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(54) **LAMP**

LAMPE

LAMPE

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of lighting technology, and in particular relates to a lamp.

BACKGROUND

[0002] A LED floodlight is a point light source that may illuminate uniformly in all directions, and its illumination range may be arbitrarily adjusted, so it is widely used in daily life.

[0003] At present, components of the floodlights are closely structured, and heat dissipation fins are usually used for heat dissipation. However, this heat dissipation way has poor heat dissipation performance. It is well known that the heat dissipation of the LED lamp is the key to the use of the lamp. If the heat dissipation is poor, the temperature is too high when the LED light source is in use, which will affect the normal service life of the lamp bead, and affect the normal use of the lamp in turn.

[0004] In order to address this known problem, some LED floodlights comprising a body, a plurality of radiating tubes and a vapor chamber for cooling the LEDs are disclosed in the prior art. See documents US2014116653 A1, KR100995164 B1 and KR20110052129 A.

SUMMARY

[0005] In view of this, the embodiment of the present disclosure provides a lamp for solving the technical problem that the heat dissipation performance is still poor in the LED floodlight at the present stage.

[0006] The embodiment of the present disclosure provides a lamp, including a light source assembly, a lamp body, and a plurality of radiating tubes;
where the lamp body includes a vapor chamber and a mounting ring, the mounting ring is disposed around a periphery of the vapor chamber, the vapor chamber includes a first edge and a second edge opposite to each other, and a thickness of the vapor chamber gradually increases in a direction from the first edge to the second edge;
the light source assembly is connected to the vapor chamber, and two ends of each of the radiating tubes are respectively connected to the mounting ring away from the light source assembly and close to the first edge and the second edge;
in the vapor chamber, a first receiving cavity for holding a cooling liquid is provided close to the first edge, a second receiving cavity for holding a cooling liquid is provided close to the second edge, and a reflux passage connecting the first receiving cavity and the second receiving cavity is provided;
a reflux tank connecting the first receiving cavity, the second receiving cavity and the each of the radiating tubes is provided in the mounting ring.

[0007] Further, the lamp further including a stiffener, where two ends of the stiffener are respectively connected to two ends of the mounting ring away from the light source assembly, and a middle portion of the each of the radiating tubes is connected to the stiffener.

[0008] Further, where one surface of the vapor chamber away from the light source assembly is connected with a power source, the vapor chamber is provided with a through hole, and a waterproof rubber head for passing through a wire electrically connecting the power source and the light source assembly is provided in the through hole.

[0009] Further, where the light source assembly includes a plurality of LED lamp beads, a PCB board, and a translucent cover;
the PCB board is connected to one surface of the vapor chamber away from the radiating tubes, and the plurality of LED lamp beads are arranged on the PCB board;
the translucent cover is connected to one surface of the vapor chamber away from the radiating tubes, and covers the PCB board therein.

[0010] Further, where the light source assembly further includes a reflection cup, a cup bottom opening portion of the reflection cup is disposed around a periphery of the PCB and is connected to one surface of the vapor chamber away from the radiating tubes, and a cup top opening portion of the reflection cup is in contact with a translucent portion of the translucent cover.

[0011] Further, where the light source assembly further includes a first sealing ring, the first sealing ring is disposed around a periphery of the reflection cup, and two sides of the first sealing ring are respectively in contact with the vapor chamber and the translucent cover.

[0012] Further, the lamp further including a panel, where the panel includes an outer ring and an inner edge, the outer ring is connected to one surface of the mounting ring away from the radiating tubes, and the inner edge is disposed inside the outer ring and is connected to other two edges of the vapor chamber between the first edge and the second edge;
the reflux tank is disposed between the outer ring and the mounting ring, and the reflux passage is disposed between the inner edge and the vapor chamber.

[0013] Further, where the light source assembly is connected to one surface of the inner edge away from the vapor chamber and one surface of the outer ring away from the mounting ring. Further, where a second sealing ring is provided between the panel and the lamp body. Further, the lamp further including a support, where the support includes a first connecting rod, a second connecting rod, and a base;
two ends of the first connecting rod are respectively hinged with one surface of the vapor chamber away from the light source assembly and one end of the second connecting rod, and the other end of the second connecting rod is hinged with the base.

[0014] According to the lamp provided by the embodiments of the present disclosure, a vapor chamber with

different thickness and being connected to a light source assembly is provided on a lamp body, such that a cooling liquid contained in receiving cavities provided on two ends of the vapor chamber may circulate in a radiating tube connecting the lamp body in the case of non-uniform heat, to quickly and completely cool the light source assembly, improve the heat dissipation performance of the light source assembly, and improve the normal service life of the lamp.

BRIEF DESCRIPTION OF DRAWINGS

[0015] In order to describe the technical solutions in the embodiments of the present disclosure or the prior art more clearly, the drawings required to be used for descriptions about the embodiments or the prior art will be simply introduced below. It is apparent that the drawings describe below are some embodiments of the present disclosure. Those of ordinary skill in the art may further obtain other drawings according to these drawings without creative work.

FIG. 1 is a schematic exploded view of a three-dimensional structure of a lamp according to an embodiment of the present disclosure;

FIG. 2 is a cross-sectional view of a lamp body of a lamp according to an embodiment of the present disclosure;

FIG. 3 is a cross-sectional view taken along line A-A of FIG. 2 of a lamp according to an embodiment of the present disclosure;

FIG. 4 is a schematic exploded view of another three-dimensional structure of a lamp according to an embodiment of the present disclosure.

DESCRIPTION OF EMBODIMENTS

[0016] Implementations of the present disclosure will be describe in detail below with reference to the accompanying drawings and embodiments, so that the implementation process of solving the technical problem by applying the technical means and achieving technical effect can be fully understood and implemented.

[0017] Certain terms used throughout the description and claims are used to refer to particular components. Those skilled in the art will understand that hardware manufacturers may call the same component by different nouns. The present description and claims do not use a name difference as a mode for distinguishing the components, but the functional difference of the components is taken as a criterion for distinguishing. The word "comprising" as used throughout the description and claims is an open term and should be interpreted as "comprising but not limited to". "Substantially" means that within an acceptable error range, those skilled in the art will be able to solve the technical problems within a certain error range, basically achieving the technical effects. In addition, the term "coupled" is used herein to include any direct and indirect electrical coupling means. Therefore, if it is described here that a first apparatus is coupled to a second apparatus, it is indicated that the first apparatus may be directly and electrically coupled to the second apparatus or indirectly and electrically coupled to the second apparatus through other apparatuses or coupling means. The description is described as an implementation mode for implementing the present disclosure. However, the description is intended to be illustrative of the general principle of the present disclosure, and is not intended to limit the scope of the present disclosure. The scope of protection of the present disclosure is subject to the definition of the appended claims.

[0018] It is also to be noted that terms "include", "contain" or any other variants thereof are intended to include nonexclusive inclusions, thereby ensuring that a commodity or system including a series of elements not only includes those elements but also includes other elements which are not clearly listed or further includes elements intrinsic to the commodity or the system. Under the condition of no more restrictions, an element defined by statement "including a/an" does not exclude existence of another element which is the same in a commodity or system including the element.

Specific Embodiments

[0019] Please refer to FIG. 1, which is a schematic exploded view of a three-dimensional structure of a lamp according to an embodiment of the present disclosure. The lamp includes a light source assembly 10, a lamp body 20, and a plurality of radiating tubes 30.

[0020] Here, the lamp body 20 includes a vapor chamber 210 and a mounting ring 220. The mounting ring 220 is disposed around a periphery of the vapor chamber 210. The vapor chamber 210 includes a first edge 211 and a second edge 212 opposite to each other. A thickness of the vapor chamber 210 gradually increases in a direction from the first edge 211 to the second edge 212. Specifically, the lamp body 20 includes two parts, that is, the vapor chamber 210 and the mounting ring 220. The vapor chamber 210 is connected inside the mounting ring 220, and the vapor chamber 210 is not uniform thickness. The thickness gradually increases in the direction from the first edge 211 to the second edge 212, that is, the first edge 211 is a thinner edge, and the second edge 212 is a thicker edge. Here, it should be noted that the specific shape of the mounting ring 220 is not limited, which may be a rectangular ring shape, a racetrack ring shape, or a circular ring shape. In a preferred embodiment, the specific shape of the mounting ring 220 is an elliptical ring as shown in the drawing. The specific shape of the vapor chamber 210 is not specifically limited. The outer edge of the vapor chamber 210 may be completely connected to the inside of the mounting ring 220, that is, the inside of the mounting ring 220 is completely covered by the vapor chamber 210, and has no hollow portion 230 as shown in the drawing. A preferred embodiment

is shown in the drawing. In the preferred embodiment, the outer edge of one part of the vapor chamber 210 is connected to the inside of the mounting ring 220, such as the first edge 211 and the second edge 212 opposite to each other are respectively connected to the inside of the mounting ring 220, forming the hollow portion 230 at two sides of the vapor chamber 210.

[0021] The light source assembly 10 is connected to the vapor chamber 210, and the specific connection form includes, but is not limited to, a screw connection.

[0022] Two ends of each of the radiating tubes 30 are respectively connected to the mounting ring 220 away from the light source assembly 10 and close to the first edge 211 and the second edge 212. Specifically, the radiating tubes 30 are connected to the side of the mounting ring 220 away from the light source assembly 10, and two ends of the radiating tubes 30 are respectively connected to the mounting ring 220 close to the first edge 211 and the second edge 212, that is, each of the radiating tubes 30 are arranged along a direction from the first edge 211 to the second edge 212. Each of the radiating tubes 30 are spaced apart from each other, and the plurality of radiating tubes 30 are not in contact with the vapor chamber 210, which are also spaced apart from each other by a distance therebetween.

[0023] Please refer to FIG. 2, the vapor chamber 210 is provided with a first receiving cavity 2101, a second receiving cavity 2102, and a reflux passage 2103. Here, the first receiving cavity 2101 is disposed close to the first edge 211, such as disposed on the top of the vapor chamber 210 along the first edge 211. The second receiving cavity 2102 is disposed close to the second edge 212, such as disposed on the bottom of the vapor chamber 210 along the second edge 212. The first receiving cavity 2101 and the second receiving cavity 2102 are oppositely disposed, and they are in communication with each other via the reflux passage 2103. The first receiving cavity 2101 and the second receiving cavity 2102 are used for holding a cooling liquid, and the cooling liquid therein includes, but is not limited to, steamed water.

[0024] In addition, a reflux tank 2201 that communicates the first receiving cavity 2101, the second receiving cavity 2102, and each of the radiating tubes 30 is provided in the mounting ring 220. Specifically, the reflux tank 2201 is disposed inside the mounting ring 220 around a whole lap of the mounting ring 220. The reflux tank 2201 communicates with the first receiving cavity 2101 and the second receiving cavity 2102 respectively, and in connection with two ends of the radiating tubes 30 penetrating into the mounting ring 220, such that each of the radiating tubes 30 communicates with the reflux tank 2201 respectively.

[0025] The implementation method for connecting the lamp body 20 and the radiating tubes 30 includes, but is not limited to, the following method:

putting the lamp body 20 after die-casting into the No. 0 oil to be heated to 200 degree;

putting each of the radiating tubes 30 into a freezer for low temperature treatment to -40 degree; and

mounting the frozen radiating tubes 30 in the holes of the mounting body 220 of the lamp body 20 after heated, to use the principle of materials expand on heating and contract on cooling to ensure waterproof and seal function of the mounting gap between the radiating tubes 30 and the mounting ring 220.

[0026] Of course, the above implementation method is merely an example, and other methods may also be used, such as the form of applying waterproof sealant on the mounting gap between the radiating tubes 30 and the mounting ring 220, to ensure the seal function therebetween. Please refer to FIG. 3, when the lamp of the embodiment of the present disclosure is applied in use, the heat generated by the light source assembly 10 is transmitted to the vapor chamber 210. Since the thickness of the second edge 212 is greater than the first edge 211, the temperature of the vapor chamber 210 close to the second edge 212 is greater than the temperature of the vapor chamber 210 close to the first edge 211, that is, the temperature of the cooling liquid in the second receiving cavity 2102 is greater than the temperature of the cooling liquid in the first receiving cavity 2101. The cooling liquid in the second receiving cavity 2102 is convectively moved upward in the radiating tubes 30 under the influence of temperature, and the heat is absorbed by the tube wall of the radiating tubes 30 while cooling liquid convectively moving upward in the radiating tubes 30. The upward convective cooling liquid in the radiating tubes 30 is cooled in the radiating tubes 30 and finally collected in the first receiving cavity 2101. The cooling liquid flowing back to the first receiving cavity 2101 flows back to the second receiving cavity 2102 along the reflux passage 2103 under the influence of temperature difference and gravity. Thereby, the convection circulation of the cooling liquid in the vapor chamber 210 is completed. Relying on the convective motion of the cooling liquid in each of the radiating tubes 30, the heat in the cooling liquid is conducted to each of the radiating tubes 30 and then radiated to the air outside the lamp to achieve the heat dissipation, to quickly and completely cool the light source assembly 10, improve the heat dissipation performance of the light source assembly 10, and improve the normal service life of the lamp. This water-cooling heat dissipation method enhances the heat dissipation effect of the lamp, and provides benefit to designing a large overall power lamp by using a smaller lamp volume and a lighter lamp weight.

[0027] Further, in conjunction with FIG. 4, in other preferred embodiments of the present disclosure, in order to improve the rigidity of each of the radiating tubes 30 and the stability of the connection with the mounting ring 220, the lamp further includes a stiffener 40. Here, two ends of the stiffener 40 are respectively connected to the two ends of the mounting ring 20 away from the light source assembly 10, and the middle portion of each of

the radiating tubes 30 is connected to the stiffener 40. Specifically, the stiffener 40 is an arc-shaped structure, two ends thereof are respectively connected to the two ends of the mounting ring 220, and an opening portion of the arc-shaped structure faces the mounting ring 220 away from the light source assembly 10. The stiffener 40 is disposed across the middle of the radiating tubes 30. In the preferred embodiment, the stiffener 40 is provided with a plurality of punching holes, and the radiating tubes 30 are respectively disposed in the plurality of punching holes to achieve the connection with the stiffener 40. Here, since each of the radiating tubes 30 is also an arc-shaped structure, a spindle structure is formed by each of the radiating tubes 30, the stiffener 40 and the lamp body 20. The curved surface of the spindle shape is a heat dissipating surface in contact with the outside air, and the heat dissipation performance of the lamp can be further improved by increasing the contact area with the outside air.

[0028] In addition, one surface of the vapor chamber 210 away from the light source assembly 10 is connected with a power source 50. Here, the vapor chamber 210 is provided with a through hole 510, and a waterproof rubber head 520 for passing through a wire electrically connecting the power source 50 and the light source assembly 10 is provided in the through hole 510. Specifically, the waterproof rubber head 520 is disposed in the through hole 510 on the vapor chamber 210, and is used to pass through the wire to electrically connect the power source 50 and the light source assembly 10, such that the power source 50 provides electric power to the light source assembly 10. Here, the waterproof function of the lamp can be improved by the arrangement of the waterproof rubber head 520 to ensure the electrical safety of the lamp. Further, the light source assembly 10 includes a plurality of LED lamp beads (not shown), a PCB board 110, and a translucent cover 120.

[0029] Here, the PCB board 110 is connected to one surface of the vapor chamber 210 away from the radiating tubes 30, and the plurality of LED lamp beads are arranged on the PCB board 110; and the translucent cover 120 is connected to one surface of the vapor chamber 210 away from the radiating tubes 30, and covers the PCB board 110 therein. Specifically, the PCB board 110 is connected to one surface of the vapor chamber 210 away from the radiating tubes 30 by a screw connection or the like, and the translucent cover 120 is a trough type structure, the bottom portion of the trough type structure is a transparent structure, and an opening portion of the trough type structure is disposed cover the vapor chamber 210 to cover the PCB board 110 therein, such that the light emitted from the plurality of LED beads arranged on the PCB board 110 is transmitted through the bottom portion to the outside of the lamp.

[0030] Further, the light source assembly further includes a reflection cup 130 and a first sealing ring 140.

[0031] Here, the reflection cup 130 is a cup-shaped structure with two ends open, a cup bottom opening portion is disposed around a periphery of the PCB board 110 and is connected to one surface of the vapor chamber 210 away from the radiating tubes 30, and a cup top opening portion is in contact with a translucent portion of the translucent cover 30. The translucent portion here is the bottom portion of the trough type structure. It is well known that the illumination angle of the LED lamp bead is generally large, then the light is bound to be illuminated onto the trough wall of the translucent cover 120 of the trough type structure. If the trough wall is a translucent structure as well, light emission phenomenon will appear on the lamp, which will affect the illumination effect of the lamp. And if the trough wall is an opaque structure, there is bound to a light loss caused by the light irradiation, which will affect the light utilization rate. The above situation can be effectively avoided by the arrangement of the reflection cup 130, which works as reflecting the side light emitted by the LED lamp beads to illuminate towards the bottom portion of the trough type structure and finally being projected from the lamp.

[0032] The first sealing ring 140 is disposed around the periphery of the reflection cup 130, and the two sides are respectively in contact with the vapor chamber 210 and the translucent cover 120. Here, the first sealing ring 140 is a tubular structure having two opening ends. One opening end is connected to one surface of the vapor chamber 210 close to the PCB board 110, and the other opening end is connected to the translucent cover 120. Specifically, the inner wall of the first sealing ring 140 is sleeved on the periphery of the reflection cup 130, and the outer wall of the first sealing ring 140 is in contact with the inner trough wall of the trough type structure, such that the structure can improve the seal function of the light source assembly 10, and improve the safety of the lamp when it in use.

[0033] In addition, the lamp further includes a panel 60, which includes an outer ring 610 and an inner edge 620. Here, the outer ring 610 is connected to one surface of the mounting ring 220 away from the radiating tubes 30, the inner edge 620 is disposed inside the outer ring 610 and is connected to other two edges of the vapor chamber 210 between the first edge 211 and the second edge 212, the reflux tank 2201 is disposed between the outer ring 610 and the mounting ring 220, and the reflux passage 2103 is disposed between the inner edge 620 and the vapor chamber 210.

[0034] Specifically, the panel 60 is a structure corresponding to the lamp body 20. Here, the outer ring 610 is corresponding to the mounting ring 220. The mounting ring 220 has a trough body recessed inward, and the outer ring a 610 is covered on the trough body forming the reflux tank 2201. The inner edge 620 is corresponding to the other two edges of the vapor chamber 210 other than first edge 211 and the second edge 212. The other two edges of the vapor chamber 210 other than first edge 211 and the second edge 212 have passages recessed inward, and the inner edge 620 is covered on the passages forming the reflux passage 2103. The above is

merely exemplary in nature and does not constitute a limitation of the invention. Further, the light source assembly 10 is connected to one surface of the inner edge 620 away from the vapor chamber 210 and one surface of the outer ring 610 away from the mounting ring 220. Specifically, the outer circumference of the PCB board 110 is respectively connected to one surface of the inner edge 620 away from the vapor chamber 210 and the outer ring 610 away from the mounting ring 220, such that the heat light generated by the source assembly 10 can be quickly and completely transferred to the vapor chamber 210 to further improve the heat dissipation performance of the lamp.

[0035] In addition, in order to ensure the seal function of the reflux tank 2201, the first receiving cavity 2101, the second receiving cavity 2102, and the reflux passage 2103, a second sealing ring 630 is provided between the panel 60 and the lamp body 20. Here, the shape of the second sealing ring 630 is same with the shape of the panel 60, and the second sealing ring 630 is pressed to be connected to the lamp body 20 through the panel 60.

[0036] Further, in order to make the illumination angle of the lamp adjustable to increase the serviceable range of the lamp, the lamp further includes a support 70. The support 70 includes a first connecting rod 710, a second connecting rod 720, and a base 730.

[0037] Here, two ends of the first connecting rod 70 are respectively hinged with one surface of the vapor chamber 210 away from the light source assembly 10 and one end of the second connecting rod 720, and the other end of the second connecting rod 720 is hinged with the base 730.

[0038] Specifically, one surface of the vapor chamber 210 away from the light source assembly 10 is provided with a connecting hole 80, both ends of the first connecting rod 710 and the second connecting rod 720 are also provided with connecting holes 80, and the base 730 is also provided with a connecting hole 80. The connecting hole 80 on the vapor chamber 210 is hinged with the connecting hole 80 on one end of the first connecting rod 710 by a connecting bolt 90, to realize a relative rotation between the lamp body and the first connecting rod 710. The connecting holes 80 on the two ends of the second connecting rod 720 are respectively hinged with the connecting hole 80 on the other end of the first connecting rod 710 and the connecting hole 80 on the base 730, to respectively realize relative rotations between the second connecting rod 720 and the first connecting rod 710 and between the second connecting rod 720 and the base 730.

[0039] It should be noted that, in the case that the structures do not conflict, the structures of each part mentioned in the above embodiments may be combined with each other. To avoid repetition, the technical solutions obtained after the combination are not describe herein again, but are the technical solutions obtained after combination should also fall within the scope of protection of the present disclosure.

[0040] It is finally to be noted that the above embodiments are adopted not to limit but only to describe the technical solutions of the present invention. Although the present invention has been describe with reference to the abovementioned embodiments in detail, those of ordinary skill in the art should know that modifications may still be made to the technical solutions recorded in each embodiment or equivalent replacements may be made to part of technical features therein. These modifications or replacements do not make the essences of the corresponding technical solutions depart from the scope of the technical solutions of each embodiment of the present invention.

Claims

1. A lamp, comprising a light source assembly (10), a lamp body (20), and a plurality of radiating tubes (30); wherein, the lamp body (20) comprises a vapor chamber (210)
characterized in that the lamp body further comprises
a mounting ring (220), the mounting ring is disposed around a periphery of the vapor chamber (210), the vapor chamber comprises a first edge (211) and a second edge (212) opposite to each other, and a thickness of the vapor chamber gradually increases in a direction from the first edge to the second edge;
the light source assembly (10) is connected to the vapor chamber, and two ends of each of the radiating tubes (30) are respectively connected to the mounting ring away from the light source assembly and close to the first edge and the second edge;
in the vapor chamber (210) a first receiving cavity (2101) for holding a cooling liquid is provided close to the first edge, a second receiving cavity (2102) for holding a cooling liquid is provided close to the second edge, and a reflux passage (2103) connecting the first receiving cavity and the second receiving cavity is provided;
a reflux tank (2201) connecting the first receiving cavity, the second receiving cavity and the each of the radiating tubes is provided in the mounting ring.

2. The lamp according to claim 1, further comprising a stiffener, wherein, two ends of the stiffener are respectively connected to two ends of the mounting ring away from the light source assembly, and a middle portion of the each of the radiating tubes is connected to the stiffener.

3. The lamp according to claim 1, wherein, one surface of the vapor chamber away from the light source assembly is connected with a power source, the vapor chamber is provided with a through hole, and a waterproof rubber head for passing through a wire electrically connecting the power source and the light

source assembly is provided in the through hole.

4. The lamp according to claim 1, wherein, the light source assembly comprises a plurality of LED lamp beads, a PCB board, and a translucent cover;
the PCB board is connected to one surface of the vapor chamber away from the radiating tubes, and the plurality of LED lamp beads are arranged on the PCB board;
the translucent cover is connected to one surface of the vapor chamber away from the radiating tubes, and covers the PCB board therein.

5. The lamp according to claim 4, wherein, the light source assembly further comprises a reflection cup, a cup bottom opening portion of the reflection cup is disposed around a periphery of the PCB and is connected to one surface of the vapor chamber away from the radiating tubes, and a cup top opening portion of the reflection cup is in contact with a translucent portion of the translucent cover.

6. The lamp according to claim 5, wherein, the light source assembly further comprises a first sealing ring, the first sealing ring is disposed around a periphery of the reflection cup, and two sides of the first sealing ring are respectively in contact with the vapor chamber and the translucent cover.

7. The lamp according to any one of claims 1 to 6, further comprising a panel, wherein, the panel comprises an outer ring and an inner edge, the outer ring is connected to one surface of the mounting ring away from the radiating tubes, and the inner edge is disposed inside the outer ring and is connected to other two edges of the vapor chamber between the first edge and the second edge;
the reflux tank is disposed between the outer ring and the mounting ring, and the reflux passage is disposed between the inner edge and the vapor chamber.

8. The lamp according to claim 7, wherein, the light source assembly is connected to one surface of the inner edge away from the vapor chamber and one surface of the outer ring away from the mounting ring.

9. The lamp according to claim 7, wherein, a second sealing ring is provided between the panel and the lamp body.

10. The lamp according to claim 7, further comprising a support, wherein, the support comprises a first connecting rod, a second connecting rod, and a base;
two ends of the first connecting rod are respectively hinged with one surface of the vapor chamber away from the light source assembly and one end of the second connecting rod, and the other end of the second connecting rod is hinged with the base.

Patentansprüche

1. Lampe umfassend eine Lichtquellenanordnung (10), einen Lampenkörper (20) und eine Vielzahl an strahlenden Röhren (30);
wobei, der Lampenkörper (20) eine Dampfkammer (210) umfasst, **dadurch gekennzeichnet, dass** der Lampenkörper darüber hinaus
einen Montagering (220) umfasst, wobei der Montagering um den Umfang der Dampfkammer (210) herum angeordnet ist, wobei die Dampfkammer einen ersten Rand (211) und einen zweiten Rand (212) umfasst,
die einander gegenüberliegend angeordnet sind, und die Dicke der Dampfkammer wird in Richtung vom ersten Rand bis zum zweiten Rand schrittweise größer;
die Lichtquellenanordnung (10) ist mit der Dampfkammer verbunden und die beiden Enden des strahlenden Rohrs (30) sind jeweils mit dem Montagering von der Lichtquellenanordnung nach außen hin und in der Nähe des ersten Randes und des zweiten Randes verbunden;
in der Dampfkammer (210) ist ein erster aufnehmender Hohlraum (2101) für die Aufnahme einer Kühlflüssigkeit in die Nähe des ersten Randes angebracht,
ein zweiter aufnehmender Hohlraum (2102) ist für die Aufnahme einer Kühlflüssigkeit in die Nähe des zweiten Randes angebracht und ein Rückflussdurchgang 2103) ist angebracht, die den ersten aufnehmenden Hohlraum und den zweiten aufnehmenden Hohlraum verbindet;
ein Rückflusstank (2201),
die den ersten aufnehmenden Hohlraum, den zweiten aufnehmenden Hohlraum und die beiden strahlenden Röhre verbindet, ist in den Montagering angebracht.

2. Lampe nach Anspruch 1, die zusätzlich eine Versteifung umfasst, wobei die zwei Enden der Versteifung jeweils mit den zwei Enden des Montagerings von der Lichtquellenanordnung nach außen hin verbunden sind, und ein mittlerer Teil der beiden strahlenden Röhre mit der Versteifung verbunden ist.

3. Lampe nach Anspruch 1, wobei eine Fläche der Dampfkammer von der Lichtquelle nach außen hin mit einer Stromquelle verbunden ist, wobei die Dampfkammer eine Durchgangsbohrung aufweist, und ein wasserdichter Gummikopf für das Durchleiten einer Leitung, die eine elektrische Verbindung zwischen der Stromquelle und der Lichtquellenanordnung herstellt, in die Durchgangsbohrung angebracht ist.

4. Lampe nach Anspruch 1, wobei die Lichtquellenanordnung eine Vielfalt von LED-Lampenkügelchen, eine gedruckte Leiterplatte und eine lichtdurchlässige Abdeckung aufweist;
die gedruckte Leiterplatte ist mit einer Fläche der Dampfkammer von den strahlenden Röhren nach außen hin verbunden und die Vielzahl an LED-Lampenkügelchen ist auf die gedruckte Leiterplatte angebracht;
die lichtdurchlässige Abdeckung ist mit einer Fläche der Dampfkammer von den strahlenden Röhren nach außen hin verbunden und deckt die sich darin befindliche gedruckte Leiterplatte ab.

5. Lampe nach Anspruch 4, wobei die Lichtquellenanordnung zusätzlich einen Reflektionsbecher umfasst, wobei ein unterer geöffneter Becherteil des Reflektionsbechers um den Umfang der gedruckten Leiterplatte angeordnet und mit einer Fläche der Dampfkammer von den strahlenden Röhren nach außen hin verbunden ist, und ein oberer Becherteil des Reflektionsbechers liegt an einem lichtdurchlässigen Teil der lichtdurchlässigen Abdeckung an.

6. Lampe nach Anspruch 5, wobei die Lichtquellenanordnung zusätzlich einen ersten Dichtring umfasst, wobei der Dichtring um einen Umfang des Reflektionsbechers angeordnet ist,
und zwei Seiten des ersten Dichtrings liegen jeweils an dem Dampfkammer und der lichtdurchlässigen Abdeckung an.

7. Lampe nach einem der Ansprüche 1 bis 6, die zusätzlich ein Paneel umfassen, wobei das Paneel einen äußeren Ring und einen inneren Ring umfasst, wobei der äußere Ring mit einer Fläche des Montagerings von den strahlenden Röhren nach außen hin verbunden sind, und der innere Rand in dem äußeren
Ring angeordnet ist und mit den anderen zwei Rändern der Dampfkammer zwischen dem ersten Rand und dem zweiten Rand verbunden ist;
der Rückflusstank ist zwischen dem äußeren Ring und dem Montagering angeordnet und der Rückflussdurchgang ist zwischen dem inneren Ring und der Dampfkammer angeordnet.

8. Lampe nach Anspruch 7, wobei die Lichtquellenanordnung mit einer Fläche des inneren Randes von der Dampfkammer nach außen hin und mit einer Fläche des äußeren Rings vom Montagering nach außen hin verbunden ist.

9. Lampe nach Anspruch 7, wobei der zweite Dichtring zwischen dem Paneel und dem Lampenkörper angeordnet ist.

10. Lampe nach Anspruch 7 zusätzlich umfassend eine Stütze, wobei die Stütze eine erste Verbindungsstange, eine zweite Verbindungsstange und einen Fuß umfasst;
die zwei Enden der ersten Verbindungsstange sind jeweils mit einer Fläche der Dampfkammer von der Lichtquellenanordnung und von einem Ende der zweiten Verbindungsstange nach außen hin scharniert, und das andere Ende der zweiten Verbindungsstange ist mit dem Fuß scharniert.

Revendications

1. Une lampe, comprenant l'ensemble de source lumineuse (10), le corps de lampe (20), et la pluralité de tubes rayonnants (30) ;
dans laquelle, le corps de lampe (20) comprend la chambre à vapeur (210) **caractérisé en ce que** le corps de lampe comprend en outre
la bague de montage (220), la bague de montage est disposée autour d'une périphérie de la chambre à vapeur (210), la chambre à vapeur comprend un premier bord (211) et un second bord (212) opposés l'un à l'autre, et l'épaisseur de la chambre à vapeur augmente progressivement dans une direction allant du premier bord au second bord ; l'ensemble de source lumineuse (10) est connecté à la chambre à vapeur, et les deux extrémités de chacun des tubes rayonnants (30) sont respectivement connectées à la bague de montage éloignée de l'ensemble de source lumineuse et à proximité du premier bord et du deuxième bord ;
dans la chambre à vapeur (210), la première cavité de réception (2101) pour contenir le liquide de refroidissement est prévue à proximité du premier bord, une seconde cavité de réception (2102) pour contenir le liquide de refroidissement est prévue à proximité du second bord, et le passage de reflux (2103) reliant la première cavité de réception et la seconde cavité de réception est prévue ;
le réservoir de reflux (2201) reliant la première cavité de réception, la seconde cavité de réception, et chacun des tubes rayonnants est prévu sur la bague de montage.

2. La lampe selon la revendication 1, comprenant en outre un raidisseur, dans laquelle, deux extrémités du raidisseur sont respectivement reliées à deux extrémités de la bague de montage éloignées de l'ensemble de source lumineuse, et une partie médiane de chacun des tubes rayonnants est reliée au raidisseur.

3. La lampe selon la revendication 1, dans laquelle, une surface de la chambre à vapeur éloignée de l'ensemble de source lumineuse est connectée à une source d'alimentation, la chambre à vapeur est pourvue d'un trou traversant, et une tête en caout-

chouc étanche pour guider le fil reliant électriquement la source d'alimentation et l'ensemble de source lumineuse est prévue dans le trou traversant.

4. La lampe selon la revendication 1, dans laquelle, l'ensemble de source lumineuse comprend une pluralité de billes de lampes à LED, une carte de circuit imprimé, et un couvercle translucide ;
La carte de circuit imprimé est connectée à une surface de la chambre à vapeur éloignée des tubes rayonnants, et la pluralité de billes de lampe LED est disposée sur la carte de circuit imprimé ;
le couvercle translucide est connecté à une surface de la chambre à vapeur éloignée des tubes rayonnants et recouvre la carte de circuit imprimé dans son intérieur.

5. La lampe selon la revendication 4, dans laquelle, l'ensemble de source lumineuse comprend en outre un capuchon de réflexion, une partie d'ouverture du fond de coupe de la coupelle de réflexion est disposée autour d'une périphérie de la carte de circuit imprimé et est connectée à une surface de la chambre à vapeur éloignée des tubes rayonnants, et une partie d'ouverture du sommet de coupe de la coupelle de réflexion est en contact avec la partie translucide du couvercle translucide.

6. La lampe selon la revendication 5, dans laquelle, l'ensemble de source lumineuse comprend en outre une première bague d'étanchéité, la première bague d'étanchéité est disposée autour d'une périphérie de la coupelle de réflexion, et deux côtés de la première bague d'étanchéité sont respectivement en contact avec le chambre à vapeur et le couvercle translucide.

7. La lampe selon l'une des revendications de 1 à 6, comprenant en outre un panneau, dans laquelle, le panneau comprend une bague extérieure et un bord intérieur, la bague extérieure est connectée à une surface de la bague de montage éloignée des tubes rayonnants, et le bord intérieur est disposé à l'intérieur de la bague extérieure et est connecté à deux autres bords de la chambre à vapeur entre le premier bord et le deuxième bord ;
le réservoir de reflux est disposé entre la bague extérieure et la bague de montage, et le passage de reflux est disposé entre le bord intérieur et la chambre à vapeur.

8. La lampe selon la revendication 7, dans laquelle, l'ensemble de source lumineuse est connecté à une surface du bord intérieur éloignée de la chambre à vapeur, et à une surface de la bague extérieure éloignée de la bague de montage.

9. La lampe selon la revendication 7, dans laquelle, la seconde bague d'étanchéité est prévue entre le panneau et le corps de lampe.

10. La lampe selon la revendication 7, comprenant en outre un support, dans laquelle, le support comprend une première bielle de connexion, une deuxième bielle de connexion, et une base ;
deux extrémités de la première bielle sont respectivement articulées avec une surface de la chambre à vapeur éloignée de l'ensemble source lumineuse et une extrémité de la seconde bielle, et l'autre extrémité de la seconde bielle est articulée avec la base.

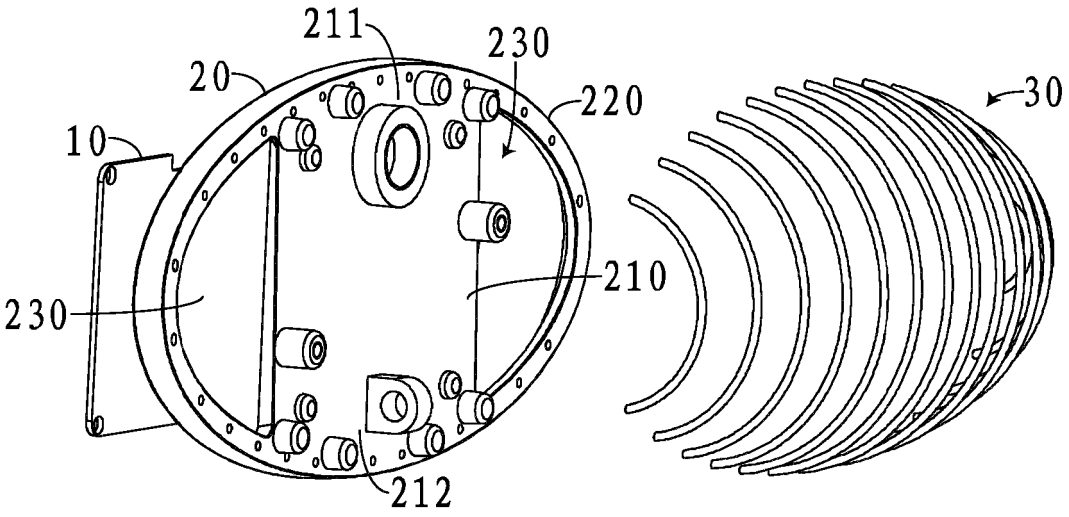
211
230
20
220
30
10
210
230
212

FIG. 1

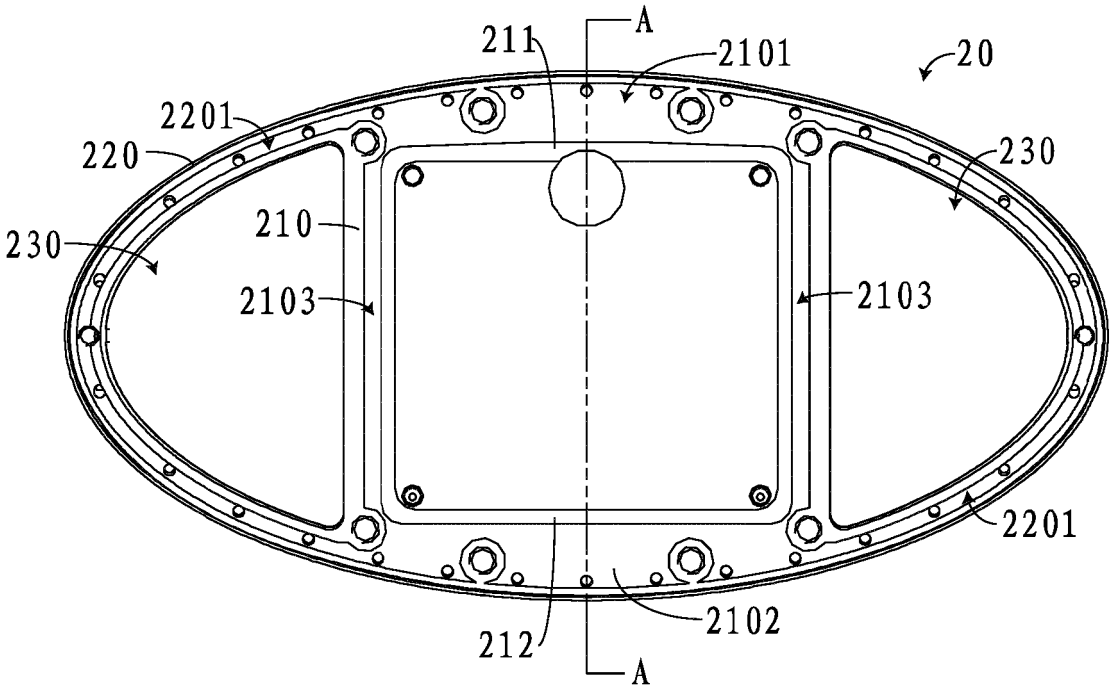
A
211
2101
20
2201
220
230
210
230
2103
2103
2201
2102
212
A

FIG. 2

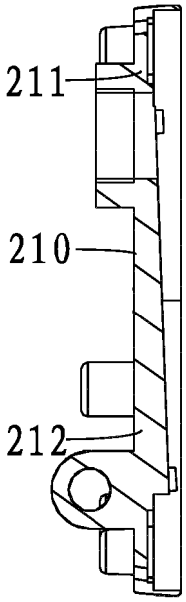

FIG. 3

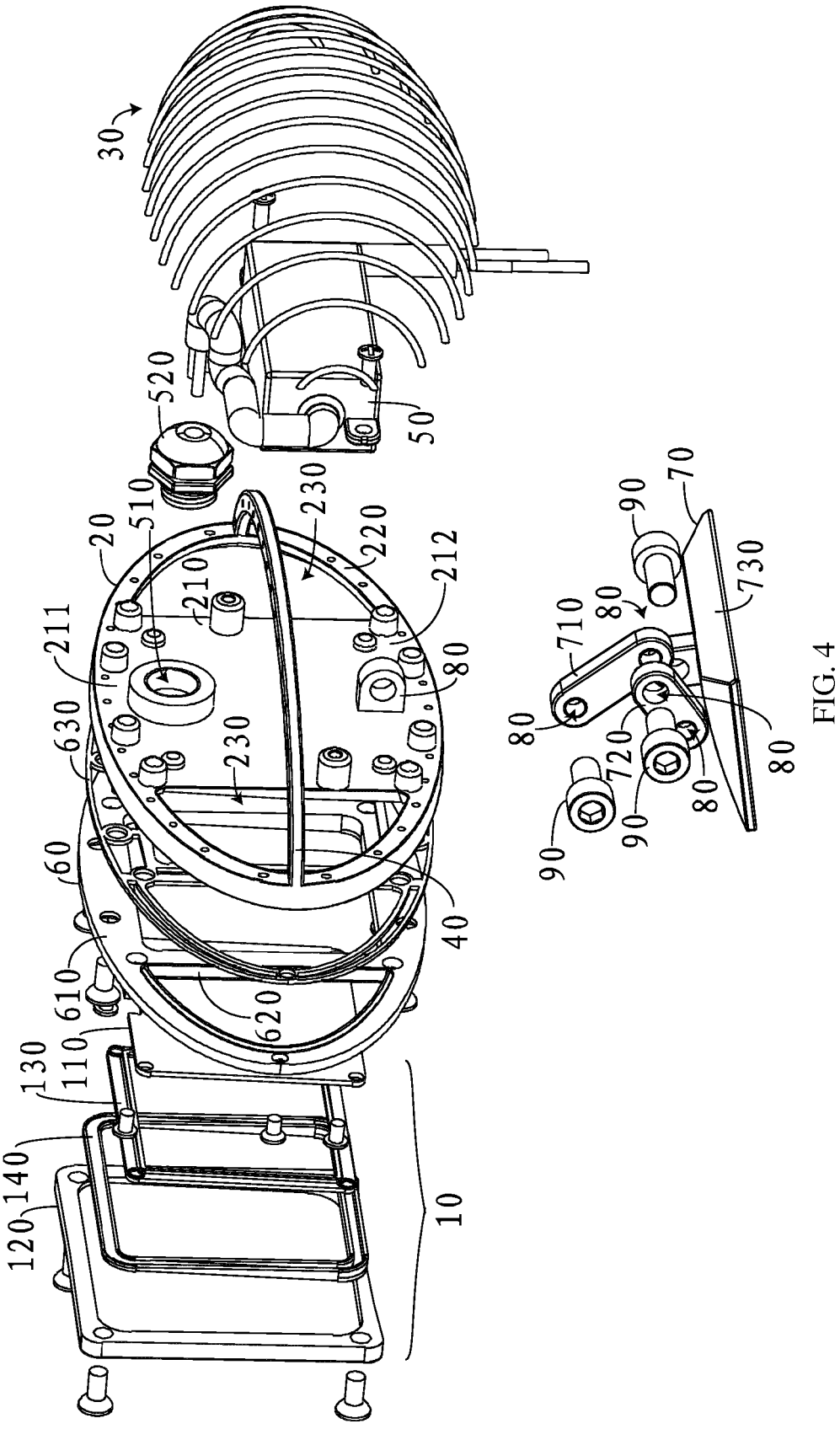
30
520
50
510
20
230
220
212
210
211
80
630
230
60
40
610
620
130
110
140
120
10
90
70
730
710
720

FIG. 4

REFERENCES CITED IN THE DESCRIPTION

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