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(54) **WATER-RECEIVING TRAY, AND INDOOR UNIT**

(57) Provided are a water pan and an indoor unit. The water pan includes: a frame including an annular side wall and a mounting groove body; and a water tray arranged in the mounting groove body. An annular air outlet surrounding the water tray is formed between the annular side wall and the water tray. The annular air outlet is continuously arranged, which reduces a blind region of an air supply at a partition of an air outlet, expands an air supply range, and even enables the indoor unit using the water pan to realize a 360° air supply, improving comfort of use.

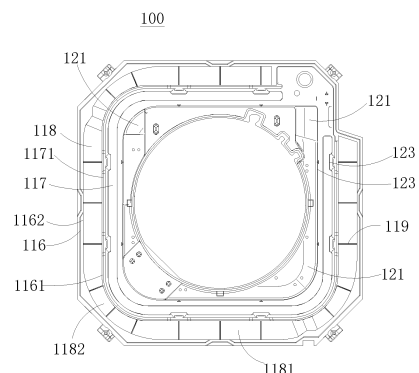


FIG. 18

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Description

[0001] This application claims priorities to Chinese Patent Application No. 2021113950873, titled "WATER PAN AND INDOOR UNIT" and filed on November 23, 2021; Chinese Patent Application No. 2021228884831, titled "WATER PAN AND INDOOR UNIT" and filed on November 23, 2021; Chinese Patent Application No. 2021228777878, titled "CONNECTION DEVICE, AIR GUIDE RING ASSEMBLY, AND AIR CONDITIONER" and filed on November 23, 2021; Chinese Patent Application No. 202122891287X, titled "LIFTING LUG, CASING ASSEMBLY, AIR CONDITIONING INDOOR UNIT, AND AIR CONDITIONER" and filed on November 23, 2021; and Chinese Patent Application No. 202122893392.7, titled "BAFFLE ASSEMBLY AND AIR CONDITIONING INDOOR UNIT HAVING SAME" and filed on November 23, 2021.

FIELD

[0002] The present disclosure belongs to the field of cooling device technologies, and more particularly, to a water pan and an indoor unit.

BACKGROUND

[0003] An indoor unit of a conventional built-in air conditioner with four-direction ventilation has an air outlet layout of four elongated air outlets, or four elongated air outlets (main air outlets) plus two auxiliary air outlets. The four elongated air outlets are in no communication with each other, or the four elongated air outlets are in no communication with the auxiliary air outlets. A material is provided at each partition. Therefore, the air outlets of the air conditioner are discontinuous, which may cause blind regions of an air supply in directions of four corners of the indoor unit of the air conditioner, leading to poor comfort of use.

SUMMARY

[0004] The present disclosure provides a water pan and an indoor unit, to solve a technical problem of blind regions of an air supply in a conventional indoor unit.

[0005] To solve the above technical problem, the present disclosure adopts a technical solution of a water pan. The water pan comprises: a frame comprising an annular side wall and a mounting groove body; and a water tray arranged in the mounting groove body, an annular air outlet surrounding the water tray being formed between the annular side wall and the water tray.

[0006] To solve the above technical problem, the present disclosure adopts another technical solution of an indoor unit. The indoor unit comprises the above-mentioned water pan.

[0007] The present disclosure can provide advantageous effects that: with the annular air outlet continuously

arranged, a blind region of an air supply at a partition of an air outlet is reduced, an air supply range is expanded, and the indoor unit using the water pan can even realize a 360° air supply, improving comfort of use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] In order to clearly explain technical solutions of embodiments of the present disclosure, drawings used in description of the embodiments are briefly described below. Obviously, the drawings as described below are merely some embodiments of the present disclosure. Based on these drawings, other drawings can be obtained by those skilled in the art without creative effort.

FIG. 1 is a schematic view of a partial structure of a water pan according to some embodiments of the present disclosure.

FIG. 2 is a schematic view of another partial structure of a water pan according to some embodiments of the present disclosure.

FIG. 3 is a schematic structural view of a water pan at which a sterilization container is placed according to some embodiments of the present disclosure.

FIG. 4 is a schematic structural view of a water pan at which a drainage pump is placed according to some embodiments of the present disclosure.

FIG. 5 is a schematic structural view of a water pan at which a water level switch is placed according to some embodiments of the present disclosure.

FIG. 6 is a schematic structural view of a sterilization container of a water pan according to some embodiments of the present disclosure.

FIG. 7 is a schematic view of an overall structure of a water pan according to some other embodiments of the present disclosure.

FIG. 8 is a schematic exploded view of a structure of a water pan according to some other embodiments of the present disclosure.

FIG. 9 is a schematic view of a partial structure of a water pan according to some other embodiments of the present disclosure.

FIG. 10 is a schematic cross-sectional view of a structure of a water pan according to some other embodiments of the present disclosure.

FIG. 11 is an enlarged view of part A in FIG. 10.

FIG. 12 is a schematic structural view of a boss of a water pan according to some other embodiments of the present disclosure.

FIG. 13 is a schematic cross-sectional view of a structure of a water pan according to yet some other embodiments of the present disclosure.

FIG. 14 is an enlarged view of part B in FIG. 13.

FIG. 15 is a schematic cross-sectional view of a structure of a water pan according to still yet some other embodiments of the present disclosure.

FIG. 16 is an enlarged view of part C in FIG. 15.

FIG. 17 is a schematic structural view of a chamfer

of a water pan according to some other embodiments of the present disclosure, the chamfer comprising a plurality of chamfer segments.

FIG. 18 is a schematic view of an overall structure of a water pan according to yet some other embodiments of the present disclosure.

FIG. 19 is a schematic structural view of a connection rib of a water pan according to some other embodiments of the present disclosure.

FIG. 20 is a schematic view of an overall structure of a water pan according to still yet some other embodiments of the present disclosure.

FIG. 21 is a schematic cross-sectional view of a structure of a water pan according to still yet some other embodiments of the present disclosure.

FIG. 22 is a schematic view of an overall structure of an indoor unit according to some embodiments of the present disclosure.

FIG. 23 is a schematic view of a mounting structure of a sterilization container of an indoor unit according to some embodiments of the present disclosure.

FIG. 24 is a schematic view of another mounting structure of a sterilization container of an indoor unit according to some embodiments of the present disclosure.

FIG. 25 is a schematic cross-sectional view of a structure of an indoor unit according to some other embodiments of the present disclosure.

FIG. 26 is an enlarged view of part D in FIG. 25.

FIG. 27 is a schematic cross-sectional view of a structure of an indoor unit according to yet some other embodiments of the present disclosure.

FIG. 28 is an enlarged view of part E in FIG. 27.

FIG. 29 is a schematic perspective view of a structure of a support member of an indoor unit according to yet some other embodiments of the present disclosure.

FIG. 30 is a schematic structural view of a resilient cushion of an indoor unit according to still yet some other embodiments of the present disclosure.

FIG. 31 illustrates a schematic structural view of a connection device according to some embodiments of the present disclosure.

FIG. 32 illustrates a schematic cross-sectional view of the connection device in FIG. 31.

FIG. 33 illustrates a schematic structural view of a connection device according to some other embodiments of the present disclosure.

FIG. 34 illustrates a schematic cross-sectional view of the connection device in FIG. 33.

FIG. 35 illustrates a schematic structural view of a connection device according to yet some other embodiments of the present disclosure.

FIG. 36 illustrates a schematic cross-sectional view of the connection device in FIG. 35.

FIG. 37 illustrates a schematic structural view of a connection device according to still yet some other embodiments of the present disclosure.

FIG. 38 illustrates a schematic cross-sectional view of the connection device in FIG. 35.

FIG. 39 illustrates a schematic structural view of an air guide ring assembly according to some embodiments of the present disclosure.

FIG. 40 illustrates a schematic structural view of the air guide ring assembly in FIG. 39 viewed from another angle.

FIG. 41 illustrates a cross-sectional view of the air guide ring assembly in FIG. 40 taken in a direction A-A.

FIG. 42 illustrates a partially enlarged view of part F in FIG. 41.

FIG. 43 is a schematic view of a baffle assembly according to some embodiments of the present disclosure.

FIG. 44 is a schematic view of an air conditioning indoor unit according to some embodiments of the present disclosure.

FIG. 45 is a schematic view of a second sealing plate according to some embodiments of the present disclosure.

FIG. 46 is a main view of a first sealing plate according to some embodiments of the present disclosure.

FIG. 47 is a top view of a first sealing plate according to some embodiments of the present disclosure.

FIG. 48 is a perspective view of a first sealing plate according to some embodiments of the present disclosure.

FIG. 49 is a schematic view of a first sealing plate according to some embodiments of the present disclosure.

FIG. 50 is a schematic structural view of a lifting lug according to some embodiments of the present disclosure.

FIG. 51 is a schematic structural view of a lifting lug according to some embodiments of the present disclosure, viewed from another angle.

FIG. 52 is a schematic view of a partial structure of an air conditioning indoor unit according to some embodiments of the present disclosure.

FIG. 53 is a schematic view of a partial structure of an air conditioning indoor unit according to some embodiments of the present disclosure, viewed from another angle.

FIG. 54 is a partial cross-sectional view of an air conditioning indoor unit according to some embodiments of the present disclosure.

FIG. 55 is a schematic structural view of a side plate in FIG. 52.

FIG. 56 is a schematic structural view of a water pan of an air conditioning indoor unit according to some embodiments of the present disclosure.

FIG. 57 is an enlarged view of part G in FIG. 56.

FIG. 58 is a schematic structural view of a water holding tray of a water pan of an air conditioning indoor unit according to some embodiments of the present disclosure.

FIG. 59 is an enlarged view of part H in FIG. 58.

FIG. 60 is a schematic view of a partial structure of an air conditioning indoor unit in the related art.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0009] Technical solutions according to embodiments of the present disclosure will be described clearly and completely below in combination with accompanying drawings of the embodiments of the present disclosure. Obviously, the embodiments described below are only a part of the embodiments of the present disclosure, rather than all embodiments of the present disclosure. On a basis of the embodiments of the present disclosure, all other embodiments obtained by those skilled in the art without creative labor shall fall within the protection scope of the present disclosure.

[0010] The technical solutions according to the embodiments of the present disclosure will be described clearly and completely below in combination with the accompanying drawings of the embodiments of the present disclosure. It should be understood that, the specific embodiments described herein are only used to explain, rather than limiting, the present disclosure. In addition, it should also be noted that, for convenience of description, only part but not all structures related to the present disclosure are illustrated in the accompanying drawings. On a basis of the embodiments of the present disclosure, all other embodiments obtained by those skilled in the art without creative labor shall fall within the protection scope of the present disclosure.

[0011] The technical solutions according to the embodiments of the present disclosure will be described clearly and completely below in combination with accompanying drawings of the embodiments of the present disclosure. Obviously, the embodiments described below are only a part of the embodiments of the present disclosure, rather than all embodiments of the present disclosure. On a basis of the embodiments of the present disclosure, all other embodiments obtained by those skilled in the art without creative labor shall fall within the protection scope of the present disclosure.

[0012] Reference to "embodiment" herein means that a particular feature, structure, or characteristic described in conjunction with the embodiment may be comprised in at least one embodiment of the present disclosure. The presence of the term at each place in the specification does not necessarily refer to the same embodiment, nor does it refer to a separate or alternative embodiment that is mutually exclusive of other embodiments. It should be understood by those skilled in the art, both explicitly and implicitly, that the embodiments described herein may be combined with other embodiments.

[0013] A water pan 100 is provided according to some embodiments of the present disclosure. As illustrated in FIG. 1, the water pan 100 comprises a water receiving groove bottom surface 101. The water receiving groove bottom surface 101 has a recessed portion 1011. It

should be understood that a bottom surface of the recessed portion 1011 is lower than the water receiving groove bottom surface 101. Accumulated water received in the water pan 100 flows towards the recessed portion 1011 at a lower position by gravity.

[0014] In some embodiments, as illustrated in FIG. 3, the recessed portion 1011 is internally provided with a sterilization container 102. The sterilization container 102 is capable of killing molds in the accumulated water and reducing odors from the molds after being in contact with the accumulated water, solving a hygienic problem caused by the accumulated water. In the related art, the sterilization container 102 is disposed at a relatively high position, and when there is little accumulated water in the water pan 100, an effective sterilizing position in the sterilization container 102 is unable to come into contact with the accumulated water, failing to achieve an effective sterilizing effect. Therefore, problems of the molds and the odors caused by the accumulated water still exist. However, the sterilization container 102 according to the embodiments of the present disclosure is disposed in the recessed portion 1011. As long as there is accumulated water in the water pan 100, even when there is little accumulated water, the accumulated water gathers in the recessed portion 1011, which allows the sterilization container 102 disposed in the recessed portion 1011 to be effectively brought into contact with the accumulated water to sterilize and deodorize the accumulated water, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0015] In some embodiments, as illustrated in FIG. 4, the recessed portion 1011 is internally provided with a drainage pump 103. When a height of the accumulated water is higher than that of a pump body 1031 of the drainage pump 103 and satisfies an operation condition of the drainage pump 103, the drainage pump 103 can pump water to achieve a purpose of thorough drainage. In comparison with the related art, the accumulated water flows into and gathers in the recessed portion 1011 when there is accumulated water, even when there is little accumulated water, in the water pan 100 according to the embodiments of the present disclosure, in such a manner that the operation condition of the drainage pump 103 is easier to be satisfied. The drainage pump 103 can achieve the purpose of thorough drainage in a case of little accumulated water, which reduces an amount of the accumulated water and a duration of water accumulation to avoid the molds and the odors generated by the accumulated water, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0016] In some embodiments, as illustrated in FIG. 5, the recessed portion 1011 is internally provided with a water level switch 104. When the height of the accumulated water is higher than that of a float structure 1041 of the water level switch 104, the float structure 1041 drives the water level switch 104 to issue an early warning to achieve the purpose of thorough drainage. In comparison with the related art, in the water pan 100 according

to the embodiments of the present disclosure, the accumulated water flows into and gathers in the recessed portion 1011 when there is accumulated water, even when there is little accumulated water, in such a manner that an operation condition of the water level switch 104 is easier to be satisfied. The water level switch 104 can achieve a purpose of issuing the early warning in a case of little accumulated water, to detect and solve a problem of water accumulation at an early stage and to reduce an amount of the accumulated water and a duration of water accumulation, which avoid the molds and the odors generated by the accumulated water, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0017] It should be noted that, one of at least one drainage pump 103, at least one sterilization container 102, and at least one water level switch 104 may be disposed in the recessed portion 1011. Also, two or three of at least one drainage pump 103, at least one sterilization container 102, and at least one water level switch 104 may be disposed in the recessed portion 1011.

[0018] As illustrated in FIG. 3, the sterilization container 102 is disposed in the recessed portion 1011.

[0019] In some embodiments, the recessed portion 1011 comprises a recessed portion bottom surface 1012 and a recessed portion side surface 1013. The recessed portion side surface 1013 is connected to the water receiving groove bottom surface 101 and the recessed portion bottom surface 1012. In addition, the recessed portion side surface 1013 is inclined. The inclined recessed portion side surface 1013 is configured to direct water to flow from the water receiving groove bottom surface 101 to the recessed portion bottom surface 1012. In addition, the inclined recessed portion side surface 1013 may further serve as a buffer to prevent large-particle impurities from blocking the sterilization container 102.

[0020] Exemplarily, the recessed portion side surface 1013 may be disposed only at one side of the sterilization container 102. Of course, to facilitate a smooth flow of the accumulated water from the water receiving groove bottom surface 101 into the recessed portion 1011, the recessed portion side surface 1013 may be disposed at each of a plurality of sides of the sterilization container 102 and arranged based on a positional relation between the water pan 100 and the recessed portion 1011. The present disclosure is not limited in this regard. The recessed portion bottom surface 1012 may be formed into various shapes, e.g., a round shape, an oval shape, or a square shape.

[0021] In some embodiments, the recessed portion bottom surface 1012 of the recessed portion 1011 is provided with the sterilization container 102, in such a manner that the sterilization container 102 is mounted at a lowest position to effectively come into contact with the accumulated water at a fastest speed for sterilization and deodorization, effectively solving the hygiene problem caused by the accumulated water in the water pan 100.

[0022] The sterilization container 102 has a flow guide

hole 1021. The flow guide hole 1021 may be formed at each of a side surface and a bottom surface of the sterilization container 102 to bring a water flow from an outside into contact with an active substance, facilitating effective contact between the accumulated water and the sterilization container 102.

[0023] To facilitate the effective contact between the sterilization container 102 and the accumulated water, the sterilization container 102 is spaced apart from at least one recessed portion side surface 1013 of the recessed portion 1011 to facilitate an inflow of the accumulated water into the recessed portion 1011 and effective contact of the accumulated water with the sterilization container 102, which provides effective sterilization, avoiding the molds and the odors generated by the accumulated water in the water pan 100. In addition, arranging the sterilization container 102 to be spaced apart from the recessed portion side surface 1013 can prevent impurities from directly coming into contact with the sterilization container 102 after flowing into the recessed portion 1011, which can prevent the impurities from blocking a periphery of the sterilization container 102, maintaining the effective sterilization of the sterilization container 102.

[0024] To facilitate mounting and positioning of the sterilization container 102, as illustrated in FIG. 1, FIG. 3, and FIG. 6, the recessed portion bottom surface 1012 is provided with a positioning protrusion 1014, and correspondingly the sterilization container 102 has a positioning groove 1022. When mounted, the sterilization container 102 may be positioned in the recessed portion 1011 simply by placing the sterilization container 102 in the recessed portion 1011 and snapping the positioning protrusion 1014 at the positioning groove 1022. If the recessed portion bottom surface 1012 has a sufficient thickness, the recessed portion bottom surface 1012 may have the positioning groove 1022, and the sterilization container 102 may be correspondingly provided with the positioning protrusion 1014. The sterilization container 102 is positioned in the recessed portion 1011 by snapping the positioning protrusion 1014 at the positioning groove 1022.

[0025] To facilitate fixation of the sterilization container 102, as illustrated in FIG. 1, the recessed portion 1011 is internally provided with mounting snaps 1025 configured to fix the sterilization container 102 in the recessed portion 1011. The mounting snaps 1025 are located at opposite sides of the sterilization container 102. When the sterilization container 102 is placed in the mounting snaps 1025, the mounting snaps 1025 undergo a slight deformation. When the sterilization container 102 is mounted in place, the mounting snaps 1025 fix the sterilization container 102. The sterilization container 102 is conveniently mounted. Exemplarily, a plurality of groups of mounting snaps 1025 may be provided, and disposed at any opposite sides of the sterilization container 102 based on a layout of the recessed portion 1011 and the sterilization container 102 to stably fix the sterilization container 102.

[0026] In some embodiments, large-particle impurities may appear in the accumulated water. The large-particle impurities may block a periphery of a sterilization unit after flowing into the recessed portion 1011. To avoid the above situation, the recessed portion bottom surface 1012 is provided with an isolation rib (not illustrated in the figures) located between the recessed portion side surface 1013 and the sterilization container 102. The isolation rib is vertically arranged for isolation of large impurities, filaments, or the like to avoid blocking of a flow path, which maintains sterilization of the sterilization container 102, and inhibits generation of the molds and the odors, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0027] As illustrated in FIG. 4, when the drainage pump 103 is disposed in the recessed portion 1011, the design of the water pan 100 may be substantially the same as that in the above embodiments when the sterilization container 102 is disposed in the recessed portion 1011, and thus details thereof will be omitted here. A structure of the water pan 100 when the drainage pump 103 is disposed in the recessed portion 1011 is briefly described below.

[0028] In some embodiments, the recessed portion 1011 is provided with a pump body 1031 of the drainage pump 103. Simply by disposing the pump body 1031 in the recessed portion 1011, drainage of the drainage pump 103 can be realized when a depth of the accumulated water in the recessed portion 1011 satisfies the operation condition of the pump body 1031.

[0029] A depth of the recessed portion 1011 should be greater than a height of the pump body 1031 from the recessed portion bottom surface 1012, in such a manner that when the accumulated water in the water pan 100 has a low water level, the accumulated water flows into the recessed portion 1011. The accumulated water in the recessed portion 1011 may be also over the pump body 1031. The drainage pump 103 may perform drainage as long as the operation condition of the drainage pump 103 is satisfied, which achieves the purpose of thorough drainage, completely solving the hygienic problem caused by the accumulated water in the water pan 100.

[0030] Exemplarily, a diameter of the recessed portion 1011 should be greater than a diameter of the pump body 1031 of the drainage pump 103, in such a manner that the pump body 1031 of the drainage pump 103 can reach deep into the recessed portion 1011.

[0031] Exemplarily, the recessed portion bottom surface 1012 may be formed into various shapes, e.g., a round shape, an oval shape, or a square shape.

[0032] In some embodiments, the recessed portion 1011 comprises the recessed portion bottom surface 1012 and the recessed portion side surface 1013. The recessed portion side surface 1013 is connected to the water receiving groove bottom surface 101 and the recessed portion bottom surface 1012. In addition, the recessed portion side surface 1013 is inclined. The inclined recessed portion side surface 1013 is configured to direct

water to flow from the water receiving groove bottom surface 101 to the recessed portion bottom surface 1012. In addition, the inclined recessed portion side surface 1013 may further serve as a buffer to prevent large-particle impurities from affecting a normal operation of the pump body 1031 of the drainage pump 103.

[0033] Exemplarily, the recessed portion side surface 1013 may be disposed only at one side of the drainage pump 103. Of course, to facilitate a smooth flow of the accumulated water from the water receiving groove bottom surface 101 into the recessed portion 1011, the recessed portion side surface 1013 may be disposed at each of a plurality of sides of the drainage pump 103 and arranged based on a positional relation between the water pan 100 and the recessed portion 1011. The present disclosure is not limited in this regard.

[0034] In some embodiments, large-particle impurities may appear in the accumulated water. The large-particle impurities may affect an operation of the drainage pump 103 after flowing into the recessed portion 1011. To avoid the above situation, the isolation rib is disposed at the recessed portion bottom surface 1012. The isolation rib is located between the recessed portion side surface 1013 and the drainage pump 103. The isolation rib is vertically arranged for isolation of large impurities, filaments, or the like to avoid blocking of the flow path, which maintains performance of the drainage pump 103, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0035] As illustrated in FIG. 5, when the water level switch 104 is disposed in the recessed portion 1011, the design of the water pan 100 may be substantially the same as that in the above embodiments when the sterilization container 102 is disposed in the recessed portion 1011, and thus details thereof will be omitted here. A structure of the water pan 100 when the water level switch 104 is disposed in the recessed portion 1011 is briefly described below.

[0036] In some embodiments, the recessed portion 1011 is provided with the float structure 1041 of the water level switch 104. Simply by disposing the float structure 1041 in the recessed portion 1011, an early warning can be issued by the water level switch 104 when the depth of the accumulated water in the recessed portion 1011 satisfies the operation condition of the float structure 1041.

[0037] The depth of the recessed portion 1011 should be greater than a height of the float structure 1041 from the recessed portion bottom surface 1012, in such a manner that when the accumulated water in the water pan 100 has a low water level, the accumulated water flows into the recessed portion 1011, and the accumulated water in the recessed portion 1011 may also be at a height that allows the accumulated water to be in contact with the float structure 1041 and makes the float structure 1041 float. As long as an operation condition of the float structure 1041 can be satisfied, the water level switch 104 may issue an early warning to lower a water level at

which the water level switch 104 issues the early warning. Lowering the water level at which the water level switch 104 issues the early warning can detect and solve the problem of water accumulation at an early stage and reduce the amount of the accumulated water and the duration of water accumulation, which avoids the molds and the odors generated by the accumulated water, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0038] In addition, when an indoor unit 200 is mounted obliquely and the water level of the water pan 100 is high at one side and low at the other side, the water level switch 104 in the related art is unable to recognize an abnormality in the water level. The water level switch 104 according to the embodiments of the present disclosure can recognize the abnormality in the water level to issue the early warning, preventing an overflow of water.

[0039] Exemplarily, the diameter of the recessed portion 1011 should be greater than the diameter of the float structure 1041, in such a manner that the float structure 1041 can reach deep into the recessed portion 1011.

[0040] Exemplarily, the recessed portion bottom surface 1012 may be formed into various shapes, e.g., a round shape, an oval shape, or a square shape.

[0041] In some embodiments, the recessed portion 1011 comprises the recessed portion bottom surface 1012 and the recessed portion side surface 1013. The recessed portion side surface 1013 is connected to the water receiving groove bottom surface 101 and the recessed portion bottom surface 1012. In addition, the recessed portion side surface 1013 is inclined. The inclined recessed portion side surface 1013 is configured to direct water to flow from the water receiving groove bottom surface 101 to the recessed portion bottom surface 1012. In addition, the inclined recessed portion side surface 1013 may further serve as a buffer to prevent large-particle impurities from affecting a normal operation of the float structure 1041 of the water level switch 104.

[0042] Exemplarily, the recessed portion side surface 1013 may be disposed only at one side of the drainage pump 103. Of course, to facilitate a smooth flow of the accumulated water from the water receiving groove bottom surface 101 into the recessed portion 1011, the recessed portion side surface 1013 may be disposed at each of a plurality of sides of the water level switch 104 and arranged based on a positional relation between the water pan 100 and the recessed portion 1011. The present disclosure is not limited in this regard.

[0043] In some embodiments, large-particle impurities may appear in the accumulated water. The large-particle impurities may affect an operation of the water level switch 104 after flowing into the recessed portion 1011. To avoid the above situation, the isolation rib is disposed at the recessed portion bottom surface 1012. The isolation rib is located between the recessed portion side surface 1013 and the water level switch 104. The isolation rib is vertically arranged for isolation of large impurities, filaments, or the like to avoid blocking of the flow path,

which maintains performance of the water level switch 104, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0044] It was found that typically, a water suction platform of the drainage pump 103 is arranged at a same position as a drainage hole channel 105 and the drainage hole channel 105 is below the water suction platform, which is prone to cause the following problems.

1. Considering that a drainage plug 106 of the drainage hole channel 105 occupies a certain thickness, to ensure a basic thickness of the drainage plug 106, the water suction platform has an inadequate depth, in such a manner that the drainage pump 103 has a high pumping liquid level surface, which may cause water accumulation of the water pan 100, creating problems such as condensation of the water pan 100 due to a low temperature, molds, rust, blocking of the water pan 100 triggered by impurities caused by rust, and a low output due to possible soaking of a heat exchanger 204.

2. The drainage hole channel 105 is arranged at an unsatisfying position in the layout of the drainage hole channel 105. When the drainage hole channel 105 is positioned adjacent to an edge position of the water pan 100, the drainage hole channel 105 and the drainage plug 106 may be blocked by a mounted panel, which tends to create problems such as that: when drainage is required, the panel has to be removed, which is inconvenient for maintenance. When a water leakage occurs at the drainage plug 106, water spreads to other regions and drips since a panel sponge is tightly pressed against the drainage plug 106, and thus it is uneasy to find out the problem, making maintenance and a judgment uneasy.

3. Limited by its structure, the drainage plug 106 in the drainage hole channel 105 has an insufficient effective sealing depth, which may cause a failure of a leakage due to aging and a sealant failure.

[0045] Some further embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 7 to FIG. 9, the water pan 100 comprises the water receiving groove bottom surface 101. The recessed portion 1011 and the drainage hole channel 105 are formed at the water receiving groove bottom surface 101. The recessed portion 1011 is spaced apart from the drainage hole channel 105. The recessed portion 1011 is used for placement of a water suction opening of the drainage pump 103. That is, the water suction opening of the drainage pump 103 is formed in the recessed portion 1011, and the drainage hole channel 105 is provided with the drainage plug 106.

[0046] By spacing the drainage hole channel 105 apart from the recessed portion 1011, no drainage hole channel 105 needs to be formed in the recessed portion 1011 under a condition of a constant thickness of the water

pan 100, eliminating a need to consider a thickness of the drainage plug 106. When the recessed portion 1011 has a deeper depth, the drainage pump 103 may have a lower pumping liquid level surface, in such a manner that condensed water in the water pan 100 can be evacuated more effectively to avoid easy water accumulation of the water pan 100, and further to avoid the problems such as condensation of the water pan 100 due to a low temperature, molds, rust, blocking of the water pan 100 triggered by impurities caused by rust, and a low output due to possible soaking of the heat exchanger 204. In addition, considering that the recessed portion 1011 is spaced apart from the drainage hole channel 105, the drainage hole channel 105 may be arranged at a position unblocked by the panel to facilitate drainage, a failure judgment of the drainage plug 106, and maintenance without disassembling the panel. In addition, since the recessed portion 1011 is spaced apart from the drainage hole channel 105, the drainage hole channel 105 can deepen the sealing depth to facilitate structural sealing, reducing a possibility of a water leakage at the drainage plug 106 due to a failure of the drainage plug 106.

[0047] As illustrated in FIG. 9, a direction X is marked. An arrow of the direction X represents a down direction, i.e., a direction such as a lower end, a bottom, and a bottom surface. Similarly, a direction opposite to the direction X represents an upper direction, i.e., a direction such as an upper end, a top, and a top surface. A bottom of the recessed portion 1011 has a thickness ranging from 10 mm to 18 mm, such as 10 mm, 12 mm, 16 mm, or 18 mm. An appropriate thickness of the bottom of the recessed portion 1011 prevents a thick bottom of the recessed portion 1011 from resulting in a thick thickness of the overall water pan 100, preventing a thickness of a whole machine from being affected. In addition, a thin bottom of the recessed portion 1011 can be avoided to avoid a compromise in heat preservation performance, energy wastes, and an impact on a strength requirement of the recessed portion 1011. It should be noted that, in a thickness direction of the water pan 100, when basic heat preservation and strength requirements are satisfied, the recessed portion 1011 may be as deep as possible to set the drainage pump 103 as low as possible, which effectively lowers the pumping liquid level surface of the drainage pump 103.

[0048] As illustrated in FIG. 9, the drainage hole channel 105 has a depth greater than or equal to the thickness of the bottom of the recessed portion 1011. The depth of the drainage hole channel 105 being greater than or equal to the thickness of the bottom of the recessed portion 1011 ensures sealing performance of the drainage plug 106 in the drainage hole channel 105 and guarantees a sufficient sealing depth, avoiding the failure of the leakage due to aging of the drainage plug 106 and the sealant failure. In addition, the drainage hole channel 105 is spaced apart from the recessed portion 1011 in the present disclosure, and thus the depth of the drainage hole channel 105 satisfies the requirement of being great-

er than or equal to the thickness of the bottom of the recessed portion 1011.

[0049] As illustrated in FIG. 9, since impurities disturbed by pumping of the drainage pump 103 are dispersed as much as possible, to prevent the drainage pump 103 from being blocked by impurities gathered due to a small size of the recessed portion 1011, a surface area of the recessed portion bottom surface 1012 of the recessed portion 1011 should be greater than an area of a vertical projection of the drainage pump 103 on the recessed portion bottom surface 1012. In addition, the surface area of the recessed portion bottom surface 1012 should be greater than the area of the vertical projection of the drainage pump 103 on the recessed portion bottom surface 1012 as much as possible, to prevent the impurities from blocking the drainage pump 103. Exemplarily, the recessed portion bottom surface 1012 may have a round shape, a rectangular shape, or other irregular shapes, whichever adapts to a shape of a structure adjacent to the recessed portion 1011.

[0050] To avoid a leakage of the recessed portion 1011, the recessed portion bottom surface 1012 is generally made of a plastic material or a film material that is not easy to be corroded or cracked, to reinforce a strength of the recessed portion bottom surface 1012, avoid easy aging of the recessed portion bottom surface 1012, and avoid problems such as corrosion and cracking due to the easy aging.

[0051] To facilitate discharge of water in a water receiving groove 107, an upper end of the drainage hole channel 105 is connected to the water receiving groove bottom surface 101 and is connected to the water receiving groove bottom surface 101 in an oblique transition, to provide flow guidance. Therefore, the accumulated water in the water receiving groove 107 may flow to the drainage hole channel 105 along an inclined surface of the upper end of the drainage hole channel 105, which facilitates discharge of the accumulated water in the water receiving groove 107 from the drainage hole channel 105.

[0052] The drainage plug 106 is disposed at a lower end of the drainage hole channel 105 and comprises a covering portion 1061 and a blocking portion 1062. The covering portion 1061 has a size greater than a size of the blocking portion 1062. The blocking portion 1062 is configured to block the drainage hole channel 105. The covering portion 1061 is configured to cover the lower end of the drainage hole channel 105. Therefore, the drainage hole channel 105 may be blocked by the blocking portion 1062, and the lower end of the drainage hole channel 105 is covered by the covering portion 1061, to provide further sealing. The covering portion 1061 also facilitates placing, by a user, the drainage plug 106 to a predetermined position. When the covering portion 1061 is abutted with the lower end of the drainage hole channel 105, the drainage plug 106 is indicated to be at the predetermined position in the drainage hole channel 105. In addition, the covering portion 1061 facilitates holding by

the user. The covering portion 1061 may be held by the user to place the drainage plug 106 at the predetermined position or remove the drainage plug 106 from the drainage hole channel 105.

[0053] Exemplarily, a countersunk base may be disposed at a lower end of an opening of the drainage hole channel 105 to facilitate sinking of an end of the drainage plug 106. The covering portion 1061 is located in the countersunk base.

[0054] Of course, the lower end of the opening of the drainage hole channel 105 may be designed without the countersunk base. After the drainage plug 106 is mounted, a protrusion part of an end of the drainage plug 106 facilitates maintenance and removal of the drainage plug 106.

[0055] The lower end of the drainage hole channel 105 is provided with a guidance corner configured to guide the drainage plug 106 to be disposed in the drainage hole channel 105.

[0056] An interior and the opening of the drainage hole channel 105 are generally made of plastic to reinforce a strength and a wear resistance of the drainage hole channel 105, ensuring a strength of a match between the drainage hole channel 105 and the drainage plug 106.

[0057] In some embodiments, impurities are easy to deposit at the bottom of the recessed portion 1011. A flow guide channel (not illustrated in the figures) is formed between the bottom of the recessed portion 1011 and the drainage hole channel 105. The water pan 100 contains the accumulated water. When the drainage plug 106 is removed to discharge water, the impurities in the recessed portion 1011 easily flows out along the flow guide channel to avoid accumulation of the impurities in the recessed portion 1011. In some embodiments, the drainage hole channel 105 is arranged adjacent to the drainage pump 103. Since the drainage pump 103 is at a low position of the water pan 100, arranging the drainage hole channel 105 adjacent to the drainage pump 103 can ensure that the drainage hole channel 105 is located at the low position of the water pan 100, facilitating complete discharge of the accumulated water.

[0058] Some further embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 10 and FIG. 11, the water receiving groove 107 is formed in the water pan 100. The water receiving groove 107 is provided with a boss 108 at a bottom surface of the water receiving groove 107. The boss 108 is used for mounting of the heat exchanger 204. With the boss 108 disposed at the bottom surface of the water receiving groove 107, a height of a bottom of the heat exchanger 204 is increased, which enlarges an effective windward area of the heat exchanger 204 and facilitates a windward result of the bottom of the heat exchanger 204. In comparison with the related art, the heat exchanger 204 has a high air speed and a sufficient air volume at an end of the heat exchanger 204 in contact with the boss 108, a uniform air field, and a high heat exchange efficiency. In addition, since a part of the water pan 100 supporting the heat

exchanger 204 is in a structure of the boss 108, the bottom of the heat exchanger 204 is higher than the bottom surface of the water receiving groove 107, and thus the condensed water flows along the boss 108 by gravity and converges in the water receiving groove 107, which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected.

[0059] In some embodiments, as illustrated in FIG. 11, the boss 108 is located between two side surfaces of the water receiving groove 107 and spaced apart from at least one side surface of the water receiving groove 107, in such a manner that the boss 108 occupies a small space in the water receiving groove 107. In some embodiments, the boss 108 is spaced apart from each of the two side surfaces of the water receiving groove 107. A low water receiving space may be formed between the boss 108 and each of the two side surfaces of the water receiving groove 107, which is conducive to receiving the condensed water in the heat exchanger 204. In addition, the condensed water of the heat exchanger 204 may be discharged to the water receiving groove 107 from two sides of the boss 108, which increases a discharge speed of the condensed water. Of course, in some other embodiments, the boss 108 may further be spaced apart from one side surface of the water receiving groove 107 and attached to another side surface of the water receiving groove 107.

[0060] The boss 108 is continuously arranged in a length direction of the water receiving groove 107, which can enlarge a contact area of the boss 108 with the heat exchanger 204. The boss 108 can provide stable support for the heat exchanger 204.

[0061] Since air-conditioning air may partially pass through the water receiving groove 107 and come into contact with the boss 108, to reduce an air resistance and air noises, as illustrated in FIG. 11, a top of the boss 108 has a boss chamfer at each of two side edges of the water receiving groove 107 in a length direction. The air-conditioning air is in contact with the top of the boss 108 formed as a rounded plane, which leads to a low air resistance and low air noises, effectively improving overall performance of the indoor unit 200 and enhancing user experience.

[0062] Exemplarily, the boss chamfer is a beveled chamfer or an arc chamfer. The boss chamfer can reduce the air resistance and the air noises on the one hand and enlarge the water receiving space between the boss 108 and each of the two side surfaces of the water receiving groove 107 on the other hand. As illustrated in FIG. 12, the boss chamfer of the boss 108 may have a variety of shapes.

[0063] In some embodiments, as illustrated in FIG. 11, in a width direction of the water receiving groove 107, the boss 108 has a size smaller than or equal to a size of the heat exchanger 204, which can enlarge the wind-

ward area of the heat exchanger 204 and increase the heat exchange efficiency of the heat exchanger 204. In addition, reducing the size of the boss 108 in the width direction of the water receiving groove 107 can enlarge the water receiving space between the boss 108 and each of the two side surfaces of the water receiving groove 107, which is conducive to receiving the condensed water from the heat exchanger 204, avoiding an overflow of the condensed water.

[0064] Exemplarily, in the width direction of the water receiving groove 107, a ratio of the width of the boss 108 to a width of the water receiving groove 107 ranges from 1:3 to 2:3, e.g., 1:3, 1:2, or 2:3. On the one hand, the width of the boss 108 can be ensured to provide effective support for the heat exchanger 204. On the other hand, a width of a spacing between the boss 108 and the water receiving groove 107 is ensured. Therefore, a sufficient water receiving space is available to receive the condensed water of the heat exchanger 204, avoiding the overflow of the condensed water.

[0065] Exemplarily, a ratio of a height of the boss 108 to a depth of the water receiving groove 107 ranges from 1:3 to 1:2, e.g., 1:3, 1:2, or the like. On the one hand, the height of the boss 108 can be avoided to be low, to ensure that the height of the boss 108 can provide effective support for the heat exchanger 204, in such a manner that the height of the bottom of the heat exchanger 204 is increased to enlarge the effective windward area of the heat exchanger 204, which facilitates the windward result of the bottom of the heat exchanger 204. The heat exchanger 204 has the high air speed and the sufficient air volume at the end of the heat exchanger 204 in contact with the boss 108, the uniform air field, and the high heat exchange efficiency. In addition, since the bottom of the heat exchanger 204 is higher than the bottom surface of the water receiving groove 107, the condensed water flows along the boss 108 by gravity and converges in the water receiving groove 107, which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected. On the other hand, the height of the boss 108 can be avoided to be high, which in turns prevents an overall height of the water pan 100 from being high, allowing a height of the whole machine to be reasonably controlled.

[0066] Exemplarily, the depth of the water receiving groove 107 ranges from 8 mm to 12 mm, such as 8 mm, 10 mm, or 12 mm. The height of the boss 108 is 4 mm, 4.5 mm, 5 mm, or the like.

[0067] Some embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 13 and FIG. 14, the water pan 100 has the water receiving groove 107 and an air inlet 109. The air inlet 109 is surrounded by the water receiving groove 107. The air inlet 109 is used for an arrangement of a fan. The water receiving groove 107 is used for mounting of the heat exchanger 204. An inner side wall of the water receiving groove 107

close to the air inlet 109 is formed with a beveled air guide corner. Therefore, air is drawn into the air inlet 109 by the fan, is guided by the beveled air guide corner, and then passes through the bottom of the heat exchanger 204. The heat exchanger 204 has a high air speed and a sufficient air volume at an end of the heat exchanger 204 mounted at a side of the water receiving groove 107, a uniform air field, and a high heat exchange efficiency. In comparison with an air-blocking surface structure of an inner side wall of the water receiving groove 107 in the related art, forming the beveled air guide corner at the inner side wall of the water receiving groove 107 close to the air inlet 109 can enlarge the effective windward area of the heat exchanger 204 under same specifications of the water pan 100 and a same height of the heat exchanger 204, which facilitates the windward result of the bottom of the heat exchanger 204 and increases the heat exchange efficiency of the heat exchanger 204. The beveled air guide corner can further reduce the air resistance and the air noises, improving the user experience.

[0068] In some embodiments, as illustrated in FIG. 14, the inner side wall comprises a water groove segment 110 and an air guide segment 111. The air guide segment 111 is arranged by obliquely extending the water groove segment 110 towards the air inlet 109. The beveled air guide corner is formed by the air guide segment 111. By segmenting the inner side wall into the water groove segment 110 and the air guide segment 111, the water groove segment 110 ensures the windward area of the heat exchanger 204 on the one hand, and guarantees that the water receiving groove 107 has a sufficient water receiving space on the other hand. The air guide segment 111 is configured to direct air towards the heat exchanger 204 directly facing the air guide segment 111, and direct the air towards the water groove segment 110 for the water groove segment 110 to direct the air towards the heat exchanger 204 directly facing the water groove segment 110, which enlarges the effective windward area of the heat exchanger 204 and effectively reduces the air resistance and the air noises. With cooperation between the air guide segment 111 and the water groove segment 110, the effective windward area of the heat exchanger 204 can be enlarged effectively, which facilitates the windward result of the bottom of the heat exchanger 204 and increases the heat exchange efficiency of the heat exchanger 204. In addition, the air resistance and the air noises can be reduced to improve the user experience.

[0069] As illustrated in FIG. 14, the air guide segment 111 comprises a first air guide segment 1111 and a second air guide segment 1112. The first air guide segment 1111 is connected between the water groove segment 110 and the second air guide segment 1112. The first air guide segment 1111 is a protruded arc surface protruding towards the water receiving groove 107, a recessed arc surface recessed relative to the water receiving groove 107, or an inclined surface. The first air guide segment 1111 serves to receive incoming air introduced by the second air guide segment 1112 and guide the incoming

air to the heat exchanger 204 and the water groove segment 110. The second air guide segment 1112 may be arranged as a protruded arc surface protruding towards the water receiving groove 107, a recessed arc surface recessed relative to the water receiving groove 107, or an inclined surface. A choice may be made based on an actual structural design, as long as an effective air guidance result can be achieved. The effective windward area of the heat exchanger 204 can be enlarged effectively, which facilitates the windward result of the bottom of the heat exchanger 204 and increases the heat exchange efficiency of the heat exchanger 204. In addition, the air resistance and the air noises can be reduced to improve the user experience. In some embodiments, the second air guide segment 1112 may be arranged as the protruded arc surface protruding towards the water receiving groove 107, which is conducive to reducing the air resistance and the air noises.

[0070] As illustrated in FIG. 14, an angle α of the water groove segment 110 relative to the bottom surface of the water receiving groove 107 ranges from 80° to 90° , such as 80° , 85° , 90° , or the like. The water groove segment 110 satisfying such an angle range ensures the windward area of the heat exchanger 204 on the one hand and the sufficient water receiving space in the water receiving groove 107 on the other hand. An angle β of the second air guide segment 1112 relative to the bottom surface of the water receiving groove 107 ranges from 80° to 90° , such as 80° , 85° , 90° , or the like. Since the second air guide segment 1112 comes into contact with the incoming air first, the second air guide segment 1112 has a smooth angle, which can effectively guide the incoming air and enlarge the windward area of the heat exchanger 204 on a basis of reducing the air resistance and the air noises.

[0071] As illustrated in FIG. 14, an included angle γ between tangent planes of connection surfaces of two ends of the first air guide segment 1111 ranges from 90° to 135° , such as 90° , 100° , 135° , or the like. Within this range, one end of the first air guide segment 1111 is in a smooth transition with the water groove segment 110, and another end of the first air guide segment 1111 is in a smooth transition with the second air guide segment 1112, which is conducive to reducing the air resistance and the air noises.

[0072] To ensure that the water groove segment 110 has a sufficient water receiving space, a vertical height of the water groove segment 110 with respect to the bottom surface of the water receiving groove 107 ranges from 8 mm to 17 mm, such as 8 mm, 12 mm, 15 mm, or 17 mm. Therefore, the water groove segment 110 has an appropriate depth, which is conducive to receiving the condensed water and avoids the overflow of the accumulated water. Further, a windward area at the bottom of the heat exchanger 204 is prevented from being affected by an excessive depth of the water receiving groove 107. The water groove segment 110 can ensure the windward area of the heat exchanger 204 and the

sufficient water receiving space in the water receiving groove 107.

[0073] A maximum spacing between the inner side wall and the heat exchanger 204 ranges from 20 mm to 40 mm, such as 20 mm, 30 mm, or 40 mm. Therefore, the range of the maximum spacing between the inner side wall and the heat exchanger 204 ensures a sufficient windward gap between the inner side wall and the heat exchanger 204, and prevents an overall size of the water pan 100 from being large due to an excessive windward gap between the inner side wall and the heat exchanger 204, or prevents a size of the air inlet 109 from being affected due to the excessive windward gap between the inner side wall and the heat exchanger 204.

[0074] In some embodiments, as illustrated in FIG. 11, the boss 108 may further be disposed at the bottom surface of the water receiving groove 107, and the heat exchanger 204 is mounted at the boss 108. With the boss 108 disposed at the bottom surface of the water receiving groove 107, the height of the bottom of the heat exchanger 204 is increased to enlarge the effective windward area of the heat exchanger 204, which facilitates the windward result of the bottom of the heat exchanger 204. The heat exchanger 204 has the high air speed and the sufficient air volume at the end of the heat exchanger 204 in contact with the boss 108, the uniform air field, and the high heat exchange efficiency. In addition, since the part of the water pan 100 supporting the heat exchanger 204 is in the structure of the boss 108, the bottom of the heat exchanger 204 is higher than the bottom surface of the water receiving groove 107, and thus the condensed water flows along the boss 108 by gravity and converges in the water receiving groove 107, which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected.

[0075] The boss 108 is located between two side surfaces of the water receiving groove 107 and spaced apart from each of the two side surfaces of the water receiving groove 107, in such a manner that the boss 108 occupies a small space in the water receiving groove 107. A low water receiving space may be formed between the boss 108 and each of the two side surfaces of the water receiving groove 107, which is conducive to receiving the condensed water in the heat exchanger 204. In addition, the condensed water of the heat exchanger 204 may be discharged to the water receiving groove 107 from two sides of the boss 108, which increases the discharge speed of the condensed water.

[0076] Some embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 15 and FIG. 16, the water pan 100 comprises a windward surface 112 and a leeward surface 113. The windward surface 112 has the air inlet 109. The leeward surface 113 has the water receiving groove 107. The fan is configured to draw air through the air inlet 109. The water receiving groove 107 is used for mounting of the heat exchanger

204. The air inlet 109 has a bottom end with a chamfer 115. The fan mounted at an inner side of the air inlet 109 is configured to pump air, draw the air into the air inlet 109, and direct the air towards the heat exchanger 204 (see FIG. 13). Since the air inlet 109 is disposed at the windward surface 112 of the water pan 100 and has the bottom end with the chamfer 115, a windward air resistance can be reduced to increase an air volume without changing a rotational speed of a fan wheel, which in turn eliminates a need to increase the rotational speed of the fan wheel, reducing windward air noises.

[0077] The chamfer 115 is an arc chamfer or a beveled chamfer, which can reduce the windward air resistance and the windward air noises of the air inlet 109 and can be selected as desired. A curvature of the arc chamfer or an inclination of the beveled chamfer can be adjusted as desired.

[0078] In some embodiments, as illustrated in FIG. 17, the chamfer 115 comprises a plurality of chamfer segments. The chamfer segment is an arc chamfer or a beveled chamfer. The plurality of chamfer segments is connected in a wave shape. Exemplarily, the plurality of chamfer segments is a plurality of arc chamfers in a wavy shape, or a plurality of arc chamfers and a plurality of beveled chamfers in a wavy shape, or a plurality of beveled chamfers in a wavy shape. The present disclosure is not limited in this regard. With the plurality of chamfer segments set to continuously guide the air, the windward air resistance at a windward side of the water pan 100 can be effectively reduced to increase the air volume without changing the rotational speed of the fan wheel, which in turn eliminates the need to increase the rotational speed of the fan wheel, effectively reducing the windward air noises.

[0079] The air resistance and the noises of the fan increase as power of the fan disposed at the inner side of the air inlet 109 increases. Therefore, the chamfer 115 is set at a large angle, which can smooth the windward surface at the bottom end of the air inlet 109, effectively reducing the windward air resistance and the windward air noises.

[0080] In some embodiments, as illustrated in FIG. 15, the fan is disposed at an inner side of the air inlet 109. After the fan is turned on, the incoming air enters the air inlet 109 after being guided by the chamfer 115 at the bottom end of the air inlet 109. The chamfer 115 at the bottom end of the air inlet 109 effectively reduces the windward air resistance and the windward air noises.

[0081] The inner side wall of the water receiving groove 107 close to the air inlet 109 is formed with a beveled air guide corner 1071. Therefore, air is drawn into the air inlet 109 by the fan, is guided by the beveled air guide corner 1071, and then passes through the bottom of the heat exchanger 204. The heat exchanger 204 has the high air speed and the sufficient air volume at the end of the heat exchanger 204 mounted at the side of the water receiving groove 107, the uniform air field, and the high heat exchange efficiency. In comparison with the air-

blocking surface structure of the inner side wall of the water receiving groove 107 in the related art, forming the beveled air guide corner 1071 at the inner side wall of the water receiving groove 107 close to the air inlet 109 can enlarge the effective windward area of the heat exchanger 204 under same specifications of the water pan 100 and a same height of the heat exchanger 204, which facilitates the windward result of the bottom of the heat exchanger 204 and increases the heat exchange efficiency of the heat exchanger 204. The beveled air guide corner 1071 can further reduce the air resistance and the air noises, improving the user experience.

[0082] In some embodiments, as illustrated in FIG. 14, the inner side wall comprises the water groove segment 110 and the air guide segment 111. The air guide segment 111 is arranged by obliquely extending the water groove segment 110 towards the air inlet 109. The beveled air guide corner 1071 is formed by the air guide segment 111. By segmenting the inner side wall into the water groove segment 110 and the air guide segment 111, the water groove segment 110 ensures the windward area of the heat exchanger 204 on the one hand, and guarantees that the water receiving groove 107 has the sufficient water receiving space on the other hand. The air guide segment 111 is configured to direct air towards the heat exchanger 204 directly facing the air guide segment 111, and direct the air towards the water groove segment 110 for the water groove segment 110 to direct the air towards the heat exchanger 204 directly facing the water groove segment 110, which enlarges the effective windward area of the heat exchanger 204 and effectively reduces the air resistance and the air noises. With cooperation between the air guide segment 111 and the water groove segment 110, the effective windward area of the heat exchanger 204 can be enlarged effectively, which facilitates the windward result of the bottom of the heat exchanger 204 and increases the heat exchange efficiency of the heat exchanger 204. In addition, the air resistance and the air noises can be reduced to improve the user experience.

[0083] The boss 108 is disposed at the bottom surface of the water receiving groove 107 (as illustrated in FIG. 11). The heat exchanger 204 is mounted at the boss 108. With the boss 108 disposed at the bottom surface of the water receiving groove 107, the height of the bottom of the heat exchanger 204 is increased to enlarge the effective windward area of the heat exchanger 204, which facilitates the windward result of the bottom of the heat exchanger 204. The heat exchanger 204 has the high air speed and the sufficient air volume at the end of the heat exchanger 204 in contact with the boss 108, the uniform air field, and the high heat exchange efficiency. In addition, since the part of the water pan 100 supporting the heat exchanger 204 is in the structure of the boss 108, the bottom of the heat exchanger 204 is higher than the bottom surface of the water receiving groove 107, and thus the condensed water flows along the boss 108 by gravity and converges in the water receiving groove 107,

which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected.

[0084] The boss 108 is located between two side surfaces of the water receiving groove 107 and spaced apart from each of the two side surfaces of the water receiving groove 107, in such a manner that the boss 108 occupies a small space in the water receiving groove 107. A low water receiving space may be formed between the boss 108 and each of the two side surfaces of the water receiving groove 107, which is conducive to receiving the condensed water in the heat exchanger 204. In addition, the condensed water of the heat exchanger 204 may be discharged to the water receiving groove 107 from two sides of the boss 108, which increases the discharge speed of the condensed water. In some other embodiments, the boss 108 is spaced apart from one side surface of the water receiving groove 107 and attached to another side surface of the water receiving groove 107.

[0085] The boss chamfer is formed at a side edge at a top end of the boss 108. The air-conditioning air is in contact with the top of the boss 108 formed as a rounded plane, which leads to the low air resistance and the low air noises, effectively improving the overall performance of the indoor unit 200 and enhancing the user experience.

[0086] Some embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 18, the water pan 100 comprises a frame 116 and a water tray 117. The frame 116 comprises an annular side wall 1162 and a mounting groove body 1161. The water tray 117 is arranged in the mounting groove body 1161. An annular air outlet 118 surrounding the water tray 117 is formed between the annular side wall 1162 and the water tray 117. Compared with four elongated air outlets arranged at intervals in the related art, the annular air outlet 118 in the embodiments of the present disclosure is continuously arranged, which reduces a blind region of an air supply at each partition of the air outlets in the related art, expands an air supply range, and even enables the indoor unit 200 using the water pan 100 to realize a 360° air supply, improving comfort of use.

[0087] In some embodiments, the water tray 117 comprises a water tray 117 side wall. The annular air outlet 118 is formed by enclosing with the annular side wall 1162 and the water tray 117 side wall. The water tray 117 side wall is provided with connection ribs 119 at an outer periphery of the water tray 117 side wall. The connection ribs 119 are connected between the water tray 117 side wall and the annular side wall 1162, in such a manner that the frame 116 and the water tray 117 are integrally formed to reinforce a connection strength between the frame 116 and the water tray 117 side wall. In addition, the connection ribs 119 provide segmentation of the annular air outlet 118, which allows the air volume to be uniformly blown from the annular air outlet 118 in segments.

[0088] Exemplarily, a plurality of connection ribs 119 is provided and arranged at intervals along the annular air outlet 118. In addition, the connection rib 119 is vertically connected to the water tray 117 side wall and the annular side wall 1162. A plane where the connection rib 119 is located is parallel to a flow direction of the air-conditioning air, and thus a windward area of the connection rib 119 is reduced, which reduces the air resistance and expands the air supply range.

[0089] Typically, the connection rib 119 has a small thickness, which can reduce the air resistance. In some embodiments, the connection rib 119 is made of plastic, foam, or plastic wrapped with foam. The connection rib 119 made of a light material reduces an overall weight of the water pan 100 and facilitates manufacturing and molding, which lowers material costs and manufacturing costs. In addition, the connection rib 119 made of plastic, foam, or plastic wrapped with foam plastic has a stable form and a surface insusceptible to moisture and rust and is aesthetically favorable in overall appearance.

[0090] To further reduce the air resistance and the air noises of the connection rib 119, as illustrated in FIG. 19, the connection rib 119 has a windward end 1191 and/or a leeward end 1192 with an air guide corner (not illustrated in the figures). The air guide corner reduces a resistance to the passing air-conditioning air, avoids the blind region of the air supply, and also reduces noises generated by the passing air-conditioner air.

[0091] The air guide corner is a rounded air guide corner or a beveled air guide corner and selected as desired. Exemplarily, the air guide corner may be formed at only one of the windward end 1191 and the leeward end 1192 of the connection rib 119. The air guide corner may be a rounded air guide corner or a beveled air guide corner. The rounded air guide corner may be set at a variety of curvatures. The beveled air guide corner may be set in a variety of angles and comprises one beveled corner or a plurality of continuous beveled corners. Of course, each of the windward end 1191 and the leeward end 1192 of the connection rib 119 may be formed with the air guide corner. The air guide corner of each of the windward end 1191 and the leeward end 1192 may be the rounded air guide corner or the beveled air guide corner. Also, one of the air guide corner of the windward end 1191 and the air guide corner of the leeward end 1192 may be the rounded air guide corner, while another of the air guide corner of the windward end 1191 and the air guide corner of the leeward end 1192 may be the beveled air guide corner. The rounded air guide corner may be set at a variety of curvatures. The beveled air guide corner may be set in a variety of angles and comprises one beveled corner or a plurality of continuous beveled corners. An adjustment may be made as desired. The present disclosure is not limited in this regard.

[0092] In some embodiments, as illustrated in FIG. 19, the connection rib 119 has the leeward end 1192 formed as a sawtooth structure. The sawtooth structure further reduces the air noises and improves the user experience.

[0093] In some embodiments, a part of the annular side wall 1162 is connected to the mounting groove body 1161, in such a manner that the annular side wall 1162 maintains a stable connection with the mounting groove body 1161. Further, the part of the annular side wall 1162 connected to the mounting groove body 1161 may also be used to enlarge a space of the mounting groove body 1161 to enlarge a space occupied by the water tray 117, which facilitates a design and a layout within the water tray 117. Of course, in some other embodiments, the annular side wall 1162 may also be spaced apart from the mounting groove body 1161 to form the annular air outlet 118, which expands the air supply range, reduces the blind region of the air supply, and truly realizes the 360° air supply, improving the comfort of use.

[0094] As illustrated in FIG. 18, the annular air outlet 118 is formed by a straight segment 1181 and an arc segment 1182, or by the straight segment 1181 and a bevel segment. Therefore, the annular air outlet 118 has smooth overall lines without right-angled articulated segments, which can reduce the air resistance and the air noises and improve the user experience.

[0095] The water tray 117 has the water receiving groove 107 and the air inlet 109 surrounded by the water receiving groove 107. The water receiving groove 107 is used for mounting of the heat exchanger 204, in such a manner that the water receiving groove 107 can receive the condensed water from the heat exchanger 204. The leeward surface 113 of the water pan 100 has a notch groove 121 formed between the air inlet 109 and the water receiving groove 107 and in communication with the water pan 100. Inside the water receiving groove 107, the water receiving groove 107 has a limiting surface 123 for limiting a right position and a left position of the heat exchanger 204. The notch groove 121 is offset from the limiting surface 123 and is of a sunken design. A surface of the notch groove 121 in an axial direction of the water pan 100 is lower than a surface of the limit surface 123. In addition, the notch groove 121 is in communication with the water receiving groove 107. Therefore, the incoming air can be directly brought into contact with the heat exchanger 204 by the notch groove 121, enlarging the effective windward area of the heat exchanger 204. A plurality of notch grooves 121 may be provided as desired. The notch groove 121 may also have various shapes. The notch groove 121 has a smooth and fluid edge, which can reduce the air resistance and the air noises.

[0096] Some other embodiments of the present disclosure provide a water pan 100. As illustrated in FIG. 20 and FIG. 21, the water pan 100 comprises a plastic water tray 117 and a foam frame 116. The plastic water tray 117 comprises the windward surface 112 and the windward surface 113. The plastic water tray 117 has the water receiving groove 107 on the leeward surface 113. The foam frame 116 is formed at the plastic water tray 117 by means of foam molding and covers the windward surface 112. In the present disclosure, the water pan 100

is manufactured by forming the plastic water tray 117 by means of injection molding and forming the foam frame 116 at the plastic water tray 117 by means of foam molding. A mounting portion 122 is disposed at the plastic water tray 117 and integrally formed with the plastic water tray 117. Manufacturing the water pan 100 by means of the injection molding and the foam molding can reduce a quantity of members of the water pan 100. In addition, disposing the mounting portion 122 at the plastic water tray 117 can reduce material turnover costs before molding and material costs. Also, the water pan 100 is formed by a single foam molding process, which increases a manufacturing efficiency and reduces manufacturing energy consumption. Further, an integrally-formed structure can reinforce the strength of the water pan 100 to solve problems that a vacuum-forming mold is prone to cracking and leaking due to a thin material, improving waterproof performance of the water pan 100.

[0097] In some embodiments, as illustrated in FIG. 20 and FIG. 21, the foam frame 116 comprises the annular side wall 1162 and the mounting groove body 1161. The mounting groove body 1161 covers the windward surface 112. The plastic water tray 117 comprises the water tray 117 side wall. The water tray 117 side wall is provided with the connection rib 119 at the outer periphery of the water tray 117 side wall. The connection rib 119 is connected to the water tray 117 side wall and the annular side wall 1162. By disposing the connection rib 119 at the outer periphery of the water tray 117 side wall and connecting the connection rib 119 to the water tray 117 side wall and the annular side wall 1162, the foam frame 116 and the water tray 117 are connected together to improve the connection strength between the foam frame 116 and the water tray 117 side wall.

[0098] Exemplarily, a plurality of connection ribs 119 is provided and arranged at intervals along the annular air outlet 118. In addition, the connection rib 119 is vertically connected to the water tray 117 side wall and the annular side wall 1162. The plane where the connection rib 119 is located is parallel to the flow direction of the air-conditioning air, and thus the windward area of the connection rib 119 is reduced, which reduces the air resistance and expands the air supply range.

[0099] As illustrated in FIG. 20, the water tray 117 side wall of the plastic water tray 117 is further provided with a mounting rack (not illustrated in the figures) at an outer periphery of the water tray 117 side wall of the plastic water tray 117. The mounting portion 122 is disposed at the mounting rack. The foam frame 116 covers the mounting rack. In addition, the mounting portion 122 protrudes from the annular side wall 1162. The mounting portion 122 is configured to be connected to a connection component, such as a lifting lug, at a casing of the indoor unit 200, to fix the water pan 100 to the indoor unit 200.

[0100] The water tray 117 side wall is arranged in a square shape. Four mounting portions 122 are provided. One mounting portion 122 is disposed at each of four corners of the water tray 117 side wall. The water pan

100 can be stably fixed to the indoor unit 200 through an engagement between a metallic member and the mounting portion 122. The mounting portion 122 and the water tray 117 are integrally formed by means of injection molding. The connection rib 119 is disposed at four edges of the water tray 117 side wall and integrally formed with the water tray 117 by means of injection molding to reinforce a connection strength between the annular side wall 1162 and the water tray 117 side wall.

[0101] Exemplarily, as illustrated in FIG. 20, the mounting portion 122 comprises a mounting hole 1221 and a positioning post (not illustrated in the figures). The mounting portion 122 is configured to fasten a part of the water pan 100 to a machine body. The mounting hole 1221 is a pre-positioned position of the metallic member designed on the mounting portion 122. The metallic member is a fastening screw. The mounting hole 1221 is configured to secure the mounting portion 122 to the indoor unit 200 after the metallic member passes through the mounting hole 1221, and thus the water pan 100 is fixed to the indoor unit 200. The positioning post is configured to pre-position the mounting portion 122 at the indoor unit 200.

[0102] The plastic water tray 117 has the drainage hole channel 105. The drainage hole channel 105 is configured to discharge the accumulated water in the water receiving groove 107 and is used for mounting of the drainage plug 106. The depth of the drainage hole channel 105 is greater than or equal to 4 mm. The drainage plug 106 may be directly assembled to the drainage hole channel 105 at an injection-molded member of the plastic water tray 117.

[0103] Exemplarily, the plastic water tray 117 has the recessed portion 1011. The recessed portion 1011 is in communication with the water receiving groove 107. The drainage pump 103 is disposed in the recessed portion 1011 (refer to FIG. 8). When the height of the accumulated water is higher than that of the pump body 1031 of the drainage pump 103 and satisfies the operation condition of the drainage pump 103, the drainage pump 103 can pump water to achieve the purpose of thorough drainage. In the water pan 100 according to the embodiments of the present disclosure, the accumulated water flows into and gathers in the recessed portion 1011 when there is accumulated water, even when there is little accumulated water, in such a manner that the operation condition of the drainage pump 103 is easy to be satisfied. The drainage pump 103 can achieve the purpose of thorough drainage in a case of little accumulated water, which reduces the amount of the accumulated water and the duration of water accumulation to avoid the molds and the odors generated by the accumulated water, effectively solving the hygienic problem caused by the accumulated water in the water pan 100.

[0104] As illustrated in FIG. 20, the recessed portion 1011 is spaced apart from the drainage hole channel 105. By spacing the drainage hole channel 105 apart from the recessed portion 1011, no drainage hole chan-

nel 105 needs to be formed in the recessed portion 1011 under the condition of a constant thickness of the water pan 100, eliminating the need to consider the thickness of the drainage plug 106. When the recessed portion 1011 has a deeper depth, the drainage pump 103 may have a lower pumping liquid level surface, in such a manner that the condensed water in the water pan 100 can be evacuated more effectively to avoid easy water accumulation of the water pan 100, and further to avoid the problems such as condensation of the water pan 100 due to a low temperature, molds, rust, blocking of the water pan 100 triggered by impurities caused by rust, and the low output due to possible soaking of the heat exchanger 204. In addition, considering that the recessed portion 1011 is spaced apart from the drainage hole channel 105, the drainage hole channel 105 may be arranged at the position unblocked by the panel to facilitate drainage, the failure judgment of the drainage plug 106, and the maintenance without disassembling the panel. In addition, since the recessed portion 1011 is spaced apart from the drainage hole channel 105, the drainage hole channel 105 can deepen the sealing depth to facilitate the structural sealing, reducing the possibility of the water leakage at the drainage plug 106 due to the failure of the drainage plug 106.

[0105] Some embodiments of the present disclosure provide an indoor unit 200. The indoor unit 200 comprises the water pan 100 according to any of the above embodiments. The indoor unit 200 may be an air conditioning indoor unit, or a cooling fan indoor unit, or an indoor unit of various refrigeration devices.

[0106] As illustrated in FIG. 22 and FIG. 23, in some embodiments, the indoor unit 200 comprises an indoor unit box body 201 and the sterilization container 102. The indoor unit box body 201 is internally provided with opposite snap structures 202. The sterilization container 102 is disposed in the indoor unit box body 201 and is positioned between and snap-fitted with the opposite snap structures 202. The opposite snap structures 202 are disposed at opposite sides of the sterilization container 102. When the sterilization container 102 is placed between the snap structures 202, the opposite snap structures 202 undergo slight deformations in opposite directions. When the sterilization container 102 is mounted in place, the opposite snap structures 202 recover from the deformations to fix the sterilization container 102. The sterilization container 102 is conveniently mounted.

[0107] The sterilization container 102 comprises two first side walls arranged opposite to each other in a first direction. The snap structures 202 are snapped at the two first side walls, respectively. The sterilization container 102 can be stabilized and fixed by snapping the opposite snap structures 202 at the two opposite first side walls of the sterilization container 102, which is simple in structure and convenient in mounting.

[0108] Exemplarily, two snap structures 202 are provided and arranged opposite to each other. Of course,

more than two snap structures 202 may be provided. Quantities of snap structures 202 located at two opposite sides may be the same or different.

[0109] In some embodiments, as illustrated in FIG. 23, the snap structure 202 comprises a connection segment 2021 and a snap end 2022. The connection segment 2021 has one end connected to the indoor unit box body 201 and another end formed with the snap end 2022. The snap ends 2022 of the two snap structures 202 are snapped at tops of the two first side walls. Therefore, when the sterilization container 102 is arranged between and snap-fitted with the two snap structures 202, the two snap ends 2022 are abutted against a top of the sterilization container 102, further stabilizing and fixing the sterilization container 102.

[0110] In addition, opposite sides of the two snap ends 2022 are formed as inclined surfaces to provide guidance for the sterilization container 102, which facilitates the sterilization container 102, after being brought into contact with the snap ends 2022, to be guided by the inclined surfaces to a position between the two snap structures 202.

[0111] In some embodiments, as illustrated in FIG. 23, the sterilization container 102 comprises a second side wall connecting the two first side walls, and the indoor unit box body 201 is further internally provided with a positioning pin 203. The positioning pin 203 is abutted against the second side wall. Since the two first side walls of the sterilization container 102 are fixed by the two snap structures 202, a movement of the sterilization container 102 in a straight line direction of a surface is restricted. With the positioning pin 203 abutted against the second side wall, a movement of the sterilization container 102 in another straight line direction of the surface is restricted by the positioning pin 203, and thus the sterilization container 102 is further stabilized and fixed. In addition, only one positioning pin 203 may be provided. The sterilization container 102 may be moved in a direction of the second side wall opposite to the positioning pin 203 to facilitate a removal of the sterilization container 102 from the snap structures 202. In addition, a length of the sterilization container 102 between the two second side walls may be adjusted. With cooperation between the two snap structures 202 and one positioning pin 203, the sterilization container 102 of more sizes may be assembled. Of course, two positioning pins 203 may be further provided. Each positioning pin 203 is abutted against one second side wall. The sterilization container 102 can be firmly fixed to prevent a detachment of the sterilization container 102.

[0112] In some other embodiments, the sterilization container 102 is provided with the positioning pin 203, and the indoor unit box body 201 is further provided with a positioning hole. The positioning pin is engaged with the positioning hole to position the sterilization container 102 in the indoor unit box body 201.

[0113] Exemplarily, the positioning pin 203 may have a square shape, a cylindrical shape, or the like.

[0114] In some embodiments, a height of the positioning pin 203 is $1/3$ to $2/3$ of a height of the sterilization container 102, in such a manner that the height of the positioning pin 203 can be prevented from being high, facilitating snapping the sterilization container 102 at a position between the two snap structures 202. Further, the height of the positioning pin 203 can be prevented from being low, in such a manner that the position the sterilization container 102 can be effectively limited. Exemplarily, the height of the positioning pin 203 is $1/3$, $1/2$, $2/3$, or the like of the height of the sterilization container 102. The present disclosure is not limited in this regard.

[0115] As illustrated in FIG. 24, the sterilization container 102 comprises a top cover 1023 and a cavity 1024 covered by the top cover 1023. A position where the top cover 1023 is connected to the cavity 1024 is provided with an engagement rib. When the cavity 1024 is covered by the top cover 1023, the top cover 1023 is engaged with an outside of the engagement rib when a force is applied to the top cover 1023. The engagement rib increases a friction between the top cover 1023 and the cavity 1024 to ensure a stable connection between the top cover 1023 and the cavity 1024. When the top cover 1023 needs to be detached from the cavity 1024, a force needs to be applied to detach the top cover 1023 from the engagement rib, and thus the top cover 1023 is detached from the cavity 1024. Exemplarily, the engagement rib may be disposed at each of four side walls of the cavity 1024, or only at one or several of the four side walls. The engagement rib may be formed as one elongated engagement rib structure or a plurality of point-like or strip-like engagement rib structures arranged at intervals.

[0116] In some embodiments, the top cover 1023 is provided with an outer hook portion 1026 at a top of the top cover 1023. Two outer hook portions 1026 facilitate an application of the force to the top cover 1023 of the sterilization container 102 by a user, which facilitates a detachment of the top cover 1023 from the cavity 1024 after the user holds the top cover 1023.

[0117] Exemplarily, the sterilization container 102 comprises two second side walls connecting the two first side walls, and the outer hook portion 1026 is disposed at each of tops of the two second side walls.

[0118] It should be noted that the sterilization container 102 may be water-soluble, volatile, or the like. The water-soluble sterilization container 102 needs to be in contact with the accumulative water to be effective.

[0119] As illustrated in FIG. 24, the sterilization container 102 has the flow guide hole 1021. The flow guide hole 1021 may be formed at each of the side surface and the bottom surface of the sterilization container 102 to bring the water flow from the outside into contact with an active substance, facilitating effective contact between the accumulated water and the sterilization container 102. Alternatively, the flow guide hole 1021 facilitates volatilization of sterilization ingredients in the sterilization container 102 to an ambient environment.

[0120] In some embodiments, the flow guide hole 1021 extends from a bottom wall of the sterilization container 102 to a side wall of the sterilization container 102. Since the flow guide hole 1021 covers a wide range, the flow guide hole 1021 can be in effective contact with the accumulated water or enable effective volatilization of effective sterilization ingredients, in such a manner that the effective ingredients in the sterilization container 102 can provide sterilization and deodorization.

[0121] The bottom wall of the sterilization container 102 and the side wall of the sterilization container 102 are connected in an arc to enlarge a contact area of the flow guide hole 1021 with the accumulated water, which facilitates a flow of the accumulated water from the arc into the flow guide holes 1021 of the bottom wall of the sterilization container 102 and the side wall of the sterilization container 102, enabling the effective ingredients in the sterilization container 102 to provide sterilization and deodorization. In addition, connecting the bottom wall of the sterilization container 102 and the side wall of the sterilization container 102 in the arc further facilitates snapping the sterilization container 102 at a position between the two snap structures 202, which allows the snap structures 202 to be easily pushed away by a bottom of the sterilization container 102 and is uneasy to cause damages to the snap structure 202.

[0122] In some embodiments, as illustrated in FIG. 1, the indoor unit box body 201 comprises the water pan 100. Two snap structures 202 are disposed at the water pan 100. The sterilization container 102 is fixed between the two snap structures 202 (mounting snaps 1025) and is located in the water pan 100. The condensed water generated by the indoor unit 200 usually converges in the water pan 100. Disposing the sterilization container 102 in the water pan 100 facilitates sufficient contact between the sterilization container 102 and the accumulated water in the water pan 100, providing effective sterilization and deodorization.

[0123] Some embodiments of the present disclosure provide an indoor unit 200. As illustrated in FIG. 25 and FIG. 26, the indoor unit 200 comprises the water pan 100 and the heat exchanger 204. The water receiving groove 107 is formed in the water pan 100. The heat exchanger 204 is disposed in the water receiving groove 107. A resilient support member 205 is cushioned between the water pan 100 and the heat exchanger 204. With one resilient support member 205 arranged between the water pan 100 and the heat exchanger 204, the water pan 100 of a same specification can support the heat exchangers 204 of different heights through replacements of the resilient support members 205 of different heights when the heat exchanger 204 is assembled in the water pan 100. Therefore, types of specifications of the heat exchanger 204 can be reduced to lower molding costs, increasing an assembly efficiency.

[0124] Further, in addition to providing support, the resilient support member 205 can also provide sealing due to its resilience to avoid a leakage of the air-conditioning

air from a mounting gap between the heat exchanger 204 and the water pan 100, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200.

[0125] In some embodiments, the resilient support member 205 is a rubber, a sponge, or the like that has satisfying resilience, in such a manner that effective sealing can be provided to avoid the leakage of the air-conditioning air from the mounting gap between the heat exchanger 204 and the water pan 100, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200. The resilient support member 205 may be made of both a hard material and a resilient material. The hard material refers to plastic, sheet metal, etc., while the resilient material refers to a rubber, a sponge, etc. The resilient material is located at a side of the water pan 100 facing towards an evaporator.

[0126] In some embodiments, the resilient support member 205 has an elongated shape, a rounded strip shape, or other irregular strip shapes, as long as the heat exchangers 204 of different heights can be supported and effective sealing can be provided between the resilient support member 205 and the heat exchanger 204.

[0127] To facilitate fast and effective mounting between the resilient support member 205 and the heat exchanger 204, the resilient support member 205 has a slot (not illustrated in the figures) at an end of the resilient support member 205 facing towards the heat exchanger 204. The heat exchanger 204 is snapped at an inside of the slot, in such a manner that when the heat exchanger 204 is assembled at the water pan 100, a quick assembly of the heat exchanger 204 can be realized by simply aligning the heat exchanger 204 with the slot and snapping the heat exchanger 204 at the inside of the slot, which is convenient and fast.

[0128] In some embodiments, the resilient support member 205 has a thickness greater than or equal to 8 mm, and thus the resilient support member 205 can stably support the resilient support member 205. In addition, within such a thickness range, the resilient support member 205 can further provide adequate sealing.

[0129] Exemplarily, two layers of resilient support members 205 are provided. The two layers of resilient support members 205 are stacked on each other and have different hardness. The resilient support member 205 abutted against a side of the water pan 100 provides support, while the resilient support member 205 abutted against the heat exchanger 204 has a thickness greater than or equal to 5 mm, which further provides adequate sealing.

[0130] As illustrated in FIG. 26, to separate the heat exchanger 204 from the condensed water in the water receiving groove 107, and to prevent the heat exchanger 204 from soaking in the condensed water in the water receiving groove 107, the boss 108 is disposed at the

bottom surface of the water receiving groove 107. The boss 108 is arranged correspondingly to the heat exchanger 204. The resilient support member 205 is cushioned between the boss 108 and the heat exchanger 204. The boss 108 can prevent the resilient support member 205 from coming into contact with the condensed water in the water receiving groove 107 as much as possible to ensure sealing performance of the resilient support member 205. In addition, the boss 108 is engaged with the resilient support member 205, which effectively ensures that the heat exchanger 204 comes into no contact with the condensed water in the water receiving groove 107, providing protection for the heat exchanger 204.

[0131] The boss 108 is spaced apart from each of two side surfaces of the water receiving groove 107, in such a manner that the boss 108 occupies a small space in the water receiving groove 107. A low water receiving space may be formed between the boss 108 and each of the two side surfaces of the water receiving groove 107, which is conducive to receiving the condensed water in the heat exchanger 204.

[0132] To effectively support the resilient support member 205 by the boss 108, the resilient support member 205 has a size smaller than a size of the boss 108 in a width direction of the water receiving groove 107, in such a manner that the resilient support member 205 is in full contact with the boss 108. Therefore, the boss 108 can stably support the resilient support member 205. In addition, the resilient support member 205 can also provide sufficient sealing to avoid the leakage of the air-conditioning air from the mounting gap between the heat exchanger 204 and the water pan 100.

[0133] Since part of the air-conditioning air may pass through the water receiving groove 107 and comes into contact with the boss 108, the boss chamfer is formed at the top of the boss 108 to reduce the air resistance and the air noises. The air-conditioning air is in contact with the top of the boss 108 formed as a rounded plane, which leads to the low air resistance and the low air noises, effectively improving the overall performance of the indoor unit 200 and enhancing the user experience.

[0134] Some embodiments of the present disclosure provide an indoor unit 200. As illustrated in FIG. 27 to FIG. 29, the indoor unit 200 comprises the water pan 100, the heat exchanger 204, and the support member 206. The water receiving groove 107 is formed in the water pan 100. The heat exchanger 204 is disposed in the water receiving groove 107. The support member 206 comprises a support plate 207 and a flow guide plate 208. The support plate 207 is away from a bottom surface of the water receiving groove 107 in comparison with the flow guide plate 208. The flow guide plate 208 is disposed in the water receiving groove 107. The support plate 207 is used for placement of the heat exchanger 204.

[0135] Therefore, when a fluorine unit and a water unit of the indoor unit 200 typically share an internal platform, i.e., the water pan 100, and heat exchangers 204 of both the fluorine unit and the water unit have same shape and

height requirements, the heat exchanger 204 of the fluorine unit is supported by the support plate 207 of the support member 206, and thus the fluorine unit can adopt the heat exchanger 204 of a smaller height, which lowers costs of the heat exchanger 204 and avoids a waste. In addition, since the support plate 207 is away from the bottom surface of the water receiving groove 107 in comparison with the flow guide plate 208, the condensed water flows along the support plate 207 by gravity, is guided by the flow guide plate 208, and then converges in the water receiving groove 107, which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected.

[0136] Therefore, for a same internal platform, heat exchangers 204 of different heights can be compatibly assembled through assembling the support member 206 or assembling no support member 206 and through assembling support members 206 of different specifications, which realizes material generalization of the platform and miniaturization of the heat exchanger 204 of the fluorine unit, which reduces consumption of aluminum foil and copper tubes, ultimately realizing material generalization and a cost reduction.

[0137] To reinforce a strength of the support member 206, as illustrated in FIG. 28, the support member 206 further comprises a connection plate 209 connected to a side edge of the support plate 207 and a first flanging plate 210 connected to another side edge of the support plate 207. The flow guide plate 208 has a side edge connected to the connection plate 209 and another side edge provided with a second flanging plate 210, and is connected to the support plate 207 by the connection plate 209. A large water receiving space may be formed between the flow guide plate 208 and the connection plate 209. The first flanging plate 210 is connected to a side edge of the support plate 207, while the connection plate 209 is connected to another side edge of the support plate 207, which can reinforce a strength of the support plate 207 and improve stability of the support plate 207 in supporting the heat exchanger 204. The connection plate 209 may be abutted against the bottom surface of the water receiving groove 107 to increase a bearing capacity. The second flanging plate 211 can reinforce a strength of the flow guide plate 208 to improve an overall strength and support stability of the support member 206.

[0138] The support member 206 is engaged with the water receiving groove 107 by means of an interference fit. Through the interference fit between the support member 206 and the water receiving groove 107, the support member 206 can be stably engaged with the water receiving groove 107. In addition, each of the first flanging plate 210 and the second flanging plate 211 is abutted against a side surface of the water receiving groove 107. Positions of the support plate 207 and the connection plate 209 are limited by the first flanging plate 210 and the second flanging plate 211, which ensures stability of

the support member 206 in a direction perpendicular to a side surface of the water receiving groove 107, guaranteeing a stable assembly of the support member 206 in the water receiving groove 107.

[0139] To further stably fix the support member 206 in the water receiving groove 107, as illustrated in FIG. 28, the support member 206 further comprises an engagement plate 213. The engagement plate 213 is connected to the support plate 207 and parallel to the connection plate 209. A slot is formed between the connection plate 209 and the engagement plate 213, for an engagement with and positioning in the water receiving groove 107. On the one hand, the engagement plate 213 can reinforce the strength of the support plate 207 and improve the stability of the support plate 207 in supporting the heat exchanger 204. On the other hand, the engagement plate 213 may form the slot with the connection plate 209 and be engaged with and positioned in the water receiving groove 107, in such a manner that stable fixation between the support member 206 and the water receiving groove 107 can be realized without other fixation members. Exemplarily, the water receiving groove 107 may be internally provided with an engagement block corresponding to the slot. In this way, the support member 206 can be stably fixed in the water receiving groove 107 by placing the support member 206 in the water receiving groove 107, enabling the slot to be engaged with the engagement block, and enabling each of the first flanging plate 210 and the second flanging plate 211 to be abutted against a side surface of the water receiving groove 107.

[0140] In some embodiments, the flow guide plate 208 is connected to the connection plate 209, and the connection plate 209 and the flow guide plate 208 form a step structure. The condensed water flows along the connection plate 209 by gravity, is guided by the flow guide plate 208, and then converges in the water receiving groove 107, which prevents the heat exchanger 204 from soaking up water during operation or standby, and allows the condensed water to be discharged quickly, preventing the heat exchange efficiency of the heat exchanger 204 from being affected. The connection plate 209 and the flow guide plate 208 can provide guidance for the condensed water. In addition, a large water receiving space can be formed between the flow guide plate 208 and the connection plate 209 to receive a large amount of condensed water, avoiding the overflow of the condensed water.

[0141] The connection plate 209 is arranged obliquely. The condensed water flows along the obliquely-arranged connection plate 209 by gravity, is guided by the flow guide plate 208, and then converges in the water receiving groove 107.

[0142] To reinforce the strength of the support member 206 for stable support of the heat exchanger 204, the support member 206 is made of plastic or sheet metal. Due to a high strength of the support member 206 made of plastic or sheet metal, support stability of the support member 206 can be ensured.

[0143] To improve sealing performance between the heat exchanger 204 and the support member 206, in some embodiments, as illustrated in FIG. 30, the indoor unit 200 further comprises a resilient cushion 212. The resilient cushion 212 is disposed at the support plate 207. The heat exchanger 204 is disposed at the resilient cushion 212. The resilient cushion 212 serves to avoid the leakage of the air-conditioning air from a mounting gap between the heat exchanger 204 and the support member 206, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200. The resilient cushion 212 is a rubber, a sponge, or the like, and may be attached to a side surface of the support plate 207 used for supporting the heat exchanger 204. The rubber, the sponge, or the like can provide effective sealing due to its satisfying resilience to avoid the leakage of the air-conditioning air from the mounting gap between the heat exchanger 204 and the support member 206, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200.

[0144] To improve the sealing performance between the heat exchanger 204 and the support member 206, in some other embodiments, as illustrated in FIG. 30, the indoor unit 200 further comprises the resilient cushion 212. The resilient cushion 212 serves to avoid the leakage of the air-conditioning air from the mounting gap between the heat exchanger 204 and the support member 206, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200. The resilient cushion 212 is disposed in part of the water receiving groove 107. Part of the heat exchanger 204 is directly disposed at the resilient cushion 212.

[0145] Exemplarily, one layer of resilient cushion 212 is provided. The one layer of resilient cushion 212 has a thickness greater than or equal to 8 mm, such as 8 mm, 10 mm, 12 mm, or the like. Therefore, the resilient cushion 212 can stably support the heat exchanger 204 and can also provide adequate sealing within such a thickness range.

[0146] Alternatively, two layers of resilient cushions 212 are provided. The two layers of resilient support members 205 are stacked on each other and have different hardness. The resilient cushion 212 abutted against a side of the water pan 100 provides support, while the resilient cushion 212 abutted against the heat exchanger 204 has a thickness greater than or equal to 5 mm, such as 5 mm, 6 mm, 7 mm, or the like, to provide adequate sealing.

[0147] With the resilient cushion 212 arranged to support the heat exchanger 204, support can be provided, and satisfying sealing can also be provided to avoid the leakage of the air-conditioning air from the mounting gap

between the heat exchanger 204 and the support member 206, which guarantees that all of the air-conditioning air passes through the heat exchanger 204 and subsequently flows out of the air outlet, increasing the heat exchange efficiency of the indoor unit 200.

[0148] Some further embodiments of the present disclosure provide a connection device, an air guide ring assembly, and an air conditioner. The connection device, the air guide ring assembly, and the air conditioner according to some embodiments of the present disclosure are described below with reference to FIG. 31 to FIG. 42.

[0149] As illustrated in FIG. 31, FIG. 32, FIG. 33, FIG. 34, FIG. 35, FIG. 36, FIG. 37, and FIG. 38, the present disclosure provides a connection device 32. The connection device 32 comprises a body 3206 and a locking portion 3104. The body 3206 has a connection hole 3106 at an end of the body 3206. The locking portion 3104 is arranged at an end of the body 3206. The locking portion 3104 is abutted with at least part of a side wall of the body 3206 in a circumferential direction of the connection hole 3106.

[0150] The connection device 32 provided by the present disclosure comprises the body 3206 and the locking portion 3104. With the connection hole 3106 at the end of the body 3206, a connection function of the connection device 32 is realized by connecting the connection hole 3106 to a connection member. Exemplarily, the connection member may be inserted in the connection hole 3106, and thus an outer wall of the connection member is connected to an inner wall of the connection hole 3106. The outer wall of the connection member may be connected to the inner wall of the connection hole 3106 by means of a pin, a snap, an interference fit, a threaded connection, or the like.

[0151] The connection device 32 further comprises the locking portion 3104. The locking portion 3104 is arranged at the end of the body 3206. The locking portion 3104 is abutted with the at least part of the side wall of the body in the circumferential direction of the connection hole 3106. That is, the locking portion 3104 may fully wrap around an outer wall of the body 3206 in the circumferential direction of the connection hole 3106, which achieves an effect of reinforcing a radial strength of the connection member. Exemplarily, arranging the locking portion 3104 to be abutted with the at least part of the side wall of the body 3206 enables a tight connection between the locking portion 3104 and the body 3206, in such a manner that the locking portion 3104 can be prevented, when the connection hole 3106 is subjected to a force, from moving due to a loose connection between the locking portion 3104 and the body 3206, and thus the locking portion 3104 can be prevented from losing a function of fixing the connection hole 3106. In this way, a pressure that the body 3206 can withstand in a radial direction of the connection hole 3106 can be effectively increased to prevent a hole wall of the connection hole 3106 from cracking during connecting the connection member to the connection hole 3106, ensuring a strength

of the connection device 32.

[0152] Exemplarily, during mounting of the connection member with the connection hole 3106 at a first end, the connection member exerts a pressure on the inner wall of the connection hole 3106 inside the connection hole 3106. That is, an inside of the connection hole 3106 exerts a radial pressure on the body 3206. When a radial pressure exerted by the body 3206 the connection member on the inner wall of the connection hole 3106 exceeds a maximum radial pressure that the body 3206 can withstand, the hole wall of the connection hole 3106 will crack, which therefore results in a damage to the connection device 32, disabling the connection function. Through arranging the locking portion 3104 at the end of the body 3206, the locking portion 3104 may be abutted with the body 3206 during connecting the connection member to the connection hole 3106 to avoid cracks due to an excessive deformation of the body 3206, improving a pressure resistance of the body 3206. In this way, a radial structural strength of the body 3206 is reinforced to ensure the strength of the connection device 32.

[0153] For the connection device 32 provided in the present disclosure, the connection hole 3106 is formed at the body 3206. In this way, the connection device 32 can be connected to the connection member by the connection hole 3106 at the body 3206 to realize the connection function of the connection device 32. Through arranging the locking portion 3104 at the end of the body 3206 and arranging the locking portion 3104 to be abutted with the side wall of the body 3206 in the circumferential direction of the connection hole 3106, the locking portion 3104 may be abutted with the body 3206 during connecting the connection member to the connection hole 3106 to avoid the cracks due to the excessive deformation of the body 3206, improving the pressure resistance of the body 3206. In this way, the radial structural strength of the body 3206 is reinforced, and radial cracks that occur when the body 3206 is subjected to an excessive radial pressure is avoided, which ensure the strength of the connection device 32.

[0154] As illustrated in FIG. 32, FIG. 34, FIG. 36, and FIG. 38, the locking portion 3104 is provided with a countersunk hole arranged around an end of the body 3206. The side wall of the body 3206 is abutted against a hole wall of the countersunk hole.

[0155] With the countersunk hole at the locking portion 3104, the end of the body 3206 may be arranged in the countersunk hole, and thus the body 3206 and the locking portion 3104 are connected simply. In addition, an inner wall of the countersunk hole may be abutted against the side wall of the body 3206, and thus the locking portion 3104 may be ensured to be abutted with the side wall of the body 3206 in the circumferential direction of the connection hole 3106, which in turn guarantees locking of the locking portion 3104 in the circumferential direction of the connection hole 3106, ensuring that during a connection of the connection hole 3106 to the connection member, the connection hole 3106 is subjected to no

cracks resulted from the excessive radial pressure.

[0156] A depth of the countersunk hole may be set to be identical to a depth of the connection hole 3106. When the locking portion 3104 is arranged at the body 3206, an end of the body 3206 is abutted against a bottom wall of the countersunk hole to ensure that in an axial direction of the connection hole 3106, the inner wall of the countersunk hole can completely cover an area where the connection hole 3106 is located, which in turn ensures that radial pressure resistance can be improved by the locking portion 3104 at any depth of the connection hole 3106 in an axial direction to avoid cracking.

[0157] The connection hole 3106 may be arranged to penetrate an end of the body 3206 to another end of the body 3206, in such a manner that the connection hole 3106 may be connected to connection members of different specifications as desired to increase flexibility of selections of the connection member. In this way, the connection device 32 can meet connection demands in different situations to improve universality of the connection device 32. The depth of the countersunk hole may be set to be the same as a length from the end of the body 3206 to the other end of the body 3206, which ensures that in the axial direction of the connection hole 3106, the inner wall of the countersunk hole can completely cover the area where the connection hole 3106 is located, which in turn ensures that the radial pressure resistance can be improved by the locking portion 3104 at any depth of the connection hole 3106 in the axial direction to avoid the cracking.

[0158] In any of the above embodiments, as illustrated in FIG. 32, FIG. 34, FIG. 36, and FIG. 38, the locking portion 3104 further has an avoidance hole 3208. The avoidance hole 3208 penetrates the bottom wall of the countersunk hole.

[0159] The locking portion 3104 may further have the avoidance hole 3208. The avoidance hole 3208 is configured to avoid the connection member during the connection of the connection hole 3106 to the connection member, to avoid an interference of the locking portion 3104 with the connection member that prevents the connection member from being smoothly connected to the connection hole 3106. Exemplarily, the avoidance hole 3208 is formed at and penetrates the bottom wall of the countersunk hole. During the connection of the connection member to the connection hole 3106, the locking portion 3104 is arranged at the end of the body 3206 to enable the end of the body 3206 to be abutted against the bottom wall of the countersunk hole. In this case, the avoidance hole 3208 is opposite to the connection hole 3106 at the body 3206. The connection member may pass through the avoidance hole 3208 to reach an end of the body 3206, and thus the connection member is connected to the connection hole 3106 to realize connecting another device to the body 3206 by the connection member.

[0160] Exemplarily, a diameter of the avoidance hole 3208 is greater than a diameter of the connection hole

3106, which enables the avoidance hole 3208 to provide pre-positioning for the connection member to facilitate a connection between the connection member and the connection hole 3106, further increasing the assembly efficiency. A size of the diameter of the avoidance hole 3208 may be set based on a size of an area of an end surface of an end of the body 3206 to fully utilize the end surface of the end of the body 3206, which in turn ensures the pre-positioning provided by the avoidance hole 3208, further facilitating the operation of the user. Of course, a difference between the diameter of the avoidance hole 3208 and the diameter of the connection hole 3106 should be smaller than a predetermined value to avoid that the avoidance hole 3208 being large and the connection hole 3106 being small make the pre-positioning provided by the avoidance hole 3208 unobvious.

[0161] Exemplarily, an inner wall of the avoidance hole 3208 may be formed as an inclined surface inclined towards a center of the avoidance hole 3208 to enable the inner wall of the avoidance hole 3208 to be formed into a funnel-like shape, in such a manner that the connection member may slide along an inclined side wall of the avoidance hole 3208 to an opening of the connection hole 3106, which guides the connection member to be fixedly mounted with the connection hole 3106, further strengthening guidance provided by the avoidance hole 3208 to facilitate mounting. Further, the operation of the user is facilitated to increase an assembly efficiency of the connection device 32.

[0162] The avoidance hole 3208 is coaxially arranged with the connection hole 3106.

[0163] Exemplarily, the avoidance hole 3208 is coaxially arranged with the connection hole 3106. That is, a center of the avoidance hole 3208 coincides with a center of the connection hole 3106, in such a manner that the connection member can easily pass through the avoidance hole 3208 to be connected to the connection hole 3106, which further facilitates the operation of the user, improving convenience of use of the connection device 32.

[0164] In any of the above-mentioned embodiments, as illustrated in FIG. 31 to FIG. 38, the body 3206 comprises a base 3202 and a protrusion post 3204. The protrusion post 3204 has an end having the connection hole 3106 and another end connected to the base 3202. The countersunk hole is arranged around the protrusion post 3204.

[0165] The body 3206 may comprise the base 3202 and the protrusion post 3204. The base 3202 is configured to be connected to another component to ensure a connection strength of a connection between the connection device 32 and the other component. Exemplarily, an area of the base 3202 may be set to be greater than an area of the protrusion post 3204 to enlarge a connection area between the connection device 32 and the other component, ensuring the connection strength. With the protrusion post 3204, a space occupied by the connection hole 3106 in the circumferential direction can be re-

duced, which is conducive to a miniaturization design of the connection device 32, facilitating an arrangement of the connection device 32 and improving the universality of the connection device 32.

[0166] Exemplarily, the base 3202 and the protrusion post 3204 may be arranged into an integrally-formed structure. By arranging the base 3202 and the protrusion post 3204 into the integrally-formed structure, no gap exists between the base 3202 and the protrusion post 3204, which in turn can maximally ensure structural stability between the base 3202 and the protrusion post 3204, reinforcing a structural strength of the body 3206.

[0167] Exemplarily, the body 3206 may be made of a metallic material and manufactured by means of casting to realize an integrally-formed design of the base 3202 and the protrusion post 3204. The body 3206 may also be made of plastic and manufactured by means of injection molding to realize the integrally-formed design of the base 3202 and the protrusion post 3204.

[0168] An outer wall of the protrusion post 3204 is in an interference fit with the inner wall of the countersunk hole.

[0169] Exemplarily, with the interference fit between the outer wall of the protrusion post 3204 and the inner wall of the countersunk hole, a tight connection can be realized between the inner wall of the countersunk hole and the outer wall of the protrusion post 3204 to increase a radial pressure exerted by the inner wall of the countersunk hole on the outer wall of the protrusion post 3204, which further increase the radial pressure, generated by the inside of the connection hole 3106, that the protrusion post 3204 can withstand, to ensure that during the connection of the connection hole 3106 to the connection member, the connection hole 3106 is subjected to no cracks resulted from the excessive radial pressure.

[0170] In any of the above-mentioned embodiments, as illustrated in FIG. 31, FIG. 35, and FIG. 37, the outer wall of the protrusion post 3204 is inclined away from the connection hole 3106 in a direction from the protrusion post 3204 to the base 3202. A shape of the countersunk hole is adapted to a shape of the protrusion post 3204.

[0171] Through forming the outer wall of the protrusion post 3204 as an inclined surface inclined away from the connection hole 3106, i.e., by enabling a cross-sectional area of a part of the protrusion post 3204 connected to the base 3202 to be greater than a cross-sectional area of another end of the protrusion post 3204, the protrusion post 3204 is stably connected to the base 3202, which ensures the structural stability between the protrusion post 3204 and the base 3202, reinforcing the structural strength of the body 3206.

[0172] Through setting the shape of the countersunk hole to be adapted to the shape of the protrusion post 3204, the inner wall of the countersunk hole can be entirely abutted against the outer wall of the protrusion post 3204 when the locking portion 3104 is arranged at the protrusion post 3204, which ensures that the protrusion posts 3204 at various positions in the circumferential di-

rection of the connection hole 3106 can be locked by the locking portion 3104, thereby guaranteeing that no cracks occur at any part of the protrusion post 3204 during the connection of the connection member.

[0173] The protrusion post 3204 comprises a polygonal protrusion post or a tapered protrusion post.

[0174] Exemplarily, the protrusion post 3204 may comprise the polygonal protrusion post. Through setting the protrusion post 3204 into a polygonal shape, the locking portion 3104 can be prevented from rotating with respect to the protrusion post 3204 when arranged at the protrusion post 3204, which avoids frictions between the inner wall of the countersunk hole and the outer wall of the protrusion post 3204 to ensure tightness of a connection between the inner wall of the countersunk hole and the outer wall of the protrusion post 3204. Therefore, the locking portion 3104 can be ensured to provide locking for the protrusion post 3204, which avoids cracks of the protrusion post 3204.

[0175] Exemplarily, a side wall of the polygonal protrusion post may also be inclined to ensure that the cross-sectional area of the part of the protrusion post 3204 connected to the base 3202 is greater than a cross-sectional area of a top of the protrusion post 3204, which in turn ensures tightness of a connection between the protrusion post 3204 and the base 3202.

[0176] Exemplarily, the protrusion post 3204 may also be set to have a cylindrical shape or a conical shape, which reduces processing difficulty of the protrusion post 3204, increasing a processing efficiency of the connection device 32.

[0177] Exemplarily, the protrusion post 3204 may also be set to have a cross shape or other shapes based on actual mounting requirements.

[0178] In any of the above-mentioned embodiments, the connection device 32 further comprises the connection member. The connection member passes through the avoidance hole 3208 to be connected to the connection hole 3106.

[0179] The connection device 32 may further comprise the connection member passing through the avoidance hole 3208 to be connected to the connection hole 3106, which realizes the connection function of the connection device 32. Exemplarily, the connection member may be inserted in the connection hole 3106, and thus the outer wall of the connection member is connected to the inner wall of the connection hole 3106. The outer wall of the connection member may be connected to the inner wall of the connection hole 3106 by means of the pin, the snap, the interference fit, the threaded connection, or the like.

[0180] The connection hole 3106 has an internal thread. The connection member has an external thread adapted to the internal thread.

[0181] Exemplarily, in this technical solution, the connection member may be connected to the connection hole 3106 through threads. Exemplarily, the inner wall of the connection hole 3106 has an internal thread, and the

outer wall of the connection member has an external thread adapted to the internal thread. Through screwing the connection member, the external thread at the outer wall of the connection member may be connected to the internal thread at the inner wall of the connection hole 3106 to realize a match and mounting of the connection hole 3106 and the connection member through the threads, which makes a mounting structure simple and a mounting process convenient.

[0182] When the connection member is connected to the connection hole 3106 through threads, the radial pressure generated by the connection member is applied to an area covered by the internal thread at the inner wall of the connection hole 3106. In this way, the depth of the countersunk hole should be set to be greater than or equal to a length of the internal thread of connection hole 3106, to ensure that the locking portion 3104 located at an outer wall of protrusion post 3204 is able to cover the internal thread, and thus the locking portion 3104 can effectively resist a radial force exerted by the connection member on the inner wall of the connection hole 3106, effectively reinforcing a radial strength of the body 3206.

[0183] The connection hole 3106 may be arranged to penetrate a first end of the body 3206 to a second end of the body 3206. In addition, the internal thread in the connection hole 3106 extends from a first end of the connection hole 3106 to a second end of the connection hole 3106. That is, the internal thread in the connection hole 3106 covers the entire inner wall of the connection hole 3106, in such a manner that connection strength between the connection member and the connection hole 3106 can be ensured to satisfy demands of the connection device 32 for different connection strengths under different operation conditions. Accordingly, the locking portion 3104 may be entirely arranged around the side wall of the body 3206 to ensure that in any part of the inner wall of the connection hole 3106, the locking portion 3104 can effectively resist the radial force exerted by the connection member on the inner wall of the connection hole 3106, effectively reinforcing the radial strength of the body 3206.

[0184] The connection member comprises a screw. A nut of the screw is abutted with an edge of the connection hole 3106.

[0185] Exemplarily, the connection member may be a screw. An external thread of the screw and the internal thread in the connection hole 3106 are matched with and connected to each other to connect the connection member to the connection hole 3106 through threads, simplifying mounting. Setting the connection member as the screw can effectively lower costs of the connection member and facilitate a replacement of the screw when the screw is damaged, which makes subsequent repairmen and maintenance convenient. A shank of the screw may be entirely extended into the connection hole 3106. On the one hand, the external thread on the shank can be ensured to be completely connected to the internal thread in the connection hole 3106 to guarantee the connection

strength between the connection member and the connection hole 3106. On the other hand, the nut of the screw can be abutted against the connection hole 3106 to further increase reliability of a fixed connection between the external thread of the shank and the internal thread of the connection hole 3106.

[0186] Exemplarily, the screw can be selected in different specifications as desired to realize fixation and mounting with screws of different lengths. A length of the shank may be smaller than the depth of the connection hole 3106 to ensure that the screw can be entirely mounted in the connection hole 3106 and that the nut can be attached to an edge of the connection hole 3106, guaranteeing a fixation result of the screw. On a basis that the connection hole 3106 penetrates the end of the body 3206 to the other end of the body 3206, the length of the shank may also be greater than a length of the body 3206, in such a manner that the thread on the shank can be connected to an entirety of the internal thread in the connection hole 3106, further improving the connection strength between the connection member and the connection hole 3106.

[0187] In a second aspect of the present disclosure, as illustrated in FIG. 39, FIG. 40, FIG. 41, and FIG. 42, an air guide ring assembly 31 is further provided. The air guide ring assembly 31 comprises the connection device 32 according to any of the above embodiments.

[0188] Since the air guide ring assembly 31 provided in the present disclosure comprises the connection device 32 in any of the above technical solutions, the air guide ring assembly 31 can provide all the advantageous effects of the connection device 32, and thus details thereof will be omitted here.

[0189] The air guide ring assembly 31 further comprises an air guide ring 3100 provided with the locking portion 3104 and a water pan 3102 provided with the body 3206. The water pan 3102 in some other embodiments may be the water pan 100 according to any of the above-mentioned embodiments.

[0190] Exemplarily, through providing the locking portion 3104 at the air guide ring 3100 and the body 3206 at the water pan 3102, the locking portion 3104 at the air guide ring 3100 may be arranged at an end of the body 3206 at the water pan 3102 when the air guide ring 3100 is connected to the water pan 3102. Therefore, the locking portion 3104 can be abutted against a side wall of the body 3206 when the air guide ring 3100 is connected to the water pan 3102, to avoid cracks due to an excessive deformation of the body 3206, improving the pressure resistance of the body 3206. In this way, the radial structural strength of the body 3206 is reinforced to ensure the strength of the connection device 32, which avoids a failed connection.

[0191] A plurality of connection devices 32 is provided.

[0192] Exemplarily, providing the plurality of connection devices 32 can realize connections between the air guide rings 3100 and the water pans 3102 at different positions of the air guide rings 3100 and the water pans

3102. Therefore, an interaction forces between the air guide rings 3100 and the water pans 3102 are evenly distributed, which improves stability of the connection between the air guide ring 3100 and the water pan 3102.

[0193] In a third aspect of the present disclosure, an air conditioner is further provided. The air conditioner comprises the connection device 32 according to any of the above-mentioned embodiments or the air guide ring assembly 31 according to any of the above-mentioned embodiments.

[0194] Since the air conditioner provided by the present disclosure comprises the connection device 32 according to any of the above-mentioned embodiments or the air guide ring assembly 31 according to any of the above-mentioned embodiments, the air conditioner can provide all the advantageous effects of the connection device 32 or the air guide ring assembly 31, and thus details thereof will be omitted here.

[0195] Some further embodiments of the present disclosure provide a baffle assembly. A baffle assembly 4100 according to the embodiments of the present disclosure is described below with reference to FIG. 43 to FIG. 49. As illustrated in FIG. 43 to FIG. 49, the baffle assembly 4100 according to the embodiments of the present disclosure comprises a first baffle 41, a second baffle 42, a first sealing plate 43, and a second sealing plate 44.

[0196] Each of the first sealing plate 43 and the second sealing plate 44 is located between the first baffle 41 and the second baffle 42. The first sealing plate 43 has an end connected to the first baffle 41 and another end connected to the second baffle 41. That is, the first baffle 41 and the second baffle 42 are connected by the first sealing plate 43. For example, the first sealing plate 43 has a left end part connected to the first baffle 41 and a right end part connected to the second baffle 42. A left-right direction is illustrated in the figures.

[0197] The first sealing plate 43 is connected to the second sealing plate 44. A mounting hole 45 is defined between a part of the first sealing plate 43 and a part of the second sealing plate 44. The mounting hole 45 may be used for mounting of a copper pipe of a drainage component. In comparison with that the mounting hole 45 is defined between a part of a baffle and a sealing plate, connecting the first baffle 41 and the second baffle 42 by the first sealing plate 43 can improve flexibility of a component at the sealing plate (mounting hole 45). When parts of the drainage component need to be repaired or replaced or when the sealing plate connected to the drainage component is deformed, only the first sealing plate 43 or the second sealing plate 44 needs to be replaced. The first sealing plate 43 and the second sealing plate 44 can be assembled or disassembled without affecting the first baffle 41 and the second baffle 42, improving ease of an assembly and a disassembly of the baffle assembly 4100.

[0198] Therefore, the baffle assembly 4100 according to the embodiments of the present disclosure has advan-

tage of being easy to replace and repair.

[0199] In some embodiments, at least part of the first sealing plate 43 and at least part of the second sealing plate 44 are opposite to each other in a height direction of the first baffle 41, and the mounting hole 45 is formed between a side of the first sealing plate 43 close to the second sealing plate 44 in the height direction of the first baffle 41 and a side of the second sealing plate 44 close to the first sealing plate 43 in the height direction of the first baffle 41. For the ease of understanding, the height direction of the first baffle 41 is Exemplarily described as an up-down direction. The up-down direction is illustrated in the figures. For example, the height direction of each of the first baffle 41 and the second baffle 42 is the up-down direction. At least part of the first sealing plate 43 and at least part of the second sealing plate 44 are opposite to each other in the up-down direction. The second sealing plate 44 is located above the at least part of the first sealing plate 43. The mounting hole 45 is formed by an upper side of the at least part of the first sealing plate 43 and a lower side of the second sealing plate 44. The second sealing plate 44 has a left end part connected to the first baffle 41 and a right end part connected to the first sealing plate 43.

[0200] In some embodiments, the second sealing plate 44 further has a wiring hole 442. The wiring hole 442 may be used for mounting of a tube wire.

[0201] As illustrated in FIG. 46 to FIG. 49, in some embodiments, the first sealing plate 43 comprises a first plate body 431 and a second plate body 432.

[0202] A thickness direction of the first plate body 431 is parallel to a thickness direction of the second sealing plate 44, which facilitates a connection between the first sealing plate 43 and the second sealing plate 44 and facilitates defining the mounting hole 45 between the part of the first sealing plate 43 and the part of the first plate body 431. Also, a plurality of mounting holes 45 may be provided. The first plate body 431 further has a drainage through hole. The drainage through hole 4314 can facilitate mounting of a drainage receiver pipe. For example, two mounting holes 45 are defined between a part of a lower edge of the first sealing plate 43 and a part of an upper edge of the first plate body 431.

[0203] An included angle is formed between the thickness direction of the first plate body 431 and a thickness direction of the second plate body 432. Therefore, when the thickness direction of the first baffle 41 differs from the thickness direction of the second baffle 42, the first plate body 431 is connected to the first baffle 41 and the second plate body 432 is connected to the second baffle 42, in such a manner that the first baffle 41 and the second baffle 42 are connected by the first sealing plate 43.

[0204] As illustrated in FIG. 46 to FIG. 49, in some embodiments, one of the first sealing plate 43 and the second sealing plate 44 has an insertion groove 4313, and another of the first sealing plate 43 and the second sealing plate 44 is provided with an insertion portion 441. The insertion portion 441 is engaged within the insertion

groove 4313. Exemplarily, the insertion portion 441 is engaged within the insertion groove 4313 to facilitate positioning of the second sealing plate 44 when the first sealing plate 43 and the second sealing plate 44 are connected to each other, reducing a connection difficulty and a connection duration when the first sealing plate 43 and the second sealing plate 44 are connected to each other.

[0205] In some embodiments, the second sealing plate 44 is provided with the insertion portion 441, and the first plate body 431 has the insertion groove 4313. The insertion groove 4313 is opened towards the first sealing plate 43. Exemplarily, the insertion portion 441 is an insertion plate. A part of the first plate body 431 is stretched outwards in the thickness direction of the second sealing plate 44 to form the insertion groove 4313. The insertion plate is inserted in and engaged with the insertion groove 4313 to facilitate the positioning of the second sealing plate 44. A plurality of insertion portions 441 and a plurality of insertion grooves 4313 may be provided. For example, the second sealing plate 44 has a lower end part provided with two insertion portions 441 spaced apart in the left-right direction, and a part of the first plate body 431 is stretched forwards to form two insertion grooves 4313 spaced apart in the left-right direction. The insertion grooves 4313 are opened towards an upper side. A front-rear direction is illustrated in the figures.

[0206] In some embodiments, the first sealing plate 43 further has a first sealing plate flanging. The first sealing plate flanging is attached to the first sealing plate 43 and connected to a wall surface of the mounting hole 45. The first sealing plate flanging can improve a structural strength of a part of the first sealing plate 43 close to the mounting hole 45, in such a manner that the part of the first sealing plate 43 close to the mounting hole 45 is less susceptible to a deformation. For example, the first sealing plate flanging is connected to an upper edge of the first sealing plate 43, is attached to the first sealing plate 43 in the front-rear direction, and is located at a rear side of the first sealing plate 43.

[0207] The second sealing plate 44 further has a second sealing plate flanging. The second sealing plate flanging is attached to the second sealing plate 44. The second mounting hole 45 flanging is connected to the wall surface of the mounting hole 45. The second sealing plate flanging can improve a structural strength of a part of the second sealing plate 44 close to the mounting hole 45, in such a manner that the part of the second sealing plate 44 close to the mounting hole 45 is less susceptible to a deformation. For example, the second sealing plate flanging is connected to a lower edge of the second sealing plate 44. The second sealing plate flanging is attached to the second sealing plate 44 in the front-rear direction and located at a rear side of the second sealing plate 44.

[0208] In some embodiments, the first sealing plate 43 has a thickness greater than or equal to a thickness of the first baffle 41, and/or the thickness of the first sealing plate 43 is greater than or equal to a thickness of the

second baffle 42. That "the first sealing plate 43 has a thickness greater than or equal to a thickness of the first baffle 41, and/or the thickness of the first sealing plate 43 is greater than or equal to a thickness of the second baffle 42" comprises that: a, the thickness of the first sealing plate 43 is greater than or equal to the thickness of the first baffle 41; b, the thickness of the first sealing plate 43 is greater than or equal to the thickness of the second baffle 42; and c, the thickness of the first sealing plate 43 is greater than or equal to the thickness of the first baffle 41 and the thickness of the second baffle 42. The great thickness of the first sealing plate 43 can improve the structural strength of the first sealing plate 43, which improves a strength of an assembly with the second sealing plate 44.

[0209] In some embodiments, the thickness of the first sealing plate 43 ranges from 0.4 mm to 4 mm. Each of the thickness of the first baffle 41 and the thickness of the second baffle 42 ranges from 0.35 mm to 1.2 mm. For example, the thickness of the first sealing plate 43 is 0.8 mm, the thickness of the second sealing plate 44 is 0.4 mm, and each of the thickness of the first baffle 41 and the thickness of the second baffle 42 is 0.4 mm.

[0210] As illustrated in FIG. 46 to FIG. 49, in some embodiments, the first sealing plate 43 further comprises a first connection edge 4311, a second connection edge 4321, a first bent portion 4312, and a second bent portion 4323.

[0211] The first connection edge 4311, the first bent portion 4312, the first plate body 431, the second plate body 432, the second bent portion 4323, and the second connection edge 4321 are sequentially connected. The first connection edge 4311 is connected to the first baffle 41. The second connection edge 4321 is connected to the second baffle 42. In this way, the first baffle 41 and the second baffle 42 are connected by the first sealing plate 43. For example, the first connection edge 4311, the first bent portion 4312, the first plate body 431, the second plate body 432, the second bent portion 4323, and the second connection edge 4321 are sequentially connected from left to right.

[0212] The first bent portion 4312 has a first predetermined size in a thickness direction of the first connection edge 4311. Therefore, the first connection edge 4311 is offset from the first plate body 431 by the first predetermined size in the thickness direction of the first connection edge 4311, allowing an outer surface of the first plate body 431 to be conveniently coplanar with an outer surface of the first baffle 41 and allowing the first connection edge 4311 to be conveniently connected to a connection edge of the first baffle 41.

[0213] The second bent portion 4323 has a second predetermined size in a thickness direction of the second connection edge 4321. Therefore, the second connection edge 4321 is offset from the second plate body 432 by the second predetermined size in the thickness direction of the second connection edge 4321, allowing an outer surface of the second plate body 432 to be con-

veniently coplanar with an outer surface of the second baffle 42 and allowing the second connection edge 4321 to be conveniently connected to a connection edge of the second baffle 42. For example, the first bent portion 4312 has the first predetermined size in the front-rear direction.

[0214] The baffle assembly 4100 according to the embodiments of the present disclosure further comprises a first fastener 471 and a second fastener 472. The first baffle 41 further comprises a first substrate 411 and a first flanging that are attached to each other. The first flanging is connected to an end of the first substrate 411. The first baffle 41 further has a first fastening hole and a second fastening hole. Each of the first fastening hole and the second fastening hole penetrates the first flanging and the first substrate 411. The first fastener 471 passes through the first fastening hole to be connected to the first sealing plate 43. The second fastener 472 passes through the second fastening hole to be connected to the second sealing plate 44. The first flanging can increase a thickness of a position where the first sealing plate 43 is connected to the second sealing plate 44, increasing a structural strength of the first baffle 41. For example, the first flanging is connected to a right end of the first substrate 411 and located at a rear side of the first substrate 411, and the first fastening hole is located below the second fastening hole.

[0215] The baffle assembly 4100 according to the embodiments of the present disclosure further comprises a third fastener 473. The second baffle 42 further comprises a second substrate 421 and a second flanging that are attached to each other. The second flanging is connected to an end of the second substrate 421. The second baffle 42 further has a third fastening hole. The third fastening hole penetrates the second flanging and the second substrate 421. The third fastener 473 passing through the third fastening hole is connected to the first sealing plate 43. The second flanging can increase a thickness of a position where the second baffle 42 is connected to the first sealing plate 43, increasing a structural strength of the second baffle 42. For example, the second flanging is connected to a left end of the second substrate 421 and located at a rear side of the second substrate 421.

[0216] The present disclosure further provides an air conditioning indoor unit. The air conditioning indoor unit comprises the baffle assembly 4100 according to the embodiments of the present disclosure.

[0217] Therefore, the air conditioning indoor unit according to the embodiments of the present disclosure has an advantage that the baffle assembly 4100 is easy to replace and repair.

[0218] The air conditioning indoor unit according to the embodiments of the present disclosure further comprises a bottom tray 46.

[0219] The baffle assembly 4100 is mounted at the bottom tray 46. The water pan is disposed at a side of the baffle assembly 4100 away from the bottom tray 46. The

water pan may be the water pan according to any of the above-mentioned embodiments. One of the first sealing plate 43 and the bottom tray 46 is provided with a catch 433. Another of the first sealing plate 43 and the bottom tray has a catch hole. The catch 433 is engaged within the catch hole, which facilitates mounting of the first sealing plate 43 to the bottom tray 46. Exemplarily, the catch 433 has a plate-like shape and is disposed at the first connection edge 4311 and the second connection edge 4321.

[0220] Some further embodiments of the present disclosure provide an indoor unit. An air conditioning indoor unit 510 according to the embodiments of the present disclosure is described below with reference to FIG. 50 to FIG. 59.

[0221] As illustrated in FIG. 52 to FIG. 55, the air conditioning indoor unit 510 according to the embodiments of the present disclosure comprises a casing assembly and a water pan 52 according to any of the above-mentioned embodiments.

[0222] As illustrated in FIG. 52 to FIG. 55, the casing assembly comprises a casing and a lifting lug 53. The casing comprises a side plate 51. As illustrated in FIG. 50 and FIG. 51, the lifting lug 53 comprises a lifting lug hook 531 and a lifting sub-lug 532. As illustrated in FIG. 56 to FIG. 59, the water pan 52 comprises a water pan lug 521. The lifting sub-lug 532 comprises a water pan connection portion 5321 and a side plate connection portion 5322 that are sequentially connected. The lifting lug hook 531 is connected to the water pan connection portion 5321. The water pan lug 521 is connected to the water pan connection portion 5321. The side plate 51 is connected to the side plate connection portion 5322. The lifting lug hook 531 and the lifting sub-lug 532 are integrally formed.

[0223] In the related art, as illustrated in FIG. 60, the lifting lug hook 5301 of the lifting lug 530 is lapped over the lifting sub-lug 5302. To ensure a reliable connection between the lifting lug hook 5301 and the lifting sub-lug 5302, a long lifting lug cantilever 5303 needs to be disposed at the lifting lug hook 5301. The lifting lug hook 5301 is connected to the lifting sub-lug 5302 by the lifting lug cantilever 5303. A water pan lug 540 of the water pan is connected to the lifting sub-lug 5302. The long lifting lug cantilever 5303 at the lifting lug hook 5301 causes an overall strength of the lifting lug 530 to be unsatisfying and the lifting lug 530 to be prone to a deformation when subjected to a force, affecting performance of the air conditioning indoor unit.

[0224] The lifting lug hook 531 and the lifting sub-lug 532 of the air conditioning indoor unit 510 according to the embodiments of the present disclosure are integrally molded, in such a manner that the lifting lug 53 has a satisfying overall strength and is less prone to a deformation when subjected to a force. In addition, in comparison with the related art, the overall strength of the lifting lug can be improved without increasing a length of the lifting lug cantilever. A cantilever between the lifting lug

hook 531 and the lifting sub-lug 532 may be set short to further improve the overall strength of the lifting lug 53 and avoid the deformation of the lifting lug 53 caused by the force, which improve assembly reliability of the air conditioning indoor unit, contributing to improving use reliability of the air conditioning indoor unit.

[0225] Therefore, the air conditioning indoor unit according to the embodiments of the present disclosure has advantages such as satisfying reliability.

[0226] In an embodiment, the air conditioning indoor unit 510 is a ceiling cassette unit.

[0227] In an embodiment, the lifting lug 53 comprises a hanger rod connection portion 5323 connected to the side plate connection portion 5322. The hanger rod connection portion 5323 is located at a side of the side plate connection portion 5322. The water pan connection portion 5321 is located at an opposite side of the side plate connection portion 5322. The hanger rod connection portion 5323 is configured to be connected to a hanger rod of the ceiling cassette unit to realize hoisting mounting of the air conditioning indoor unit 510.

[0228] In some embodiments, one of the side plate connection portion 5322 and the side plate 51 is provided with a first positioning protrusion, and another of the side plate connection portion 5322 and the side plate 51 has a first positioning hole. The first positioning protrusion is inserted in and engaged with the first positioning hole.

[0229] For example, the side plate connection portion 5322 has the first positioning hole, and the first positioning protrusion is disposed at the side plate 51. When the lifting lug 53 is connected to the side plate 51, the first positioning protrusion is inserted in and engaged with the first positioning hole to realize pre-positioning of mounting of the lifting lug 53 at the side plate 51, facilitating a fixed connection between the lifting lug 53 and the side plate 51.

[0230] In some embodiments, the lifting lug hook 531 is a U-shaped hook and comprises a first portion 5311, a second portion 5312, and a middle portion 5313. Each of the first portion 5311 and the second portion 5312 extends in an up-down direction. A lower end of the first portion 5311 is connected to the water pan connection portion 5321. The middle portion 5313 extends in a first horizontal direction, and has an end connected to an upper end of the first portion 5311 and another end connected to an upper end of the second portion 5312 to define a limiting groove 5314 opened downwards.

[0231] To make the technical solutions of the present disclosure more easily understood, the technical solutions of the present disclosure are further described below with an example that the first horizontal direction is consistent with a left-right direction and a height direction of the side plate 51 is consistent with an up-down direction. The left-right direction and the up-down direction are illustrated in FIG. 50 to FIG. 5.

[0232] It should be understood by those skilled in the art that, the up-down directions illustrated in FIG. 52 to FIG. 5 is an up-down direction during an assembly of the

air conditioning indoor unit 510. The up-down direction in this case is opposite to an up-down direction during use of the air conditioning indoor unit.

[0233] The first portion 5311 and the second portion 5312 each extend in the up-down direction. The first portion 5311 is disposed at a right side of the second portion 5312. The middle portion 5313 extends in a left-right direction. The middle portion 5313 has a left end connected to the upper end of the second portion 5312 and a right end connected to the upper end of the first portion 5311. The limiting groove 5314 opened downwards is defined between the first portion 5311, the second portion 5312, and the middle portion 5313.

[0234] In the related art, as illustrated in FIG. 60, the lifting lug hook 5301 has a shallow limiting depth, which makes a lifting hook assembled with the lifting lug hook 5301 easy to slip out of place, resulting in unsatisfying assembly stability of the air conditioning indoor unit.

[0235] When a distance between the lower end of the first portion 5311 and a bottom of the limiting groove 5314 is smaller than a distance between a lower end of the second portion 5312 and the bottom of the limiting groove 5314, a limiting depth of a lifting lug hook 531 is equal to the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314. When the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 is greater than the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314 (as illustrated in FIG. 5), the limiting depth of the lifting lug hook 531 is equal to the distance L between the lower end of the second portion 5312 and the bottom of the limiting groove 5314. When the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 is equal to the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314, the limiting depth of the lifting lug hook 531 is equal to the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314. In this way, the lifting lug hook has a deep limiting depth that makes the lifting hook assembled with the lifting lug hook 531 uneasy to slip out of place, which is conducive to improving the assembly stability of the air conditioning indoor unit.

[0236] In an embodiment, the lifting hook assembled with the lifting lug hook 531 is a lifting hook (not illustrated in the figures) of a panel of the air conditioning indoor unit 510. In this way, the panel can be mounted and fixed by enabling the lifting hook of the panel to be engaged with the lifting lug hook 531.

[0237] In an embodiment, as illustrated in FIG. 5, the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314 ranges from 5 mm to 15 mm.

[0238] For example, the distance between the lower end of the second portion 5312 and the bottom of the

limiting groove 5314 is denoted by L, where L is greater than or equal to 5 mm and smaller than or equal to 15 mm.

[0239] Therefore, the limiting depth of the lifting lug hook 531 is deep and a size of the second portion 5312 is not large, which makes the lifting hook assembled with the lifting lug hook 531 uneasy to slip out of place and saves material costs as much as possible.

[0240] In an embodiment, as illustrated in FIG. 50, the first portion 5311 has a width that gradually increases towards the water pan connection portion 5321.

[0241] For example, as illustrated in FIG. 50, the width of the first portion 5311 gradually increases in a left-to-right direction.

[0242] Therefore, the overall strength of the lifting lug 53 is facilitated to be further improved, and the assembly stability of the air conditioning indoor unit is further improved, improving the use reliability of the air conditioning indoor unit.

[0243] Of course, in other embodiments, the width of the first portion may also remain unchanged in a direction away from the water pan connection.

[0244] In an embodiment, an included angle between the first portion 5311 and the middle portion 5313 is greater than 90°, and/or an included angle between the second portion 5312 and the middle portion 5313 is greater than 90°.

[0245] For example, as illustrated in FIG. 5, both the included angle α between the first portion 5311 and the middle portion 5313 and the included angle β between the second portion 5312 and the middle portion 5313 are greater than 90°.

[0246] Therefore, the overall structural strength of the lifting lug 53 is facilitated to be further improved, and the assembly stability of the air conditioning indoor unit is further improved, improving the use reliability of the air conditioning indoor unit.

[0247] Of course, in other embodiments, α and β may also be equal to 90°; or one of α and β is smaller than 90°.

[0248] In some embodiments, the lifting lug 53 comprises a first reinforcing rib 303. The first reinforcing rib 303 comprises a first segment, a second segment, and a third segment that are sequentially connected. The first segment is disposed at the first portion. The second segment is disposed at the middle portion. The third segment is disposed at the second portion.

[0249] For example, as illustrated in FIG. 50 and FIG. 51, the second segment is located between the first segment and the third segment in the left-right direction. The first segment is located at a left side of the third segment and disposed at the first portion. The second segment is disposed at the middle portion. The third segment is disposed at the second portion.

[0250] In an embodiment, as illustrated in FIG. 50, the first reinforcing rib 303 is located in the limiting groove 5314. Of course, in other embodiments, the first reinforcing rib may also be located outside the limiting groove.

[0251] Therefore, the first reinforcing rib 303 can effectively improve a structural strength of the lifting sub-

lug 532, which can improve the overall strength of the lifting lug 53 and therefore further improve the assembly stability of the air-conditioning indoor unit, improving the use reliability of the air-conditioning indoor unit.

5 [0252] In an embodiment, the first reinforcing rib 303 is formed by stamping a part of the lifting lug hook 531 in an up-down direction.

[0253] For example, as illustrated in FIG. 50, the first reinforcing rib 303 is formed by stamping a part of the lifting lug hook 531 from top to bottom.

10 [0254] Therefore, a processing of the lifting lug 53 is facilitated.

[0255] Of course, in other embodiments, a flanging may be formed at the lifting lug hook without the first reinforcing rib, in such a manner that the flanging is used to improve the overall strength of the lifting lug.

[0256] In some embodiments, the water pan connection portion 5321 extends in the first horizontal direction and the side plate connection portion 5322 extends in the up-down direction, in such a manner that the water pan connection portion 5321 and the side plate connection portion 5322 are arranged in an L-shape. The water pan lug 521 is lapped over the water pan connection portion 5321. An upper end of the side plate 51 has an avoidance opening 511 configured to avoid the water pan 52. At least part of the water pan lug 521 is configured to pass through the avoidance opening 511 in the first horizontal direction to be connected to the water pan connection portion 5321.

20 [0257] Since the lifting lug hook 531 is the U-shaped hook and the lower end of the first portion 5311 of the lifting lug hook 531 is connected to the water pan connection portion 5321, the lifting lug hook 531 is arranged to protrude upwards out of the water pan connection portion 5321. With the avoidance opening 511 formed at the side plate 51, an upper surface of the lifting lug hook 531 can be avoided to be higher than an upper surface of the water pan 52, allowing the air conditioning indoor unit to better meet the mounting requirements.

25 [0258] In an embodiment, as illustrated in FIG. 53, the avoidance opening 511 has an edge having a flanging 5114.

[0259] In an embodiment, the flanging 5114 may have a flat plate shape and is parallel to the side plate 51. Of course, in other embodiments, the flanging may also be a rolled edge. The flanging 5114 may comprise a plurality of segments arranged at intervals. Also, the flanging 5114 may have a one-piece structure.

30 [0260] Therefore, the flanging 5114 can effectively improve a structural strength at the avoidance opening 511, which further improves the assembly stability of the air conditioning indoor unit, improving the use reliability of the air conditioning indoor unit.

35 [0261] In addition, the flanging 5114 can prevent the edge of the avoidance opening 511 from being a sharp edge, improving assembly safety of the air conditioning indoor unit 510.

40 [0262] In an embodiment, the avoidance opening 511

has a first side wall 5111, a second side wall 5112, and a bottom wall 5113. Each of the first side wall 5111 and the second side wall 5112 extends in the up-down direction. The bottom wall 5113 extends in a second horizontal direction, and has an end connected to a lower end of the first side wall 5111 and another end connected to a lower end of the second side wall 5112.

[0263] The water pan lug 521 is located above the bottom wall 5113, and/or the water pan lug 521 is located between the first side wall 5111 and the second side wall 5112 in the second horizontal direction.

[0264] To make the technical solutions of the present disclosure more easily understood, the technical solutions of the present disclosure are further described below with an example that the second horizontal direction is consistent with the front-rear direction, in which case the first horizontal direction, the second horizontal direction, and the third horizontal direction are orthogonal to each other. The front-rear direction is as illustrated in FIG. 52, FIG. 53, and FIG. 55.

[0265] The first side wall 5111 is located at a front side of the second side wall 5112. The bottom wall 5113 extends in the front-rear direction, and has a front end connected to the lower end of the first side wall 5111 and a rear end connected to the lower end of the second side wall 5112.

[0266] As illustrated in FIG. 52 and FIG. 53, the water pan lug 521 is located above the bottom wall 5113, and has a front end surface located at a rear side of the first side wall 5111 and a rear end surface located at a front side of the second side wall 5112.

[0267] For example, the water pan lug 521 has a first side surface 5211 and a second side surface 5212 that are opposite to each other in the second horizontal direction. A gap is formed between the bottom wall 5113 and a lower edge of the water pan lug 521. A gap is formed between the first side wall 5111 and the first side surface 5211 of the water pan lug 521. A gap is formed between the second side wall 5112 and the second side surface 5212 of the water pan lug 521. In this way, the water pan lug 521 is in no contact with the avoidance opening 511, and thus an interaction force between the water pan lug 521 and the avoidance opening 511 can be avoided. Alternatively, the bottom wall 5113 is attached to the lower edge of the water pan lug 521. The first side wall 5111 is attached to the first side surface 5211 of the water pan lug 521. The second side wall 5112 is attached to the second side surface 5212 of the water pan lug 521. No interaction force exists between the water pan lug 521 and the avoidance opening 511. In this way, the water pan lug 521 is prevented from crushing the side plate 51, which further improves the assembly stability of the air conditioning indoor unit, improving the use reliability of the air conditioning indoor unit.

[0268] In an embodiment, a lower edge of the avoidance opening 511 is lower than an upper surface of the water pan connection portion 5321, and/or an upper edge of the avoidance opening 511 is higher than the upper

surface of the water pan connection portion 5321.

[0269] For example, the bottom wall 5113 of the avoidance opening 511 is lower than the upper surface of the water pan connection portion 5321.

[0270] Therefore, the water pan lug 521 is in no contact with the bottom wall 5113 of the avoidance opening 511 and abutted against the water pan connection portion 5321, which ensures that an interaction force exists between the water pan lug 521 and the water pan connection portion 5321, and thus the water pan 52 is stably fixed to the side plate 51 by the lifting lug 53. The assembly stability of the air conditioning indoor unit is facilitated to be further improved, improving the use reliability of the air conditioning indoor unit.

[0271] The upper edge of the avoidance opening 511 is higher than the upper surface of the water pan connection portion 5321, which can effectively prevent the upper surface of the lifting lug hook 531 from being higher than the upper surface of the water pan 52 and better enable the air conditioning indoor unit 510 to meet the mounting requirements.

[0272] In an embodiment, an upper surface of the middle portion 5313 is lower than or flush with the upper surface of the water pan 52.

[0273] Therefore, the air conditioning indoor unit 510 can better meet the mounting requirements.

[0274] It should be understood by those skilled in the art that the upper surface of the water pan 52 may be a flat surface or an inclined surface.

[0275] In an embodiment, the upper surface of the middle portion 5313 is more than 5 mm below the upper surface of the water pan 52.

[0276] In an embodiment, as illustrated in FIG. 56 and FIG. 57, the water pan 52 comprises a water holding tray 522 and a foam body 523. The water pan lug 521 has a block-like shape as a whole. The water pan lug 521 and the water holding tray are integrally formed.

[0277] The above-mentioned avoidance opening 511 facilitates a structural expansion of the water pan lug 521, which allows an original flat plate structure of the water pan lug 521 to be expanded into a three-dimensional block-like structure. Therefore, the three-dimensional structure has a large space for improvements in material selection, part design layout, and process molding.

[0278] For example, the water pan lug 521 may be made of plastic. On the one hand, a thermal resistance of plastic is higher than that of a sheet metal part, and thus when cold air flows through an air duct of the water pan 52, transfer of a cold volume is relatively blocked, making the water pan lug 521 less prone to condensation. On the other hand, the water pan lug 521 and the water holding tray 522 may be integrally formed, and thus there is only one part in a mold during foaming of the foam body 523 (a one-piece structure formed by the water holding tray 522 and the water pan lug 521). In comparison with a case where there are at least five parts in the mold during the foaming of the foam body 523 when the water pan lug is a sheet metal part, a quantity of parts

and complexity of a process are reduced, which facilitates the manufacturing of the water pan 52.

[0279] In an embodiment, as illustrated in FIG. 58 and FIG. 59, the water pan 52 comprises a second reinforcing rib 5215 disposed at the water pan lug 521.

[0280] Therefore, the structural strength of the water pan lug 521 can be improved by the second reinforcing rib 5215, which is conducive to further improving the assembly stability of the air conditioning indoor unit, improving the use reliability of the air conditioning indoor unit.

[0281] One or a plurality of second reinforcing ribs may be provided as desired. When the plurality of second reinforcing ribs is provided, the plurality of second reinforcing ribs may be parallel to or intersect with each other.

[0282] In some embodiments, as illustrated in FIG. 50, FIG. 51, and FIG. 59, one of the water pan connection portion 5321 and the water pan lug 521 is provided with a second positioning protrusion 5213 and another of the water pan connection portion 5321 and the water pan lug 521 has a second positioning hole 53211. The second positioning protrusion 5213 is configured to be inserted in and engaged with the second positioning hole 53211.

[0283] The water pan lug 521 has a first connection hole 5214. The water pan connection portion 5321 has a second connection hole 53212. A connection for the water pan lug 521 is implemented by a fastener passing through the first connection hole 5214 and the second connection hole 53212.

[0284] For example, the second positioning hole 53211 is formed at the water pan connection portion 5321, and the second positioning protrusion 5213 is disposed at the water pan lug 521.

[0285] Therefore, during a connection between the water pan lug 521 and the lifting lug 53, first the second positioning protrusion 5213 is inserted in the second positioning hole 53211 to realize pre-positioning of the water pan lug 521 on the water pan connection portion 5321 of the lifting lug 53, and then the fastener is passed through and fastened to the first connection hole 5214 and the second connection hole 53212, realizing the connection between the water pan lug 521 and the lifting lug 53. Therefore, fixation of the water pan 52 to the lifting lug 53 is facilitated, which is conducive to improving an assembly efficiency of the air conditioning indoor unit 510.

[0286] The above-mentioned fastener may be a screw or a bolt.

[0287] In an embodiment, the second positioning protrusion may be formed by the second reinforcing rib 5215. Of course, the second positioning protrusion may also be a positioning post having a cylindrical shape or a conical shape.

[0288] In an embodiment, one or a plurality of second positioning protrusions may be provided, and one or a plurality of second positioning holes may be provided. When the plurality of second positioning protrusions and the plurality of second positioning holes are provided, the plurality of second positioning protrusions corresponds

to the plurality of second positioning holes in a one-to-one correspondence. For example, as illustrated in FIG. 50 and FIG. 51, two second positioning holes 53211 are provided. The second connection hole 53212 is located between the two second positioning holes 53211 in the front-rear direction.

[0289] In an embodiment, the first connection hole is a countersunk base.

[0290] In an embodiment, the first connection hole is a flanging hole or a riveted screw hole.

[0291] In an embodiment, the water pan lug 521 is at a right angle or an obtuse angle to the water holding tray 522, or the water pan lug 521 and the water holding tray 522 are in a curved transition.

[0292] The air conditioner according to the embodiments of the present disclosure comprises the air conditioning indoor unit according to any of the above-mentioned embodiments.

[0293] As illustrated in FIG. 50 and FIG. 51, the lifting lug 53 according to the embodiments of the present disclosure comprises the lifting lug hook 531 and the lifting sub-lug 532. The lifting sub-lug 532 comprises the water pan connection portion 5321 and the side plate connection portion 5322 that are sequentially connected. The lifting lug hook 531 is connected to the water pan connection portion 5321. The lifting lug hook 531 and the lifting sub-lug 532 are integrally formed.

[0294] In the related art, as illustrated in FIG. 60, the lifting lug hook 5301 of the lifting lug 530 is lapped over the lifting sub-lug 5302. To ensure the reliable connection between the lifting lug hook 5301 and the lifting sub-lug 5302, the long lifting lug cantilever 5303 needs to be disposed at the lifting lug hook 5301. The lifting lug hook 5301 is connected to the lifting sub-lug 5302 by the lifting lug cantilever 5303. The water pan lug 540 of the water pan is connected to the lifting sub-lug 5302. The long lifting lug cantilever 5303 at the lifting lug hook 5301 causes the overall strength of the lifting lug 530 to be unsatisfying and the lifting lug 530 to be prone to a deformation when subjected to a force, affecting the performance of the air conditioning indoor unit.

[0295] For the air conditioning indoor unit having the lifting lug 53 according to the embodiments of the present disclosure, the lifting lug hook 531 and the lifting sub-lug 532 of the air conditioning indoor unit are integrally molded, in such a manner that the lifting lug 53 has the satisfying overall strength and is less prone to a deformation when subjected to a force. In addition, in comparison with the related art, the overall strength of the lifting lug can be improved without increasing the length of the lifting lug cantilever. The cantilever between the lifting lug hook 531 and the lifting sub-lug 532 may be set short to further improve the overall strength of the lifting lug 53 and avoid the deformation of the lifting lug 53 caused by the force, which improve the assembly reliability of the air conditioning indoor unit, contributing to improving the use reliability of the air conditioning indoor unit.

[0296] Therefore, the air conditioning indoor unit hav-

ing the lifting lug 53 according to the embodiments of the present disclosure has advantages such as satisfying reliability.

[0297] In an embodiment, the air conditioning indoor unit is the ceiling cassette unit.

[0298] In an embodiment, the lifting lug 53 comprises the hanger rod connection portion 5323 connected to the side plate connection portion 5322. The hanger rod connection portion 5323 and the water pan connection portion 5321 are located at two opposite sides of the side plate connection portion 5322. The hanger rod connection portion 5323 is configured to be connected to the hanger rod of the ceiling cassette unit to realize the hoisting mounting of the air conditioning indoor unit.

[0299] The lifting lug hook 531 is the U-shaped hook and comprises the first portion 5311, the second portion 5312, and the middle portion 5313. Each of the first portion 5311 and the second portion 5312 extends in the up-down direction. The lower end of the first portion 5311 is connected to the water pan connection portion 5321. The middle portion 5313 extends in the first horizontal direction, and has the end connected to the upper end of the first portion 5311 and the other end connected to the upper end of the second portion 5312 to define the limiting groove 5314 opened downwards.

[0300] To make the technical solutions of the present disclosure more easily understood, the technical solutions of the present disclosure are further described below with the example that the first horizontal direction is consistent with the left-right direction and the height direction of the side plate 51 is consistent with the up-down direction. The left-right direction and the up-down direction are illustrated in FIG. 50 to FIG. 54.

[0301] It should be understood by those skilled in the art that, the up-down directions illustrated in FIG. 52 to FIG. 54 is the up-down direction during the assembly of the air conditioning indoor unit 510. The up-down direction in this case is opposite to the up-down direction during the use of the air conditioning indoor unit.

[0302] The first portion 5311 and the second portion 5312 each extend in the up-down direction. The first portion 5311 is disposed at the right side of the second portion 5312. The middle portion 5313 extends in the left-right direction. The middle portion 5313 has the left end connected to the upper end of the second portion 5312 and the right end connected to the upper end of the first portion 5311. The limiting groove 5314 opened downwards is defined between the first portion 5311, the second portion 5312, and the middle portion 5313.

[0303] In the related art, as illustrated in FIG. 60, the lifting lug hook 5301 has a shallow limiting depth, which makes the lifting hook assembled with the lifting lug hook 5301 easy to slip out of place, resulting in the unsatisfying assembly stability of the air conditioning indoor unit.

[0304] When the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 is smaller than the distance between the lower end of the second portion 5312 and the bottom of the limiting

groove 5314, the limiting depth of the lifting lug hook 531 is equal to the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314. When the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 is greater than the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314 (as illustrated in FIG. 54), the limiting depth of the lifting lug hook 531 is equal to the distance L between the lower end of the second portion 5312 and the bottom of the limiting groove 5314. When the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 is equal to the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314, the limiting depth of the lifting lug hook 531 is equal to the distance between the lower end of the first portion 5311 and the bottom of the limiting groove 5314 and the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314. In this way, the lifting lug hook has a deep limiting depth that makes the lifting hook assembled with the lifting lug hook 531 uneasy to slip out of place, which is conducive to improving the assembly stability of the air conditioning indoor unit.

[0305] In an embodiment, as illustrated in FIG. 54, the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314 ranges from 5 mm to 15 mm.

[0306] For example, the distance between the lower end of the second portion 5312 and the bottom of the limiting groove 5314 is denoted by L, where L is greater than or equal to 5 mm and smaller than or equal to 15 mm.

[0307] Therefore, the limiting depth of the lifting lug hook 531 is deep and the size of the second portion 5312 is not large, which makes the lifting hook assembled with the lifting lug hook 531 uneasy to slip out of place and saves material costs as much as possible.

[0308] In an embodiment, as illustrated in FIG. 50, the first portion 5311 has the width that gradually increases towards the water pan connection portion 5321.

[0309] For example, as illustrated in FIG. 50, the width of the first portion 5311 gradually increases in the left-to-right direction.

[0310] Therefore, the overall strength of the lifting lug 53 is facilitated to be further improved, and the assembly stability of the air conditioning indoor unit is further improved, improving the use reliability of the air conditioning indoor unit.

[0311] Of course, in other embodiments, the width of the first portion may also remain unchanged in the direction away from the water pan connection.

[0312] In an embodiment, the included angle between the first portion 5311 and the middle portion 5313 is greater than 90°, and/or the included angle between the second portion 5312 and the middle portion 5313 is greater than 90°.

[0313] For example, as illustrated in FIG. 54, both the included angle α between the first portion 5311 and the

middle portion 5313 and the included angle β between the second portion 5312 and the middle portion 5313 are greater than 90° .

[0314] Therefore, the overall structural strength of the lifting lug 53 is facilitated to be further improved, and the assembly stability of the air conditioning indoor unit is further improved, improving the use reliability of the air conditioning indoor unit.

[0315] Of course, in other embodiments, α and β may also be equal to 90° ; or one of α and β is smaller than 90° .

[0316] In some embodiments, the lifting lug 53 comprises the first reinforcing rib 303. The first reinforcing rib 303 comprises the first segment, the second segment, and the third segment that are sequentially connected. The first segment is disposed at the first portion. The second segment is disposed at the middle portion. The third segment is disposed at the second portion.

[0317] For example, as illustrated in FIG. 50 and FIG. 51, the second segment is located between the first segment and the third segment in the left-right direction. The first segment is located at the left side of the third segment and disposed at the first portion. The second segment is disposed at the middle portion. The third segment is disposed at the second portion.

[0318] In an embodiment, as illustrated in FIG. 50, the first reinforcing rib 303 is located in the limiting groove 5314. Of course, in other embodiments, the first reinforcing rib may also be located outside the limiting groove.

[0319] Therefore, the first reinforcing rib 303 can effectively improve the structural strength of the lifting sub-lug 532, which can improve the overall strength of the lifting lug 53 and therefore further improve the assembly stability of the air-conditioning indoor unit, improving the use reliability of the air-conditioning indoor unit.

[0320] In an embodiment, the first reinforcing rib 303 is formed by stamping a part of the lifting lug hook 531 in the up-down direction.

[0321] For example, as illustrated in FIG. 50, the first reinforcing rib 303 is formed by stamping a part of the lifting lug hook 531 from top to bottom.

[0322] Therefore, the processing of the lifting lug 53 is facilitated.

[0323] Of course, in other embodiments, the flanging may be formed at the lifting lug hook without the first reinforcing rib, in such a manner that the flanging is used to improve the overall strength of the lifting lug.

[0324] In an embodiment, the water pan connection portion 5321 extends in the first horizontal direction and the side plate connection portion 5322 extends in the up-down direction, in such a manner that the water pan connection portion 5321 and the side plate connection portion 5322 are arranged in an L-shape.

[0325] In summary, the lifting lug 53 according to the embodiments of the present disclosure has advantages of the satisfying strength and not easy to be deformed. In addition, the lifting lug hook has the deep limiting depth, which makes the lifting hook assembled with the lifting lug hook uneasy to slip out of place.

[0326] Terms "first", "second", and "third" in the present disclosure are only used for descriptive purposes, and cannot be understood as indicating the number of indicated technical features. Therefore, the features associated with "first", "second", and "third" may explicitly or implicitly comprise at least one of the features. Each orientation indication (such as up, down, left, right, front, rear, ...) in the embodiments of the present disclosure is used only for explaining a relative positional relation, movements, etc., between components in a particular pose (as illustrated in the figures). If the particular pose is changed, the orientation indication is changed accordingly. In addition, terms "comprising" and "having" and any variations thereof are intended to cover non-exclusive inclusions. For example, a process, method, system, product, or device that comprises a series of steps or units is not limited to the listed steps or units, but may also comprise steps or units that are not clearly listed or other steps or units that are inherent to the process, method, product, or device.

[0327] Although the embodiments of the present disclosure are described above, the scope of the present disclosure is not limited to the embodiments. Any equivalent structure or equivalent process transformation made using the contents of the specification and the accompanying drawings, or any direct or indirect application of the contents of the specification and the accompanying drawings in other related fields, shall equally fall within the scope of the present disclosure.

Claims

1. A water pan, comprising:

a frame comprising an annular side wall and a mounting groove body; and
a water tray arranged in the mounting groove body, an annular air outlet surrounding the water tray being formed between the annular side wall and the water tray.

2. The water pan according to claim 1, wherein:

the water tray comprises a water tray side wall, the annular air outlet being formed between the annular side wall and the water tray side wall; and
the water tray side wall being provided with a connection rib at an outer periphery of the water tray side wall, the connection rib connecting the water tray side wall and the annular side wall.

3. The water pan according to claim 2, wherein the connection rib is made of plastic material, foam material, or plastic material wrapped with foam material.

4. The water pan according to claim 2, wherein a wind-

ward end and/or a leeward end of the connection rib is provided with an air guide corner.

5. The water pan according to claim 2, wherein the connection rib has a leeward end provided with a saw-tooth structure.
6. The water pan according to claim 1, wherein: the annular side wall is partially connected to the mounting groove body, or the annular side wall is spaced apart from the mounting groove body to form the annular air outlet.
7. The water pan according to claim 1, wherein:
the water pan has a water receiving groove and an air inlet surrounded by the water receiving groove; and
a leeward surface of the water pan formed between the air inlet and the water receiving groove has a notch groove which is in communication with the water receiving groove.
8. The water pan according to claim 1, wherein the annular air outlet is formed by a straight segment, an arc segment, or a bevel segment.
9. The water pan according to claim 1, comprising a water receiving groove bottom surface having a recessed portion and a drainage hole channel, the recessed portion and the drainage hole channel being spaced apart from each other, the recessed portion being used for placement of a water suction opening of a drainage pump, and the drainage hole channel being provided with a drainage plug.
10. The water pan according to claim 9, wherein a bottom of the recessed portion has a thickness ranging from 10 mm to 18 mm.
11. The water pan according to claim 10, wherein the drainage hole channel has a depth greater than or equal to the thickness of the bottom of the recessed portion.
12. The water pan according to claim 9, wherein a recessed portion bottom surface of the recessed portion has a surface area greater than an area of a vertical projection of the drainage pump on the recessed portion bottom surface.
13. The water pan according to claim 9, wherein an upper end of the drainage hole channel is connected to the water receiving groove bottom surface, and is connected to the water receiving groove bottom surface in an oblique transition.
14. The water pan according to claim 9, wherein the

drainage plug is disposed at a lower end of the drainage hole channel and comprises a covering portion and a blocking portion, the covering portion has a size greater than a size of the blocking portion, the blocking portion being configured to block the drainage hole channel, and the covering portion being configured to cover the lower end of the drainage hole channel.

15. The water pan according to claim 14, wherein the lower end of the drainage hole channel is provided with a countersunk base, the covering portion being located in the countersunk base.
16. An air guide ring assembly, comprising:
the water pan according to any one of claims 1 to 15;
an air guide ring; and
a connection device comprising a body and a locking portion, the body being disposed at the water pan, and an end of the body having a connection hole,
wherein the locking portion is disposed at the air guide ring and arranged at an end of the body, the locking portion abutting at least part of a side wall of the body in a circumferential direction of the connection hole.
17. The air guide ring assembly according to claim 16, wherein the locking portion is provided with a countersunk hole arranged around an end of the body, the side wall of the body abutting against a hole wall of the countersunk hole.
18. The air guide ring assembly according to claim 17, wherein the locking portion further has an avoidance hole, the avoidance hole penetrating a bottom wall of the countersunk hole.
19. The air guide ring assembly according to claim 18, wherein the body comprises:
a base; and
a protrusion post having an end having the connection hole and another end connected to the base, the countersunk hole being arranged around the protrusion post.
20. The air guide ring assembly according to claim 19, wherein an outer wall of the protrusion post is inclined away from the connection hole in a direction from the protrusion post to the base, a shape of the countersunk hole being adapted to a shape of the protrusion post.
21. The air guide ring assembly according to claim 20, wherein the protrusion post comprises a polygonal

protrusion post or a tapered protrusion post.

- 22.** The air guide ring assembly according to any one of claims 18 to 21, the air guide ring assembly further comprising a connection member, the connection member passing through the avoidance hole to be connected to the connection hole.

- 23.** An indoor unit, comprising:

a water pan according to any one of claims 1 to 15; or
an air guide ring assembly according to any one of claims 16 to 22.

- 24.** The indoor unit according to claim 23, further comprising:

a baffle assembly disposed at the water pan and comprising a first baffle, a second baffle, a first sealing plate, and a second sealing plate, each of the first sealing plate and the second sealing plate being located between the first baffle and the second baffle, the first sealing plate having an end connected to the first baffle and another end connected to the second baffle, the first sealing plate being connected to the second sealing plate, and a mounting hole being defined between a part of the first sealing plate and a part of the second sealing plate; and
a bottom tray, the baffle assembly being mounted at the bottom tray, the bottom tray being located at a side of the baffle assembly facing away from the water pan, one of the first sealing plate and the bottom tray being provided with a catch, another of the first sealing plate and the bottom tray having a catch hole, and the catch being configured to be engaged within the catch hole.

- 25.** The indoor unit according to claim 24, wherein:

at least part of the first sealing plate and at least part of the second sealing plate are opposite to each other in a height direction of the first baffle; and
the mounting hole is formed between a side of the first sealing plate close to the second sealing plate in the height direction of the first baffle and a side of the second sealing plate close to the first sealing plate in the height direction of the first baffle.

- 26.** The indoor unit according to claim 24 or 25, wherein the first sealing plate comprises a first plate body and a second plate body, wherein:

a thickness direction of the first plate body is

parallel to a thickness direction of the second sealing plate;

an included angle is formed between the thickness direction of the first plate body and a thickness direction of the second plate body;
the first plate body is connected to the first baffle;
the second plate body is connected to the second baffle; and
the mounting hole being defined between a part of the first sealing plate and a part of the first plate body.

- 27.** The indoor unit according to claim 26, wherein:

one of the first sealing plate and the second sealing plate has an insertion groove; and
another of the first sealing plate and the second sealing plate is provided with an insertion portion, the insertion portion being configured to be engaged within the insertion groove.

- 28.** The indoor unit according to claim 27, wherein:

the second sealing plate is provided with the insertion portion; and
the first plate body has the insertion groove, the insertion groove being opened towards the first sealing plate.

- 29.** The indoor unit according to claim 26, wherein:

the first sealing plate further has a first sealing plate flanging, the first sealing plate flanging being attached to the first sealing plate and connected to a wall surface of the mounting hole; and
the second sealing plate further has a second sealing plate flanging, the second sealing plate flanging being attached to the second sealing plate and connected to the wall surface of the mounting hole.

- 30.** The indoor unit according to claim 24, wherein:

the first sealing plate has a thickness greater than or equal to a thickness of the first baffle; and/or
the thickness of the first sealing plate is greater than or equal to a thickness of the second baffle.

- 31.** The indoor unit according to claim 26, wherein the first sealing plate further comprises a first connection edge, a second connection edge, a first bent portion, and a second bent portion, wherein:

the first connection edge, the first bent portion, the first plate body, the second plate body, the second bent portion, and the second connection

- edge are sequentially connected;
the first connection edge is connected to the first baffle;
the second connection edge is connected to the second baffle;
the first bent portion has a first predetermined size in a thickness direction of the first connection edge; and
the second bent portion has a second predetermined size in a thickness direction of the second connection edge.
- 32.** The indoor unit according to claim 31, further comprising a first fastener and a second fastener, wherein:
- the first baffle further comprises a first substrate and a first flanging that are attached to each other;
the first flanging is connected to an end of the first substrate; and
the first baffle further has a first fastening hole and a second fastening hole, each of the first fastening hole and the second fastening hole penetrating the first flanging and the first substrate, the first fastener passing through the first fastening hole to be connected to the first sealing plate, and the second fastener passing through the second fastening hole to be connected to the second sealing plate.
- 33.** The indoor unit according to claim 31, further comprising a third fastener, wherein:
- the second baffle further comprises a second substrate and a second flanging that are attached to each other;
the second flanging is connected to an end of the second substrate; and
the second baffle further has a third fastening hole, the third fastening hole penetrating the second flanging and the second substrate, and the third fastener passing through the third fastening hole to be connected to the first sealing plate.
- 34.** The indoor unit according to claim 23, wherein the water pan comprises a water pan lug, and wherein the indoor unit further comprises a casing assembly, the casing assembly comprising:
- a casing comprising a side plate; and
a lifting lug comprising a lifting lug hook and a lifting sub-lug, the lifting sub-lug comprising a water pan connection portion and a side plate connection portion that are sequentially connected, wherein:
- the lifting lug hook is connected to the water pan connection portion;
the side plate is connected to the side plate connection portion;
the lifting lug hook and the lifting sub-lug are integrally formed; and
the water pan lug is connected to the water pan connection portion.
- 35.** The casing assembly according to claim 34, wherein the lifting lug hook is a U-shaped hook and comprises:
- a first portion having a lower end connected to the water pan connection portion;
a second portion, each of the first portion and the second portion extending in an up-down direction; and
a middle portion extending in a first horizontal direction, the middle portion having an end connected to an upper end of the first portion and another end connected to an upper end of the second portion to define a limiting groove opened downwards.
- 36.** The casing assembly according to claim 35, wherein:
- an included angle between the first portion and the middle portion is greater than 90°; and/or
an included angle between the second portion and the middle portion is greater than 90°.
- 37.** The casing assembly according to claim 35, wherein the first portion has a width that gradually increases towards the water pan connection portion.
- 38.** The casing assembly according to claim 35, wherein the lifting lug comprises a first reinforcing rib, the first reinforcing rib comprising a first segment, a second segment, and a third segment that are sequentially connected, wherein the first segment is disposed at the first portion, the second segment is disposed at the middle portion, and the third segment is disposed at the second portion.
- 39.** The casing assembly according to any one of claims 35 to 38, wherein an upper end of the side plate has an avoidance opening configured to avoid the water pan.
- 40.** The casing assembly according to claim 39, wherein:
- the avoidance opening has a lower edge lower than an upper surface of the water pan connection portion; and/or
the avoidance opening has an upper edge higher than the upper surface of the water pan connection portion.

41. The casing assembly according to any one of claims 34 to 38, wherein one of the side plate connection portion and the side plate is provided with a first positioning protrusion, and another of the side plate connection portion and the side plate has a first positioning hole, the first positioning protrusion being configured to be inserted in and engaged with the first positioning hole. 5
42. The air conditioning indoor unit according to claim 39, wherein the water pan connection portion extends in the first horizontal direction and the side plate connection portion extends in the up-down direction, in such a manner that the water pan connection portion and the side plate connection portion are arranged in an L-shape, the water pan lug being lapped over the water pan connection portion, and at least part of the water pan lug passing through the avoidance opening in the first horizontal direction to be connected to the water pan connection portion. 10 15 20
43. The air conditioning indoor unit according to claim 42, wherein the avoidance opening has:
- a first side wall; 25
 - a second side wall, each of the first side wall and the second side wall extending in the up-down direction; and
 - a bottom wall extending in a second horizontal direction, the bottom wall having an end connected to a lower end of the first side wall and another end connected to a lower end of the second side wall, wherein: 30
 - the water pan lug is located above the bottom wall; and/or 35
 - the water pan lug is located between the first side wall and the second side wall in the second horizontal direction. 40
44. The air conditioning indoor unit according to claim 43, wherein:
- the water pan lug has a block-like shape as a whole; and 45
 - the water pan comprises a water holding tray, the water pan lug and the water holding tray being integrally formed.
45. The air conditioning indoor unit according to claim 42, wherein an upper surface of the middle portion is lower than or flush with an upper surface of the water pan. 50
46. The air conditioning indoor unit according to claim 42, wherein: 55
- one of the water pan connection portion and the

water pan lug is provided with a second positioning protrusion and another of the water pan connection portion and the water pan lug has a second positioning hole, the second positioning protrusion being configured to be inserted in and engaged with the second positioning hole; and/or

the water pan lug has a first connection hole and the water pan connection portion has a second connection hole, a connection for the water pan lug being implemented by a fastener passing through the first connection hole and the second connection hole.

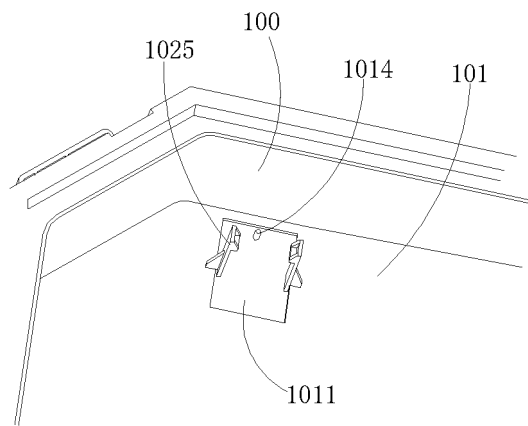


FIG. 1

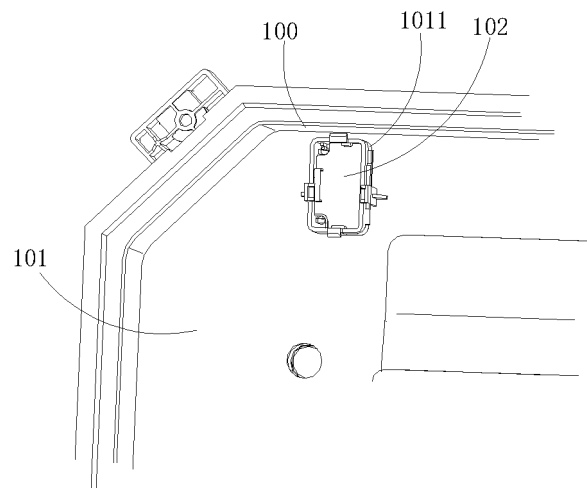


FIG. 2

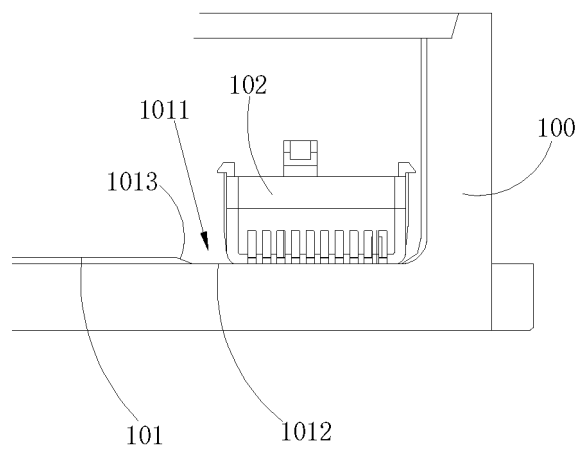


FIG. 3

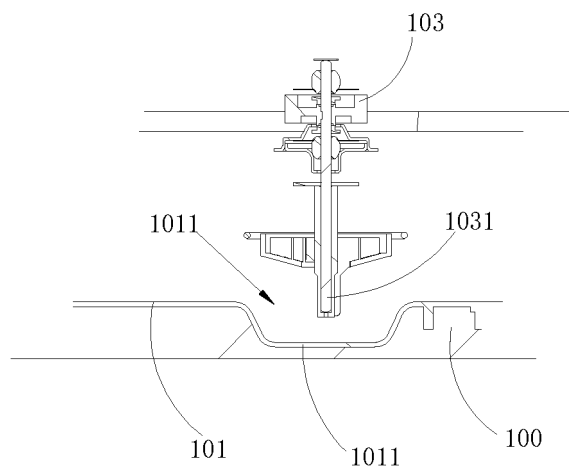


FIG. 4

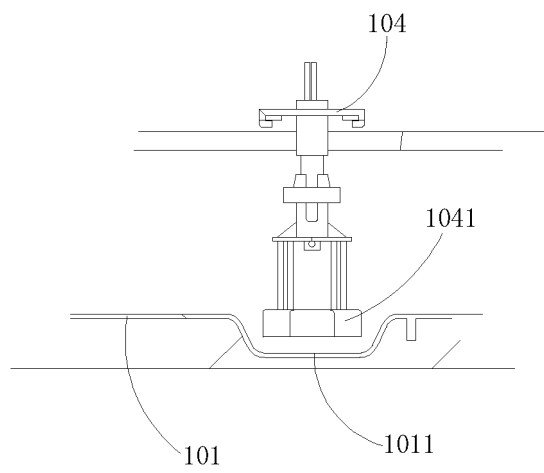


FIG. 5

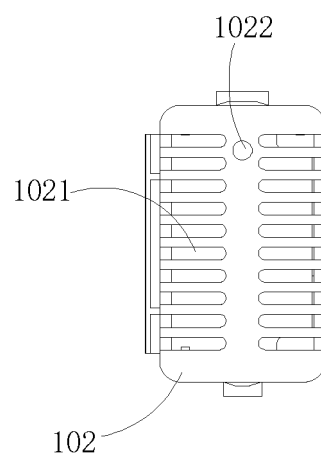


FIG. 6

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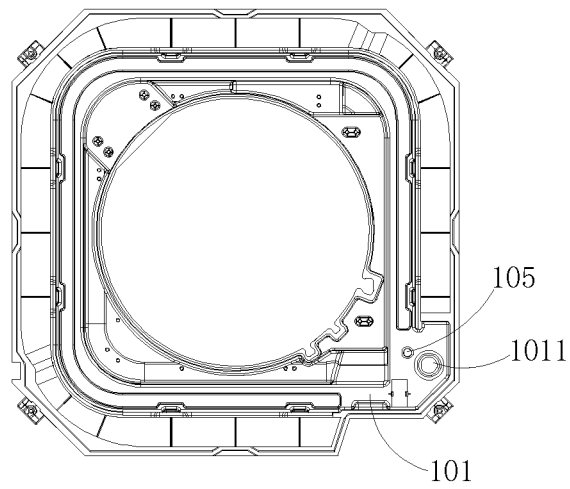


FIG. 7

100

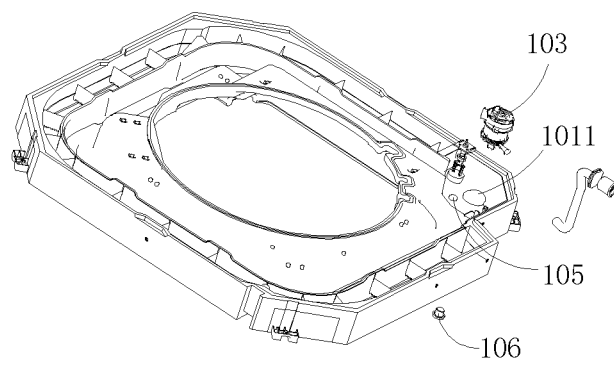
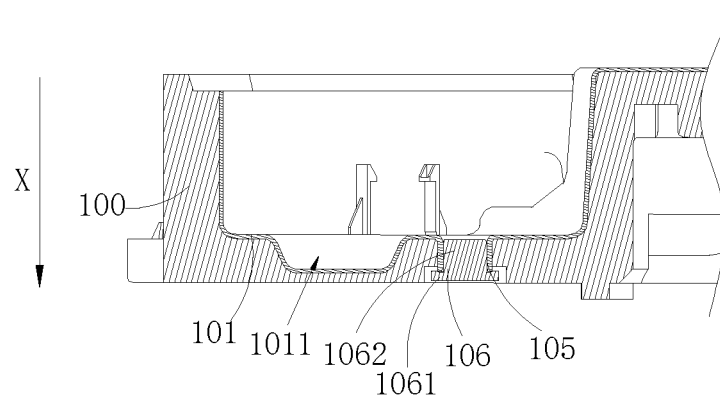


FIG. 8



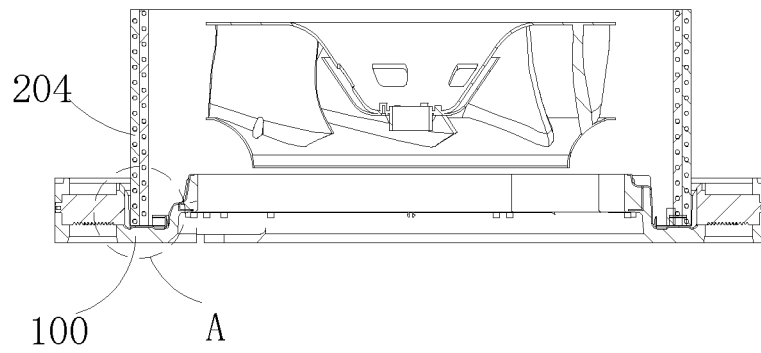


FIG. 10

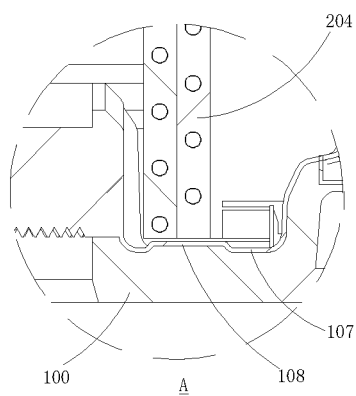


FIG. 11

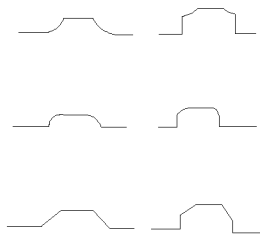


FIG. 12

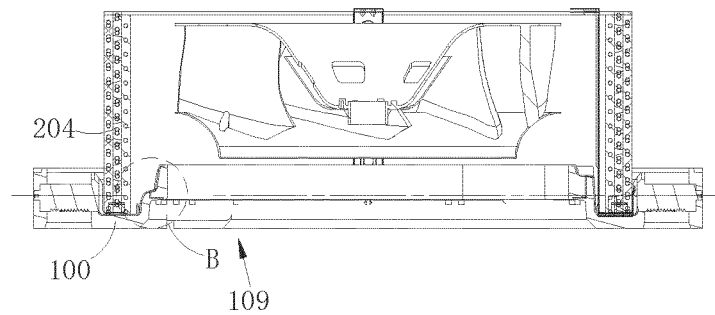


FIG. 13

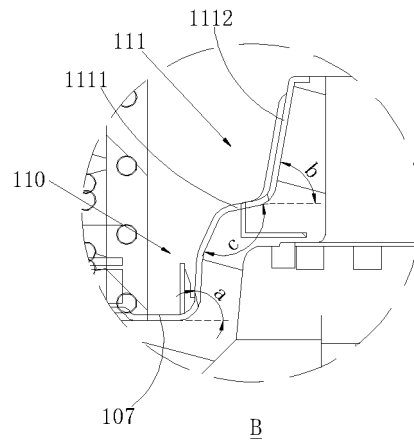


FIG. 14

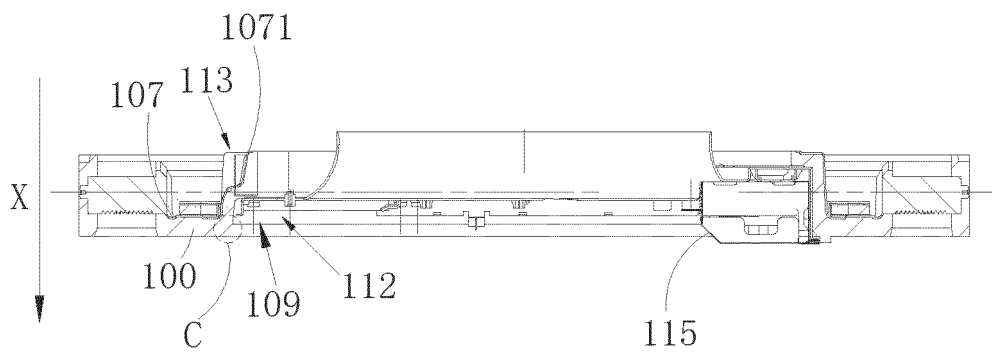


FIG. 15

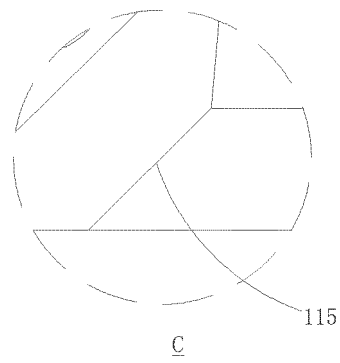


FIG. 16

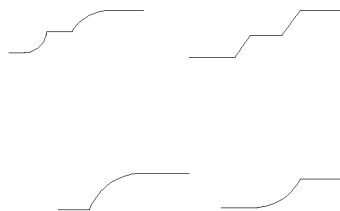


FIG. 17

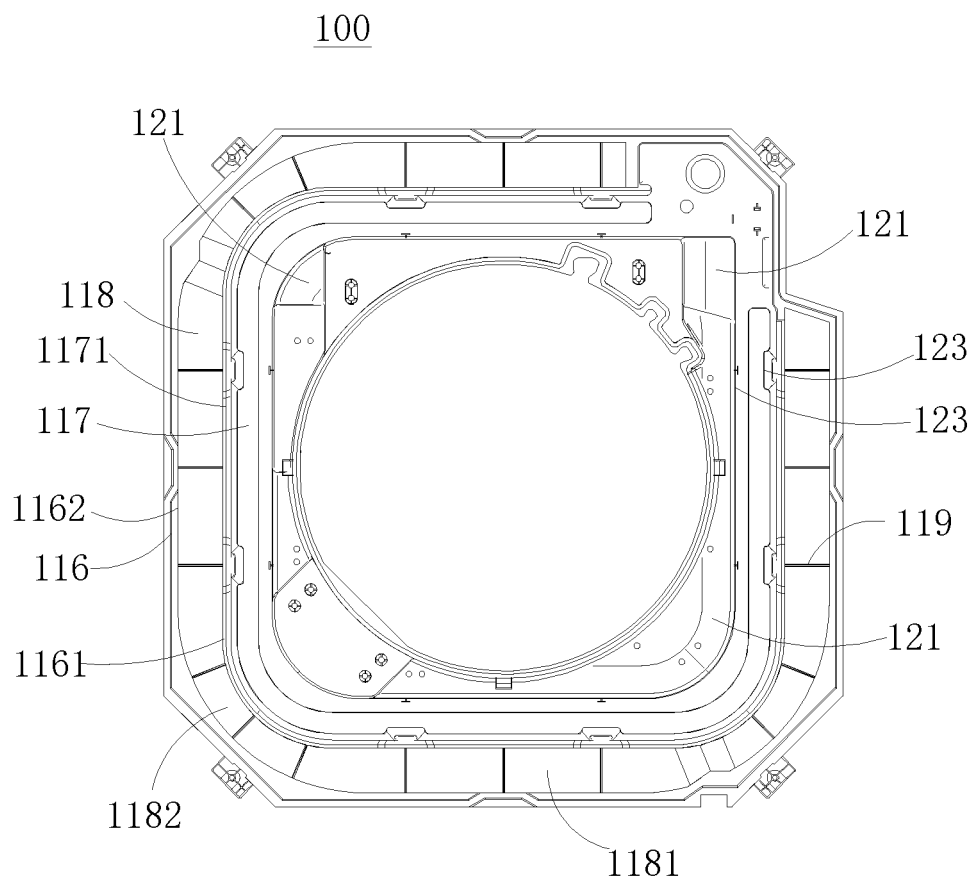


FIG. 18

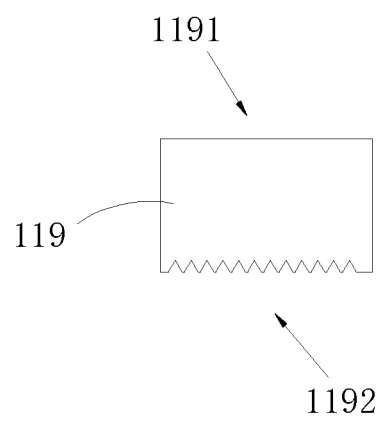


FIG. 19

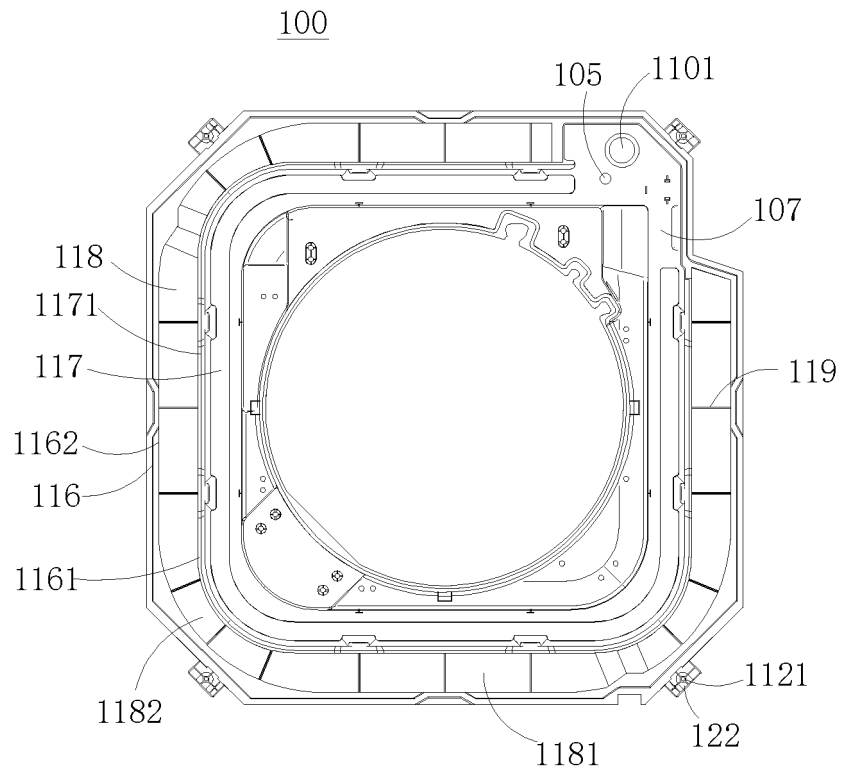


FIG. 20

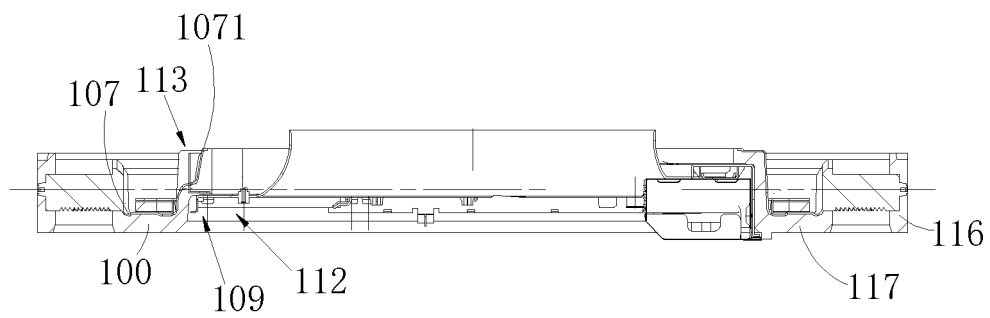


FIG. 21

200

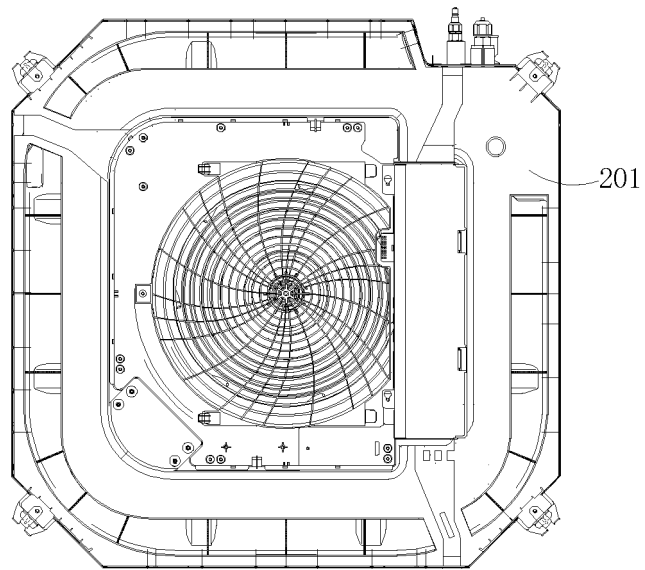


FIG. 22

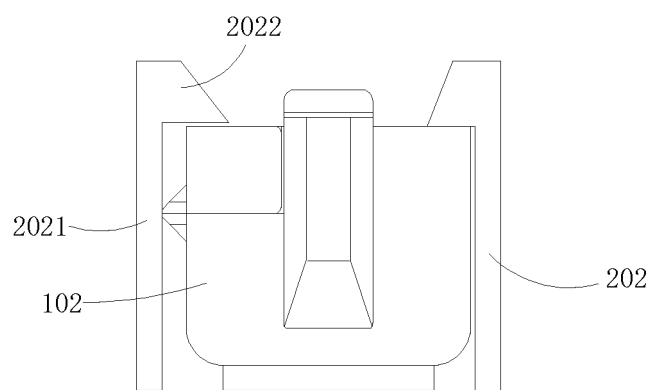


FIG. 23

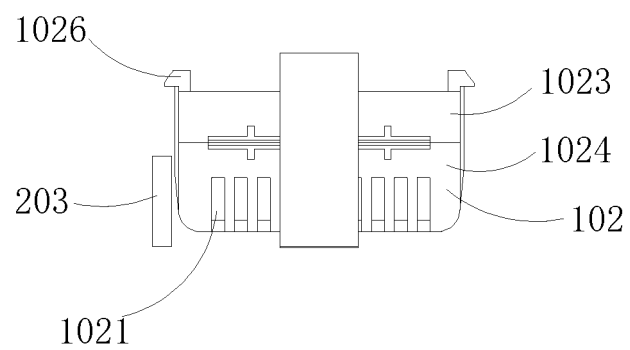


FIG. 24

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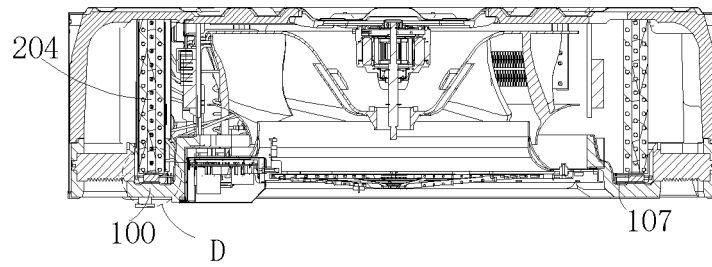


FIG. 25

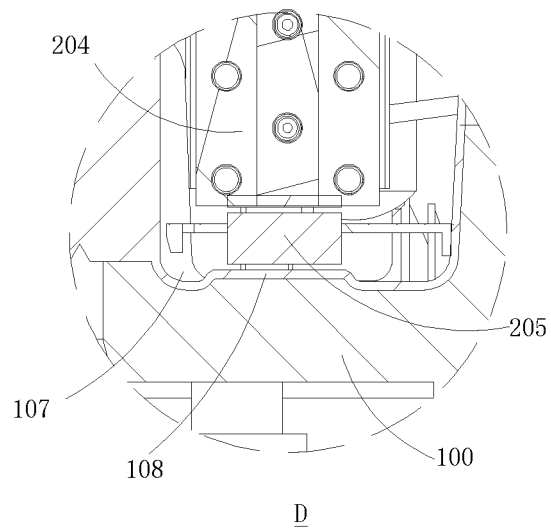


FIG. 26

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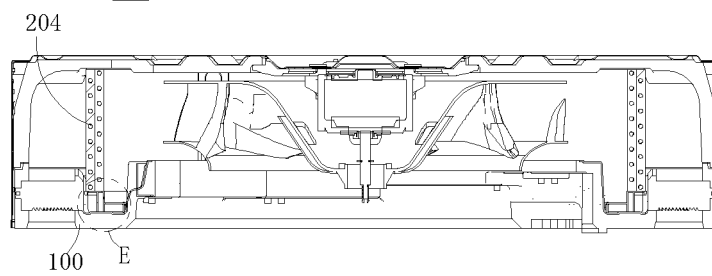


FIG. 27

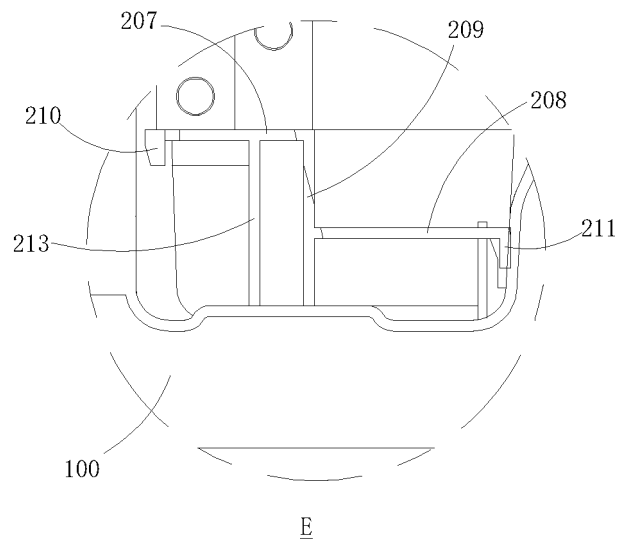


FIG. 28

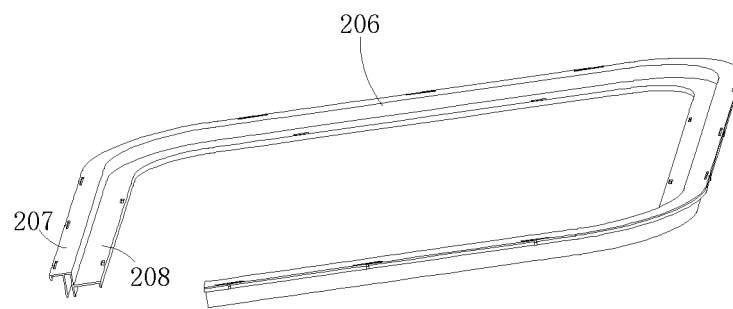


FIG. 29

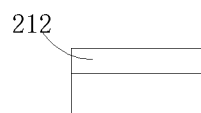
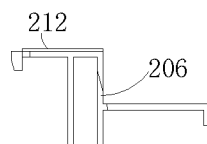


FIG. 30

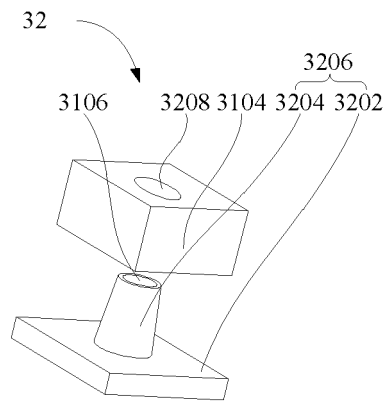


FIG. 31

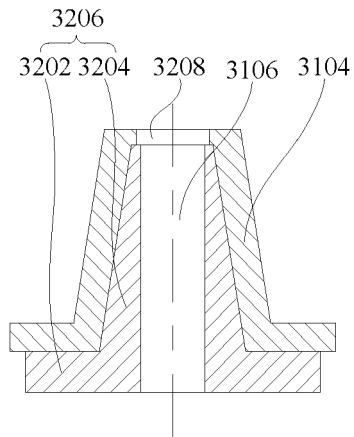


FIG. 32

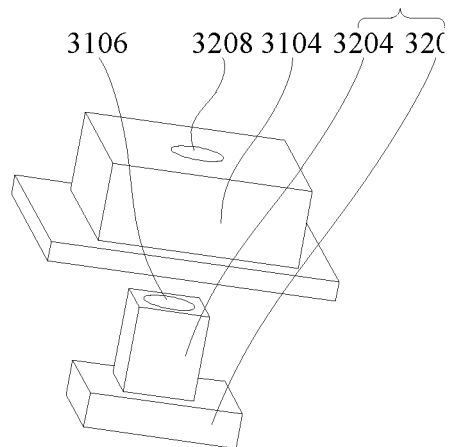


FIG. 33

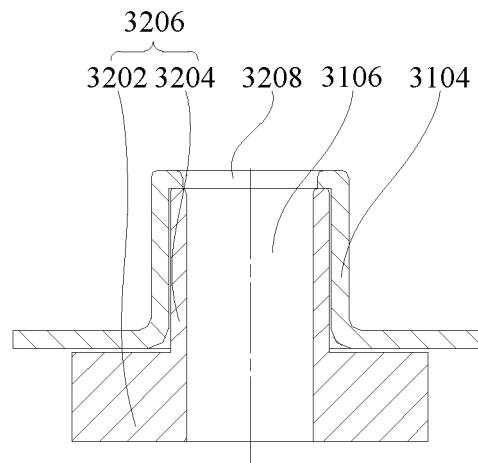


FIG. 34

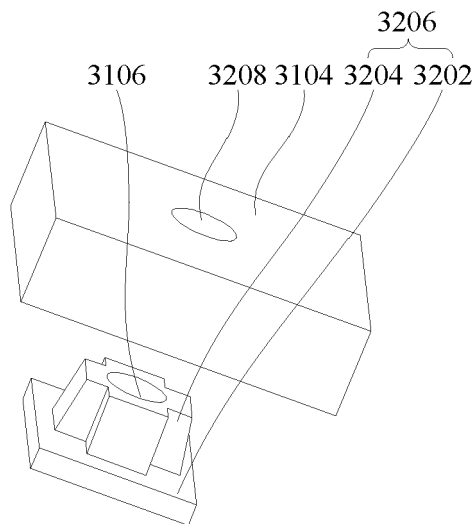


FIG. 35

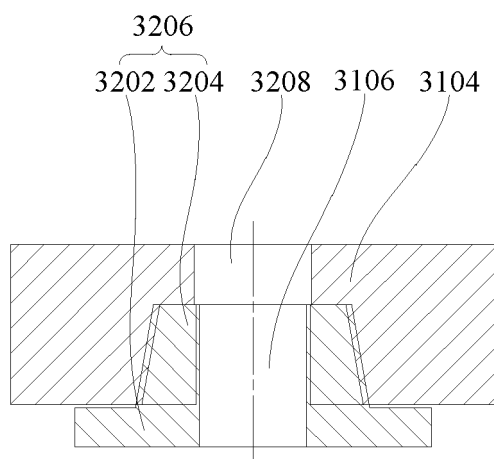


FIG. 36

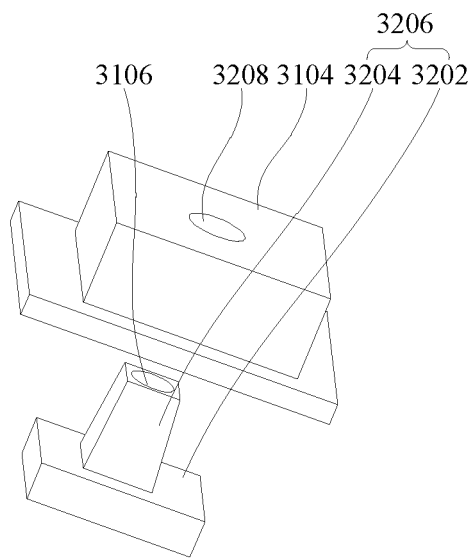


FIG. 37

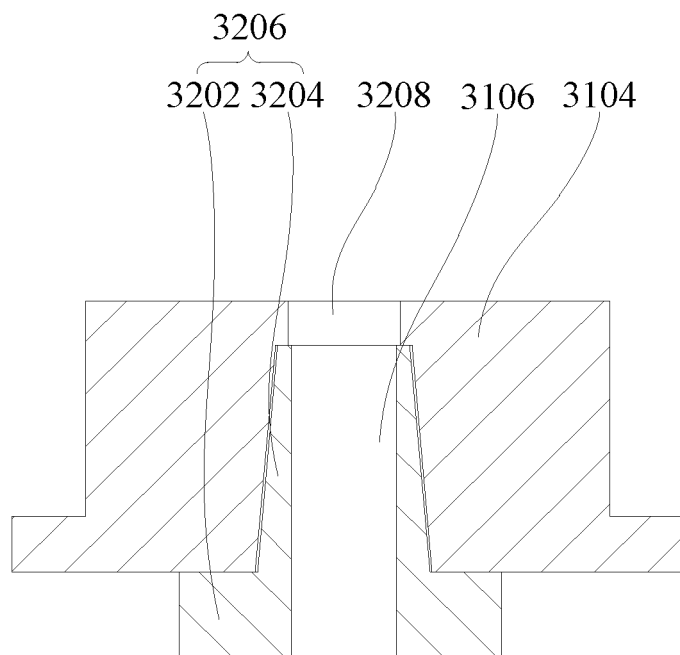


FIG. 38

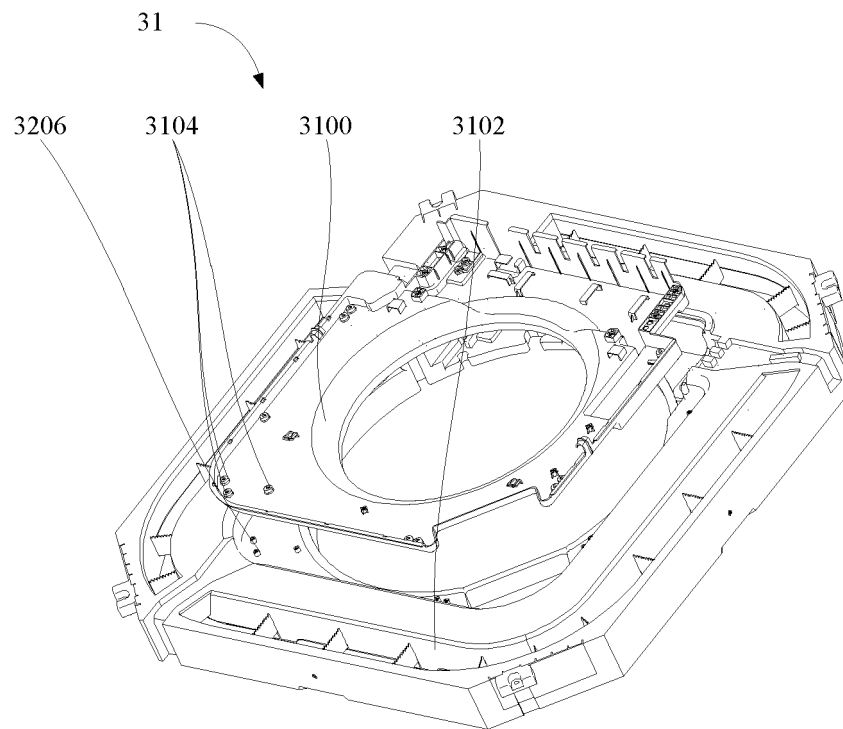


FIG. 39

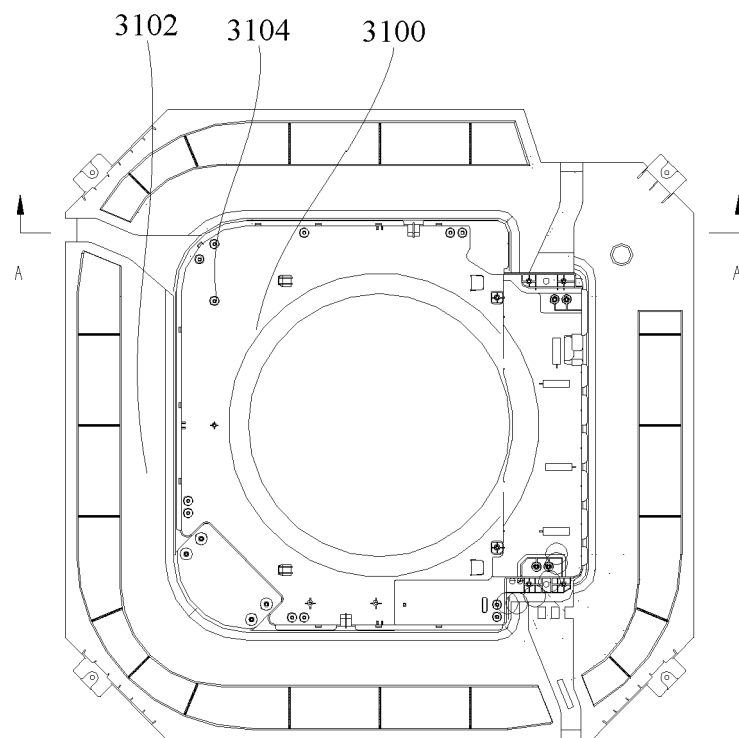


FIG. 40

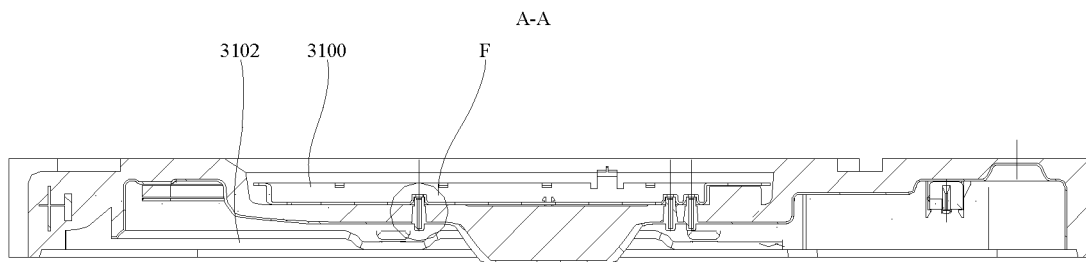


FIG. 41

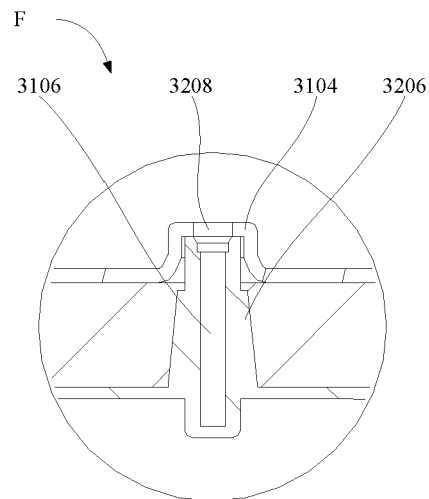


FIG. 42

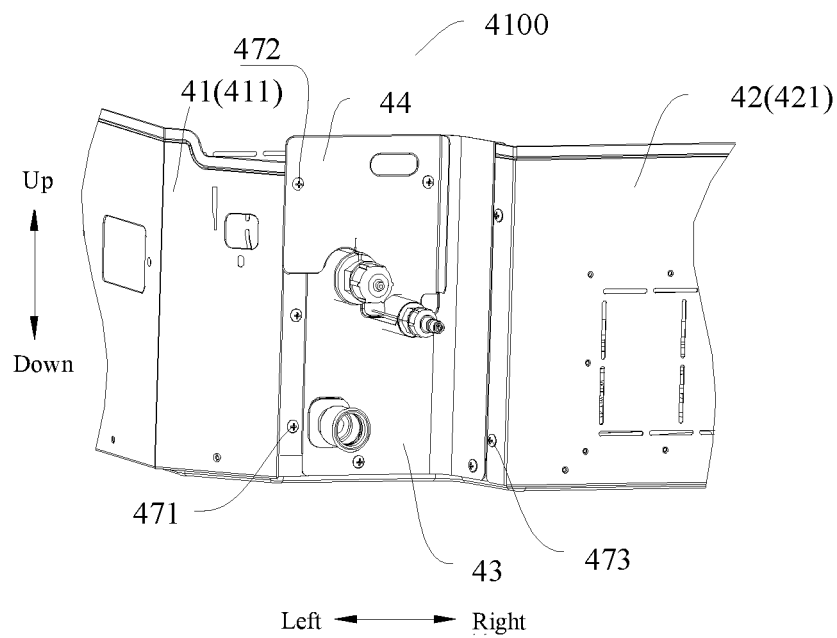


FIG. 43

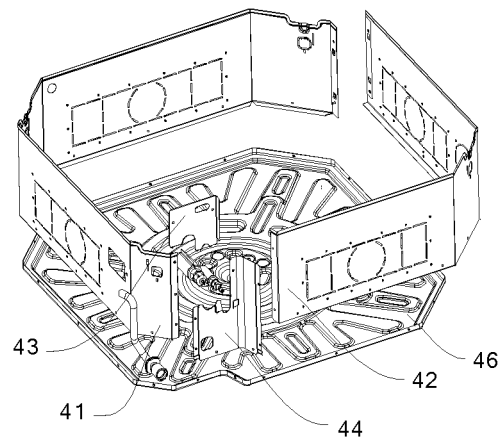


FIG. 44

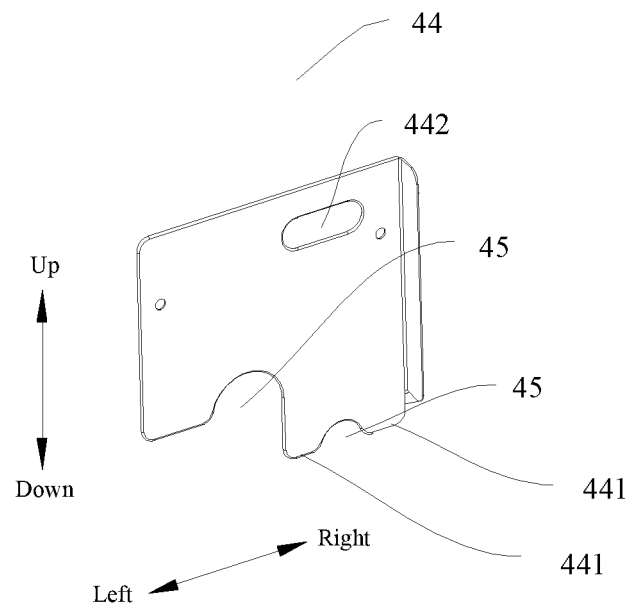


FIG. 45

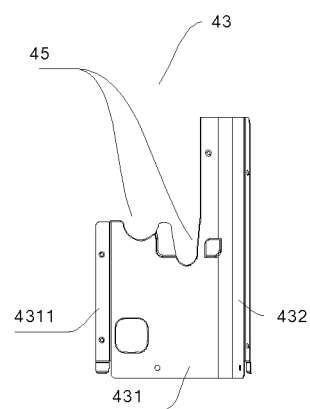


FIG. 46

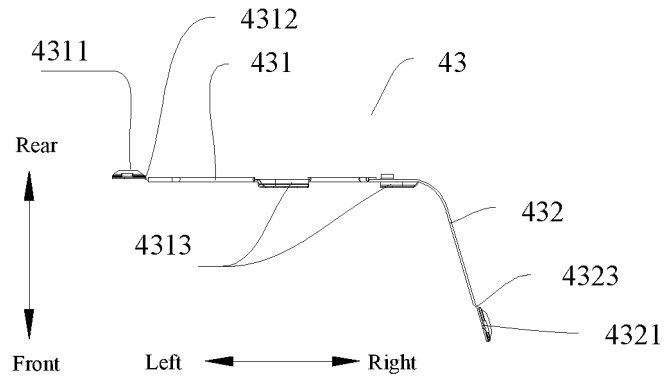


FIG. 47

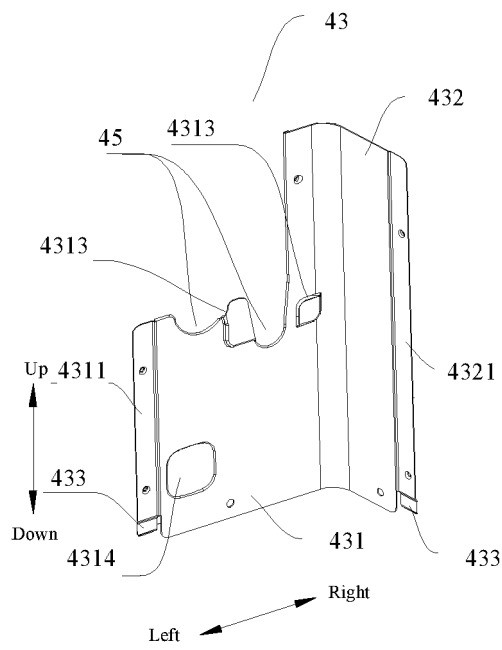


FIG. 48

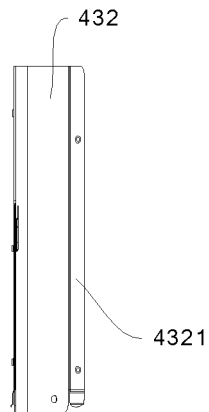


FIG. 49

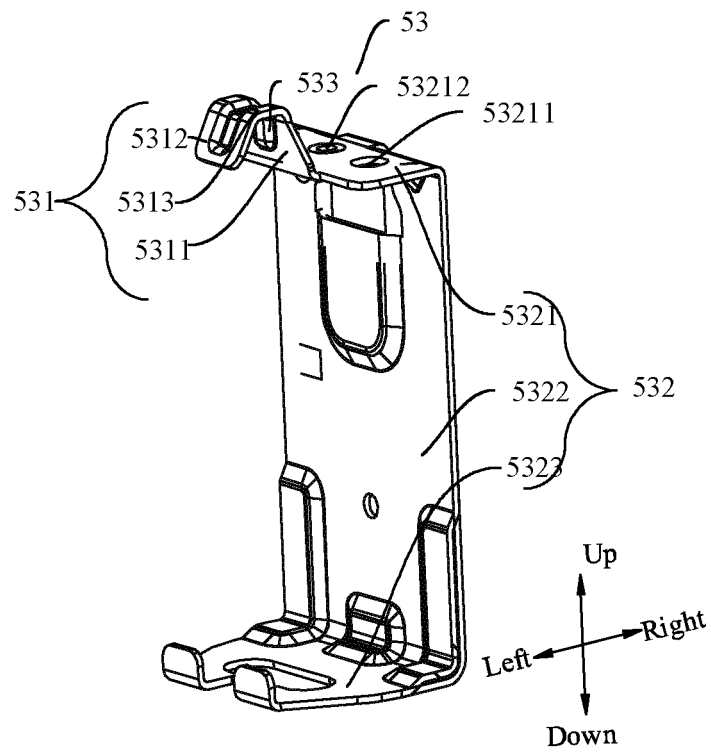


FIG. 50

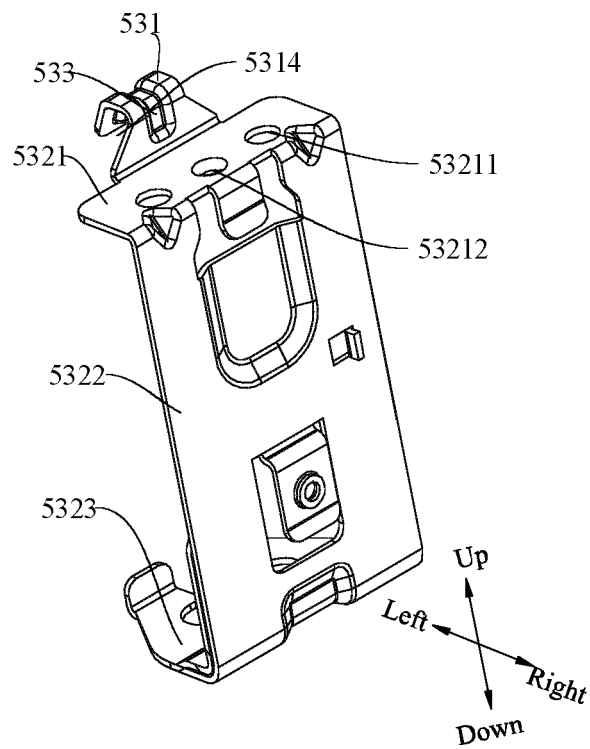


FIG. 51

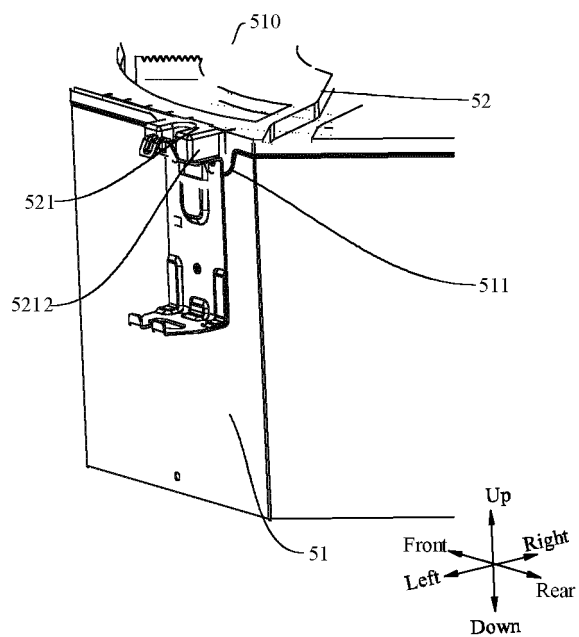
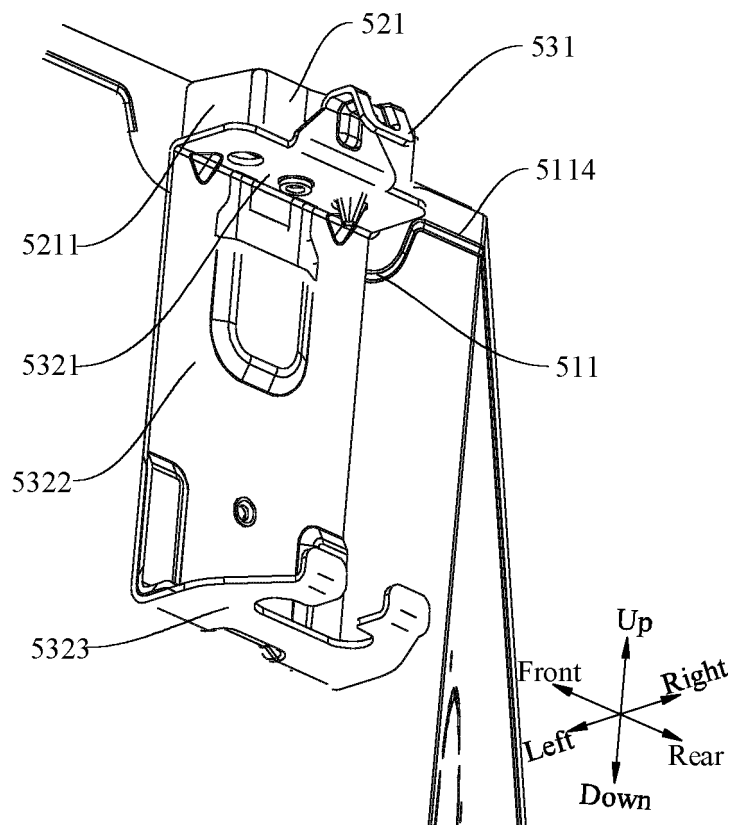


FIG. 52



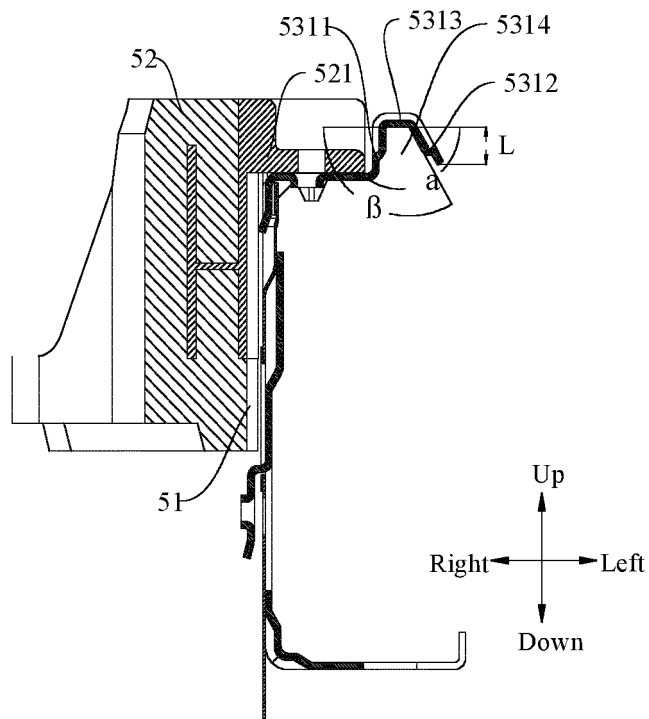
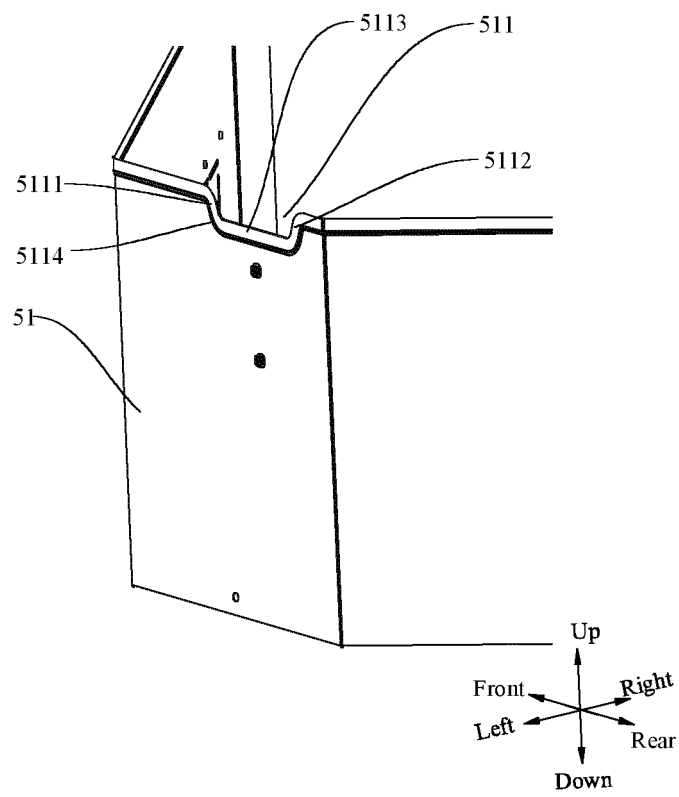


FIG. 54



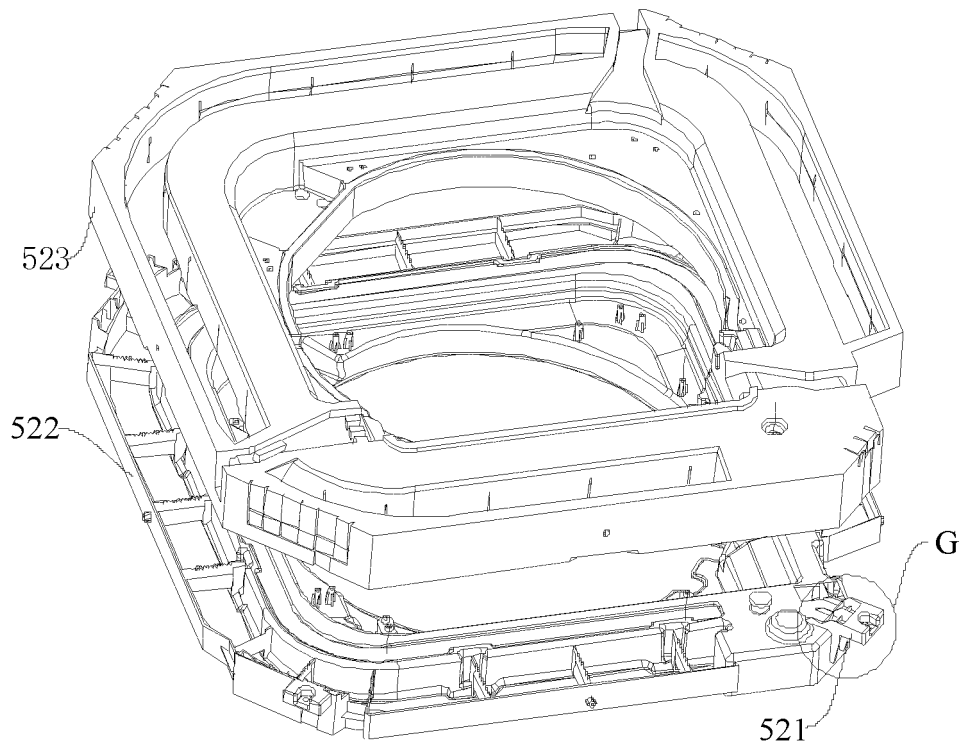


FIG. 56

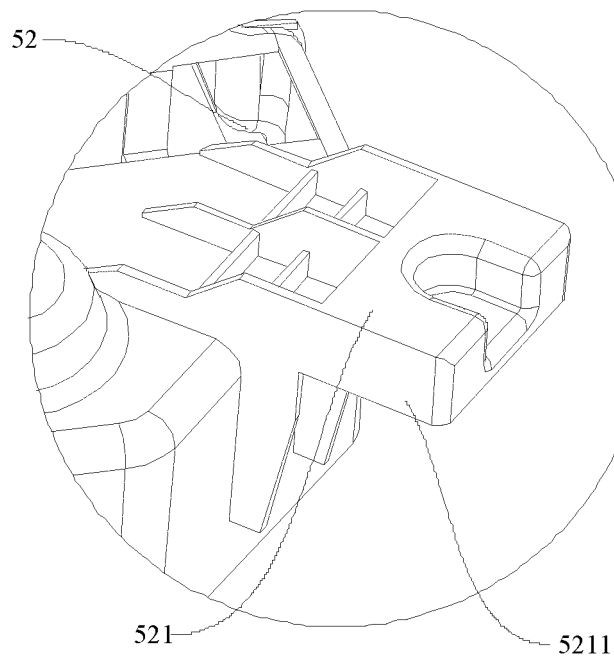


FIG. 57

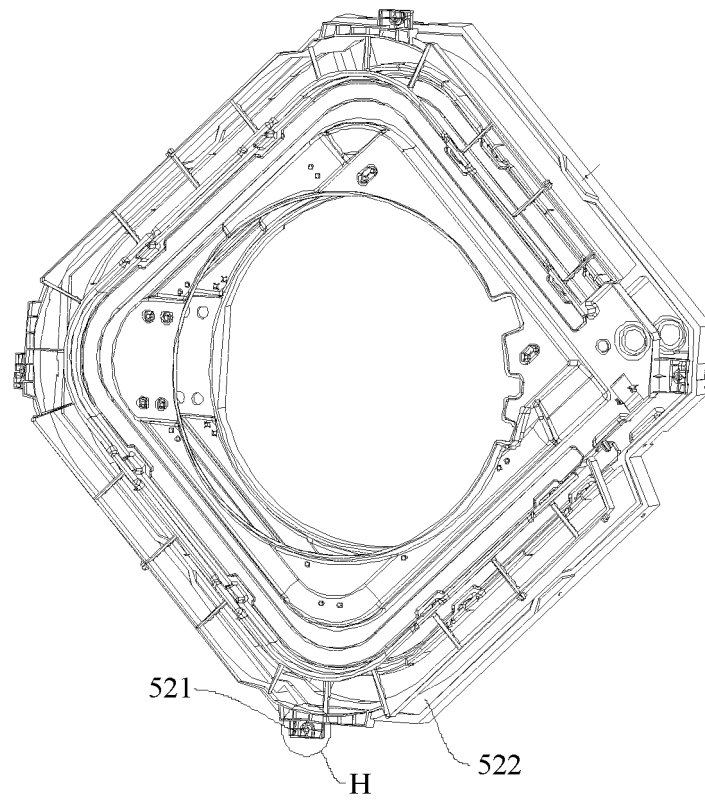
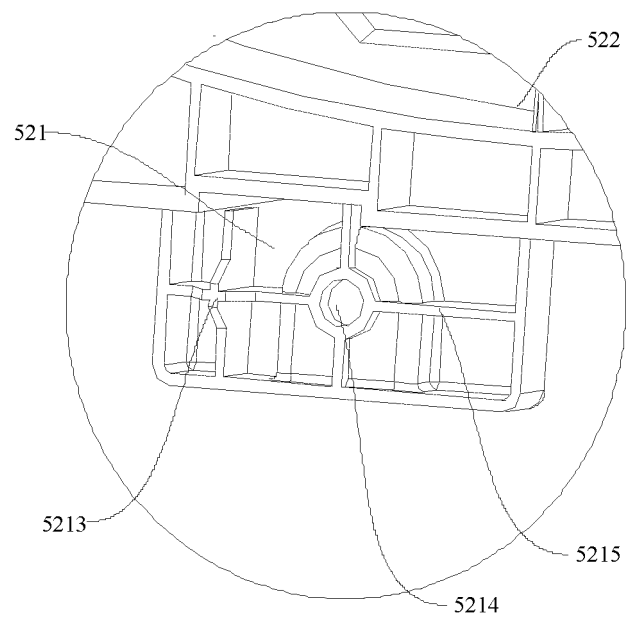


FIG. 58



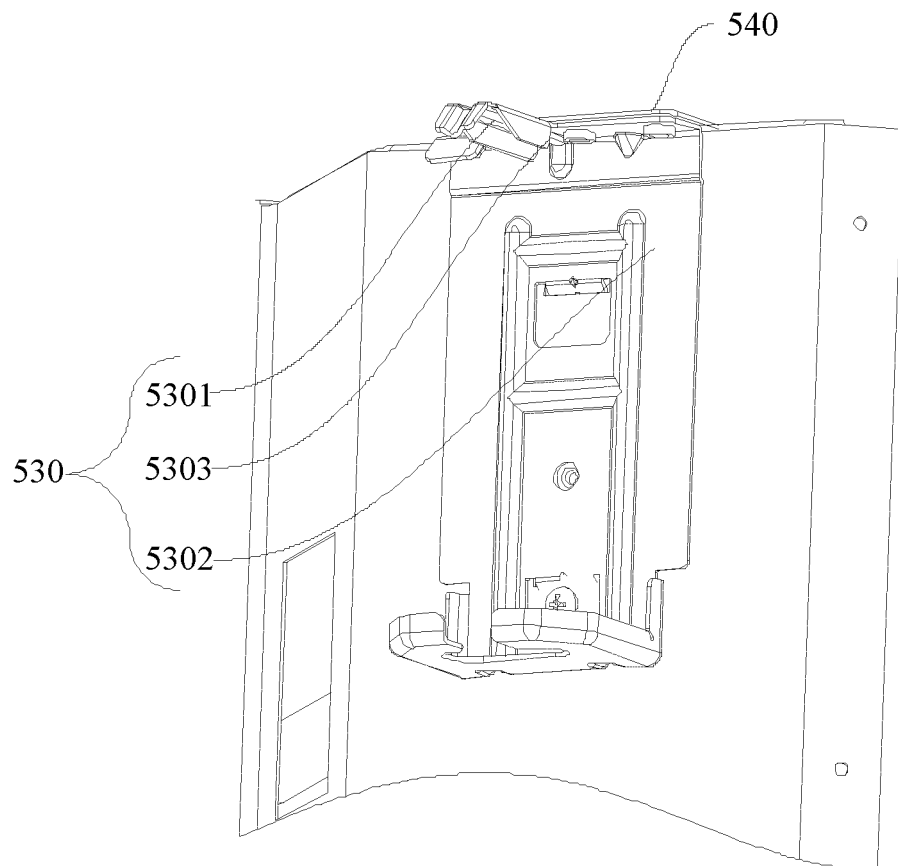


FIG. 60

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/126249

5	A. CLASSIFICATION OF SUBJECT MATTER		
	F24F 13/22(2006.01)i; F24F 1/0007(2019.01)i		
	According to International Patent Classification (IPC) or to both national classification and IPC		
	B. FIELDS SEARCHED		
10	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		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
	CNTXT, CNKI, ENTXTC, VEN: 空调, 天花机, 室内机, 吊顶, 接水盘, 导风圈, 连接, 锁紧, 围板, 外壳, 壳体, 吊耳, 支耳, 挂钩, air condition, ceiling, water pan, wind deflector, connect, lock, housing, board, panel, lift lug, bracket, hook		
	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	X	CN 211953024 U (HISENSE (SHANDONG) AIR-CONDITIONING CO., LTD.) 17 November 2020 (2020-11-17) description, paragraphs [0051]-[0139], and figures 1-25	1-8, 16-23, 34-46
25	Y	CN 211953024 U (HISENSE (SHANDONG) AIR-CONDITIONING CO., LTD.) 17 November 2020 (2020-11-17) description, paragraphs [0051]-[0139], and figures 1-25	9-15, 24-33
	Y	CN 208998314 U (NINGBO AUX ELECTRIC CO., LTD. et al.) 18 June 2019 (2019-06-18) description, paragraphs [0031]-[0077], and figures 1-4	9-15
30	Y	CN 110594857 A (DAIKIN INDUSTRIES LTD.) 20 December 2019 (2019-12-20) description, paragraphs [0070]-[0099], and figures 1-6	24-33
	PX	CN 113915765 A (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 11 January 2022 (2022-01-11) entire document	1-15, 23
35	PY	CN 113915765 A (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 11 January 2022 (2022-01-11) entire document	16-22, 24-46
	☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
40	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "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		
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50	Date of the actual completion of the international search		Date of mailing of the international search report
	14 December 2022		12 January 2023
55	Name and mailing address of the ISA/CN		Authorized officer
	China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China		
	Facsimile No. (86-10)62019451		Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/126249

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 216347024 U (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 19 April 2022 (2022-04-19) entire document	1-15, 23
PY	CN 216347024 U (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 19 April 2022 (2022-04-19) entire document	16-22, 24-46
PY	CN 216382157 U (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 26 April 2022 (2022-04-26) entire document	16-22
PY	CN 216557606 U (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 17 May 2022 (2022-05-17) entire document	24-33
PY	CN 216644529 U (GUANGDONG MIDEA HEATING & VENTILATION EQUIPMENT CO., LTD. et al.) 31 May 2022 (2022-05-31) entire document	34-46
A	CN 209399554 U (QINGDAO HAILIN PORT INDUSTRIAL CO., LTD.) 17 September 2019 (2019-09-17) entire document	1-46
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A	CN 209325940 U (GUANGDONG MIDEA REFRIGERATION EQUIPMENT CO., LTD.) 30 August 2019 (2019-08-30) entire document	1-46
A	JP 2014005976 A (HITACHI APPLIANCES INC.) 16 January 2014 (2014-01-16) entire document	1-46

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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CN 208998314 U	18 June 2019	None	
CN 110594857 A	20 December 2019	WO 2019225278 A1	28 November 2019
		JP WO2019225278 A1	27 May 2021
CN 113915765 A	11 January 2022	None	
CN 216347024 U	19 April 2022	None	
CN 216382157 U	26 April 2022	None	
CN 216557606 U	17 May 2022	None	
CN 216644529 U	31 May 2022	None	
CN 209399554 U	17 September 2019	None	
CN 212319895 U	08 January 2021	None	
CN 209325940 U	30 August 2019	WO 2020118969 A1	18 June 2020
		EP 3872410 A1	01 September 2021
JP 2014005976 A	16 January 2014	None	

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REFERENCES CITED IN THE DESCRIPTION

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- CN 2021228884831 [0001]
- CN 2021228777878 [0001]
- CN 202122891287X [0001]
- CN 202122893392 [0001]