



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 929 132 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
14.07.1999 Bulletin 1999/28

(51) Int. Cl.⁶: **H01R 33/05**, H01R 13/58

(21) Application number: **98204276.4**

(22) Date of filing: **16.12.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Ferrari, Marco**
20145 Milan (IT)

(74) Representative:
De Gregori, Antonella et al
Ing. Barzano & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

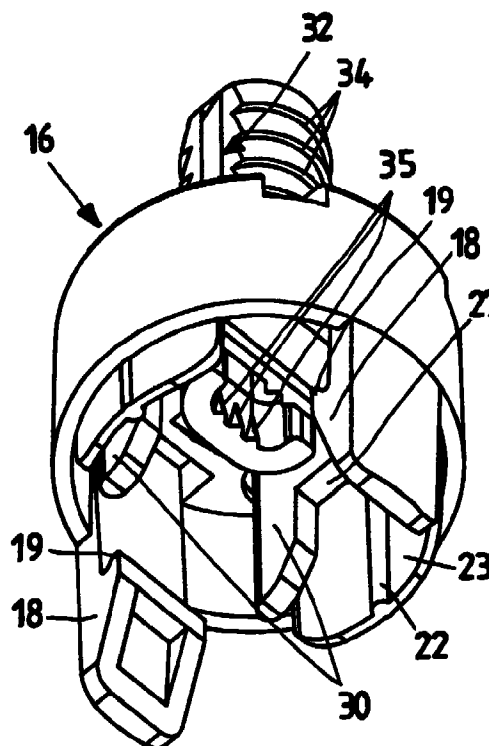
(30) Priority: **08.01.1998 IT MI980005 U**

(71) Applicant: **VLM S.p.A.**
20090 Buccinasco (Milan) (IT)

(54) **A lamp holder with a cable fast locking means**

(57) A lamp holder, with cable fast locking means, comprising a bell shaped lamp holder body (10), made of a plastic insulating material of any kind, said body comprises a screw coupling (12) for a lamp, and a rear closed portion (11), wherein there are provided clamps, contacts and holes (13) in which electric wires (14) are inserted, and a cap (16), made of a plastic insulating material, and provided with a central hole (33), in said body (10) the closed rear portion (11) has a fast locking device for the cap (16), said device is formed by a couple of channel shaped housings (17) obtained in the body (10) and suitable to receive a couple of extensions (18) of the cap (16) in order to steadily position and lock the lamp holder, said cap is partially hollow and has, inside, engagement means (26, 27) on a through cable (15) which gathers the electric wires (14), said engagement means steadily locking the cable (15) only when the couple of extensions (18) of the cap are firmly engaged into the couple of channel shaped housings (17) of the lamp holder body.

Fig.4



EP 0 929 132 A2

Description

[0001] The present invention refers to a cable fast locking lamp holder.

[0002] In the known lamp holders, there are many kinds of cable and wire locks which prevent said wires from sliding or snatching out of the engaged position in the clamps inside the lamp holder body. This series of solutions have a series of problems, also related to the structure of the whole lamp holder.

[0003] For instance, the cable locking to the lamp holder is achieved by means of additional ring elements which, besides being an additional item, have to be inserted at the right time during assembly, otherwise the whole lamp holder has to be disassembled and all the operations have to be repeated.

[0004] Further, it is not always easy to measure the right lengths of the wires needed to assemble the lamp holder before the assembly; in this way, a redundant quantity of cable is used with consequent useless waste of material. These redundant quantities of cable allow the cable to be locked, through the tortuous path of said cable inside the lamp holder.

[0005] There are also locking means which allow, somehow, the positioning of the hanging lamp holder or of the lamp holder in relation to a base, but without the guarantee that the cable does not rotate inside the lamp holder. In this way, there are problems in locking each single wire to the clamps with the possibility of detachment after a certain number of rotations and stresses from the outside.

[0006] This is the case of the current hanging lamp holders which need hooks or additional cable locking means, with cost increases and uncertainty about the effective locking action.

[0007] There are also cases wherein a lamp holder is provided with a cap which can have a more or less tubular outward extension, centrally positioned, with an even surface or provided with outer toothings suitable to lock said cap to a support made of plastic, ceramic, metal or wood material. In these cases, it is particularly important to realise a steady lock of the cable to the lamp holder, otherwise the cable will start to rotate and to wind and finally to disconnect the electric wires from the clamps, even at the simple rotation about the tubular extension.

[0008] In order to solve this problem, lamp holders provided with said tubular extension have been realised, and additional locking means, besides outer locking means in a hole of a wooden support, have been realised in said tubular extension in order to lock the through cable.

[0009] The locking is realised when the extension, containing the cable, is inserted into the hole formed in the wooden support, which is the base of the lamp.

[0010] Further, as already said, such a disposition can not be used for the positioning inside a support made of plastic, ceramic or metal material, wherein, for instance,

the locking is realised by means of a locking ring or washer, placed below the positioning hole, on the other side of the lamp holder extension, which, in this case, is smooth.

[0011] In short, we have seen that, besides a series of operations which are time consuming and expensive because of the various components and of their wear, it is not always possible to obtain a positioning of the lamp holder according to the real need of the final user and according to the high stability requirements and to the full compliance with the safety regulations.

[0012] A purpose of the present invention is to realise a lamp holder having a cable fast locking means which could allow an adjustable locking, and which will, at the same time, guarantee an optimum insulation and will not require additional outer locking and fixing elements.

[0013] Another purpose is to eliminate, as far as possible, additional elements to the lamp holder, as for instance rings, ring nuts, etc., which allow the steady positioning of the cable, but which will be uncomfortable to be used by the operator.

[0014] A further purpose is to realise a lamp holder having a cable fast locking means which allows the use of lamp holder bodies either smooth, or threaded, or provided, as well as not provided, with tubular extension for the positioning in wood, plastic, ceramic or metal materials, without adding new items to the lamp holder in order to lock the cable.

[0015] According to the present invention, these purposes are achieved by realising a lamp holder having a cable fast locking means, said lamp holder comprises a bell shaped lamp holder body, made of a plastic insulating material of any kind, said body comprises a screw coupling for a lamp, and a rear closed portion, wherein there are provided clamps, contacts and holes in which electric wires are inserted, and a cap, made of a plastic insulating material, and provided with a central hole, in said body the closed rear portion has a fast locking device for the cap, said device is formed by a couple of channel shaped housings obtained in the body and suitable to receive a couple of extensions of the cap in order to steadily position and lock the lamp holder, characterised in that said cap is partially hollow and has, inside, locking means on a through cable which gathers said electric wires, said engagement means steadily locking the cable only when said couple of extensions of said cap are firmly engaged into said couple of channel shaped housings of said body of said lamp holder.

[0016] The characteristics and the advantages of a lamp holder having a cable fast locking means according to the present invention will be clearer from the following description of a non limiting example which refers to the attached schematic drawings, in which:

- figure 1 is a side elevation view, partially in section, of a lamp holder according to the present invention, wherein the full line indicates the mounted lamp holder while the dash and dot line indicates the

lamp holder rest position,

- figure 2 is a side elevation section view similar to the one of figure 1, after a 90° rotation, wherein the cable path is partially indicated,
- figure 3 is a bottom plan view of the cap of the lamp holder of figure 2,
- figure 4 is a bottom perspective view of a lamp holder cap according to the present invention, provided with a tubular extension,
- figure 5 is a top perspective view of a lamp holder cap according to the present invention, provided with a tubular extension.

[0017] Referring to figures 1-4, there is substantially shown a lamp holder body with a cable fast locking means, said lamp holder is internally provided with a cable fast locking device according to the present invention.

[0018] From the figures it is possible to notice that a lamp holder body 10, of the hollow type with a bell shape, comprises a screw coupling 12 for positioning a lamp (not shown), and in a rear closed portion 11 thereof, there are provided holes 13 wherein wires are inserted, indicated by 14, which are part of a cable 15. The outer body 10 can be threaded or smooth or half threaded and half smooth.

[0019] Further, the body 11 provides a fast locking device for a cap, indicated by 16.

[0020] Said device is formed by a couple of channel shaped housings 17, obtained in the body 10, suitable to receive a couple of extensions 18 provided in the cap 16 itself. It is obvious that both the body and the cap which form the lamp holder are made of a plastic insulating material.

[0021] The channel shaped housings 17 are formed along outer generating lines of the body 10, in the shown example, but they can also be formed inside the body itself, without changing anything. In the same way, the extensions 18 extend from the outer diameter of the cap 16 and are provided with hooks 19 curved towards the inside for the engagement within the channel shaped housings 17 below the rear closed portion 11 of the body 10. In the same way, the extensions could extend from the inner area of the cap and be provided with hooks curved towards the outside for the engagement within closed channels below the rear closed portion 11 of the body 10.

[0022] It has to be noted that the rear closed portion 11, providing the holes 13 in which the wires 14 are inserted in order to provide the engagement with the clamps-couplings, is formed by a side couple of box-like elements 20 having a column shape (only one of said elements is shown with a full line while the other is shown with a dash and dot line).

[0023] The column elements 20 are positioned along the radial direction, forming a 90° angle with the channel shaped housings 17. These box-like column elements 20 have a prismatic shape and they are provided with

radial cavities 21 on the outer side for engaging the projections 22 formed in the curved and shaped tabs 23 which extend from the cap 16 and which are positioned between a portion of an outer thin wall 24 of the body 10 and said columns 20.

[0024] Each column 20 has a couple of surfaces 31 (figure 1) parallel to a radial and axial direction thereof, which extend well inside the body 10 of the lamp holder.

[0025] According to the present invention, a first rigid jaw element 26, having a semicircular shape with a C-cross section and having a height which does not interfere, once the lamp holder is mounted, with the rear closed portion 11 of the body 10, extends, centrally and towards its inner portion, from a base wall 25 of the cap 16, close to an axial through hole 33.

[0026] A second flexible jaw element, indicated by 27, faces the first jaw element 26, said second jaw element partially holds and contains sideways the first element 26 and has a portion with a U-shaped cross section. This second jaw element 27 has the same height as the first element 26 in the U-shaped portion. Said second element is positioned, at one of its ends, into a cavity 28, which is also U-shaped, of the base wall 25 into a cavity 28 of the cap 16 and said element is fixed to said base wall 25 just along a central portion 29 of the U-shaped jaw element. A couple of arms 30, which are cam shaped so as to form a tip, extend from the upper ends of said U-shaped portion of the second jaw element, said ends being directed towards the inner portion of the cap 16. These arms 30 are capable of engaging, in a sliding manner, with one of the corresponding surfaces 31 of the columns 20 (indicated by a dash and dot line in figure 1) so as to cause the bending and the movement of the U-shaped portion of the second jaw element 27 towards the first C-shaped jaw element 26. Said movement is such that the C-shaped section is enclosed inside the U-shaped section thus steadily clamping the cable 15 which passes through said sections.

[0027] Therefore, the jaw elements 26 and 27 form engagement means which steadily lock the through cable 15 by engaging the arms 30 with the surfaces 31. This engagement means simultaneously act with the firm engagement of the couple of extensions 18 of the cap 16 into the couple of channel shaped housings 17 of the lamp holder body 10. In order to increase the locking action on the cable 15, both the jaw elements 26 and 27 can be internally provided with toothings 35 on facing surfaces.

[0028] Therefore, a new lamp holder with a cable fast locking means has been realised, wherein said locking operation is automatically performed when the body is fixedly mounted to the cap.

[0029] Such a lamp holder embodiment can only be valid for a cap and a body having flat bases.

[0030] From the figures, it can instead be noted that such a totally new disposition can comprise not only the caps 16 with a flat base, but also caps provided, in the

rear closed portion of the base wall 25, with a more or less tubular extension 32, directed towards the outside.

[0031] This tubular extension 32 is centrally positioned in the base wall 25, said extension can be smooth or provided with toothings on its outer portion and it is generally suitable to be fixed to a plastic, ceramic, metallic or wooden support, within a corresponding hole or opening (not shown).

[0032] The tubular extension 32 is inserted into the through hole 33 in the base wall 25 so as to be aligned and to extend inside the cap 16 within the two jaw elements 26 and 27.

[0033] The cable 15, inserted inside the tubular extension 32, will then be able to be placed and to freely slide between the two jaw elements 26 and 27, which are still apart and just facing each other.

[0034] Therefore, in this case, the cap 16 will be freely inserted into the hole or the opening of a support (not shown) by inserting said tubular extension 32, wherein the cap 16 will be locked either through the forced engagement of toothings 34 formed on its outer surface of the extension 32, or through a washer (not shown) placed on the other side of the support opening in order to steadily lock the outer surface of the extension 32.

[0035] In this way, it is also possible to mount the lamp holder body with extreme easiness, once the electric connections of the wires 14 inside the holes 13 are realised. Then, only when the body 10 is inserted into the already fixedly positioned cap 16, also the cable 15 is locked between the two jaw elements 26 and 27, which clamp the cable thanks to the arms action on the surfaces 31.

[0036] During this operation, there is the possibility to slide the cable between the parts until the two jaw elements 26 and 27 are steadily engaged.

[0037] Further, the whole assembly operation of the entire lamp holder is facilitated, as there is no obstacle since the cable is free almost until the end of the assembly.

[0038] Therefore, an immediate and fast positioning of the lamp holder parts is realised in function of the specific needs.

[0039] In this way, all the previously mentioned problems are overcome, said problems being related to the locking of the cable and to the possibility to rotate the same, once the lighting electric apparatus has been mounted.

[0040] Everything is automatically realised without any problem for the cable, as, on the contrary, it is usually the case in the previous art.

[0041] Advantageously, tubular appendices can be added to said lamp holder for additional specific uses, without any modification.

[0042] Therefore, significant economic and functional advantages can be obtained both for the users and for the vendors of said lamp holder.

Claims

1. A lamp holder, with cable fast locking means, comprising a bell shaped lamp holder body (10), made of a plastic insulating material of any kind, said body comprises a screw coupling (12) for a lamp, and a rear closed portion (11), wherein there are provided clamps, contacts and holes (13) in which electric wires (14) are inserted, and a cap (16), made of a plastic insulating material, provided with a central hole (33), in said body (10), the closed rear portion (11) has a fast locking device for the cap (16), said device is formed by a couple of channel shaped housings (17) obtained in the body (10) and suitable to receive a couple of extensions (18) of said cap (16) in order to steadily position and lock the lamp holder, characterised in that said cap is partially hollow and has, inside, engagement means (26, 27) on a through cable (15) which gathers the electric wires (14), said engagement means steadily locking the cable (15) only when the couple of extensions (18) of said cap are firmly engaged into said couple of channel shaped housings (17) of said lamp holder body.
2. A lamp holder as claimed in claim 1, characterised in that said engagement means on the cable (15) in said cap (16) comprise a first rigid jaw element (26) and a second flexible jaw element (27) which can be moved towards said first jaw element (26) by means of cam shaped arms (30) which are engaged, in a sliding manner, with surfaces (31) fixedly positioned inside said body (10).
3. A lamp holder as claimed in claim 2, characterised in that said first rigid jaw element (26) comprises a semicircle shaped element with a C section and said second flexible jaw element (27) partially holds and contains sideways said first jaw element (26) and has a portion with a U-shaped cross section, said second jaw element (27) is positioned, at one of its ends, into a cavity (28) of a base wall (25) of said cap (16) and said element is fixed to said base wall (25) inside said cavity (28) just along a central portion (29) thereof.
4. A lamp holder as claimed in claim 3, characterised in that at least one of said jaw elements (26, 27) is provided internally with facing surfaces with toothings (35).
5. A lamp holder as claimed in claim 1, characterised in that a tubular extension (32) is positioned at the central hole (33) of a base wall (25) of said cap (16).
6. A lamp holder as claimed in claim 5, characterised in that said tubular extension (32) can have a smooth outer portion or an outer portion provided

with toothings to fix it to a support element.

7. A lamp holder as claimed in claim 1, characterised in that said surfaces (31) fixedly positioned inside said body (10) are side surfaces of column box-like elements (20) which contain clamps-contacts of said lamp holder.

10

15

20

25

30

35

40

45

50

55

Fig.1

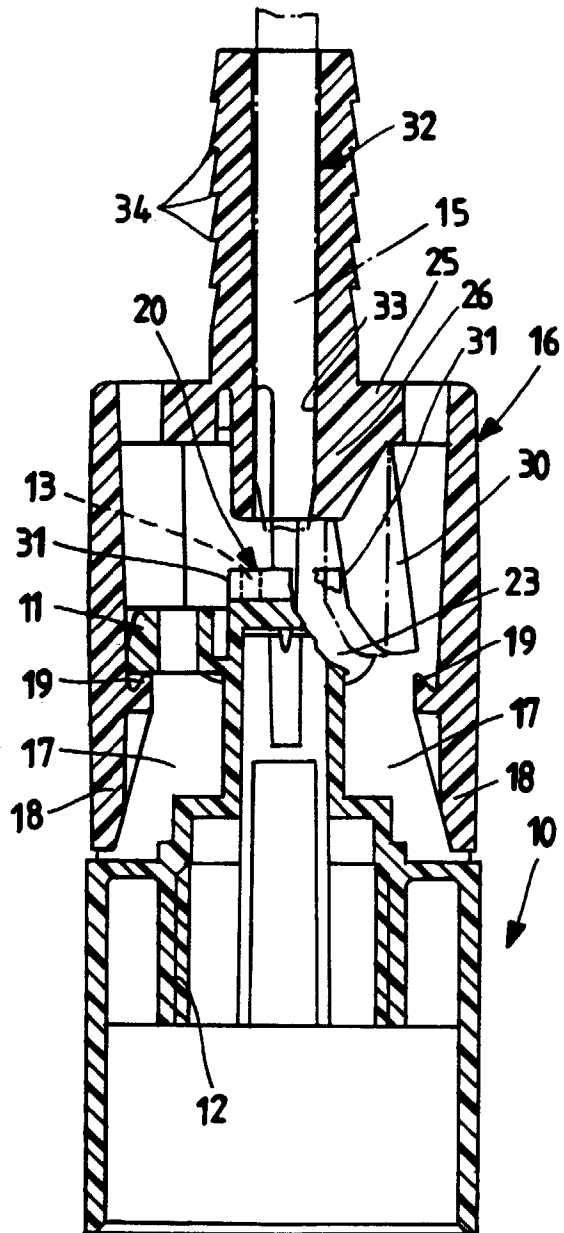


Fig.2

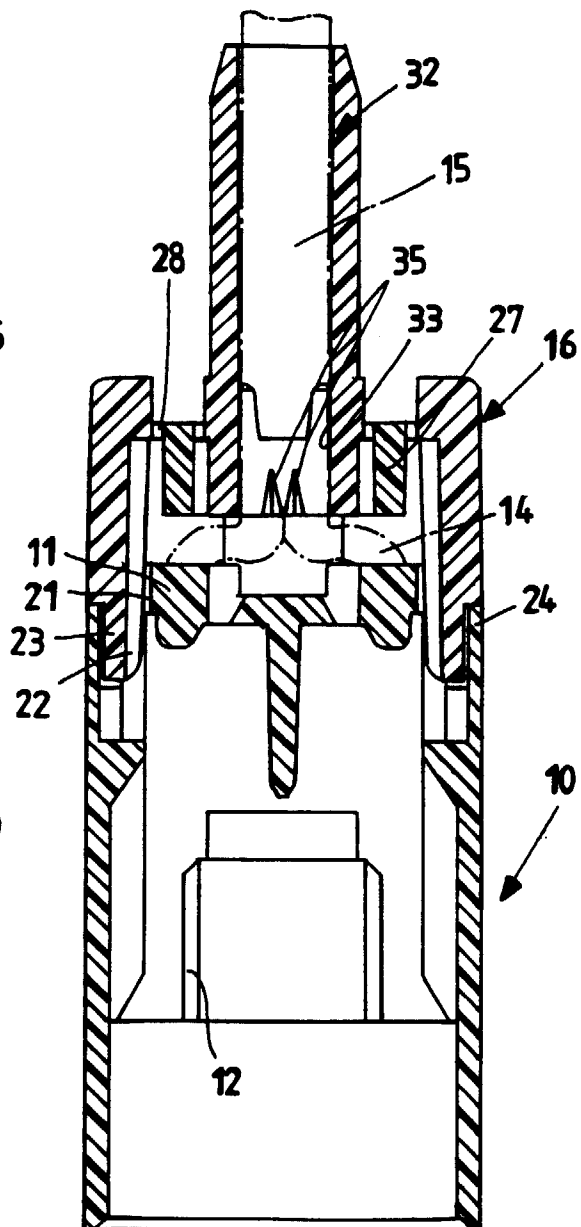


Fig.3

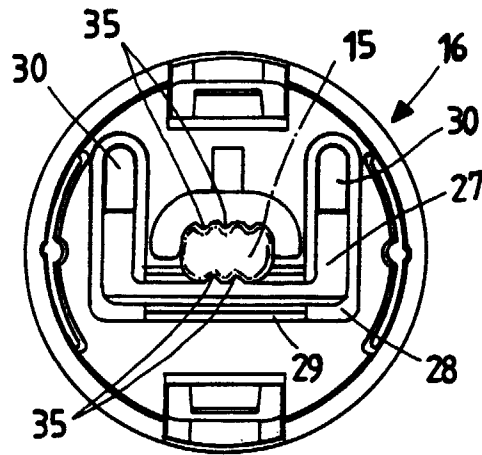


Fig.4

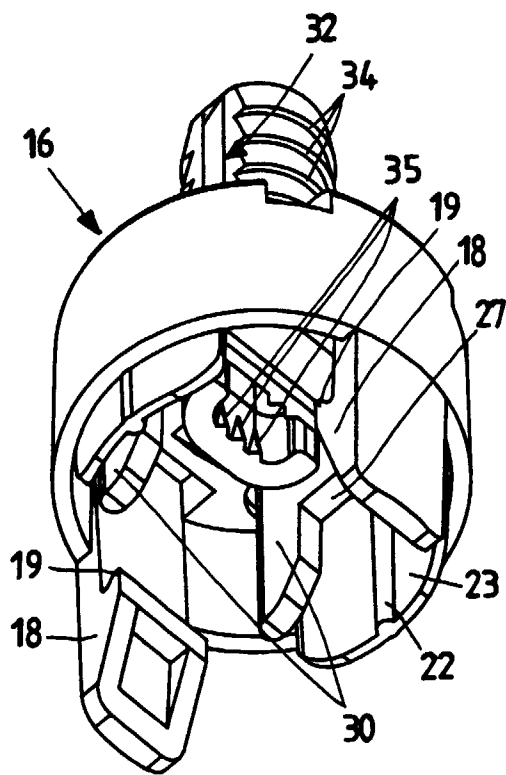


Fig.5

