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(54) **PANEL LAMP**

(57) The present application provides a panel lamp, belongs to the technical field of lighting lamps, and comprises a fixing plate, a lamp body and spring assemblies. The fixing plate is configured to be connected to a ceiling. The fixing plate is provided with a plurality of fixing grooves. There are at least two spring assemblies. Each spring assembly is correspondingly connected to one fixing groove. Each spring assembly includes a torsion spring and a clamping rod structure connected to the torsion spring. The torsion spring is rotatably connected to the lamp body. The clamping rod structure has elasticity and passes through the fixing groove, and an extension segment of the clamping rod structure is in pressing contact with the ceiling. The spring assembly forms a lever structure by taking a contact point between the clamping rod structure and the fixing groove as a fulcrum. The spring assembly is configured to clamp and fix the lamp body on the fixing plate, and attach the lamp body to the ceiling. The panel lamp provided by the present application realizes quick mounting with the ceiling, and also ensures a close fit between the lamp body and the ceiling, and the connection is more stable, thus solving the problems that the panel lamp is likely to shake after being mounted in the prior art and a potential safety hazard exists.

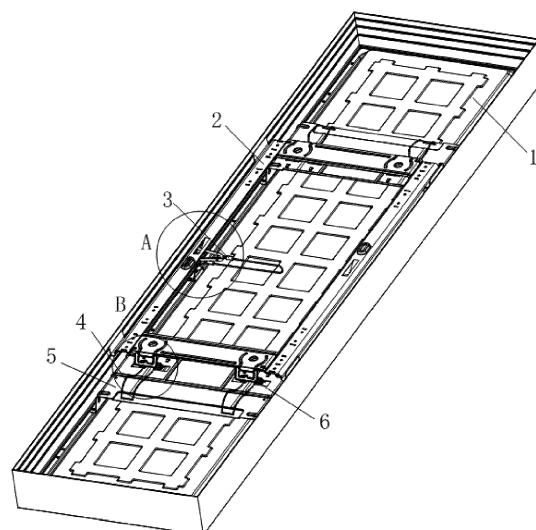


Fig. 1

Description

TECHNICAL FIELD

[0001] The present application belongs to the technical field of lighting lamps, and in particular, to a panel lamp.

BACKGROUND

[0002] A panel lamp is a lighting lamp, which has both a good lighting effect and an aesthetic feeling. Therefore, the panel lamp is often used in indoor lighting and decoration. The mounting mode of the panel lamp can be open mounting, that is the panel lamp is wholly mounted on an outer surface of a roof or wall. In the prior art, a main method of the open mounting of the panel lamp includes: firstly, mounting a fixing plate on a ceiling, and then hanging a lamp body of the panel lamp on a hook of the fixing plate. After the mounting is completed, there is a gap between the panel lamp and the ceiling, the panel lamp is unstable and is likely to shake, and a potential safety hazard exists.

SUMMARY

[0003] The present application aims to provide a panel lamp and aims to solve the problem that there is a gap between a panel lamp and a ceiling after the panel is mounted in the prior art, the panel lamp of the prior art is unstable and is likely to shake, and a potential safety hazard exists.

[0004] In order to achieve the object, the technical solution adopted by the present application is as follows. The present application provides a panel lamp, including a fixing plate, a lamp body and spring assemblies. The fixing plate is configured to be connected to a ceiling. The fixing plate is provided with a plurality of fixing grooves. There are at least two spring assemblies. Each spring assembly is correspondingly connected to one fixing groove. Each spring assembly includes a torsion spring and a clamping rod structure connected to the torsion spring. The torsion spring is rotatably connected to the lamp body. The clamping rod structure has elasticity and passes through the fixing groove, and an extension segment of the clamping rod structure is in pressing contact with the ceiling. The spring assembly forms a lever structure by taking a contact point between the clamping rod structure and the fixing groove as a fulcrum. The spring assembly is configured to clamp and fix the lamp body on the fixing plate, and attach the lamp body to the ceiling. That is after the clamping rod structure passing through the fixing groove that arranges on the fixing plate that had been fixed to the ceiling, a lever structure is formed. A fulcrum of the lever structure is the contact point, a first end of the lever structure is the extension segment being in pressing contact with the ceiling and receiving a first force away from the ceiling, and a second end of the lever structure is the torsion spring having a

second force towards the ceiling, the second force is transformed from the first force through the lever structure and makes the torsion spring drive the lamp body attach to the ceiling.

[0005] As another embodiment of the present application, the spring assembly is provided with two torsion springs, the two torsion springs are rotatably connected to the lamp body. The clamping rod structure has two second ends and both the two torsion springs are connected to the two second ends, respectively.

[0006] As another embodiment of the present application, the clamping rod structure includes two linear segments and a connecting segment, one end of each linear segment is connected to one of elastic arms extending from each of the two torsion springs, the other end of the linear segment is provided with an arc-shaped segment, the linear segment is configured to penetrate into the fixing groove, the arc-shaped segment arches towards the ceiling to be in pressing contact with the ceiling, and the connecting segment is configured to connect the two arc-shaped segments. Two arc-shaped segments forming the extension segment of the clamping rod structure.

[0007] As another embodiment of the present application, a distance from a contact point between the arc-shaped segment and the ceiling to a contact point between the linear segment and the fixing groove is greater than a distance from the contact point between the linear segment and the fixing groove to a connection point between the torsion spring and the lamp body. A distance from a contact point between the arc-shaped segment and the ceiling to a contact point between the linear segment and the fixing groove is equal to a length of one arm of the lever structure. A distance from the contact point between the linear segment and the fixing groove to a connection point between the torsion spring and the lamp body is equal to a length of the other arm of the lever structure.

[0008] As another embodiment of the present application, the lamp body is provided with a plurality of spring holders. Each spring holder correspond to a spring assembly. The spring assemblies is connected to the lamp body through the spring holders.

[0009] As another embodiment of the present application, the spring holder is provided with an escape groove and a connecting member, the connecting member extends above the escape groove, a torsion spring is sheathed on the connecting member, and another elastic arm of the torsion spring extends between the spring holder and the lamp body from the escape groove. This elastic arm is limited by the spring holder and the lamp body. That is when the torsion spring is going to rotate, the spring holder or the lamp body will prevent the torsion spring from rotating. The torsion spring deforms as a result and generates torsional elastic force.

[0010] As another embodiment of the present application, the fixing plate is a square frame plate, a plurality of support plates are arranged on an outer side wall of the fixing plate, and one support plate is provided with a

fixing groove.

[0011] As another embodiment of the present application, the lamp body is connected to the fixing plate through a safety rope.

[0012] As another embodiment of the present application, the lamp body is provided with a connecting seat, a tripod is rotatably arranged on the connecting seat, and the tripod is configured to be connected to the safety rope.

[0013] As another embodiment of the present application, the fixing plate is provided with a through groove and a hanging plate, the hanging plate is V-shaped and has both ends respectively connected to two opposite side walls of the through groove, and the V-shaped plate is configured to be connected to the safety rope.

[0014] The beneficial effects of the panel lamp provided by the present application are as follows:

Compared with the prior art, the panel lamp provided by the present application has a fixing plate which is connected to a ceiling and provided with a plurality of fixing grooves. A lamp body is provided with at least two spring assemblies, and each spring assembly is correspondingly connected to one fixing groove. The spring assembly includes a torsion spring and a clamping rod structure connected to the torsion spring, the torsion spring is rotatably connected to the lamp body and is rotatable relative to the lamp body, and the clamping rod structure can pass through the fixing groove. During mounting, the fixing plate is connected to the ceiling, the clamping rod structure passes through the fixing groove so that a torsion force is generated by the spring assembly, and then the lamp body is pushed towards the ceiling. In order to restore an original shape, the spring assembly clamps the fixing plate under the action of the torsion force. And during the pushing process of the lamp body towards the ceiling, the clamping rod structure is pressed by the ceiling and is subjected to a pressing force towards the lamp body. The pressing force cooperates with a torsion force of the torsion spring to clamp the fixing plate, making the clamping more stable. Meanwhile, a lever structure is formed by taking a contact point between the clamping rod structure and the fixing groove as a fulcrum. According to the lever principle, when a contact point between the clamping rod structure and the ceiling is subjected to a downward force, a rotational connection point between the spring assembly and the lamp body will generate a force on the lamp body towards the ceiling, so as to ensure that the lamp body is closely fitted with the ceiling and realize a seamless connection between the lamp body and the ceiling. The panel lamp provided by the present application realizes quick mounting with the ceiling, and also ensures a close fit between the lamp body and the ceiling, and the connection is more stable, thus solving the problems that the panel lamp is likely to shake after being mounted in the prior art and a potential safety hazard exists.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In order to more clearly illustrate the technical solutions of the embodiments of the present disclosure, reference will now be made to the accompanying drawings used in the description of the embodiments or prior art. It is obvious that the drawings in the following description are only some embodiments of the disclosure, and that those skilled in the art can obtain other drawings from these drawings without involving any inventive effort.

Fig. 1 is a schematic structural diagram of a panel lamp according to embodiments of the present application;

Fig. 2 is a partially enlarged view of A in Fig. 1;

Fig. 3 is a partially enlarged view of B in Fig. 1;

Fig. 4 is a schematic diagram of connection between a panel lamp according to embodiments of the present application and a ceiling;

Fig. 5 is a cross-sectional structural view taken along line C-C in Fig. 4; and

Fig. 6 is a partially enlarged view of D in Fig. 5.

[0016] In the drawings: 1, lamp body; 2, fixing plate; 3, safety rope; 4, spring assembly; 5, spring holder; 6, fixing groove; 7, connecting seat; 8, tripod; 9, ceiling; 10, support plate; 201, through groove; 202, hanging plate; 401, arc-shaped segment; 402, linear segment; 403, torsion spring; 501, escape groove; 502, connecting member.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0017] In order that the technical problems to be solved by the disclosure, technical solutions and beneficial effects can be more clearly understood, the disclosure will be described in further detail with reference to the accompanying drawings and embodiments. It is to be understood that the specific embodiments described herein are merely illustrative of the disclosure and are not intended to be limiting thereof.

[0018] Referring to Figs. 1-6 together, a panel lamp provided by the present application will now be described. The panel lamp includes a fixing plate 2, a lamp body 1 and spring assemblies. The fixing plate 2 is configured to be connected to a ceiling 9. The fixing plate 2 is provided with a plurality of fixing grooves. There are at least two spring assemblies. Each spring assembly 4 is correspondingly connected to one fixing groove 6. Each spring assembly 4 includes a torsion spring 403 and a clamping rod structure connected to the torsion spring 403. The torsion spring 403 is rotatably connected

to the lamp body 1. The clamping rod structure has elasticity. The clamping rod structure passes through the fixing groove 6, and an extension segment of the clamping rod structure is in pressing contact with the ceiling 9. The spring assembly 4 forms a lever structure by taking a contact point between the clamping rod structure and the fixing groove 6 as a fulcrum. The spring assembly 4 is configured to clamp and fix the lamp body 1 on the fixing plate 2, and attach the lamp body 1 to the ceiling 9.

[0019] Compared with the prior art, the panel lamp provided by the present application has the following beneficial effects:

The fixing plate 2 is connected to the ceiling 9, the fixing plate 2 is provided with the plurality of fixing grooves, the lamp body 1 is provided with the at least two spring assemblies, and each spring assembly 4 is correspondingly connected to one fixing groove 6. The spring assembly 4 includes the torsion spring 403 and the clamping rod structure connected to the torsion spring 403. The torsion spring 403 is rotatably connected to the lamp body 1 and is rotatable relative to the lamp body 1, and the clamping rod structure can pass through the fixing groove 6. During mounting, the fixing plate 2 is connected to the ceiling 9. The clamping rod structure is rotated against a torsional elastic force of the torsion spring 403, and an extension end of the clamping rod structure is placed into the fixing groove 6. At this time, the extension end of the clamping rod structure presses a side wall of the fixing groove 6 under the action of the torsional elastic force of the torsion spring 403. The lamp body 1 is pushed towards the ceiling 9. During this process, the clamping rod structure is always in contact with the side wall of the fixing groove 6, and the lamp body 1 finally clamps the fixing plate 2 under the action of the torsional elastic force of the torsion spring 403. And during the pushing process of the lamp body 1 towards the ceiling 9, the length of the clamping rod structure extending out of the fixing groove 6 is gradually increased, and finally the clamping rod structure comes into contact with the ceiling 9 and is pressed by the ceiling 9. The pressing force is directed towards the lamp body 1 and away from the ceiling 9. The pressing force cooperates with the torsional elastic force of the torsion spring 403 so that the clamping rod structure presses the side wall of the fixing groove 6. Meanwhile, a lever structure is formed by taking a contact point between the clamping rod structure and the side wall of the fixing groove 6 as a fulcrum. The clamping rod structure is a rotating lever. The extension segment of the clamping rod structure that is connected at one end of the clamping rod structure and in pressing contact with the ceiling 9 is one end of the lever and is subjected to a downward force (being directed towards away from the ceiling 9), so that the other end of the lever, i.e. the torsion spring 403 that is connected at the other end of the clamping rod structure and rotatably connected to the lamp body 1 has a force moving towards the ceiling 9, so as to ensure that the lamp body 1 is closely fitted with the ceiling 9 and realize a seamless connection between the lamp body 1

and the ceiling 9. The panel lamp provided by the present application can be quickly and conveniently mounted to the ceiling 9. Moreover, after the mounting is completed, the lamp body 1 is closely fitted with the ceiling 9, and the connection is stable and reliable, thus solving the problems that the panel lamp is likely to shake after being mounted in the prior art and a potential safety hazard exists.

[0020] In the present embodiment, there may be four fixing grooves, spaced apart two by two and symmetrically arranged. When there are four fixing grooves, four spring assemblies are correspondingly arranged.

[0021] In the present embodiment, there may also be two fixing grooves, and the two fixing grooves are spaced apart along a length direction of the lamp body 1. When there are two fixing grooves, two spring assemblies are correspondingly arranged.

[0022] As a specific implementation of the panel lamp provided by the present application, referring to Figs. 1 and 3, the spring assembly 4 is provided with two torsion springs, both the two torsion springs are rotatably connected to the lamp body 1. The clamping rod structure has two second ends and both the two ends are connected to the two torsion springs, respectively.

[0023] In the present embodiment, two torsion springs are provided to have a greater torsional elastic force. After the clamping rod structure penetrates into the fixing groove 6, the pressing force against the side wall of the fixing groove 6 is greater to make the lamp body 1 abut against the ceiling 9.

[0024] As a specific implementation of an embodiment of the present application, referring to Figs. 1, 3 and 6, the clamping rod structure includes two linear segments and a connecting segment. One end of each linear segment 402 is connected to one of elastic arms extending from one torsion spring 403, and the other end of the linear segment 402 is provided with an arc-shaped segment 401. The linear segment 402 is configured to penetrate into the fixing groove 6, the arc-shaped segment 401 arches towards the ceiling 9, the arc-shaped segment 401 is configured to be in pressing contact with the ceiling 9, and the connecting segment is configured to connect the two arc-shaped segments.

[0025] In the present embodiment, the clamping rod structure is provided with the two linear segments. Each linear segment 402 is in contact with the side wall of the fixing groove 6 so that the side wall of the fixing groove 6 forms a stable support for the spring assembly 4. The arc-shaped segment 401 is connected to the linear segment 402 and arches towards the ceiling 9. During the process of pushing the lamp body 1 upwards to make the lamp body 1 be mounted and fixed, the arc-shaped segment 401 is in pressing contact and sliding friction with the ceiling 9. The arc-shaped segment 401 has a smooth structure and does not scratch the ceiling 9 even in the case of friction with the ceiling 9. Meanwhile, the smooth structure of the arc-shaped segment 401 can also reduce the frictional resistance with the ceiling 9, which

is more conducive to quick mounting of the panel lamp.

[0026] In the present embodiment, the spring assembly 4 has an integrated structure, i.e. the torsion spring 403 and the clamping rod structure have an integrated structure.

[0027] As a specific implementation of an embodiment of the present application, referring to Fig. 6, a distance d_1 from a contact point between the arc-shaped segment 401 and the ceiling 9 to a contact point O between the linear segment 402 and the side wall of the fixing groove 6 is greater than a distance d_2 from the contact point O to a connection point between the torsion spring 403 and the lamp body 1.

[0028] In the present application, the distance d_1 is greater than the distance d_2 . In the above lever structure, the contact point O is a fulcrum, d_1 is the length of a left moment arm, and d_2 is the length of a right moment arm. The left moment arm corresponds to a driving force applied by the ceiling 9 to the clamping rod structure away from the ceiling 9. As the length d_1 of the left moment arm is greater, the driving force applied to the other end of the lever, i.e. the rotational connection point between the spring assembly 4 and the lamp body 1 is greater according to the lever principle, so that the close fit between the lamp body 1 and the ceiling 9 can be better ensured. Viewed from another perspective, as the length d_1 is greater, a lower down force applied by the ceiling 9 to the arc-shaped segment 401 may be converted into a greater, upward prying force on the lamp body 1, thereby ensuring the close fit between the lamp body 1 and the ceiling 9.

[0029] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 3, the lamp body 1 is provided with a plurality of spring holders. Each spring holder 5 correspond to a spring assembly 2. The spring assemblies is connected to the lamp body 1 through the spring holders.

[0030] In the present embodiment, A spring holder 5 is arranged on a back surface of the lamp body 1, and the spring holder 5 is connected to the spring assembly 4 so as to facilitate the disassembly and connection of the spring assembly 4 and the lamp body 1.

[0031] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 3, the spring holder 5 is provided with an escape groove 501 and a connecting member 502, the connecting member 502 extends above the escape groove 501, the torsion spring 403 is sheathed on the connecting member 502, and an elastic arm of the torsion spring 403 (the torsion spring 403 has two elastic arms in total, and the other elastic arm is connected to the linear segment 402 of the clamping rod structure) extends between the spring holder 5 and the lamp body 1 from the escape groove 501.

[0032] In the present embodiment, the connecting member 502 is a U-shaped plate, and two side plates of the U-shaped plate extend towards the escape groove 501. The torsion spring 403 is sheathed on the U-shaped plate. Both end of the torsion spring 403 has an elastic

arm extending therefrom. One elastic arm is connected to the linear segment 402, and the other elastic arm extends between the spring holder 5 and the lamp body 1 from the escape groove 501. When the clamping rod structure is rotated and the extension end of the clamping rod structure is placed into the fixing groove 6, the elastic arm extending between the spring holder 5 and the lamp body 1 abuts against the back surface of the lamp body 1, and the elastic arm is limited and cannot rotate, so that the spring assembly 4 generates a torsional elastic force. When the lamp body 1 is pushed upwards, the clamping rod structure is rotated reversely and presses the fixing plate 2 under the action of the torsional elastic force.

[0033] When the arc-shaped segment 401 of the spring assembly 4 is in contact with the ceiling 9 and deforms under the action of the ceiling 9, a lever structure is formed by taking the contact point O between the linear segment 402 and the side wall of the fixing groove 6 as a fulcrum. At this time, the torsion spring 403 and the lamp body 1 has a tendency to turn upwards, and the elastic arm extending between the spring holder 5 and the lamp body 1 abuts against the spring holder 5. Meanwhile, the torsion spring 403 is in contact with the U-shaped plate (i.e. connecting plate 502), transmits an upward turning force to the lamp body 1 through the connecting plate 502, and drives the lamp body 1 to move upwards and abut against the ceiling 9, so as to realize a seamless connection between the ceiling 9 and the lamp body 1.

[0034] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 3, the fixing plate 2 is in the shape of a square frame, a plurality of support plates are arranged on an outer side wall of the fixing plate 2, and one support plate 10 is provided with a fixing groove 6.

[0035] In the present embodiment, the support plate 10 is arranged on a side wall of the fixing plate 2. The support plate 10 has an included angle with the fixing plate 2, and the support plate 10 is inclined to the outside of the fixing plate 2. The fixing groove 6 is provided on the support plate 10. This structural arrangement of the support plate 10 facilitates the passage of the clamping rod structure through the fixing groove 6 for easy mounting.

[0036] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 2, the lamp body 1 is connected to the fixing plate 2 through a safety rope 3.

[0037] In the present embodiment, the lamp body 1 may be at risk of falling for some reason, such as the need to disassemble the panel lamp, loosening caused by the failure of the spring assembly 4, or other reasons. After the safety rope 3 is arranged, once the lamp body 1 falls, the safety rope 3 may pull the lamp body 1, thereby effectively preventing the lamp body 1 from falling to the ground, and improving the safety.

[0038] In the present embodiment, the operation steps of mounting the panel lamp to the ceiling 9 are as follows.

In step 1, the fixing plate 2 is connected to the ceiling 9;

In step 2, one end of the safety rope 3 is connected to the fixing plate 2, and the other end is connected to the lamp body 1;

In step 3, the clamping rod structure of the spring assembly 4 is placed into the fixing groove 6; and

In step 4, the lamp body 1 is pushed upwards to fix the lamp body 1.

[0039] Through the above steps, the panel lamp may be conveniently and quickly mounted to the ceiling 9.

[0040] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 2, the lamp body 1 is provided with a connecting seat 7, a tripod 8 is rotatably arranged on the connecting seat 7, and the tripod 8 is configured to be connected to the safety rope 3.

[0041] In the present embodiment, the lamp body 1 is provided with the connecting seat 7, the tripod 8 is rotatably arranged on the connecting seat 7, and the tripod 8 is configured to be connected to the safety rope 3. The tripod 8 is rotatably arranged on the connecting seat 7. When the safety rope 3 is connected to the fixing plate 2, the tripod 8 may rotate along with the position of the safety rope 3, so as to prevent the connection point between the safety rope 3 and the lamp body 1 from being broken due to blocking.

[0042] As a specific implementation of an embodiment of the present application, referring to Figs. 1 and 2, the fixing plate 2 is provided with a through groove 201 and a hanging plate 202, the hanging plate 202 is V-shaped and has both ends respectively connected to two opposite side walls of the through groove 201, and the V-shaped plate is configured to be connected to the safety rope 3.

[0043] In the present embodiment, the safety rope 3 is detachably connected to the V-shaped plate through a buckle, so that the lamp body 1 is connected to the fixing plate 2 through the safety rope 3. The buckle is an existing component that functions similar to a key ring. The buckle has an automatically resettable and rotatable stop lever. The stop lever is rotated to form an opening, and the V-shaped plate is placed into the buckle. The stop lever is reset, the opening is closed, the buckle is in the shape of a closed ring, and the V-shaped plate and the buckle cannot be disengaged. By using the buckle, the safety rope 3 may be easily and quickly connected to or disconnected from the fixing plate 2.

[0044] The above descriptions are preferred embodiments of the present application and not intended to limit the present application. Any modifications, equivalent substitutions, improvements, etc. made within the spirit and principles of the present application should be included within the scope of protection of the present application.

Claims

1. A panel lamp, **characterized by** comprising:

a fixing plate (2), configured to be connected to a ceiling (9), the fixing plate (2) being provided with a plurality of fixing grooves;
a lamp body (1); and
at least two spring assemblies, each spring assembly (4) being corresponding to a fixing groove (6) of the plurality of fixing grooves, each spring assembly (4) comprising:

a torsion spring (403), rotatably connected to the lamp body (1); and
a clamping rod structure, having elasticity, a first end of the clamping rod structure being connected to the torsion spring (403), and a second end of the clamping rod structure having an extension segment; wherein

the clamping rod structure passes through the fixing groove (6) and contacts with a sidewall of the fixing groove (6) at a contact point to form a lever structure, wherein a fulcrum of the lever structure is the contact point, a first end of the lever structure is the extension segment being in pressing contact with the ceiling (9) and receiving a first force away from the ceiling (9), and a second end of the lever structure is the torsion spring (403) having a second force towards the ceiling (9), the second force is transformed from the first force through the lever structure and makes the torsion spring (403) drive the lamp body (1) attach to the ceiling (9).

2. The panel lamp of claim 1, wherein each spring assembly (4) has two torsion springs and the clamping rod structure has two second ends both of that are connected to a torsion spring (403) of the two torsion springs, respectively.

3. The panel lamp of claim 2, wherein the clamping rod structure comprises:

two linear segments, being configured to pass through the fixing groove (6), a first end of each linear segment (402) being connected to a first elastic arm extending from a torsion spring (403) of the two torsion springs, a second end of each linear segment (402) being provided with an arc-shaped segment (401), the arc-shaped segment (401) arching towards the ceiling (9) to be in pressing contact with the ceiling (9), and two arc-shaped segments being provided with the two linear segments forming the extension segment of the clamping rod structure; and
a connecting segment, connecting between the

two arc-shaped segments.

4. The panel lamp of claim 3, wherein the number of the contact point is two, both the two liner segments contacts with the sidewall of the fixing groove (6) at the contact point; and
a first distance from the contact point of a liner segment (402) of the two liner segments to an arc-shaped segment (401) connected to the same liner segment (402) is a length of one arm of the lever structure, a second distance from the contact point of the same liner segment (402) to a torsion spring (403) connected to the same liner segment (402) is a length of the other arm of the lever structure, and the first distance is greater than the second distance. 5
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5. The panel lamp of claim 3, wherein the lamp body (1) is provided with at least four spring holders and all spring assemblies is connected to the lamp body (1) through the at least four spring holders, the at least four spring holders and torsion springs of the at least two spring assemblies are corresponding to each other one to one. 20
6. The panel lamp of claim 5, wherein each spring holder (5) of the at least four spring holders is provided with an escape groove (501) and a connecting member (502), the connecting member (502) extends above the escape groove (501); and
a torsion spring (403) being corresponding to a spring holder (5) is sheathed on the connecting member (502) of the spring holder (5), and a second elastic arm of the torsion spring (403) extends between the spring holder (5) and the lamp body (1) from the escape groove (501) to be limited by the spring holder (5) and the lamp body (1). 25
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7. The panel lamp of claim 1, wherein the fixing plate (2) is in a shape of a square frame, a plurality of support plates are arranged on an outer side wall of the fixing plate (2), and one of the plurality of fixing grooves is provided on a support plate (10) of the plurality of support plates. 40
8. The panel lamp of claim 1, wherein the lamp body (1) is connected to the fixing plate (2) through a safety rope (3). 45
9. The panel lamp of claim 8, wherein the lamp body (1) is provided with a connecting seat (7), a tripod (8) is rotatably arranged on the connecting seat (7), and the tripod (8) is configured to be connected to the safety rope (3). 50
10. The panel lamp of claim 8, wherein the fixing plate (2) is provided with a through groove (201) and a hanging plate (202), the hanging plate (202) is V-shaped and has both ends respectively connected 55

to two opposite side walls of the through groove (201), and the hanging plate (202) is configured to be connected to the safety rope (3).

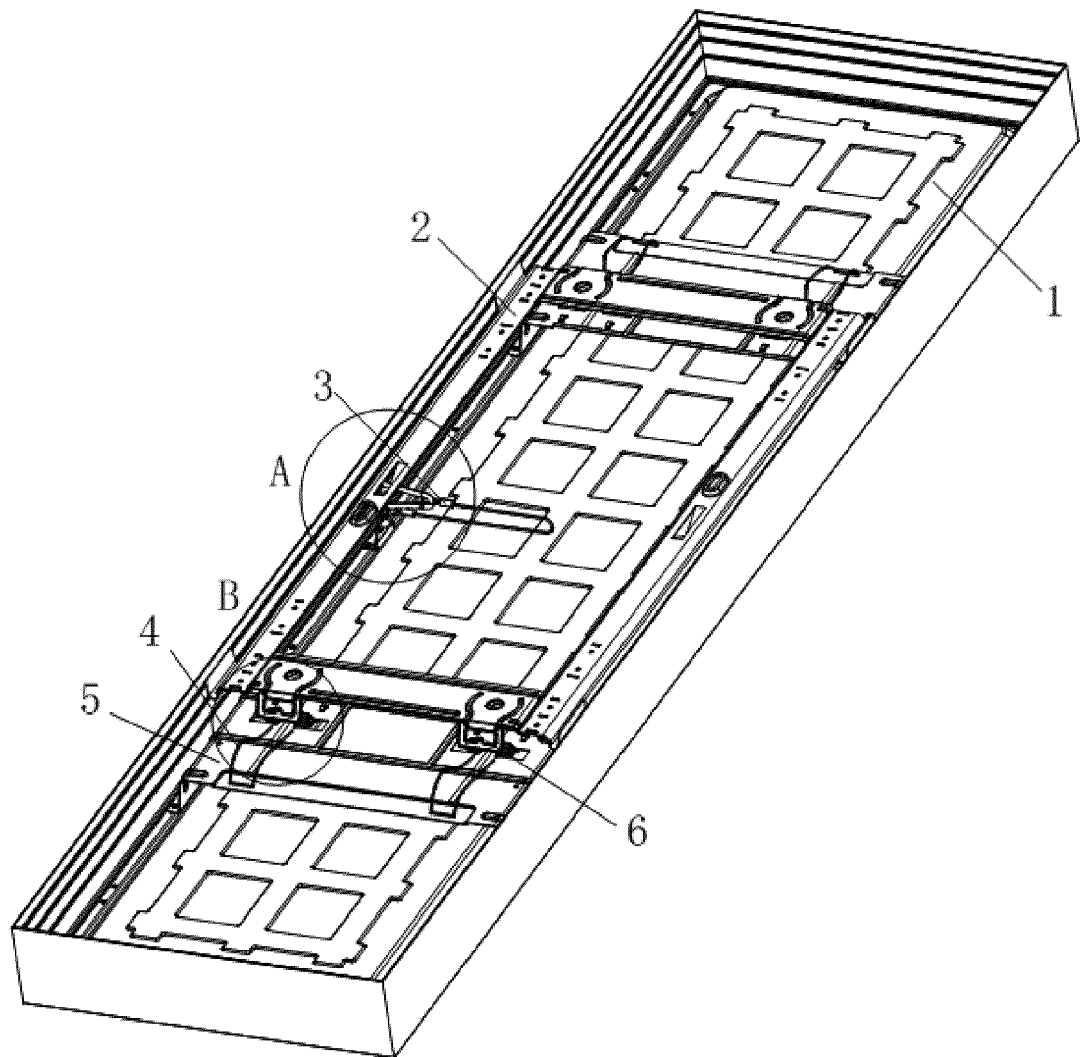


Fig. 1

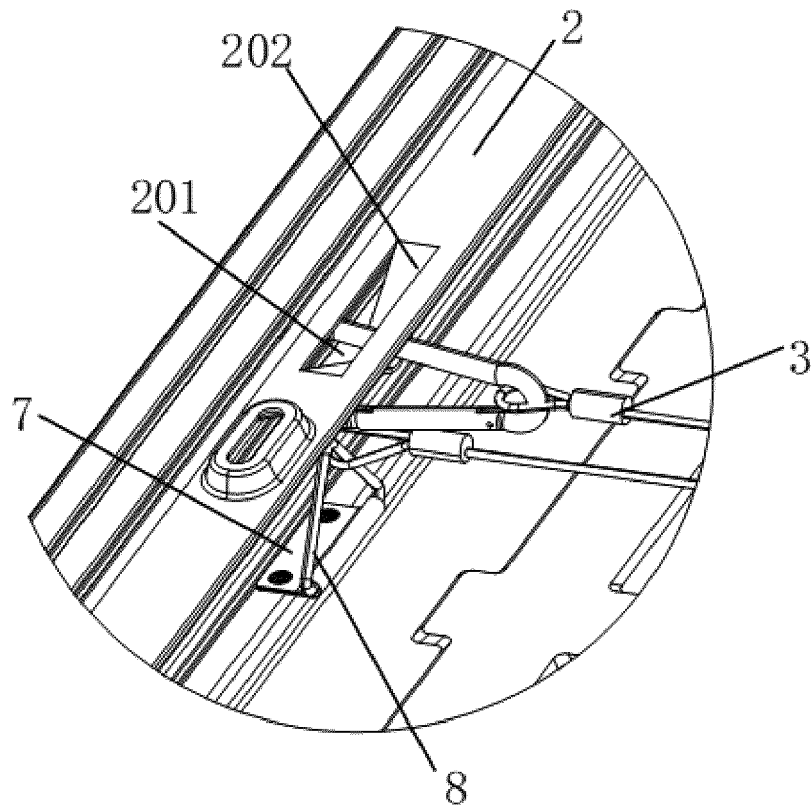


Fig. 2

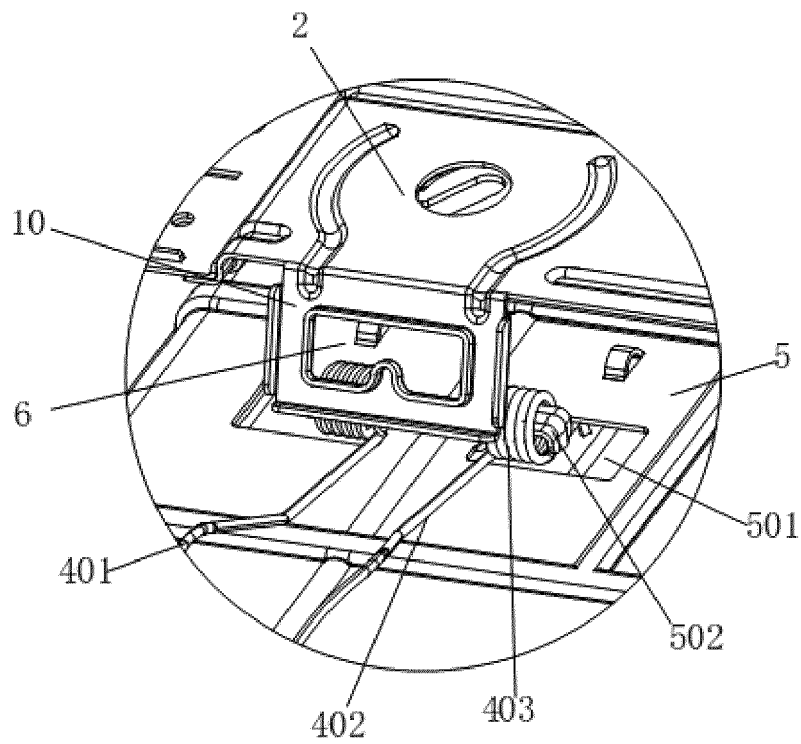


Fig. 3

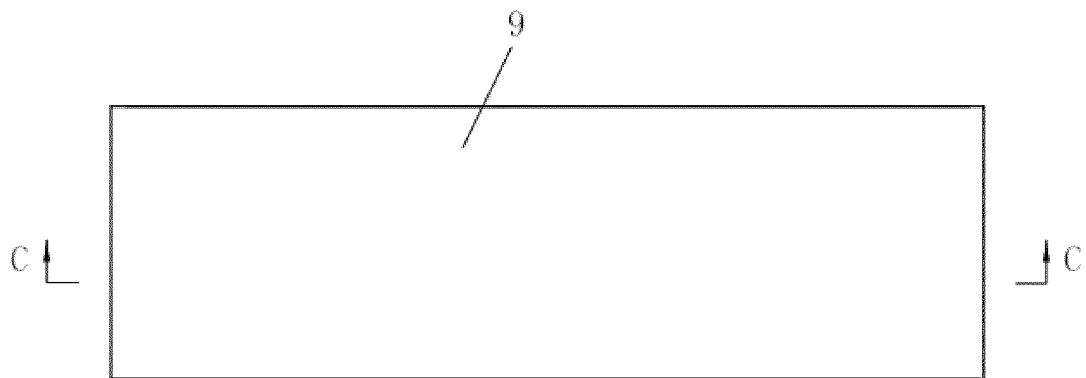


Fig. 4

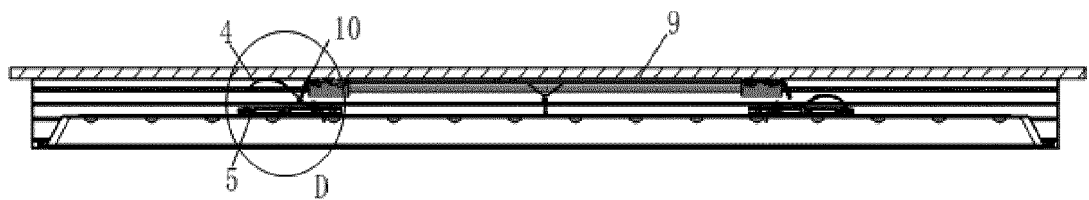


Fig. 5

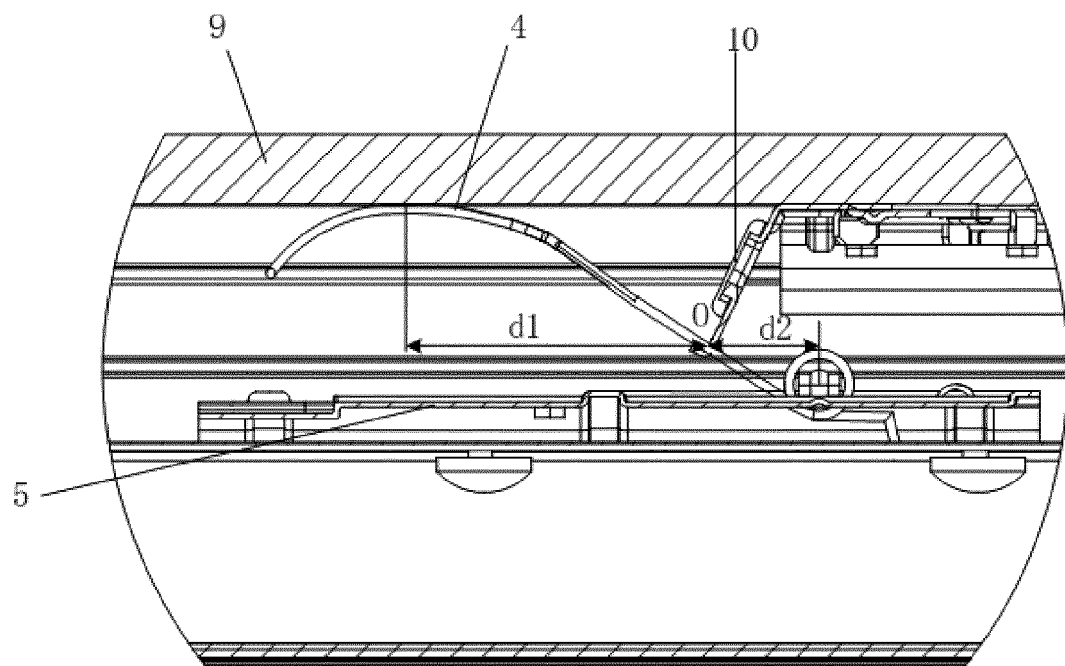


Fig. 6



EUROPEAN SEARCH REPORT

Application Number

EP 21 21 3129

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Place of search		Date of completion of the search	Examiner
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