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(54) **CEILING CASSETTE**

(57) A ceiling cassette (100), comprising a surface casing (10) and a water receiving pan (20). A bottom portion of the surface casing (10) is opened, and a peripheral side of the surface casing (10) is connected to a first fixing structure (11). The water receiving pan (20) fits at the bottom portion of the surface casing (10), and a peripheral side of the water receiving pan (20) is provided with a second fixing structure (231) which is con-

nected to the first fixing structure (11). The first fixing structure (11) is provided thereon with a first installation hole (1121) and a pre-fixing groove (114), and the second fixing structure (231) is provided thereon with a second installation hole (2311) and a pre-fixing hook (2312); when the pre-fixing hook (2312) is locked in the pre-fixing groove (114), the first installation hole (1121) and the second installation hole (2311) are aligned.

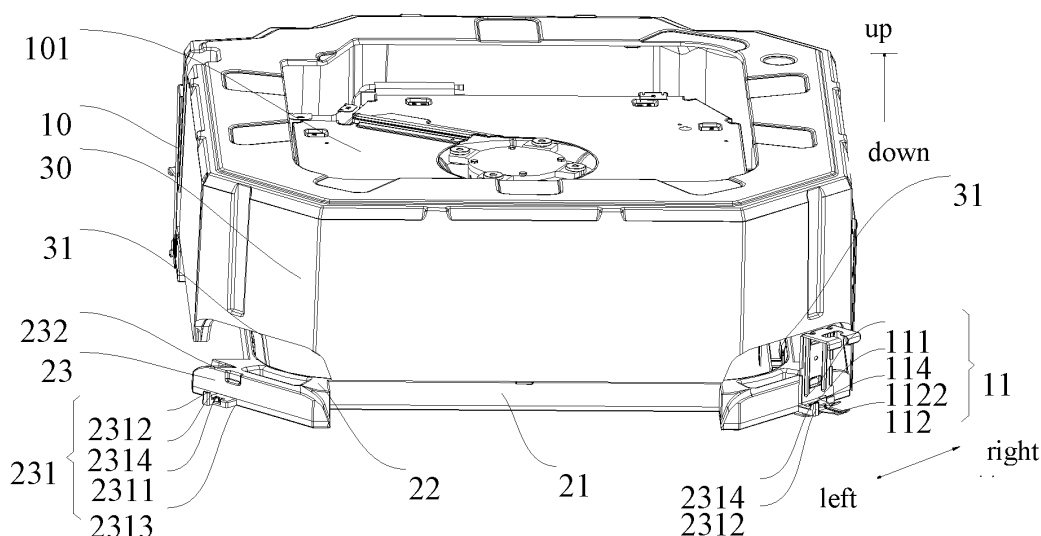


Fig. 3

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and benefits of Chinese Patent Application Serial No. 201822114424.7, filed on December 14, 2018, the entire content of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of ceiling-embedded air conditioners, and more particularly to a ceiling-embedded air conditioner.

BACKGROUND

[0003] An indoor unit of a ceiling-embedded air conditioner is generally mounted on the top of a wall. The ceiling-embedded air conditioner includes numerous parts. During the mounting, when a drain pan is mounted on an outer shell, various mounting surfaces and mounting holes need to be aligned. The alignment of the mounting holes is slow, and the assembly is difficult, which affects the mounting efficiency.

[0004] In addition, a gap easily exists between the drain pan and the outer shell after completion of the mounting, which affects the airtightness of the ceiling-embedded air conditioner, easily leading to condensation at a joint.

SUMMARY

[0005] The present disclosure seeks to solve at least one of the technical problems existing in the related art to some extent.

[0006] Therefore, an objective of the present disclosure is to provide a ceiling-embedded air conditioner. The ceiling-embedded air conditioner features quick alignment, high installation efficiency, and good airtightness.

[0007] The ceiling-embedded air conditioner according to embodiments of the present disclosure includes: an outer shell, an accommodating cavity is provided in the outer shell, a bottom of the outer shell being open, an outer circumferential side of the outer shell being connected to a first fixing structure; and a drain pan fitted at the bottom of the outer shell, an outer circumferential side of the drain pan being provided with a second fixing structure connected to the first fixing structure, wherein a first mounting hole and a prefixing groove are provided on the first fixing structure, a second mounting hole and a prefixing hook are provided on the second fixing structure, and when the prefixing hook is clamped in the prefixing groove, the first mounting hole is aligned with the second mounting hole.

[0008] The ceiling-embedded air conditioner according to the embodiments of the present disclosure enables the formation of a stable connection relationship between

the drain pan and the outer shell through mutual connection between the first fixing structure and the second fixing structure. Through engagement of the prefixing groove and the prefixing hook, the first mounting hole on the first fixing structure and the second mounting hole on the second fixing structure may be quickly aligned, which greatly increases the mounting efficiency.

[0009] Optionally, a plurality of first fixing structures are provided, the plurality of first fixing structures are disposed around the outer shell, and a plurality of second fixing structures respectively corresponding to the plurality of the first fixing structures in a one-to-one manner are disposed around the drain pan.

[0010] Optionally, the drain pan is provided with a reinforcing rib at a junction with the first fixing structure.

[0011] Optionally, the first fixing structure is a plate, and the first fixing structure includes: a fitting section connected on an outer circumferential surface of the outer shell; a transverse extension section extending from a bottom of the fitting section in a direction away from the outer shell, the first mounting hole being disposed on the transverse extension section; and a vertical extension section extending downward from a side of the transverse extension section away from the fitting section, wherein a horizontal width of the vertical extension section is smaller than that of the transverse extension section, a portion by which the vertical extension section is shorter than the transverse extension section constitutes the prefixing groove, the second fixing structure is fitted at a bottom of the transverse extension section, the prefixing hook is clamped at the prefixing groove, and the vertical extension section is clamped on a side of the second fixing structure away from the outer shell.

[0012] Optionally, the prefixing hook is provided with a guide surface on a side toward the transverse extension section.

[0013] Optionally, an upper surface of the transverse extension section is provided with a convex edge surrounding the first mounting hole, and the convex edge is integrally formed on the transverse extension section by stamping.

[0014] Optionally, an inner side of the outer shell is provided with an insulating shell with the same shape as the outer shell, and the drain pan is connected at a bottom of the insulating shell.

[0015] Optionally, the drain pan includes: a central pan disposed below an evaporator of the ceiling-embedded air conditioner; a plurality of circumferentially connected portions circumferentially spaced apart on an outer side of the central pan, the plurality of circumferentially connected portions being connected below the insulating shell and connected on an inner circumferential surface of the outer shell; and a plurality of connecting portions each connected between the central pan and the circumferentially connected portions, wherein each of the circumferentially connected portions is provided with the second fixing structure.

[0016] Optionally, a plurality of joints are provided on

a circumferential wall of the insulating shell, each of the joints is open downward, and at least part of top surfaces of the joints are arc-shaped surfaces, the circumferentially connected portions are fitted in the joints, and top surfaces of the circumferentially connected portions are closely fitted with the top surfaces of the joints.

[0017] Optionally, the top surfaces of the circumferentially connected portions form a downward curved arc-shaped surface at each of two circumferential ends.

[0018] Additional aspects and advantages of the present disclosure will be given in part in the following descriptions, become apparent in part from the following descriptions, or be learned from the practice of the embodiments of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

Fig. 1 is a schematic diagram of a three-dimensional structure of a ceiling-embedded air conditioner according to an embodiment of the present disclosure. Fig. 2 is a schematic diagram of a drain pan, an outer shell, and an insulating shell of a ceiling-embedded air conditioner according to an embodiment of the present disclosure.

Fig. 3 is a schematic structural diagram of fitting of a drain pan and an insulating shell of a ceiling-embedded air conditioner according to an embodiment of the present disclosure.

Fig. 4 is a schematic diagram of an overhead structure of a drain pan according to an embodiment of the present disclosure.

Fig. 5 is a partial schematic diagram of a second fixing structure at a corner of a drain pan according to an embodiment of the present disclosure.

Fig. 6 is a partial cross-sectional view of an A-A section in Fig. 5.

Fig. 7 is a schematic diagram of an overall structure of a first fixing structure according to an embodiment of the present disclosure.

ceiling-embedded air conditioner 100;
outer shell 10;
accommodating cavity 101; air outlet 102;
first fixing structure 11;
fitting section 111;
transverse extension section 112; first mounting hole 1121; convex edge 1122;
vertical extension section 113;
prefixing groove 114;
carrying plate 115;
drain pan 20;
central pan 21; air inlet 211;
connecting portion 22;
circumferentially connected portion 23;
second fixing structure 231;
second mounting hole 2311; prefixing hook

2312; reinforcing rib 2313; guide surface 2314;
curved arc-shaped surface 232
insulating shell 30;
joint 31.

DETAILED DESCRIPTION

[0020] Reference will be made in detail to the embodiments of the present disclosure, and the examples of the embodiments are illustrated in the drawings, wherein the same or similar elements and the elements having same or similar functions are denoted by like reference numerals throughout the descriptions. The embodiments described herein with reference to drawings are illustrative, and merely used to explain the present disclosure. The embodiments shall not be construed to limit the present disclosure.

[0021] A ceiling-embedded air conditioner 100 according to an embodiment of the present disclosure is described in detail below with reference to the accompanying drawings.

[0022] The ceiling-embedded air conditioner 100 according to an embodiment of the present disclosure, as shown in Fig. 1 and Fig. 3, includes: an outer shell 10 and a drain pan 20.

[0023] As shown in Fig. 1 and Fig. 3, the outer shell 10 is provided therein with an accommodating cavity 101, and the bottom of the outer shell 10 is open. An evaporator, a fan assembly, an auxiliary heating member, and other parts may be mounted in the accommodating cavity 101. The bottom is open to communicate with the accommodating cavity 101, for convenient assembly of internal components.

[0024] As shown in Fig. 3, an outer circumferential side of the outer shell 10 is connected to a first fixing structure 11.

[0025] As shown in Fig. 1 to Fig. 3, the drain pan 20 is fitted at the bottom of the outer shell 10, and an outer circumferential side of the drain pan 20 is provided with a second fixing structure 231 connected to the first fixing structure 11. The drain pan 20 is fitted at one open side of the outer shell 10, so that the parts in the accommodating cavity 101 can be shielded and the sense of wholeness of the ceiling-embedded air conditioner 100 is enhanced. The drain pan 20 may collect condensate water that condenses on the components of the ceiling-embedded air conditioner 100 in a refrigeration mode, so as to prevent the condensate water from falling directly on the indoor floor to result in poor user experience.

[0026] Specifically, as shown in Fig. 2, Fig. 3, and Fig. 7, the first fixing structure 11 is provided with a first mounting hole 1121 and a prefixing groove 114.

[0027] As shown in Fig. 2, Fig. 3, Fig. 4, Fig. 5, and Fig. 6, the second fixing structure 231 is provided with a second mounting hole 2311 and a prefixing hook 2312. When the prefixing hook 2312 is clamped in the prefixing groove 114, the first mounting hole 1121 is aligned with the second mounting hole 2311.

[0028] Here, since prefixing is formed between the prefixing hook 2312 and the prefixing groove 114, limit is formed between the first fixing structure 11 and the second fixing structure 231, and the first mounting hole 1121 and the second mounting hole 2311 of the two are aligned quickly to facilitate bolt fixing.

[0029] It may be understood that compared with the assembly of a drain pan 20 of an ordinary ceiling-embedded air conditioner 100 without a prefixing structure, the present disclosure enhances the strength of connection between the first fixing structure 11 and the second fixing structure 2312, thus forming a stable connection relationship between the drain pan 20 and the outer shell 10. In addition, the quick alignment of the first mounting hole 1121 and the second mounting hole 2311 improves the fitting efficiency between the first fixing structure 11 and the second fixing structure 2312, thereby greatly improving the assembly efficiency between the drain pan 20 and the outer shell 10.

[0030] In some embodiments of the present disclosure, as shown in Fig. 2, a plurality of first fixing structures 11 are provided, the plurality of first fixing structures 11 are disposed around the outer shell 10, and a plurality of second fixing structures 231 respectively corresponding to the plurality of the first fixing structures in an one-to-one manner are disposed around the drain pan 20. The plurality of first fixing structures 11 are disposed on the outer shell 10 respectively, which may increase connection points between the drain pan 20 and the outer shell 10, so that relatively stable connections are formed in all directions of the drain pan 20 and the outer shell 10, and a fitting surface difference between the drain pan 20 and the outer shell 10 can be reduced, thereby preventing excessively askew mounting of the drain pan 20.

[0031] Optionally, as shown in Fig. 2, four first fixing structures 11 are provided. The first fixing structures 11 are evenly spaced at four corners of the outer shell 10 respectively. The drain pan 20 is also provided with four second fixing structures 231 matching the first fixing structures 11. The number of the first fixing structures 11 and the number of the second fixing structures 231 may be selectively set according to an actual requirement, provided that stability and balance of the mounting and the aesthetics of the ceiling-embedded air conditioner 100 after mounting are ensured in case of no waste of costs and convenient quick mounting.

[0032] In some embodiments of the present disclosure, as shown in Fig. 3 and Fig. 6, the drain pan 20 is provided with a reinforcing rib 2313 at a junction with the first fixing structure 11. The setting of the reinforcing rib 2313 enhances local strength of the second fixing structure 231, prevents the crack of the second fixing structure 231 and the first fixing structure 11 due to fitting, and enhances the service life of the second fixing structure 231.

[0033] Advantageously, reinforcing ribs are added around the second mounting hole 2311 to enhance the strength at the second mounting hole 2311.

[0034] In some embodiments of the present disclosure, as shown in Fig. 7, the first fixing structure 11 is a plate, and the first fixing structure 11 includes: a fitting section 111, a transverse extension section 112, and a vertical extension section 113.

[0035] As shown in Fig. 2, the fitting section 111 is connected to an outer circumferential surface of the outer shell 10. The fitting section 111 makes the first fixing structure 11 fitted stably on a side surface of the outer shell 10, which is not easy to fall off. The fitting section 111 further increases a fit area between the first fixing structure 11 and the outer shell 10. The fitting section 111 and the outer shell may be fixed by screw connection or welding connection.

[0036] As shown in Fig. 2, Fig. 3, and Fig. 7, the transverse extension section 112 extends from the bottom of the fitting section 111 in a direction away from the outer shell 10, and the first mounting hole 1121 is disposed on the transverse extension section 112. The transverse extension section 112 provides the first mounting hole 1121 with a surface protruding beyond the outer shell 10, so that the first fixing structure 11 and the second fixing structure 231 are more convenient to mount and fit, which facilitates manual operations and is easy to observe. In addition, during fixing, the first fixing structure 11 and the second fixing structure 231 do not affect the strength of the outer shell 10 and do not damage the outer shell 10.

[0037] As shown in Fig. 2 and Fig. 7, the vertical extension section 113 extends downward from a side of the transverse extension section 112 away from the fitting section 111. A horizontal width of the vertical extension section 113 is smaller than that of the transverse extension section 112, and a portion by which the vertical extension section 113 is shorter than the transverse extension section 112 constitutes the prefixing groove 114. A mounting groove is also formed between the vertical extension section 113 extending downward and the transverse extension section 112, which is convenient to cooperate with a mounting surface of the second fixing structure 231, so that the second fixing structure 231 is embedded in the mounting groove during prefixing, to accelerate the cooperation of the two.

[0038] Advantageously, an obtuse angle is formed between the vertical extension section 113 and the transverse extension section 112, and a left side of the vertical extension section 113 matches a right side of the prefixing hook 2312. Such design facilitates quick pre-positioning.

[0039] As shown in Fig. 2 and Fig. 3, the second fixing structure 231 is fitted at the bottom of the transverse extension section 112, the prefixing hook 2312 is clamped at the prefixing groove 114, and the vertical extension section 113 is clamped on a side of the second fixing structure 231 away from the outer shell 10. The prefixing groove 114 makes it easy to form a clamping hook matching limit structure with the prefixing hook 2312.

[0040] Optionally, as shown in Fig. 3, an upper surface of the transverse extension section 112 is provided with

a convex edge 1122 surrounding the first mounting hole 1121, and the convex edge 1122 is integrally formed on the transverse extension section 112 by stamping. The convex edge 1122, on the one hand, can enhance the strength of the first mounting hole 1121, and on the other hand, also has a certain guiding effect, which facilitates guiding during mounting of bolts or screws.

[0041] Optionally, as shown in Fig. 3 and Fig. 7, the vertical extension section 113 extends toward a direction away from the outer shell 10 to form another transverse extension section 112. This facilitates prefixing and limiting.

[0042] Optionally, as shown in Fig. 3 and Fig. 7, the fitting section 111 on a side of the vertical extension section 113 shorter than the transverse extension section 112 is provided with a carrying plate 115. An upper surface of the carrying plate 115 is in contact with the second fixing structure 231, which may increase a supporting degree of a lower surface of the second fixing structure 231 and prevent an upper mounting hole from falling off after the fitting fails. In addition, the carrying plate 115 fits the vertical extension section 113 in a staggered manner. The carrying plate 115 may provide a certain guiding effect for the mounting of the second fixing structure 231.

[0043] Optionally, as shown in Fig. 3, Fig. 5, and Fig. 6, the prefixing hook 2312 is provided with a guide surface 2314 on a side toward the transverse extension section 112. The setting of the guide surface 2314 facilitates clamping the prefixing hook 2312 onto the prefixing groove 114.

[0044] In some embodiments of the present disclosure, as shown in Fig. 1 to Fig. 4, the drain pan 20 includes: a central pan 21, a plurality of circumferentially connected portions 23, and a plurality of connecting portions 22.

[0045] The central pan 21 is disposed below an evaporator of the ceiling-embedded air conditioner 100, and is configured to receive water.

[0046] Optionally, an air inlet 211 is formed in the middle of the central pan 21, and annular flanges are formed around the air inlet 211.

[0047] As shown in Fig. 1, Fig. 2, and Fig. 4, the plurality of circumferentially connected portions 23 are circumferentially spaced apart on an outer side of the central pan 21, the plurality of circumferentially connected portions 23 are connected below the insulating shell 30 and connected on an inner circumferential surface of the outer shell 10, and each of the circumferentially connected portions 23 is provided with the second fixing structure 231. The circumferentially connected portions 23 provide connection points for the second fixing structure 231, so that the second fixing structure 231 can match the transverse extension section 112.

[0048] Each connecting portion 22 is connected between the central pan 21 and the circumferentially connected portions 23. The connecting portions 22 make the circumferentially connected portions 23 extend in an appropriate direction, and the central pan 21 does not need

to be provided with the connecting portions 22 everywhere.

[0049] As shown in Fig. 1, an air outlet 102 in communication with the accommodating cavity 101 is formed between adjacent connecting portions 22, a side edge of the central pan 21, and the outer shell 10. The air outlet 22 may re-feed an air flow after heat exchange indoors.

[0050] In some embodiments of the present disclosure, as shown in Fig. 2 and Fig. 3, an inner side of the outer shell 10 is provided with an insulating shell 30 with the same shape as the outer shell 10, and the drain pan 20 is connected at the bottom of the insulating shell 30.

[0051] As shown in Fig. 3, a circumferential wall of the insulating shell 30 is provided with a plurality of joints 31, each of the joints 31 is open downward, and at least part of top surfaces of the joints 31 are arc-shaped surfaces, the circumferentially connected portions 23 are fitted in the joints 31, and top surfaces of the circumferentially connected portions 23 are closely fitted with the top surfaces of the joints 31.

[0052] Correspondingly, as shown in Fig. 3, the top surfaces of the circumferentially connected portions 23 form a downward curved arc-shaped surface 232 at each of two circumferential ends. The curved arc-shaped surface 232 matches the joints 31, so that the drain pan 20 fits in with the outer shell 10, and the joints have good airtightness. This reduces the formation of condensation on the outer shell 10 of the ceiling-embedded air conditioner 100 in the refrigeration mode. The air in the accommodating cavity 101 and the air outside the ceiling-embedded air conditioner 100 are not easy to form an exchange region beyond the air inlet 211 and the air outlet 102.

[0053] In order to better understand the solutions of the embodiments of the present disclosure, the structure of the ceiling-embedded air conditioner 100 in one specific embodiment of the present disclosure is described below with reference to Fig. 1 to Fig. 7.

[0054] As shown in Fig. 1 and Fig. 3, the ceiling-embedded air conditioner 100 includes: an outer shell 10, a drain pan 20, and an insulating shell 30.

[0055] As shown in Fig. 1 and Fig. 3, the top of the outer shell 10 is mounted to the top of a wall, and the bottom of the outer shell 10 is provided with the drain pan 20. The outer shell 10 is provided with an accommodating cavity 101, one air inlet 211 in communication with the accommodating cavity 101 and four air outlets 102 in communication with the accommodating cavity 101 are formed on the drain pan 20. An inner side of the outer shell 10 is provided with the insulating shell 30 with the same shape as the outer shell 10, an outer circumferential side of the outer shell 10 is connected to four first fixing structures 11, and an outer circumferential side of the drain pan 20 is connected to a second fixing structure 231 connected to the first fixing structures 11.

[0056] As shown in Fig. 2, Fig. 3, and Fig. 7, the first fixing structure 11 is a plate, and the first fixing structure 11 includes: a fitting section 111, a transverse extension

section 112, and a vertical extension section 113. The fitting section 111 is connected to an outer circumferential surface of the outer shell 10, the transverse extension section 112 extends from the bottom of the fitting section 111 in a direction away from the outer shell 10, and the first mounting hole 1121 is disposed on the transverse extension section 112. The vertical extension section 113 extends downward from a side of the transverse extension section 112 away from the fitting section 111. A horizontal width of the vertical extension section 113 is smaller than that of the transverse extension section 112, and a portion by which the vertical extension section 113 is shorter than the transverse extension section 112 constitutes the prefixing groove 114.

[0057] As shown in Fig. 1, Fig. 2, Fig. 3, and Fig. 4, the drain pan 20 includes: a central pan 21, four circumferentially connected portions 23, and eight connecting portions 22. The central pan 21 is disposed below an evaporator of the ceiling-embedded air conditioner 100, each connecting portion 22 is connected between the central pan 21 and the circumferentially connected portions 23, the plurality of circumferentially connected portions 23 are circumferentially spaced apart on an outer side of the central pan 21, the plurality of circumferentially connected portions 23 are connected below the insulating shell 30 and connected on an inner circumferential surface of the outer shell 10, and each circumferentially connected portion 23 is provided with the second fixing structure 231. Top surfaces of the circumferentially connected portions 23 form a downward curved arc-shaped surface 232 at each of two circumferential ends, and the curved arc-shaped surface 232 matches joints 31 on the insulating shell 30.

[0058] As shown in Fig. 2, Fig. 3, Fig. 4, Fig. 5, and Fig. 6, the second fixing structure 231 is provided with a second mounting hole 2311 and a prefixing hook 2312. When the prefixing hook 2312 is clamped in the prefixing groove 114, the first mounting hole 1121 is aligned with the second mounting hole 2311.

[0059] A contact area between the drain pan 20 and the insulating shell 30 is small, the arc-shaped surface is fitted, and the sealing is tight.

[0060] Thus, the ceiling-embedded air conditioner 100 of the present disclosure can reduce ground wire materials, isolate contact of wire bodies with foam, and have a high fireproofing grade.

[0061] In the description of the present disclosure, it is to be understood that terms such as "upper", "lower", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", and "circumferential" should be construed to refer to the orientation as then described or as shown in the drawings under discussion. These relative terms are for convenience of description and do not require that the present disclosure be constructed or operated in a particular orientation, thus cannot be construed to limit the present disclosure.

[0062] Furthermore, the feature defined with "first" and "second" may include one or more of this feature explicitly

or implicitly, which are used to distinguish and describe features without distinction of order or importance.

[0063] In the description of the present disclosure, "a plurality of" means two or more, unless otherwise stated.

[0064] In the description of the present disclosure, it should be noted that unless specified or limited otherwise, the terms "mounted", "connected", and "coupled" and the like are used broadly, and may be, for example, fixed connections, detachable connections, or integral connections; may also be mechanical or electrical connections; may also be direct connections or indirect connections via intervening structures; may also be inner communications of two elements. The above terms can be understood by those of ordinary skill in the art according to specific situations.

[0065] In the description of the present specification, reference throughout this specification to "embodiment", "example", and the like means that a particular feature, structure, material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the present disclosure. In the specification, the schematic expressions to the above terms are not necessarily referring to the same embodiment or example. Furthermore, the described particular features, structures, materials, or characteristics may be combined in any suitable manner in one or more embodiments or examples.

[0066] Although embodiments of the present disclosure have been shown and illustrated, it shall be understood by those of ordinary skill in the art that various changes, modifications, alternatives and variants without departing from the principle and idea of the present disclosure are acceptable.

[0067] The scope of the present disclosure is defined by the claims and its equivalents.

Claims

1. A ceiling-embedded air conditioner, comprising:

an outer shell, an accommodating cavity being provided in the outer shell, a bottom of the outer shell being open, an outer circumferential side of the outer shell being connected to a first fixing structure; and

a drain pan fitted at the bottom of the outer shell, an outer circumferential side of the drain pan being provided with a second fixing structure connected to the first fixing structure, wherein a first mounting hole and a prefixing groove are provided on the first fixing structure, a second mounting hole and a prefixing hook are provided on the second fixing structure, and when the prefixing hook is clamped in the prefixing groove, the first mounting hole is aligned with the second mounting hole.

2. The ceiling-embedded air conditioner according to claim 1, wherein a plurality of first fixing structures are provided, the plurality of first fixing structures are disposed around the outer shell, and a plurality of second fixing structures respectively corresponding to the plurality of the first fixing structures in an one-to-one manner are disposed around the drain pan. 5
3. The ceiling-embedded air conditioner according to claim 1 or 2, wherein the drain pan is provided with a reinforcing rib at a junction with the first fixing structure. 10
4. The ceiling-embedded air conditioner according to claim 1, 2, or 3, wherein the first fixing structure is a plate, and the first fixing structure comprises: 15
 - a fitting section connected on an outer circumferential surface of the outer shell;
 - a transverse extension section extending from a bottom of the fitting section in a direction away from the outer shell, the first mounting hole being disposed on the transverse extension section; and 20
 - a vertical extension section extending downward from a side of the transverse extension section away from the fitting section, wherein a horizontal width of the vertical extension section is smaller than a horizontal width of the transverse extension section, and a portion by which the vertical extension section is shorter than the transverse extension section constitutes the prefixing groove, 25
 - wherein the second fixing structure is fitted at a bottom of the transverse extension section, the prefixing hook is clamped at the prefixing groove, and the vertical extension section is clamped on a side of the second fixing structure away from the outer shell. 30
5. The ceiling-embedded air conditioner according to claim 4, wherein the prefixing hook is provided with a guide surface on a side toward the transverse extension section. 35
6. The ceiling-embedded air conditioner according to claim 4 or 5, wherein an upper surface of the transverse extension section is provided with a convex edge surrounding the first mounting hole, and the convex edge is integrally formed on the transverse extension section by stamping. 40
7. The ceiling-embedded air conditioner according to any one of claims 1 to 6, wherein an inner side of the outer shell is provided with an insulating shell with the same shape as the outer shell, and the drain pan is connected at a bottom of the insulating shell. 45
8. The ceiling-embedded air conditioner according to claim 7, wherein the drain pan comprises: 50
 - a central pan disposed below an evaporator of the ceiling-embedded air conditioner;
 - a plurality of circumferentially connected portions circumferentially spaced apart on an outer side of the central pan, the plurality of circumferentially connected portions being connected below the insulating shell and connected on an inner circumferential surface of the outer shell; and
 - a plurality of connecting portions each connected between the central pan and the circumferentially connected portions, wherein each of the circumferentially connected portions is provided with the second fixing structure. 55
9. The ceiling-embedded air conditioner according to claim 8, wherein a plurality of joints are provided on a circumferential wall of the insulating shell, each of the joints is open downward, and at least part of top surfaces of the joints are arc-shaped surfaces, the circumferentially connected portions are fitted in the joints, and top surfaces of the circumferentially connected portions are closely fitted with the top surfaces of the joints.
10. The ceiling-embedded air conditioner according to claim 8 or 9, wherein the top surfaces of the circumferentially connected portions form a downward curved arc-shaped surface at each of two circumferential ends.

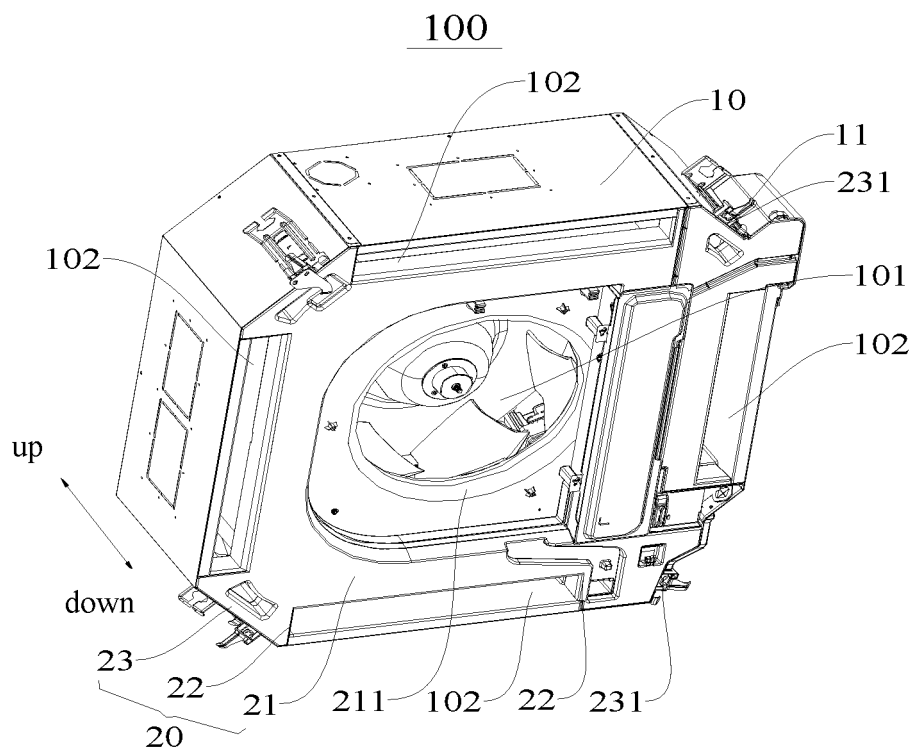


Fig. 1

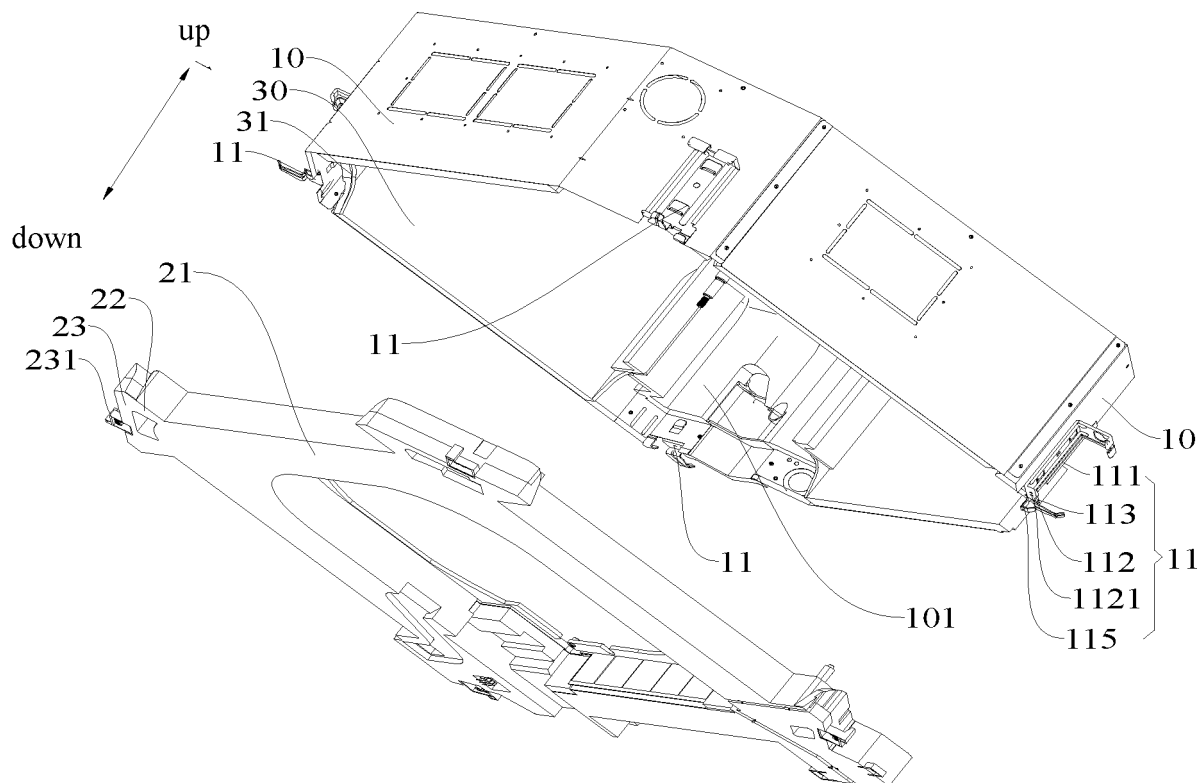


Fig. 2

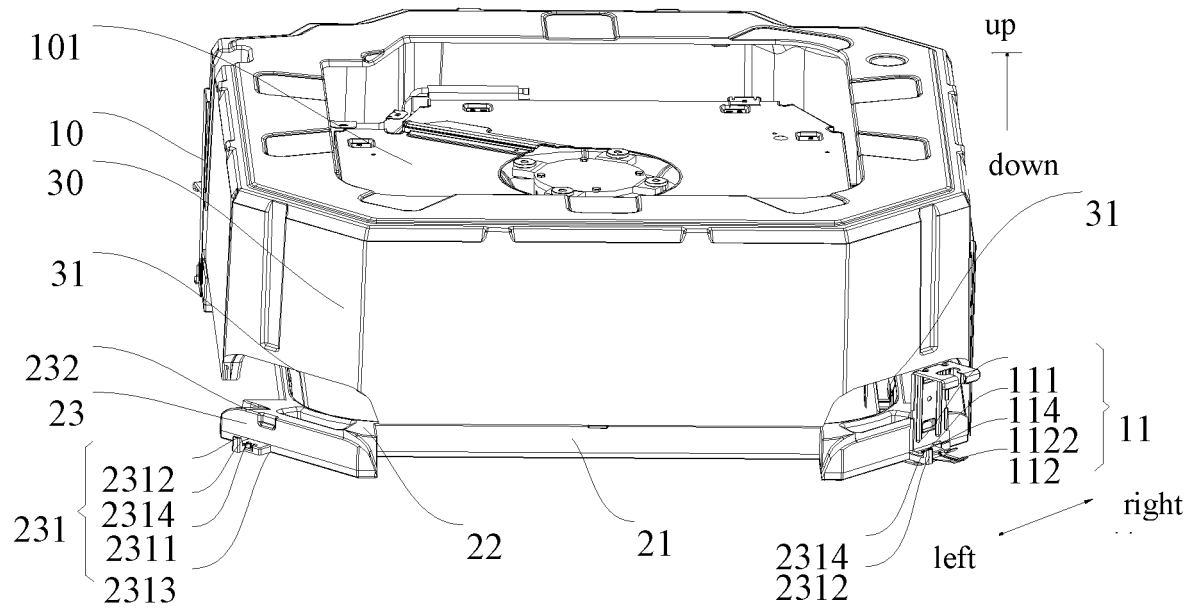


Fig. 3

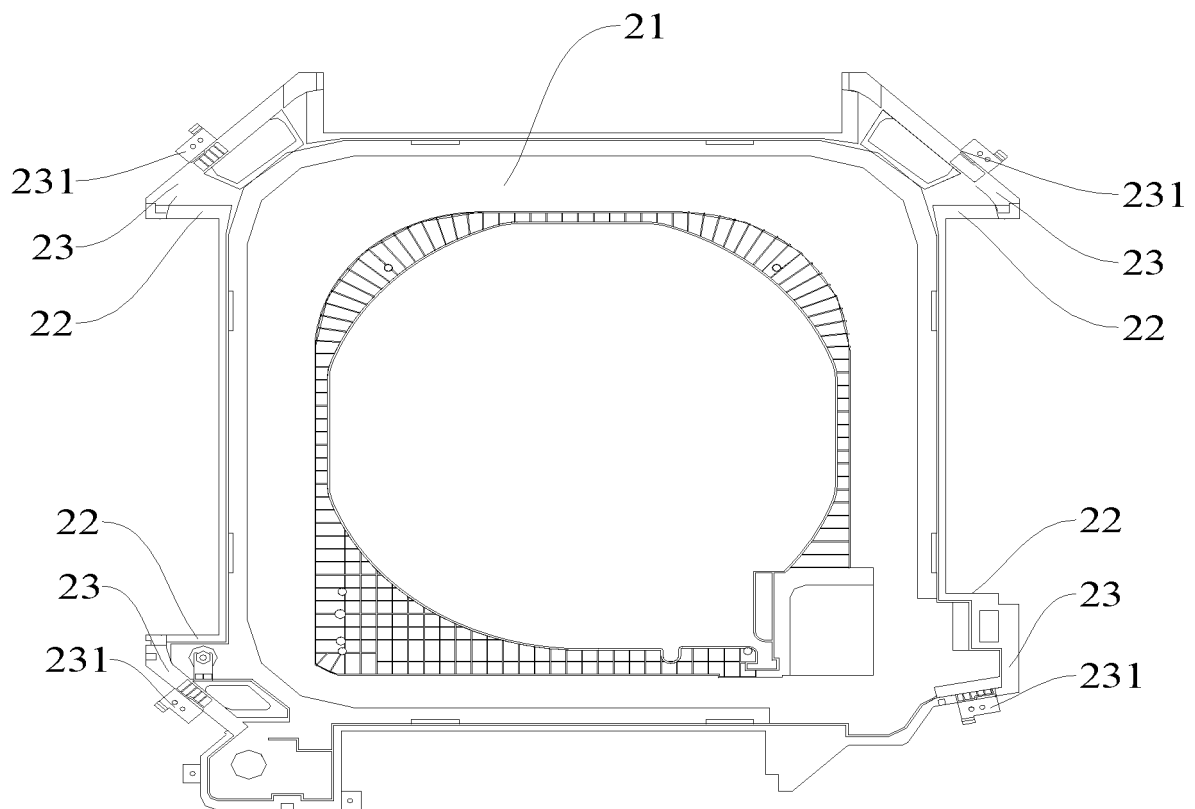


Fig. 4

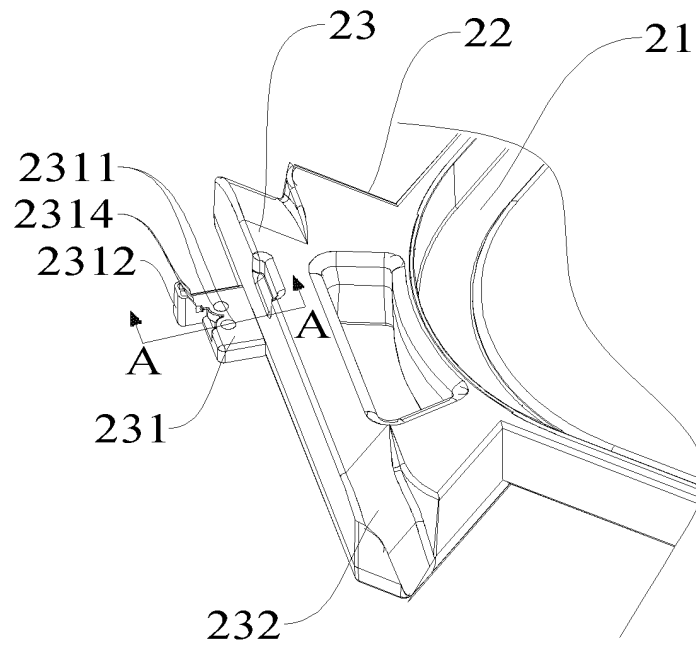


Fig. 5

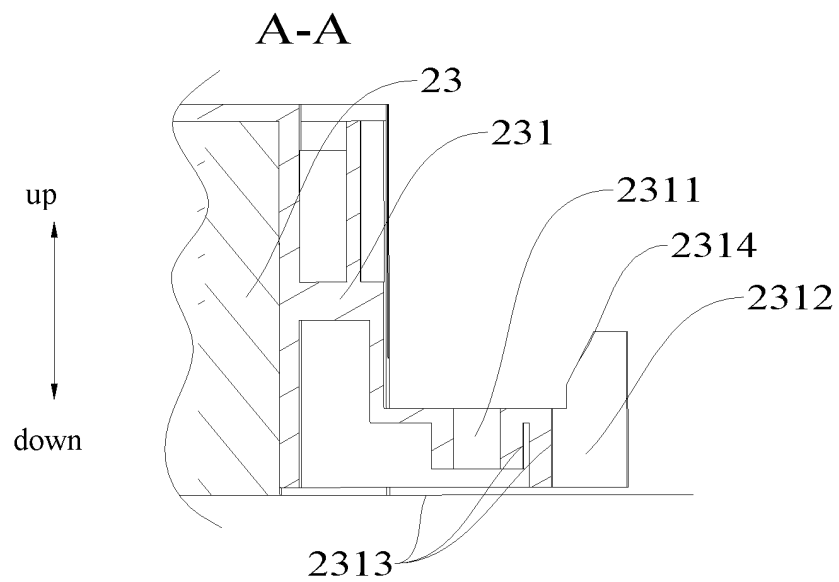


Fig. 6

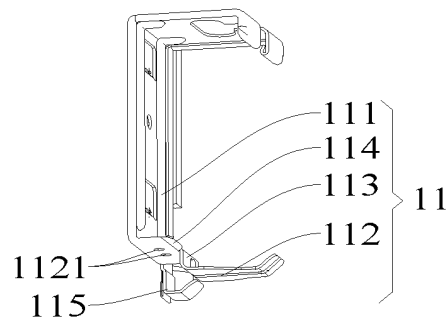


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/080044

A. CLASSIFICATION OF SUBJECT MATTER F24F 13/22(2006.01)i; F24F 3/00(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) F24F	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI, CNKI, CNTXT, CNABS, 美的, 唐清生, 嵌入, 吊顶, 吸顶, 天井, 天花, 水盘, 预固定, 预定位, 预固槽, 预固钩, 孔, 螺钉, 螺母, 螺丝, ceiling, suspended, embed, tray, pan, dish, indoor, plate, air, conditioner																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>CN 201348314 Y (GUANGDONG MIDEA ELECTRIC APPLIANCES CO., LTD.) 18 November 2009 (2009-11-18) description, page 2, embodiment 1, and figures 1-6</td> <td>1-3, 7-10</td> </tr> <tr> <td>A</td> <td>CN 2416405 Y (DAIKIN INDUSTRIES, LTD.) 24 January 2001 (2001-01-24) description, page 2, paragraph 12 to page 4, paragraph 7, and figures 1-5</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 103185373 A (SANYO ELECTRIC CO., LTD.) 03 July 2013 (2013-07-03) description, paragraphs [0125]-[0147], and figures 14-17</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 207922398 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 28 September 2018 (2018-09-28) description, paragraphs [0038]-[0057], and figures 1-6</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>CN 208186802 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 04 December 2018 (2018-12-04) description, paragraphs [0064]-[0100], and figures 1-10</td> <td>1-10</td> </tr> <tr> <td>A</td> <td>JP 2009079819 A (FUJITSU GENERAL LTD.) 16 April 2009 (2009-04-16) description, paragraphs [0012]-[0025], and figures 1-6</td> <td>1-10</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	CN 201348314 Y (GUANGDONG MIDEA ELECTRIC APPLIANCES CO., LTD.) 18 November 2009 (2009-11-18) description, page 2, embodiment 1, and figures 1-6	1-3, 7-10	A	CN 2416405 Y (DAIKIN INDUSTRIES, LTD.) 24 January 2001 (2001-01-24) description, page 2, paragraph 12 to page 4, paragraph 7, and figures 1-5	1-10	A	CN 103185373 A (SANYO ELECTRIC CO., LTD.) 03 July 2013 (2013-07-03) description, paragraphs [0125]-[0147], and figures 14-17	1-10	A	CN 207922398 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 28 September 2018 (2018-09-28) description, paragraphs [0038]-[0057], and figures 1-6	1-10	A	CN 208186802 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD. et al.) 04 December 2018 (2018-12-04) description, paragraphs [0064]-[0100], and figures 1-10	1-10	A	JP 2009079819 A (FUJITSU GENERAL LTD.) 16 April 2009 (2009-04-16) description, paragraphs [0012]-[0025], and figures 1-6	1-10	
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Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																					

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INTERNATIONAL SEARCH REPORT
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International application No.

PCT/CN2019/080044

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