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(54) **LED TRI-PROOF LAMP**

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(56) References cited:
CN-A- 101 943 339 CN-A- 102 162 606
CN-A- 102 506 351 CN-B- 101 943 339
CN-U- 201 796 953 CN-U- 202 791 689
KR-A- 20090 039 014 US-A1- 2011 317 420
US-A1- 2012 188 766

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Description

Field of the Invention

[0001] The present invention relates to a lamp, particularly to a waterproof, moisture-proof and dustproof LED lamp.

Description of the Prior Art

[0002] An existing waterproof, moisture-proof and dustproof lamp generally comprises a lamp body formed of a lamp base and a lampshade connected with each other, and an illuminant being disposed within the lamp body. The illuminant is generally a fluorescent lamp. A reflector is to be disposed between the illuminant and the lamp base to reflect light.

[0003] With the increasing development of light sources, LED has become the most promising new product. Compared with filament lamps and fluorescent lamps, an LED has the following advantages: small size; combination of a plurality of LEDs or various types of LEDs; low heat, basically free of heat radiation; low power consumption, to be started at low voltage and low current; long service life, over ten thousand hours of working time; fast response, operable at a high frequency; environmentally friendly, and shock, impact and breakage resistance; recyclable as waste, without pollution; planar packaging, and easy development into small, light and compact products.

[0004] However, if LEDs are used as the light source of a lamp, a power supply drive module for driving the LED is to be provided additionally. The power supply drive module will emit much heat when in service, so it is disadvantageous for heat dissipation if both the LED light source and the power supply drive module are disposed within a lamp body. Therefore, the existing waterproof, moisture-proof and dustproof lamps rarely use LEDs as the light source.

[0005] US Patent Publication No. US-2012/0188766 discloses an LED lamp including a heat dissipating base, an LED module, a hood and a sealant. The heat dissipating base has a mount board including a first surface and a second surface. The first and second surfaces are provided with an annular trough and fins, respectively. The LED module is fixed on the mount board and surrounded by the annular trough. The hood is formed with a flange which is embedded into the annular trough to cloak the LED module. The sealant is filled in the annular trough to seal up.

[0006] Chinese Patent Publication No. CN-101943339 discloses an LED illuminating lamp comprising a heat radiation base, a fixed support, a power supply box, a light enhancement shield, a light transmission shield and a fixed end cover, wherein the heat radiation base has a containing space; a dovetail groove and a T-shaped groove are arranged outside the heat radiation base; a positioning groove is arranged on the inner wall surface

of the heat radiation base; a T-shaped block is arranged on the fixed support and inserted along the T-shaped groove; the fixed support is fixedly connected with the heat radiation base through screws; a dovetail inclined angle is arranged in the power supply box and inserted along the dovetail groove; the power supply box is fixedly connected with the heat radiation base through the screws; the light enhancement shield is arranged in the containing space; a plurality of grid grooves are arranged on the light enhancement shield; LED lamp bodies and lenses are arranged in the grid grooves; a positioning pillar is arranged on the fixed end cover and inserted along the positioning groove; and the fixed end cover is fixedly connected with the heat radiation base through the screws.

[0007] US Patent Publication No. US-2011/0317420 discloses a lighting device including a light source having a plurality of light emitting diodes (LED), and a housing having a base to support the light source. The housing has a plurality of cooling fins that extend away from the base. A vertical wall vertically protrudes inside edges of the base. The light source is provided in a space that is surrounded by the vertical wall, and includes the plurality of LEDs, which are mounted on a printed circuit board (PCB). The PCB is located at a center of a recessed portion that is surrounded by the vertical wall. A sealer groove is formed at a bottom of the recessed portion so as to surround the PCB, a sealer being provided in the sealer groove. The window is provided on the base to cover the light source. The window is attached by screws to a bottom of the recessed portion outside of the sealer in tight contact with the sealer.

Summary of the Invention

[0008] It is an object of the present invention according to claim 1 to provide a waterproof, moisture-proof and dustproof LED lamp with simple structure and good heat dissipation and without any additional reflector.

[0009] For achieving this object, the invention provides a waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1.

[0010] The waterproof, moisture-proof and dustproof LED lamp comprises a lamp body formed of a lamp base and a lampshade connected with each other, and an illuminant disposed within the lamp body, the illuminant being an LED module with LEDs provided thereon; the lamp base is of an integrated aluminum profile structure having two side walls vertically disposed along the lengthwise direction and an intermediate connecting piece connected between the two side walls, the top surface of the intermediate connecting piece is planar, while the bottom face thereof is provided with a plurality of radiating strips; two grooves for receiving two side edges of the lampshade are respectively provided at the junctions of the top surface of the intermediate connecting piece with each side wall; a sealing strip provided between each side edge of the lampshade and each groove

of the intermediate connecting piece; the lampshade and the lamp base being connected through hasps disposed at each side wall of the lamp base.

[0011] Two independent covers are provided at two ends of the lamp base, in an unclaimed example integratively formed with the lamp base, and the two covers can be independent aluminum die-cast members which connect with the lamp base through screws, two waterproof cushions respectively provided between each cover and the lamp base, in order to meet the requirements of IP66 grade.

[0012] Preferably, the LED module consists of one LED strip or a plurality of LED strips which are electrically connected to each other through an SMD connector.

[0013] Preferably, at least two of the radiating strips on the bottom surface of the intermediate connecting piece are respectively L-shaped and inverted L-shaped, so that a sliding passage is formed between these two radiating strips and the bottom surface of the intermediate connecting piece.

[0014] The LED lamp further comprises a power supply drive module, which is sealed in a drive housing, for driving the LED module, the drive housing being located outside the lamp body and connected to the bottom surface of the intermediate connecting piece in the lamp base. Providing the power supply drive module outside the lamp body can avoid interference between the heat dissipation of the LEDs and the heat dissipation of the power supply drive module, so it is advantageous for the overall heat dissipation of the lamp body.

[0015] L-shaped mounting bars are formed outside the drive housing and slidably disposed within a slide passage.

[0016] Two waterproof joints are respectively mounted in a sealed manner on each cover plate disposed on each end of the drive housing, each waterproof joint has a through hole for wires to pass through, and the cover is also provided with a hole for wires to pass through.

[0017] Preferably, a lamp body mounting bracket and hooks disposed on the bracket are mounted on the lamp base.

[0018] In order to make the overall lamp more harmonious and beautiful, preferably, the power supply drive module for driving the LED module is disposed outside the lamp body, and a lamp cover connected to the lamp base is also provided outside the lamp body, multiple radiating holes in a grid arrangement are provided on the lamp cover, furthermore, a sealed power supply holding chamber for holding the power supply drive module is provided within the lamp cover, and the power supply drive module is disposed within the sealed power supply holding chamber.

[0019] Preferably, the cross section of the lamp cover in the widthwise direction is U-shaped, and the cross section thereof in the lengthwise direction is U-shaped too.

[0020] Preferably, the lamp cover includes two cover connecting members disposed at two ends of the lamp cover and a plurality of intermediate connecting members

being capable of connecting to each other and connected between the two cover connecting members, and the cover connecting members and the intermediate connecting members are all provided with the multiple radiating holes in a grid arrangement; the sealed power supply holding chamber is disposed between the two cover connecting members, and two ends of the sealed power supply holding chamber can respectively be connected to one of the intermediate connecting members. Hence, according to the length of the lamp body, lamp products of different lengths can be produced by increasing or decreasing the number of intermediate connecting members.

[0021] Preferably, the lamp cover is connected to the bottom surface of the intermediate connecting piece of the lamp base through screws.

[0022] Compared with the prior art, the present invention has the following advantages: as the lamp base is designed to be an integrated aluminum profile structure and the top surface of the intermediate connecting piece is designed to be planar, the intermediate connecting piece can be used as a reflector, without requiring any additional reflectors; and, as the bottom face thereof is provided with a plurality of radiating strips, the soleplate may be used as the soleplate of the lamp body and also as a radiator, so that good heat dissipation effect may be achieved.

[0023] In addition, in the present invention, as the lamp cover is provided outside the lamp body, multiple radiating holes in a grid arrangement are provided on the lamp cover, and a sealed power supply holding chamber is provided within the lamp cover, on the one hand, the lamp has integrality and a nice appearance, and exposure of inner wires which would affect the nice appearance is avoided; on the other hand, the radiating holes on the lamp cover can radiate heat and directly discharge heat out from the lamp, so that the service life of the lamp is guaranteed.

Brief Description of the Drawings

[0024]

FIG.1 is a perspective structural view of a first embodiment of the present invention.

FIG.2 is a cutaway perspective view of the first embodiment of the present invention.

FIG.3 is a perspective structural view of the waterproof, moisture-proof and dustproof LED lamp with the lampshade removed in the first embodiment of the present invention.

FIG.4 is an exploded view of the first embodiment of the present invention.

FIG.5 is an exploded view of a drive housing and a power supply drive module in the first embodiment of the present invention.

FIG.6 is a structural view showing the hooks mounted on the lamp body in the first embodiment of the

present invention.

FIG.7 is a mounting diagram for the first embodiment of the present invention.

FIG.8 is a mounting diagram showing another way of mounting for the first embodiment of the present invention.

FIG.9 is a side structural view of a second embodiment of the present invention.

FIG.10 is a cutaway perspective view of the second embodiment of the present invention.

FIG.11 is an exploded view of the second embodiment of the present invention.

Detailed description of the preferred embodiment

[0025] The present invention is described in further detail below with reference to the embodiments in the accompanying drawings.

Embodiment 1

[0026] As shown in Fig. 1 to Fig. 6, in the first embodiment, the waterproof, moisture-proof and dustproof LED lamp comprises a lamp body formed of a lamp base 1 and a lampshade 2 connected with each other, and an LED module 3 is disposed within the lamp body; the LED module 3 has LEDs 31 provided thereon, the LED module consists of a plurality of LED strips which are electrically connected to each other through an SMD connector; the lamp base 1 is of an integrated aluminum profile structure having two side walls 11 and 12 vertically disposed along the lengthwise direction and an intermediate connecting piece 13 connected between the two side walls; the top surface of the intermediate connecting piece 13 is planar, while the bottom face thereof is provided with a plurality of radiating strips 14; and two grooves 15 for receiving two side edges of the lampshade are respectively provided at the junctions of the top surface of the intermediate connecting piece 13 with each side wall 11 and 12; a sealing strip 4 is provided between each side edge of the lampshade 2 and each groove 15 of the intermediate connecting piece 13, and the lampshade 2 and the lamp base 1 are connected through hasps 5; two covers 6 and 7 of aluminum die-casting are provided at two ends of the lamp base, connected with the lamp base 1 through screws, and two waterproof cushions 8 are respectively provided between each cover and the lamp base.

[0027] The LED module 3 is directly fixed to the top surface of the intermediate connecting piece 13 via screws 20.

[0028] In this embodiment, two of the radiating strips 14 on the bottom surface of the intermediate connecting piece 13 are respectively an L-shaped radiating strip 14-1 and an inverted L-shaped radiating strip 14-2, thereby a sliding passage 16 is formed between the two radiating strips 14-1 and 14-2 and the bottom surface of the intermediate connecting piece 13.

[0029] In addition, the waterproof, moisture-proof and

dustproof LED lamp in this embodiment further comprises a power supply drive module 9, which is sealed in a drive housing 10, for driving the LED module; the drive housing 10 is located outside the lamp body and connected to the bottom surface of the intermediate connecting piece 13 in the lamp base 1. Two L-shaped mounting bars 101 and 102 respectively matching with the two radiating strips 14-1 and 14-2 are formed outside the drive housing 10 and slidably disposed within the slide passage 16.

[0030] Two waterproof joints 103 are respectively mounted in a sealed manner on each cover plate disposed on each end of the drive housing 10, each waterproof joint 103 has a through hole 104 for wires to pass through, and the cover 7 is also provided with a hole 71 for wires to pass through.

[0031] A mounting bracket 17 and hooks 18 disposed on the bracket are mounted on the lamp base 1, to be convenient for mounting the lamp body. The hooks may be directly fixed on a mounting surface through screws, referring to Fig. 7, or suspended from the mounting surface through steel wire ropes 19, referring to Fig. 8.

Embodiment 2

[0032] As shown in Fig. 9 to Fig. 11, in the second embodiment, the waterproof, moisture-proof and dustproof LED lamp comprises a lamp body formed of a lamp base 1' and a lampshade 2' connected with each other, and an LED module 8' is disposed within the lamp body; the LED module 8' has LEDs 81' provided thereon, the LED module consists of a plurality of LED strips which are electrically connected to each other through an SMD connector; the lamp base 1' is of an integrated aluminum profile structure having two side walls 11' and 12' vertically disposed along the lengthwise direction and an intermediate connecting piece 13' connected between the two side walls, the top surface of the intermediate connecting piece 13' is planar, while the bottom face thereof is provided with a plurality of radiating strips 14'; and two grooves 15' for receiving two side edges of the lampshade are respectively provided at the junctions of the top surface of the intermediate connecting piece 13' with each side wall 11' and 12'; a sealing strip 4' is provided between each side edge of the lampshade 2' and each groove 15' of the intermediate connecting piece 13', and the lampshade 2' and the lamp base 1' are connected through hasps 5'; two covers 6' and 7' of aluminum die-casting are provided at two ends of the lamp base, connected with the lamp base 1' through screws, and two waterproof cushions are respectively provided between each cover and the lamp base. The LED module 3' is directly fixed to the top surface of the intermediate connecting piece 13' via screws 20'.

[0033] A power supply drive module 9' for driving the LED module is disposed outside the lamp body, and a lamp cover 3' connected to the lamp base 1' is also provided outside the lamp body, the lamp cover 3' being

connected to the bottom surface of the intermediate connecting piece of the lamp base via screws; multiple radiating holes 31' in a grid arrangement are provided on the lamp cover 3', furthermore, a sealed power supply holding chamber 32' for holding the power supply drive module is provided within the lamp cover, and the power supply drive module 9' is sealed within the sealed power supply holding chamber 32'.

[0034] The cross section of the lamp cover 3' in the widthwise direction is U-shaped, and the cross section thereof in the lengthwise direction is U-shaped too. In this embodiment, the lamp cover 3' includes two cover connecting members 3'-1' and 3'-2' disposed at two ends of the lamp cover 3' and a plurality of intermediate connecting members 3'-3' being capable of connecting to each other and connected between the two cover connecting members 3'-1', 3'-2', and the two cover connecting members 3'-1' and 3'-2' and the intermediate connecting members 3'-3' are all provided with the multiple radiating holes 31' in a grid arrangement; the sealed power supply holding chamber 32' is disposed between the two cover connecting members, and two ends of the sealed power supply holding chamber can respectively be connected to one of the intermediate connecting members.

Claims

1. A waterproof, moisture-proof and dustproof LED lamp comprising a lamp body formed of a lamp base (1; 1') and a lampshade (2; 2') connected with each other, and an illuminant being disposed within the lamp body, in which:

the illuminant is an LED module (3; 8') with LEDs (31; 81') provided thereon;

the lamp base is of an integrated aluminum profile structure having two side walls (11, 12; 11', 12') vertically disposed along the lengthwise direction and an intermediate connecting piece (13; 13') connected between the two side walls, the top surface of the intermediate connecting piece is planar, while the bottom face thereof is provided with a plurality of radiating strips (14; 14'); and

two grooves (15; 15') for receiving two side edges of the lampshade are respectively provided at the junction of the top surface of the intermediate connecting piece with each side wall;

a sealing strip (4; 4') is provided between each side edge of the lampshade and each groove of the intermediate connecting piece; **characterized in that** the lampshade and the lamp base are connected through hasps (5; 5') disposed at each side wall of the lamp base; and two independent covers (6, 7) are provided, one at each end of the lamp base; at least two of the radiating

strips (14-1; 14-2) on the bottom surface of the intermediate connecting piece are respectively L-shaped and inverted L-shaped, to form a sliding passage (16) between these two radiating strips and the bottom surface of the intermediate connecting piece; two waterproof joints (103) are provided, one for each cover, the joints being mounted in a sealed manner on the covers, each waterproof joint having a through hole (104) for wires to pass through, and the covers each having a hole (71) for wires to pass through; and a power supply drive module (9; 9') for driving the LED module is provided, sealed in a drive housing (10) which is located outside the lamp body and connected to the bottom surface of the intermediate connecting piece of the lamp base, in which L-shaped mounting bars (101, 102) are formed outside the drive housing and slidingly disposed within a slide passage (16).

2. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1, in which the two covers (6, 7) are connected with the lamp base through screws, and two waterproof cushions (8) are respectively provided between each cover and the lamp base.
3. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1, in which the LED module consists of one LED strip or a plurality of LED strips which are electrically connected to each other through an SMD connector.
4. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1 or 2, in which at least two of the radiating strips (14-1; 14-2) on the bottom surface of the intermediate connecting piece are respectively L-shaped and inverted L-shaped, to form the sliding passage (16) between these two radiating strips and the bottom surface of the intermediate connecting piece.
5. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1, in which a lamp body mounting bracket (17) and hooks (18) disposed on the bracket are mounted on the lamp base.
6. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 1, in which a lamp cover (3') connected to the lamp base is also provided outside the lamp body, multiple radiating holes (31') in a grid arrangement are provided on the lamp cover, furthermore, a sealed power supply holding chamber (32') for holding the power supply drive module is provided within the lamp cover, and the power supply drive module is disposed within the sealed power supply holding chamber.

7. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 6, in which the cross section of the lamp cover in the widthwise direction is U-shaped, and the cross section thereof in the lengthwise direction is U-shaped too. 5
8. The waterproof, moisture-proof and dustproof LED lamp as claimed in claim 7, in which the lamp cover includes two cover connecting members (3'-1', 3'-2') disposed at two ends of the lamp cover and a plurality of intermediate connecting members (3'-3') being capable of connecting to each other and connected between the two cover connecting members, and the cover connecting members and the intermediate connecting members are all provided with multiple radiating holes (31') in a grid arrangement; the sealed power supply holding chamber is disposed between the two cover connecting members, and two ends of the sealed power supply holding chamber can respectively be connected to one of the intermediate connecting members. 10 15 20
9. The waterproof, moisture-proof and dustproof LED lamp as claimed in any one of claims 6 to 8, in which the lamp cover is connected to the bottom surface of the intermediate connecting piece of the lamp base through screws. 25

Patentansprüche 30

1. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe, umfassend einen aus miteinander verbundenen Lampen-Sockel (1; 1') und Lampenschirm (2; 2') gebildeten Lampenkörper, und ein in dem Lampenkörper angeordnetes Leuchtmittel, in der: 35
- das Leuchtmittel ein LED Modul (3; 8') mit darauf vorgesehenen LEDs (31; 81) ist; 40
- der Lampensockel aus einer integrierten Aluminiumprofilstruktur mit zwei vertikal entlang der Längsrichtung angeordneten Seitenwänden (11; 12; 11', 12') und einem intermediären zwischen den zwei Seitenwänden verbundenem Verbindungsstück (13; 13') besteht, wobei die obere Oberfläche des intermediären Verbindungsstückes (13; 13') eben ist, während die untere Seite desselben mit einer Vielzahl von strahlenförmigen Streifen (14; 14') versehen ist; und 45
- zwei Vertiefungen (15; 15') zum Aufnehmen von zwei Seitenkanten des Lampenschirms jeweils an den Verbindungsstellen der oberen Oberfläche des intermediären Verbindungsstückes mit jeder Seitenwand vorgesehen sind; 50
- ein Dichtstreifen (4; 4') zwischen jeder Seitenkante des Lampenschirms und jeder Vertiefung des intermediären Verbindungsstückes vorge- 55

sehen ist; **dadurch gekennzeichnet, dass** der Lampenschirm und der Lampensockel miteinander durch an jeder Seitenwand des Lampensockels angeordnete Schließbänder (5; 5') verbunden sind; und zwei unabhängige Abdeckungen (6, 7) vorgesehen sind, eine an jedem Ende des Lampensockels; zumindest zwei der strahlenförmigen Streifen (14-1; 14-2) an der unteren Oberfläche des intermediären Verbindungsstückes jeweils L-förmig und invertiert L-förmig sind, um einen gleitenden Durchgang (16) zwischen diesen zwei strahlenförmigen Streifen und der unteren Oberfläche des intermediären Verbindungsstückes zu bilden; zwei wasserfeste Verbindungsteile (103) vorgesehen sind, eines für jede Abdeckung, wobei die Verbindungsteile in einer dichtenden Art auf den Abdeckungen befestigt sind, wobei jedes wasserfeste Verbindungsteil ein Durchgangsloch (104) für hindurchzuführende Drähte aufweist, und wobei die Abdeckungen jeweils ein Loch (71) für hindurchzuführende Drähte aufweisen; und ein Stromversorgungs-Betriebsmodul (9; 9') zum Betreiben des LED Moduls vorgesehen ist, abgedichtet in einem Antriebsgehäuse (10), das außerhalb des Lampenkörpers angeordnet ist und mit der unteren Oberfläche des intermediären Verbindungsstückes des Lampensockels verbunden ist, in dem L-förmige Befestigungsstangen (101, 102) außerhalb des Antriebsgehäuses gebildet und verschiebbar innerhalb einer Gleitpassage (16) angeordnet sind.

2. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 1, bei der die zwei Abdeckungen (6, 7) mit dem Lampensockel durch Schrauben verbunden sind, und zwei wasserfeste Polster (8) jeweils zwischen jeder Abdeckung und dem Lampensockel vorgesehen sind.
3. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 1, bei der das LED Modul aus einem LED Streifen oder einer Vielzahl von LED Streifen besteht, welche miteinander durch einen SMD Connector elektrisch verbunden sind.
4. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 1 oder 2, bei der zumindest zwei der strahlenförmigen Streifen (14-1; 14-2) an der unteren Oberfläche des intermediären Verbindungsstückes jeweils L-förmig und invertiert L-förmig sind, um einen gleitenden Durchgang (16) zwischen diesen zwei strahlenförmigen Streifen und der unteren Oberfläche des intermediären Verbindungs-

stückes zu bilden.

5. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 1, bei der eine Lampenkörper-Montagehalterung (17) und an der Montagehalterung angeordnete Haken (18) an dem Lampensockel befestigt sind. 5
6. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 1, bei der eine mit dem Lampensockel verbundene Lampenabdeckung (3') auch außerhalb des Lampenkörpers vorgesehen ist, wobei mehrere strahlenförmige Löcher (31') in einer Gitteranordnung auf der Lampenabdeckung vorgesehen sind, bei der weiter eine abgedichtete Stromversorgungshaltekammer (32') zum Halten des Stromversorgungs-Betriebsmoduls innerhalb der Lampenabdeckung vorgesehen ist, und bei der das Stromversorgungs-Betriebsmodul innerhalb der abgedichteten Stromversorgungshaltekammer angeordnet ist. 10 15 20
7. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 6, bei der der Querschnitt der Lampenabdeckung in Breitrichtung U-förmig ist, und bei der der Querschnitt derselben in Längsrichtung auch U-förmig ist. 25
8. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach Anspruch 7, bei der die Lampenabdeckung zwei Abdeckungs-Verbindungselemente (3'-1', 3'-2') umfasst, die an zwei Enden der Lampenabdeckung und einer Vielzahl von intermediären Verbindungselementen (3'-3'), die miteinander verbunden werden können und zwischen den zwei Abdeckungs-Verbindungselementen verbunden sind, umfasst, und bei der die Abdeckungs-Verbindungselemente und die intermediären Verbindungselemente alle mit mehreren strahlenförmigen Löchern (31') in einer Gitteranordnung versehen sind; bei der die Stromversorgungshaltekammer zwischen den zwei Abdeckungs-Verbindungselementen angeordnet ist, und zwei Enden der abgedichteten Stromversorgungshaltekammer jeweils mit einem der intermediären Verbindungselemente verbunden werden können. 30 35 40 45
9. Wasserfeste, feuchtigkeitsfeste und staubfeste LED Lampe nach einem der Ansprüche 6 bis 8, bei der die Lampenabdeckung mit der unteren Oberfläche des intermediären Verbindungsstückes des Lampensockels durch Schrauben verbunden ist. 50

Revendications 55

1. Lampe à LED étanche à l'eau, à l'humidité et à la poussière comprenant un corps de lampe formé

d'une base de lampe (1 ; 1') et d'un abat-jour (2 ; 2') reliés entre eux, et un élément d'éclairage étant disposé dans le corps de lampe, dans laquelle :

l'élément d'éclairage est un module à LED (3 ; 8') doté de diodes électroluminescentes LED (31 ; 81') prévues sur celui-ci ;
la base de lampe a une structure de profilé d'aluminium intégrée ayant deux parois latérales (11, 12 ; 11', 12') disposées verticalement le long de la direction de longueur et une pièce de liaison intermédiaire (13 ; 13') reliée entre les deux parois latérales, la surface supérieure de la pièce de liaison intermédiaire est plane, tandis que sa face inférieure est pourvue d'une pluralité de bandes rayonnantes (14 ; 14') ; et
deux rainures (15 ; 15') pour recevoir deux bords latéraux de l'abat-jour sont prévues respectivement au niveau de la jonction de la surface supérieure de la pièce de liaison intermédiaire avec chaque paroi latérale ;
une bande d'étanchéité (4 ; 4') est prévue entre chaque bord latéral de l'abat-jour et chaque rainure de la pièce de liaison intermédiaire ;

caractérisée en ce que

l'abat-jour et la base de lampe sont reliés par des morillons (5 ; 5') disposés au niveau de chaque paroi latérale de la base de lampe ;
et deux couvercles indépendants (6, 7) sont prévus, un au niveau de chaque extrémité de la base de lampe ;
au moins deux des bandes rayonnantes (14-1 ; 14-2) sur la surface inférieure de la pièce de liaison intermédiaire sont respectivement en forme de L et en forme de L inversé, pour former un passage de coulissement (16) entre ces deux bandes rayonnantes et la surface inférieure de la pièce de liaison intermédiaire ;
deux joints étanches à l'eau (103) sont prévus, un pour chaque couvercle, les joints étant montés de manière étanche sur les couvercles, chaque joint étanche à l'eau ayant un trou traversant (104) à travers lequel passent des fils, et les couvercles ayant chacun un trou (71) à travers lequel passent des fils ; et
un module de pilotage d'alimentation électrique (9 ; 9') pour piloter le module à LED est prévu, scellé dans un boîtier de pilotage (10) qui est situé à l'extérieur du corps de lampe et relié à la surface inférieure de la pièce de liaison intermédiaire de la base de lampe, où des barres de montage en forme de L (101, 102) sont formées à l'extérieur du boîtier de pilotage et disposées en coulissement dans un passage de coulissement (16).

2. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendica-

tion 1, dans laquelle les deux couvercles (6, 7) sont reliés à la base de lampe par des vis, et deux coussins étanches à l'eau (8) sont respectivement prévus entre chaque couvercle et la base de lampe.

3. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 1, dans laquelle le module à LED se compose d'une bande de LED ou d'une pluralité de bandes de LED qui sont électriquement reliées entre elles par l'intermédiaire d'un connecteur SMD. 5
4. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 1 ou 2, dans laquelle au moins deux des bandes rayonnantes (14-1 ; 14-2) sur la surface inférieure de la pièce de liaison intermédiaire sont respectivement en forme de L et en forme de L inversé, pour former le passage de coulissement (16) entre ces deux bandes rayonnantes et la surface inférieure de la pièce de liaison intermédiaire. 10 15 20
5. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 1, dans laquelle un support de montage de corps de lampe (17) et des crochets (18) disposés sur le support sont montés sur la base de lampe. 25
6. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 1, dans laquelle un couvercle de lampe (3') relié à la base de lampe est également prévu à l'extérieur du corps de lampe, plusieurs trous rayonnants (31') dans un agencement en grille sont prévus sur le couvercle de lampe, en outre, une chambre étanche de maintien d'alimentation électrique (32') pour maintenir le module de pilotage d'alimentation électrique est prévue dans le couvercle de lampe, et le module de pilotage d'alimentation électrique est disposé dans la chambre étanche de maintien d'alimentation électrique. 30 35 40
7. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 6, dans laquelle la section transversale du couvercle de lampe dans la direction de largeur est en forme de U, et sa section transversale dans la direction de longueur est également en forme de U. 45
8. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans la revendication 7, dans laquelle le couvercle de lampe comporte deux éléments de liaison de couvercle (3'-1', 3'-2') disposés au niveau de deux extrémités du couvercle de lampe et une pluralité d'éléments de liaison intermédiaires (3'-3') pouvant se relier entre eux et reliés entre les deux éléments de liaison de couvercle, et les éléments de liaison de couvercle et les éléments 50 55

de liaison intermédiaires sont tous pourvus de plusieurs trous rayonnants (31') dans un agencement en grille ; la chambre étanche de maintien d'alimentation électrique est disposée entre les deux éléments de liaison de couvercle, et deux extrémités de la chambre étanche de maintien d'alimentation électrique peuvent respectivement être reliées à l'un des éléments de liaison intermédiaires.

9. Lampe à LED étanche à l'eau, à l'humidité et à la poussière telle que revendiquée dans l'une quelconque des revendications 6 à 8, dans laquelle le couvercle de lampe est relié à la surface inférieure de la pièce de liaison intermédiaire de la base de lampe par des vis. 10 15 20 25 30 35 40 45 50 55

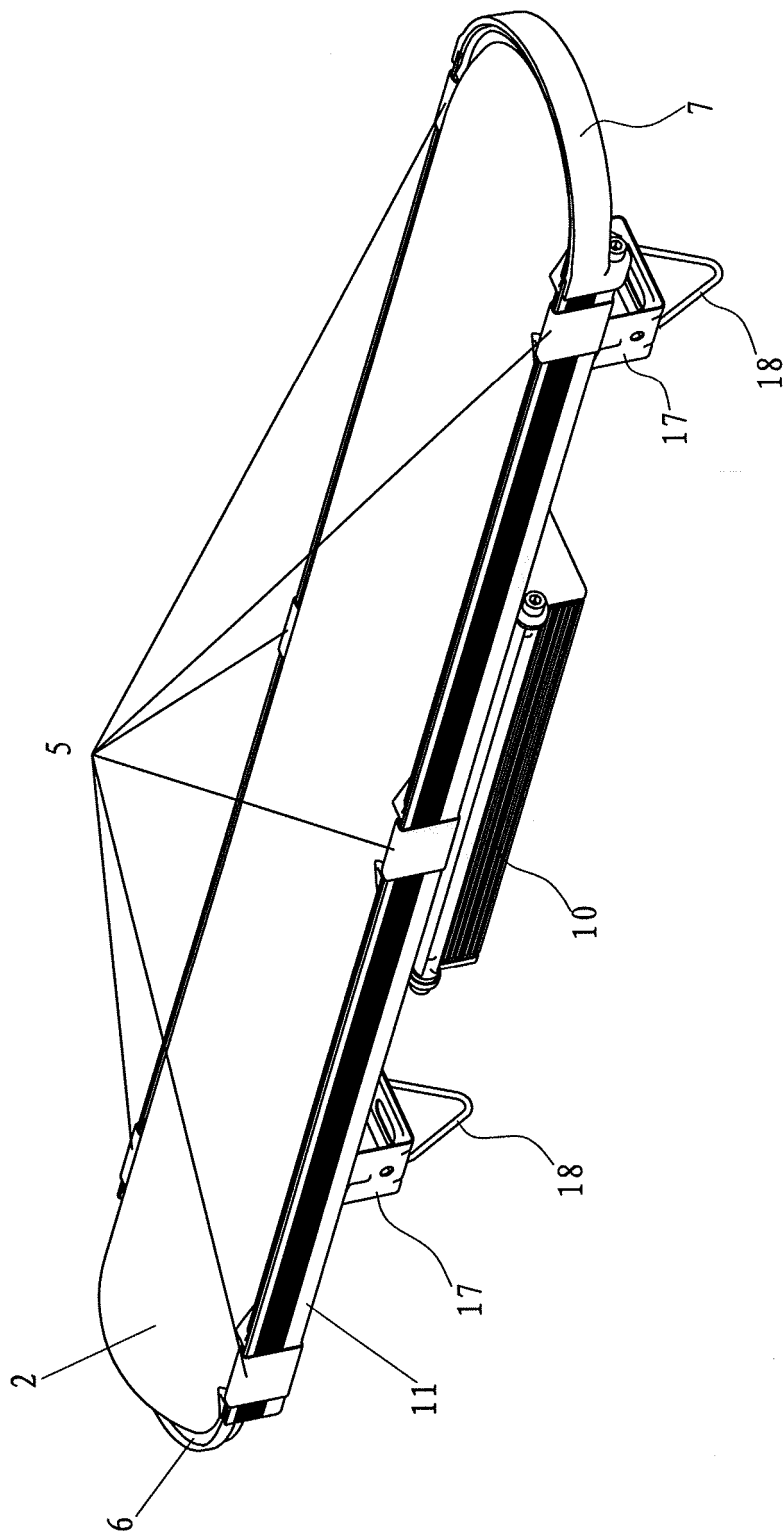
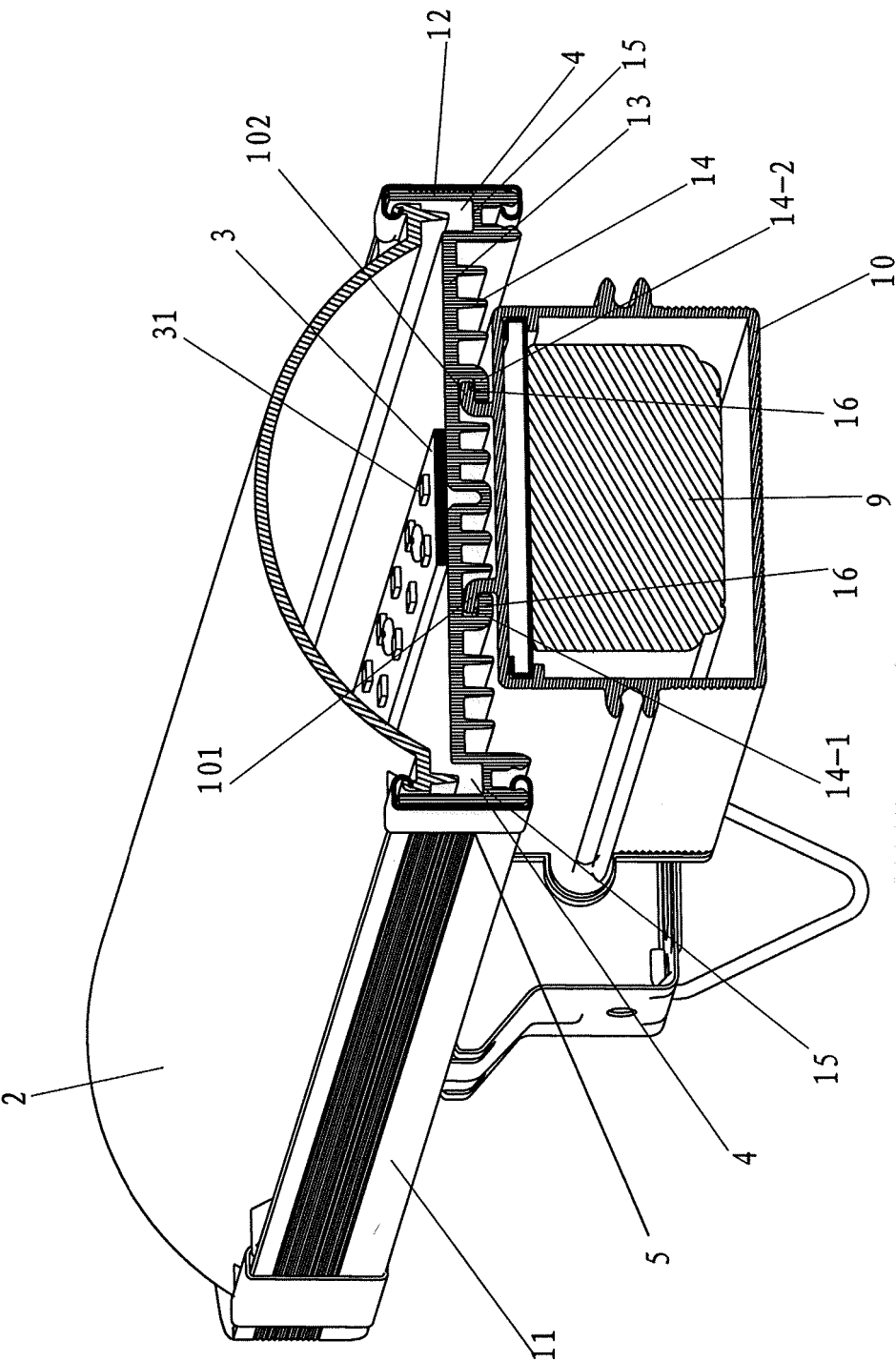


FIG 1



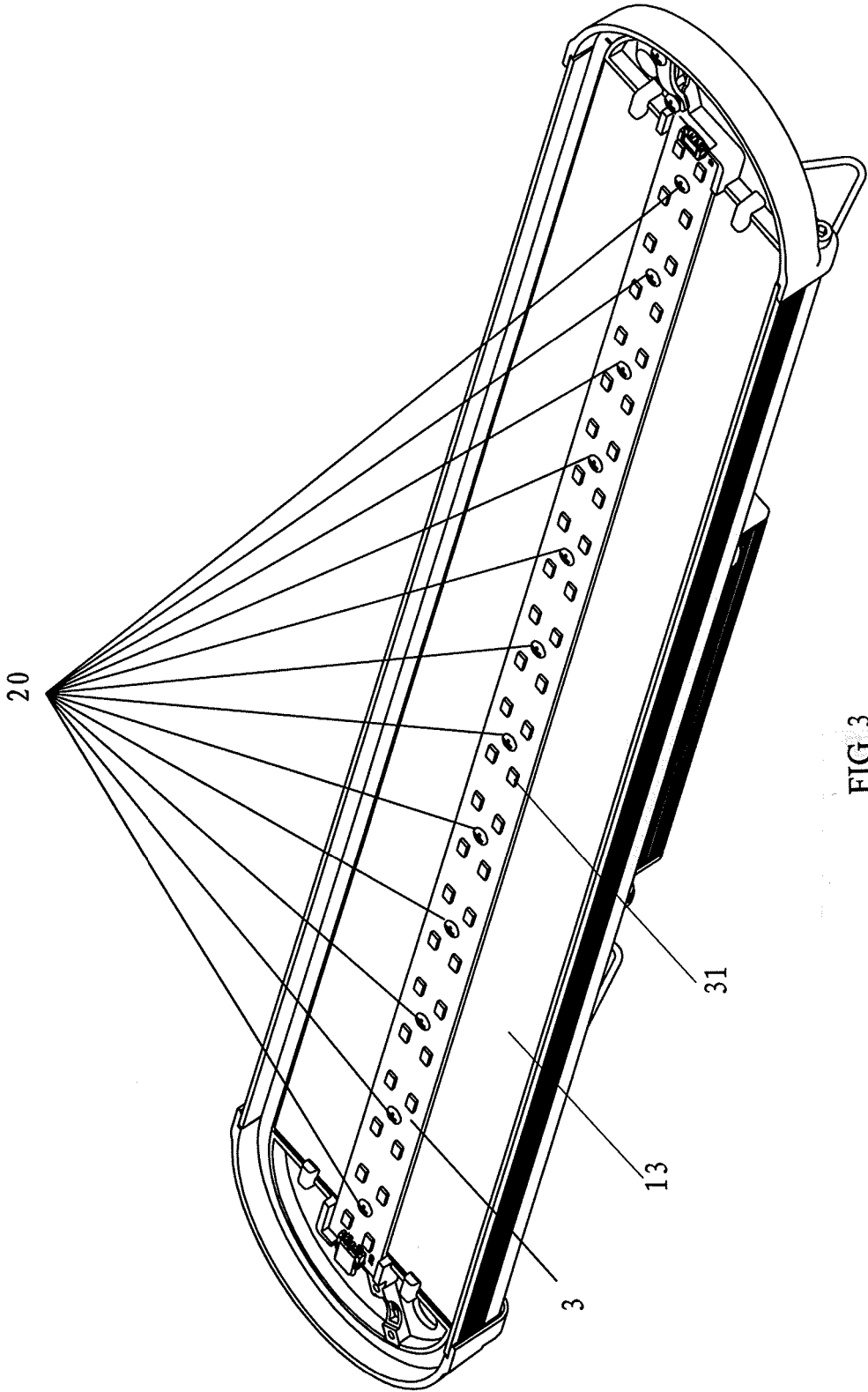


FIG 3

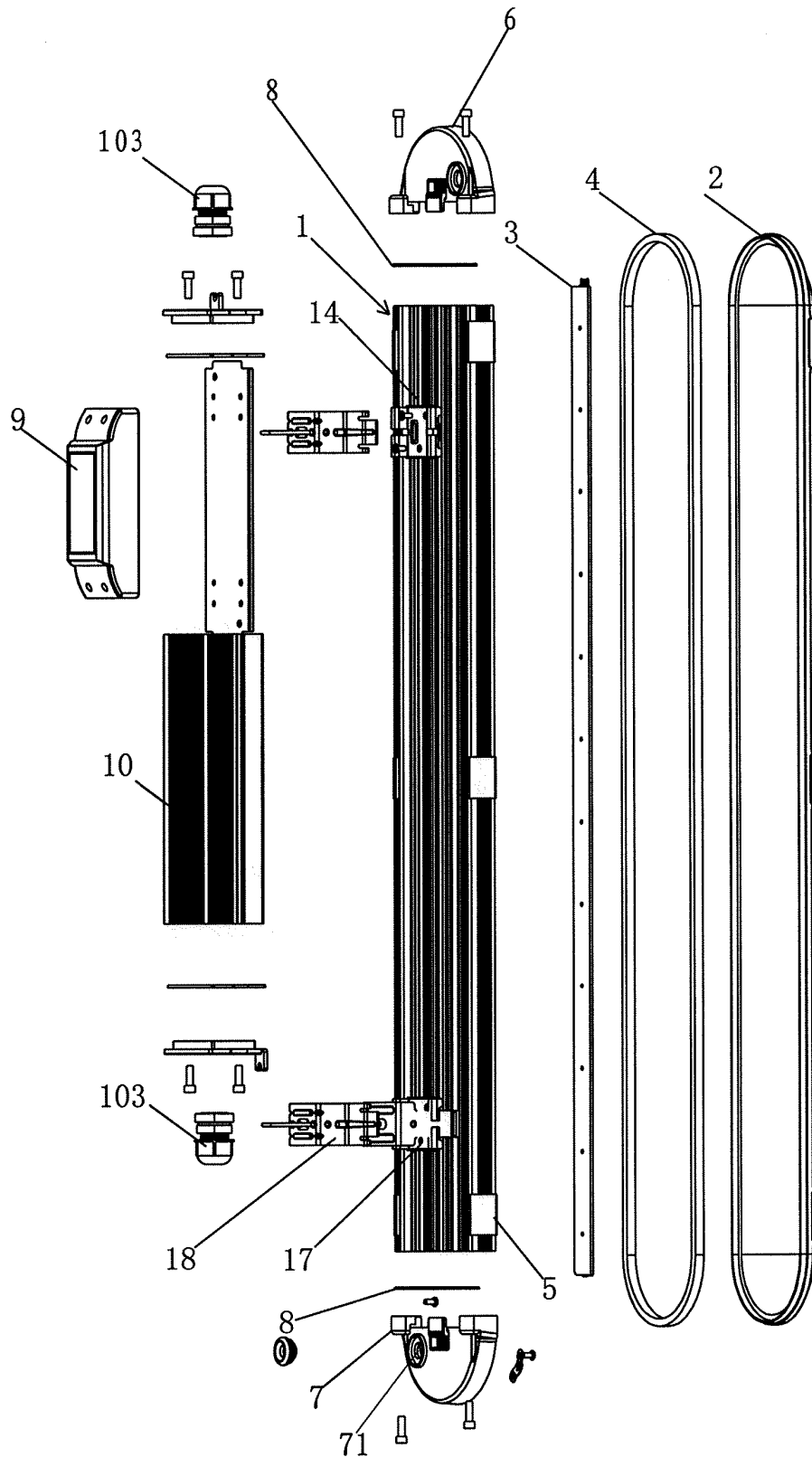


FIG 4

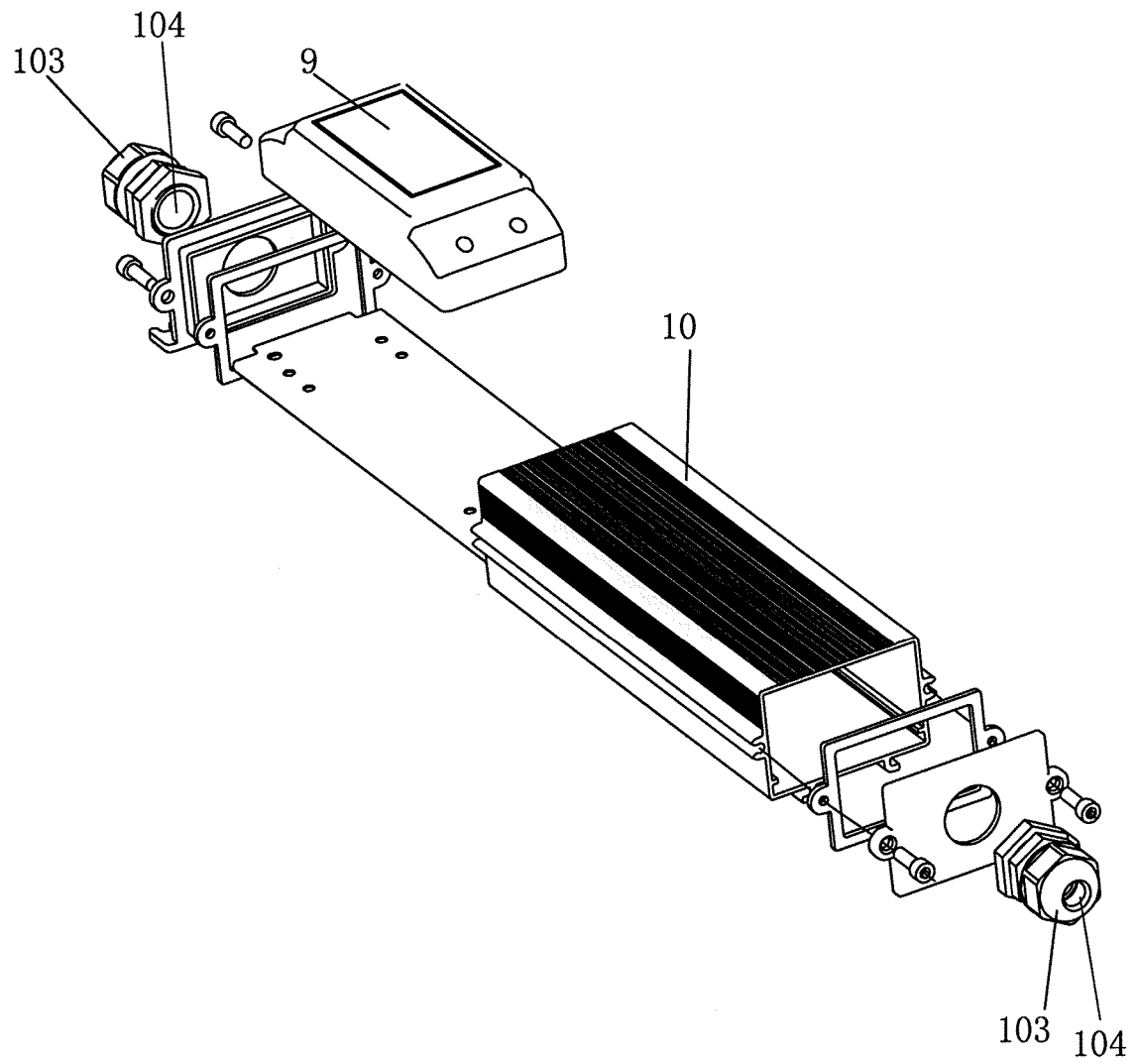


FIG 5

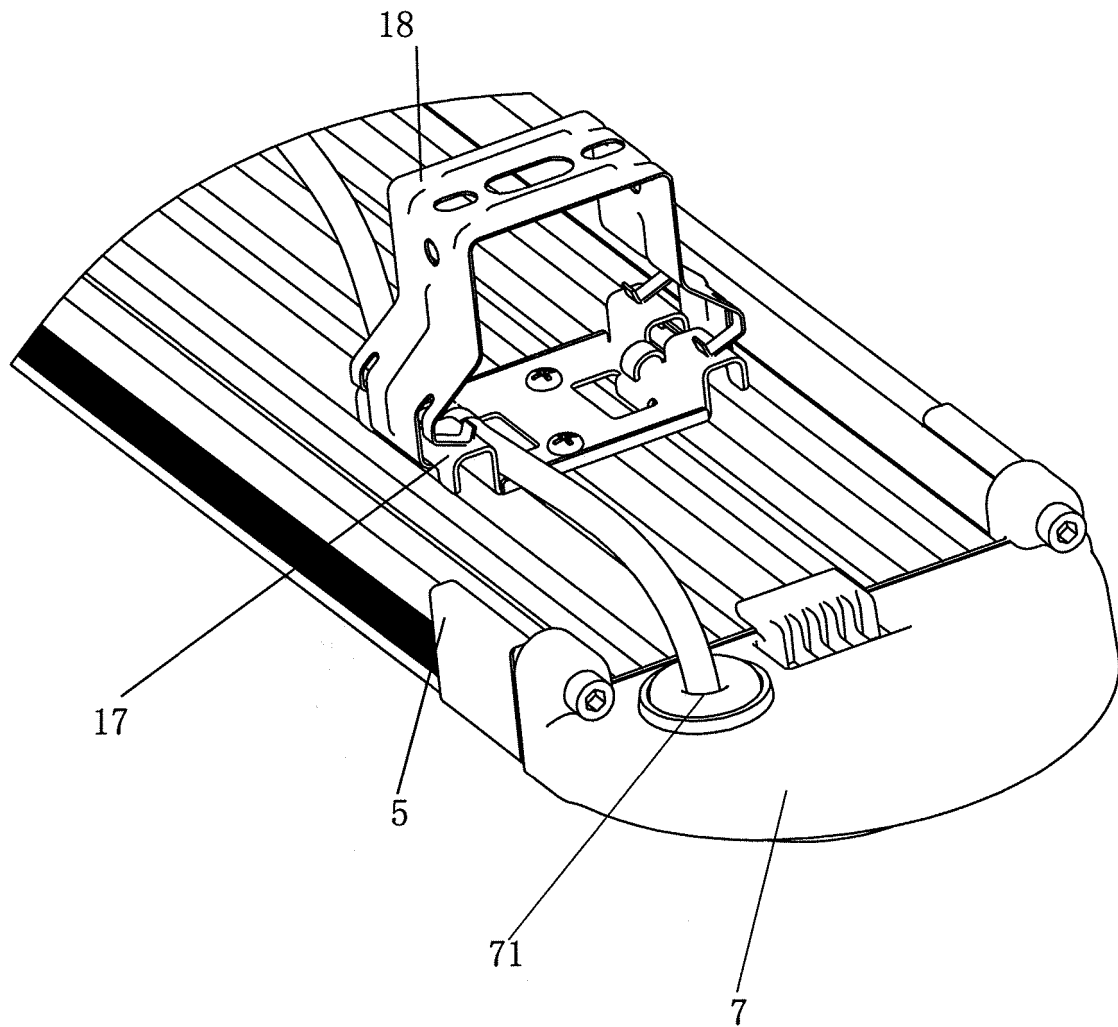


FIG 6

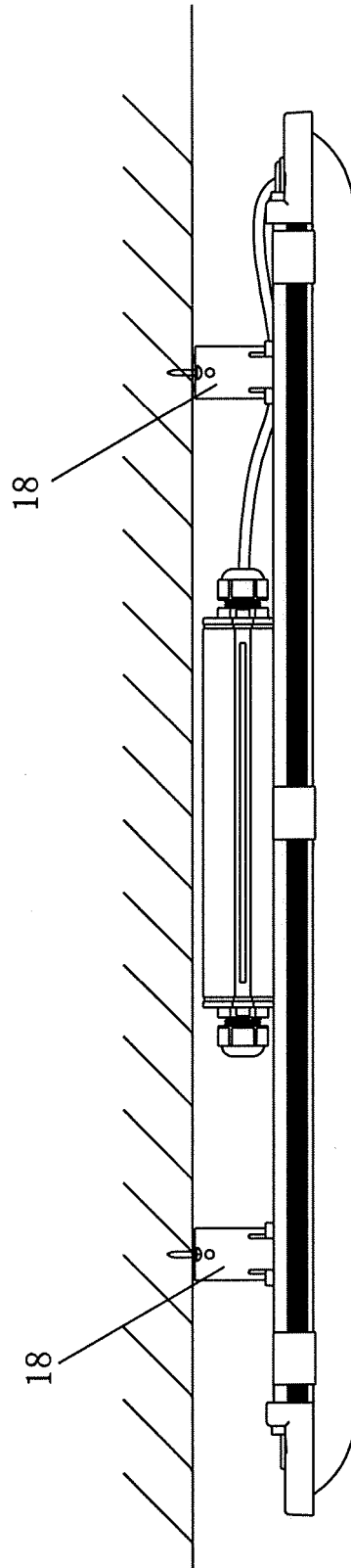


FIG 7

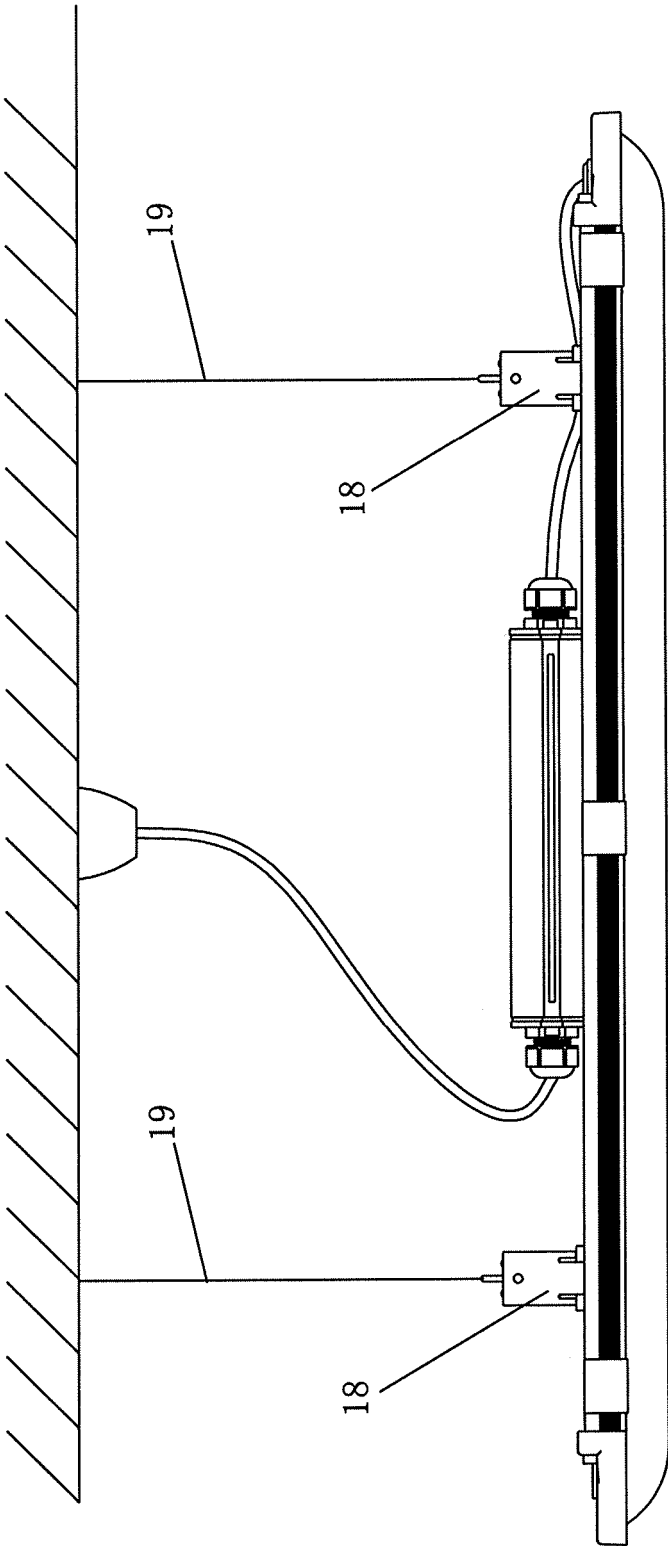


FIG 8

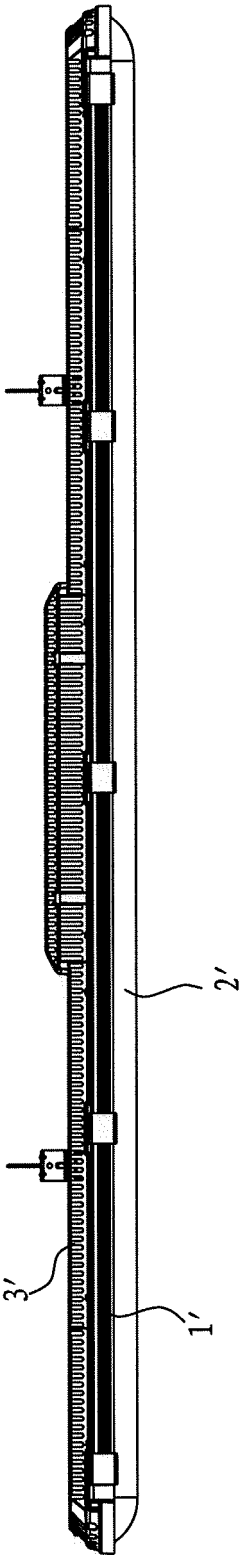


FIG 9

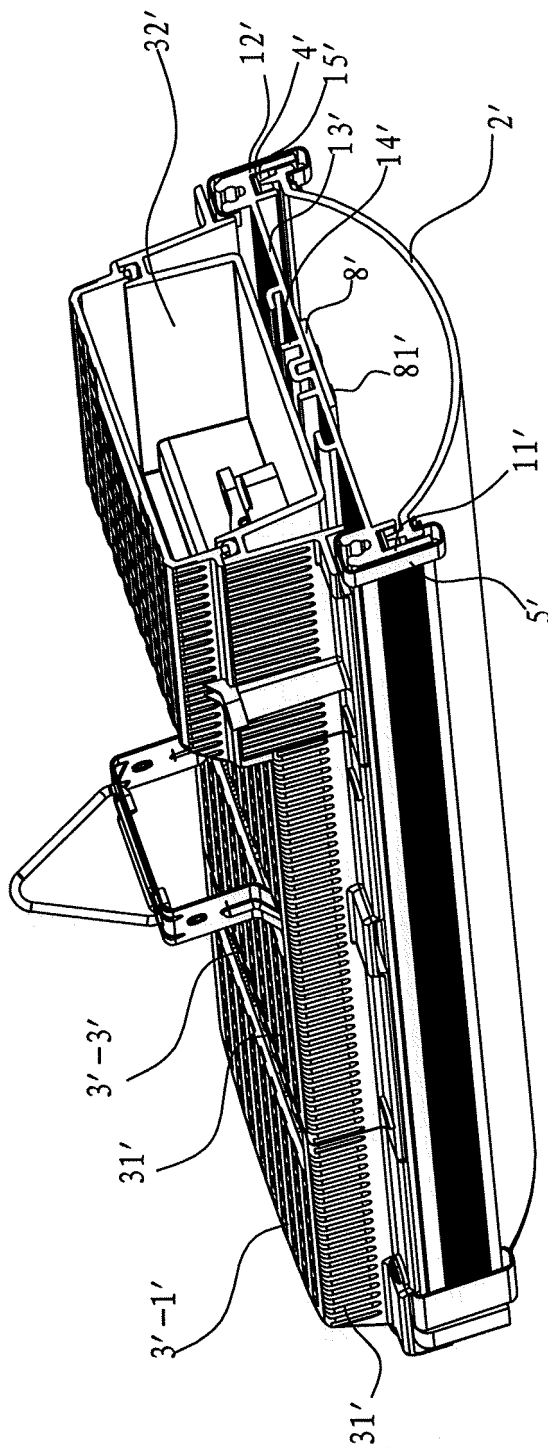


FIG 10

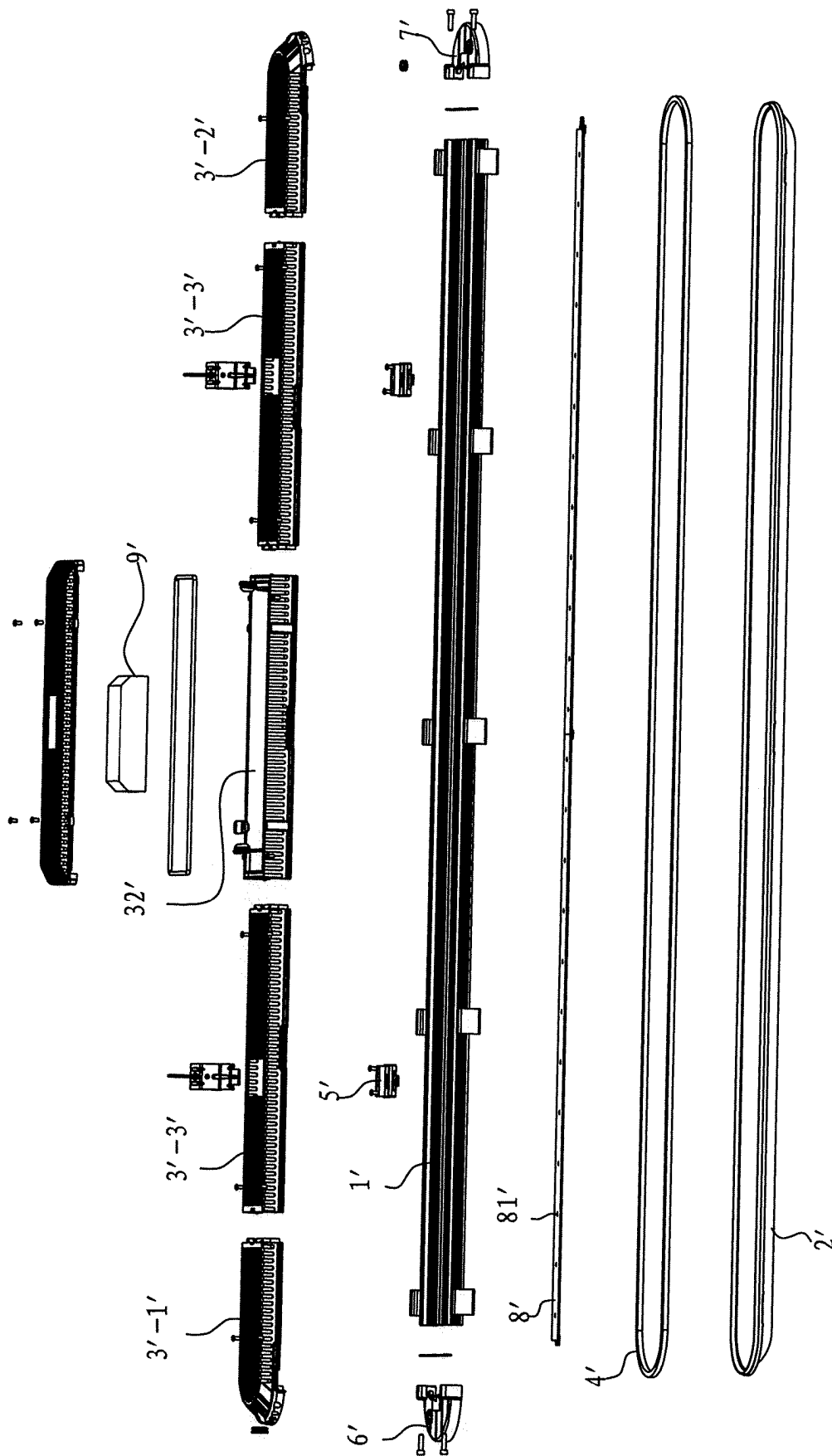


FIG 11

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 20120188766 A [0005]
- CN 101943339 [0006]
- US 20110317420 A [0007]