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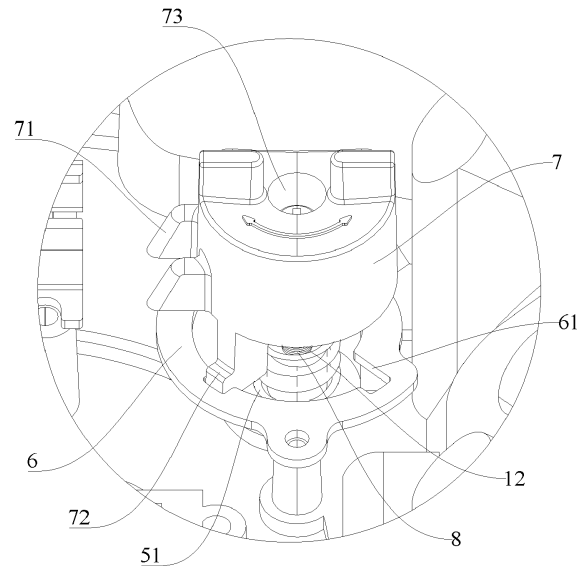
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(54) **LAMP**

(57) Disclosed is a lamp which includes: a body (1); a mounting plate (2) mounted with an electrical assembly (3) and having a clamping member (21) and an end provided with a first positioning groove (22); a clamping plate (4) fixed on the body (1); a positioning member (5) including a positioning plate (6) fixed on the body (1) and a knob (7) movable along a vertical direction and rotatable around an axis of the knob (7). The knob (7) is provided with a first protrusion (71) to engage with the first positioning groove (22) and drive the clamping member (21) to abut against the clamping plate (4). The installation and disassembly of the electrical assembly (3) are greatly facilitated. The electrical assembly (3) can be quickly taken out and replaced with a new electrical assembly (3). The electrical assembly (3) can be installed or disassembled without removing the lamp from the lamp's installation position. Thus, the maintenance efficiency of the lamp is greatly improved.



**FIG. 3**

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## Description

### TECHNICAL FIELD

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

### BACKGROUND

[0002] In recent years, for its long service life, low energy consumption, environmentally friendly nature and the like, the LED lighting device is widely applied to indoors and outdoors. Especially in the field of road lighting, the LED street lamp and the LED tunnel lamp have generally replaced the traditional high-voltage sodium lamp.

[0003] The LED light source of the existing LED lighting device has a long service life, however, the service life of the LED lighting device may be shortened by the service life of the other electrical assemblies in the lighting device, especially by the service life of the driving power supply. Thus, the electrical assemblies inside the LED lighting device need to be maintained or replaced after a period of time. In addition, the electrical assemblies are usually integrated inside the existing LED lighting device, and hard to be disassembled. Especially regarding the LED street lamp, when the LED street lamp needs to be maintained, the LED street lamp should be detached from the high position and then be overhauled, which is inconvenient, and the LED lighting device may fall off during the disassembly.

### SUMMARY

[0004] The main purpose of the present application is to provide a lamp whose electrical assembly is easily to be disassembled and assembled.

[0005] In order to achieve the above purpose, the embodiments adopted in the present application related to a lamp, which includes:

a body;  
 a mounting plate mounted with an electrical assembly and having a clamping member and an end, where the end is provided with a first positioning groove;  
 a clamping plate fixed on the body; and  
 a positioning member including a positioning plate fixed on the body and a knob movable along a vertical direction and rotatable around an axis of the knob, where the knob is provided with a first protrusion, and the first protrusion is configured to engage with the first positioning groove and drive the clamping member to abut against the clamping plate.

[0006] In an embodiment, a plurality of clamping members are arranged on the mounting plate at intervals, clamping plates and the clamping members are consistent in number, and the clamping plates are in one-to-one

alignment with the clamping members.

[0007] In an embodiment, the clamping member includes an extension portion bent toward a side of the mounting plate close to the body, and a gap is formed between the extension portion and the mounting plate to receive the clamping plate.

[0008] In an embodiment, the positioning member further includes a guiding rod, the guiding rod includes a head and a rod connected to the head, the knob is provided with a through hole for the rod to pass through and abut against the head, an outer wall of the rod is provided with a thread, and the body is provided with a first threaded hole to engage with the rod.

[0009] In an embodiment, the positioning member further includes an elastic member sleeved on the rod and abutting against a surface of the knob away from the head.

[0010] In an embodiment, the knob is provided with a plurality of first protrusions, the plurality of first protrusions are arranged at intervals along a length direction of one side of the mounting plate close to the knob, a plurality of first positioning grooves are consistent with the plurality of first protrusions in number, and a distance between every two adjacent first positioning grooves is consistent with a distance between every two adjacent first protrusions.

[0011] In an embodiment, the knob is further provided with a second protrusion, the first protrusion and the second protrusion are arranged at intervals in the vertical direction, and the positioning plate is provided with a second positioning groove and the second positioning groove is configured to engage with the second protrusion to prevent the knob from rotating.

[0012] In an embodiment, a plurality of second protrusions are arranged at intervals along a circumferential direction of the knob, second positioning grooves is greater than the plurality of second protrusions in number, the second positioning grooves are arranged at intervals along the circumferential direction of the knob, and an included angle between every two adjacent second positioning grooves is equal to an included angle between every two adjacent second protrusions.

[0013] In an embodiment, the mounting plate is provided with a second threaded hole, and the electrical assembly is provided with a first mounting hole aligned with the second threaded hole.

[0014] In an embodiment, the body is provided with a third threaded hole, and the clamping plate is provided with a second mounting hole aligned with the third threaded hole.

[0015] According to the lamp of the present application, the positioning member is adopted to drive the mounting plate to engage with the clamping plate. The electrical assembly on the mounting plate is fixed to the body of the lamp through rotating the knob of the positioning member to align the first protrusion of the knob with the first positioning groove of the mounting plate, and controlling the knob to move in the vertical direction to move

the first protrusion into the first positioning groove. At this time, the knob abuts against the mounting plate to keep the clamping plate in the clamping member, and the connection between the mounting plate and the body of the lamp is realized. When to take off the electrical assembly, the knob is pressed to exit the first protrusion out of the first positioning groove, and the knob is rotated to misalign the first protrusion with the first positioning groove. At this time, the electrical assembly can be taken off from the body of the lamp with only the need to separate the clamping plate from the clamping member. The installation and disassembly of the electrical assembly are greatly facilitated. The electrical assembly can be quickly taken out and replaced with a new electrical assembly by the maintenance operator who overhauls the lamp. The electrical assembly can be disassembled without removing the lamp from the lamp's installation position. Thus, the maintenance efficiency of the lamp is greatly improved.

### BRIEF DESCRIPTION OF THE DRAWINGS

#### [0016]

FIG. 1 is an exploded view of a lamp according to a first embodiment of the present application.

FIG. 2 is a schematic structural view of portions of the lamp according to the first embodiment of the present application.

FIG. 3 is an enlarged view of portion A in FIG. 2.

FIG. 4 is a schematic structural view of a mounting plate and electrical assemblies of the lamp according to the first embodiment of the present application.

FIG. 5 is a top view showing a positioning member of the lamp in a locked state according to the first embodiment of the present application.

FIG. 6 is a top view showing the positioning member of the lamp in an unlocked state according to the first embodiment of the present application.

FIG. 7 is a cross-sectional view of portions of the lamp of the present application.

FIG. 8 is an enlarged view of portion B in FIG. 7.

FIG. 9 is an enlarged view of portion C in FIG. 7.

[0017] Brief description of reference numerals in the figures:

1. Body; 11. Accommodating cavity; 12. First threaded hole; 13. Third threaded hole; 2. Mounting plate; 21. Clamping member; 22. First positioning groove; 23. Extension portion; 24. Second threaded hole; 3. Electrical assembly; 31. First mounting hole; 4. Clamping plate; 41. Second mounting hole; 5. Positioning member; 51. Elastic member; 6. Positioning plate; 61. Second positioning groove; 7. Knob; 71. First protrusion; 72. Second protrusion; 73. Through hole; 8. Guiding rod; 81. Head; 82. Rod.

### DETAILED DESCRIPTION OF THE EMBODIMENTS

[0018] The embodiments of the present application, the objectives and effects thereof will be illustrated in detail below, with reference to the accompanying drawings.

#### First embodiment

[0019] Referring to FIG. 1 to FIG. 9, the first embodiment of the present application relates to a lamp, which is installed, such as in a room, in a park, in a square or on a road, and used for illuminating a specific area.

[0020] As shown in FIG. 1, the lamp includes a body 1. The body 1 is provided with an accommodating cavity 11. A detachable mounting plate 2, and clamping plates 4 and a positioning member 5 for positioning the mounting plate 2 on the body 1 are disposed in the accommodating cavity 11. An electrical assembly 3 is fixedly connected to the mounting plate 2. The electrical assembly 3 includes a power supply and a driver, etc. Thus, the whole of the electrical assembly 3 can be installed in the accommodating cavity 11 by installing the mounting plate 2 on the body 1, and the electrical assembly 3 can be taken out from the accommodating cavity 11 by removing the mounting plate 2 from the body 1.

[0021] With reference to FIG. 2 to FIG. 4 also, the mounting plate 2 is provided with a plurality of clamping members 21 distributed at intervals. The plurality of clamping members 21 are disposed adjacent to different regions of the mounting plate 2. The clamping plates 4 are consistent with the clamping members 21 in number and are in one-to-one correspondence with the clamping members 21. A first positioning groove 22 is provided at one end of the mounting plate 2. The positioning member 5 is located on the side of the mounting plate 2 having the first positioning groove 22. The positioning member 5 includes a positioning plate 6 fixedly connected to the body 1 and a knob 7 movable up and down. The knob 7 is also rotatable around its axis. The knob 7 is provided with a first protrusion 71, and the first protrusion 71 is extended into the first positioning groove 22 to engage with the first positioning groove 22, which results that the clamping plates 4 are moved into the clamping members 21 and engaged with the clamping member 21. Thus the position of the mounting plate 2 relative to the body 1 is fixed, and the electrical assembly 3 is mounted on the body 1.

[0022] In an embodiment, the knob 7 is further provided with a second protrusion 72. The first protrusion 71 and the second protrusion 72 are spaced apart from each other in a vertical direction. The positioning plate 6 is provided with a second positioning groove 61 to engage with the second protrusion 72. The second protrusion 72 is moved into the second positioning groove 61 and engages with the second positioning groove 61 to avoid the rotation of the knob 7. Thus the knob 7 is maintained at a state of locking the mounting plate 2.

**[0023]** Referring to FIGS. 2 and 4, a second threaded hole 24 is provided on the mounting plate 2, and a first mounting hole 31 is provided on the electrical assembly 3 to be aligned with the second threaded hole 24. The electrical assembly 3 can be fixed on the mounting plate 2 by a screw whose end passes through the first mounting hole 31 and connects the second threaded hole 24. Third threaded holes 13 are provided on the body 1 for mounting the clamping plates 4, and a second mounting hole 41 is provided on each clamping plate 4 to be aligned with a corresponding third threaded hole 13. A connecting piece, such as a screw, passes through the second mounting hole 41 and engages with the corresponding third threaded hole 13 to fix the clamping plate 4 on the body 1.

**[0024]** As shown in FIG. 5 and FIG. 6, when the electrical assembly 3 is needed to be installed on the body 1, the clamping members 21 on the mounting plate 2 are aligned with the clamping plates 4 in a one-to-one manner and engaged with the clamping plates 4. Then the knob 7 is rotated to align the first protrusion 71 with the first positioning groove 22, and the second protrusion 72 with the second positioning groove 61. The control knob 7 is further moved in a vertical direction to make the first protrusion 71 move into the first positioning groove 22, and the second protrusion 72 move into the second positioning groove 61. At this time, the mounting plate 2 abuts against the clamping plates 4 under the action of the knob 7 and the electrical assembly 3 is thus fixed on the body 1. The positioning plate 6 abuts against the knob 7 and the knob 7 is thus prevented from rotating and kept in a locked state. When the electrical assembly 3 is needed to be removed from the body 1, the knob 7 can be pressed and moved in the vertical direction. The knob 7 drives the first protrusion 71 to exit the first positioning groove 22 and the second protrusion 72 to exit the second positioning groove 61. Then the knob 7 is rotated to misalign the first protrusion 71 with the first positioning groove 22. At this time, the mounting plate 2 can be pulled out from the clamping plates 4, and the mounting plate 2 and the electrical assembly 3 can be taken off from the body 1.

**[0025]** In detail, in this embodiment, the knob 7 is provided with two first protrusions 71. The two first protrusions 71 are arranged at intervals along a length direction of one side of the knob 7 close to the mounting plate 2. The mounting plate 2 is provided with two first positioning grooves 22. A distance between the two first positioning grooves 22 is equal to a distance between the two first protrusions 71, and the two first positioning grooves 22 are in one-to-one correspondence with the two first protrusions 71, which ensures that the knob 7 is in stable contact with the mounting plate 2. The knob 7 is further provided with two second protrusions 72. The two second protrusions 72 are arranged at intervals along a circumferential direction of the knob 7. The positioning plate 6 is provided with three second positioning grooves 61, and the three second positioning grooves 61 are ar-

ranged at intervals along the circumferential direction of the knob 7. An included angle between the two second protrusions 71 is equal to an included angle between every two adjacent second positioning grooves. When the positioning member 5 is in the locked state or the unlocked state, the two second protrusions 72 cooperate with two of the three second positioning grooves 61 to keep the knob 7 in the locked state or the unlocked state. Unintended rotation of the knob 7 is avoided.

**[0026]** In another embodiment, there may be other number of first protrusions 71, such as three or more first protrusions 71. Those first protrusions 71 are distributed along the length direction of one side of the knob 7 close to the mounting plate 2. The first positioning grooves 22 are consistent with the first protrusions 71 in number, and a distance between every two adjacent first positioning grooves 22 is consistent with a distance between every two adjacent first protrusions 71.

**[0027]** In another embodiment, there may be other number of second protrusions 72, such as three or more second protrusions 72. Those second protrusions 72 are distributed along the circumferential direction of the knob 7. The number of the second positioning grooves 61 is greater than that of the second protrusions 72. The second positioning grooves 61 are arranged at intervals along the circumferential direction of the knob 7, and an included angle between every two adjacent second positioning grooves 61 is equal to an included angle between every two adjacent second protrusions 72.

**[0028]** Referring to FIG. 7 and FIG. 8, the positioning member 5 further includes a guiding rod 8. The guiding rod 8 includes a head 81 and a rod 82 connected to the head. The knob 7 is provided with a through hole 73 for the rod 82 to pass through. The guiding rod 8 is extended along the vertical direction. The rod 82 of the guiding rod 8 passes through the through hole 73, and the head 81 of the guiding rod 8 abuts against the knob 7. An outer wall of the rod 82 is provided with threads, and the body 1 is provided with a first threaded hole 12 to engage with the rod 82. The knob 7 is guided to move in the vertical direction by the guiding rod 8 which is fixed on the body 1, and the traveled distance of the knob 7 is limited by abutting the head 81 of the guiding rod 8 against the knob 7. Therefore, the knob 7 is prevented from loosening.

**[0029]** In an embodiment, the positioning member 5 further includes an elastic member 51 sleeved on the guiding rod 8. The elastic member 51 includes two opposite ends along a moving direction of the elastic member 51, one of which abuts against the body 1, and the other of which abuts against a surface of the knob 7 away from the head 81 to move the knob 7 toward the head 81. When the knob 7 abuts against the head 81, the second protrusion 72 is moved into the second positioning groove 61. Thus, the knob 7 can automatically reset when the knob 7 is pressed and moved in the vertical direction, and the knob 7 is kept at a height such that the first protrusion 71 is engaged with the first positioning groove 22 under the action of the elastic member 51. The operation

of the knob 7 is more convenient.

#### Second embodiment

**[0030]** Referring to FIG. 7 and FIG. 9, on the basis of the first embodiment, the second embodiment of the present application adopts another technical solution for the configuration of the mounting plate 2, and the difference between the first embodiment and the second embodiment is only the configuration of the mounting plate 2.

**[0031]** As shown in FIG. 7 and FIG. 9, in this embodiment, each clamping member 21 on the mounting plate 2 includes an extension portion 23. The extension portion 23 is bent towards one side of the mounting plate 2 close to the body 1, and a gap is formed between the extension portion 23 and the mounting plate 2 to receive a corresponding clamping plate 4. When the clamping member 21 is engaged with the corresponding clamping plate 4, the corresponding clamping plate 4 is moved into the gap. The clamping plate 4 abuts against the extension portion 23 and also contacts the mounting plate 2, which keeps the relative position between the clamping plate 4 and the mounting plate 2 stable, and prevents the mounting plate 2 from loosening.

**[0032]** In general, according to the present application, the installation and disassembly of the electrical assembly is realized through the cooperation of the mounting plate, the clamping plates and the positioning member. When to mount the electrical assembly on the body of the lamp, the clamping plates are moved into the clamping members. The knob is pressed and rotated, so that the first protrusion of the knob is engaged with the first positioning groove of the mounting plate, the second protrusion of the knob is engaged with the second positioning groove of the positioning plate and the position of the mounting plate is fixed. When to remove the electrical assembly, the knob is pressed and rotated to exit the first protrusion from the first positioning groove, and then the clamping members are separated from the clamping plates. No more operation is needed. The operation is simple and the installation and disassembly of the electrical assembly is facilitated. The electrical assembly can be quickly taken out or put in by the maintenance operator who overhauls the lamp. The electrical assembly can be installed or disassembled without removing the lamp from the lamp's installation position. Thus, the maintenance efficiency of the lamp is greatly improved.

**[0033]** The above is only an optional embodiment of the present application, and is not therefore limiting the scope of the present application. Any equivalent structural transformation made based on the contents of the specification and drawings of the present application or any direct/indirect application in other related technical fields under the inventive concept of the present application is included in the claimed scope of the present application.

#### Claims

##### 1. A lamp, characterized by comprising:

- 5 a body (1);  
a mounting plate (2) mounted with an electrical assembly (3) and having a clamping member (21) and an end, wherein the end is provided with a first positioning groove (22);
- 10 a clamping plate (4) fixed on the body (1); and  
a positioning member (5) comprising a positioning plate (6) fixed on the body (1) and a knob (7) movable along a vertical direction and rotatable around an axis of the knob (7), wherein the knob (7) is provided with a first protrusion (71), and the first protrusion (71) is configured to engage with the first positioning groove (22) and drive the clamping member (21) to abut against the clamping plate (4).
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- 25 **2.** The lamp as claimed in claim 1, wherein a plurality of clamping members (21) are arranged on the mounting plate (2) at intervals, clamping plates (4) and the clamping members (21) are consistent in number, and the clamping plates (4) are in one-to-one alignment with the clamping members (21).
- 30 **3.** The lamp as claimed in claim 1, wherein the clamping member (21) comprises an extension portion (23) bent toward a side of the mounting plate (2) close to the body (1), and a gap is formed between the extension portion (23) and the mounting plate (2) to receive the clamping plate (4).
- 35 **4.** The lamp as claimed in claim 1, wherein the positioning member (5) further comprises a guiding rod (8), the guiding rod (8) comprises a head (81) and a rod (82) connected to the head (81), the knob (7) is provided with a through hole (73) for the rod (82) to pass through and abut against the head (81), an outer wall of the rod (82) is provided with a thread, and the body (1) is provided with a first threaded hole (12) to engage with the rod (82).
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- 45 **5.** The lamp as claimed in claim 4, wherein the positioning member (5) further comprises an elastic member (51) sleeved on the rod (82) and abutting against a surface of the knob (7) away from the head (81).
- 50 **6.** The lamp as claimed in claim 1, wherein the knob (7) is provided with a plurality of first protrusions (71), the plurality of first protrusions (71) are arranged at intervals along a length direction of one side of the mounting plate (2) close to the knob (7), a plurality of first positioning grooves (22) are consistent with the plurality of first protrusions (71) in number, and a distance between every two adjacent first position-
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ing grooves (22) is consistent with a distance between every two adjacent first protrusions (71).

- 7. The lamp as claimed in claim 1, wherein the knob (7) is further provided with a second protrusion (72), the first protrusion (71) and the second protrusion (72) are arranged at intervals in the vertical direction, and the positioning plate (6) is provided with a second positioning groove (61) and the second positioning groove (61) is configured to engage with the second protrusion (72) to prevent the knob (7) from rotating. 5  
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- 8. The lamp as claimed in claim 7, wherein a plurality of second protrusions (72) are arranged at intervals along a circumferential direction of the knob (7), a number of second positioning grooves (61) is greater than that of the plurality of second protrusions (72), the second positioning grooves (61) are arranged at intervals along the circumferential direction of the knob (7), and an included angle between every two adjacent second positioning grooves (61) is equal to an included angle between every two adjacent second protrusions (72). 15  
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- 9. The lamp as claimed in claim 1, wherein the mounting plate (2) is provided with a second threaded hole (24), and the electrical assembly (3) is provided with a first mounting hole (31) aligned with the second threaded hole (24). 30
  
- 10. The lamp as claimed in claim 1, wherein the body (1) is provided with a third threaded hole (13), and the clamping plate (4) is provided with a second mounting hole (41) aligned with the third threaded hole (13). 35  
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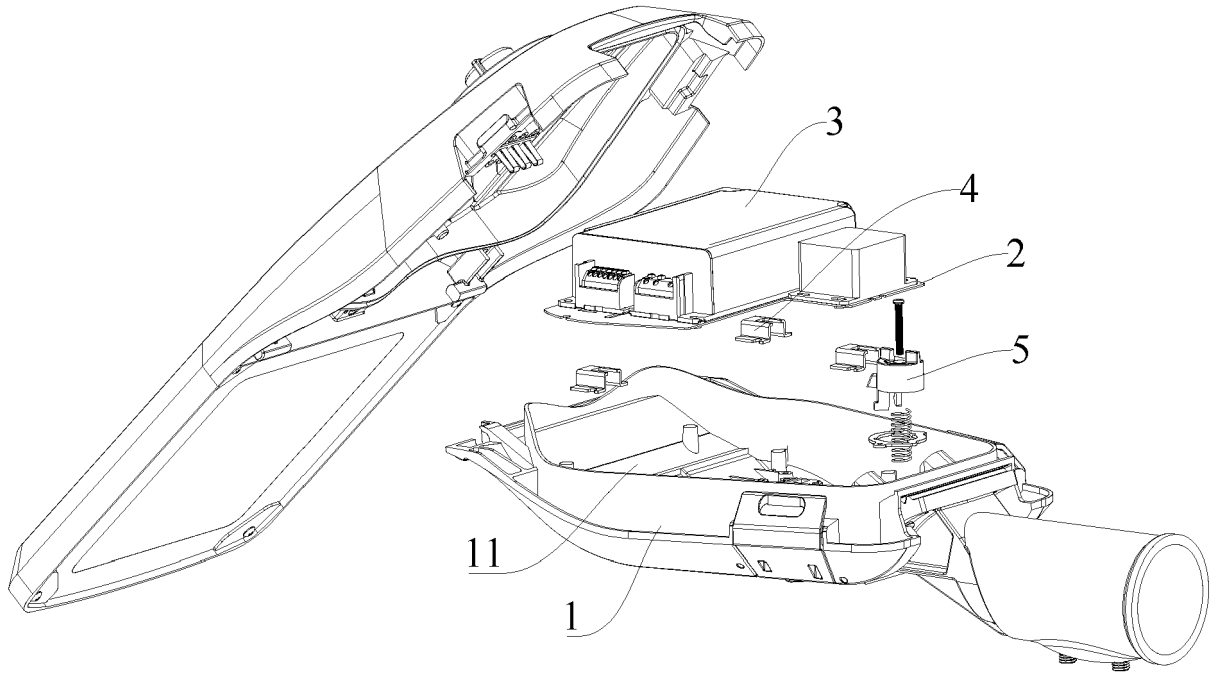


FIG. 1

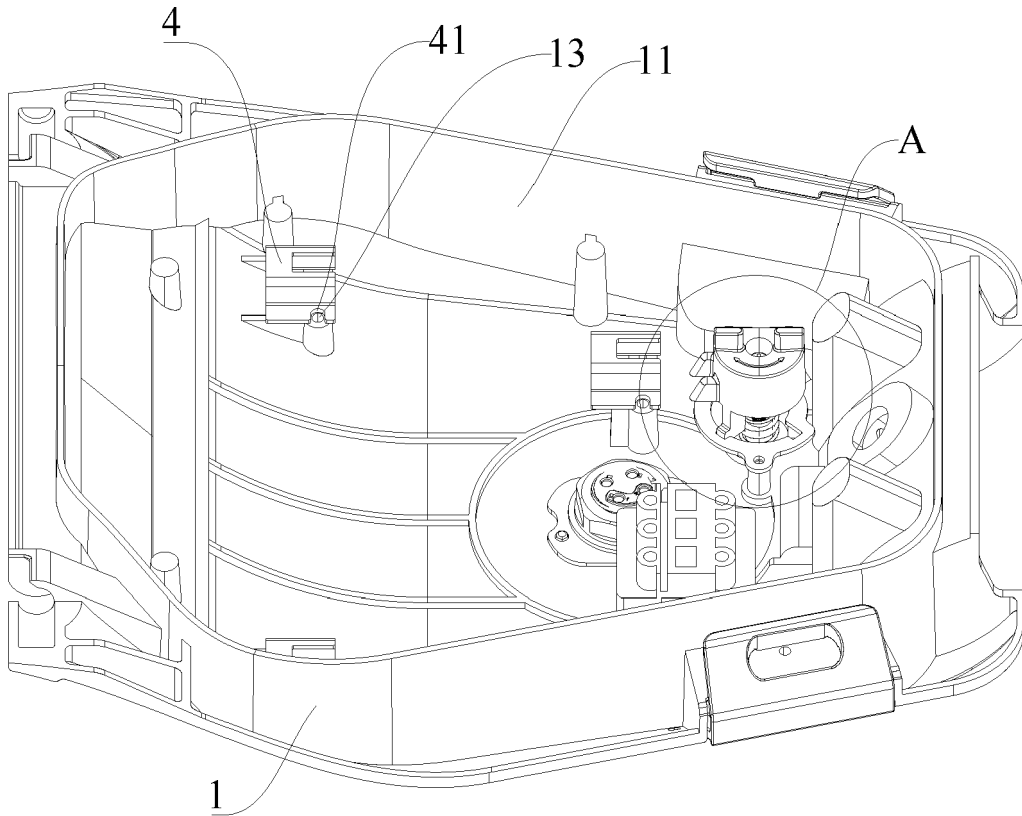


FIG. 2

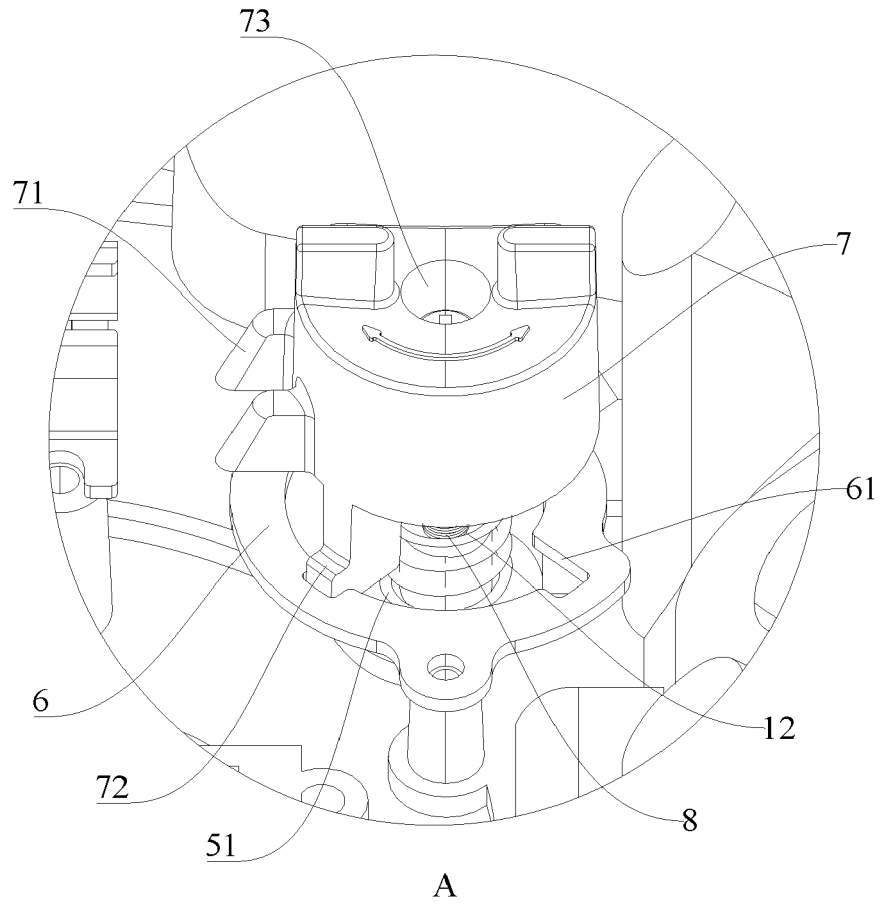


FIG. 3

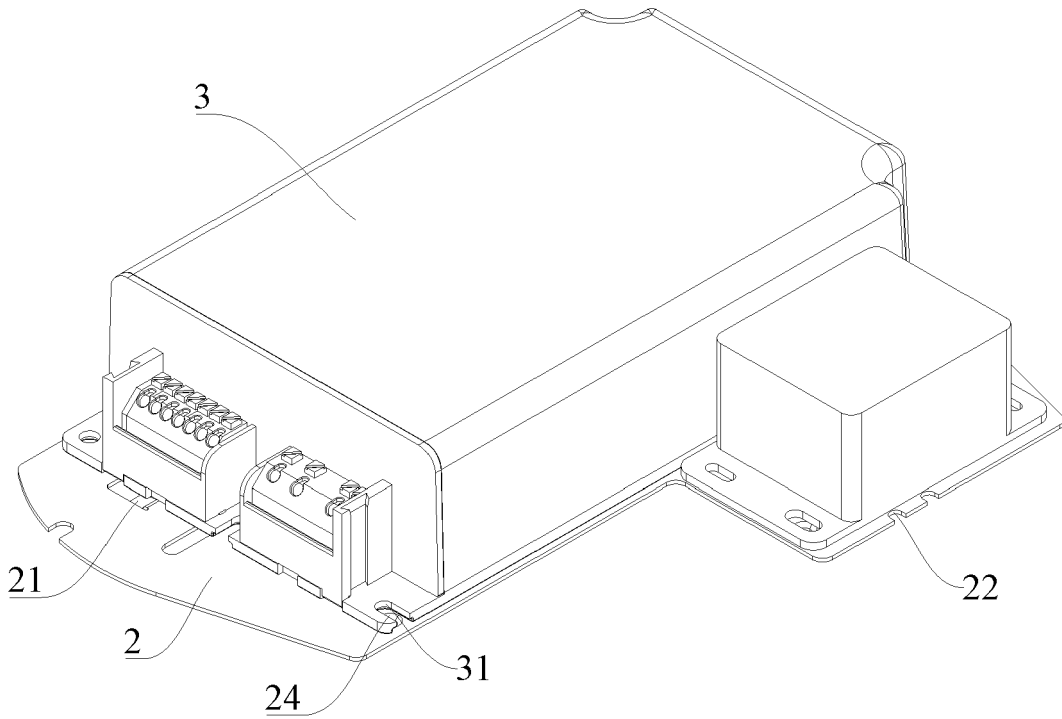


FIG. 4

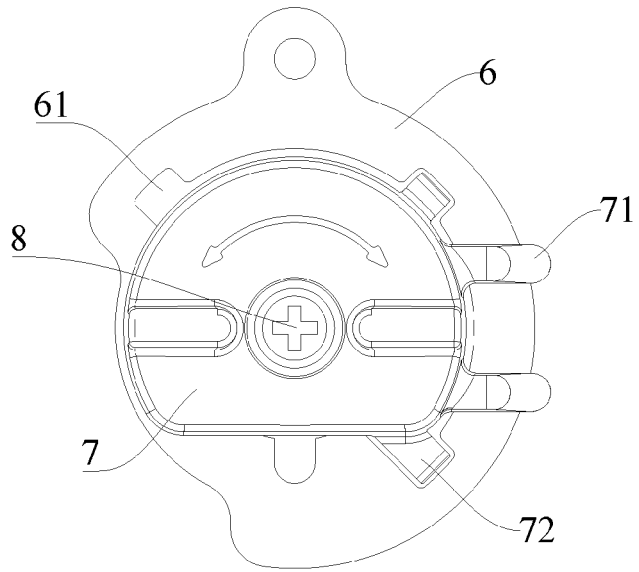


FIG. 5

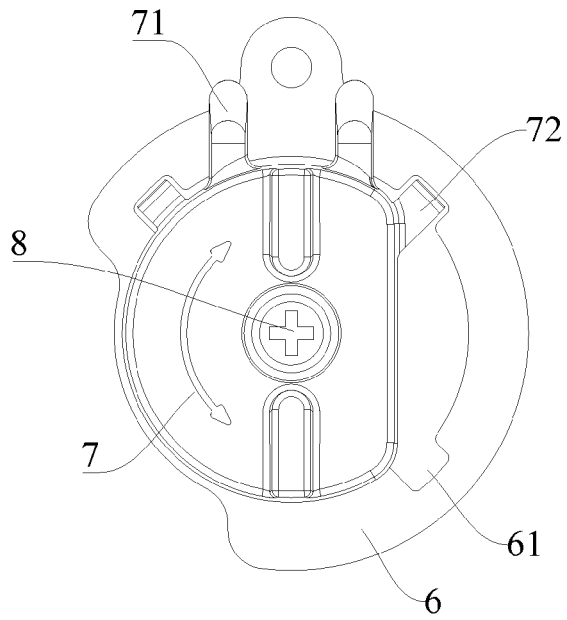


FIG. 6

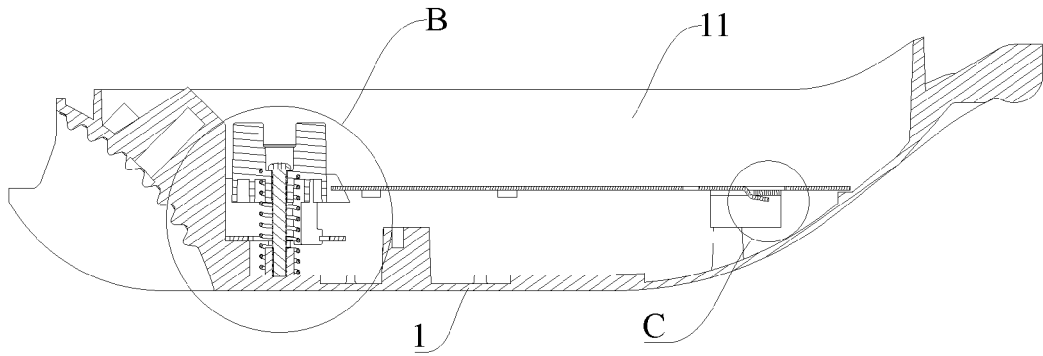
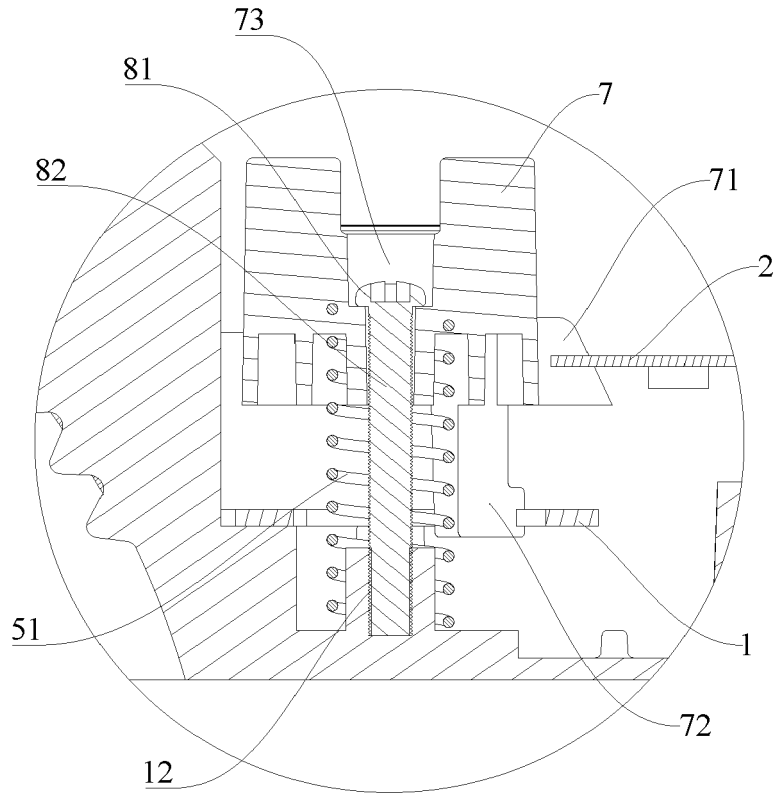
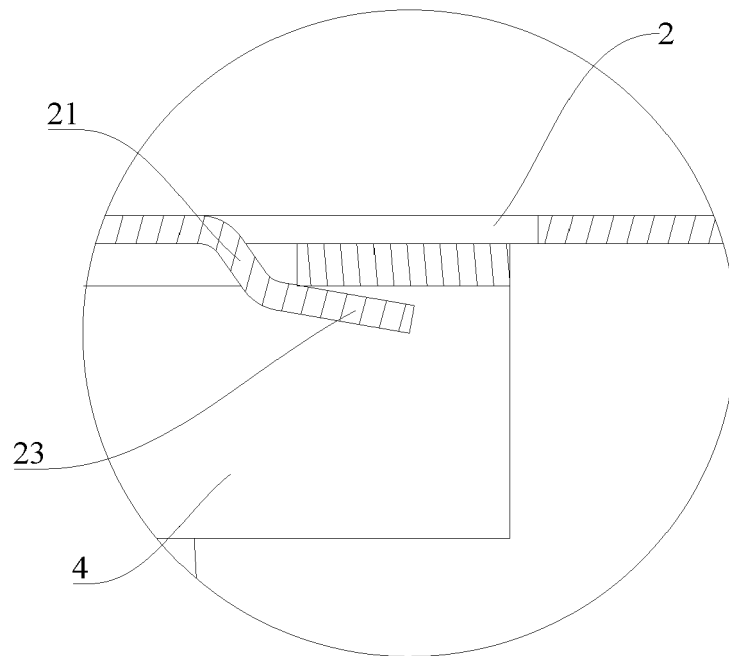


FIG. 7



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FIG. 8



C

FIG. 9



EUROPEAN SEARCH REPORT

Application Number

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DOCUMENTS CONSIDERED TO BE RELEVANT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

F21S  
F21V  
F21W  
F21Y

The present search report has been drawn up for all claims

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Place of search <b>The Hague</b>	Date of completion of the search <b>10 November 2022</b>	Examiner <b>Demirel, Mehmet</b>
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CATEGORY OF CITED DOCUMENTS

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

EP 22 17 8236

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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10-11-2022

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