

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 119 081 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.07.2001 Bulletin 2001/30

(51) Int Cl. 7: H01R 33/22, H01R 13/585

(21) Application number: 00112489.0

(22) Date of filing: 13.06.2000

(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

(30) Priority: 21.01.2000 IT MI200073

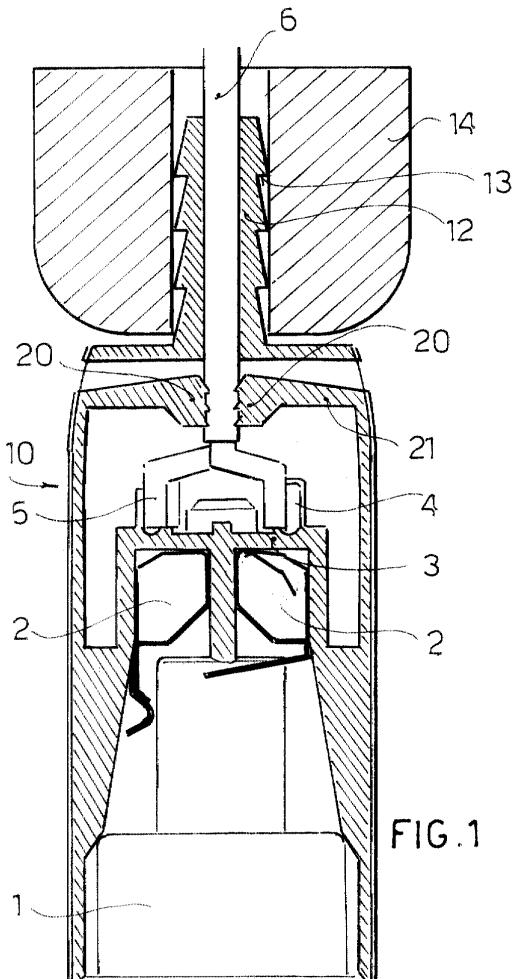
(71) Applicant: Vossloh-Schwabe Italia SPA
47027 Sarsina (Forli') (IT)

(72) Inventor: Giannini, Marco
47025 Mercato Saraceno (Forli') (IT)

(74) Representative: Petruzzello, Aldo et al
Racheli & C. S.p.A.
Viale San Michele del Carso, 4
20144 Milano (IT)

(54) Lamp-holder with quick-locking device for the electric cable

(57) A lamp-holder with a quick-locking device for the electric cable, comprising a bell-shaped lamp-holder body (1) that contains a screw base for a lamp and a closed rear part (3) wherein are provided electrical contacts (2) and seats (4) to receive the strands (5) of an electric cable (6), and a cap (10), suitable to be fitted over the lamp-holder (1), having a hole (100) for entry of the electric cable and engagement means (20) to lock the electric cable, said engagement means comprising two opposite facing jaws (20) that can yield elastically, through traction of the cable in the opposite direction to that of insertion, in order to be brought into firm locking on the electric cable.



EP 1 119 081 A1

Description

[0001] The present invention refers to a lamp-holder with quick-locking device for the electric cable of the lamp.

[0002] Various lamp-holders with different systems of locking of the electric cable are widely available on the market at present. Known to the art are locking devices for the electric cable provided as additional parts of the lamp-holder, such as rings, for example, which clamp the electric cable. Such systems prove complex and costly, because said additional parts must be assembled.

[0003] Italian patent application for utility model No. MI94U000534 describes a lamp holder that provides integrally a cable clamp consisting of an internally hollow tubular part.

[0004] The electric cable is blocked automatically inside the cable clamp, when the cable clamp is inserted inside a hole of a lamp base. In fact the cable clamp comprises flexible tongues which, when pressed against the walls of the hole in the lamp base, bend inward and clamp the cord by means of serrations.

[0005] It is evident that said system can work only when the cable clamp is inserted inside the hole in a lamp base. Said system therefore depends upon the particular configuration of the lamp base which must provide a hole of a suitable diameter to accommodate the cable clamp.

[0006] Italian patent application for utility model MI98U 000005 describes a lamp-holder and a cap that is snap fastened onto the lamp-holder. The cap comprises a hollow tubular part through which the electric cable is inserted and passed through two jaws provided inside the cap. One of said jaws is connected to a cam surface.

[0007] The lamp-holder provides a box-shaped seat wherein are situated the contacts for the strands of the electric cable. When the cap is snap fastened on the lamp-holder, the cam surface of the jaw slides over the box-shaped seat of the lamp-holder and causes bending of the relative jaw which sandwiches the cable against the other jaw, locking it in position.

[0008] It is evident that said system works only if the cap is applied to a particular lamp holder with such a shape as to operate the cam to generate closing of the jaw. Said solution therefore depends upon the particular shape of the lamp-holder.

[0009] The object of the invention is to eliminate said drawbacks, providing a lamp-holder with a quick-locking device for the electric cable that is highly versatile and can be applied to any type of lamp-holder or lamp base.

[0010] Another object of the present invention is to provide a lamp-holder with a quick-locking device for the electric cable that is economical, simple to make and does not comprise additional parts for locking of the electric cable.

[0011] These objects are achieved according to the

invention with the characteristics listed in appended claim 1.

[0012] Preferred embodiments of the invention are apparent from the dependent claims.

5 **[0013]** The lamp-holder with quick-locking device for the electric cable according to the invention comprises a cap destined to be applied over the lamp-holder. The cap provides a hollow tubular part having an entry hole through which the electric cable is inserted. The electric cable is then passed through engagement means provided inside the body of the cap. Said engagement means are preferably two opposite facing jaws connected by means of small flexible bridges to the inside wall of the body of the cap.

10 **[0014]** In order to lock the cable traction is exerted thereon in the opposite direction to that of insertion. Consequently there will be elastic deformation of the engagement means which will compress the cable, preventing any movement of translation and rotation thereof.

15 **[0015]** If the cable is to be adjusted to a suitable length, after it has been locked by said engagement means, pressure is exerted with the fingers on the outer surface of the cap. Said pressure causes deformation of the bridges of the jaws which loosen, releasing the cable which can be adjusted in length.

20 **[0016]** It is obvious that said cable locking system represents a considerable evolution of the systems of the prior art. In fact, the cable is automatically locked inside the cap, regardless of whether a lamp base with relative hole is provided and regardless of the configuration and shape of the lamp-holder. The lamp-holder with quick-locking device for the electric cable according to the invention therefore proves much more versatile than electric cable locking devices of the prior art.

25 **[0017]** Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplary and therefore non-limiting embodiment thereof, illustrated in the appended drawings, in which:

Figure 1 is an axial section of a lamp-holder with quick-locking device for the electric cable according to the invention;

45

Figure 1a is an enlarged view of a detail of Figure 1;

50

Figure 2 is a front view of the lamp-holder with quick-locking device for the electric cable of Figure 1, in which the lamp holder and the quick-locking device for the electric cable are shown in a partially cutaway view;

55

Figure 2a is an enlarged view of a detail of Figure 2;

Figure 3 is an axonometric view of the quick-locking device for the electric cable according to the invention;

Figure 4 is a front view of the quick-locking device for the electric cable of Figure 3;

Figure 5 is section along the plane of section V-V of Figure 4;

Figure 6 is an axonometric view from below of the quick-locking device for the electric cable of Figure 3;

Figure 6a is an enlarged view of a detail of Figure 6.

[0018] The lamp-holder with quick-locking device of the electric cable according to the invention is described with the aid of the figures.

[0019] A lamp-holder 1 comprises a body of insulating material defining a bell-shaped seat with an internal thread for a screw base wherein a lamp of the type commonly available commercially is screwed. In this manner the electrical contacts of the lamp go into contact with the respective electrical contacts 2 of the lamp-holder communicating with the rear or upper part 3 of the lamp-holder 1 wherein seats 4 able to accommodate the strands 5 of an electric cable 6 are provided.

[0020] A cap 10 is positioned at the rear above the lamp-holder 1. The cap 10 is made of insulating material and comprises a substantially cylindrical hollow body 11. Above the body 11 rises a hollow tubular part 12 having an entry hole 100 for the electric cable.

[0021] The tubular part 12 has flexible serrations 13 that protrude outward to allow forced engagement inside a hole in a supporting base 14 of the lamp. As an alternative to the serrations 13 the tubular part 12 can have an outer thread for fixing to the base of the lamp by means of a nut or metal ring.

[0022] Two flexible tongues 15 disposed in diametrically opposite positions protrude downward from the body 11 for snap engagement with the lamp-holder. The tongues 15 have protrusions or small retaining teeth 16 such as to engage in corresponding seats made in the lamp-holder 1.

[0023] Two opposite jaws 20 are provided inside the body 11 of the cap. Each jaw 20 is supported by a small bridge 21 connected to the inner wall of the body 11. The small bridge 21 is made of a suitable flexible material to allow elastic yielding of the jaws 20. In the small bridge 21 are provided two reinforcing ribs 23 (Figures 6 and 7), parallel with each other, to avoid possible breakage of the small bridge.

[0024] In the wall of the body 11 of the cap toward the two bridges 21 two slits 24 are made, in diametrically opposite positions, to allow elastic yielding of the small bridges 21 when pressure is exerted.

[0025] The opposite surfaces of the jaws 20 have serrations 22 which are inclined slightly downward in order to be able to clasp the electric cable 6.

[0026] Assembly of the lamp-holder with quick-locking device for the electric cable according to the inven-

tion is described hereunder.

[0027] The electric cable 6 is inserted through the hole 100 from the top of the tubular part 12, then passes through the jaws 20 provided inside the body 11 of the cap 10. The jaws 20 are in close contact with the cable 6. Downward traction of the cable 6 causes pressure on the jaws 20 and thus downward elastic yielding of the small bridges 21 that support the jaws. Since the serrations 22 of the jaws face downward, they do not oppose downward sliding of the cable 6.

[0028] Once the desired length of the cable 6 has been reached, traction is exerted on said cable 6 in an upward direction, that is to say in the opposite direction to the direction of insertion of the cable. In this manner the serrations 22 of the jaws 20 firmly clasp the cable 6 and an upward elastic deformation of the small bridges 21 is caused. In this manner said small bridges 21 maintain the jaws 20 in such a position as to clamp the cable, with the serrations 22 which bite into the sheath of the cable 6.

[0029] If it is desired to further adjust the length of the cable 6, in order to bring about disengagement of the jaws 20, pressure is exerted with the fingers on the outer surface of the body 11 of the cap 10, exactly in the direction of the flexible tongues 15. This pressure causes elastic yielding of the small bridges 21 which bend downward causing disengagement of the jaws 20 from the cable 6. The length of the cable can then be adjusted and it can be locked again by pulling upward.

[0030] Once the length of the cable 6 has been suitably adjusted, the strands 5 of the cable are inserted in the seats 4 of the contacts of the lamp-holder 1 and the cap 10 is snap fastened onto the lamp-holder through engagement of the elastic tongues 15.

[0031] It is obvious that this system for rapid fixing of the electric cable proves extremely simple and depends neither on the lamp-holder supporting base if present nor on the particular shape of the lamp-holder.

[0032] Numerous modifications and variations within the reach of a skilled in the art can be made to the present embodiment, nevertheless remaining within the scope of the invention expressed in the appended claims.

45 Claims

1. A lamp-holder with a quick-locking device for the electric cable, comprising a bell-shaped lamp-holder body (1) that provides a base for a lamp and a rear part (3) in which electrical contacts (2) and seats (4) to receive the strands (5) of an electric cable (6) are provided, and a cap (10), suitable to be applied over said lamp-holder (1), having a hole (100) for entry of the electric cable (6) and bearing engagement means (20) to lock said electric cable, characterized in that said engagement means (20) are elastically yielding to be brought into firm locking

on said electric cable by means of simple traction on the electric cable (6) in the opposite direction to that of insertion of the cable.

2. A lamp-holder according to claim 1, characterized in that said engagement means are two opposite jaws (20) integral with the inner walls of said cap (10). 5

3. A lamp-holder according to claim 2, characterized in that said jaws (20) are connected to the inside walls of the cap (10) by means of respective flexible small bridges (21). 10

4. A lamp-holder according to claim 3, characterized in that said flexible small bridges (21) have reinforcing ribs (23). 15

5. A lamp-holder according to any one of claims 2 to 4, characterized in that the opposite surfaces of said jaws (20) comprise serrations (22), able to bite into the sheath of the cable (6). 20

6. A lamp-holder according to claim 5, characterized in that said serrations (22) are inclined in the direction of insertion of the electric cable (6). 25

7. A lamp-holder according to any one of claims 3 to 6, characterized in that in the body (11) of the cap, in proximity to the small bridges (21) bearing the engagement means (20), slits are provided to allow elastic yielding of said small bridges (21), by means of pressure, for disengagement of the cable (6) from said engagement means. 30

8. A lamp-holder according to any one of the preceding claims, characterized in that said hole (100) for entry of the electric cable (6) in said cap (10) is made in a tubular part (12) protruding upward from the cap (10). 35 40

9. A lamp-holder according to claim 8, characterized in that said tubular part (12) provides an external serration (13) for engagement in a hole in the supporting base (14) of the lamp. 45

10. A lamp-holder according to claim 8, characterized in that said tubular part (12) provides a threaded end for fixing by means of a ring or nut means to a supporting base (14) of the lamp. 50

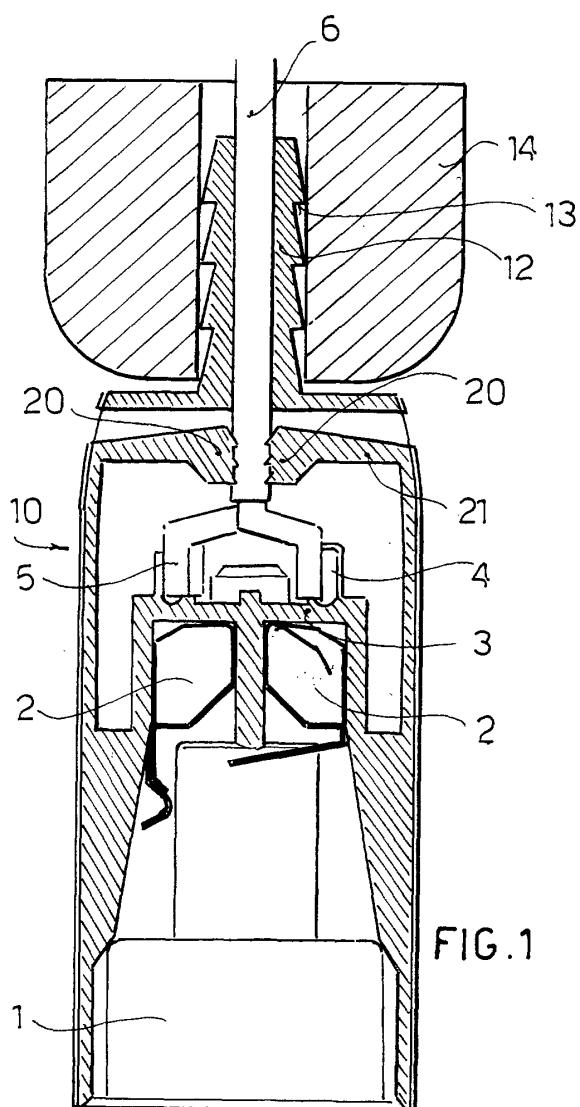


FIG.1

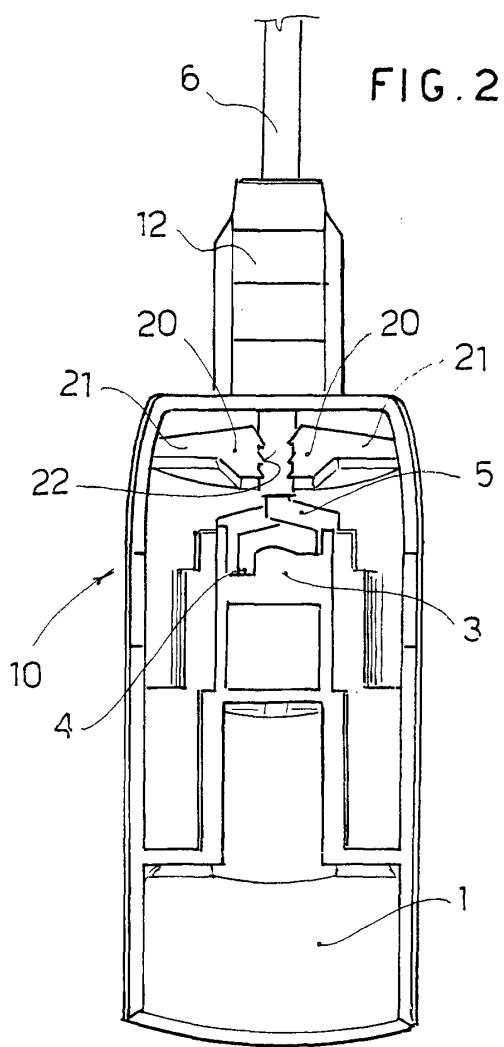


FIG. 2

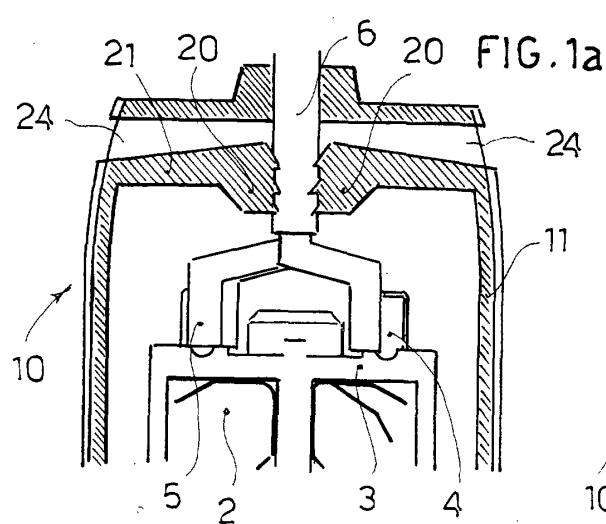


FIG.1a

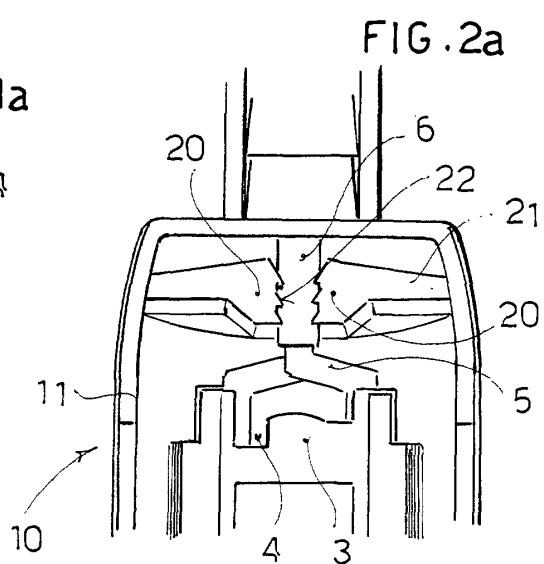


FIG. 2a

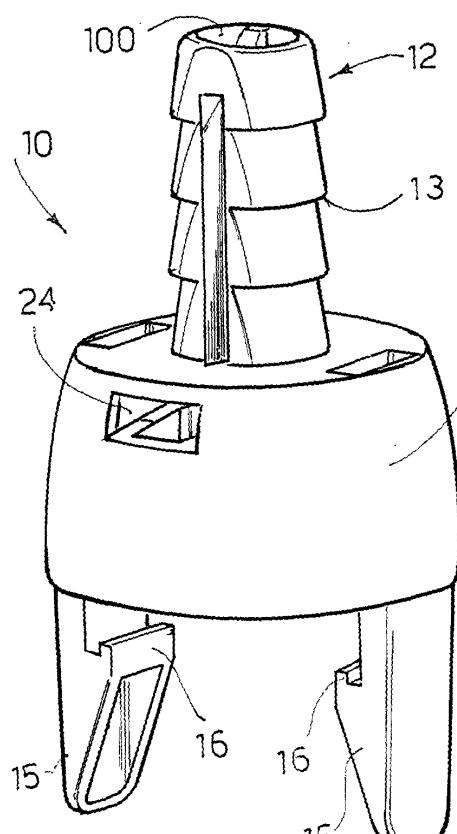


FIG. 3

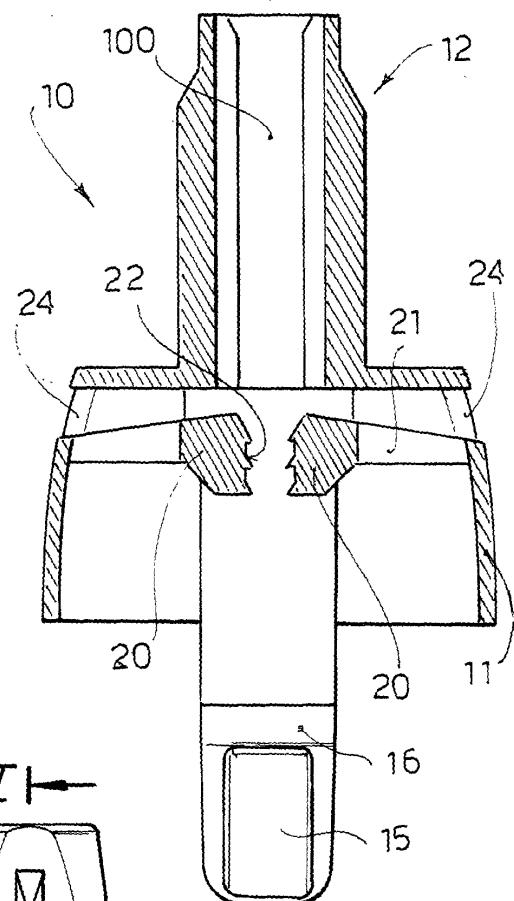


FIG. 5

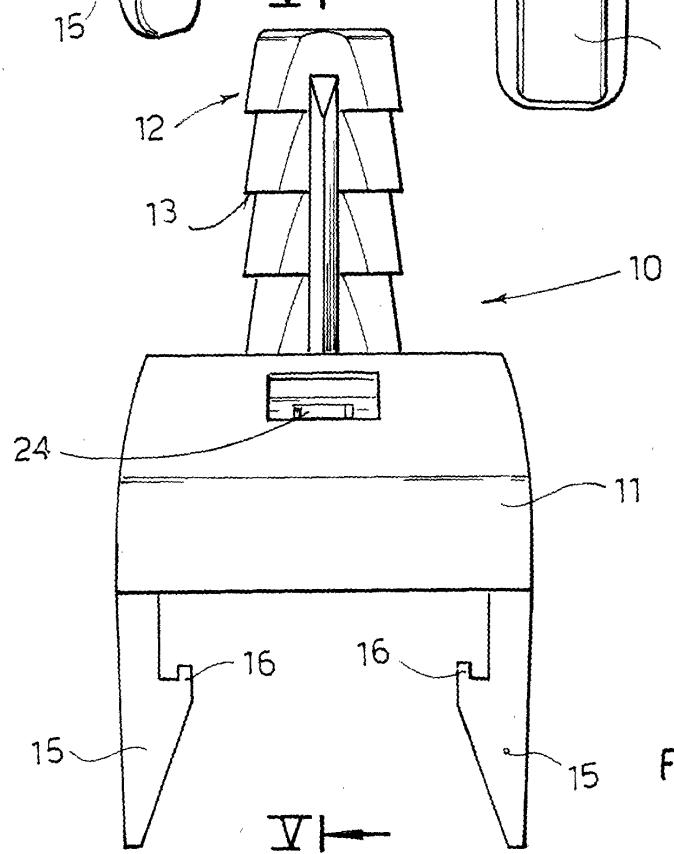


FIG. 4

FIG. 6

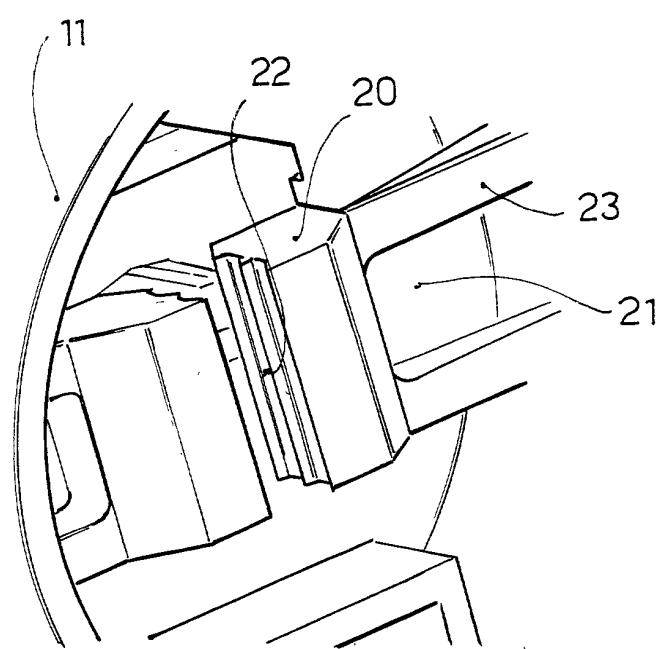
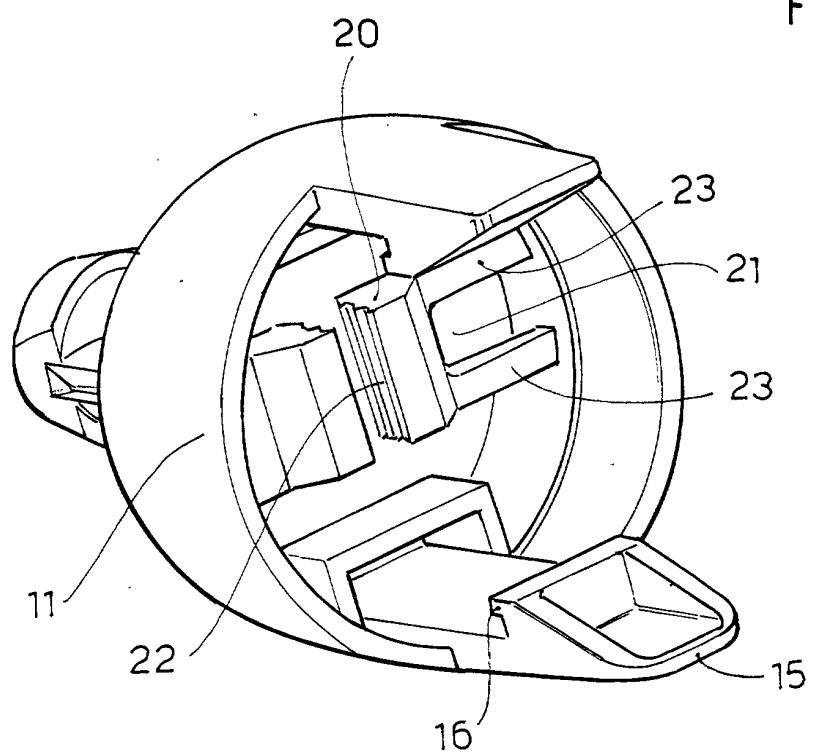


FIG. 6a



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 2489

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	DE 88 05 216 U (VLM-W.MURJAHN) 25 August 1988 (1988-08-25) * page 8, paragraph 1 - page 9, paragraph 3; figures 1-4 *	1-3,5,6, 8,10	H01R33/22 H01R13/585
Y	DE 28 29 639 B (C.SUBKLEW) 29 November 1979 (1979-11-29) * column 3, line 55 - column 4, line 17; figures 1,2 *	1-3,5,6, 8,10	
A	GB 1 396 790 A (BRITISH INSULATED CALLENDER'S CABLES) 4 June 1975 (1975-06-04) * page 2, line 30 - line 44; figure 1 *	1-3,5	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)			
H01R			
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
BERLIN	6 April 2001	Alexatos, G	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 00 11 2489

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-04-2001

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
DE 8805216	U	25-08-1988		DE 3813233 A IT 213765 Z		15-12-1988 16-02-1990
DE 2829639	B	29-11-1979		NONE		
GB 1396790	A	04-06-1975		NONE		