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(71) Applicants:
• **Gree Electric Appliances (Wuhan) Co., Ltd.**
Wuhan, Hubei 430056 (CN)
• **Gree Electric Appliances, Inc. of Zhuhai**
Zhuhai, Guangdong 519070 (CN)

(72) Inventor: **The designation of the inventor has not yet been filed**

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(74) Representative: **Zacco GmbH**
Bayerstrasse 83
80335 München (DE)

(54) **INDOOR UNIT AND AIR CONDITIONER HAVING SAME**

(57) The present disclosure provides an indoor unit and an air conditioner with the indoor unit. The indoor unit includes a housing, wherein the housing includes a base having a first mounting surface and a second mounting surface opposite to the first mounting surface, the first mounting surface has a first side and a second side opposite to the first side; the evaporator assembly is connected to the first mounting surface, and the second mounting surface is used for mounting on a mounting base to be mounted; a first end of the pipeline assembly is in communication with the evaporator assembly, and after the second end of the pipeline assembly extends towards the second side, the second end of the pipeline

assembly passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with the outdoor unit, wherein when the indoor unit is mounted on a mounting base, the first side is located above the second side. By adopting the pipeline layout of the pipeline assembly in the present application, the pipeline layout of the indoor unit is made more reasonable, and by adopting the pipeline layout in the present application, the pipeline groove can be avoided at the back of the housing, thereby effectively improving the overall strength of the housing of the indoor unit.

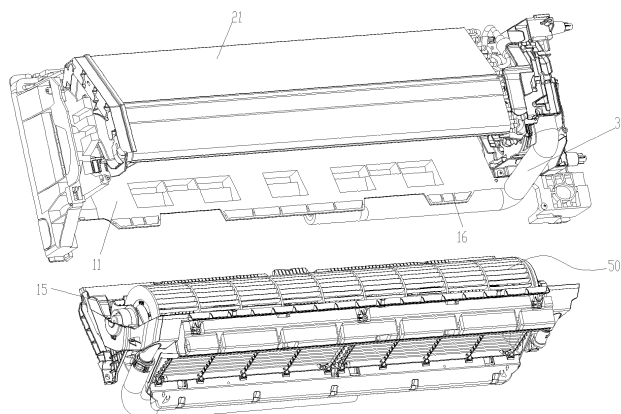


Fig.1

Description

Technical Field

[0001] The present disclosure relates to a technical field of an air conditioner device, and in particular to an indoor unit and an air conditioner with the indoor unit.

Background

[0002] In the prior art, the design of an evaporator pipeline layout of the air conditioner mainly to use a back of a bottom shell to open an avoiding groove for a pipeline layout, so as to make the pipeline extend to a pipeline avoiding area at a lower part of the bottom shell, and the pipeline can be discharged from both sides of the air conditioner at the final installation. Such the design can prevent the pipeline layout from affecting an outer design of the air conditioner to some extent, and can protect the pipeline from collision damage during transportation. However, in the production assembly, the evaporator component must be integrally lifted up firstly when assembled to the bottom shell component, so that the pipeline passes longitudinally through the avoiding groove pipeline at the back of the bottom shell, and then the pipeline at the lower part of the bottom shell is hidden below the air conditioner. This largely limits the increase in production efficiency and increases the length of the pipeline, which is disadvantageous for production and cost control. Due to the design structure of the groove at the back of the bottom shell, the length direction of the bottom shell is cut off by the longitudinally generated pipeline layout groove, resulting in a problem of reduction in overall strength. Meanwhile, in the prior art, the left and right asymmetric screw connections and snap-fitting connections are adopted to fix the evaporator component, which causes the problem that the evaporator component shakes greatly and is easily broken and collides with the local structure when the whole machine is dropping.

Summary

[0003] The main purpose of the present disclosure is to provide an indoor unit and an air conditioner with the indoor unit, so as to solve the problem in the prior art that the installation of an evaporator is inconvenient and isn't helpful to mechanize.

[0004] In order to achieve the above object, according to one aspect of the present disclosure, an indoor unit is provided, it includes: a housing wherein the housing includes a base having a first mounting surface and a second mounting surface opposite to the first mounting surface, the first mounting surface has a first side and a second side opposite to the first side; an evaporator assembly, wherein the evaporator assembly is connected to a first mounting surface, and the second mounting surface is used for mounting on a mounting base to be

mounted; and a pipeline assembly, wherein a first end of the pipeline assembly is in communication with the evaporator assembly, a second end of the pipeline assembly extends toward a second side, then passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with an outdoor unit, wherein the first side is located above the second side when the indoor unit is mounted on a mounting base.

[0005] In an exemplary embodiment, a part of the pipeline assembly passes through the first mounting surface and extends to the second mounting surface, and extends along a longitudinal direction of the base for a predetermined distance, then communicates with the outdoor unit.

[0006] In an exemplary embodiment, the evaporator assembly includes: an evaporator; an angle-shaped frame assembly mounted on an end of the evaporator, the evaporator being detachably disposed on the base by the angle-shaped frame assembly.

[0007] In an exemplary embodiment, the angle-shaped frame assembly includes: a angle-shaped frame, the angle-shaped frame being connected to the first end of the evaporator, the angle-shaped frame being provided with a first hook connected to the base, and the base being provided with a first connecting hole cooperated with the first hook.

[0008] In an exemplary embodiment, the angle-shaped frame assembly further includes: a pressing plate, the pressing plate being connected to a second end of the evaporator, the pressing plate being provided with a second hook connected to the base, the base being provided with a second connecting hole cooperated with the second hook, and a part of the pipeline assembly extending along a side of the pressing plate.

[0009] In an exemplary embodiment, the second mounting surface is provided with a first limiting plane, and a hook portion of the first hook is cooperated with the first limiting plane.

[0010] In an exemplary embodiment, the first limiting plane is parallel to a plane where the second mounting surface is located.

[0011] In an exemplary embodiment, the second mounting surface is provided with a second limiting plane, and a hook portion of the second hook is cooperated with the second limiting plane.

[0012] In an exemplary embodiment, an included angle is provided with the second limiting plane and a plane where the second mounting surface is located.

[0013] In an exemplary embodiment, the pressing plate is provided with a first positioning hole for connecting with the base.

[0014] In an exemplary embodiment, the angle-shaped frame is provided with a second positioning hole for connecting with the base.

[0015] In an exemplary embodiment, the indoor unit further includes: a motor base, wherein the motor base is arranged on the base, the top of the motor base is

provided with a pipeline slot for passing through the pipe assembly.

[0016] In an exemplary embodiment, the housing further includes: an air duct assembly detachably disposed on the base, wherein the second end of the pipeline assembly passes through the first mounting surface and extends to a side where the second mounting surface is located.

[0017] In an exemplary embodiment, a side of the base is provided with a protective plate, and an outer surface of the protective plate is provided with a pipeline layout groove for accommodating the pipeline assembly.

[0018] In an exemplary embodiment, an inner surface of the protective plate is provided with a guide structure, and a distance from a surface of the guide structure to a plane where the second mounting surface of the base is located gradually increases in a width direction of the base.

[0019] In an exemplary embodiment, the first side and the second side are provided along a longitudinal direction of the base, and the pipeline assembly includes: a first component section, wherein a first end of the first component section is in communication with a second end of the evaporator and is arranged close to the first side, and a second end of the first component section extends from the first side toward the second side and gradually move away from the first mounting surface; a second component section, wherein a first end of the second component section is in communication with the second end of the first component section, an included angle is provided between an axis of the first component section and an axis of the second component section, and a second end of the second component section extends from the first side toward the second side; a third component section, wherein a first end of the third component section is in communication with the second end of the second component section, an included angle is provided between an axis of the third component section and an axis of the second component section, and a second end of the third component section passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with an outdoor unit.

[0020] In an exemplary embodiment, after the second end of the third component section passes through the first mounting surface and extends to the side where the second mounting surface is located, the second end of the third component section continues to extend in a longitudinal direction of the base.

[0021] In an exemplary embodiment, at least a part of the first component is located in a pipeline slot.

[0022] According to another aspect of the present disclosure, an air conditioner is provided, including an indoor unit, wherein the indoor unit is above-mentioned the indoor unit.

[0023] By applying the technical solution of the present disclosure, the first end of the pipeline assembly is in communication with the evaporator assembly, and the

second end of the pipeline assembly is gradually extended from the first side of the first mounting surface of the base toward the second side of the base, and the second end of the pipeline assembly passes through the second side of the first mounting surface to the second mounting surface and communicates with the outdoor unit, and when the indoor unit is mounted on the mounting base, the first side is located above the second side. In this way, the pipeline assembly communicating with the outdoor unit is provided to arrange from the front of the base of the indoor unit, thereby avoiding the pipeline distribution mode in which the pipeline groove is provided in the back of the indoor unit in the prior art. The pipeline layout of the indoor unit is made more reasonable by adopting the pipeline layout of the pipe assembly in the present application. Furthermore, by means of the pipeline layout of the present application, it can be avoided that the pipeline groove is arranged at the back of the housing. Thus, the overall strength of the housing of the indoor unit is effectively improved, and the installation difficulty of the evaporator assembly is reduced, mechanized assembly of the indoor unit can be realized.

Brief Description of the Drawings

[0024] The accompanying drawings, which form a part of the present application, provide a further understanding of the present disclosure, and the schematic embodiments of the present disclosure and the description thereof are used to explain the present disclosure, and do not limit the present disclosure.

Fig. 1 is a schematic structural view of a first embodiment of an indoor unit according to the present disclosure;

Fig. 2 is a schematic sectional view of a second embodiment of an indoor unit according to the present disclosure;

Fig. 3 is a schematic sectional view of a third embodiment of an indoor unit according to the present disclosure;

Fig. 4 is an assembly schematic structural view of an embodiment of an angle-shaped frame and an evaporator of an indoor unit according to the present disclosure;

Fig. 5 is an assembly schematic structural view of an embodiment of a pressing plate and an evaporator of an indoor unit according to the present disclosure;

Fig. 6 is a schematic structural view of an embodiment of an evaporator assembly of an indoor unit according to the present disclosure;

Fig. 7 is a schematic view of an explosion structure of an embodiment of an evaporator assembly and a base of an indoor unit according to the present disclosure;

Fig. 8 is a schematic view of an explosion structure of an embodiment of an indoor unit according to the

present disclosure;

Fig. 9 is a schematic view of the structure of a first positioning hole in the angle-shaped frame assembly according to the present disclosure.

[0025] Wherein, the drawings include the following reference numerals:

10: housing; 11: base; 12: first connecting hole; 112: second connecting hole; 13: first limiting plane; 14: second limiting plane; 15: air duct assembly; 16: protective plate;
20: evaporator assembly; 21: evaporator; 22, angle-shaped frame assembly; 221, angle-shaped frame; 2211: screw column; 2212: screw hole; 2213: screw column;
222: first hook; 223: pressing plate; 224, second hook; 225, first positioning hole; 226: second positioning hole;
227: protective pipe structure; 228, screw column;
30: pipeline assembly; 31: first component section; 32, second component section; 33: third component section; 34: air pipe; 35: liquid pipe;
40: motor base; 41, pipeline slot; 42: screw mounting hole;
50: wind blades.

Detailed Description of the Embodiments

[0026] It should be noted that the embodiments and the features in the embodiments of the present application can be combined with each other without conflict. Hereinafter, the present disclosure will be described in detail with reference to the accompanying drawings and embodiments.

[0027] It is to be noted that terms used herein only aim to describe specific implementation manners, and are not intended to limit exemplar implementations of this application. Unless otherwise directed by the context, singular forms of terms used herein are intended to include plural forms. Besides, it will be also appreciated that when terms "contain" and/or "include" are used in the description, it is indicated that features, steps, operations, devices, assemblies and/or a combination thereof exist.

[0028] It should be noted that the terms "first" and "second" and the like in the description and claims of the present application and the drawings are used to distinguish similar objects, and do not need to be used to describe a specific order or a precedence order. It is to be understood that the terms so used may be interchanged, where appropriate, such that the embodiments of the present application described herein may be embodied, for example, in an order other than those illustrated or described herein. Moreover, the terms "comprising" and "having" and any variation thereof, are intended to cover not exclusively including, for example, processes, methods, systems, products or apparatuses comprising a se-

ries of steps or units are not necessarily limited to those steps or units that are clearly listed. Instead, other steps or units not expressly listed or inherent to these processes, methods, products or devices may be included.

[0029] For ease of description, spatial relative terms such as "over", "above", "on an upper surface" and "upper" may be used herein for describing a spatial position relation between a device or feature and other devices or features shown in the drawings. It will be appreciated that the spatial relative terms aim to contain different orientations in usage or operation besides the orientations of the devices described in the drawings. For example, if the devices in the drawings are inverted, devices described as "above other devices or structures" or "over other devices or structures" will be located as "below other devices or structures" or "under other devices or structures". Thus, an exemplar term "above" may include two orientations namely "above" and "below". The device may be located in other different modes (rotated by 90 degrees or located in other orientations), and spatial relative descriptions used herein are correspondingly explained.

[0030] Now, exemplary embodiments according to the present application will be described in more detail with reference to the accompanying drawings. However, the exemplary embodiments may be embodied in a variety of different forms and should not be construed as limited to the embodiments set forth herein. It is to be understood that these embodiments are provided so that the disclosure of the present application is thorough and complete, and that the concepts of these exemplary embodiments are fully conveyed to those skilled in the art, in which, for clarity, it is possible to expand the thickness of the layers and regions, and use the same reference numerals to represent the same devices, and thus description thereof will be omitted.

[0031] With reference to Figs. 1 to 9, an indoor unit is provided.

[0032] Specifically, as shown in Figs. 1 and 2, the indoor unit includes a housing 10, an evaporator assembly 20, and a pipeline assembly 30. The housing 10 includes a base 11 having a first mounting surface and a second mounting surface opposite to the first mounting surface. The first mounting surface has a first side and a second side opposite to the first side. The evaporator assembly 20 is connected to the first mounting surface, and the second mounting surface is used for mounting on the mounting base to be mounted. A pipeline assembly 30, the first end of the pipeline assembly 30 is in communication with the evaporator assembly 20, and after the second end of the pipeline assembly 30 extends toward the second side, the second end of the pipeline assembly 30 passes through the second side of the first mounting surface and extends to the side where the second mounting surface is located and communicates with an outdoor unit, wherein when the indoor unit is mounted on a mounting base, the first side is located above the second side.

[0033] In the present embodiment, the first end of the

pipeline assembly is in communication with the evaporator assembly, the second end of the pipeline assembly is gradually extended from the first side of the first mounting surface of the base toward the second side of the base, and the second end of the pipeline assembly passes through the first mounting surface to the side where the second mounting surface is located and communicates with the outdoor unit. When the indoor unit is mounted on the mounting base, the first side is located above the second side. In this way, the pipeline assembly communicating with the outdoor unit is provided to arrange from the front of the base of the indoor unit, thereby avoiding the pipeline distribution mode in which the pipeline groove is provided in the back of the indoor unit in the prior art. The pipeline layout of the indoor unit is made more reasonable by adopting the pipeline layout of the pipe assembly in the present application. Furthermore, by means of the pipeline layout of the present application, it can be avoided that the pipeline groove is arranged at the back of the housing. Thus, the overall strength of the housing of the indoor unit is effectively improved, and the installation difficulty of the evaporator assembly is reduced. mechanized assembly of the indoor unit can be realized.

[0034] A part of the pipeline assembly 30 passes through the first mounting surface and extends to the second mounting surface, and extends along a longitudinal direction of the base 11 for a predetermined distance, then communicates with the outdoor unit. In this way, the installation difficulty with the outdoor unit can be reduced, and the installation efficiency of the air conditioner can be improved. Wherein the extension distance is the extension length of the part of the pipeline assembly, and the length may be less than the length of the base in a longitudinal direction.

[0035] The evaporator assembly 20 includes an evaporator 21 and an angle-shaped frame assembly 22. The angle-shaped frame assembly 22 is mounted on an end of the evaporator 21. The evaporator 21 is detachably disposed on the base 11 by the angle-shaped frame assembly 22. The second end of the pipe assembly 30 gradually extends from the first side of the first mounting surface of the base 11 (as shown by A1 in Figs. 2 and 7) toward the second side of the first mounting surface of the base 11 (as shown by A2 in Figs. 2 and 7) to a predetermined position. This arrangement can effectively improve the connection stability and reliability of the indoor unit. Of course, the base 11 may be provided with a through-hole for passing through the pipeline assembly 30 or an edge of the base is provided with a notch for passing through the pipeline assembly 30.

[0036] Specifically, as shown in Figs. 1 and 4, the angle-shaped frame assembly 22 includes an angle-shaped frame 221 and a pressing plate 223. The angle-shaped frame 221 is connected to the first end of the evaporator 21. The angle-shaped frame 221 is provided with a first hook 222 connected to the base 11, and the base 11 is provided with a first connecting hole 12 cooperated with

the first hook 222. The pressing plate 223 is connected to the second end of the evaporator 21, the pressing plate 223 is provided with a second hook 224 connected to the base 11, the base 11 is provided with a second connecting hole 112 cooperated with the second hook 224, and a part of the pipeline assembly 30 extends from a side of the pressing plate 223. This arrangement can effectively improve the connection reliability of the angle-shaped frame assembly with the housing 10.

[0037] As shown in Fig. 3, the second mounting surface of the base 11 is provided with a first limiting plane 13. The first limiting plane 13 is parallel to a plane where the second mounting surface of the base 11 is located, the first limiting plane 13 is disposed close to the first connecting hole 12, and a hook portion of the first hook 222 and the first limiting plane 13 cooperate with each other, that is, a hook portion surface of the first hook 222 and the first limiting plane 13 are fitted together. As shown in Fig. 2, the second mounting surface of the base 11 is provided with a second limiting plane 14, an included angle is provided between the second limiting plane 14 and the plane where the bottom of the base 11 is located, the second limiting plane 14 is disposed close to the second connecting hole 112, and a hook portion of the second hook 224 and the second limiting plane 14 cooperate with each other. It can be seen from Fig. 2 that the second limiting plane 14 gradually extends obliquely toward a side of a surface of the second mounting surface of the base 11, so that the connection stability between the angle-shaped frame assembly and the housing 10 can be further improved.

[0038] As shown in Fig. 9, in order to further improve the connection stability between the angle-shaped assembly and the housing 10, the pressing plate 223 is provided with a first positioning hole 225 for connecting with the base 11. The angle-shaped frame 221 is provided with a second positioning hole 226 for connecting with the base 11.

[0039] As shown in Figs. 1, 7 and 8, the indoor unit further includes a motor base 40. The motor base 40 is arranged on the base 11, and a top of the motor base 40 is provided with a pipeline slot for passing through the pipeline assembly 30. This arrangement enables the pipeline layout among the components to be more reasonable, making the structure of the entire indoor unit more compact.

[0040] The housing 10 further includes an air duct assembly 15. The air duct assembly 15 is detachably disposed on the base 11, and the second end of the pipeline assembly 30 passes through the first mounting surface and extends to the side where the second mounting surface is located and is located at a side of the air duct assembly 15 (as shown in Fig. 3, when the mounting base is an indoor wall, the second mounting surface of the base is attached to the wall, and the pipeline assembly 30 is located between the air duct assembly 15 and the wall). This arrangement can effectively facilitate the disassembly of the air duct assembly.

[0041] Further, the air duct assembly 15 includes a bottom shell. The bottom shell is detachably disposed on the base 11, the bottom shell is provided with an air duct, and a wind blade 50 is disposed in the air duct. an edge of one side of the base 11 is provided with a protective plate 16, preferably, a protective plate 16 is disposed at the second side of the first mounting surface of the base 11, an outer surface of the protective plate 16 is provided with an accommodating space for accommodating the second end of the pipeline assembly 30, and an inner surface of the protective plate 16 is provided with a guide structure. The distance from the surface of the guide structure to the plane where the first mounting surface of the base 11 is located gradually increases in a width direction of the base 11. Wherein the first side and the second side are two sides along a longitudinal direction of the base 11. In this way, the installation of the air duct assembly can be effectively facilitated, and the function of effectively protecting the pipe assembly can be achieved.

[0042] In particular, the pipeline assembly 30 includes a first component section 31, a second component section 32, and a third component section 33. The first end of the first component section 31 is in communication with a second end of the evaporator 21 and is disposed close to the first side, and a second end of the first component section 31 extends from the first side toward the second side and gradually moves away from the first mounting surface. A first end of the second component section 32 is in communication with the second end of the first component section 31, an included angle is provided between an axis of the first component section 31 and an axis of the second component section 32, and the second end of the second component section 32 extends from the first side toward the second side and gradually away from the first mounting surface. The first end of the third component section 33 is in communication with the second end of the second component section 32, an included angle is provided between an axis of the third component section 33 and an axis of the second component section 32, and a second end of the third component section 33 gradually extends toward the first mounting surface until a second end of the third component section 33 passes through the first mounting surface and extends to a side where the second mounting surface is located. The second end of the third component 33 extends to a bottom of the base 11 on which the evaporator 21 is mounted, and then passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with the outdoor unit. In the present embodiment, the predetermined position is located in the accommodation space below the protective plate 16. In this way, the pipeline layout of the pipeline assembly can be conveniently arranged, and the installation work of the evaporator is conveniently facilitated.

[0043] In order to further make the pipeline layout of the pipeline assembly more reasonable and compact, at

least a part of the first component 31 may be disposed within a pipeline slot 41. In the present embodiment, the pipeline assembly 30 includes an air pipe 34 and a liquid pipe 35, and the air pipe 34 and the liquid pipe 35 are arranged in parallel. Specifically, the base 11 is provided with screw columns 2211, 2213 for connecting with the evaporator assembly, as shown in Fig. 3, angle-shaped frame is provided with two screw holes 2212. Preferably, in order to improve the overall stability of the indoor unit, a top of the motor base is further provided with a screw mounting hole 42.

[0044] The indoor unit in the above embodiments can also be used in the technical field of air conditioner devices, that is, according to another aspect of the present disclosure, an air conditioner is provided. The air conditioner includes an indoor unit, and the indoor unit is the indoor unit in above-mentioned embodiments. The indoor unit includes a housing 10, an evaporator assembly 20 and a conduit assembly 30. The housing 10 includes a base 11 having a first mounting surface and a second mounting surface opposite to the first mounting surface. The evaporator assembly 20 is connected to the first mounting surface, and the second mounting surface is used for mounting on the base to be mounted. The first end of the pipeline assembly 30 is in communication with the evaporator assembly 20, and after the second end of the pipeline assembly 30 gradually extends from the first side of the first mounting surface toward the second side of the first mounting surface opposite to the first side by a predetermined distance, the second end of the pipeline assembly 30 passes through the first mounting surface and extends to the side where the second mounting surface is located and communicates with the outdoor unit.

[0045] In the present embodiment, the first end of the pipeline assembly is in communication with the evaporator assembly, the second end of the pipeline assembly is gradually extends from the first side of the first mounting surface of the base toward the second side of the base, and the second end of the pipeline assembly passes through the first mounting surface and the side where the second mounting surface is located and communicates with the outdoor unit. In this way, the pipeline assembly communicating with the outdoor unit is provided to arrange from the front of the base of the indoor unit, thereby avoiding the pipeline distribution mode in which the pipeline groove is provided in the back of the indoor unit in the prior art. The pipeline layout of the indoor unit is made more reasonable by adopting the pipeline layout of the pipe assembly in the present application. Furthermore, by means of the pipeline layout of the present application, it can be avoided that the pipeline groove is arranged at the back of the housing. Thus, the overall strength of the housing of the indoor unit is effectively improved, and the installation difficulty of the evaporator assembly is reduced, mechanized assembly of the indoor unit can be realized.

[0046] In the present embodiment, the left and right

sides of the evaporator component are respectively provided with a angle-shaped frame and a pressing plate with screws and hooks, and the pipeline is designed to be lifted up and bent forwardly and upwardly, so as to cooperate with a fixation of a motor seat and a pipeline layout groove structure on the base, so that the evaporator component can be directly assembled from the front surface without reversing the whole machine. This arrangement not only improves the assembly efficiency of the whole machine, but also facilitates the maintenance work of disassembly and assembly after sale. The front edge of the base raises for avoiding a pipeline layout, thereby achieving unobstructed assembly and disassembly of the bottom shell component and satisfying the requirement of convenient assembly and disassembly of the bottom shell component.

[0047] As shown in Fig. 7, the motor base component is firstly assembled to the base component, and then the pre-assembled evaporator component is assembled to the base component. The left side of the evaporator component is designed with an angle-shaped frame structure (the angle-shaped frame is fitted together with the evaporator by two screws), the front end of the angle-shaped frame is designed with a hook and a screw column structure cooperated with the base, the back portion of the the angle-shaped frame is provided with a screw column for fixing the bottom shell, and the peripheral structure is a protective pipe structure 227 for protecting the U-shaped pipe of the evaporator and a screw column 228. The right side of the evaporator component is designed with a right pressing plate structure (the right pressing plate is connected to the evaporator by an edge evaporator buckle), the front of the right pressing plate is designed with a hook structure cooperated with the base, the back portion of the right pressing plate is provided with a screw hole cooperated with the motor base, and the pipeline is designed to be raised and bent forwardly and upwardly, and then directly extended to the front of the evaporator component, then bent toward the bottom of the evaporator. Hold the two sides of the evaporator component by hands while assembling, the hooks on the left and right sides are quickly inserted into the left and right hook mounting holes designed on the base to complete preset positioning and mounting, and at this time, the inner side surface of the hook cooperates with the platform surface of the base hook, and this surface is parallel to the bottom surface of the base, thereby ensuring that the mounted evaporator component is smoothly mounted on the base. As shown in Fig. 2, A and B in the figure are evaporator buckles of the right pressing plate.

[0048] The evaporator component is mounted on the base component to realize the pre-positioning and preliminary assembly of the evaporator component, at this time, the evaporator component can be preliminarily stabilized on the base, and the fixing screw holes of the left angle-shaped frame and the base are aligned. Furthermore, a fixing screw hole of the right pressing plate and a fixing screw column hole of the right pressing plate at

the top of the motor base are aligned, and then two fixing screws can be used to directly fix the evaporator component on the base component to complete fixing and assembling of the evaporator component. The whole assembly process only needs to be hanged from the front of the base component, and the whole assembly operation can be completed by bolting the screws, which is simple and quick to assemble.

[0049] After the fixing of the evaporator component and the base is completed, according to the pipeline layout shown in Fig. 5, only a micro-corrective on deformed pipelines is required, so that the pipeline can be arranged along the pipeline layout groove structure at the top of the motor base, then passes downward through the front of the motor base, and extends along the preset pipeline layout avoiding notched of the base to front edge lower portion of the base, and finally, bends to left and extends to the bottom protruding the protective plate of a front edge of the base. In this case, the protective plate structure disposed on the base is protruded and lifted, so that the space at the bottom of the front edge of the base facilitates the pipeline layout. The dismantling process of the bottom shell component always slides along the inclined surfaces generated by the base front edge lifting for the pipeline layout and the base front edge lifting and the protruding protective plate structure can protect the air-liquid pipeline well, so that the bottom shell component can be prevented from colliding during pulling and loading. The disassembly operation of the bottom shell component is facilitated, the production assembly efficiency is improved, and the disassembly of the bottom shell component can also be realized when the user cleans the bottom shell component after sale. In the schematic diagram of the bottom shell component and the base component, the bottom shell component and the bottom shell fixing screw column of the angle-shaped frame and the bottom shell fixing screw column of the right pressing plate are respectively fastened by screws, and since the bottom shell component is slid into the base by the guide rail and then is fastened integrally with the base by screws. At this time, in the completely fastened structure, the front part of the evaporator component and the bottom shell component are merely connected, which also enables the evaporator component to have a screw symmetrically fastened to the hanging hook at four diagonal corners respectively, so that the evaporator component is firmly connected to the base as a whole, thereby avoiding a shaking collision in the fall, and improving the stability of the structure.

[0050] With the air conditioner of the present mechanism, modularization and integration of the structure design of the air conditioner are realized. However, the conventional evaporator back pipeline layout and the left and right asymmetric evaporator fixing structure are used, which not only consumes time of the reversal of the machine in the assembly, but also has poor stability of the overall structure and is less convenient for the removing and maintenance work after sale.

[0051] In addition to the foregoing, it should be noted that "one embodiment", "another embodiment", "an embodiment", and the like referred to in this specification refer to that a specific feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment described in the general description of the present application. The same kind of expression appears in a plurality of places in the description is not necessarily the same embodiment. Further, when a particular feature, structure, or characteristic is described in connection with any embodiment, it is intended that it is within the scope of the present disclosure to implement such feature, structure, or characteristic in connection with other embodiments.

[0052] In the foregoing embodiments, the description of each embodiment is heavily described, and some of the embodiments are not described in detail, and reference may be made to relevant description of other embodiments.

[0053] The foregoing description is merely a preferred embodiment of the present disclosure, and is not intended to limit the present disclosure, and various changes and modifications may be made by those skilled in the art. Any modifications, equivalent replacements and improvements made within the spirit and principle of the present disclosure shall fall within the scope of protection of the present disclosure.

Claims

1. An indoor unit, comprising:

a housing (10), wherein the housing (10) comprises a base (11) having a first mounting surface and a second mounting surface opposite to the first mounting surface, the first mounting surface has a first side and a second side opposite to the first side;

an evaporator assembly (20), wherein the evaporator assembly (20) is connected to the first mounting surface, and the second mounting surface is used for mounting on a mounting base to be mounted; and

a pipeline assembly (30), wherein a first end of the pipeline assembly (30) is in communication with the evaporator assembly (20), and a second end of the pipeline assembly (30) extends toward the second side, then passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with an outdoor unit, wherein the first side is located above the second side when the indoor unit is mounted on the mounting base.

2. The indoor unit as claimed in claim 1, wherein a part of the pipeline assembly (30) passes through the first

mounting surface and extends to the second mounting surface, and extends along a longitudinal direction of the base (11) for a predetermined distance, then communicates with the outdoor unit.

3. The indoor unit as claimed in claim 1, wherein the evaporator assembly (20) comprises:

an evaporator (21); and

an angle-shaped frame assembly (22) mounted on an end of the evaporator (21), the evaporator (21) being detachably disposed on the base (11) by the angle-shaped frame assembly (22).

4. The indoor unit as claimed in claim 3, wherein the angle-shaped frame assembly (22) comprises:

a angle-shaped frame (221), wherein the angle-shaped frame (221) is connected to a first end of the evaporator (21), the angle-shaped frame (221) is provided with a first hook (222) connected to the base (11), the base (11) is provided with a first connecting hole (12) cooperated with the first hook (222).

5. The indoor unit as claimed in claim 3, wherein the angle-shaped frame assembly (22) further comprises:

a pressing plate (223), wherein the pressing plate (223) is connected to a second end of the evaporator (21), and the pressing plate (223) is provided with a second hook (224) connected to the base (11), the base (11) is provided with a second connecting hole (112) cooperated with the second hook (224), and a part of the pipeline assembly (30) extends along a side of the pressing plate (223).

6. The indoor unit as claimed in claim 4, wherein the second mounting surface is provided with a first limiting plane (13), and a hook portion of the first hook (222) is cooperated with the first limiting plane (13).

7. The indoor unit as claimed in claim 6, wherein the first limiting plane (13) is parallel to a plane where the second mounting surface is located.

8. The indoor unit as claimed in claim 5, wherein the second mounting surface is provided with a second limiting plane (14), and a hook portion of the second hook (224) is cooperated with the second limiting plane (14).

9. The indoor unit as claimed in claim 8, wherein an included angle is provided between the second limiting plane (14) and a plane where the second mounting surface is located.

10. The indoor unit as claimed in claim 5, wherein the pressing plate (223) is provided with a first positioning hole (225) for connecting with the base (11).

11. The indoor unit as claimed in claim 4, wherein the angle-shaped frame (221) is provided with a second positioning hole (226) for connecting with the base (11). 5
12. The indoor unit as claimed in claim 1, wherein the indoor unit further comprises:
a motor base (40), wherein the motor base (40) is arranged on the base (11), a top of the motor base (40) is provided with a pipeline slot for passing through the pipeline assembly (30). 10
13. The indoor unit as claimed in claim 3, wherein the housing (10) further comprises:
an air duct assembly (15) detachably disposed on the base (11), wherein the second end of the pipeline assembly (30) passes through the first mounting surface and extends to a side where the second mounting surface is located. 15
14. The indoor unit as claimed in claim 1, wherein a side of the base (11) is provided with a protective plate (16), and an outer surface of the protective plate (16) is provided with a pipeline layout groove for accommodating the pipeline assembly (30). 20
15. The indoor unit as claimed in claim 14, wherein an inner surface of the protective plate (16) is provided with a guide structure, and a distance from a surface of the guide structure to a plane where the second mounting surface of the base (11) is located gradually increases in a width direction of the base (11). 30
16. The indoor unit as claimed in claim 3, wherein the first side and the second side are provided along a longitudinal direction of the base (11), the pipeline assembly (30) comprising: 35
- a first component section (31), wherein a first end of the first component section (31) is in communication with a second end of the evaporator (21) and is arranged close to the first side, and a second end of the first component section (31) extends from the first side toward the second side and gradually moves away from the first mounting surface; 40
- a second component section (32), wherein a first end of the second component section (32) is in communication with the second end of the first component section (31), an included angle is provided between an axis of the first component section (31) and an axis of the second component section (32), a second end of the second component section (32) extends from the first side toward the second side; and 45
- a third component section (33), wherein a first end of the third component section (33) is in communication with the second end of the second component section (32), an included angle is provided between an axis of the third component section (33) and an axis of the second component section (32), a second end of the third component section (33) passes through the second side of the first mounting surface and extends to a side where the second mounting surface is located and communicates with the outdoor unit. 50
17. The indoor unit as claimed in claim 16, wherein after the second end of the third component section (33) passes through the first mounting surface and extends to the side where the second mounting surface is located, the second end of the third component section (33) continues to extend in a longitudinal direction of the base (11). 55
18. The indoor unit as claimed in claim 17, wherein at least a part of the first component section (31) is located in a pipeline slot.
19. An air conditioner, comprising an indoor unit, wherein the indoor unit is the indoor unit as claimed in any one of claims 1 to 18.

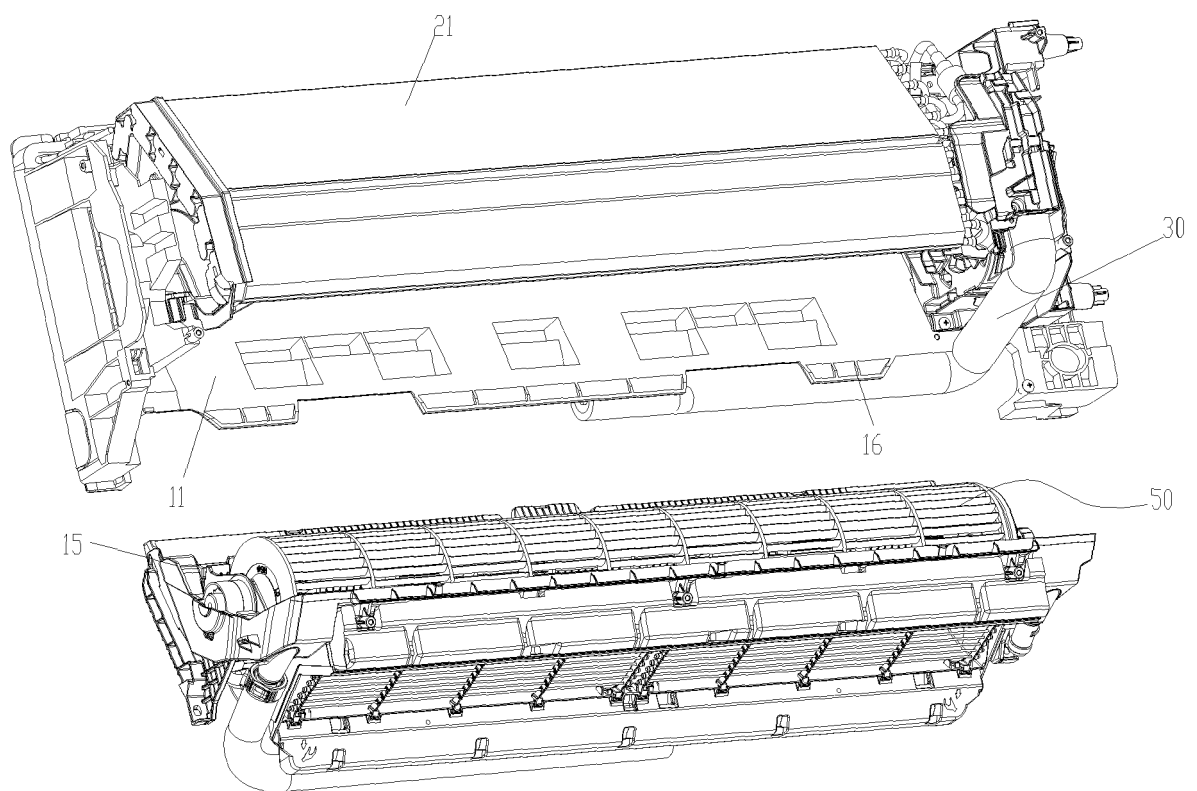


Fig.1

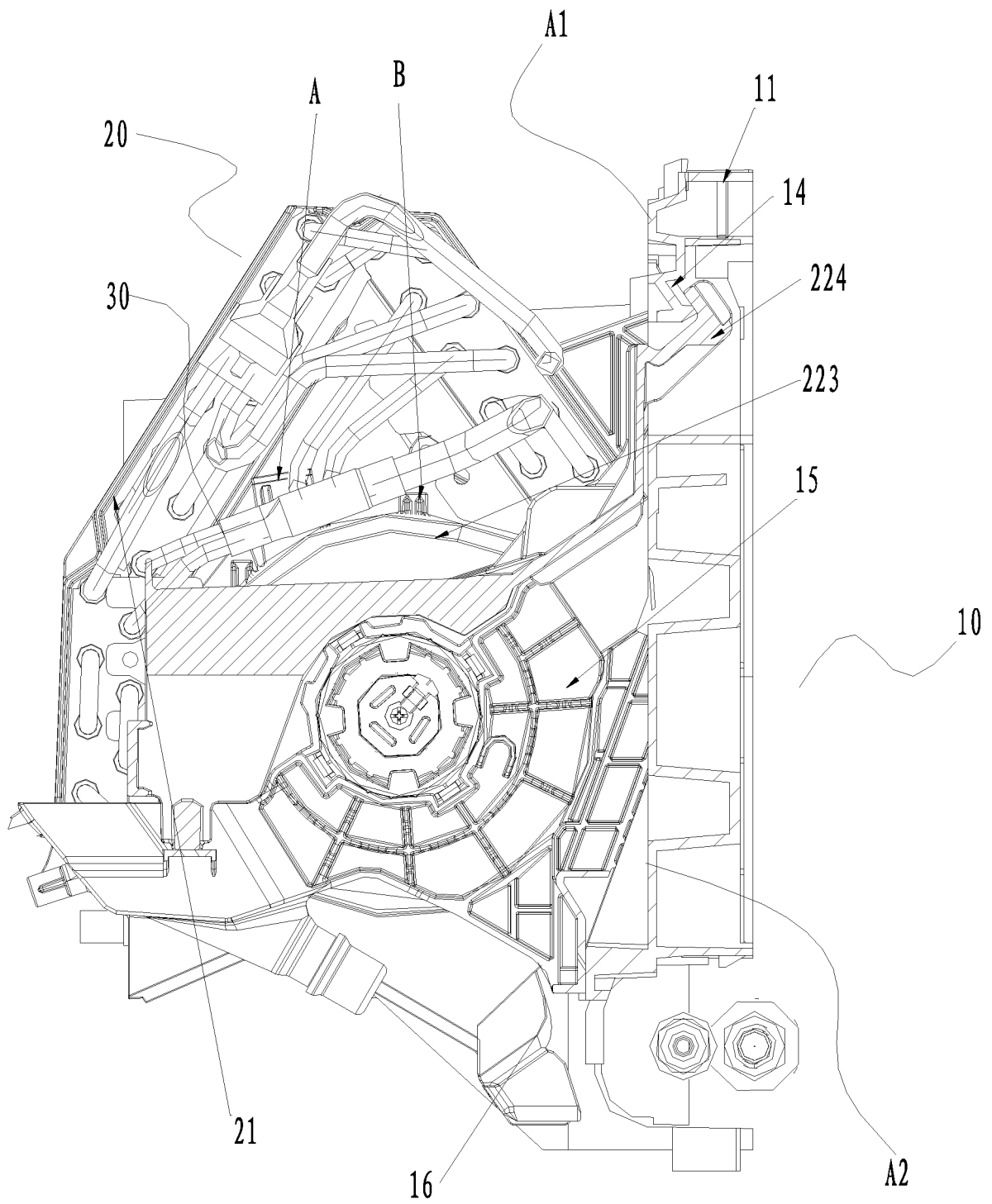


Fig.2

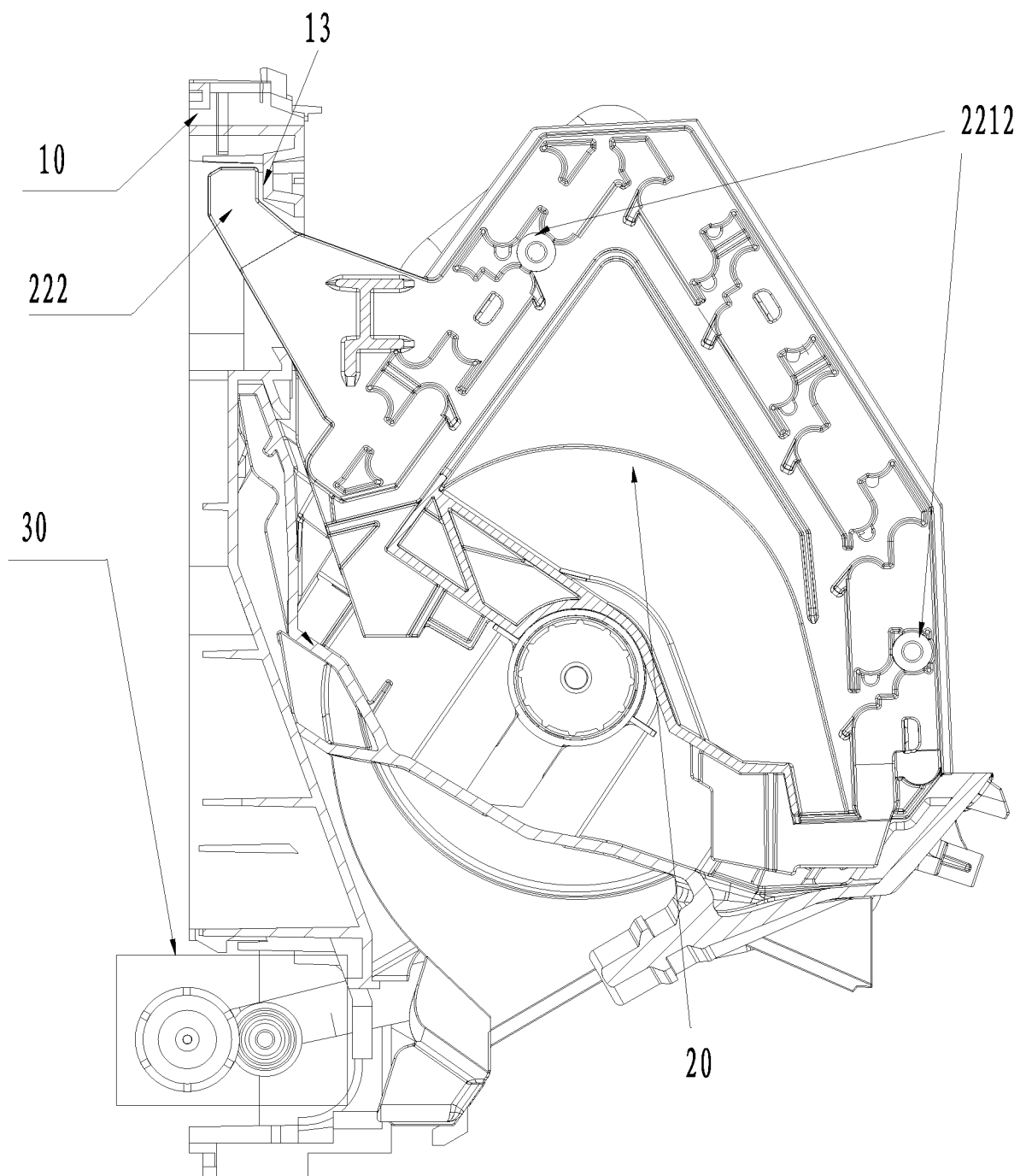


Fig.3

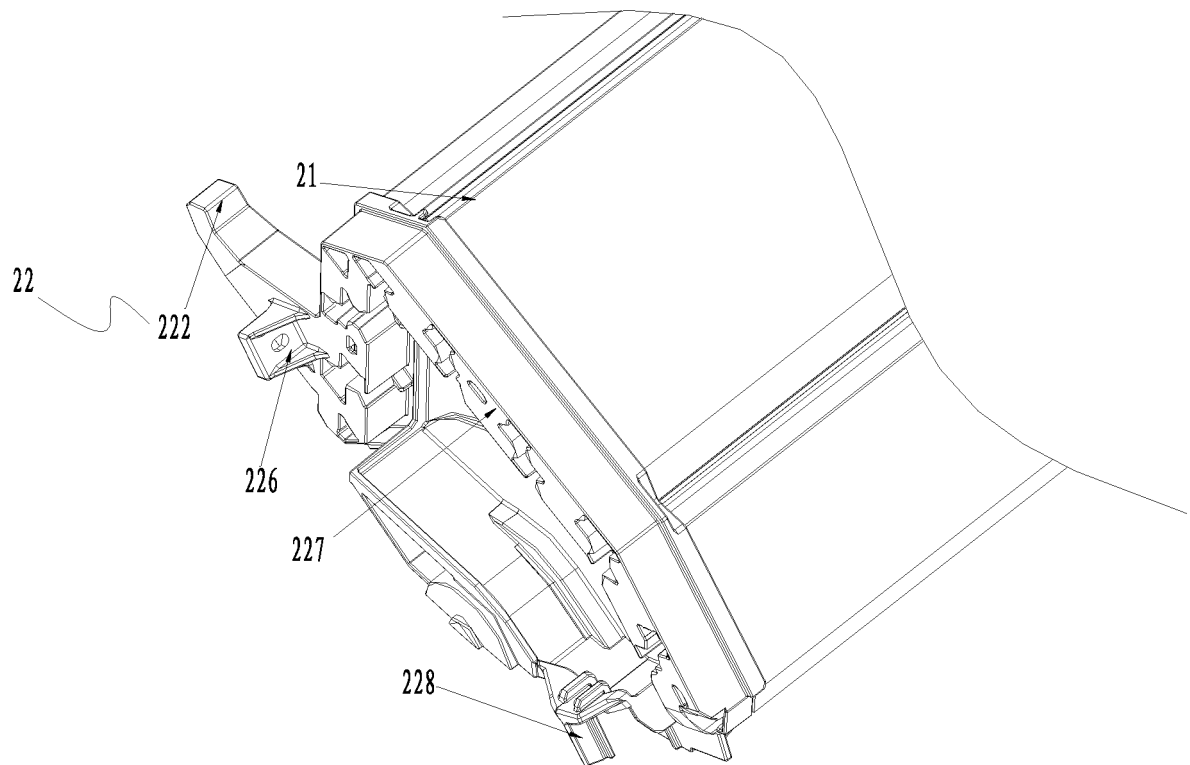
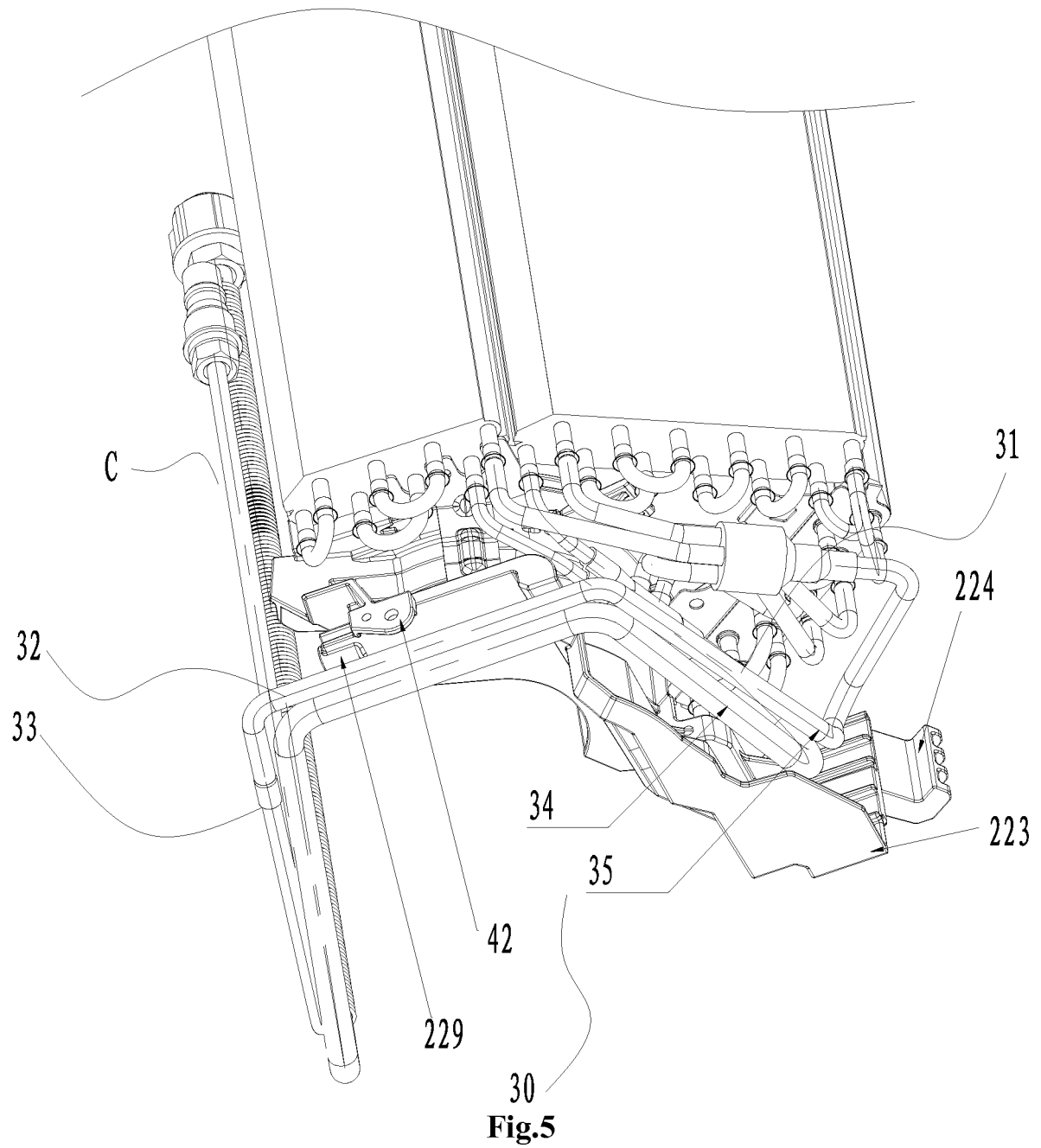


Fig.4



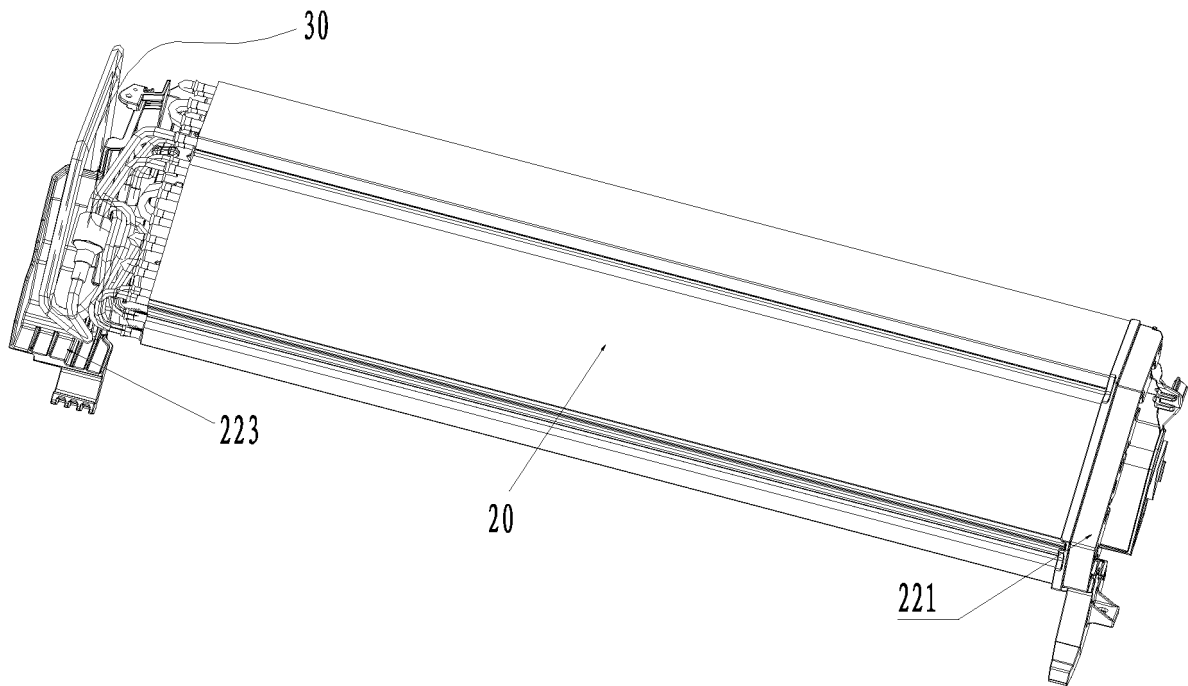


Fig.6

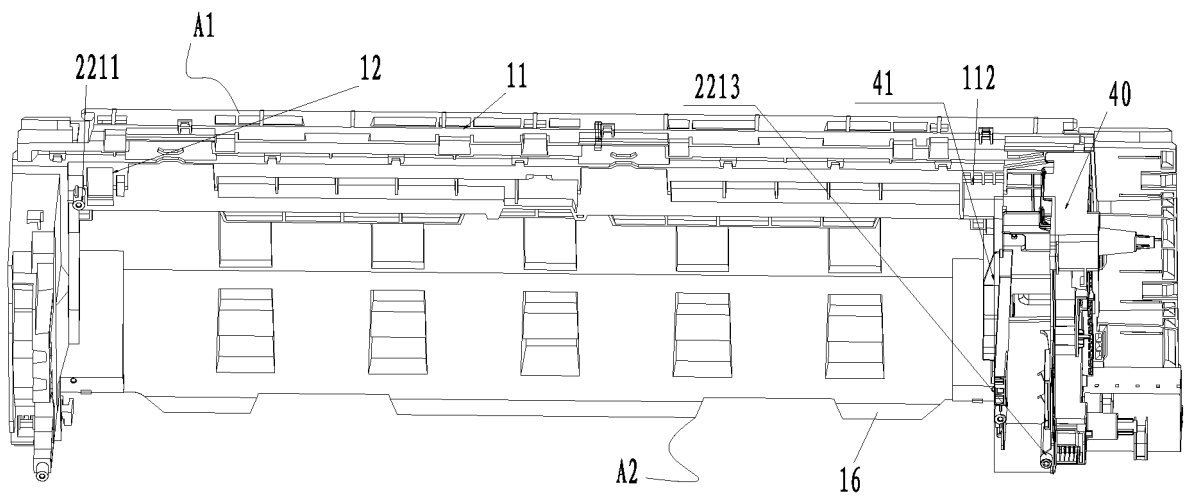


Fig.7

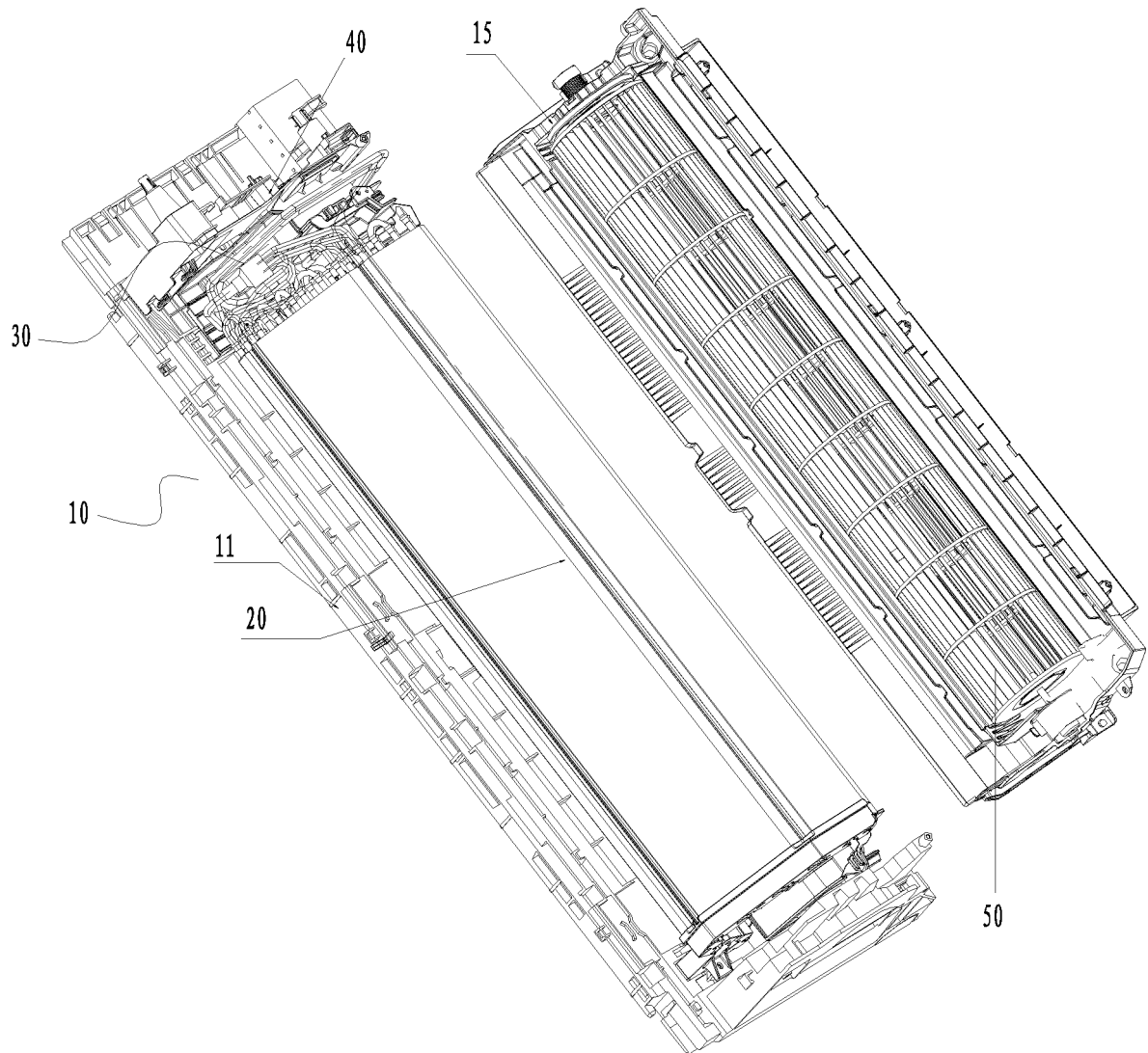


Fig.8

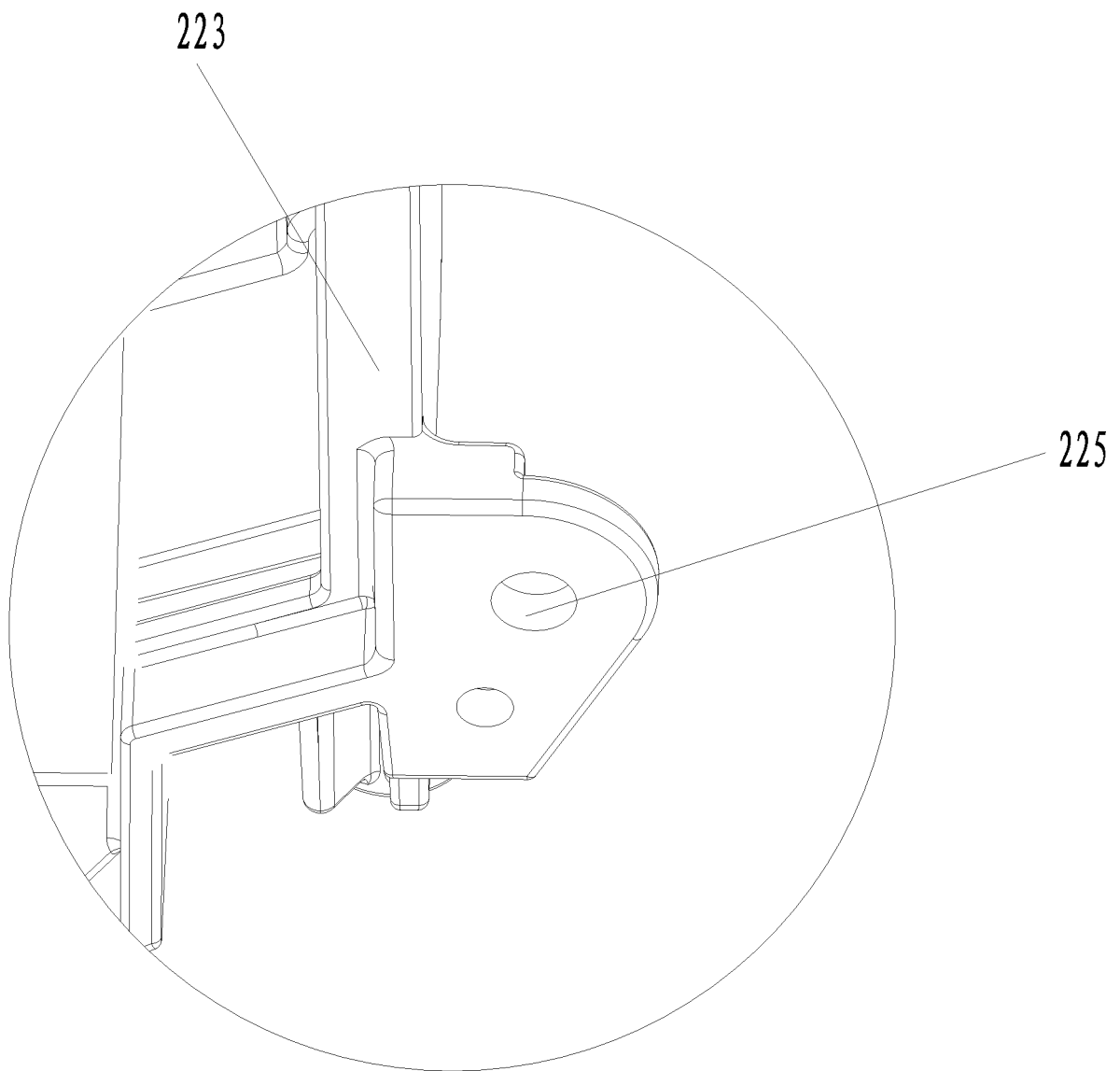


Fig.9

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/103559

A. CLASSIFICATION OF SUBJECT MATTER

F24F 13/30(2006.01)i; F24F 13/02(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, F25B

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)

CNABS, CNTXT, CNKI, DWPI, VEN; 空调, 空气调节, 室内机, 机座, 基座, 底座, 壳体, 支架, 安装, 换热器, 热交换器, 管路, 制冷剂管, air, conditioner, indoor, unit, base, case, shell, housing, bracket, fix, install, arrange, heat, exchanger, pipe, tube, refrigerant

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 203478574 U (DAIKIN INDUSTRIES. LTD.) 12 March 2014 (2014-03-12) description, paragraphs [0042]-[0085], and figures 1-5	1-19
A	CN 204555020 U (MITSUBISHI ELECTRIC CORPORATION) 12 August 2015 (2015-08-12) entire document	1-19
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A	JP 5537872 B2 (SANYO ELECTRIC CO., LTD.) 02 July 2014 (2014-07-02) entire document	1-19
A	JP 2004011941 A (FUJITSU GENERAL LTD.) 15 January 2004 (2004-01-15) entire document	1-19
A	JP 4522877 B2 (SHARP KK) 11 August 2010 (2010-08-11) entire document	1-19
A	JP 6079619 B2 (DAIKIN KOGYO KK) 15 February 2017 (2017-02-15) entire document	1-19

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 19 November 2018	Date of mailing of the international search report 27 November 2018
Name and mailing address of the ISA/CN State Intellectual Property Office of the P. R. China 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
Information on patent family members

International application No.

PCT/CN2018/103559

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Form PCT/ISA/210 (patent family annex) (January 2015)