



(11)

EP 3 214 361 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.09.2017 Bulletin 2017/36

(21) Application number: **17158724.9**

(22) Date of filing: **01.03.2017**

(51) Int Cl.:
F21S 8/00 ^(2006.01) **F21S 8/04** ^(2006.01)
F21V 17/14 ^(2006.01) **F21V 21/03** ^(2006.01)
F21V 21/002 ^(2006.01) **F21V 23/00** ^(2015.01)
F21V 23/06 ^(2006.01) **H01R 13/625** ^(2006.01)
F21S 2/00 ^(2016.01) **B05B 15/04** ^(2006.01)
F21Y 115/10 ^(2016.01)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(30) Priority: **01.03.2016 IT UB20161193**

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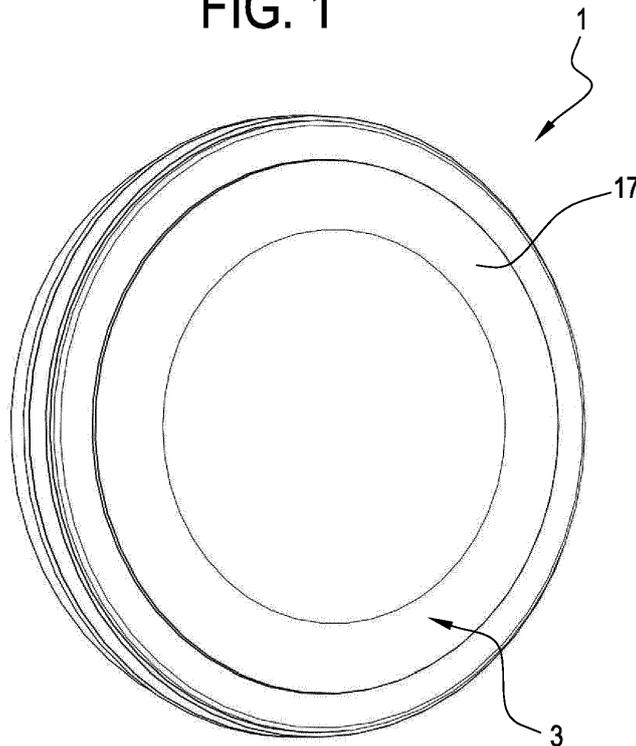
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(54) **LIGHTING UNIT**

(57) Described is a lighting unit which comprises a device (2) for supplying electric current defining at least partly the rear face (16) of the unit (1) and a device (3) for generating one or more light beams comprising a light source (5) and an element (17) for diffusing the light source (5); the supply device (2) and the generator device

(3) are configured to switch from a coupling configuration to an uncoupling configuration, and vice versa, by means of a relative movement of the generator device (3) relative to the supply device (2) so that once coupled, the supply device (2) and the generator device (3) are connected to each other electrically.

FIG. 1



EP 3 214 361 A1

Description

[0001] This invention relates to a lighting unit.

[0002] More specifically, the term "lighting unit" means a wall-mounted lighting unit, still more specifically a flush dome light.

[0003] With a view to simplifying the operations for installing lighting devices or units and, consequently, reducing the installation times, an aspect of this invention is to provide a lighting unit comprising a device for supplying electricity defining at least partly the rear face of the unit configured for being installed on a respective supporting surface and a device for generating one or more light beams comprising at least one light source and an element for diffusing the light source. More specifically, the supply device and the generator device being configured to switch from a coupling configuration to an uncoupling configuration, and vice versa, by means of a relative movement of the generator device relative to the supply device so that once coupled, the supply device and the generator device are connected to each other electrically.

[0004] The lighting unit comprises a cover for protecting the device configured to switch from a sealed coupling configuration to an uncoupling configuration, and vice versa, with the supply device, uncoupled from the generator device, by means of a relative movement of the cover relative to the supply device.

[0005] Advantageously, the protective cover allows the supply device of the lighting unit to be installed in work environments, such as, for example, construction sites, protecting the supply device against the entrance of solid or liquid foreign bodies and the accidental impact by work tools. Advantageously, it is possible to uncouple the cover from the supply device to allow the coupling of the generator device to the supply device. Advantageously, the protective cover acts as an element for protecting the supply device, maintaining the integrity in the installation area until the end of any work in progress in the area, upon completion of which it is possible to couple the supply device to the respective generator device.

[0006] Thanks to protect which the cover gives to the supply device, the activities of the operator linked to the installation of the lighting units are considerably reduced, since the operator can carry out the installation of the supply device before any building works are performed in the installation area and, when the works are completed, simply couple the generator device to the supply device without further activities.

[0007] In this way, the installation area is protected from unpleasant drawbacks which can occur during the installation of lighting units after the building works have been completed.

[0008] Further features and advantages of this invention are more apparent in the detailed description below, with reference to some preferred, non-limiting, embodiments of a lighting unit as illustrated in the accompanying drawings, in which:

- Figure 1 is a schematic perspective view of a lighting unit according to this invention;
- Figure 2 is in a further schematic perspective view of the lighting unit of Figure 1;
- 5 - Figure 3 is a schematic perspective view of a device for supplying the lighting unit of Figure 1;
- Figure 4 is in a further schematic perspective view of the supply device of Figure 3;
- 10 - Figure 5 is a schematic exploded view, with some parts cut away to better illustrate others, of the supply device;
- Figure 6 is a schematic cross section of the supply device;
- 15 - Figure 7 is a schematic perspective view of a device for generating one or more light beams of the lighting unit of Figure 1;
- Figure 8 is a schematic exploded view, with some parts cut away to better illustrate others, of the generator device;
- 20 - Figure 9 is a schematic perspective view of a detail of the generator device of Figure 8;
- Figure 10 is in a further schematic perspective view of the detail of Figure 9;
- 25 - Figure 11 is in a schematic perspective view of the step of coupling the generator device with the supply device to form the lighting unit of Figure 1;
- Figure 12 is a schematic perspective view of a first embodiment of the cover for protecting the supply device according to this invention, coupled to the supply device;
- 30 - Figure 13 is a schematic perspective view of a second embodiment of the cover for protecting the supply device according to this invention, coupled to the supply device;
- 35 - Figures 14 and 15 are schematic perspective views of the first embodiment of the cover of Figure 12;
- Figures 16 and 17 are schematic perspective views of the second embodiment of the cover of Figure 13.

40 **[0009]** The numeral 1 denotes a lighting unit according to this invention.

[0010] More specifically, the lighting unit 1 is a wall-mounted lighting units. Preferably, the unit 1 is a flush dome light.

45 **[0011]** The unit 1 comprises at least one light source 5 and an element 17 for diffusing the light source 5.

[0012] The light source 5 is of the LED type.

[0013] The diffuser element 17 defines the front face of the unit 1 through which is irradiated the light generated by the light source 5.

[0014] The diffuser element 17 defines an element 17 for protecting the light source 5.

50 **[0015]** The diffuser element 17 may have a circular shape or a polygonal shape, preferably square or rectangular.

[0016] The unit 1 has a rear face 16 designed to come into contact at least partly with a supporting surface 6.

[0017] The term supporting surface 6 means prefera-

bly a ceiling or a vertical wall relative to the ground or the ground itself.

[0018] The lighting unit 1 is a wall-mounted lighting unit, more specifically a flush dome light, or a floor-mounted lighting unit.

[0019] The unit 1 comprises a device 2 for supplying electricity defining at least partly the rear face 16 of the unit 1.

[0020] More specifically, the supply device 2 is configured to be connected to the supporting surface 6.

[0021] The supply device 2 has a rear surface 2a designed to come into contact with the installation surface 6.

[0022] The supply device 2 comprises a top surface 2b located on the opposite side relative to the rear surface 2a.

[0023] Preferably, the supply device 2 has a circular shape.

[0024] The lighting unit 1 comprises a device 3 for generating one or more light beams.

[0025] The generator device 3 comprises at least one light source 5 and an element 17 for diffusing the light source 5.

[0026] The generator device 3 may have a circular or polygonal shape, preferably square or rectangular.

[0027] The generator device 3 has a rear surface 3a designed to come into contact with the supporting surface 6.

[0028] The rear surface 3a is located on the opposite side relative to the diffuser element 17.

[0029] The generator device 3 has a seat 15 for housing at least part of the supply device 2.

[0030] The housing seat 15 is positioned at the surface of the bottom surface 3a of the generator device 3.

[0031] Preferably, the seat 15 has a circular shape.

[0032] In this way, the rear face 16 of the unit 1 is defined partly by the bottom surface 3a of the generator device 3 and partly by the bottom surface 2a of the supply device 2.

[0033] The supply device 2 and the generator device 3 being configured to switch from a coupling configuration to an uncoupling configuration, and vice versa, by means of a relative movement of the generator device 3 relative to the supply device 2.

[0034] The opportunity to couple and uncouple the generator device 3 to and from the device 2, makes the generator device 3 movable relative to the supply device 2, which, once installed in respective supporting surface 6 is relatively fixed relative to the generator device 3.

[0035] More specifically, the term coupling means that the supply device 2 is inserted at least partly in the seat 15 of the generator device 3 by the relative movement of the generator device 3 relative to the supply device 2.

[0036] The supply device 2 and the generator device 3 are coupled to and uncoupled from each other at least by means of a front movement, in particular by means of a front movement towards and front movement away from the generator device 3 relative to the supply device 2.

[0037] In other words, the generator device 3 is coupled to the supply device 2 using a front movement for moving the generator device 3 towards the supply device 2.

5 **[0038]** The generator device 3 is uncoupled from the supply device 2 by means of a front movement of moving the generator device 3 away from the supply device 2.

[0039] The supply device 2 and the generator device 3 are coupled to and uncoupled from each other at least 10 by means of a movement of relative rotation of the generator device 3 relative to the supply device 2.

[0040] More specifically, the relative rotation of the generator device 3 allows the generator device 3 to be 15 locked to the supply device 2 or released from the locked configuration.

[0041] In the preferred embodiment, to pass to the locked configuration, the generator device 3 is rotated in a clockwise direction.

20 **[0042]** Vice versa, to pass from the locked configuration to the released configuration, the generator device 3 is rotated in an anticlockwise direction.

[0043] In other words, the supply device 2 and the generator device 3 are coupled stably in a snap-on fashion to each other.

25 **[0044]** Therefore, it can be seen how the supply device 2 and the generator device 3 are coupled to and uncoupled from each other preferably using a combination of one or more front movements and one or more movements of relative rotation.

30 **[0045]** More specifically, the generator device 3 is coupled to the supply device 2 by a front movement, in particular towards, and a rotational movement after the front movement, to pass to a locked configuration, in particular a rotational movement in a clockwise direction.

35 **[0046]** More specifically, the generator device 3 is uncoupled from the supply device 2 by a rotational movement, in particular a rotational movement in an anticlockwise direction, to pass from the locked configuration to the released configuration, and a front movement, in particular for moving the generator device 3 away from the 40 supply device 2.

[0047] One of either the supply device 2 and the generator device 3 comprises at least one male element 9 and the other comprises a respective female element 10 45 designed for coupling and uncoupling relative to each other. The term male element 9 refers to an element which projects outwards from the surface from which it extends.

[0048] The term female element 10 is used to mean a through opening. Preferably, the male element 9 and the respective female element have the shape defined by a 50 circular crown portion.

[0049] The male element 9 is configured to be inserted at least partly in the respective female element 10, thus 55 coupling with it.

[0050] The male element 9 engages by sliding inside the female element 10. The male element 9 slides inside the female element 10 during the relative movement of

the generator device 3 relative to the supply device 2.

[0051] More specifically, during the coupling between the generator device 3 and the supply device 2, the male element 9 passes to a respective position for inserting in the female 10 following a front movement for moving the generator device 3 relative to the supply device 2. Subsequently, the male element 9 slides inside the female element 10 from the insertion position towards a locked position following a relative rotational movement of the generator device 3 relative to the device 2, in particular in a clockwise direction. In the locked position, the male element 9 abuts against a respective end of stroke element 12 associated with a respective female element 10.

[0052] It should be noted that the locked position of the male component 9 corresponds to the locked position of the generator device 3 relative to the supply device 2.

[0053] During the uncoupling between the generator device 3 and the supply device 2, the male element 9 slides inside the female element 10 passing from the locked position to the released position following a relative rotational movement of the generator device 3 relative to the supply device 2, in particular in an anticlockwise direction.

[0054] Subsequently, the male element 9 passes to a respective position of disinsertion from female element 10 following a front movement of the generator device 3 away from the supply device 2.

[0055] The male element 9 coupled to the respective female element 10 define the connecting means 11, in particular reversible, of the generator device 3 and the supply device 2.

[0056] In order to signal the locking the generator device 3 with the supply device 2, an interference element 14 is interposed between the male element 9 and the respective end of stroke element 12.

[0057] The interference element 14 is configured to generate an audio signal during the relative movement of the male element 9 relative to the end of stroke element 12 towards the corresponding locked position.

[0058] For example, the interference element 14 is a raised element positioned on the surface of the end of stroke element 12 designed to make contact with the male element 9, or vice versa.

[0059] Advantageously, the sliding opening 10 of the male component 9 has a profile shape which is variable in such a way that during the passage from the insertion position to the locked position of the male component 9 it is possible to engage gradually with the respective end of stroke element 12. More specifically, the male element 9 has a seat 13 for housing and contact with at least part of the end of stroke element 12.

[0060] According to the variant embodiment illustrated, the supply device 2 has a plurality of male elements 9 located on the top surface 2b of the device. The male elements 9 are uniformly spaced apart from each other. More specifically, the male elements 9 are positioned in a circumferential manner.

[0061] Preferably, the supply device 2 has four male

elements 9 spaced apart from each other by an angle of 90°.

[0062] The generator device 3 has a plurality of female elements 10 positioned on the rear surface 3a of the generator device 3.

[0063] More specifically, the female elements 10 are located at the bottom wall 15a of the seat 15 for housing the generator device 3.

[0064] The female elements 10 are uniformly spaced apart from each other. More specifically, the female elements 10 are positioned in a circumferential manner.

[0065] Preferably, the generator device 3 has four female elements 10 spaced apart from each other by an angle of 90°.

[0066] In order to allow the supply device 2 to supply electricity to the generator device 3 once coupled together, they comprise respective electrical connectors 7 and 8 configured to connect to and disconnect from each other by means of the relative movement of the generator device 3 relative to the supply device 2.

[0067] The electrical connectors 7 and 8, respectively, of the supply device 2 and of the generator device 3 connect and disconnect with each other by means of a front movement of the generator device 3 relative to the supply device 2.

[0068] Preferably, the electrical connectors 7 and 8 are configured to maintain the electrical connection during the relative rotation movement between the generator device 3 and the supply device 2.

[0069] More specifically, the electrical connectors 7 and 8 have a respective cylindrical shape.

[0070] With reference to the supply device 2, it is configured to be connected to a source 4 of electricity.

[0071] The supply device 2 is a device for connecting the generator device 3 to the electricity source 4.

[0072] The supply device 2 comprises a base element 18 designed to be connected to the installation surface 6, in particular defining the above-mentioned rear surface 2a.

[0073] The base element 18 has at least one through hole 19 configured for the entrance of one or more cables 22 for connection to the electricity source 4.

[0074] The supply device 2 comprises a covering element 20 connected to the base element 18 and defining with it a housing for containing at least one electricity supply circuit 21 of the generator device 3.

[0075] More specifically, the covering element 20 defines the above-mentioned top surface 2b of the supply device 2.

[0076] From here it may be inferred that the male elements 9 protrude from the covering element 20 of the supply device 2.

[0077] The base element 18 and the covering element 20 are coupled to and uncoupled from each other by a relative movement of one relative to each other, in particular of the covering element 20 relative to the base element 18.

[0078] One of either the base element 18 or the cov-

ering element 20 has one or more seats 23 for receiving a respective portion of the other.

[0079] In the embodiment illustrated, the base element 18 comprises a plurality of seats 23 for receiving respective portions 20a of the covering element 20. These portions 20a are in the form of perimeter tabs of the covering element 20.

[0080] Preferably, the seats 23 are uniformly spaced apart from each other, in particular they are positioned in a circumferential manner.

[0081] Preferably, the portions 20a of the covering element are uniformly spaced apart from each other, in particular they are arranged in a circumferential manner.

[0082] Preferably, the base element 18 comprises four seats 23 spaced from each other at an angle of 90°.

[0083] Preferably, the covering element 20 has four portions 20a spaced from each other by an angle of 90°.

[0084] Once the portions 20a of the covering element 20 are coupled in the respective receiving seats 23, the supply device 2 comprises means 24 for connecting the covering element 20 to the base element 18 for stably connecting the covering element 20 to the base element 18.

[0085] The connecting means 24 are preferably in the form of a male-and-female screw type coupling.

[0086] To satisfy a predetermined IP protection rating of the cases for electrical apparatuses, the supply device 2 comprises at least one insulating element 25 interposed between the base element 18 and the covering element 20.

[0087] As regards the electrical connector 7, it is accessible from the covering element 20.

[0088] More specifically, the covering element 20 has a through hole 28 giving access to the electrical connector 7.

[0089] The base element 18 comprises a seat 26 for housing the electrical connector 7.

[0090] The supply device 2 comprises means 27 for locking the electrical connector 7 to the base element 18.

[0091] The locking means 27 define means for centring the electrical connector 7 relative to the base element 18.

[0092] The locking means 27 have a through hole 27a for inserting at least part of the connector 7.

[0093] The base element 18 comprises means 29 for retaining at least part of the power supply circuit 21.

[0094] The retaining means 29 comprise at least one seat 31 for housing a respective electrical terminal, not illustrated.

[0095] The retaining means 29 comprise one or more rake elements 33 defining respective sections for passage of respective electrical cables, not illustrated.

[0096] It should be noted that, if the generator device 3 has a polygonal shape, more specifically rectangular or square, the orientation adopted by the generator device 3 once coupled to the supply device 2 is a function of the orientation of the supply device 2, since the orientation of the supply device 2 determines the reciprocal position of the male component 9 and of the respective

female element 10.

[0097] In order to define the orientation of the generator device 3 from the positioning of the supply device 2 on the respective supporting surface 6, the supply device 2 comprises reference means 34 configured to determine the orientation adopted by the generator device 3 once coupled to the supply device 2.

[0098] More specifically, the base element 18 comprises the above-mentioned reference means 34.

[0099] The above-mentioned means 34 are positioned according to a predetermined position relative to a common point of origin, in particular relative to the hole 19 for entrance of the connecting cables 22. Preferably, the reference means 34 are positioned relative to each other at an angle of at least 15°.

[0100] Preferably, the reference means 34 are preferably in the form of perimeter notches.

[0101] The base element 18 comprises means 36 for adjusting the orientation of the base element 18.

[0102] Advantageously, these adjusting means 36 allow the recovery of any misalignments with the generator device 3 once the supply device 2 is installed on the respective surface 6.

[0103] The adjustment means 36 are preferably in the form of through slots 36, in particular positioned along the periphery of the base element 18.

[0104] With regard to the generator device 3, it comprises a base element 38 designed to be connected to the supply device 2.

[0105] The diffuser element 17 is connected to the base element 38 to define with it a housing for containing the light source 5.

[0106] The diffuser element 17 defines an element for protecting the light source 5.

[0107] The generator device 3 comprises means 41 for connecting the base element 38 and the diffuser element 17.

[0108] According to a first variant, the connecting means 41 are preferably in the form of a male-and-female screw type coupling.

[0109] According to a second variant, the connecting means 41 are adhesive means, in particular glue.

[0110] The generator device 3 comprises at least one insulating element 40 interposed between the base element 38 and the diffuser element 17.

[0111] It should be noted that the insulating element 40 of the generator device 3 and the insulating element 25 of the supply device 3 gives the unit 1 an IP protection rating at least equal to 65.

[0112] The IP protection rating is measured according to current regulations at the date of filing this patent application, in particular CEI EN60598-1/2015. The base element 38 defines the above-mentioned rear surface 3a on which is formed the above-mentioned housing seat 15.

[0113] The electrical connector 8 of the generator device 3 is accessible from the base element 38.

[0114] More specifically, the base element 38 has a

through hole 42 giving access to the electrical connector 8.

[0115] The generator device 3 comprises an element 43 for supporting at least part of the electrical circuit 21 and/or electronic components 50 configured for supplying the light source 5 of the generator device 3.

[0116] The electronic components 50 comprise at least one electronic card for supplying the light source 5 if it is LED lighting.

[0117] According to a variant of the generator device 3, the electronic components 50 comprise a presence and/or movement sensor 52 configured to activate the light source 5.

[0118] According to a further variant of the generator device 3, the electronic components 50 comprise an auxiliary supply circuit 51 or emergency circuit of the light source 5 configured for supplying the light source 5 if there is a power failure from the source 4 of electricity or if the generator device 3 is uncoupled from the supply device 2.

[0119] The generator device 3 comprising the auxiliary supply circuit 51 or emergency circuit of the light source 5 and uncoupled from the supply device 2 defines a lighting device having a relative energy autonomy.

[0120] The supporting element 43 is interposed between the base element 38 and the diffuser element 17.

[0121] More specifically, the base element 38 comprises a surface 39a for supporting the supporting element 43, in particular a perimeter supporting surface 39a.

[0122] More specifically, the supporting element 43 has a first face 48, facing towards the base element 38 and a second face 49, facing towards the diffuser element 17.

[0123] The first face 48 of the supporting element 43 is for supporting at least part of the electric circuit 21 and/or electronic components 50 configured for supplying the light source 5.

[0124] The second face 49 of the supporting element 43 supports the light source 5.

[0125] Preferably, the second face 49 supports the electronic card for powering the light source 5 of the LED type.

[0126] The supporting element 43 has a seat 44 for housing the electrical connector 8.

[0127] More specifically, according to the embodiment illustrated, the electrical connector 8 is connected to the supporting element 43 at the seat 44. The generator device 3 comprises pressing means 45 configured to keep the electrical connector 8 pressed against the base element 38.

[0128] The pressing means 45 are interposed between the base element 38 and the supporting element 43.

[0129] More precisely, the pressing means 45 are positioned in the proximity of the seat 44 for housing the electrical connector 8.

[0130] More specifically, the pressing means 45 comprise at least one pair of a first tie rod 46, connected to the base element 38, and a second tie rod 47, connected

to the supporting element 43 coupled to each other.

[0131] The generator device 3 comprises a plurality of pairs defined by the first and second tie rods 46 or 47, in particular three.

[0132] According to an embodiment not illustrated, the electrical connector 8 is connected to the base element 38 of the generator device 3.

[0133] According to this embodiment, there is no need for the above-mentioned pressing means 45 since the electrical connector 8 is directly connected to the base element 38 of the generator device 3.

[0134] The invention relates to a cover 53 for protecting the supply device 2 configured to switch from a sealed coupling configuration to an uncoupling configuration, and vice versa, with the supply device 2, uncoupled from the generator device 3, by means of a relative movement of the cover 53 relative to the supply device 2.

[0135] The protective cover 53 and the supply device 2 are coupled to and uncoupled from each other at least by means of a movement of relative rotation, more specifically to switch from a released configuration to a locked configuration, and vice versa.

[0136] The protective cover 53 has an outer surface 53a and an inner surface 53b which faces towards the supply device 2 once coupled with it.

[0137] The inner surface 53b is configured to house the supply device 2 inside it. In other words, the protective cover 53 has a perimeter extension such as to be able to comprises inside it the supply device 2.

[0138] Once the protective cover 53 is coupled to the supply device 2, the perimeter strip of the supply device 2 is located inside the cover 53, so the outer surface 53a of the cover 53 screens the top surface 2b of the supply device 2 along the full perimeter.

[0139] The rear surface 2a of the supply device 2 is located outside the cover 53 since it is designed to make contact with the installation surface 6.

[0140] The protective cover 53 comprises one or more male elements 59 for coupling with the supply device 2.

[0141] The male elements 59 are located at the inside surface of the cover 53, preferably along the inner perimeter strip of the cover 53.

[0142] In order to couple the cover 53 with the supply device 2, each male element 59 of the cover 53 is configured to be inserted in a respective female element 34 of the supply device 2.

[0143] Preferably, the female element 34 of a respective coupling element 59 is one of the perimeter notches 34 defining the reference means configured to determine the orientation adopted by the generator device 3 once coupled to the supply device 2.

[0144] Once the cover 53 is coupled to the supply device 2 in such a way that each male element 59 is engaged in the respective female element 34, the cover 53 passes from the released configuration to the locked configuration by the relative rotation of the cover 53 relative to the supply device 2.

[0145] During the rotation the male elements 59 of the

cover 53 slide along the peripheral perimeter surface of the supply device 2, engaging by interference with respective perimeter portions 61 of the supply device 2, blocking the coupling between the cover 53 and the supply device 2. Advantageously, the operating mode is easy to use, resulting in rapid installation times.

[0146] The perimeter portions 61 of the supply device 2 mean the portions of the supply device 2 positioned along the outer perimeter or peripheral strip of the supply device 2.

[0147] So as to facilitate for the operator the positioning of the cover 53 relative to the supply device 2 in such a way that each male element 59 of the cover 53 corresponds to the respective female element 34 of the supply device 2, the peripheral surface 53b of the cover 53 has one or more reference elements 60.

[0148] Each reference element is configured to be located at a corresponding reference element 36 of the supply device 2, which preferably is defined by the slot 36 defining the means for adjusting the orientation of the base element 18 of the supply device 2.

[0149] By aligning each reference element 60 of the cover 53 with the respective reference element 36 of the supply device 2, the correct coupling between the male element 59 of the cover 53 with the respective female element 34 of the supply device 2 is guaranteed.

[0150] According to this invention, a sealing element 57 is interposed between the supply device 2 and the cover 53.

[0151] More specifically, the sealing element 57 is housed in the covering element 20 of the supply device 2.

[0152] The inner surface 53b of the cover 53 has a contact surface 54 of the sealing element 57 once the cover 53 is coupled to the supply device 2, forming the sealed coupling.

[0153] It should be noted that the sealing element 57 is interposed between the generator device 3 and the supply device 2 once they are coupled to each other.

[0154] Advantageously, the sealed coupling between the cover 53 and the supply device 2 prevents the entrance inside the cover 53 of solid and liquid foreign bodies, such as, for example, debris, dust, paint, which are potentially present in the place of installation, preserving the integrity of the supply device 3.

[0155] Finally, it should be noted that, advantageously, the cover 53 for protecting the supply device 2 and the presence of the sealing element 57 interposed between it and the supply device 2 gives the assembly an IP protection rating at least equal to 65 and a degree of protection against mechanical impact at least equal to IK08.

[0156] The IP protection rating is measured according to current regulations at the date of filing this patent application, in particular CEI EN60598-1/2015. The degree of protection against the mechanical impacts IK08 corresponds to an impact up to 10 Joules.

[0157] Preferably, the protective cover 53 consists of a reinforced polymeric material.

[0158] According to the first variant embodiment of the

cover 53, as shown in Figures 12, 14 and 15, the outer surface 53a is a continuous surface.

[0159] Advantageously, the first embodiment of the cover 53 allows the operator to carry out painting works on the installation surface 6, without needing to protect the cover 53 which can be painted over the entire outer surface 53a.

[0160] The second variant of the cover 53, illustrated in Figures 13, 16 and 17, comprises at least one light source 55 located on the outer surface 53a of the cover 53.

[0161] Advantageously, the light source 55 allows the use of the electrical connection of the supply device 2 to the electricity source 4 installed on the installation surface 6.

[0162] In other words, the light source 55 is defined as a construction site light. The inner surface 53b of the cover 53 is configured to house the electrical circuit for supplying the light source 55.

[0163] More specifically, the protective cover 53 comprises a respective electrical connector 56, positioned inside the cover 53, configured to connect to and disconnect from the electrical connector 7 of the supply device 2 by means of the relative movement of the protective cover 53 relative to the supply device 2.

[0164] The supply device 2 and the cover 53, according to the second embodiment, once coupled to each other are connected electrically.

[0165] It should also be noted, that according to this variant, the operator is allowed to carry out painting works on the installation surface 6, without the need to protect the cover 53 which may be painted along the outer surface 53b around the light source 55.

Claims

1. A lighting unit comprising a device (2) for supplying electric current and a device (3) for generating one or more light beams; the supply device (2) being configured to be connected to a source (4) of electricity and to at least partly define the rear face (16) of the unit (1) configured to be installed on a respective supporting surface (6); the generator device (3) comprising at least one light source (5) and an element (17) for diffusing the one or more light beams generated by the light source (5) itself; the supply device (2) and the generator device (3) being configured to switch from a coupling configuration to an uncoupling configuration, and vice versa, by means of a relative movement of the generator device (3) relative to the supply device (2) so that once coupled, the supply device (2) and the generator device (3) are connected to each other electrically; the supply device (2) and the generator device (3) comprise respective electrical connectors (7, 8)

- configured to connect to and disconnect from each other by means of the relative movement of the generator device (3) relative to the supply device (2); **characterized in that** it comprises a cover (53) for protecting the supply device (2) configured to switch from a sealed coupling configuration to an uncoupling configuration, and vice versa, with the supply device (2), uncoupled from the generator device (3), by means of a relative movement of the cover (53) relative to the supply device (2).
2. The unit according to claim 1, **characterised in that** the protective cover (53) and the supply device (2) are coupled to and uncoupled from each other at least by means of a movement of relative rotation, more specifically to switch from a released configuration to a locked configuration, and vice versa.
 3. The unit according to claim 1 or 2, **characterised in that** the protective cover (53) has an outer surface (53a) and an inner surface (53b) which faces towards the supply device (2); the inner surface (53b) is configured to house the supply device (2) inside it.
 4. The unit according to any one of the preceding claims, **characterised in that** one of either the cover (53) or the generator device (2) has at least one male element (19) and the other has at least one respective female element (34), which are configured to switch from an uncoupled configuration to a coupled configuration, and vice versa; during the relative rotation between the cover (53) and the supply device (2), the male element (19) engages by interference with a respective portion (61) of the supply device (2), stopping the coupling between the cover (53) and the supply device (2).
 5. The unit according to claim 4, **characterised in that** female element (34) of a respective coupling element (59) is a perimeter notch (34) defining reference means configured to determine the orientation adopted by the generator device (3) once coupled to the supply device (2).
 6. The unit according to claim 4 or 5, **characterised in that**, so as to facilitate for the operator the positioning of the cover (53) relative to the supply device (2) in such a way that each male element (59) of the cover (53) corresponds to the respective female element (34) of the supply device (2), the peripheral surface (53b) of the cover (53) has one or more reference elements (60); each reference element (60) is configured to be located at a corresponding reference element (36) of the supply device (2).
 7. The unit according to claim 6, **characterised in that** each reference element (36) of the supply device (2) is defined by a respective slot (36) defining means for adjusting the orientation of the supply device (2).
 8. The unit according to any one of the preceding claims, **characterised in that** the protective cover (53) comprises at least one light source (55) located on the outer surface (53a) of the cover (53) and an electrical connector (56) of the circuit for supplying the light source (55) positioned inside the cover (53); the electrical connectors (56, 7) of the protective cover (53) of the supply device (2) being configured to connect to and disconnect from electrically between each other by means of the relative movement of the protective cover (53) relative to the supply device (2) respectively for switching from the coupling configuration to the uncoupling configuration, and vice versa.
 9. The unit according to any one of the preceding claims, **characterised in that** it comprises a sealing element (57) configured to be interposed between the supply device (2) and the protective cover (53) once coupled; more specifically, the sealing element (57) being housed in the supply device (2).
 10. The unit according to claim 9, **characterised in that** the inner surface (53b) of the cover (53) has a contact surface (54) of the sealing element (57) once the cover (53) is coupled to the supply device (2), forming the sealed coupling.
 11. The unit according to claim 9 or 10, **characterised in that** the supply device (2) comprises a base element (18) designed to be connected to the installation surface (6) and a covering element (20) connected to the base element (18), defining with it a housing for containing at least the electrical connector (7); the supply device (2) comprising at least one insulating element (25) interposed between the base element (18) and the covering element (20).
 12. The unit according to any one of the preceding claims, **characterised in that** the supply device (2) and the generator device (3) are coupled to and uncoupled from each other at least by means of a movement of relative rotation, more specifically to switch to a locked and released configuration, and vice versa; one of either the supply device (2) or the generator device (3) having at least one male element (9) and the other having at least one respective female element (10), which are configured to switch from a snap-on coupling and an uncoupling configuration, and vice versa; the male element (9) engaging by sliding into the respective female element (10) from a position for inserting to a locked position, and vice versa.
 13. The unit according to claim 12, **characterised in that** the generator device (3) comprises a base ele-

ment (38) configured to be connected to the supply device (2) and an element (17) for diffusing at least one light source (5) connected to the base element (38) to define with it a housing for containing the light source (5); the supporting element (43) having a seat (44) for housing the electrical connector (8) designed to connect to the electrical connector (7) of the supply device (2); the unit (1) comprising pressing means (45) configured to keep the electrical connector (8) pressed against the base element (38); the pressing means (45) being interposed between the base element (38) and the supporting element (43).

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FIG. 1

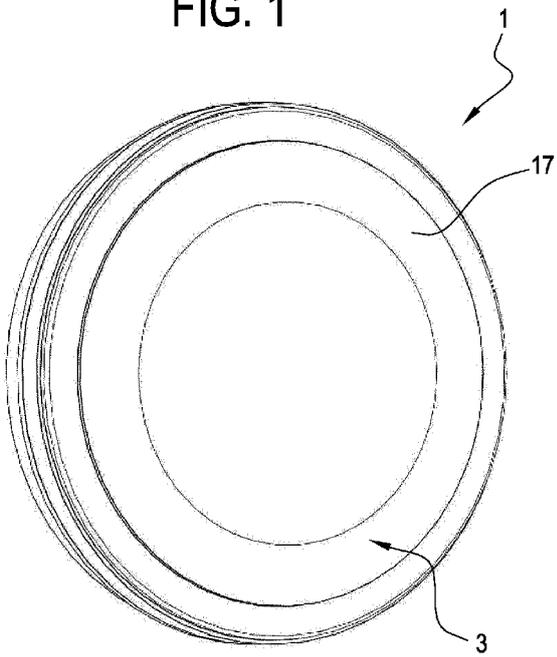


FIG. 2

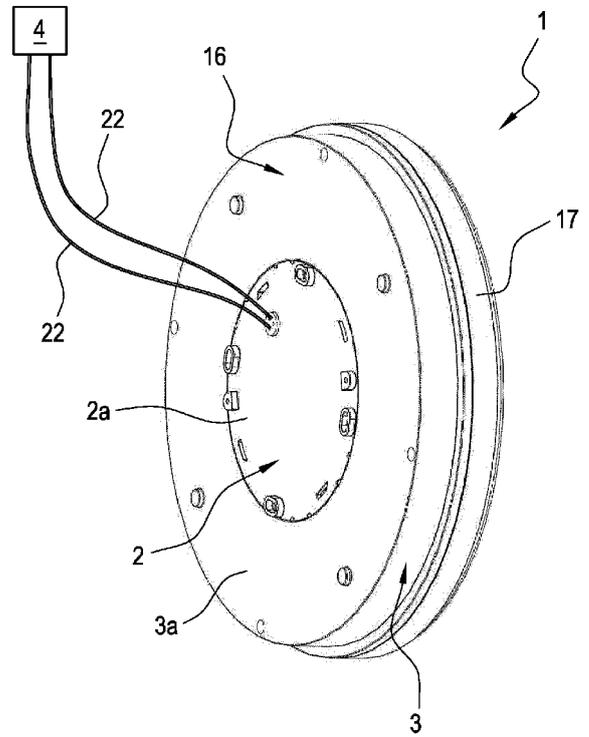


FIG. 3

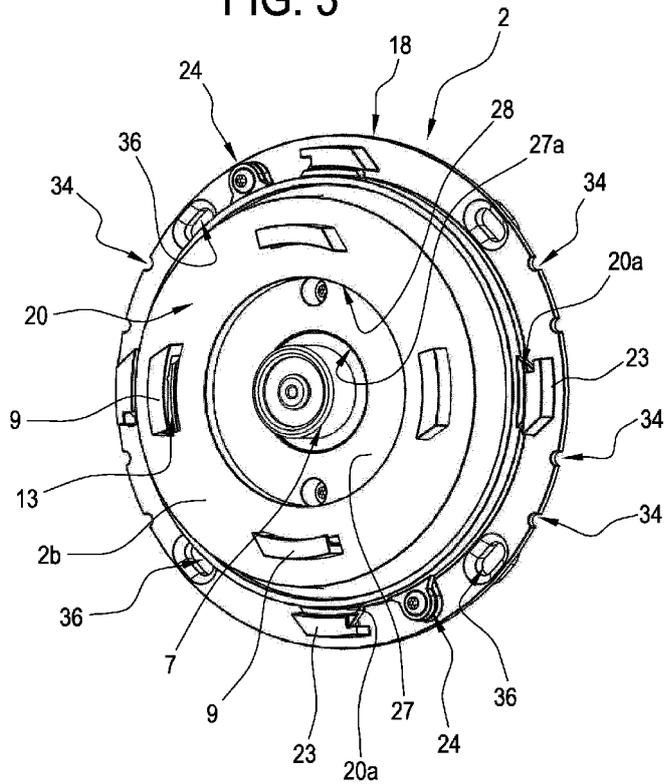


FIG. 4

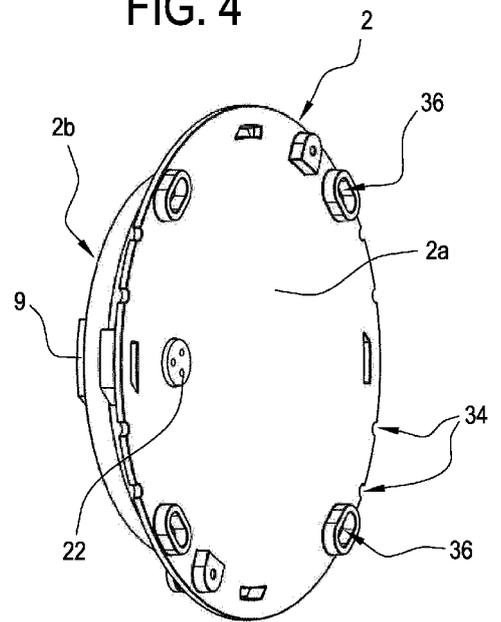


FIG. 5

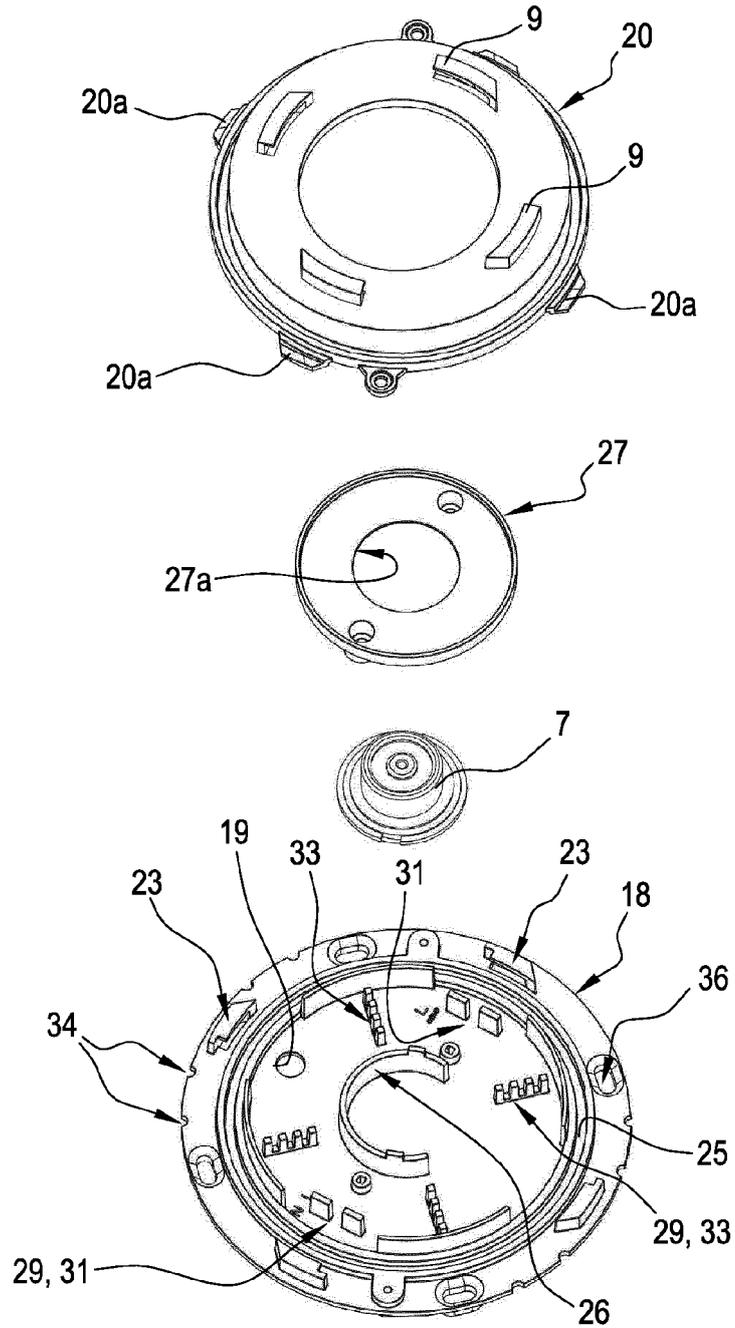


FIG. 6

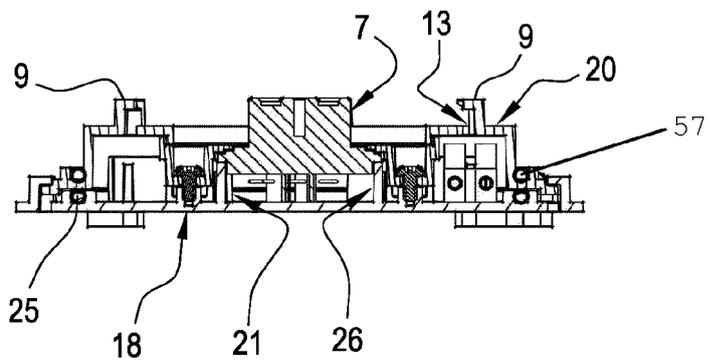


FIG. 7

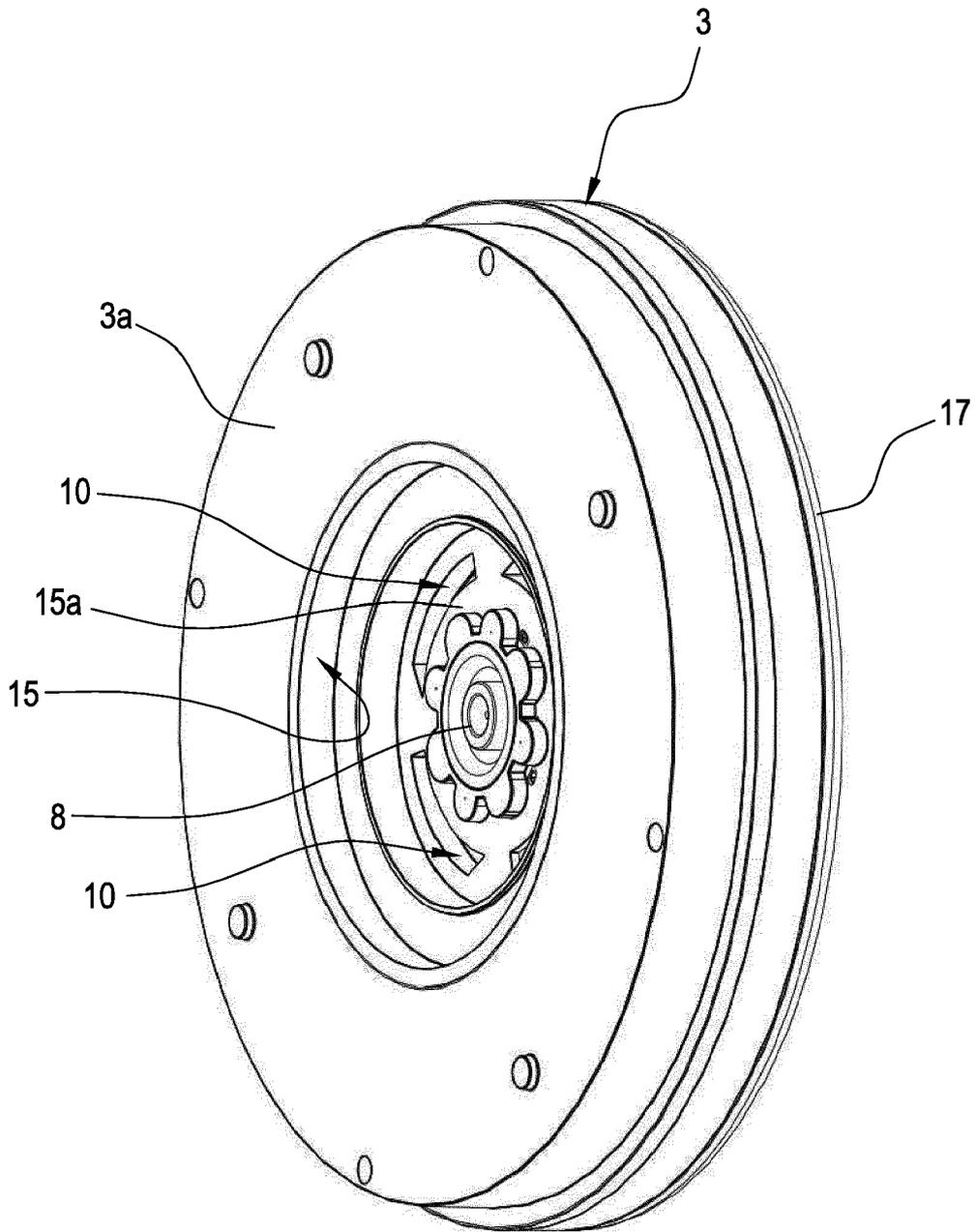


FIG. 8

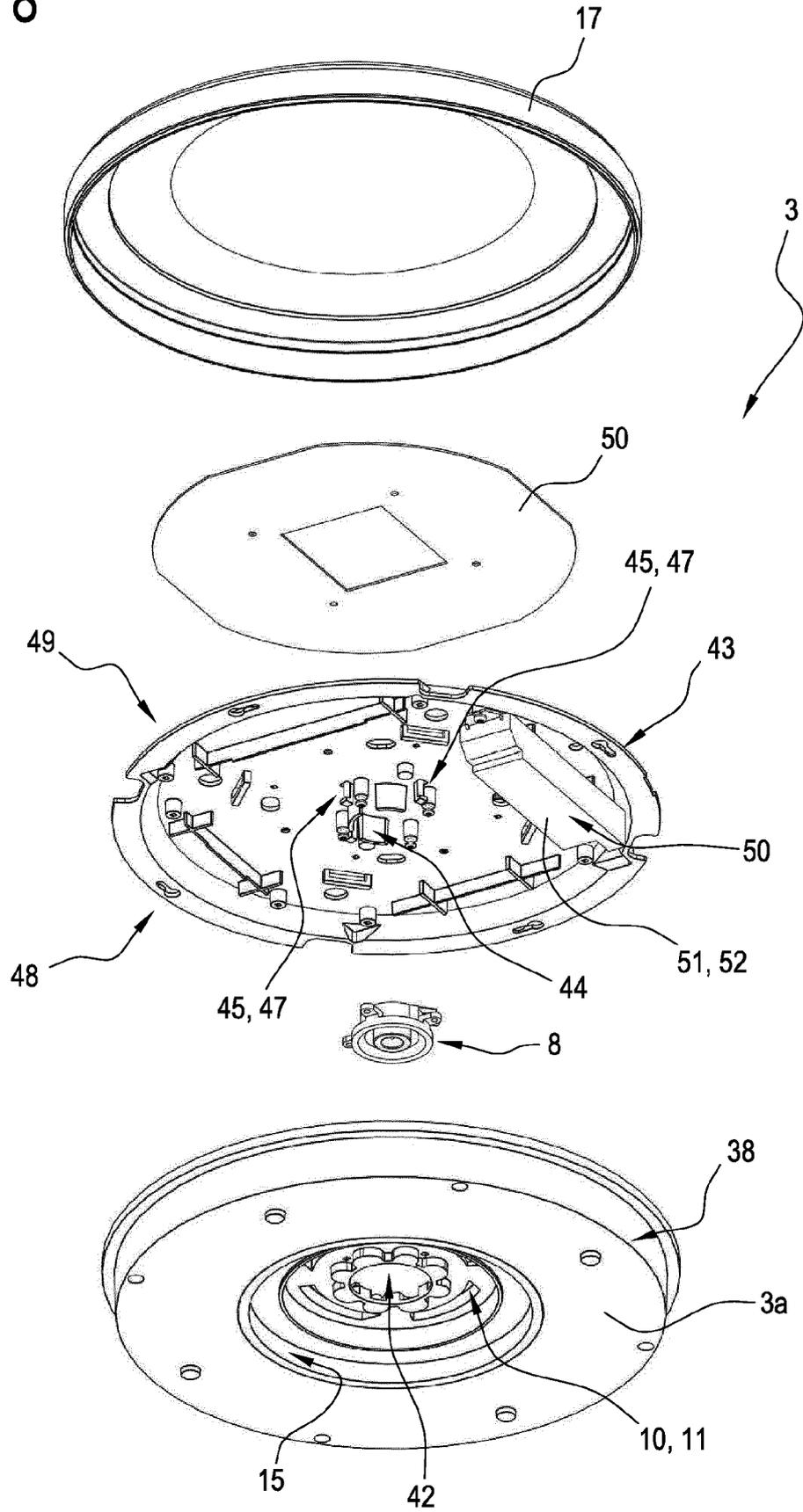


FIG. 9

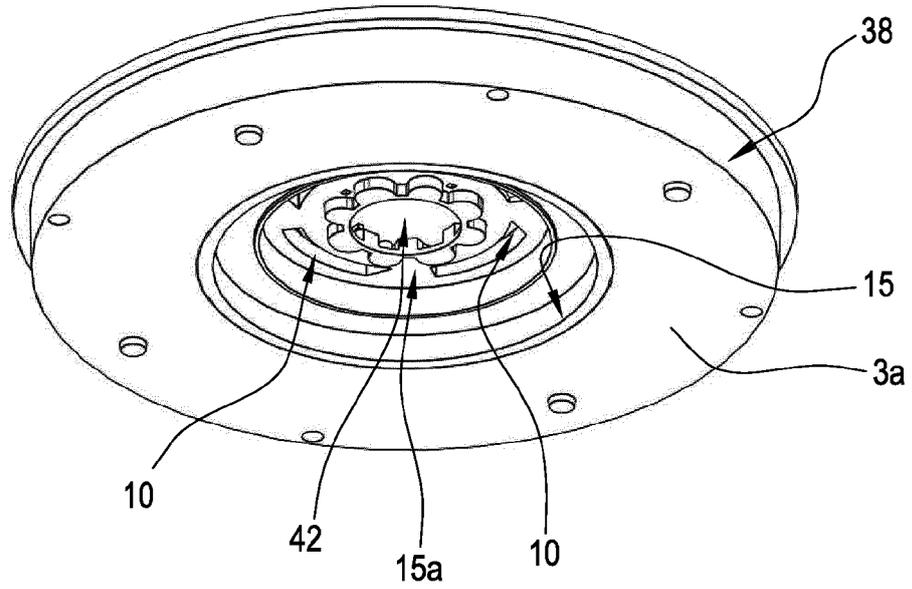


FIG.10

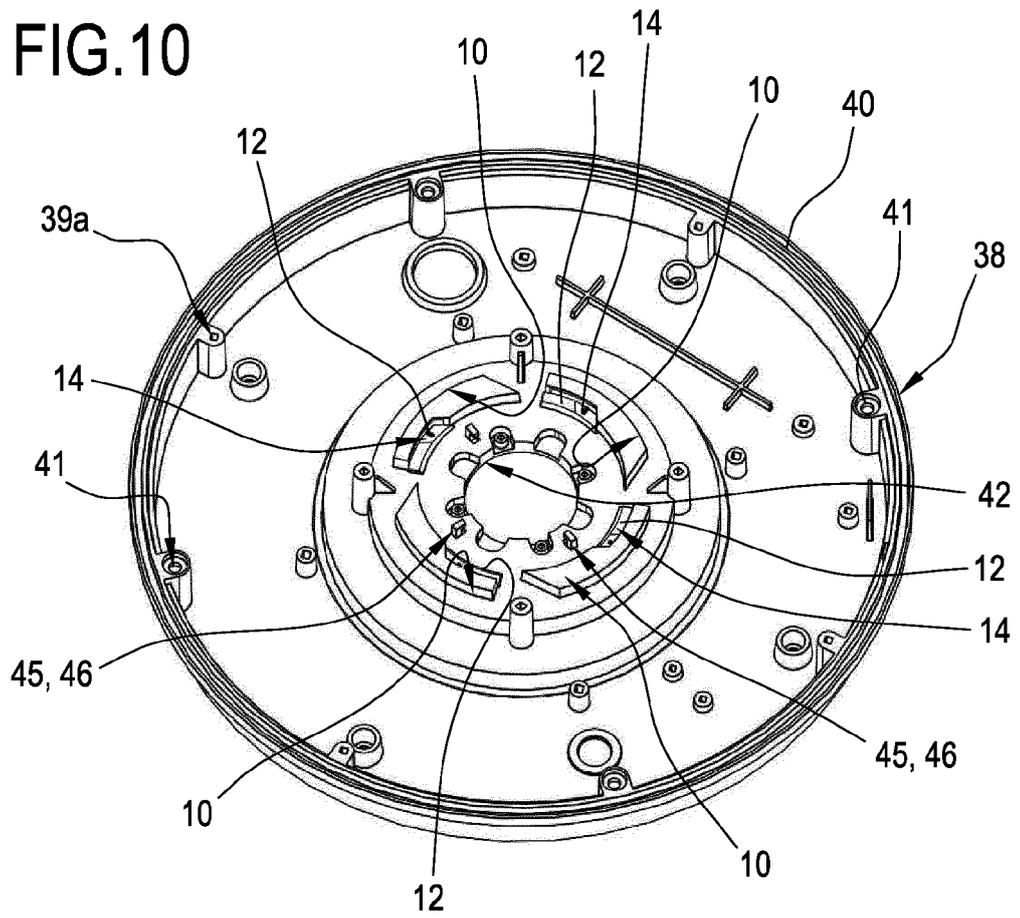


FIG. 11

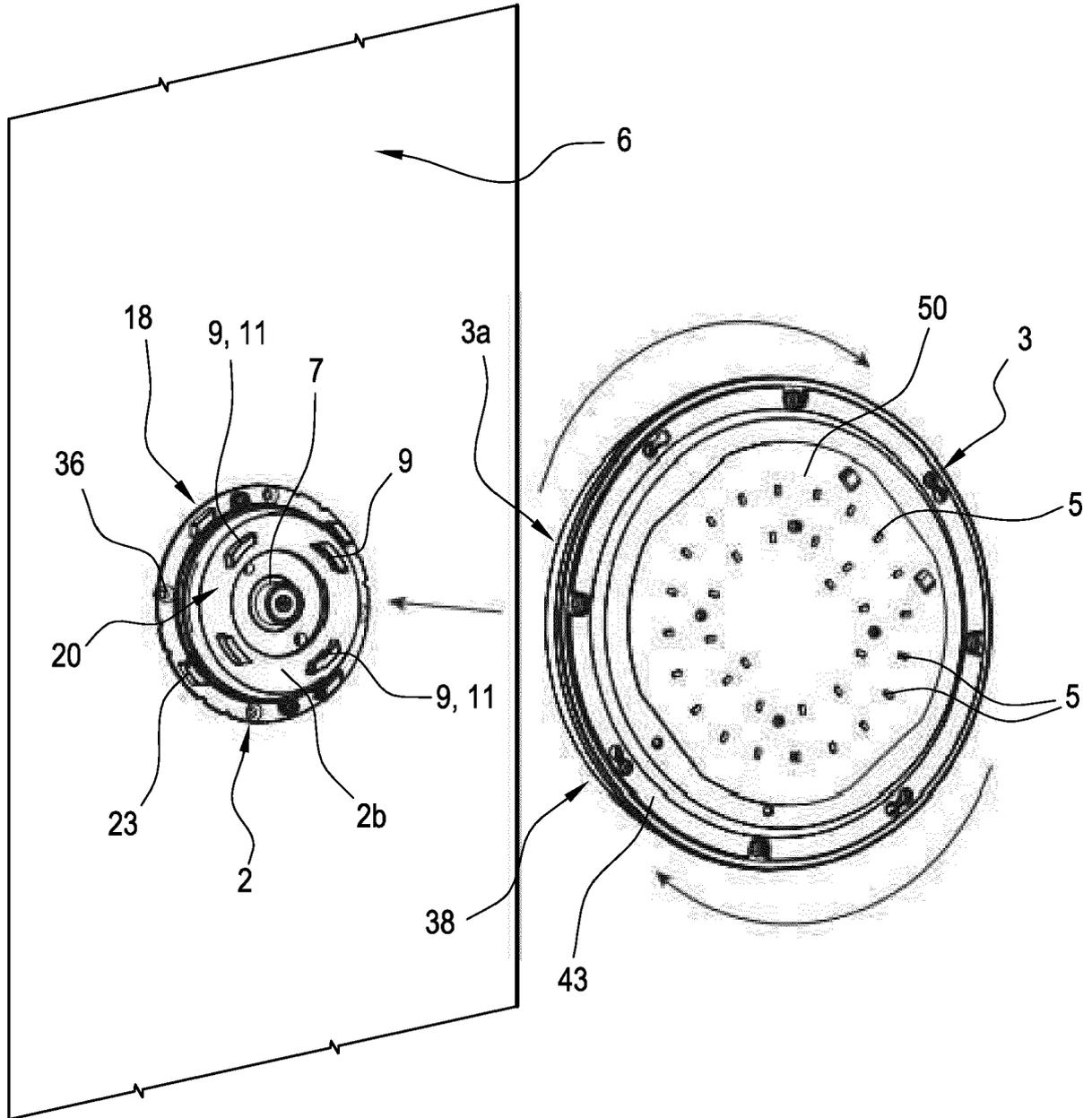


FIG.12

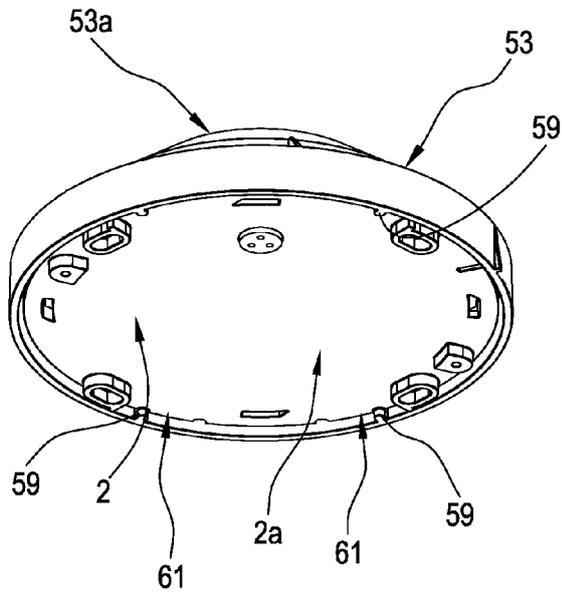


FIG.13

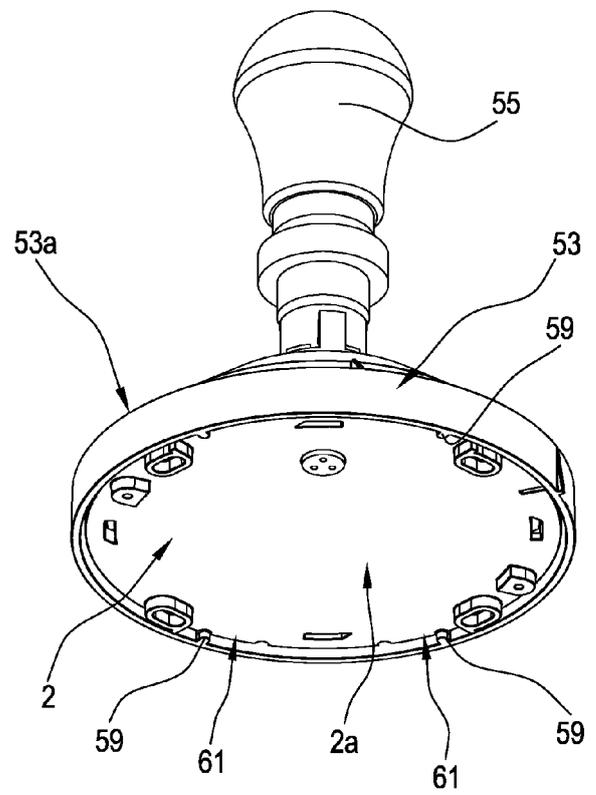


FIG.16

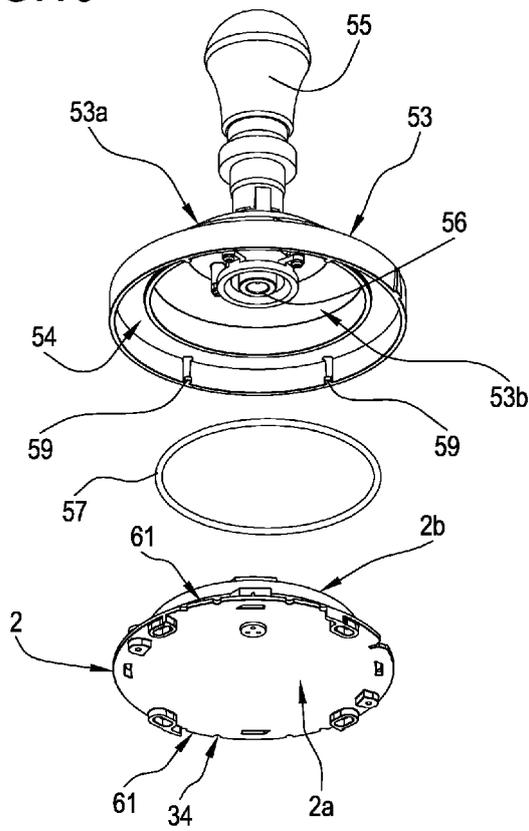
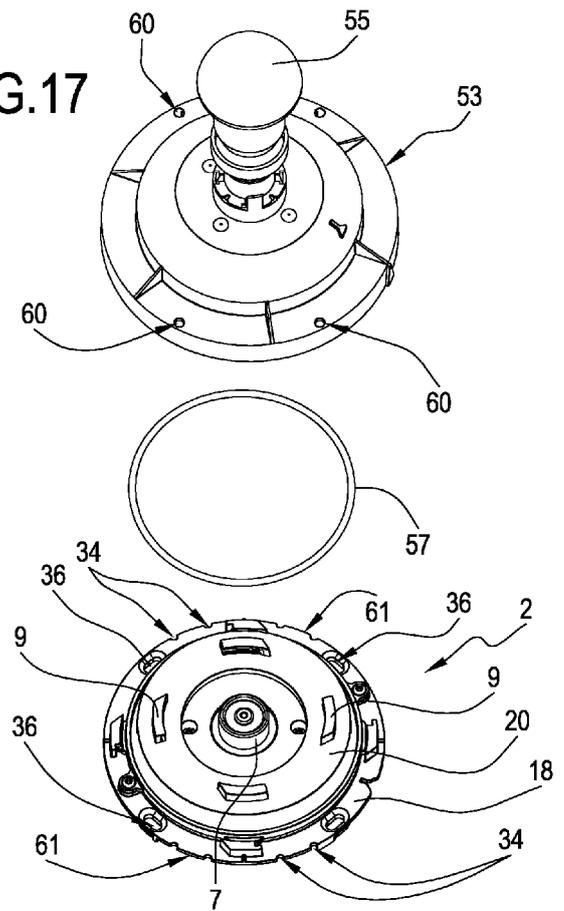


FIG.17





EUROPEAN SEARCH REPORT

Application Number
EP 17 15 8724

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X	EP 2 065 636 A2 (ASD LIGHTING PLC [GB]) 3 June 2009 (2009-06-03) * paragraph [0037] - paragraph [0062]; figures 1-30 *	1,4,12, 13	ADD. F21Y115/10
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Place of search The Hague		Date of completion of the search 20 April 2017	Examiner Thibaut, Arthur
CATEGORY OF CITED DOCUMENTS 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 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			

EPO FORM 1503 03.82 (P04C01)

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5 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
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