as an extension of said sleeve body 2, there is provided, in a single piece, a tubular portion 10 which, on its outer side surface, is provided with a region encompassed by an annular projection 11, having a lead-in slanted surface 12 and an end projection 13.

The region defined between the two projections 11 and 13 affords the possibility, in actual practice, of housing identifying marks for said electrical cable 5.

More specifically, said identifying marks,

which may consist of numbers, letters or symbols of any types, are provided on small bands 20 effective to be associated with the outer surface of the cap member 1 and caused to slide in such a way as to be housed in the region defined by said projections 11 and 13 therefrom they cannot disengage owing to the provision of said projections.

In particular, the tubular portion 10, in addition to increasing the working surface of the cap member, thereby affording the possibility of placing said identifying marks onto said cap member, also provides an identifying mark holding region, said identifying marks being advantageously applied on said bands 20 made of a comparatively resilient material, to be resiliently slid onto said cap in such a way as to slide to the region defined by said projections 11 and 13.

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

In particular the fact is to be point out that, since the structure of the cap member 1 has been modified due to the provision of the tubular portion 10, encompassing for a length the terminal portion of the electrical cable 5, the possibility is afforded of applying in a very simple and quick way the identifying marks, after having applied the lug onto the electrical cable.

This is of great importance, because the advantage is obtained of identifying the electrical cables or lugs thereof, after their application to the terminals, by using automatic apparatus.

The cap member according to the invention, moreover, affords the advantage of great economical savings, since it affords the possibility of cutting the wires, removing the insulating material and applying the lug in a fully automatic manner.

In practicing the invention, the used material for making the cap member as well as the size and specific shape may be any according to the needs, though the best results have been obtained by using an insulating plastics material.

Claim

A cap member for protecting and insulating electrical cable lugs, including a sleeve body (2) effective to be slid onto a lug (4), precoupled to an electrical cable end, comprising, as an extension of said sleeve body a tubular portion (10) provided for receiving thereon identifying marks (20) of said electrical cable, characterized in that said sleeve body (2) is provided, on its inside, with a projection (3) for snap engaging said lug (4) in its precoupled or crimped condition to said electrical cable (5), and with an abutment edge (6) for

locking said lug inside said sleeve body (2) and in that said identifying mark receiving portion is included between an annular forward projection (11) having a lead-in slanted surface (12) and a further annular rear projection (13) spaced a given distance from said front projection (11).

Patentanspruch

Schutz- und Isolationskappe für Kabelschuhe elektrischer Kabel, mit einem Muffenstück (2), welcher auf einen, einem Ende des elektrischen Kabels vorgekoppelten Kabelschuh (4) aufgeschoben werden kann, und als Verlängerung des Muffenstücks einem rohrförmigen Abschnitt zur Aufnahme auf denselben von Identifizierungsmarkierungen (20) für das elektrische Kabel, dadurch gekennzeichnet, daß das Muffenstück (2) in seinem Inneren mit einem Vorsprung (3) für den Schnappeingriff mit dem Kabelschuh (4) in dessen mit dem elektrischen Kabel (5) vorgekoppeltem oder auf diesem aufgeschrumpeltem Zustand und mit einem Anschlagrand (6) zur Befestigung des Kabelschuhes innerhalb des Muffenstücks (2) versehen ist und daß der die Identifizierungsmarkierung aufnehmende Abschnitt zwischen einem ringförmigen, eine abgeschrägte Einzugsfläche (12) aufweisenden Vordervorsprung (11) und einem weiteren ringförmigen, an einem vorgegebenen Abstand vom Vordervorsprung (11) angeordneten Hintervorsprung (13) eingeschlossen ist.

Revendication

Capuchon de protection et d'isolation pour cosses de câbles électriques, comprenant un corps de manchon (2) apte à être associé par glissement à une cosse (4) préreliée à une extrémité d'un câble électrique, comprenant, en extension dudit corps de manchon une partie tubulaire (10) prévue pour recevoir sur sa surface des signes (20) pour l'identification dudit câble électrique, caractérisé en ce que ledit corps de manchon (2) est pourvu, dans son intérieur, d'une partie saillante pour engager par déclenchement ladite cosse (4) dans sa condition préreliée ou sertie sur ledit câble électrique (5) et d'un bord de butée (6) pour bloquer ladite cosse à l'intérieur dudit corps de manchon (2) et en ce que ladite partie pour recevoir lesdits signes d'identification est comprise entre une partie annulaire antérieure (11) ayant une surface inclinée apte à faciliter l'introduction (12) et une autre partie saillante annulaire arrière (13) distancée d'une distance donnée de ladite partie saillante antérieure (11).



