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(54) **IMPROVED SET OF ELEMENTS FOR THE REALIZATION OF A LIGHTING DEVICE**

(57) Complex of elements for the realization of a lighting device (2) to be mounted in a protruding way on an installation and/or roofing structure (20), comprising at least one lighting element (3) which includes:

- a body (4) inside which at least one light source is positioned,
- at least a transmission portion (5) which is configured to allow, at least in part, the transmission to the external environment of the light generated by said lighting source,
- a cable (6) for powering said lighting source, which protrudes from said body (4), said set of elements also comprising:
- a casing (7) configured to completely house the body (4) of said at least one lighting element (3), said casing (7) comprising at least one opening (8') for insertion inside the casing itself of the body (4) of a corresponding lighting element (3) and at least one opening (8'') of the cable (6) of said at least one lighting element (3) towards the outside of said casing (7), and
- at least one visible annular element (11) to be associated with the body (4) of a corresponding lighting element (3) so that, when the body (4) of said lighting element (3) is completely housed and hidden in said casing (7), said at least one visible annular element (11) and said transmission portion (5) of said at least one lighting element (3) are visible from the outside of said casing (7), and characterized by the fact to be configured so that, when the body (4) of said at least one lighting element (3), to which a corresponding visible annular element (11) has been previously associated, is inserted inside the casing (7), said opening (8') for the insertion of said body

(4) is completely closed and the area of said casing (7) that surrounds said opening (8') remains visible.

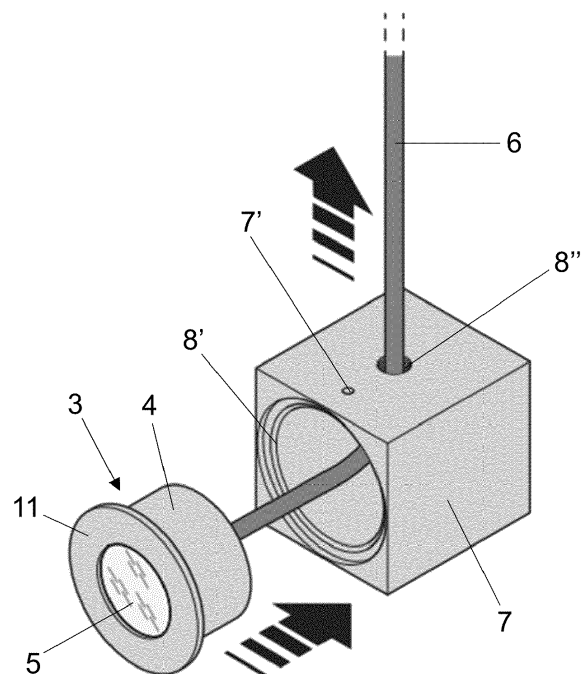


FIG. 5b

Description

[0001] The present invention relates to an improved set of elements for the realization of a lighting device to be mounted in a protruding way on an installation and/or roofing structure, such as for example an awning or a pergola. The present invention also relates to the resulting lighting device which is obtained by assembling said set of elements.

[0002] Currently, an increasing number of pergolas, awnings, verandas, glass panels, or roofing installations in general, are equipped with lighting devices that can be designed to illuminate the environment in which the roof is mounted and/or to define lighting courtesy and/or to create particular lighting effects, in particular RGB effects.

[0003] This need is generally satisfied by applying LED lights in the form of spotlights or strips (also known as "led strips"). Furthermore, in some cases, the LED lights are inserted or housed inside a semi-transparent cover, which is generally defined by an extruded profile in polymeric material, and this is to create a uniform beam of light starting from a strip of LEDs., thus avoiding having distinct and separate light beams/points for each LED, both to isolate the LED diodes with their electrical connections from the external environment, in order to avoid the entry of solid particles (in particular dust), of insects or liquids.

[0004] Currently, the LED lights are therefore inserted into suitable seats provided in the metal or in any case rigid components of the roofing installation, or by applying them by means of adhesive directly on the surface of said components. For example, in the roller blinds the LED lights can be applied to the articulated arms and/or to the rigid crosspiece that is moved and/or to the support structure of the awning, while in the sliding awnings the LED lights are applied to the guides and/or to the support uprights of the guides and/or to the other parts of the awning support structure. In the pergolas, on the other hand, the LED lights can be applied to the perimeter support structure, to the uprights or to the blades, in the verandas they can be applied in correspondence with the perimeter walls or the false ceiling and they can also be mounted in the glass panels to illuminate their perimeter.

[0005] In particular, at present, there are lighting devices which are installed and mounted in a protruding way on the corresponding supporting component of the installation and/or of the roofing structure.

[0006] In this context, there is a need to have lighting devices having visible external walls of the same color as the components of the installation and/or the roofing structure from which they protrude, thus resulting in less impact from an aesthetic and ornamental point of view.

[0007] Currently, however, this is not possible since the hot painting of the known lighting devices available on the market would inevitably damage delicate parts of the device, such as the lens, the cables and the electronics, thus making it unusable.

[0008] WO2007/144829, DE202014106229, US7874709, DE102004009632, US4574337 and US 7320533 already show devices in which a lighting element - which is provided with a body containing a light source, a portion for transmitting the light generated by said source and from a power supply cable - is inserted inside a casing so that the body of said lighting element is completely housed and hidden inside the casing itself and so that said portion of transmission of the lighting element and an annular element which is associated with said lighting element.

[0009] The purpose of the invention is to propose a set of elements for the realization of a lighting device to be mounted in a protruding way on an installation and/or roofing structure, such as for example an awning or a pergola, which allows to overcome, at least in partly, the drawbacks of the known solutions.

[0010] Another object of the invention is to propose a complex of elements which is simple, easy and quick to assemble, thus allowing to obtain a corresponding lighting device to be mounted protruding onto an installation and/or roofing structure.

[0011] Another object of the invention is to propose a set of elements for the realization of a lighting device that has the external and visible walls of a desired color and, in particular, of the same color of the components of the installation and/or of the covering structure in which it is installed, and this without causing any damage or functional alteration to the device itself.

[0012] Another object of the invention is to propose a set of elements for the realization of a lighting device which allows to obtain a pleasant overall aesthetic effect and which gives the observer the sensation of being in front of a high quality product, both on the surface aesthetic and functional.

[0013] Another object of the invention is to propose a set of elements which has an alternative characterization, both in constructive and functional terms, with respect to the traditional ones.

[0014] Another object of the invention is to propose a set of elements which can be obtained simply, quickly and with low costs.

[0015] Another object of the invention is to propose a set of elements that can be mass-produced and quickly and efficiently.

[0016] Another object of the invention is to propose a set of elements that have high standards, both functional and aesthetic, and at the same time of accessible cost, thus allowing the possibility of its diffusion on a large scale.

[0017] Another object of the invention is to propose a lighting device which is hot painted in a desired color, and in particular in the same color as the components of the installation and/or the roof structure in which it is intended to be mounted in a protruding way, and this without affecting the optics, cables and/or electronic components of the device itself.

[0018] All these objects, considered individually or in

any combination thereof, and others which will result from the following description are achieved, according to the invention with a set of elements for the realization of a lighting device to be mounted in a protruding way on an installation and/or roofing structure, such as for example an awning or a pergola, as defined in claim 1.

[0019] The present invention is further clarified hereinafter in some of its preferred embodiments reported for purely illustrative and non-limiting purposes with reference to the annexes tables of drawings, in which:

- Figure 1 shows a photographic detail of a pergola in which a lighting device obtained starting from the set of elements according to the invention is mounted, and
- Figure 2 shows a photographic detail of the pergola of fig. 1 from a different perspective,
- Figure 3 shows a photographic detail of a lighting device obtained starting from the set of elements according to the invention and which is painted in the same color as the corresponding component of the pergola on which it is mounted in a protruding way,
- Figure 4 shows a photographic detail of a lighting device which is obtained starting from the set of elements according to the invention and which is painted in the same color as the corresponding component of the pergola on which it is mounted in a protruding way,
- Figure 5a shows the possibility to associate/disassociate the visible annular element from the lighting element of the assembly according to the invention, to thus allow to paint separately said visible annular element,
- Figures 5b - 5e show in perspective view the assembly sequence of the assembly of elements according to the invention to thus obtain the lighting device of fig. 5f,
- Figure 6a shows the possibility of associating/disassociating the visible annular element from the lighting element of the complex according to the invention, to thus allow to paint said visible annular element separately,
- Figures 6b - 6e show a view the assembly sequence of the assembly of elements according to the invention is shown in perspective in order to obtain the lighting device of fig. 6f.

[0020] As can be seen from the figures, the set of elements according to the invention, for the realization of

a lighting device (which is indicated as a whole with the reference number 2) comprises at least one lighting element 3 which, in turn, comprises:

- 5 - a body 4 inside which at least one light source is positioned (not shown),
- at least a transmission portion 5 which is configured to allow, at least in part, the transmission to the external environment of the light generated by said lighting source,
- 10 - a power supply cable 6 of said lighting source which protrudes from said body 4.

[0021] Advantageously, said at least one lighting source can comprise at least one LED diode (i.e. at least one electronic component which, if powered by electrical energy, emits light) and/or an incandescent lamp, a discharge lamp, a fluorescent lamp, a LED filament lamp, an OLED type diode, or in general any other electrical device configured to emit light. Advantageously, each light source can be configured to emit monochromatic light in the visible spectrum and/or can be of the RGB type to emit corresponding light radiations in the visible spectrum.

[0022] Conveniently, the transmission portion 5 is a screen made of transparent or translucent material to allow the transmission of the light produced by the light source to the outside. Preferably, said transmission portion 5 is configured to allow the transmission of the light generated by the light source to the external environment with an indicative loss of between about 0-50%. Preferably, the transmission portion 5 is also configured to homogeneously diffuse the light generated by the light source.

[0023] Conveniently, in a possible embodiment, the transmission portion 5 can comprise a partially opaque portion, preferably with an opal, frost (i.e. transparent with satin finish) or milky white effect, to allow at the same time the transmission and homogeneous diffusion of the light produced by the light source.

[0024] Conveniently, the body 4 with the transmission portion 5 constitute a pre-assembled unit and define a closed chamber for housing the light source.

[0025] Conveniently, the power supply cable 6 is a traditional conductive electric cable for connecting the light source to an electric power source, not shown, such as for example a battery or the electrical network, to thus allow the light source to be electrically powered..

[0026] The set of elements also includes:

- 50 - a casing 7 configured for housing the body 4 of said at least one lighting element 3 and provided with at least one exit opening 8" of the cable 6 of said at least one lighting element 3 outside said casing 7, and
- 55 - at least one visible element 11 (i.e. an element which, when the device 2 is assembled, is visible) of annular/crown shape (not necessarily with external and/or

internal circular profile), to be associated - preferably by screwing - to a corresponding lighting element 3 so that, when the body 4 of said lighting element 3 is housed in said casing 7, said visible annular element 11 and said transmission portion 5 are visible from the outside of the casing itself. said at least one lighting element 3.

[0027] Furthermore, the set of elements is configured so that, when the body 4 of said at least one lighting element 3, to which a corresponding visible annular element 11 has been previously associated, is inserted into the inside the casing 7, the opening 8' for inserting said body 4 is completely closed while the area of said casing 7 surrounding said opening 8' remains visible. In particular, the face of said casing 7 on which said opening 8' is made remains visible.

[0028] Conveniently, in addition to the cable 6 protruding from the casing 7, only said at least one visible annular element 11 and said transmission portion 5 of said at least one lighting element 3 remain visible from the outside of the casing 7.

[0029] In particular, the casing 7 is configured to completely and completely house the body 4 of one or more lighting elements 3. More in detail, in the assembled configuration of the device 2, the body 4 is not visible from the outside.

[0030] Conveniently, the visible annular element 11 can internally delimit a circular, oval or even polygonal section (square, rectangular, rhomboidal, etc.). Conveniently, the visible annular element 11 is configured to define a frame, which can be of any shape, around the transmission portion 5. Preferably, the visible annular element 11 made of metal material internally delimits a circular, oval or polygonal which thus defines a frame around the transmission portion 5 which is made of transparent or translucent material.

[0031] Advantageously, the set of elements also comprises means 9 for mechanical locking of the body 4 of said at least one lighting element 3 inside said casing 7. Preferably, said means 9 comprise mechanical locking members 9', such as for example grains which are inserted into special through holes 7' obtained in the casing 7 so as to engage the body 4 with their tip, once it has been positioned inside said casing 7. Conveniently, said means 9 for mechanical locking of said at least one lighting element 3 in said casing 7 are retractable. In particular, for this purpose, for example, said mechanical locking members 9' are configured so that, once inserted in the holes 7', they are completely hidden from view.

[0032] Advantageously, the casing 7 has a box-like conformation, preferably cuboid or parallelepiped, however it is understood that it could also have different conformations, for example cylindrical, truncated-pyramidal, prismatic, truncated-conical, etc.

[0033] Conveniently, the casing 7 is totally or, at least in part, hollow internally, to thus allow housing inside the body 4 of at least one lighting element 3.

[0034] Conveniently, the casing 7 also comprises at least one opening 8' for the insertion of a corresponding lighting element 3 inside the casing itself.

[0035] Conveniently, on the casing 7 at least an opening 8' is created, delimited by a border, preferably flanged, on which the visible annular element 11 is meant to abut/get into contact, couple by snap fit, once the latter has been fixed to the body 4 of the lighting element 3.

[0036] Conveniently, when the body 4 of the lighting element 3, which was previously associated with the visible annular element 11, is inserted inside the casing 7, the opening 8' is completely closed and, preferably, the visible annular element 11 is flush with the area - and in particular are with the small wall - which surrounds the opening 8'.

[0037] Conveniently, when the body 4 of the lighting element 3, to which the visible annular element 11 has been previously associated, is inserted inside the casing 7, the area of said casing that surrounds each opening 8' remains at view. Conveniently, the area of said casing which surrounds each opening 8' and which remains visible is substantially parallel or coplanar with the external face of the visible annular element 11 and/or of the transmission portion 5.

[0038] Conveniently, the power supply cable 6 of the lighting element 3 passes through the casing 7. In particular, for this purpose, the casing 7 is provided with an opening 8" for the exit of the cable from the casing, while the opening for the entry of the cable 6 inside the casing 7 corresponds to that for the insertion of the body 4 inside said casing.

[0039] Preferably, the opening for insertion of the body 4 inside the casing 7 (and corresponding also to the inlet opening 8' of the cable 6 in the casing) is made on a different wall than the one in which the exit opening 8" of the cable 6.

[0040] Advantageously, the visible annular element 11 is a ring nut element. Preferably, the visible annular element 11 is configured to screw onto the body 4 of the lighting element 3 so as to surround its transmission portion 5. In particular, for this purpose, the visible annular element 11 is provided with an internal thread for screwing onto an external thread provided on the body 4 around the transmission portion 5.

[0041] Preferably, the body 4 has a cylindrical shape and the transmission portion 5 is mounted at a base of said body. Conveniently, the transmission portion 5 is associated with said body 4 in an opposite position with respect to the outlet of the power supply cable 6 from the body itself.

[0042] Conveniently, the casing 7 is made of metallic material, for example of aluminum. Conveniently, the casing 7 is made of a material such that it can be hot painted. Advantageously, therefore, before assembling the device 2, the casing 7 can be painted - alone and separately from all the other elements - of a desired color, preferably of the same color as the components of the installation and/or of the covering structure in which it is

installed.

[0043] Conveniently, the visible annular element 11 is made of metallic material, for example of aluminum or steel. Conveniently, the visible annular element 11 is made of a material such that it can be hot painted. Advantageously, therefore, before assembling the device 2, the visible annular element 11 can be painted - separately from the other components or at most together with the casing 7 - of a desired color, preferably of the same color as the components of the installation and/or the roof structure in which it is installed.

[0044] Advantageously, the set of elements also comprises means 15, preferably mechanical and removable, for fixing the casing 7 to a component of the covering installation 20 so that it protrudes with respect to the contact/proximity surface of said component.

[0045] Conveniently, said fixing means 15 comprise a hooking element 17 which, preferably, is defined by a shaped laminar body made of elastic material, for example metal. In particular, the hooking element 17 comprises a central through hole 18 for the passage of at least one power supply cable 6 and elastic fins 19 for engagement in corresponding seats (not shown) obtained in the component of the covering installation on which the casing 7 is intended to be mounted in a protruding way.

[0046] Conveniently, the fixing means 15 are associated with the casing 7 at the exit opening 8" of the cable 6 from the casing 7.

[0047] Conveniently, the fixing means 15 comprise a clamping element 16, preferably tubular and internally hollow in order to allow at least one supply cable 6 to pass through it. Conveniently, the clamping element 16 is configured to be constrained to the casing 7 at the exit opening 8" of the cable 6 so as to keep the hooking element 17 constrained to said casing. In particular, the clamping element 16 is configured in such a way that its fixing to the casing 7 also causes the clamping of the hooking element 17 between the clamping element itself and the casing 7, thus making the hooking element 17 integral with said casing 7.

[0048] Conveniently, the power supply cable 6 which protrudes from the outlet opening 8" of the casing 7 is intended to pass through the central through hole 18 of the hooking element 17 and also the clamping element 16.

[0049] Advantageously, the clamping element 16 is provided at one of its ends with an externally threaded portion to thus screw into an internally threaded portion formed at the exit opening 8" of the cable 6 from the casing 7.

[0050] Conveniently, the elastic fins 19 of the hooking element 17 and the clamping element 16 allow to fix the casing 7, and therefore of the assembled device 2, directly on the surface of any component of the roofing installation, preferably on a rigid element of the latter.

[0051] Conveniently, in a possible embodiment not shown, the casing 7 can be applied by adhesive directly on the surface of any component of the roofing installa-

tion, preferably on a rigid element of the latter.

[0052] Conveniently, in a possible embodiment not shown, the casing 7 can be magnetically associated with the surface of any component of the roofing installation, preferably of a rigid element of the latter. For this purpose, a magnet can be fixed to the casing 7 for magnetic connection to a ferromagnetic surface of any component of the roofing installation, or the casing 7 is made of ferromagnetic material for magnetic connection with a magnet fixed to a component of the roofing installation, or else the casing 7 is made of magnetic material for the magnetic connection with a part made of magnetic material of the roofing installation.

[0053] Conveniently, when the device 2 is installed protruding to a component of the roofing installation (for example to an upright of a pergola, as shown in the figures), the fixing means 15 are not visible and, in particular, they are housed hidden inside said component.

[0054] In particular, the lighting device 2, which is obtained by assembling the set of elements according to the invention, is intended to be applied/mounted in a protruding way (see figures 1-4) to a covering installation, in particular to a pergola, indicated as a whole with the reference number 20, or even to a roller awning.

[0055] The set of elements for making the lighting device 2 according to the present invention has been illustrated in particular with reference to its projecting application to a pergola upright, however it is understood that it can be applied to any other component of the pergola support structure (for example on the upper perimeter crosspieces), or in any other roofing installation. In particular, it can be applied to a roofing installation with roof and/or side walls, both pergola and tent, with vertical and/or horizontal and/or inclined cover, both motorized and non-motorized, with mobile or fixed cover. For example, said covering installation also comprises verandas, shutters, roller shutters, glass walls or even a sectional door. Furthermore, the lighting device obtained from the set of elements according to the present invention can also be applied to a structure, such as a glass panel or the like, and in general can be applied to any structure and/or installation for separating an environment.

[0056] Advantageously, the lighting device 2 can be mounted in a protruding way on any component of the covering installation, preferably on a rigid component of the latter.

[0057] As can be seen from figures 5a - 5f, in a first embodiment, the casing 7 can be provided with a single opening 8' for the insertion and housing of a corresponding lighting element 3.

[0058] As can be seen from figures 6a - 6f, in another embodiment, the casing 7 can be provided with two openings 8' for the insertion and housing of respective lighting elements 3. In this case, therefore, two lighting elements 3 and two visible annular elements 11 are provided, each of which is fixed to the body 4 of a respective lighting element 3. Furthermore, the cables 6 of both lighting el-

elements 3 exit from the same outlet opening 8" obtained in the casing 7 in correspondence with the which means 15 are then applied for fixing the casing 7 to a component of the covering installation, preferably on a rigid element of the latter.

[0059] The customization method of the lighting device 2, which is obtained by assembling the elements of the complex according to the invention, is clearly evident from the above.

[0060] In particular, advantageously, before starting the assembly of the device, the casing 7 and the visible annular element 11 are suitably painted in any desired color, preferably the same color as the components of the installation and/or of the structure. cover in which the corresponding device 2 is then intended to be installed once it has been assembled.

[0061] Then, once the visible annular element 11 has been painted, this element is screwed (see fig. 5a and 6a) to the body 4 of the corresponding lighting element 3 so as to surround the transmission portion 5.

[0062] Subsequently, the cable 6 of each lighting element 3 is inserted inside the casing 7 first by passing it through the opening 8' and then making it come out in correspondence with the outlet opening 8" of the casing itself (see fig. 5b and 6b). Then, the assembly formed by the lighting element 3, to which the visible annular element 11 has been previously fixed, is then inserted in correspondence with the opening 8' of the casing 7 and the body 4 of the lighting element 3 is locked inside the casing by means of the locking means 9, preferably by inserting the mechanical locking members 9' into the through holes 7' of the casing 7 so as to engage the body 4 (see fig. 5c and 6c).

[0063] The fixing means 15 are then applied at the exit opening 8" of the cable 6 from the casing 7. In particular, the cable 6 is first threaded through the central through hole 18 of the hooking element 17 (cf. 5d and 6d) and then through the tubular clamping element 16 which is finally screwed in correspondence with the outlet opening 8" (see fig. 5e and 6e), thus clamping the hooking element 17 between the casing 7 and the same tubular clamping element 16.

[0064] By doing so, a lighting device 2 is thus obtained (see fig. 5f and 6f) in which the visible parts defined by the casing 7 and by the annular element 11 have the desired color and which can be mounted on any rigid component of a covering installation so that the casing 7 protrudes from the surface of said component. Conveniently, the power supply cable 6 of each lighting element 3 of the device 2 runs inside the components of the covering installation 20 and, therefore, is hidden from view from the outside.

[0065] From what has been said it is clear that the set of elements according to the invention is quite advantageous in that:

- allows to obtain a lighting device of which it is possible to easily and easily customize and adapt the

corresponding coloring of the parts that are visible (ie casing 7 and visible annular element 11) and, in particular, thus allows to obtain a lighting device which has the same color as the covering installation, thus integrating in a more pleasant and less impactful way within the installation itself, and

- allows a quick, practical and easy assembly and mounting of the lighting device,
- can be assembled by the person who produces and/or paints the casing and/or the visible annular element,
- it can also be assembled easily during the installation phase as no particular tool is required for this operation.

[0066] The present invention has been illustrated and described in some of its preferred embodiments, but it is understood that executive variations may be applied to them in practice, without however departing from the scope of protection of the present patent for industrial invention.

Claims

1. Complex of elements for the realization of a lighting device (2) to be mounted in a protruding way on an installation and/or roofing structure (20), comprising at least one lighting element (3) which includes:
 - a body (4) inside which at least one light source is positioned,
 - at least a transmission portion (5) which is configured to allow, at least in part, the transmission to the external environment of the light generated by said lighting source,
 - a cable (6) for powering said lighting source, which protrudes from said body (4), said set of elements also comprising:
 - a casing (7) configured to completely house the body (4) of said at least one lighting element (3), said casing (7) comprising at least one opening (8') for insertion inside the casing itself of the body (4) of a corresponding lighting element (3) and at least one opening (8") of the cable (6) of said at least one lighting element (3) towards the outside of said casing (7), and
 - at least one visible annular element (11) to be associated with the body (4) of a corresponding lighting element (3) so that, when the body (4) of said lighting element (3) is completely housed and hidden in said casing (7), said at least one visible annular element (11) and said transmission portion (5) of said at least one lighting element (3) are visible from the outside of said casing (7),

and **characterized by** the fact to be configured so

- that, when the body (4) of said at least one lighting element (3), to which a corresponding visible annular element (11) has been previously associated, is inserted inside the casing (7), said opening (8') for the insertion of said body (4) is completely closed and the area of said casing (7) that surrounds said opening (8') remains visible.
2. Assembly of elements according to claim 1, **characterized in that**:
- said casing (7) is made of metallic material and is painted, before its assembly with the other elements, in a desired color, and/or
 - said visible annular element (11) is made of metallic material and is painted, before its assembly with the other elements, in a desired color
3. Set of elements according to one or more of the preceding claims, **characterized in that** said body (4) with the transmission portion (5) constitute a pre-assembled unit and define a closed chamber for housing the light source.
4. Assembly of elements according to one or more of the preceding claims, **characterized in that** it also comprises retractable means (9) for the mechanical locking of said body (4) of said at least one lighting element (3) inside said casing (7).
5. Assembly of elements according to the preceding claim, **characterized in that** said mechanical locking means (9) comprise mechanical locking members (9') which are concealed in suitable through holes (7') obtained in the casing (7) so as to engage the body (4) of a corresponding lighting element (3), once said body (4) has been positioned inside said casing (7).
6. Assembly of elements according to one or more of the preceding claims, **characterized in that** said visible annular element (11) is configured to be associated by screwing to the body (4) of a corresponding lighting element (3) so as to surround the transmission portion (5).
7. Assembly of elements according to one or more of the preceding claims, **characterized in that** it is configured so that, when the body (4) of the lighting element (3), to which the visible annular element has been previously associated (11), is inserted inside the casing (7), the visible annular element (11) is flush with the area surrounding the opening (8').
8. Assembly of elements according to one or more of the preceding claims, **characterized in that** it also comprises fixing means (15), preferably mechanical and removable, of the casing (7) to a component of the covering installation (20).
9. Assembly of elements according to the preceding claim, **characterized in that** said fixing means (15) are applied to the casing (7) at the exit opening (8") of the cable (6).
10. Assembly of elements according to the preceding claim, **characterized in that** said fixing means (15) comprise:
- a hooking element (17), preferably provided with elastic fins (19), which is configured to be crossed by said cable (6),
 - a clamping element (16) configured to be crossed by said cable (6) and also configured to engage, preferably by screwing, on the casing (7) so that the hooking element (17) is clamped between the same clamp element (16) and said casing (7).
11. Assembly of elements according to one or more of the preceding claims, **characterized in that** said casing (7) is configured to house the body of a single lighting element (3) and comprises a single opening (8') for the insertion inside the casing itself of the body (4) of said lighting element (3) and a single outlet opening (8") for the cable (6) of said lighting element (3),
12. Assembly of elements according to one or more of claims 1 to 10, **characterized in that** said casing (7) is configured to house the body of two or more lighting elements (3) and comprises two or more corresponding openings (8'), in each of which the body (4) of a corresponding lighting element (3) is intended to be inserted, and a single outlet opening (8") for the cables of said two or more lighting elements (3).
13. Assembly of elements according to one or more of the preceding claims, **characterized in that** said at least one opening (8') is formed on the casing (7) and is delimited by an edge, preferably flanged, on which it is intended to enter in contact/contact or fit into the visible annular element (11), once the latter has been previously fixed to the body (4) of the lighting element (3).
14. Assembly of elements according to one or more of the preceding claims, **characterized in that**, when the body (4) of each lighting element (3), to which a corresponding visible annular element (11) has been previously associated, is inserted inside the casing (7), the area of said casing which surrounds each opening (8') and which remains visible is substantially parallel or coplanar with the external face of the visible annular element (11) and/or of the transmis-

sion portion (5).

- 15. Lighting device (2), to be mounted in a protruding way on an installation and/or covering structure (20), which is **characterized in that** it is obtained by assembling the elements of the set of elements, according to one or more of the preceding claims, after said casing (7) and/or said visible annular element (11) have been painted in a desired color.

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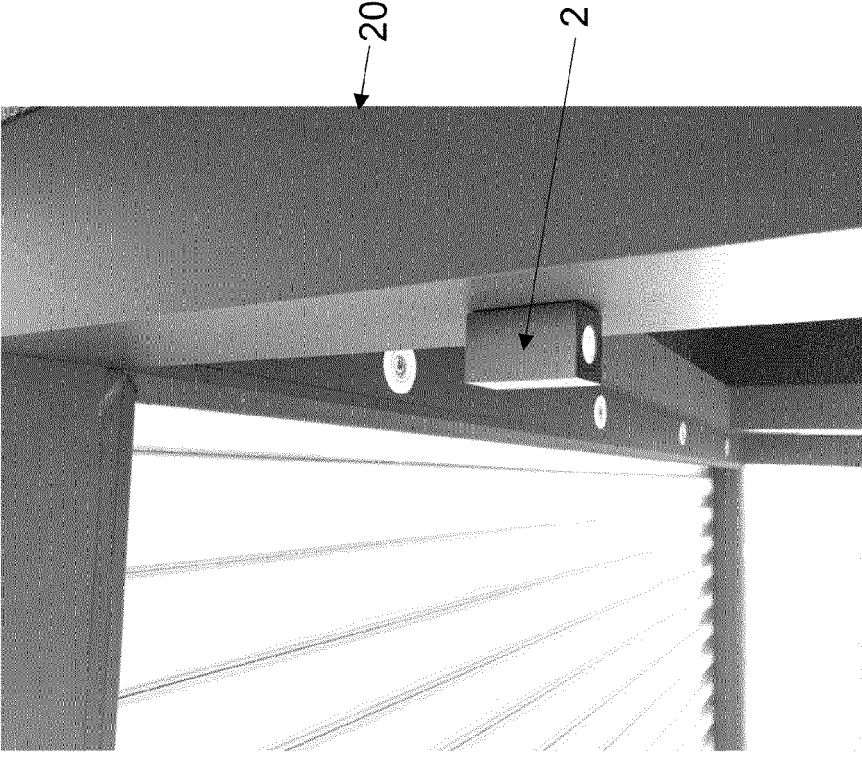


FIG. 2

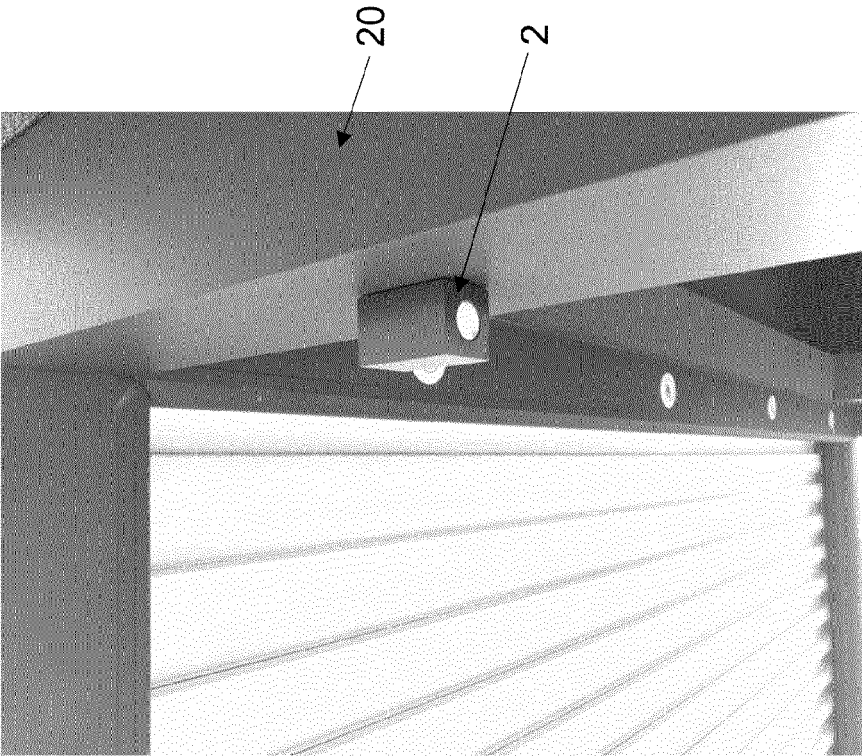
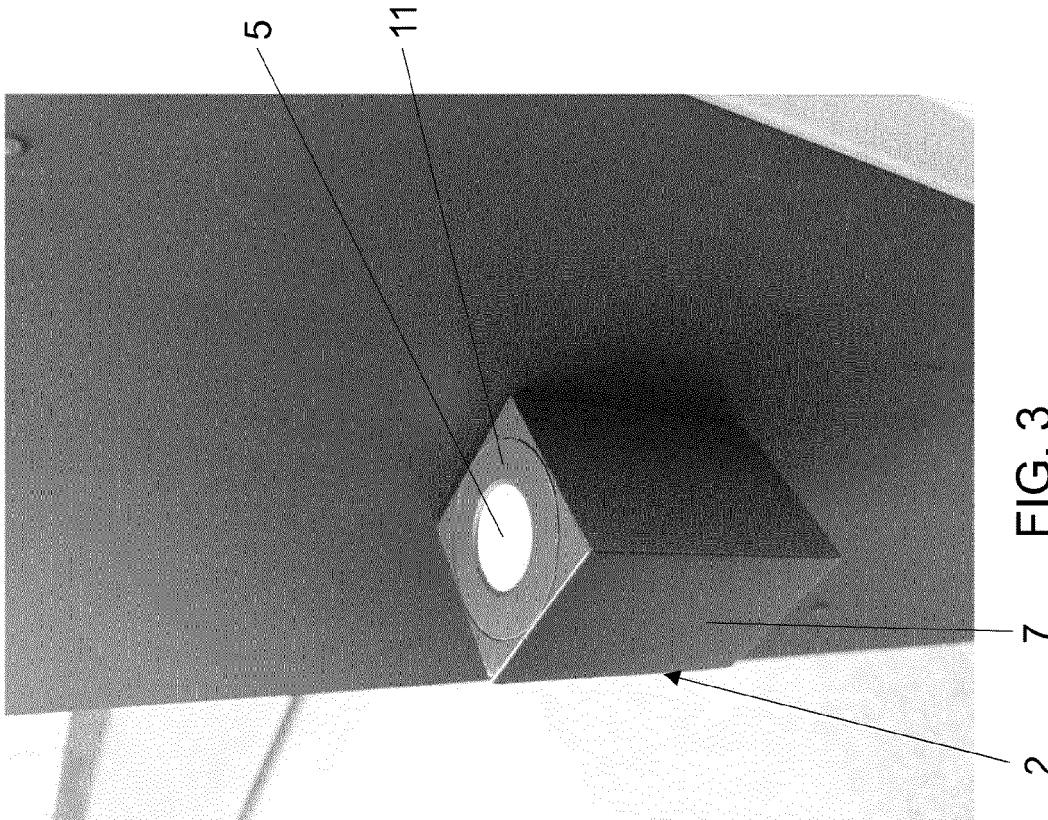
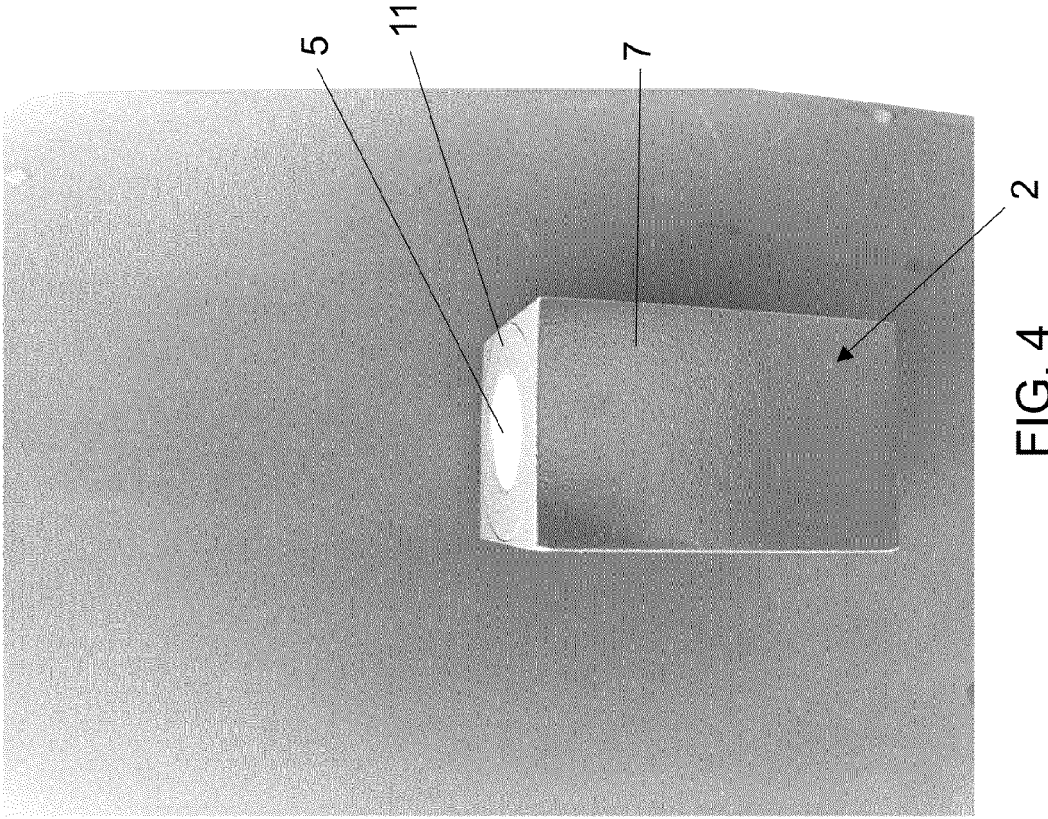


FIG. 1



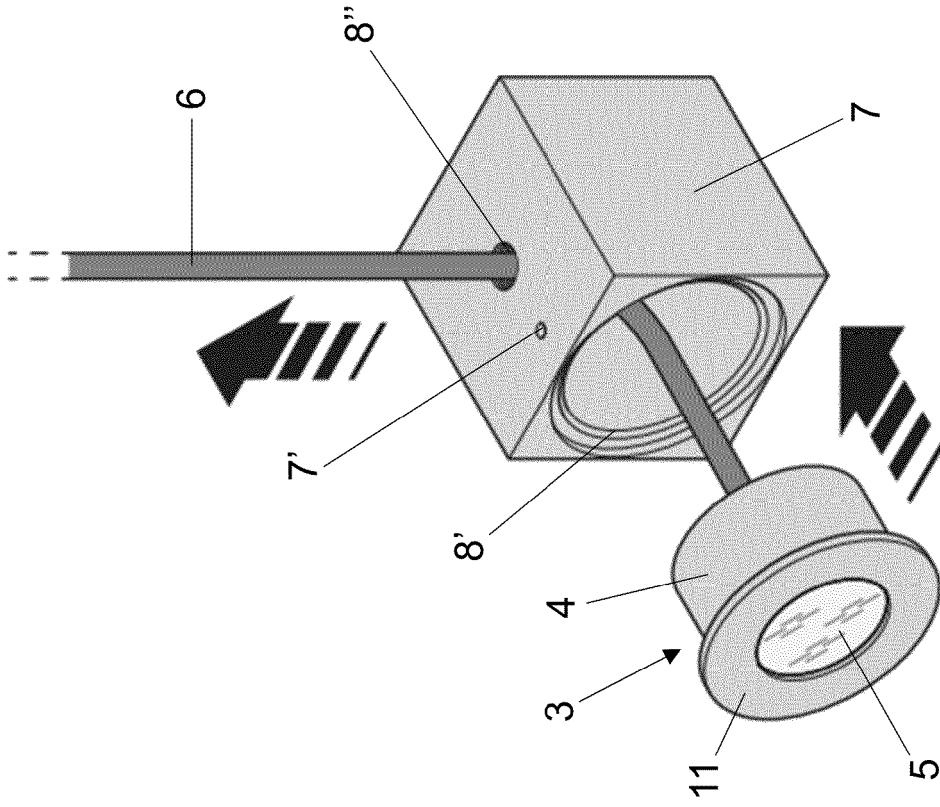


FIG. 5b

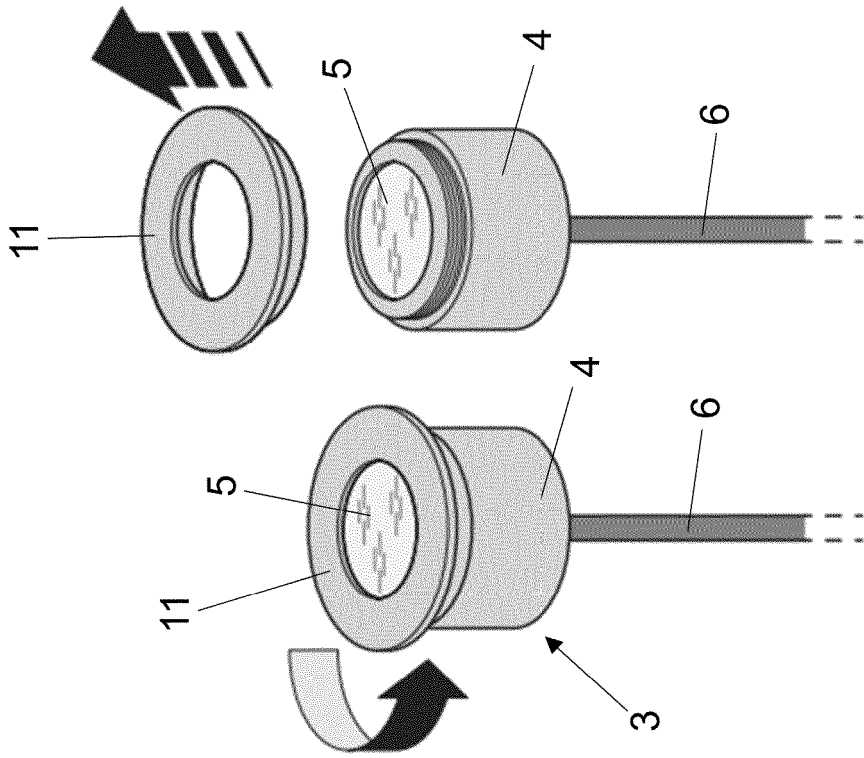


FIG. 5a

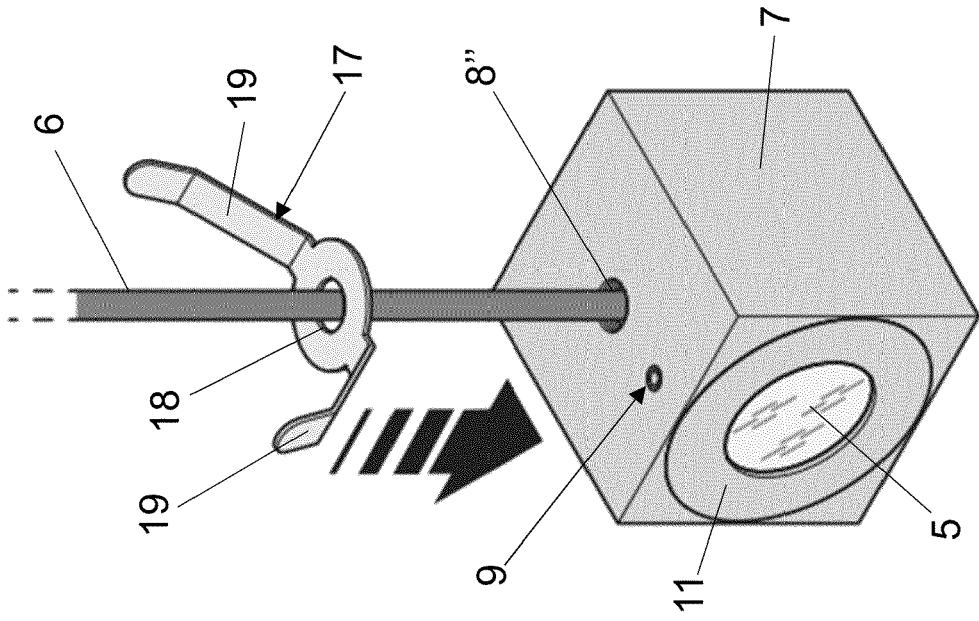


FIG. 5d

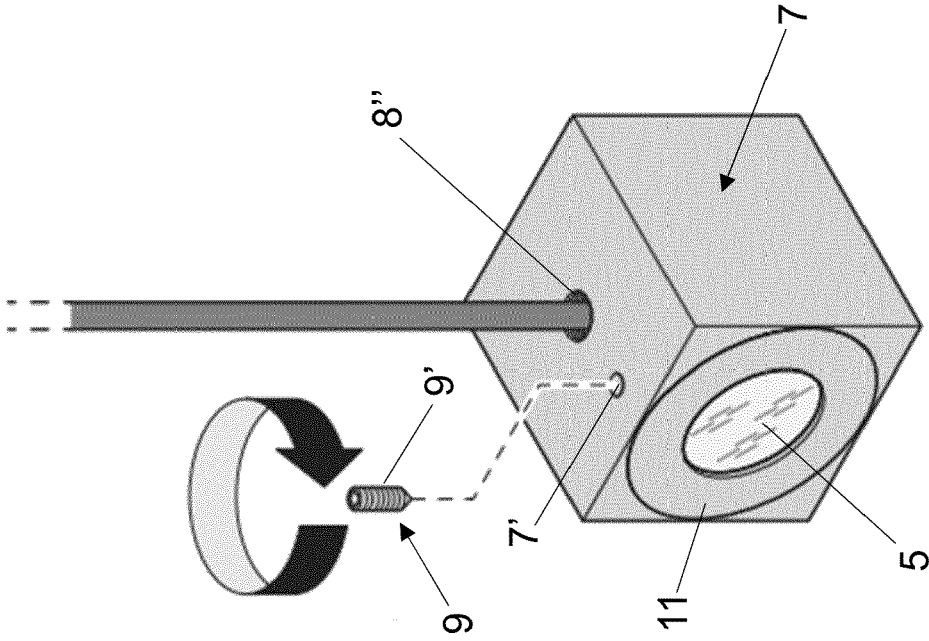


FIG. 5c

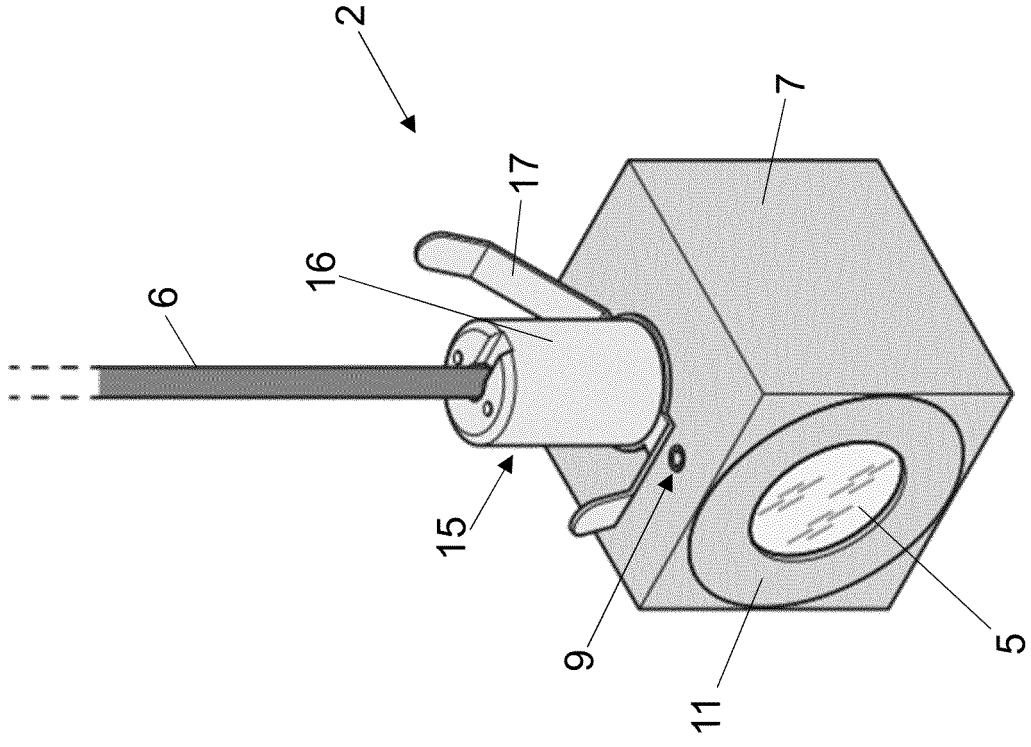


FIG. 5f

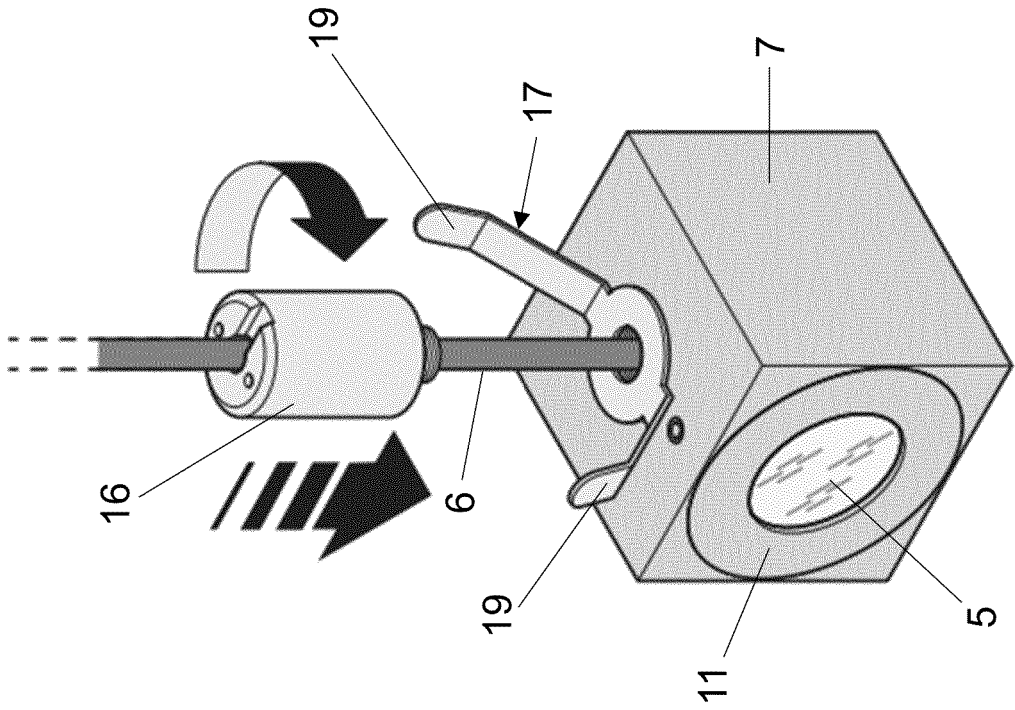


FIG. 5e

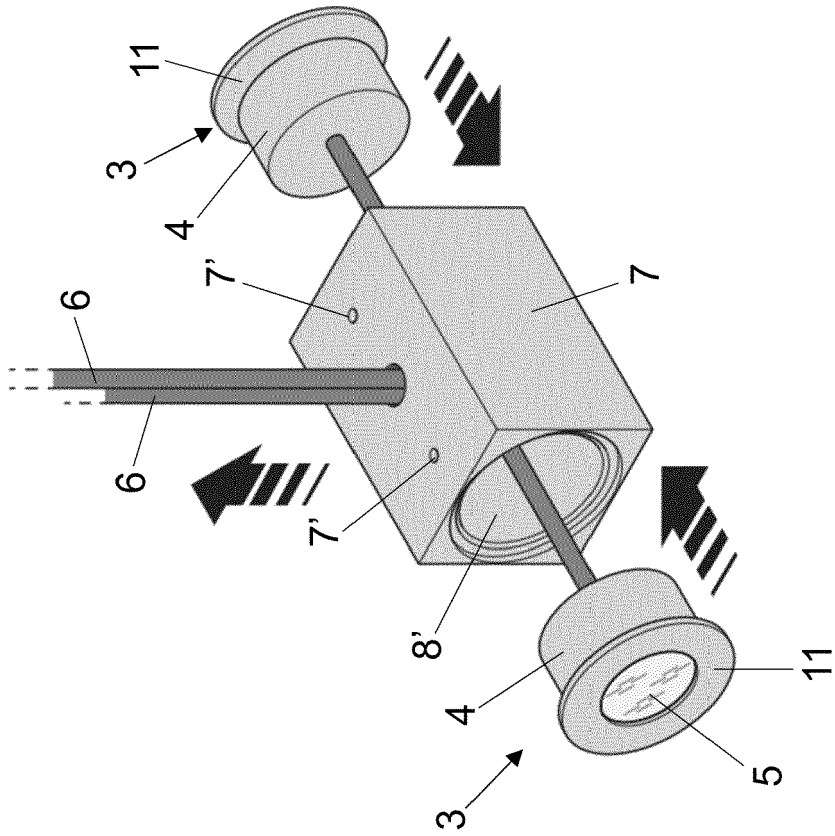


FIG. 6b

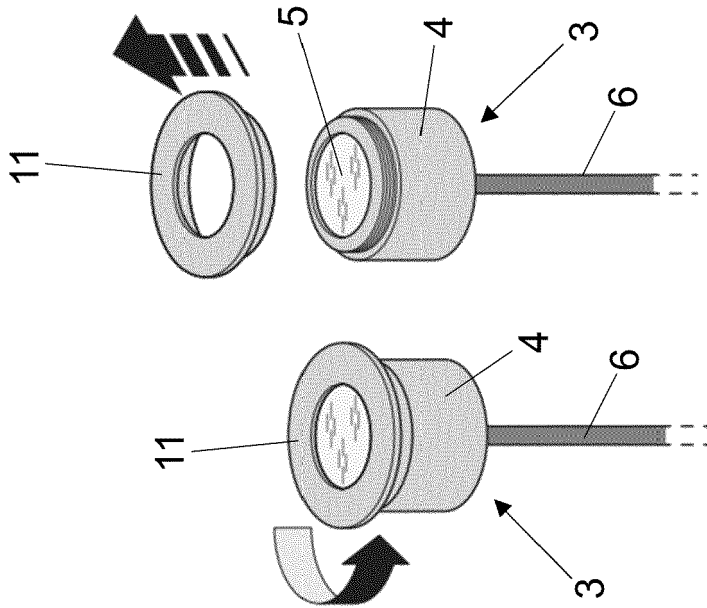
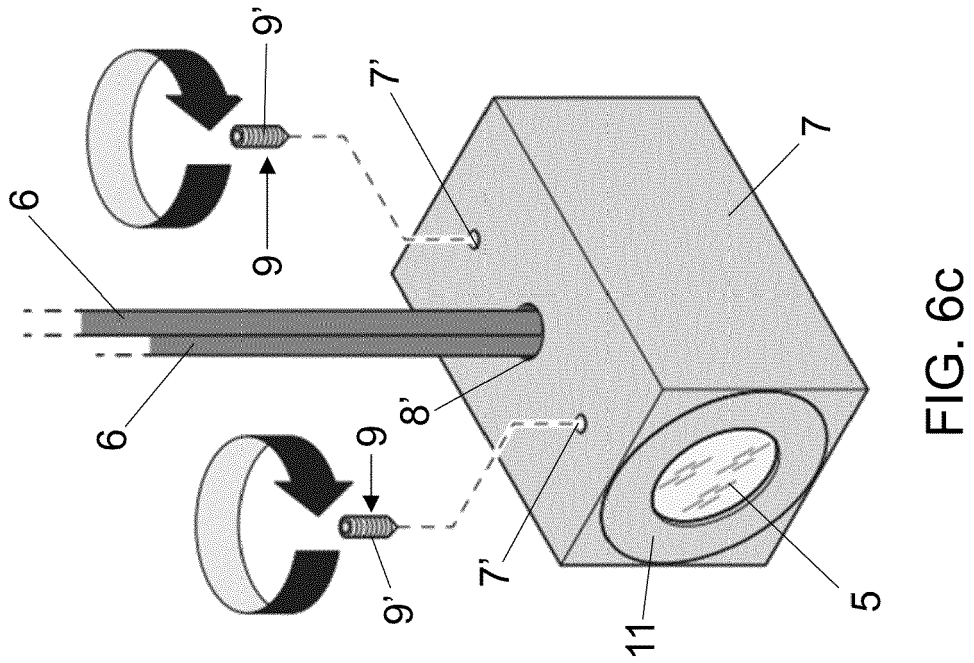
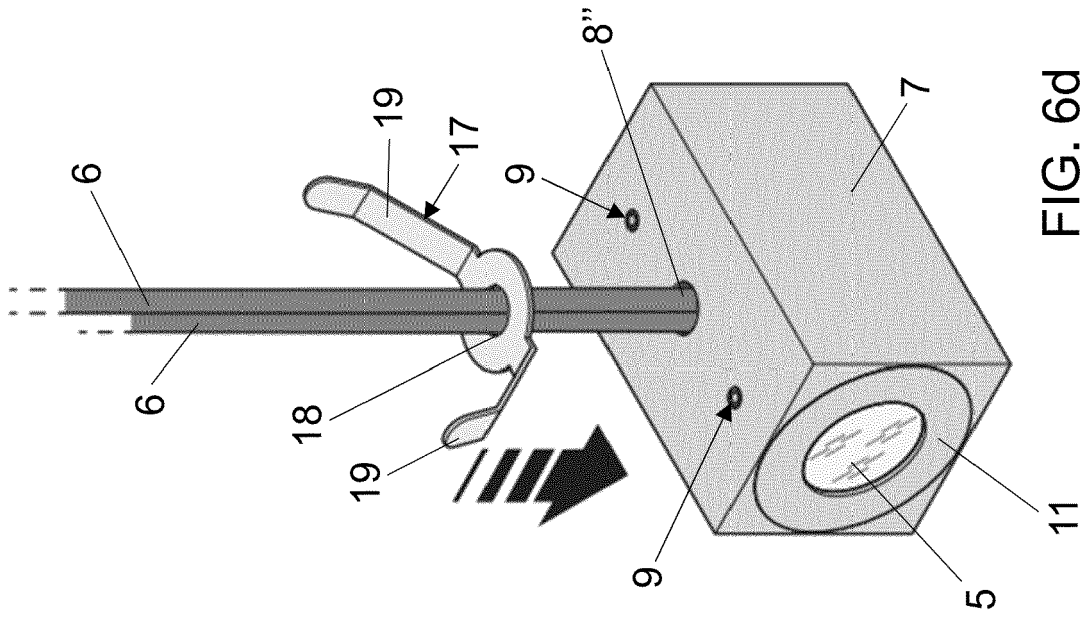


FIG. 6a



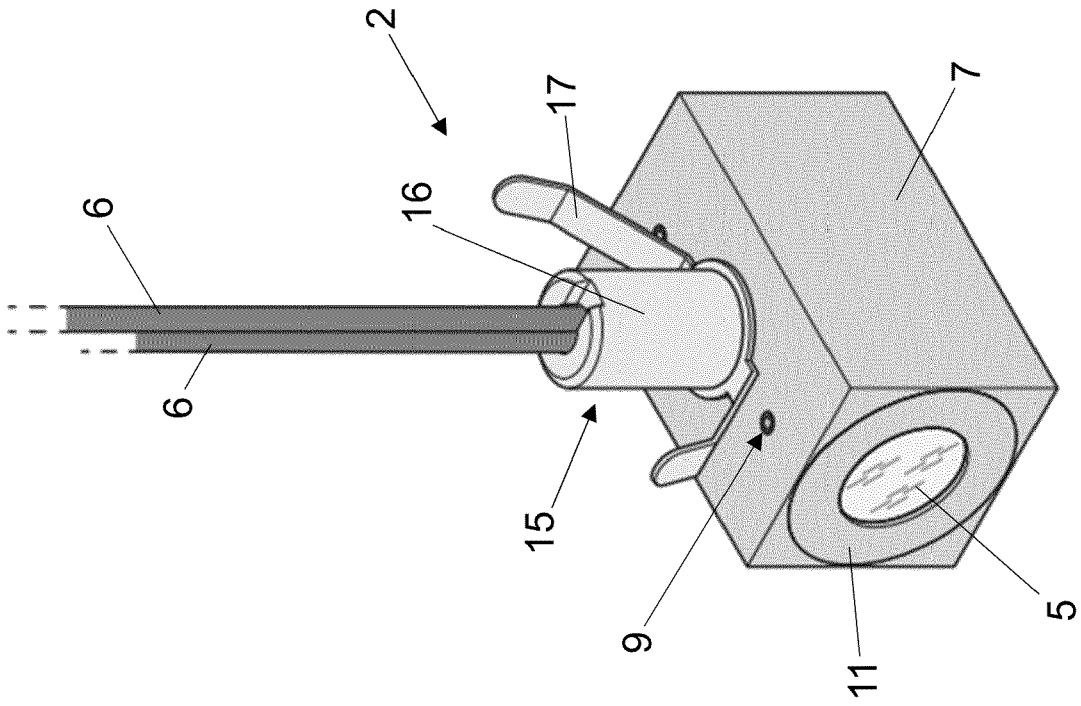


FIG. 6f

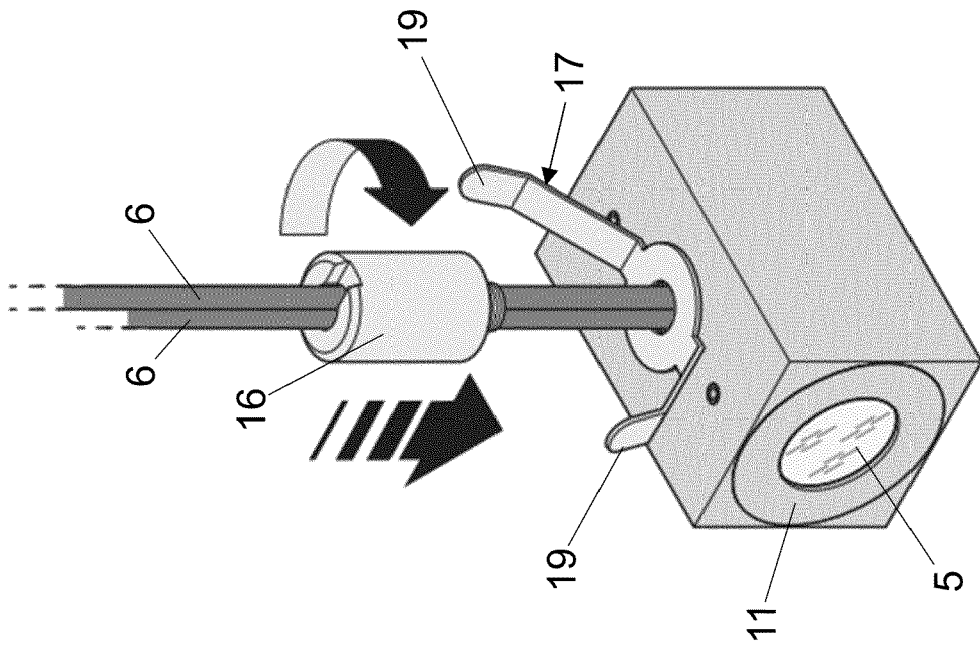


FIG. 6e



EUROPEAN SEARCH REPORT

Application Number

EP 22 16 8843

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Y	* figures 1-4 *	4, 6, 8-12	F21V15/02
A		5, 7, 13, 14	
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A	* figures 1-6 *	1, 3, 5, 7, 13-15	
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The present search report has been drawn up for all claims

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Place of search The Hague	Date of completion of the search 2 September 2022	Examiner Kebemou, Augustin
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