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(54) **AIR CONDITIONER**

(57) An air conditioner, comprising: a housing (10), a heat exchanger component (40), an air duct component (30), and a pulse sterilization module (20). The housing (10) is provided with an air inlet (13) and an air outlet; the heat exchanger component (40) and the air duct component (30) are both arranged in the housing (10); an air duct cavity (34) extending in an up-and-down direction is

defined between the heat exchanger component (40) and the air duct component (30); the pulse sterilization module (20) is arranged on the air duct component (30); the pulse sterilization module (20) is adapted to emit pulsed light into the air duct cavity (34); and a pulse lamp tube (23) of the pulse sterilization module (20) extends in the up-and-down direction.

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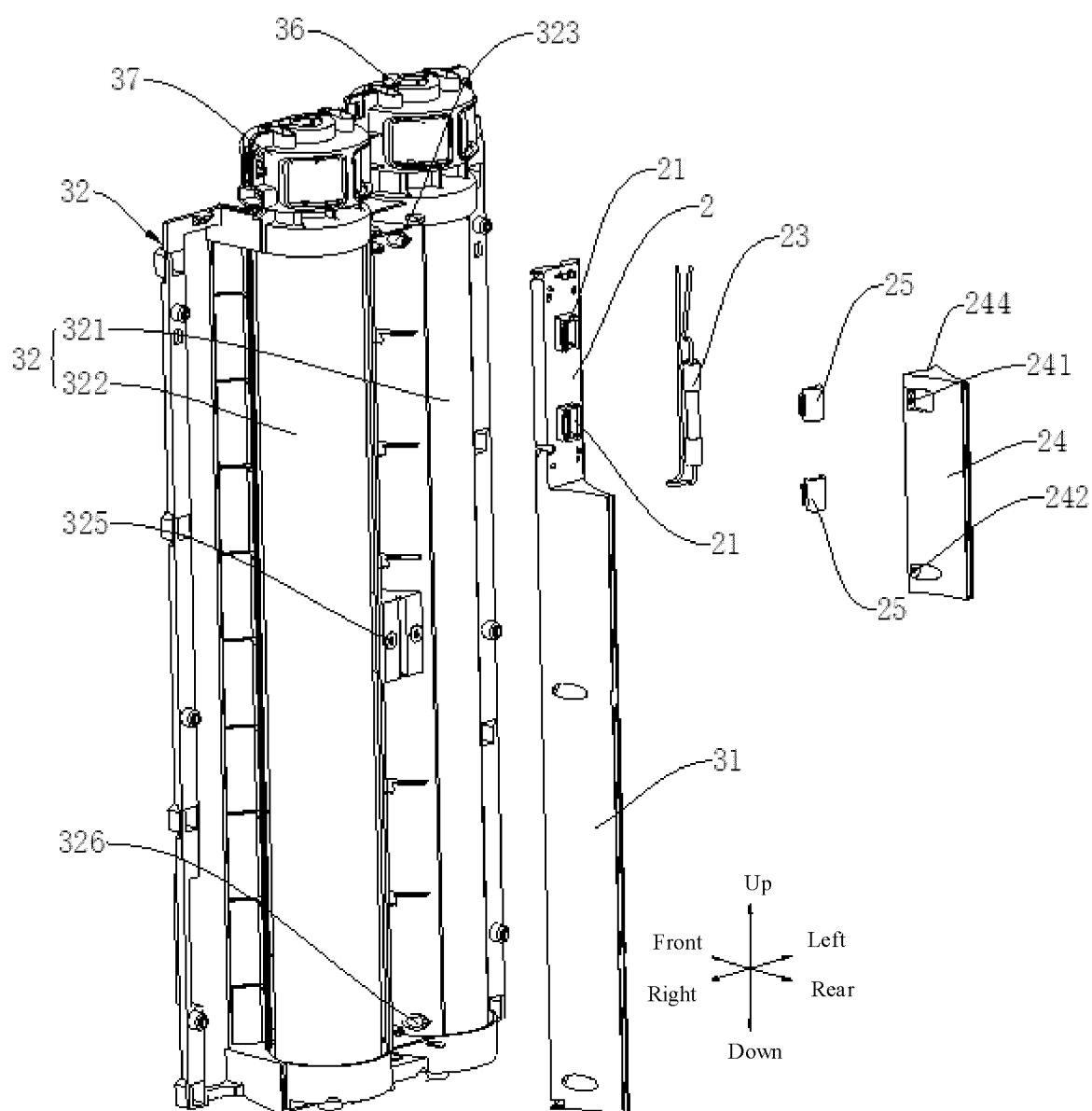


FIG. 12

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is based on and claims priorities to Chinese patent applications No. 202211035730.6 and No. 20222270969.3 both filed on August 26, 2022, the entire contents of which are incorporated herein by reference.

FIELD

[0002] The present disclosure relates to the field of air conditioning device technologies, and more particularly, to an air conditioner.

BACKGROUND

[0003] In the related art, common purification methods in air conditioners mainly include HEPA filters and positive/negative ion purification. However, these methods can only trap bacteria in the air and cannot completely kill the bacteria. Therefore, improvements are needed.

SUMMARY

[0004] The present disclosure aims to solve at least one of the technical problems in the related art. To this end, one purpose of the present disclosure is to provide an air conditioner. By disposing a pulsed sterilization module on an air duct component, the pulsed sterilization module emits pulsed light which irradiates a heat exchanger component and the air duct component to perform purification and sterilization on the heat exchanger component and the air duct component. In this way, quality of air passing through the heat exchanger component and the air duct component can be improved, thereby improving indoor air quality and comfort. In addition, a pulse lamp tube extends in an up-down direction, enabling an irradiation range of the pulsed light to be wider and a sterilization range to be wider.

[0005] An air conditioner is provided according to an embodiment of the present disclosure. The air conditioner includes: a casing having an air inlet and an air outlet; a heat exchanger component disposed in the casing; an air duct component disposed in the casing, an air duct chamber being defined between the heat exchanger component and the air duct component and extending in an up-down direction; and a pulsed sterilization module disposed at the air duct component and adapted to emit pulsed light into the air duct chamber, the pulsed sterilization module being provided with a pulse lamp tube extending in the up-down direction.

[0006] With the air conditioner according to the embodiment of the present disclosure, by providing the pulsed sterilization module on the air duct component, the pulsed sterilization module can emit the pulsed light into the air duct chamber. The pulsed light irradiates the heat

exchanger component and the air duct component to purify and sterilize the heat exchanger component and the air duct component. In this way, the quality of the air passing through the heat exchanger component and the air duct component can be improved, thereby improving the indoor air quality and the comfort. In addition, the pulse lamp tube extends in the up-down direction, enabling the irradiation range of the pulsed light to be wider and the sterilization range to be wider.

[0007] According to some embodiments of the present disclosure, the pulsed sterilization module is located at a middle part of the air duct component in a left-right direction.

[0008] According to some embodiments of the present disclosure, the pulsed sterilization module is located at a side of the air duct component adjacent to the heat exchanger component.

[0009] According to some optional embodiments of the present disclosure, the air duct component includes an air duct volute and two impellers mounted at the air duct volute. The air duct chamber includes two air duct cavities defined between the air duct volute and the heat exchanger component and arranged in a left-right direction, the two impellers being respectively located in the two air duct cavities, and the pulsed sterilization module being located between the two air duct cavities.

[0010] In some optional embodiments of the present disclosure, the air duct component is located at a front side of the heat exchanger component. The air duct volute includes a volute body and an air duct partition connected to a rear side of the air duct volute, the air duct partition abutting with the heat exchanger component to divide the air duct chamber into the two air duct cavities, and the pulsed sterilization module being disposed in the air duct partition.

[0011] In some optional embodiments of the present disclosure, the pulsed sterilization module is disposed at an upper part of the air duct partition.

[0012] In some optional embodiments of the present disclosure, the pulsed sterilization module is disposed at a top of the air duct partition, the air duct chamber being divided into the two air duct cavities by the pulsed sterilization module and the air duct partition.

[0013] In some optional embodiments of the present disclosure, an outer contour shape of a cross-section of the pulsed sterilization module is the same as an outer contour shape of a cross-section of the air duct partition.

[0014] According to some optional embodiments of the present disclosure, the pulsed sterilization module includes a pulse mounting base disposed at the air duct partition. The pulse lamp tube is disposed at the pulse mounting base and located at a rear side of the pulse mounting base.

[0015] According to some optional embodiments of the present disclosure, the pulse mounting base and the air duct partition are integrally formed.

[0016] In some optional embodiments of the present disclosure, the pulse mounting base is provided with two

first fixation bases spaced apart from each other in the up-down direction. The pulsed sterilization module further includes two second fixation bases spaced apart from each other in the up-down direction. The two second fixation bases and the two first fixation bases respectively

define two limiting holes, an upper end and a lower end of the pulse lamp tube passing through the two limiting holes, respectively; and each of the two second fixation bases is detachably connected to a corresponding first fixation base of the two first fixation bases.

[0017] According to some optional embodiments of the present disclosure, the air duct partition, the pulse mounting base, and the two first fixation bases are integrally formed.

[0018] According to some optional embodiments of the present disclosure, the two first fixation bases and the two second fixation bases define two wire-passing holes, respectively.

[0019] According to some optional embodiments of the present disclosure, the pulse lamp tube has a first lead-out wire at an upper end of the pulse lamp tube, the first lead-out wire being led out upwardly. The pulse lamp tube has a second lead-out wire at a lower end of the pulse lamp tube, the second lead-out wire is led from a side of the pulse mounting base in a left-right direction of the pulse mounting base to a side of the pulse mounting base away from the pulse lamp tube, and then is led out upwardly.

[0020] In some optional embodiments of the present disclosure, the pulse mounting base is provided with a first wiring clip at an upper end of the pulse mounting base, the first wiring clip being located above the pulse lamp tube, and the first lead-out wire passing through the first wiring clip. The pulse mounting base is provided with a plurality of second wiring clips at the side of the pulse mounting base away from the pulse lamp tube, the plurality of second wiring clips being arranged at intervals in the up-down direction, and the second lead-out wire passing through the plurality of second wiring clips.

[0021] In some optional embodiments of the present disclosure, the pulse mounting base has a wire-passing notch at a left side wall or a right side wall of the pulse mounting base, the wire-passing notch being configured to allow the second lead-out wire to pass through the wire-passing notch. The wire-passing notch includes: a guide segment penetrating the left side wall or the right side wall of the pulse mounting base; a wire-passing body, the second lead-out wire penetrating the wire-passing body; and a constricted segment located between the guide segment and the wire-passing body, a width of the constricted segment being smaller than a width of the guide segment and a width of the wire-passing body.

[0022] According to some embodiments of the present disclosure, the pulsed sterilization module further includes a protective cover that is transparent. The protective cover is connected to the rear side of the pulse mounting base. A receiving space is defined between

the protective cover and the pulse mounting base and is configured to receive the pulse lamp tube, a fastener sequentially penetrating through the protective cover, the pulse mounting base, and then extending into the volute body, to enable the pulsed sterilization module to be mounted and fixed.

[0023] Additional aspects and advantages of the present disclosure will be provided at least in part in the following description, or will become apparent at least in part from the following description, or can be learned from practicing of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] The above and/or additional aspects and advantages of the present disclosure will become more apparent and more understandable from the following description of embodiments taken in conjunction with the accompanying drawings.

FIG. 1 is a schematic view of an air conditioner indoor unit according to some embodiments of the present disclosure.

FIG. 2 is an exploded view of the air conditioner indoor unit illustrated in FIG. 1.

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

FIG. 4 is a schematic assembly view of an air duct component and a heat exchanger component in FIG. 2.

FIG. 5 is a side view of the air duct component and the heat exchanger component in FIG. 4.

FIG. 6 is a sectional view taken along line B-B in FIG. 5.

FIG. 7 is a schematic assembly view of an air duct component and a pulsed sterilization module in FIG. 2.

FIG. 8 is a schematic structural view of the air duct component and the pulsed sterilization module in FIG. 7, where a protective cover is removed.

FIG. 9 is an enlarged view of part C in FIG. 8.

FIG. 10 is a schematic structural view of the air duct component and the pulsed sterilization module in FIG. 7, which illustrates an internal structure of the pulsed sterilization module.

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

FIG. 12 is an exploded view of the air duct component and the pulsed sterilization module in FIG. 7.

FIG. 13 is an exploded view of an air duct partition and the pulsed sterilization module in FIG. 12, showing a rear-side wiring of a pulse mounting base.

FIG. 14 is a perspective view of the air duct partition and the pulse mounting base in FIG. 13, showing a front-side wiring of the pulse mounting base.

FIG. 15 is an enlarged view of part E in FIG. 14.

FIG. 16 is a perspective view of the air duct partition and the pulse mounting base in FIG. 13, with a pulse lamp tube removed.

FIG. 17 is an enlarged view of part F in FIG. 16.

FIG. 18 is a perspective view of the air duct partition and the pulse mounting base in FIG. 16, viewed from another perspective.

FIG. 19 is an enlarged view of part G in FIG. 18.

FIG. 20 is a perspective view of a protective cover in FIG. 13.

FIG. 21 is an exploded view of a pulse lamp tube in FIG. 12.

[0025] Reference numerals of the accompanying drawings:

100 air conditioner indoor unit;
10 casing; 11 rear cover; 12 air inlet grille; 13 air inlet;
14 top cover; 15 air outlet frame; 151 frame body; 152 upper panel; 153 air deflector; 16 lower panel; 17 base;
20 pulsed sterilization module; 2 pulse mounting base; 21 first fixation base; 211 first wire-passing groove; 212 third wire-passing groove; 213 snap-fit; 214 first mounting notch; 22 wire-passing notch; 221 guide segment; 222 constricted segment; 223 wire-passing body; 201 first wiring clip; 202 second wiring clip; 203 positioning post; 204 second wiring groove; 205 first fixation hole; 206 fourth fixation hole; 23 pulse lamp tube; 231 first sealing connector; 232 second sealing connector; 233 tube body; 234 lamp cover; 235 trigger wire; 236 first lead-out wire; 237 second lead-out wire; 24 protective cover; 241 second fixation hole; 242 fifth fixation hole; 243 positioning hole; 244 first wiring groove; 245 receiving space; 25 second fixation base; 251 snap hole; 252 second wire-passing groove; 253 first wire-passing hole; 256 second mounting notch; 257 limiting hole;
30 air duct component; 3 air duct volute; 31 air duct partition; 311 mounting hole; 32 volute body; 321 first volute body; 322 second volute body; 323 first fixation post; 325 sixth fixation hole; 326 second fixation post; 33 impeller; 331 first impeller; 332 second impeller; 34 air duct chamber; 35 air duct cavity; 351 first air duct cavity; 352 second air duct cavity; 36 first motor; 37 second motor;
40 heat exchanger component; 41 heat exchanger; 42 heat exchanger support.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0026] Embodiments of the present disclosure will be described in detail below with reference to examples thereof as illustrated in the accompanying drawings, throughout which same or similar elements, or elements having same or similar functions, are denoted by same or similar reference numerals. The embodiments described below with reference to the drawings are illustrative only, and are intended to explain, rather than limiting, the embodiments of the present disclosure.

[0027] An air conditioner according to the embodiments of the present disclosure is described below with

reference to the accompanying drawings.

[0028] As illustrated in FIG. 1 and FIG. 2, an air conditioner according to an embodiment of the present disclosure includes a casing 10, a heat exchanger component 40, an air duct component 30, and a pulsed sterilization module 20. The casing 10 has an air inlet 13 and an air outlet, which are in communication with an indoor environment to facilitate airflow circulation. The heat exchanger component 40 is disposed in the casing 10. The air duct component 30 is disposed in the casing 10.

[0029] As illustrated in FIG. 4 to FIG. 6, an air duct chamber 34 is defined between the heat exchanger component 40 and the air duct component 30 and extends in an up-down direction. The pulsed sterilization module 20 is disposed at the air duct component 30 and adapted to emit pulsed light into the air duct chamber 34. The pulsed sterilization module 20 can emit pulsed light having higher energy. The pulsed light irradiates on a surface of a microorganism in the air duct chamber 34, which can change and inactivate the substances in the microorganism. In this way, bacteria and viruses in the air duct chamber 34 can be completely killed, and thus air in the air duct chamber 34 can be purified and sterilized. A better sterilization effect and a higher sterilization efficiency can be realized. In addition, some harmful gases in the air (such as VOC gases) can also be decomposed under irradiation of the pulsed light, purifying the air and improving quality of air blown into the indoor environment.

[0030] The air duct chamber 34 extends in the up-down direction. The air duct component 30 and the heat exchanger component 40 both extend in the up-down direction. The pulse lamp tube 23 in the pulsed sterilization module 20 extends in the up-down direction. The pulsed light emitted by the pulsed sterilization module 20 can irradiate the heat exchanger component 40 and the air duct component 30 simultaneously, which can purify and sterilize the heat exchanger component 40 and the air duct component 30, and can purify and sterilize the air passing through the air duct chamber 34. In this way, a sterilization range of the pulsed light can be larger and the higher sterilization efficiency can be ensured.

[0031] For example, as illustrated in FIG. 1 and FIG. 2, the air conditioner may be a split-type air conditioner, such as a split floor-standing air conditioner. The air conditioner includes an air conditioner indoor unit 100 and an air conditioner outdoor unit. The air conditioner indoor unit 100 includes the casing 10, the heat exchanger component 40, the air duct component 30, and the pulsed sterilization module 20 described above. The air conditioner indoor unit 100 may be a floor-standing cabinet. The casing 10 may include a rear cover 11, a top cover 14, an air outlet frame 15, a lower panel 16, and a base 17. The air outlet frame 15 is located at an upper side of the lower panel 16. The air outlet frame 15 and the lower panel 16 are both located at a front side of the rear cover 11. The top cover 14 covers a top of the air outlet frame 15 and a top of the rear cover 11. The base 17 is

located at a bottom of a lower frame and a bottom of the rear cover 11. The air outlet frame 15 may be detachably connected to the rear cover 11. The lower panel 16 may be detachably connected to the rear cover 11. The top cover 14 may be detachably connected to the air outlet frame 15 and the rear cover 11.

[0032] For example, as illustrated in FIG. 1 and FIG. 2, the rear cover 11 may have the air inlet 13, which in communication with the indoor environment. An air inlet grille 12 may be provided at the air inlet 13. The heat exchanger component 40 may be located at a front side of the air inlet 13. The air duct component 30 may be located at a front side of the heat exchanger component 40. The air outlet frame 15 may be located at a front side of the air duct component 30. The air outlet frame 15 includes a frame body 151, an upper panel 152, and an air deflector 153. Two air outlets are defined between a left side and a right side of the upper panel 152 and the rear cover 11, respectively. The two air outlets are located at the left side of the upper panel 152 and the right side of the upper panel 152, respectively. The air outlet frame 15 further includes the air deflector 153 located at the air outlet. The air deflector 153 is rotatably connected to the upper panel 152 to open and close the air outlet. The air outlet is also in communication with the indoor environment. When the air conditioner is in operation, air is drawn into the casing 10 from the air inlet 13, and passes through sequentially the heat exchanger component 40 and the air duct component 30 before being expelled through the air outlet into the indoor environment to cool or heat the indoor environment.

[0033] With the air conditioner according to the embodiment of the present disclosure, by providing the pulsed sterilization module 20 on the air duct component 30, the pulsed sterilization module 20 can emit the pulsed light into the air duct chamber 34. The pulsed light irradiates on the heat exchanger component 40 and the air duct component 30 to purify and sterilize the heat exchanger component 40 and the air duct component 30. In this way, quality of air passing through the heat exchanger component 40 and the air duct component 30 can be improved, thereby improving indoor air quality and comfort. In addition, since the pulse lamp tube 23 extends in the up-down direction, a range of irradiation of the pulsed light can be wider, and thus a range of sterilization can be wider.

[0034] As illustrated in FIG. 6 to FIG. 12, according to some embodiments of the present disclosure, the pulsed sterilization module 20 is located at a middle part of the air duct component 30 in a left-right direction. Pulsed light emitted by the pulsed sterilization module 20 can be uniformly irradiated in the air duct chamber 34, resulting in a wider sterilization range.

[0035] As illustrated in FIG. 2 and FIG. 6, according to some embodiments of the present disclosure, the pulsed sterilization module 20 is located at a side of the air duct component 30 adjacent to the heat exchanger component 40. The pulsed light emitted by the pulsed steriliza-

tion module 20 can be irradiated on the heat exchanger component 40 to sterilize the heat exchanger component 40, or can purify and sterilize the air passing through the heat exchanger component 40 to improve the air quality.

[0036] As illustrated in FIG. 2 and FIG. 6, according to some optional embodiments of the present disclosure, the air duct component 30 includes an air duct volute 3 and two impellers 33 mounted at the air duct volute 3. The air duct chamber 34 includes two air duct cavities 35 defined between the air duct volute 3 and the heat exchanger component 40, and arranged in the left-right direction. The two impellers 33 may be arranged in the left-right direction and respectively located in the two air duct cavities 35. The pulsed sterilization module 20 is located between the two air duct cavities 35. The pulsed light emitted by the pulsed sterilization module 20 can be uniformly irradiated into a left air duct cavity 35 and a right air duct cavity 35. In this way, the pulsed sterilization module 20 can simultaneously sterilize the two air duct cavities 35, and can also sterilize the air duct volute 3 and the two impellers 33, resulting in the wider sterilization range and a higher sterilization efficiency.

[0037] For example, as illustrated in FIG. 6, the two impellers 33 are a first impeller 331 and a second impeller 332, respectively. The two air duct cavities 35 are a first air duct cavity 351 and a second air duct cavity 352, respectively. The first air duct cavity 351 may be located at a left side of the second air duct cavity 352. The first impeller 331 is located in the first air duct cavity 351, and the second impeller 332 is located in the second air duct cavity 352. The first air duct cavity 351 may be in communication with an air outlet at a left side of the upper panel 152. Air in the first air duct cavity 351 may be blown out through the air outlet at the left side of the upper panel 152. The second air duct cavity 352 may be in communication with an air outlet at a right side of the upper panel 152. Air in the second air duct cavity 352 may be blown out through the air outlet at the right side of the upper panel 152.

[0038] As illustrated in FIG. 2 and FIG. 6 to FIG. 12, in some optional embodiments of the present disclosure, the air duct component 30 is located at a front side of the heat exchanger component 40. The air duct volute 3 includes a volute body 32 and an air duct partition 31 connected to a rear side of the air duct volute 3. The air duct partition 31 abuts with the heat exchanger component 40 to divide the air duct chamber 34 into the two air duct cavities 35, which can prevent air from flowing between the two air duct cavities 35, thereby ensuring uniform air velocity on two sides. The pulsed sterilization module 20 is disposed in the air duct partition 31. By mounting the pulsed sterilization module 20 in the air duct partition 31, mounting and fixation of the pulsed sterilization module 20 can be convenient, and the pulsed sterilization module 20 can be located between the two air duct cavities 35. The pulsed light emitted by the pulsed sterilization module 20 can be uniformly irradiated in the two air duct cavities 35 to purify and sterilize the two air

duct cavities 35, resulting in the higher sterilization efficiency. For example, the pulsed sterilization module 20 may be disposed at an upper part of the air duct partition 31. Alternatively, the pulsed sterilization module 20 may be disposed at a middle part of the air duct partition 31 in the up-down direction. Alternatively, the pulsed sterilization module 20 may be disposed at a lower part of the air duct partition 31. Alternatively, a plurality of pulsed sterilization modules 20 may be arranged at intervals in the up-down direction of the air duct partition 31, in such a manner that the irradiation range of the pulsed light is further increased and the sterilization range is larger.

[0039] For example, as illustrated in FIG. 2, FIG. 4, and FIG. 6, according to some specific embodiments of the present disclosure, the volute body 32 may include a first volute body 321 and a second volute body 322 that are arranged in the left-right direction. The first volute body 321 is connected to the second volute body 322. The first impeller 331 may be mounted in the first volute body 321. The second impeller 332 may be mounted in the second volute body 322. The first volute body 321 may be located at a left side of the second volute body 322. The air duct partition 31 is located in the middle part of the air duct component 30 in the left-right direction. The air duct partition 31 abuts with a middle part of the heat exchanger component 40 in the left-right direction. The first air duct cavity 351 may be defined between the air duct partition 31, the heat exchanger component 40, and the first volute body 321. The second air duct cavity 352 may be defined between the air duct partition 31, the heat exchanger component 40, and the second volute body 322. The air duct component 30 may further include a first motor 36 disposed at a top of the first volute body 321 and connected to the first impeller 331 to drive the first impeller 331 to rotate, and a second motor 37 disposed at a top of the second volute body 322 and connected to the second impeller 332 to drive the second impeller 332 to rotate.

[0040] As illustrated in FIG. 7 to FIG. 13, according to some optional embodiments of the present disclosure, the pulsed sterilization module 20 may be disposed at the upper part of the air duct partition 31. The pulsed sterilization module 20 may emit the pulsed light in all directions. The pulsed light may irradiate on the two air duct cavities 35, purifying and sterilizing the air passing through the two air duct cavities 35. The pulsed light may irradiate on an upper part of the heat exchanger component 40 and an upper part of the air duct component 30 to purify and sterilize the upper part of the heat exchanger component 40 and the upper part of the air duct component 30.

[0041] According to other embodiments of the present disclosure, the pulsed sterilization module 20 may be disposed at the middle part of the air duct partition 31 (not illustrated). The pulsed sterilization module 20 may emit the pulsed light in all directions, and may irradiate on the two air duct cavities 35, purifying and sterilizing the air passing through the two air duct cavities 35. The pulsed light may irradiate on a middle part of the heat exchanger

component 40 and a middle part of the air duct component 30 to purify and sterilize the middle part of the heat exchanger component 40 and the middle part of the air duct component 30.

[0042] According to other embodiments of the present disclosure, the pulsed sterilization module 20 may also be disposed at a bottom of the air duct partition 31 (not illustrated). The pulsed sterilization module 20 may emit the pulsed light in all directions, and may irradiate the two air duct cavities 35, purifying and sterilizing the air passing through the two air duct cavities 35. A lower end the heat exchanger component 40 and a water collection tray at a lower side of the heat exchanger component 40 are more prone to bacterial growth. With the pulsed sterilization module 20 at the bottom of the air duct partition 31, the pulsed sterilization module 20 can emit the pulsed light towards a bottom of the heat exchanger component 40 to purify and sterilize the bottom of the heat exchanger component 40 and the water collection tray at the lower side of the heat exchanger component 40. This arrangement allows the pulsed light to directly irradiate regions with higher concentrations of bacteria, enhancing the sterilization efficiency and a sterilization effect of the pulsed sterilization module 20.

[0043] As illustrated in FIG. 6 and FIG. 7, in some optional embodiments of the present disclosure, the pulsed sterilization module 20 may be disposed at a top of the air duct partition 31. The pulsed sterilization module 20 may abut with the heat exchanger component 40. The air duct partition 31 abuts with the heat exchanger component 40. The air duct chamber 34 is divided into the two air duct cavities 35 by the pulsed sterilization module 20 and the air duct partition 31, which can effectively prevent air from flowing between the left air duct cavity 35 and the right air duct cavity 35, thereby ensuring the uniform air velocity on two sides. In addition, a material for making the air duct partition 31 can be saved, and a space occupied by the pulsed sterilization module 20 in the casing 10 can be reduced, and thus a space in the casing 10 can be saved.

[0044] As illustrated in FIG. 6, FIG. 11, and FIG. 20, in some optional embodiments of the present disclosure, an outer contour shape of a cross-section of the pulsed sterilization module 20 is the same as an outer contour shape of a cross-section of the air duct partition 31. When the pulsed sterilization module 20 is disposed at the air duct partition 31, the pulsed sterilization module 20 can be adapted to the air duct partition 31, enabling the pulsed sterilization module 20 to be used as a part of the air duct partition 31, which can save the material for making the air duct partition 31 and reduce the space occupied by the pulsed sterilization module 20 in the casing 10.

[0045] As illustrated in FIG. 2, FIG. 12, and FIG. 13, according to some optional embodiments of the present disclosure, the pulsed sterilization module 20 includes a pulse mounting base 2 disposed at the air duct partition 31. The pulse lamp tube 23 is disposed at the pulse

mounting base 2 and located at a rear side of the pulse mounting base 2. With the pulse mounting base 2 on the air duct partition 31, mounting and fixation of the pulse lamp tube 23 are facilitated. Since the pulse lamp tube 23 is mounted at the rear side of the pulse mounting base 2, the pulsed light emitted by the pulse lamp tube 23 can directly irradiate the air duct component 30 located at a front side of the pulse lamp tube 23, and simultaneously can directly irradiate the heat exchanger component 40 located at a rear side of the pulse lamp tube 23, which can simultaneously purify and sterilize the air duct component 30 and the heat exchanger component 40, realizing a satisfactory sterilization effect.

[0046] As illustrated in FIG. 13 and FIG. 16, according to some optional embodiments of the present disclosure, the pulse mounting base 2 and the air duct partition 31 are integrally formed, which not only realizes high overall structural strength and stability, but also enables mounting of the pulsed sterilization module 20 to be more stable, manufacturing of the pulsed sterilization module 20 to be simpler, and formation of the pulsed sterilization module 20 to be more convenient.

[0047] As illustrated in FIG. 9 and FIG. 13, in some optional embodiments of the present disclosure, the pulse mounting base 2 is provided with two first fixation bases 21 spaced apart from each other in the up-down direction. The pulsed sterilization module 20 further includes two second fixation bases 25 spaced apart from each other in the up-down direction. The two second fixation bases 25 correspond to the two first fixation bases 21 respectively. The second fixation base 25 located above and the first fixation base 21 located above define one limiting hole 257. The second fixation base 25 located below and the first fixation base 21 located below define another limiting hole 257.

[0048] As illustrated in FIG. 9 and FIG. 13, an upper end of the pulse lamp tube 23 passes through an upper limiting hole 257 located above, and the upper end of the pulse lamp tube 23 is sandwiched between an upper first fixation base 21 and an upper second fixation base 25. A lower end of the pulse lamp tube 23 passes through a lower limiting hole 257, and the lower end of the pulse lamp tube 23 is sandwiched between a lower first fixation base 21 and a lower second fixation base 25, allowing mounting stability of the pulse lamp tube 23 to be high. Each of the two second fixation bases 25 is detachably connected to a corresponding first fixation base 21, which facilitates disassembly and assembly of the pulse lamp tube 23. For example, when the pulse lamp tube 23 is damaged, the pulse lamp tube 23 can be disassembled by disassembling the second fixation base 25 and the first fixation base 21, and thus the pulse lamp tube 23 can be repaired or replaced.

[0049] For example, as illustrated in FIG. 9 and FIG. 13, according to some specific embodiments of the present disclosure, the first fixation base 21 is provided with one snap-fit 213 at a left end and one snap-fit 213 at a right end of the first fixation base 21, respectively. The

second fixation base 25 is provided with one snap hole 251 at a left end and one snap hole 251 at a right end of the second fixation base 25, respectively. The first fixation base 21 can be snap-connected to the second fixation base 25 through engagement between the snap-fit 213 and the snap hole 251. A semicircular first mounting notch 214 is formed at a lower end of the first fixation base 21 located above. A semicircular first mounting notch 214 is also formed at an upper end of the first fixation base 21 located below. Correspondingly, a semicircular second mounting notch 256 is formed at a lower end of the second fixation base 25 located above, and a semicircular second mounting notch 256 is also formed at a lower end of the second fixation base 25 located below. When the first fixation base 21 is snap-connected to the second fixation base 25, the first mounting notch 214 abuts with the second mounting notch 256 in a front-rear direction to form the limiting hole 257.

[0050] As illustrated in FIG. 16 and FIG. 17, according to some optional embodiments of the present disclosure, the air duct partition 31, the pulse mounting base 2, and the two first fixation bases 21 are integrally formed, enabling overall structural strength and stability to be high, mounting stability of the pulse lamp tube 23 to be strong, and manufacturing of the pulse lamp tube 23 to be simple, and formation of the pulse lamp tube 23 to be more convenient.

[0051] As illustrated in FIG. 9, FIG. 13, and FIG. 17, according to some optional embodiments of the present disclosure, the two first fixation bases 21 define two wire-passing holes, and the two second fixation bases 25 define two wire-passing holes, which facilitates a wire harness of the pulse lamp tube 23 to be led out from the wire-passing holes, preventing the first fixation base 21 and the second fixation base 25 from pinching the wires. The wire passing holes are simple in structure and easy to process. For example, the two wire-passing holes are a first wire-passing hole 253 and a second wire-passing hole, respectively. A semicircular first wire-passing groove 211 is formed at an upper end of the first fixation base 21 located above, and correspondingly, a semicircular second wire-passing groove 252 is formed at an upper end of the second fixation base 25 located above, which is snap-connected to the first fixation base 21 located above. When the first fixation base 21 located above is snap-connected to its corresponding second fixation base 25, the first wire-passing groove 211 and the second wire-passing groove 252 align in the front-rear direction to form the first wire-passing hole 253. A semicircular third wire-passing groove 212 is formed at a lower end of the first fixation base 21 located below, and correspondingly, a semicircular fourth wire-passing groove is formed at a lower end of the second fixation base 25 located below, which is snap-connected to the first fixation base 21 located below. When the first fixation base 21 located below is snap-connected to its corresponding second fixation base 25, the third wire-passing groove 212 and the fourth wire-passing groove align in the front-

rear direction to form a second wire-passing hole. The wire-passing hole may have a diameter smaller than that of the limiting hole 257.

[0052] As illustrated in FIG. 9, FIG. 12, and FIG. 13, according to some optional embodiments of the present disclosure, the pulse lamp tube 23 has a first lead-out wire 236 at an upper end of the pulse lamp tube 23. The pulse lamp tube 23 has a second lead-out wire 237 at a lower end of the pulse lamp tube 23. The first lead-out wire 236 is led out upwardly, which can avoid winding of the first lead-out wire 236, and help to reduce a length of the first lead-out wire 236, allowing the first lead-out wire 236 to be led out at a shortest distance, and preventing the first lead-out wire 236 irradiated by the pulsed light from aging. For example, the first lead-out wire 236 may be led from the first wire-passing hole 253. The second lead-out wire 237 is led from a side of the pulse mounting base 2 in the left-right direction of the pulse mounting base 2 to a side of the pulse mounting base 2 away from the pulse lamp tube 23, and can be led out upwardly. By winding the second lead-out wire 237 to the side of the pulse mounting base 2 away from the pulse lamp tube 23, a side of the second lead-out wire 237 located on the pulse mounting base 2 away from the pulse lamp tube 23 may not be irradiated by the pulsed light. A length of the second lead-out wire 237 directly irradiated by the pulsed light can be reduced compared with the second lead-out wire 237 being directly led out upwardly at a side of the pulse mounting base 2 where the pulse lamp tube 23 is mounted. In this way, direct irradiation of the second lead-out wire 237 by the pulse lamp tube 23 can be effectively prevented, avoiding aging and failure of the second lead-out wire 237 due to prolonged exposure to the pulsed light. For example, the second lead-out wire 237 may be led from the second wire-passing hole and then from a right side of the pulse mounting base 2.

[0053] As illustrated in FIG. 13 to FIG. 19, in some optional embodiments of the present disclosure, the pulse mounting base 2 is provided with a first wiring clip 201 at an upper end of the pulse mounting base 2. The first wiring clip 201 is located above the pulse lamp tube 23. The first lead-out wire 236 is led out upwardly and passes through the first wiring clip 201. The second lead-out wire 237 is led from a side of the pulse mounting base 2 in the left-right direction to the side of the pulse mounting base 2 away from the pulse lamp tube 23. The pulse mounting base 2 is provided with a plurality of (for example, two) second wiring clips 202 at the side of the pulse mounting base 2 away from the pulse lamp tube 23, and the plurality of second wiring clips 202 are arranged at intervals in the up-down direction. The second lead-out wire 237 passes through the plurality of second wiring clips 202. The second lead-out wire 237 is led out upwardly. By disposing the first wiring clip 201, wiring of the first lead-out wire 236 can be standardized, and the first lead-out wire 236 can be prevented from being messy and scattered. By disposing the second wiring clip 202, wiring of the second lead-out wire 237 can be standardized,

and the second lead-out wire 237 can be prevented from being messy and scattered. Further, the first wiring clip 201 and the second wiring clip 202 can have simple structures and are easy to process. In another exemplary embodiment of the present disclosure, the first wiring clip 201 and the pulse mounting base 2 may be integrally formed. The second wiring clip 202 and the pulse mounting base 2 may also be integrally formed.

[0054] It should be noted that, in the description of the present disclosure, "plurality" means two or more.

[0055] As illustrated in FIG. 16 to FIG. 19, in some optional embodiments of the present disclosure, the pulse mounting base 2 has a wire-passing notch 22 at a left side wall of the pulse mounting base 2, and the wire-passing notch 22 is configured to allow the second lead-out wire 237 to pass through the wire-passing notch 22. The wire-passing notch 22 includes: a guide segment 221 penetrating the left side wall of the pulse mounting base 2; a wire-passing body 223; and a constricted segment 222. Alternatively, the pulse mounting base 2 has the wire-passing notch 22 at a right side wall of the pulse mounting base 2, and the wire-passing notch 22 is configured to allow the second lead-out wire 237 to pass through the wire-passing notch 22. The guide segment 221 penetrates the right side wall of the pulse mounting base 2. The constricted segment 222 of the wire-passing notch 22 is located between the guide segment 221 and the wire-passing body 223. The second lead-out wire 237 penetrates the wire-passing body 223. A width of the constricted segment 222 is smaller than a width of the guide segment 221 and a width of the wire-passing body 223, enabling the wire-passing body 223 to be easily inserted but to have difficulty in exiting, which can prevent the second lead-out wire 237 introduced into the wire-passing body 223 from disengaging from the wire-passing notch 22, and also prevent the second lead-out wire 237 from being pinched. By disposing a wire-passing notch 22 at the side of the pulse mounting base 2 for the second lead-out wire 237 to pass through, wiring and arrangement during mounting of the pulse lamp tube 23 can be facilitated. After the second lead-out wire 237 is led from the side of the pulse mounting base 2 where the pulse lamp tube 23 is mounted, the second lead-out wire 237 can be routed around to a side of the pulse mounting base 2 that has the wire-passing notch 22, and sequentially passes through the guide segment 221 and the constricted segment 222 before being pressed into the wire-passing body 223. Finally, the second lead-out wire 237 is routed around from the wire-passing body 223 to the side of the pulse mounting base 2 away from the pulse lamp tube 23, which avoids exposure of the second lead-out wire 237 to the pulsed light, preventing aging and failure of the second lead-out wire 237 due to prolonged exposure to the pulsed light.

[0056] As illustrated in FIG. 13 and FIG. 21, in another exemplary embodiment of the present disclosure, the pulsed sterilization module 20 further includes the pulse lamp tube 23 extending in the up-down direction. The

pulse lamp tube 23 may include the first lead-out wire 236, the second lead-out wire 237, a first sealing connector 231, a second sealing connector 232, a tube body 233, a lamp cover 234, and a trigger wire 235. For example, the pulse lamp tube 23 has an upper end as the first sealing connector 231, which is connected to the first lead-out wire 236, and a lower end as the second sealing connector 232, which is connected to the second lead-out wire 237. The lamp cover 234 may be sleeved around an outer circumferential side of the tube body 233. The lamp cover 234 may be made of a quartz glass tube. A sealed space may be defined between the lamp cover 234 and the tube body 233. The tube body 233 is filled with an inert gas (e.g. xenon gas). The trigger wire 235 is wound around the tube body 233, and the trigger wire 235 is located in the space defined by the tube body 233 and the lamp cover 234.

[0057] As illustrated in FIG. 3, FIG. 6, and FIG. 13, according to some embodiments of the present disclosure, the pulsed sterilization module 20 further includes a protective cover 24 that is transparent. The protective cover 24 is connected to the rear side of the pulse mounting base 2. A receiving space 245 is defined between the protective cover 24 and the pulse mounting base 2 and is configured to receive the pulse lamp tube 23, which can provide protection for the pulse lamp tube 23. By disposing the protective cover 24, the pulse lamp tube 23 can be prevented from being affected by dust or condensate water, a service life of the pulse lamp tube 23 can be ensured, and a failure rate of the pulse lamp tube 23 can be effectively reduced. The protective cover 24 that is transparent does not affect a penetration power and irradiation intensity of the pulsed light, and can protect the pulse lamp tube 23 without affecting a sterilization ability of the pulsed light. For example, one first wiring groove 244 is formed at an upper end of the protective cover 24. The first lead-out wire 236 can be led from the first wiring groove 211 after being inserted into the first wiring clip 201 to prevent the protective cover 24 from pinching the wire. One second wiring groove 204 is formed at the upper end of the pulse mounting base 2. The second lead-out wire 237 leading from the wire-passing notch 22 can be led from the second wire-passing groove 252 after being inserted into the second wiring clip 202, so as to prevent the pulse mounting base 2 from pinching the wire.

[0058] For example, the pulse mounting base 2 can also be made transparent, in such a manner that pulsed light emitted by the pulse lamp tube 23 can irradiate 360° between the air duct component 30 and the heat exchanger component 40, achieving 360° coverage without blind spots. As a result, the irradiation range of the pulsed light is larger, leading to the higher sterilization efficiency and the better sterilization effect.

[0059] A fastener can sequentially penetrate the protective cover 24, the pulse mounting base 2, and then extends into a volute body 32, to enable the pulsed sterilization module 20 to be mounted and fixed. This

mounting method can save a quantity of fasteners and improve assembly efficiency. For example, as illustrated in FIG. 12 to FIG. 19, two first fixation holes 205 and one positioning post 203 are formed at the upper end of the pulse mounting base 2. The two first fixation holes 205 are spaced apart from each other in the left-right direction. The first fixation hole 205 penetrates the pulse mounting base 2 in a front-rear direction. The positioning post 203 may be formed at an upper side of the first fixation hole 205 on a left side. Two second fixation holes 241 and one positioning hole 243 are formed at the upper end of the transparent protective cover 24. The second fixation hole 241 corresponds to the first fixation hole 205. The positioning hole 243 corresponds to the positioning post 203. The volute body 32 is provided with two first fixation posts 323 at an upper end of the volute body 32. The two fixation posts extend in the front-rear direction. One third fixation hole is formed at each of the two fixation posts. When mounting the pulsed sterilization module 20, the upper end of the protective cover 24 is limited by inserting the positioning post 203 into the positioning hole 243. The fastener can sequentially pass through the second fixation hole 241, the first fixation hole 205, and the third fixation hole, fixing the upper end of the protective cover 24 to the pulse mounting base 2, and also fixing the pulse mounting base 2 to the volute body 32.

[0060] For example, as illustrated in FIG. 3 and FIG. 13 to FIG. 19, two fourth fixation holes 206 and one positioning post 203 are formed at a lower end of the pulse mounting base 2. The two fourth fixation holes 206 are spaced apart from each other in the left-right direction. The positioning post 203 may be formed at an upper side of the fourth fixation hole 206 on a right side. Two fifth fixation holes 242 and one positioning hole 243 are formed at a lower end of the transparent protective cover 24. The two fifth fixation holes 242 correspond to the fourth fixation hole 206. The positioning hole 243 corresponds to the positioning post 203. When mounting the protective cover 24, the upper end of the protective cover 24 is limited by inserting the positioning post 203 into the positioning hole 243. The fastener can sequentially pass through the fifth fixation hole 242 and the fourth fixation hole 206, in such a manner that the lower end of the protective cover 24 can be mounted and fixed on the pulse mounting base 2.

[0061] For example, as illustrated in FIG. 13 to FIG. 20, according to some specific embodiments of the present disclosure, two mounting holes 311 are formed in the middle part of the air duct partition 31 in the up-down direction. The two mounting holes 311 are located at a left end and a right end of the air duct partition 31, respectively. Two sixth fixation holes 325 are defined at corresponding positions on the volute body 32. The fastener can pass through the mounting hole 311 and the sixth fixation hole 325, enabling the middle part of the air duct partition 31 to be fixed to the volute body 32. Two mounting holes 311 are also formed at a bottom of the air duct

partition 31. The two mounting holes 311 are located at the left end and the right end of the air duct partition 31, respectively. Two second fixation posts 326 are formed at corresponding positions on the volute body 32. One seventh fixation hole is formed at each of the two second fixation posts 326. The fastener can pass through the mounting hole 311 and the seventh fixation hole, enabling the bottom of the air duct partition 31 to be fixed to the volute body 32.

[0062] According to the above mounting method, the protective cover 24 can be mounted and fixed to the pulse mounting base 2, or the air duct partition 31 and the pulsed sterilization module 20 can be mounted and fixed to the volute body 32, resulting in a stable mounting structure and a simple mounting method.

[0063] An air conditioner according to an embodiment of the present disclosure is described below with reference to FIG. 1 to FIG. 21.

[0064] As illustrated in FIG. 1 to FIG. 21, in this embodiment, the air conditioner is a split-type floor-standing air conditioner. The air conditioner includes the air conditioner indoor unit 100 and the air conditioner outdoor unit. The air conditioner indoor unit 100 is a floor-standing cabinet and includes: the casing 10, the heat exchanger component 40, the air duct component 30, and the pulsed sterilization module 20. Both the heat exchanger component 40 and the air duct component 30 are disposed in the casing 10. The air duct component 30 is located at the front side of the heat exchanger component 40. The pulsed sterilization module 20 is disposed at the air duct component 30. The pulsed sterilization module 20 is located between the air duct component 30 and the heat exchanger component 40.

[0065] The casing 10 includes the rear cover 11, the top cover 14, the air outlet frame 15, the lower panel 16, and the base 17. The air outlet frame 15 is located at the upper side of the lower panel 16. The air outlet frame 15 and the lower panel 16 are both located at the front side of the rear cover 11. The top cover 14 covers the top of the air outlet frame 15 and the top of the rear cover 11. The base 17 is located at the bottom of the lower frame and the bottom of the rear cover 11. The air outlet frame 15 is detachably connected to the rear cover 11, the lower panel 16 is detachably connected to the rear cover 11, and the top cover 14 is detachably connected to the air outlet frame 15 and the rear cover 11. The air inlet 13 is formed at the rear cover 11. The air inlet 13 is in communication with the indoor environment. The air inlet grille 12 is disposed at the air inlet 13. The air outlet frame 15 includes the frame body 151, the upper panel 152, and the air deflector 153. Two air outlets are defined between the left side and the right side of the upper panel 152 and the rear cover 11, respectively. The two air outlets are located at the left side of the upper panel 152 and the right side of the upper panel 152, respectively. The air outlet frame 15 further includes the air deflector 153 located at the air outlet. The air deflector 153 is rotatably connected to the upper panel 152 to open and close the air outlet. The air outlet is also in

communication with the indoor environment.

[0066] The heat exchanger component 40 includes a heat exchanger 41, a heat exchanger support 42, and an electric auxiliary heating element. The heat exchanger 41 is disposed at the heat exchanger support 42. The heat exchanger component 40 is located at the front side of the air inlet 13. The air duct component 30 is located at the front side of the heat exchanger component 40. The air outlet frame 15 is located at the front side of the air duct component 30. When the air conditioner is in operation, the air is drawn into the casing 10 from the air inlet 13. After passing through the heat exchanger component 40 for heat exchange, the air is then driven by the air duct component 30 and expelled through the outlet into the indoor environment to cool or heat the indoor environment.

[0067] The air duct chamber 34 is defined between the air duct component 30 and the heat exchanger component 40. The air duct component 30 includes the air duct volute 3, two impellers 33, the first motor 36, and the second motor 37. The air duct volute 3 includes the volute body 32 and the air duct partition 31 connected to the rear side of the air duct volute 3. The air duct partition 31 abuts with the heat exchanger component 40 to divide the air duct chamber 34 into two air duct cavities 35. The two air duct cavities 35 are the first air duct cavity 351 and the second air duct cavity 352, respectively. The first air duct cavity 351 is located at the left side of the second air duct cavity 352. The two impellers 33 are the first impeller 331 and the second impeller 332, respectively. The first impeller 331 is located in the first air duct cavity 351. The second impeller 332 is located in the second air duct cavity 352. The first air duct cavity 351 may be in communication with the air outlet at the left side of the upper panel 152. The air in the first air duct cavity 351 may be blown out through the air outlet at the left side of the upper panel 152. The second air duct cavity 352 may be in communication with the air outlet at the right side of the upper panel 152. The air in the second air duct cavity 352 may be blown out through the air outlet at the right side of the upper panel 152.

[0068] The volute body 32 includes the first volute body 321 and the second volute body 322 that are arranged in the left-right direction. The first volute body 321 is connected to the second volute body 322. The first impeller 331 is mounted in the first volute body 321. The second impeller 332 is mounted in the second volute body 322. The first volute body 321 is located at the left side of the second volute body 322. The first motor 36 is disposed at the top of the first volute body 321. The second motor 37 is disposed at the top of the second volute body 322. The volute body 32 is provided with two first fixation posts 323 at the upper end of the volute body 32. The two first fixation posts 323 are spaced apart from each other in the left-right direction and extend in the front-rear direction. Each of the two first fixation posts 323 has one third fixation hole. The volute body 32 has two sixth fixation holes 325 in a middle part of the volute body 32 in the up-

down direction. The two sixth fixation holes 325 are spaced apart from each other in the left-right direction. The volute body 32 is provided with two second fixation posts 326 at a bottom of the volute body 32. The two second fixation posts 326 are spaced apart from each other in the left-right direction. Each of the two second fixation posts 326 has one seventh fixation hole.

[0069] The air duct partition 31 is located in the middle part of the air duct component 30 in the left-right direction. The air duct partition 31 is located at the front side of the heat exchanger component 40 and connected to the rear side of the volute body 32. The air duct partition 31 abuts with the middle part of the heat exchanger component 40 in the left-right direction. The first air duct cavity 351 is defined among the air duct partition 31, the heat exchanger component 40, and the first volute body 321. The second air duct cavity 352 is defined among the air duct partition 31, the heat exchanger component 40, and the second volute body 322. Two mounting holes 311 are formed in the middle part of the air duct partition 31 in the up-down direction. The two mounting holes 311 correspond to the two sixth fixing holes 325 in a one-to-one correspondence. The fastener extends through the mounting holes 311 and the sixth fixation holes 325, enabling the middle part of the air duct partition 31 to be fixed to the volute body 32. Two mounting holes 311 are also formed at the bottom of the air duct partition 31. The two mounting holes 311 correspond to the two seventh fixation holes in a one-to-one correspondence. The fastener extends through the mounting holes 311 and the seventh fixation holes, enabling the bottom of the air duct partition 31 to be fixed to the volute body 32.

[0070] The pulsed sterilization module 20 is disposed at the top of the air duct partition 31. The outer contour shape of the cross section of the pulsed sterilization module 20 is the same as the outer contour shape of the cross section of the air duct partition 31. The pulsed sterilization module 20 and the air duct partition 31 both abut with the heat exchanger component 40. The air duct chamber 34 is divided into two air duct cavities 35 by the pulsed sterilization module 20 and the air duct partition 31. The pulsed sterilization module 20 includes the pulse mounting base 2, the second fixation base 25, the pulse lamp tube 23, and the protective cover 24 that is transparent. The pulse mounting base 2 is disposed at the air duct partition 31. The pulse mounting base 2 and the air duct partition 31 are integrally formed. The pulse lamp tube 23 is disposed at the pulse mounting base 2 and located at the rear side of the pulse mounting base 2. The protective cover 24 is connected to the rear side of the pulse mounting base 2. The receiving space 245 is defined between the protective cover 24 and the pulse mounting base 2 and is configured to receive the pulse lamp tube 23.

[0071] The pulse mounting base 2 is provided with two first fixation bases 21, the wire-passing notch 22, the first wiring clip 201, and two second wiring clips 202. The two first fixation bases 21 are spaced apart from each other in

the up-down direction. The first fixation base 21 is provided with one snap-fit 213 at the left end of the first fixation base 21 and the right end of the first fixation base 21. Each of the two first fixation bases 21 has one first mounting notch 214. The first fixation base 21 has the semicircular first wire-passing groove 211 at the upper end of the first fixation base 21 located above. The first fixation base 21 has the semicircular third wire-passing groove 212 at the lower end of the first fixation base 21 located below. The pulse mounting base 2 is provided with the first wiring clip 201 at the upper end of the pulse mounting base 2. The first wiring clip 201 is located above the first fixation base 21. Two second wiring clips 202 are arranged on the side of the pulse mounting base 2 away from the pulse lamp tube 23. The two second wiring clips 202 are spaced apart from each other in the up-down direction. The wire-passing notch 22 is formed at the right side wall of the pulse mounting base 2. The wire-passing notch 22 includes the guide segment 221 penetrating the left side wall of the pulse mounting base 2; the wire-passing body 223; and the constricted segment 222 located between the guide segment 221 and the wire-passing body 223. The width of the constricted segment 222 is smaller than the width of the guide segment 221 and the width of the wire-passing body 223. The first fixation base 21, the first wiring clip 201, and the second wiring clip 202 are all integrally formed with the pulse mounting base 2.

[0072] Two positioning posts 203, two first fixation holes 205, and two fourth fixation holes 206 are also formed at the pulse mounting base 2. The first fixation hole 205 is located at the upper end of the pulse mounting base 2. The fourth fixation hole 206 is located at the lower end of the pulse mounting base 2. The two first fixation holes 205 are spaced apart from each other in the left-right direction. The first fixation hole 205 extends through the pulse mounting base 2 in the front-rear direction. One positioning post 203 is formed at the upper side of the first fixation hole 205 on the left side. The two fourth fixation holes 206 are also spaced apart from each other in the left-right direction. Another positioning post 203 may be formed at the upper side of the fourth fixation hole 206 on the right side.

[0073] The two second fixation bases 25 are spaced apart from each other in the up-down direction. The second fixation base 25 has one snap hole 251 at the left end of the second fixation base 25 and the right end of the second fixation base 25. The first fixation base 21 can be snap-connected to the second fixation base 25 through engagement between the snap fit 213 and the snap hole 251. The second fixation base 25 located above has the semi-circular second wire-passing groove 252 at the upper end of the second fixation base 25 located above, and has the semi-circular second mounting notch 256 at the lower end of the second fixation base 25 located above. When the second fixation base 25 located above is snap-connected to the corresponding first fixation base 21, the first wire-passing groove 211

and the second wire-passing groove 252 align in the front-rear direction to form the first wire-passing hole 253, and the first mounting notch 214 and the second mounting notch 256 align in the front-rear direction to form the limiting hole 257. The second fixation base 25 located below has the semi-circular fourth wire-passing groove at the lower end of the second fixation base 25 located below, and has the semi-circular second mounting notch 256 at the upper end of the second fixation base 25 located below. When the second fixation base 25 located below is snap-connected to the corresponding first fixation base 21, the third wire-passing groove 212 and the fourth wire-passing groove align in the front-rear direction to form the second wire-passing hole, and the first mounting notch 214 and the second mounting notch 256 align in the front-rear direction to form the limiting hole 257. A diameter of the first wire-passing hole 253 and a diameter of the second wire-passing hole are smaller than a diameter of the limiting hole 257.

[0074] Two second fixation holes 241 corresponding to the first fixation hole 205, and one positioning hole 243 corresponding to the positioning post 203 at the upper side of the first fixation hole 205 are formed at the upper part of the protective cover 24. The fastener can sequentially pass through the second fixation hole 241, the first fixation hole 205, and the third fixation hole, enabling the upper end of the protective cover 24 to be fixed to the pulse mounting base 2, and the pulse mounting base 2 to be fixed to the volute body 32. The two fifth fixation holes 242 corresponding to the fourth fixation hole 206, and one positioning hole 243 corresponding to the positioning post 203 at the upper side of the fourth fixation hole 206 are formed at the lower part of the protective cover 24. The positioning post 203 extends through the positioning hole 243 corresponding to the positioning post 203. The fastener can pass through the fifth fixation hole 242 and the fourth fixation hole 206, enabling the lower end of the protective cover 24 to be mounted and fixed to the pulse mounting base 2.

[0075] The pulse lamp tube 23 extends in the up-down direction. The pulse lamp tube 23 may include the first lead-out wire 236, the second lead-out wire 237, the first sealing connector 231, the second sealing connector 232, the tube body 233, the lamp cover 234, and the trigger wire 235. The lamp cover 234 may be sleeved around the outer circumferential side of the tube body 233. The tube body 233 is filled with the inert gas. The trigger wire 235 is wound around the tube body 233, and the trigger wire 235 is located in the space defined by the tube body 233 and the lamp cover 234. The pulse lamp tube 23 has the upper end as the first sealing connector 231 connected to the first lead-out wire 236, and the lower end as the second sealing connector 232 connected to the second lead-out wire 237. The first wiring groove 244 is formed at the upper end of the protective cover 24. The first lead-out wire 236 sequentially extends through the first wire-passing hole 253 and the first wiring clip 201, and is led out upwardly through the first wiring groove

244. The second wiring groove 204 is formed at the upper end of the pulse mounting base 2. The second lead-out wire 237 can be led out upwardly from the second wiring groove 204 after sequentially extending through the second wire-passing hole, the wire-passing notch 22, and the two second wiring clips 202.

[0076] Reference throughout this specification to "an embodiment," "some embodiments," "illustrative embodiments," "an example," "a specific example," or "some examples" means that a particular feature, structure, material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the present disclosure. The appearances of the above phrases in various places throughout this specification are not necessarily referring to the same embodiment or example. In addition, the particular features, structures, materials, or characteristics described may be combined in any suitable manner in any one or more embodiments or examples.

[0077] Although embodiments of the present disclosure have been illustrated and described, it is conceivable for those skilled in the art that various changes, modifications, replacements, and variations can be made to these embodiments without departing from the principles and spirit of the present disclosure. The scope of the present disclosure shall be defined by the claims as appended and their equivalents.

Claims

1. An air conditioner, comprising:

a casing having an air inlet and an air outlet;
a heat exchanger component disposed in the casing;
an air duct component disposed in the casing, an air duct chamber being defined between the heat exchanger component and the air duct component and extending in an up-down direction; and
a pulsed sterilization module disposed at the air duct component and adapted to emit pulsed light into the air duct chamber, the pulsed sterilization module being provided with a pulse lamp tube extending in the up-down direction.

2. The air conditioner according to claim 1, wherein the pulsed sterilization module is located at a middle part of the air duct component in a left-right direction.

3. The air conditioner according to claim 1 or 2, wherein the pulsed sterilization module is located at a side of the air duct component adjacent to the heat exchanger component.

4. The air conditioner according to claim 3, wherein:

the air duct component comprises an air duct volute and two impellers mounted at the air duct volute; and

the air duct chamber comprises two air duct cavities defined between the air duct volute and the heat exchanger component and arranged in a left-right direction, the two impellers being respectively located in the two air duct cavities, and the pulsed sterilization module being located between the two air duct cavities.

5. The air conditioner according to claim 4, wherein:

the air duct component is located at a front side of the heat exchanger component; and the air duct volute comprises a volute body and an air duct partition connected to a rear side of the air duct volute, the air duct partition abutting with the heat exchanger component to divide the air duct chamber into the two air duct cavities, and the pulsed sterilization module being disposed in the air duct partition.

6. The air conditioner according to claim 5, wherein the pulsed sterilization module is disposed at an upper part of the air duct partition.

7. The air conditioner according to claim 6, wherein the pulsed sterilization module is disposed at a top of the air duct partition, the air duct chamber being divided into the two air duct cavities by the pulsed sterilization module and the air duct partition.

8. The air conditioner according to claim 7, wherein an outer contour shape of a cross-section of the pulsed sterilization module is the same as an outer contour shape of a cross-section of the air duct partition.

9. The air conditioner according to claim 5, wherein:

the pulsed sterilization module comprises a pulse mounting base disposed at the air duct partition; and the pulse lamp tube is disposed at the pulse mounting base and located at a rear side of the pulse mounting base.

10. The air conditioner according to claim 9, wherein the pulse mounting base and the air duct partition are integrally formed.

11. The air conditioner according to claim 9, wherein:

the pulse mounting base is provided with two first fixation bases spaced apart from each other in the up-down direction; and the pulsed sterilization module further comprises two second fixation bases spaced apart

from each other in the up-down direction, wherein:

the two second fixation bases and the two first fixation bases respectively define two limiting holes, an upper end and a lower end of the pulse lamp tube passing through the two limiting holes, respectively; and each of the two second fixation bases is detachably connected to a corresponding first fixation base of the two first fixation bases.

12. The air conditioner according to claim 11, wherein the air duct partition, the pulse mounting base, and the two first fixation bases are integrally formed.

13. The air conditioner according to claim 11, wherein the two first fixation bases and the two second fixation bases define two wire-passing holes, respectively.

14. The air conditioner according to claim 9, wherein:

the pulse lamp tube has a first lead-out wire at an upper end of the pulse lamp tube, the first lead-out wire being led out upwardly; and the pulse lamp tube has a second lead-out wire at a lower end of the pulse lamp tube, wherein the second lead-out wire is led from a side of the pulse mounting base in a left-right direction of the pulse mounting base to a side of the pulse mounting base away from the pulse lamp tube, and then is led out upwardly.

15. The air conditioner according to claim 14, wherein:

the pulse mounting base is provided with a first wiring clip at an upper end of the pulse mounting base, the first wiring clip being located above the pulse lamp tube, and the first lead-out wire passing through the first wiring clip; and the pulse mounting base is provided with a plurality of second wiring clips at the side of the pulse mounting base away from the pulse lamp tube, the plurality of second wiring clips being arranged at intervals in the up-down direction, and the second lead-out wire passing through the plurality of second wiring clips.

16. The air conditioner according to claim 14, wherein the pulse mounting base has a wire-passing notch at a left side wall or a right side wall of the pulse mounting base, the wire-passing notch being configured to allow the second lead-out wire to pass through the wire-passing notch, wherein the wire-passing notch comprises:

a guide segment penetrating the left side wall or the right side wall of the pulse mounting base; a wire-passing body, the second lead-out wire penetrating the wire-passing body; and a constricted segment located between the guide segment and the wire-passing body, a width of the constricted segment being smaller than a width of the guide segment and a width of the wire-passing body.

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17. The air conditioner according to any one of claims 9 to 16, wherein the pulsed sterilization module further comprises a protective cover that is transparent, wherein:

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the protective cover is connected to the rear side of the pulse mounting base; a receiving space is defined between the protective cover and the pulse mounting base and is configured to receive the pulse lamp tube; and a fastener sequentially penetrates the protective cover and the pulse mounting base, and then extends into the volute body, to enable the pulsed sterilization module to be mounted and fixed.

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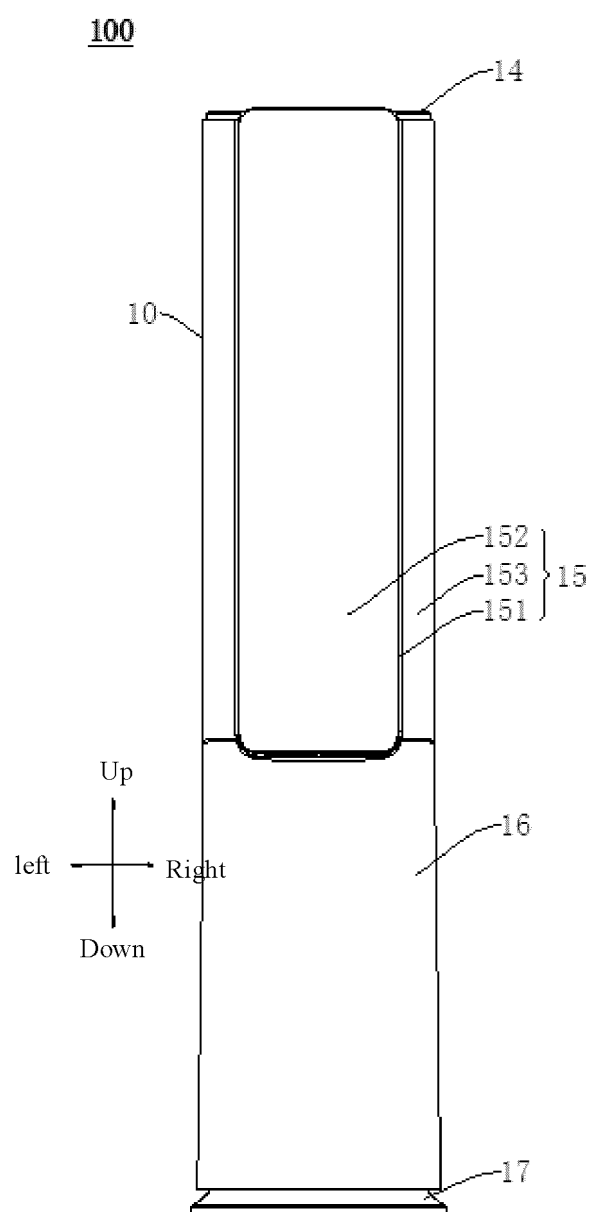


FIG. 1

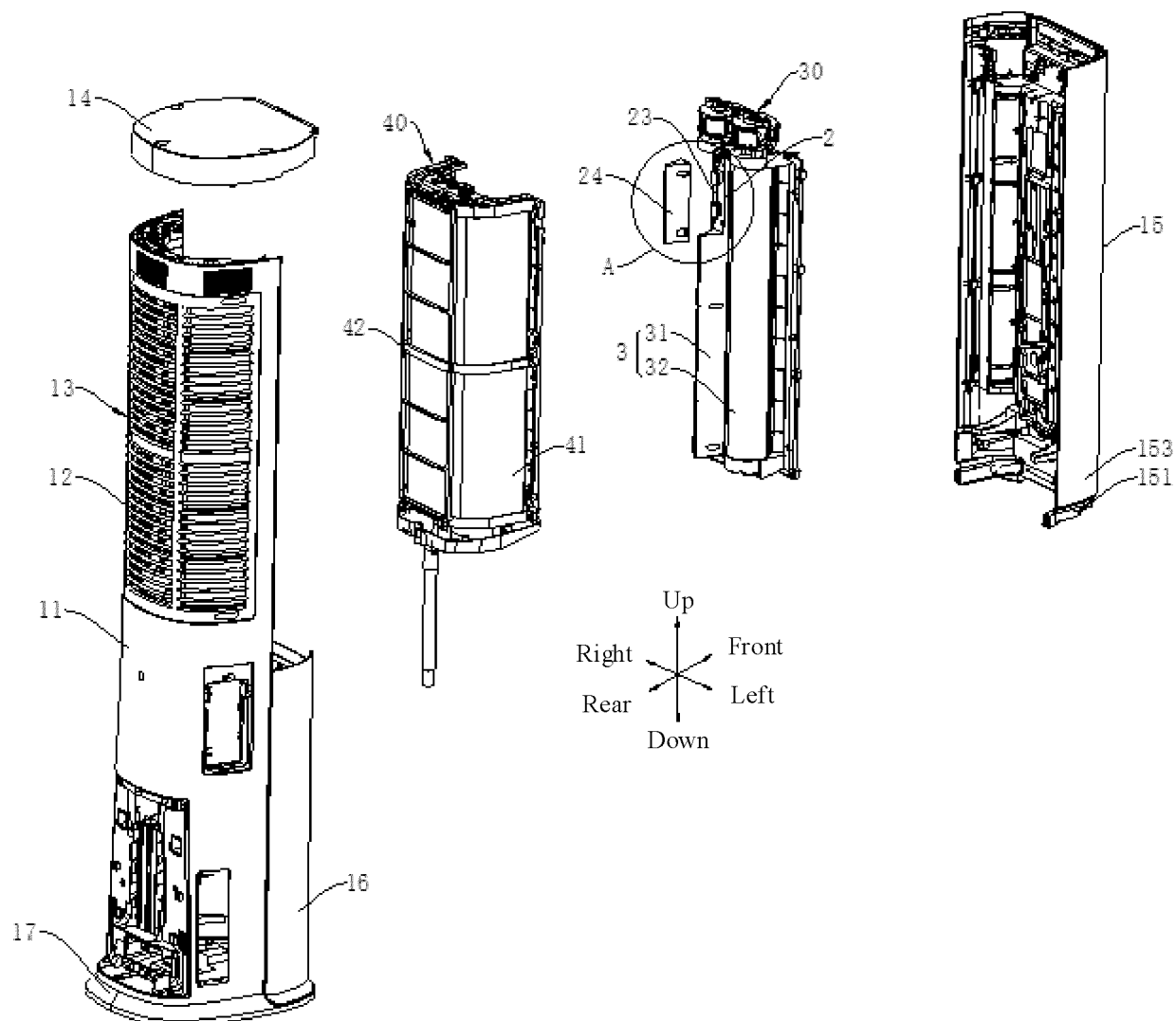


FIG. 2

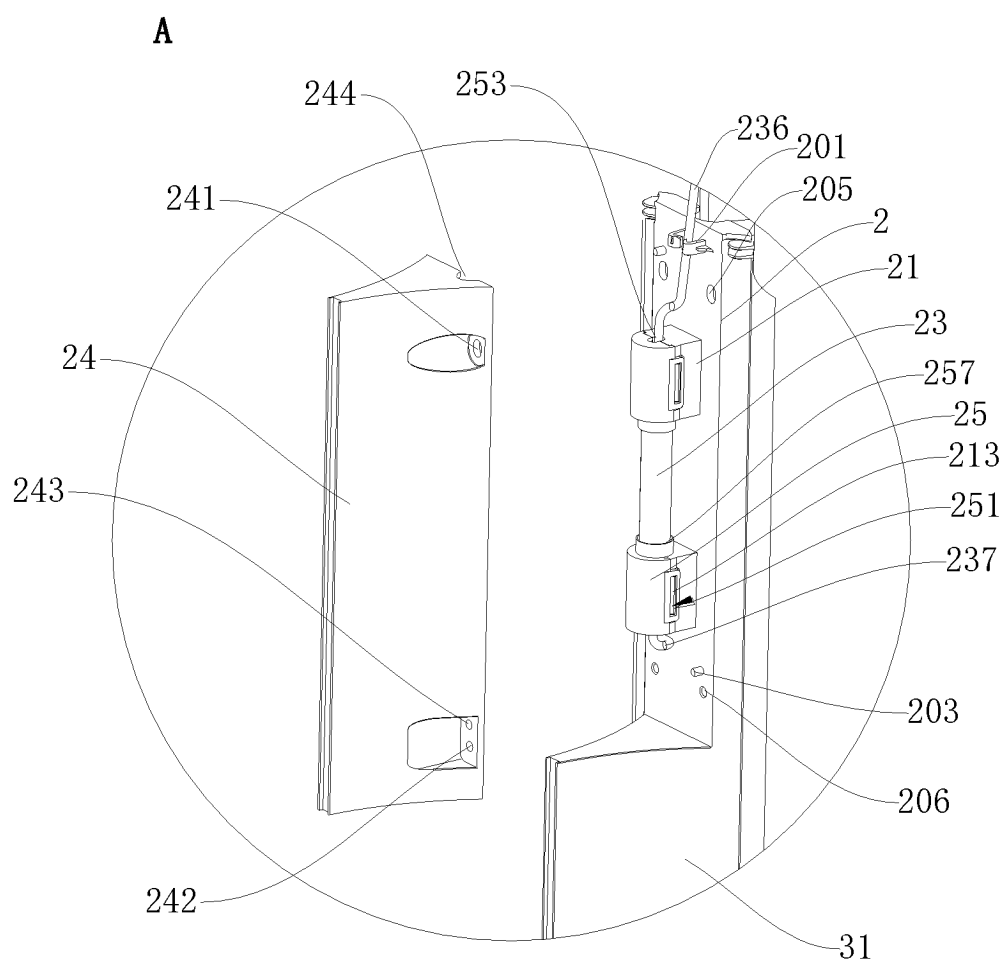


FIG. 3

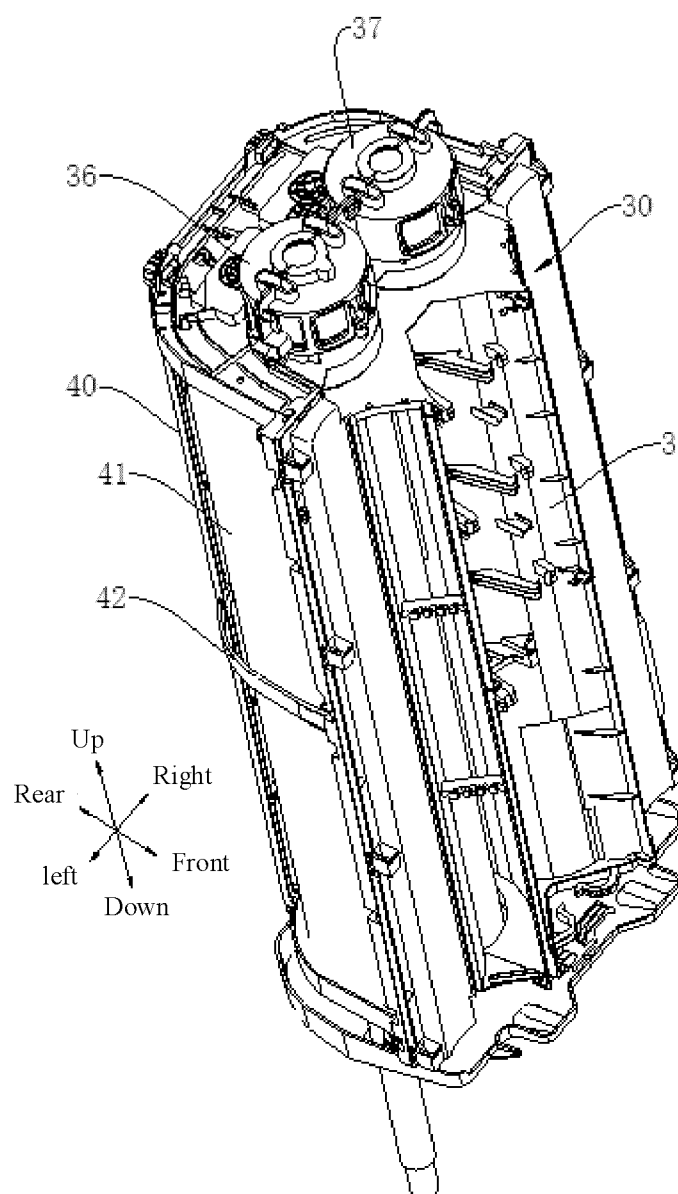


FIG. 4

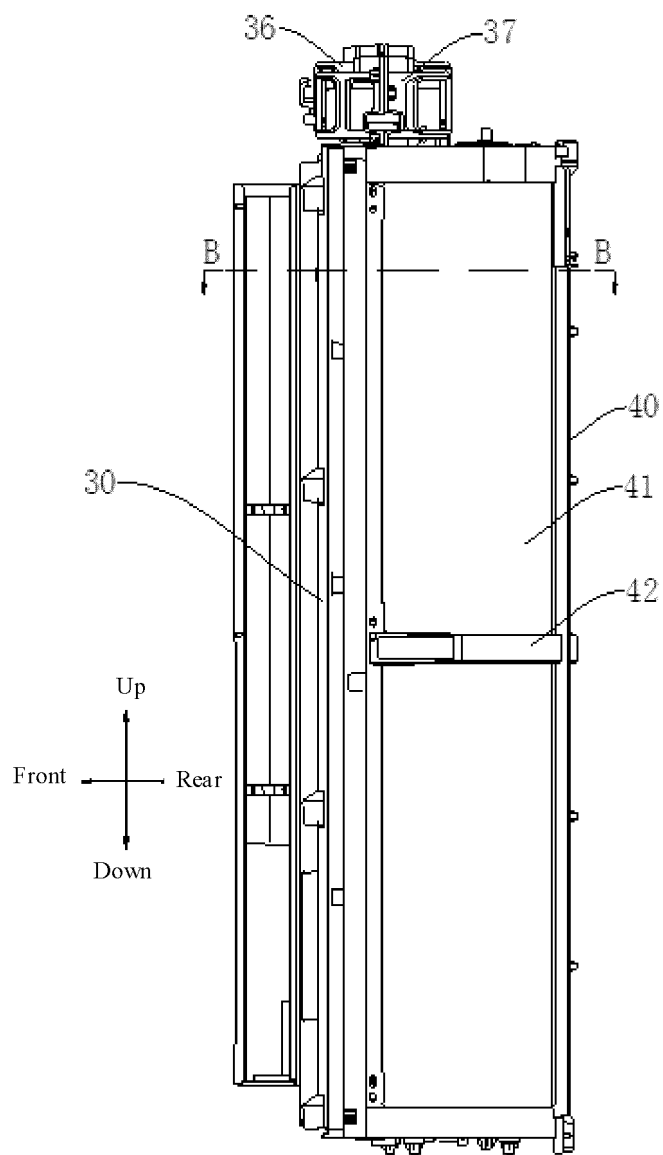


FIG. 5

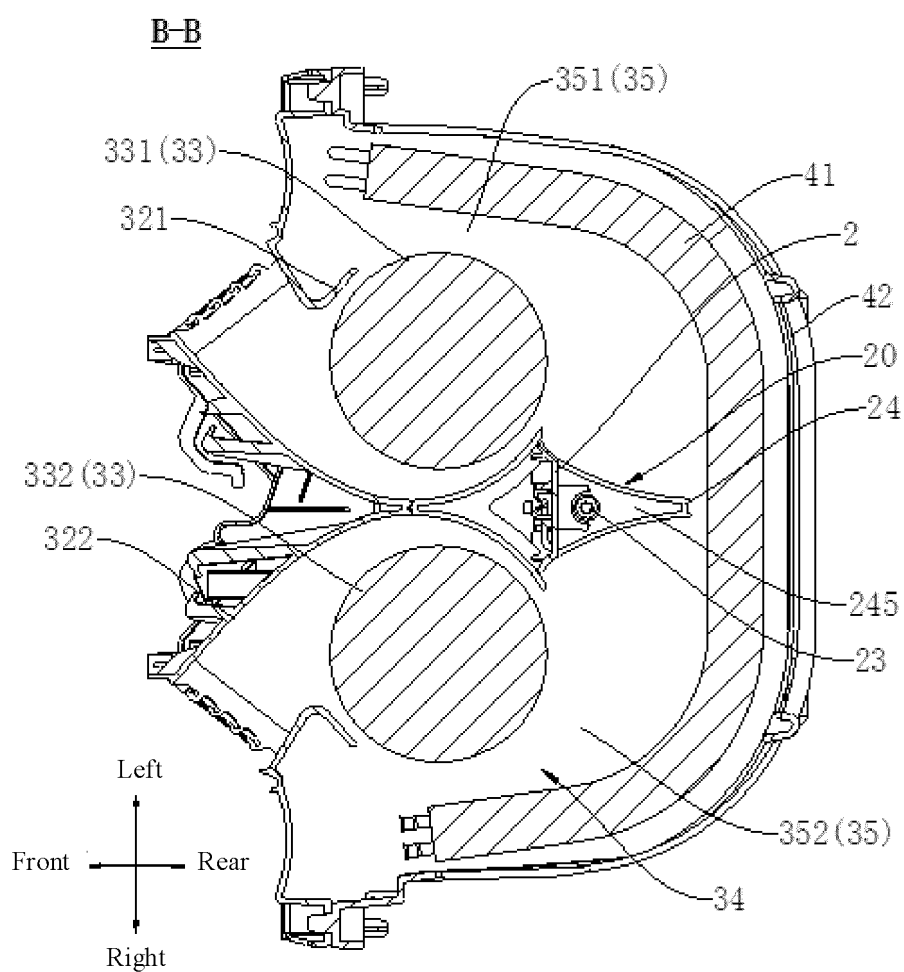


FIG. 6

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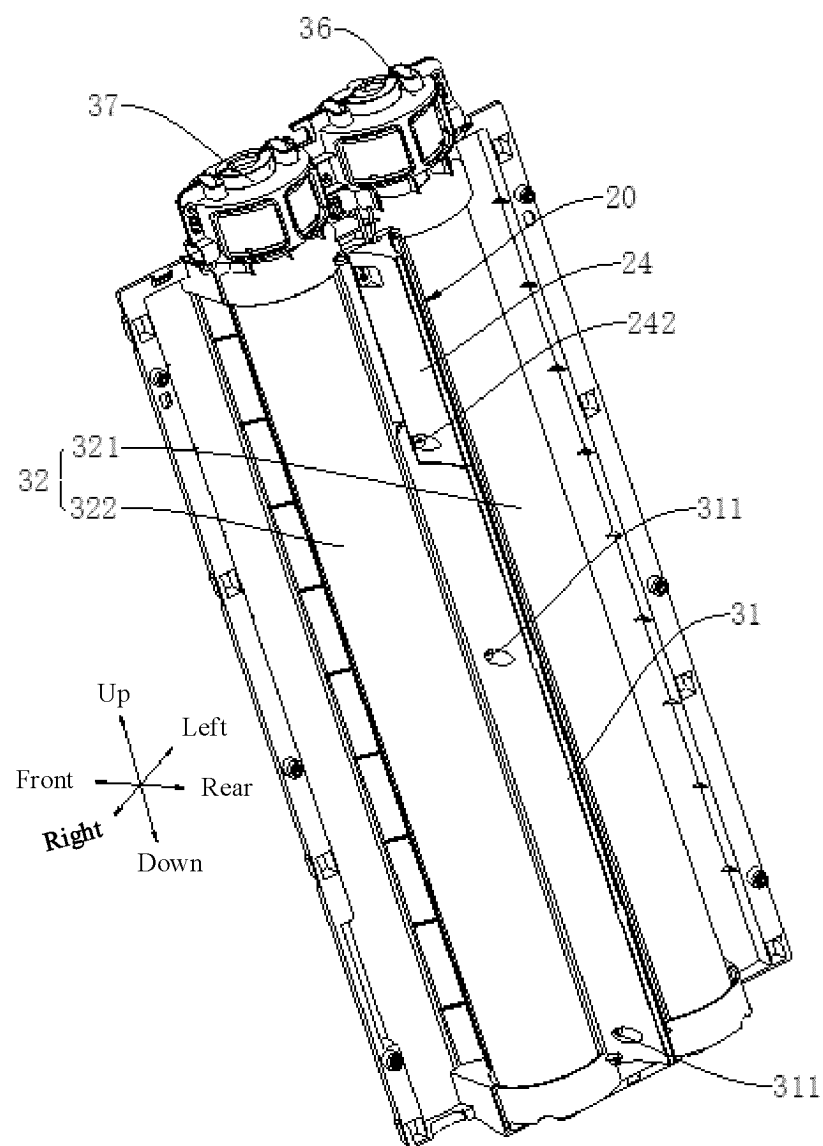


FIG. 7

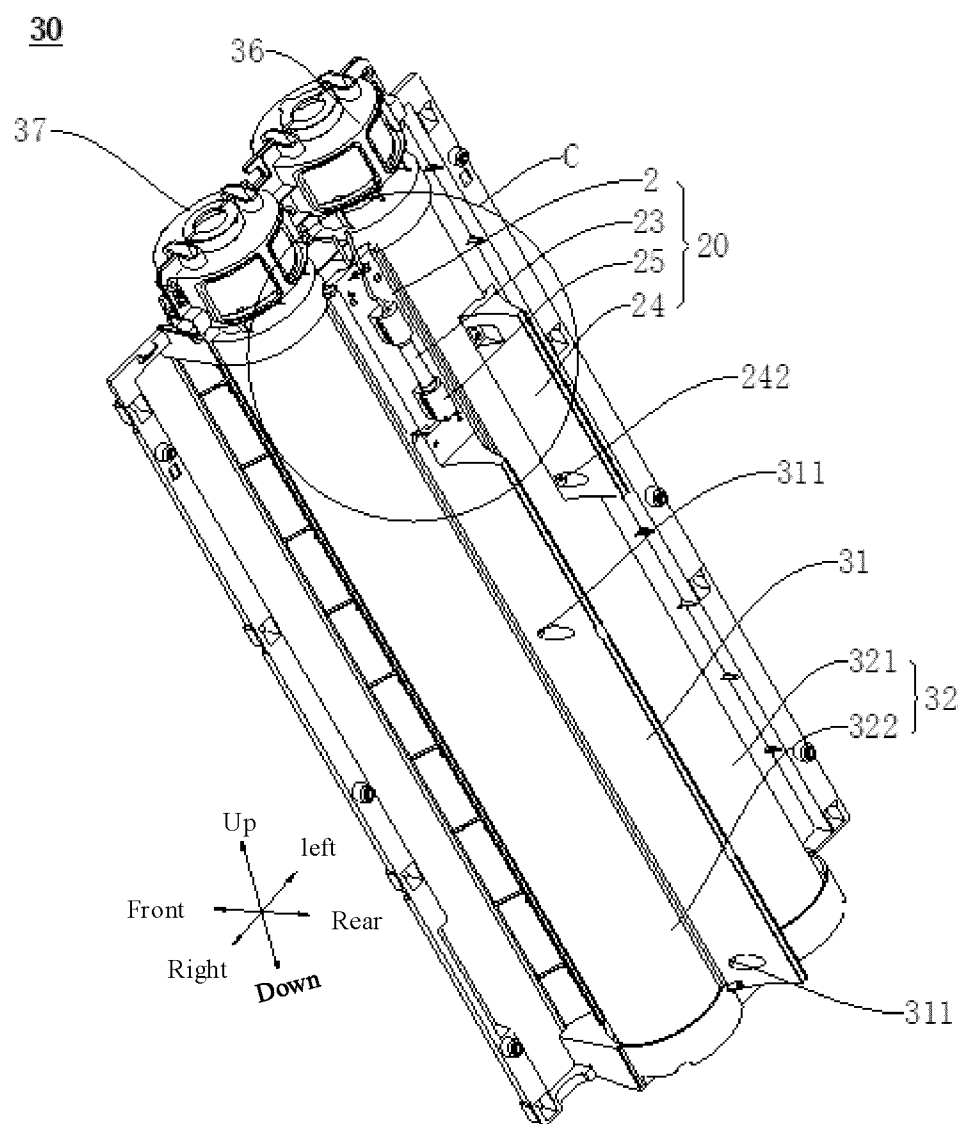


FIG. 8

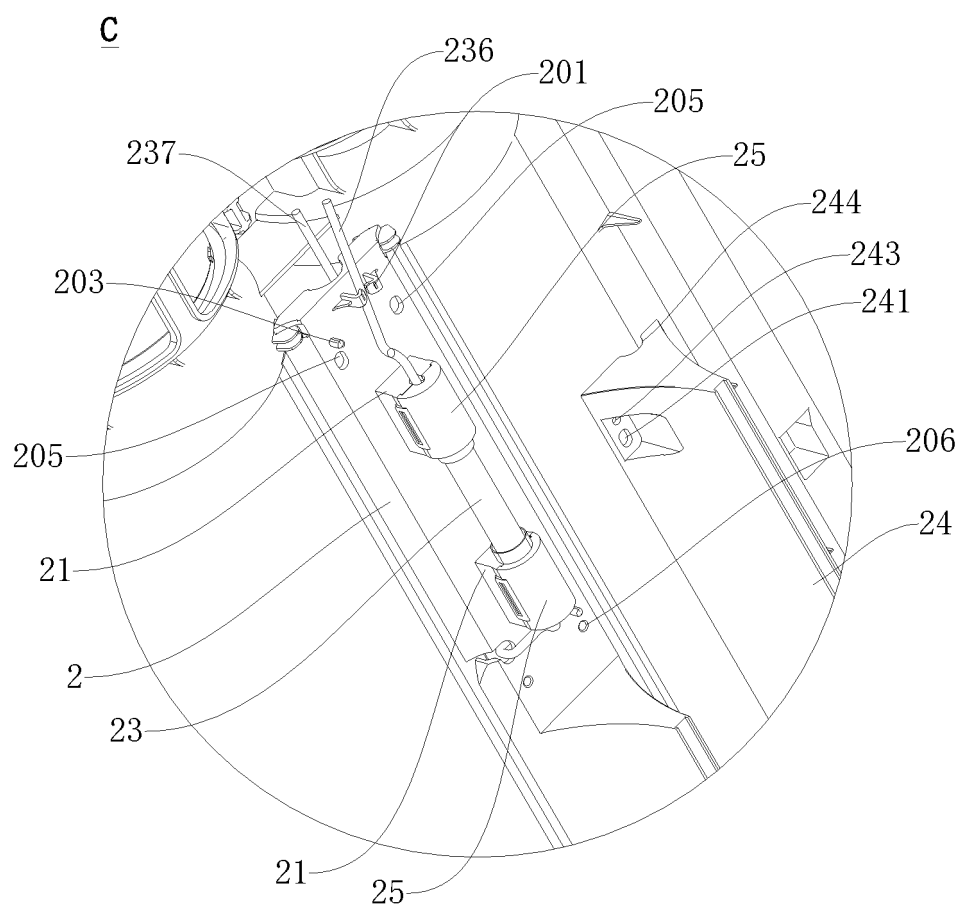


FIG. 9

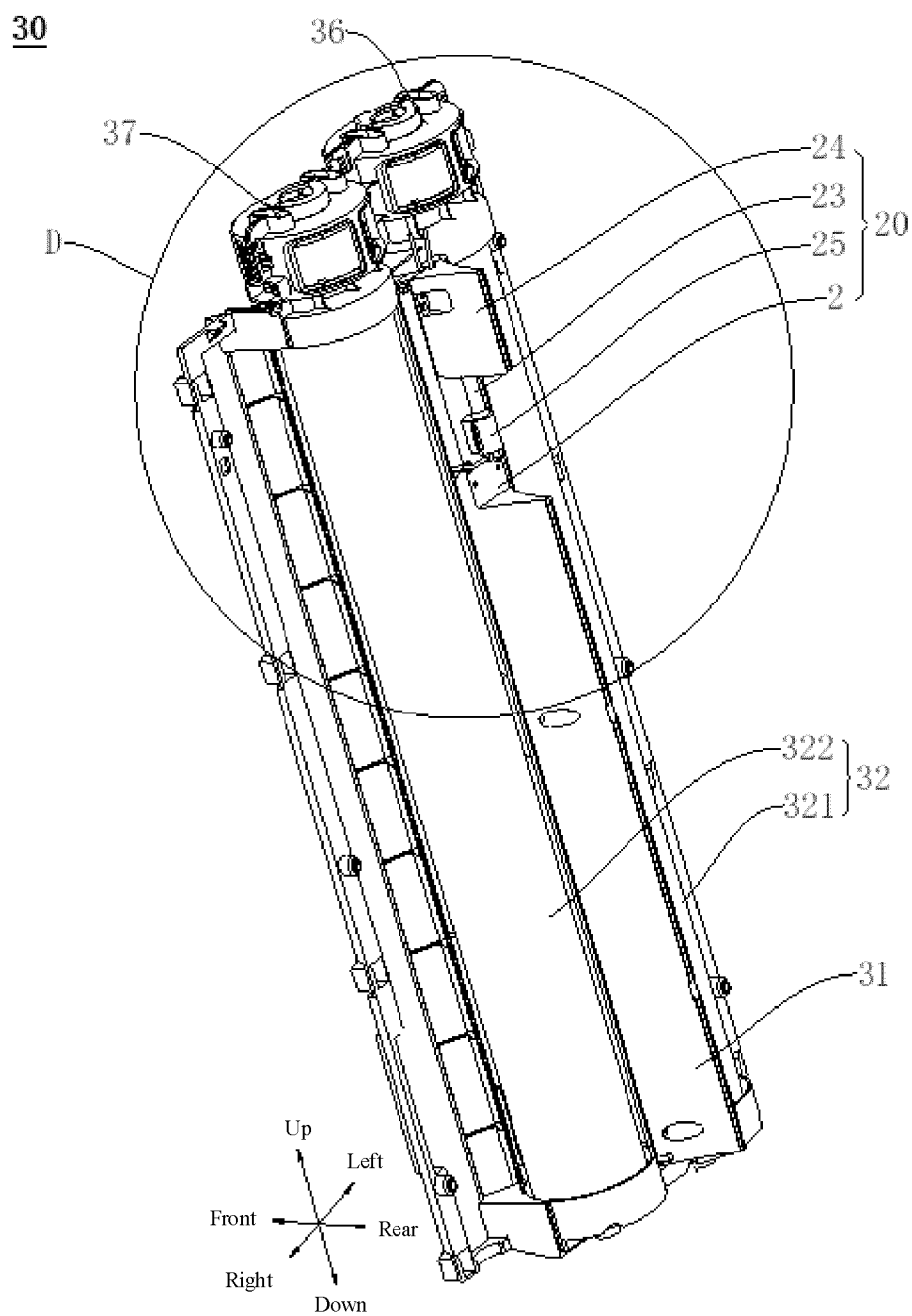


FIG. 10

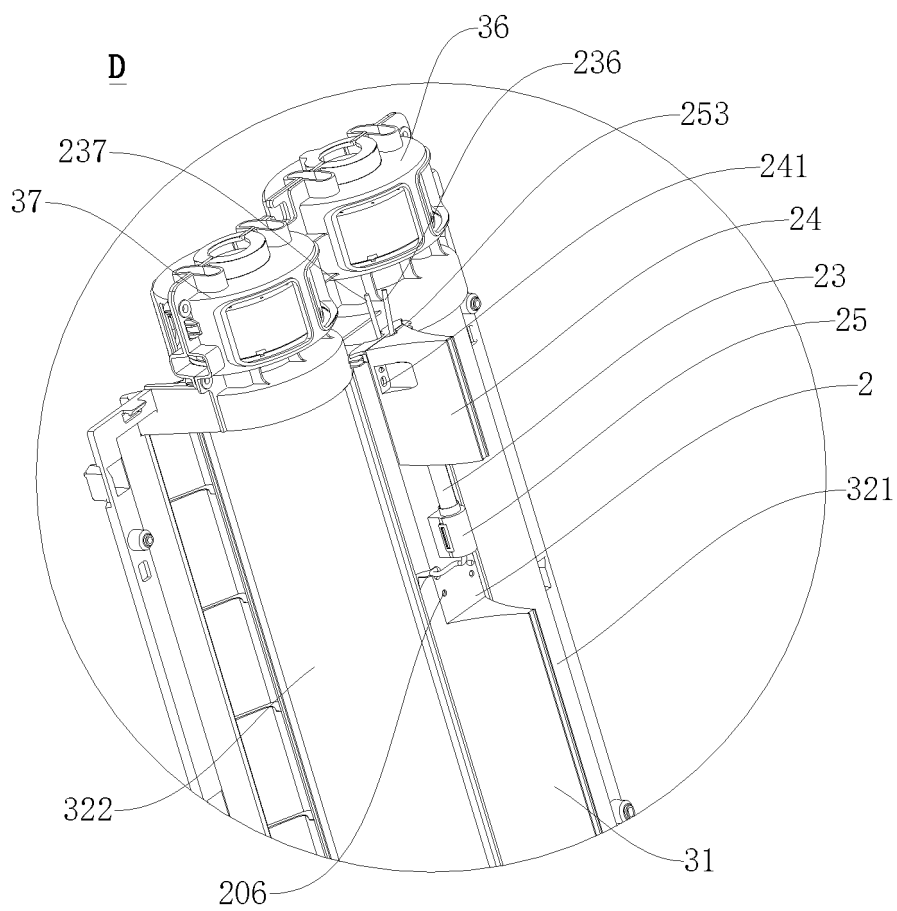


FIG. 11

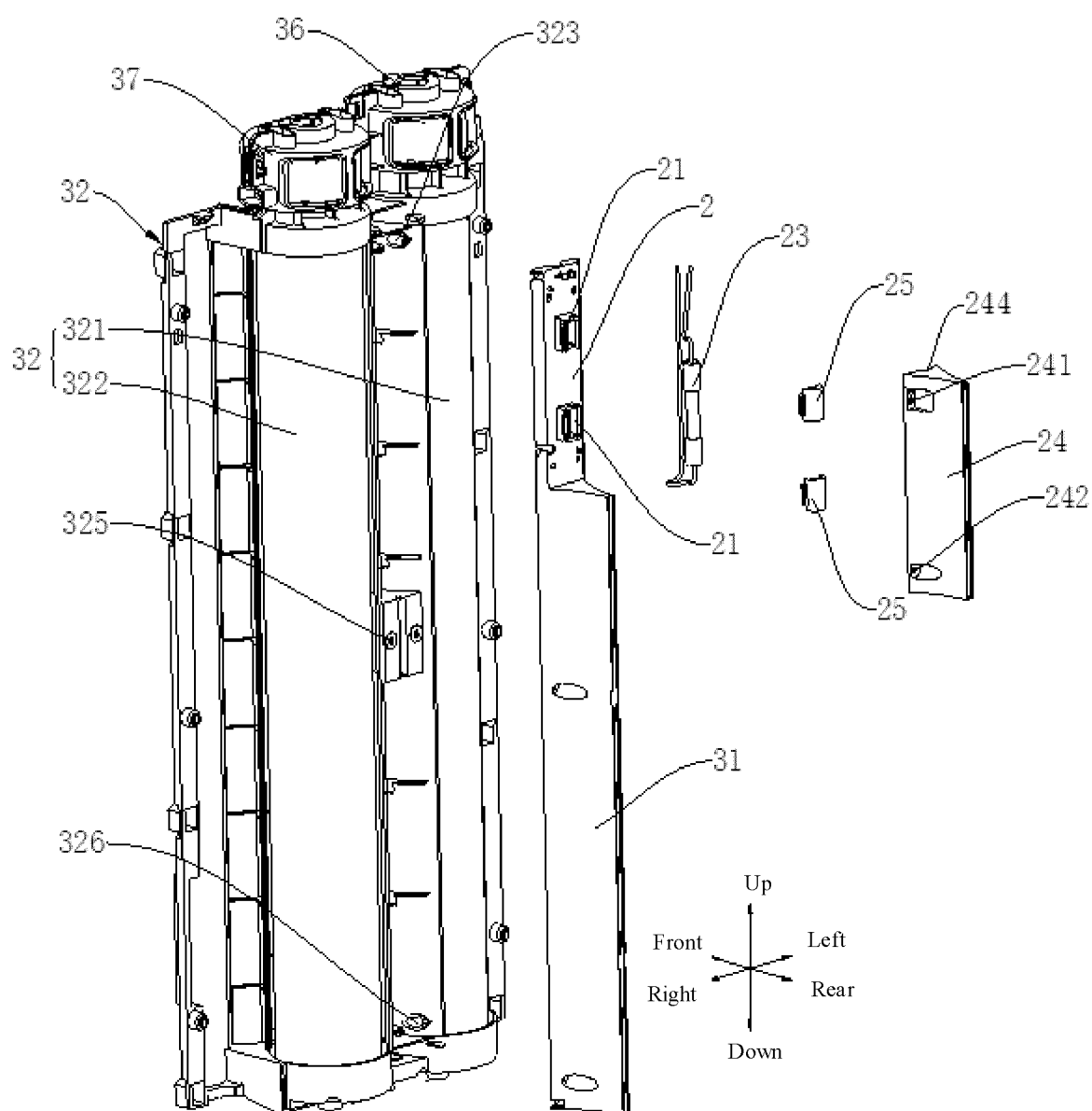


FIG. 12

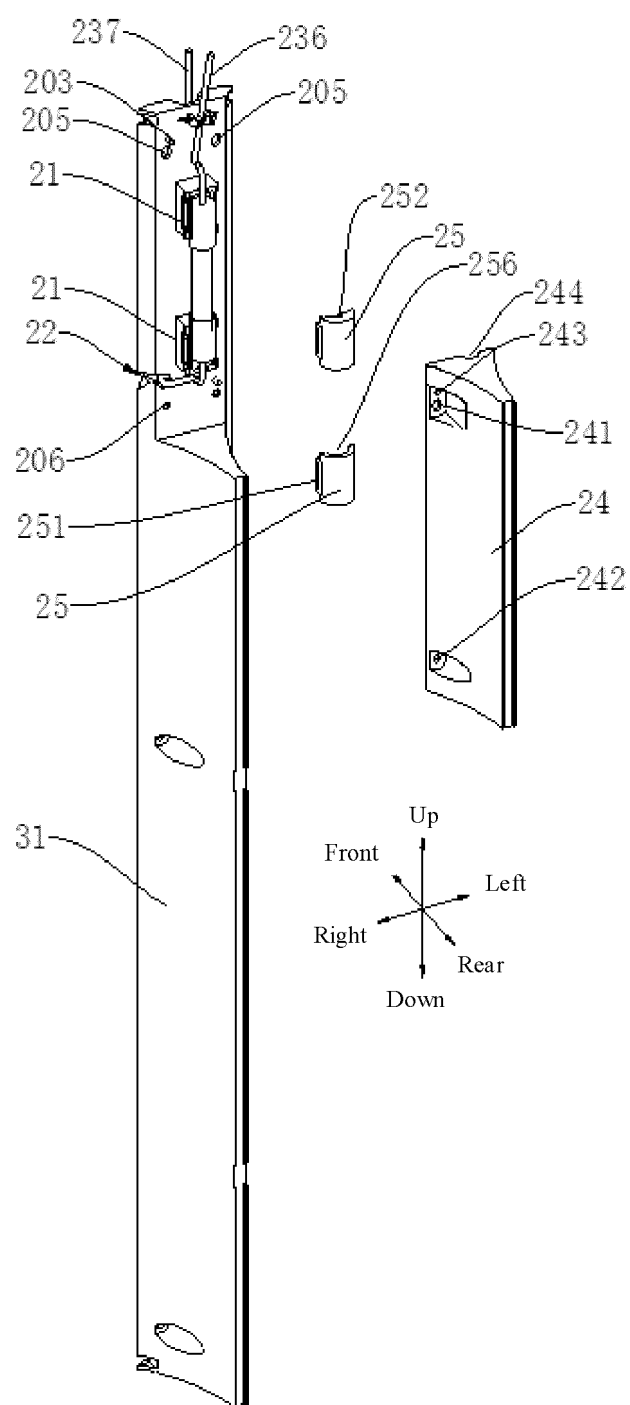


FIG. 13

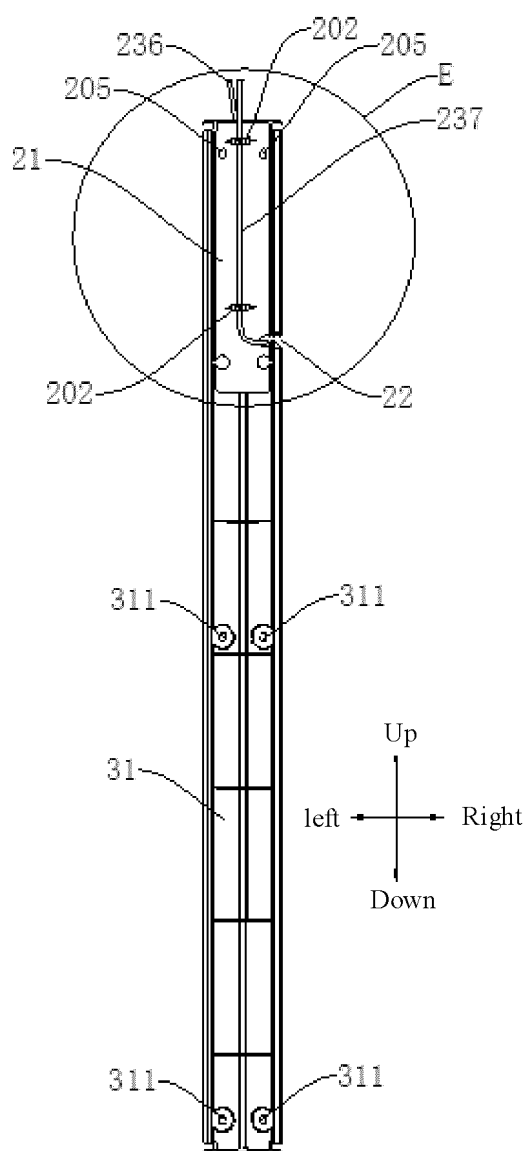


FIG. 14

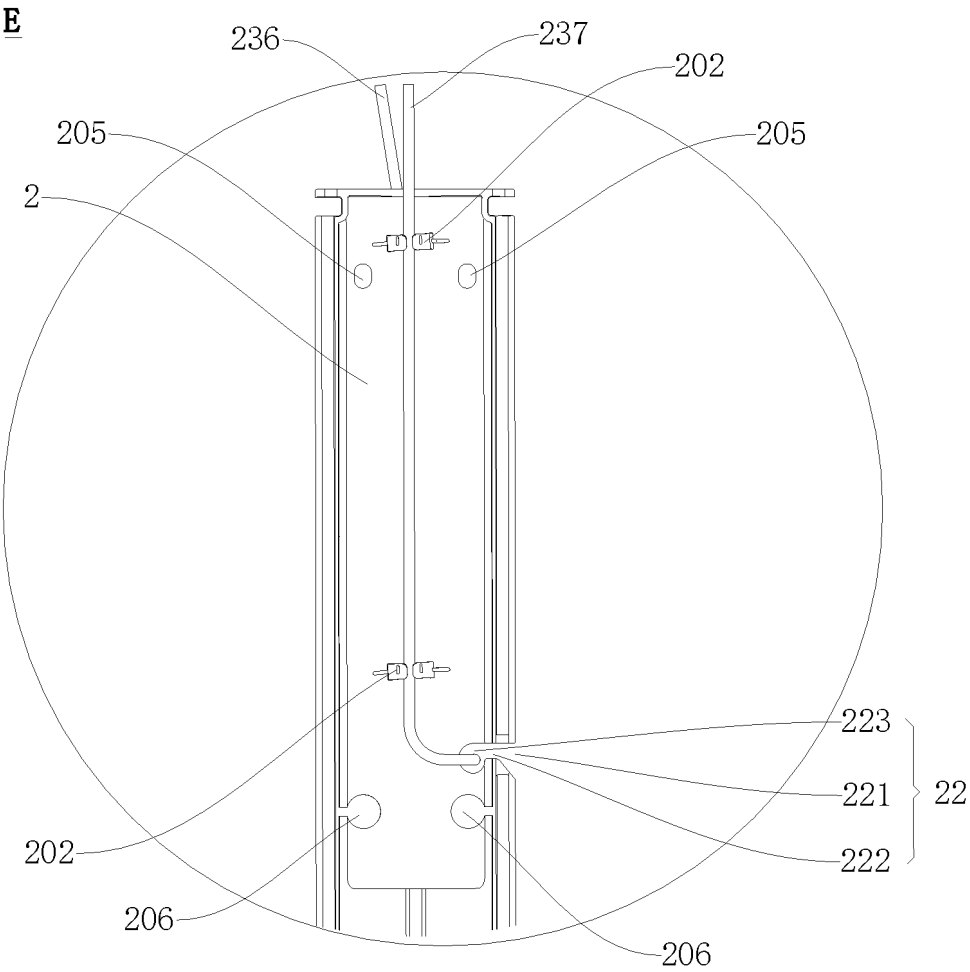


FIG. 15

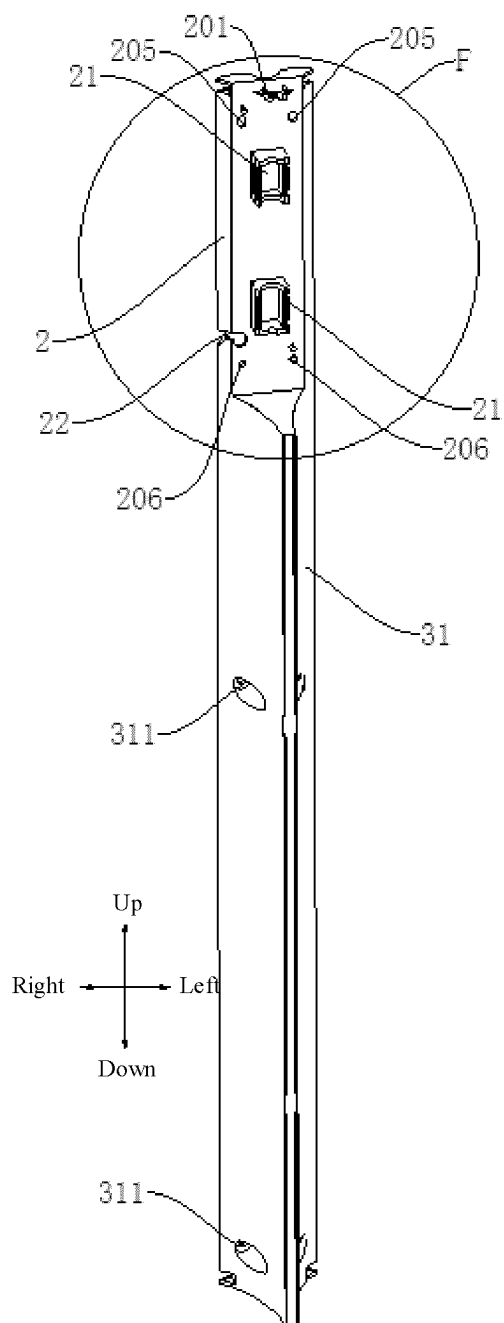


FIG. 16

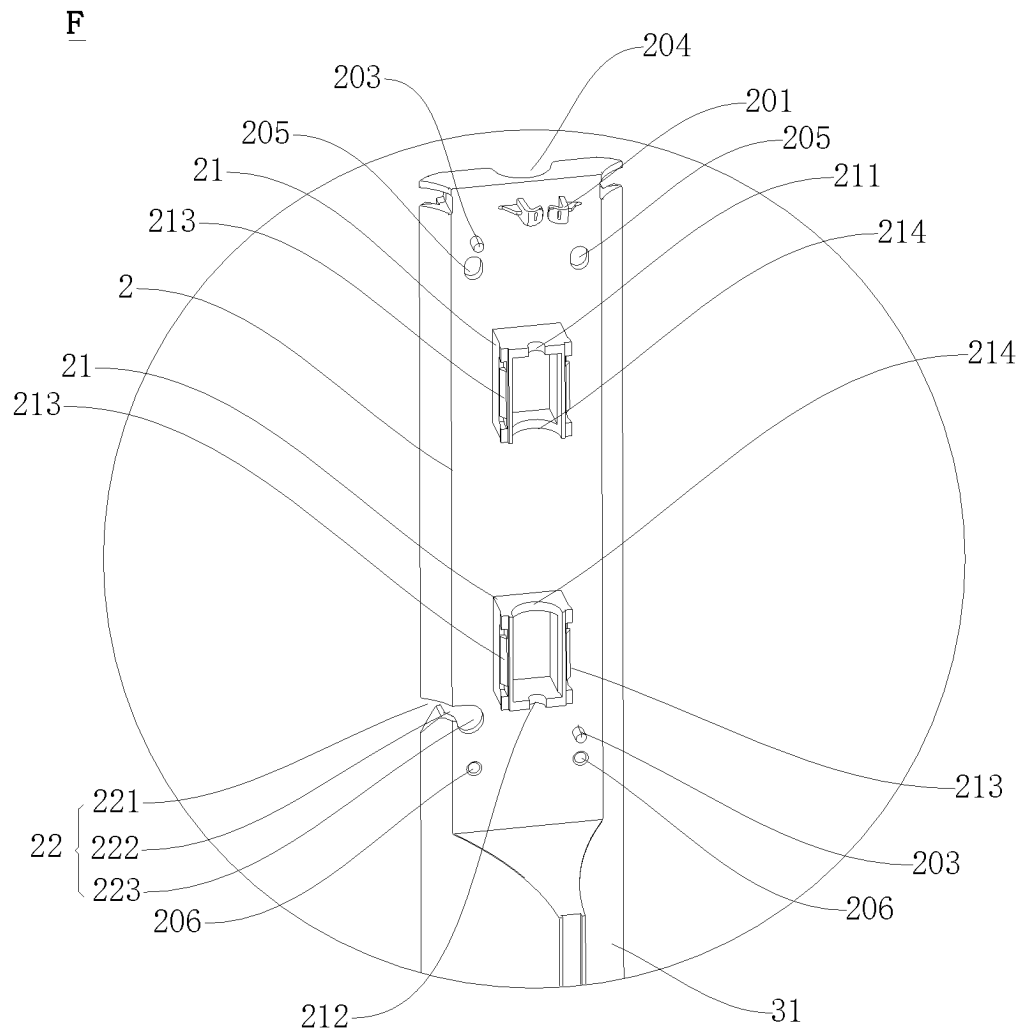


FIG. 17

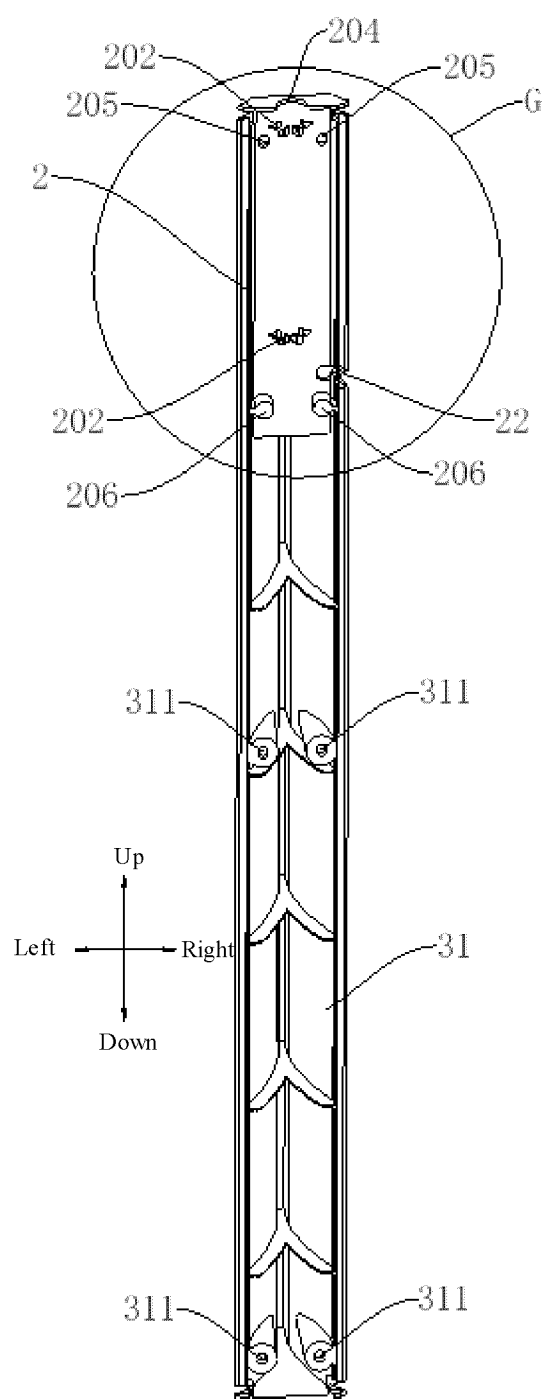


FIG. 18

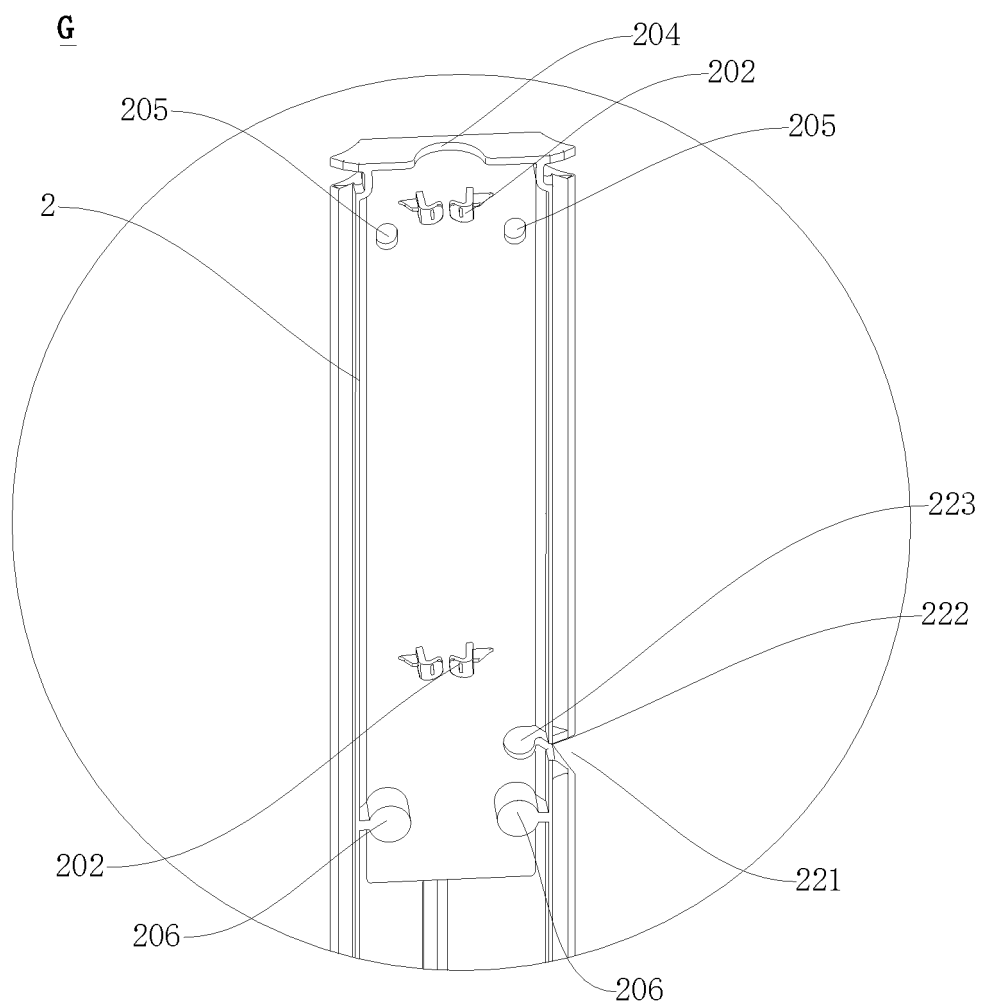


FIG. 19

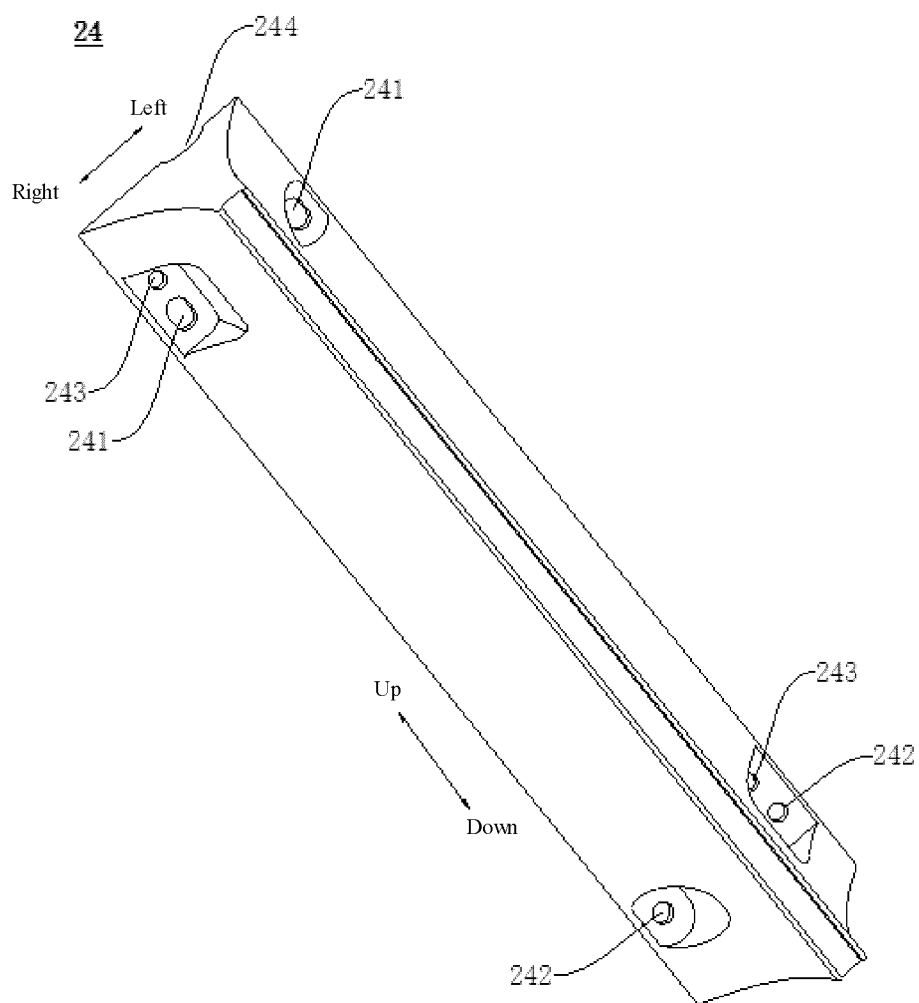


FIG. 20

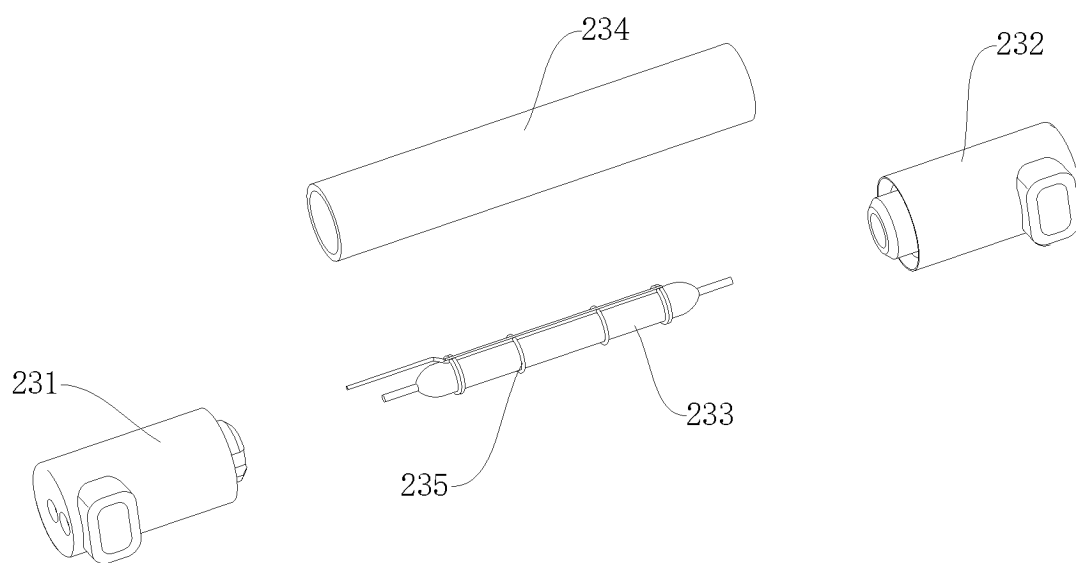


FIG. 21

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/119988

A. CLASSIFICATION OF SUBJECT MATTER

F24F 8/20(2021.01)i; F24F 8/22(2021.01)i; F24F 1/0071(2019.01)i; F24F 1/0063(2019.01)i; F24F 13/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, WPABSC, DWPI, VEN: 空调, 杀菌, 灭菌, 消毒, 脉冲, 光, 灯管, 蜗壳, 隔板, 风轮, air condition???, steriliz+, disinfect???, pulse, lamp, light, volute, partition, wind wheel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 114322091 A (QINGDAO HAIER AIR CONDITIONER GENERAL CO., LTD. et al.) 12 April 2022 (2022-04-12) description, paragraphs 66-140, and figure 4	1-17
Y	CN 102354652 A (ZHENJIANG LEIMING SPECIAL LIGHT SOURCE CO., LTD.) 15 February 2012 (2012-02-15) description, paragraph 14, and figure 1	1-17
Y	CN 102022781 A (GUANGDONG MIDEA ELECTRIC APPLIANCES CO., LTD.) 20 April 2011 (2011-04-20) description, paragraphs 31-41, and figure 5	5-17
A	CN 110894991 A (ZHUHAI GREE ELECTRIC APPLIANCES INC.) 20 March 2020 (2020-03-20) entire document	1-17
A	CN 216203845 U (HISENSE (SHANDONG) AIR-CONDITIONING CO., LTD.) 05 April 2022 (2022-04-05) entire document	1-17

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

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“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Date of the actual completion of the international search

02 December 2022

Date of mailing of the international search report

19 December 2022

Name and mailing address of the ISA/CN

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Facsimile No. (86-10)62019451

Authorized officer

Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/119988

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	CN 213713410 U (NINGBO FOTILE KITCHENWARE CO., LTD.) 16 July 2021 (2021-07-16) entire document	1-17
A	CN 110985950 A (NINGBO AUX ELECTRIC CO., LTD. et al.) 10 April 2020 (2020-04-10) entire document	1-17
A	CN 212618722 U (NINGBO AUX ELECTRIC CO., LTD. et al.) 26 February 2021 (2021-02-26) entire document	1-17
A	JP 2004116860 A (FUJITSU GENERAL LTD.) 15 April 2004 (2004-04-15) entire document	1-17

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2022/119988

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CN 102022781 A	20 April 2011	None	
CN 110894991 A	20 March 2020	None	
CN 216203845 U	05 April 2022	None	
CN 213713410 U	16 July 2021	None	
CN 110985950 A	10 April 2020	CN 211146229 U	31 July 2020
CN 212618722 U	26 February 2021	None	
JP 2004116860 A	15 April 2004	None	

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

REFERENCES CITED IN THE DESCRIPTION

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- CN 202222270969 [0001]