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• **WANG, Chunjie**

**519070 Zhuhai City
Guangdong (CN)**

• **YU, Xinfeng**

**519070 Zhuhai City
Guangdong (CN)**

• **HUANG, Zexiong**

**519070 Zhuhai City
Guangdong (CN)**

• **HUANG, Jun**

**519070 Zhuhai City
Guangdong (CN)**

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(71) Applicant: **Gree Electric Appliances, Inc. of Zhuhai
Zhuhai, Guangdong 519070 (CN)**

(74) Representative: **V.O.**

P.O. Box 87930

2508 DH Den Haag (NL)

(72) Inventors:

• **ZHANG, Yinyin**

**519070 Zhuhai City
Guangdong (CN)**

(54) **TRANSMISSION ASSEMBLY AND AIR CONDITIONER**

(57) The present disclosure discloses a transmission assembly. The transmission assembly includes: a first driving mechanism (40); a transmission element (32), herein the transmission element (32) is detachably connected with an output end (41) of the first driving mechanism (40); and a clamping mechanism (3214), disposed

on the transmission element (32), herein the clamping mechanism (3214) clamps the output end (41) and fixes a relative position between the first driving mechanism (40) and the transmission element (32). In addition, the present disclosure further discloses an air conditioner with the transmission assembly.

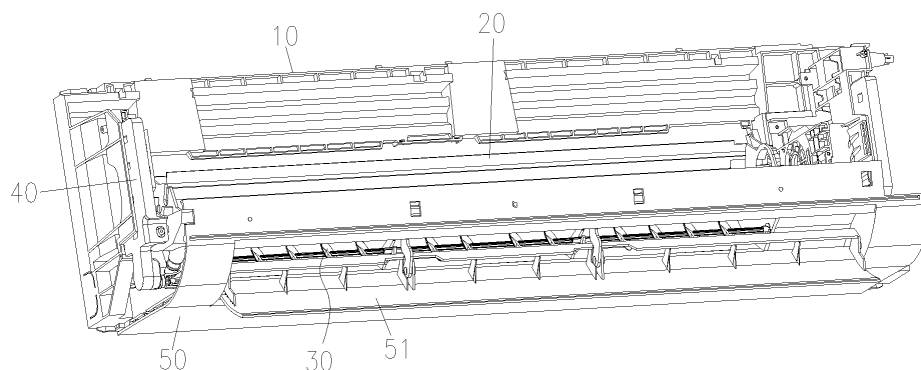


Fig.1

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Description

Technical Field

[0001] The present disclosure relates to a technical field of refrigeration equipment, and in particular to a transmission assembly and an air conditioner.

Background

[0002] Along with the gradual improvement of living standards of people, requirements for living environments of people are higher and higher. Because an air conditioner has adjustment functions for parameters, such as environment temperature and humidity, it is widely used in room comfort adjustment of a family user, and the key to the comfort adjustment is organization of movement airflow in a room.

[0003] In order to organize excellent airflow movement, the control of an airflow direction has the crucial significance. At present, many technical schemes are emerged to achieve the control of the airflow direction, and are used to control upper-lower and left-right airflow directions. In a split-type wall-hanging air conditioner, the most common direction guide for upper and lower airflow is upper and lower swinging of an air deflector, and left and right air airflow is mostly achieved by using swinging of air sweeping blades (assembled by three groups).

[0004] However, the above traditional air conditioner in left and right air sweeping mode has the following problems, because an air sweeping motor may not be placed on parts which may be automatically separated during a disassembly process, such as a wind and water channel part, and an outlet air frame part. Therefore, when the user disassembles the outlet air frame part or the wind and water channel part later, the live motor (the user must firstly disconnect a connection wire of the left and right air sweeping motor to remove the outlet air frame or the wind and water channel part, it has an electrical safety problem of user operation) needs to be contacted. In addition, even if the air sweeping motor is cleaned together with the outlet air frame part or the wind and water channel part which needs to be cleaned after being disassembled, it also inevitably causes troubles for washing (water may not be allowed to contact the motor during the washing, to avoid electrical safety and reliability problems after installation and operation).

Summary

[0005] A main purpose of the present disclosure is to provide a transmission assembly and an air conditioner, so as to solve problems in an existing technology that an air sweeping structure and an air duct structure of the air conditioner are inconvenient for disassembling and cleaning.

[0006] In order to achieve the above purpose, according to one aspect of the present disclosure, a transmis-

sion assembly is provided, including: a first driving mechanism; a transmission element, herein the transmission element is detachably connected with an output end of the first driving mechanism; and a clamping mechanism, disposed on the transmission element, herein the clamping mechanism clamps the output end and fixes a relative position between the first driving mechanism and the transmission element.

[0007] In some embodiments, the output end is an output shaft, the transmission element includes a connecting shaft, the connecting shaft is detachably connected with the output shaft, and the clamping mechanism is disposed on the connecting shaft.

[0008] In some embodiments, an end face of the output shaft is provided with an accommodating recess, and the connecting shaft is stretched into the accommodating recess.

[0009] In some embodiments, a peripheral surface of the connecting shaft is provided with a first anti-rotating surface, and an inner side wall of the accommodating recess is provided with a second anti-rotating surface cooperated with the first anti-rotating surface.

[0010] In some embodiments, the clamping mechanism includes a first clamping jaw and a second clamping jaw disposed oppositely, each of the first clamping jaw and second clamping jaw includes: a connecting rod, herein a first end of the connecting rod is connected with the connecting shaft, and a second end of the connecting rod is extended towards a direction departing from the connecting shaft; and a clamping rod, herein the second end of the connecting rod is connected with a middle of the clamping rod, one end, towards the output shaft, of the clamping rod is bended to an inner side, and one end, departing from the output shaft, of the clamping rod is bended to an outer side.

[0011] In some embodiments, a peripheral surface of the output shaft is provided with a positioning convex edge, one end, towards the output shaft, of the clamping rod is clamped at one side, departing from the connecting shaft, of the positioning convex edge.

[0012] In some embodiments, the transmission element further includes a first transmission gear, the first transmission gear and the connecting shaft are coaxially connected.

[0013] According to another aspect of the present disclosure, an air conditioner is provided, including: a substrate; an air duct part, disposed on the substrate; an air guiding element and the above transmission assembly, the air guiding element is moveably disposed on the air duct part, herein, the first driving mechanism is disposed on the substrate, and the transmission element is connected with the air guiding element.

[0014] In some embodiments, the transmission assembly is the above transmission assembly, the air duct part is provided with a first clamping slot, the connecting shaft of the transmission element is locked in the first clamping slot.

[0015] In some embodiments, the air conditioner fur-

ther includes a first shaft sleeve, the first shaft sleeve is disposed on the connecting shaft in a sleeving manner, and an outer surface of the first shaft sleeve is cooperated with the first clamping slot.

[0016] In some embodiments, the air guiding element includes a rotating shaft and air guiding blades connected with the rotating shaft, the first driving mechanism drives the rotating shaft to rotate.

[0017] In some embodiments, the transmission assembly is the above transmission assembly, a first end of the rotating shaft forms the connecting shaft of the transmission element, and a second end of the rotating shaft is rotatably connected with the air duct part.

[0018] In some embodiments, the transmission assembly is the above transmission assembly, the transmission element further includes a second transmission gear disposed on a first end of the rotating shaft, the first transmission gear and the second transmission gear of the transmission element are cooperated mutually, the second end of the rotating shaft is rotatably connected with the air duct part.

[0019] In some embodiments, the air duct part is provided with a second clamping slot, the first end of the rotating shaft is clamped in the second clamping slot.

[0020] In some embodiments, the air guiding element further includes a second shaft sleeve, the second shaft sleeve is disposed on the first end of the rotating shaft in a sleeving manner, and an outer surface of the second shaft sleeve is cooperated with the second clamping slot.

[0021] In some embodiments, the air duct part is provided with a third clamping slot, the second end of the rotating shaft is locked in the third clamping slot.

[0022] In some embodiments, the air guiding element further includes a third shaft sleeve, the third shaft sleeve is disposed on the second end of the rotating shaft in a sleeving manner, and an outer surface of the third shaft sleeve is cooperated with the third clamping slot.

[0023] In some embodiments, the air duct part is provided with a fourth clamping slot, the fourth clamping slot is positioned between the second clamping slot and the third clamping slot, and the rotating shaft is locked in the fourth clamping slot.

[0024] In some embodiments, the air guiding blades are slantwise installed relative to the rotating shaft.

[0025] In some embodiments, an inclined angle of the air guiding blades relative to the rotating shaft is within a range of 30 degrees to 60 degrees.

[0026] In some embodiments, the first driving mechanism is a driving motor.

[0027] In some embodiments, the air conditioner further includes an outlet air frame part and a second driving mechanism disposed on the air duct part, the outlet air frame part is provided with an air deflector, the second driving mechanism is cooperated with the air deflector and drives the air deflector to swing.

[0028] In some embodiments, the second driving mechanism is disposed on the substrate.

[0029] In some embodiments, the first driving mechanism

and the second driving mechanism are respectively positioned at two opposite sides of the substrate, or the first driving mechanism and the second driving mechanism are positioned at a same side of the substrate.

[0030] In some embodiments, the air duct part includes an air outlet, the air deflector is disposed at the air outlet, the transmission element is disposed at an inner side of the air outlet, or the transmission element is disposed at an outer side of the air outlet.

[0031] A technical scheme of the present disclosure is applied, when the transmission element needs to be disassembled from the first driving mechanism, the clamping mechanism is released, and then the transmission element may be disassembled from the output end of the first driving mechanism. The above transmission assembly has an advantage of simple disassembly, and a connecting wire does not need to be operated. Therefore, the technical scheme of the present disclosure is capable of solving the problem in the existing technology that the air sweeping structure and the air duct structure of the air conditioner are inconvenient for disassembling and cleaning.

Brief Description of the Drawings

[0032] The accompanying drawings formed into a part of the present application are described here to provide a further understanding of the present disclosure. The schematic embodiments and description of the present disclosure are adopted to explain the present disclosure, and do not form improper limits to the present disclosure. In the drawings:

Fig. 1 shows a structure schematic diagram of Embodiment 1 of an air conditioner according to the present disclosure;

Fig. 2 shows an exploded schematic diagram of the air conditioner in Fig. 1;

Fig. 3 shows an enlarged schematic diagram of a part A in Fig. 2;

Fig. 4 shows a structure schematic diagram of a first transmission gear of the air conditioner in Fig. 1;

Fig. 5 shows a structure schematic diagram of an air guiding element of the air conditioner in Fig. 1;

Fig. 6 shows a structure schematic diagram of a substrate and an air duct part of the air conditioner in Fig. 1;

Fig. 7 shows an enlarged schematic diagram of a part B in Fig. 6;

Fig. 8 shows an enlarged schematic diagram of a part C in Fig. 6;

Fig. 9 shows an enlarged schematic diagram of a part D in Fig. 6;

Fig. 10 shows an enlarged schematic diagram of a part E in Fig. 6;

Fig. 11 shows a front view schematic diagram of the substrate and the air duct part of the air conditioner in Fig. 1;

Fig. 12 shows a section view schematic diagram of an F-F direction in Fig. 11;

Fig. 13 shows an enlarged schematic diagram of a part I in Fig. 12;

Fig. 14 shows a section view schematic diagram of a G-G direction in Fig. 11;

Fig. 15 shows an enlarged schematic diagram of a part J in Fig. 14;

Fig. 16 shows a section view schematic diagram of an H-H direction in Fig. 11;

Fig. 17 shows an enlarged schematic diagram of a part K in Fig. 16;

Fig. 18 shows a section view schematic diagram of a fourth clamping slot part of the air conditioner in Fig. 1;

Fig. 19 shows an enlarged schematic diagram of a part L in Fig. 18;

Fig. 20 shows a side view schematic diagram of the air conditioner in Fig. 1;

Fig. 21 shows a structure schematic diagram of Embodiment 2 of the air conditioner according to the present disclosure; and

Fig. 22 shows a structure schematic diagram of Embodiment 3 of the air conditioner according to the present disclosure.

[0033] Herein, the above drawings include the following drawing reference signs:

10. Substrate; 20. Air duct part; 21. First clamping slot; 22. Second clamping slot; 23. Third clamping slot; 24. Fourth clamping slot; 25. Air outlet; 30. Air guiding assembly; 31. Air guiding element; 311. Rotating shaft; 312. Air guiding blade; 313. Second shaft sleeve; 314. Third shaft sleeve; 32. Transmission element; 321. First transmission gear; 3212. Connecting shaft; 3213. First anti-rotating surface; 3214. Clamping mechanism; 3215. First clamping jaw; 3216. Second clamping jaw; 3217. Connecting rod; 3218. Clamping rod; 322. First shaft sleeve; 323. Second transmission gear; 40. First driving mechanism; 41. Output shaft; 411. Accommodating recess; 412. Second anti-rotating surface; 413. Positioning convex edge; 50. Outlet air frame part; 51. Air deflector; and 60. Second driving mechanism.

Detailed Description of the Embodiments

[0034] It is to be noted that the embodiments of the present disclosure and the characteristics of the embodiments may be combined with each other if there is no conflict. The present disclosure is described below in detail with reference to the accompanying drawings and in combination with the embodiments.

[0035] The technical schemes in the embodiments of the present application are described clearly and completely below in combination with the drawings in the embodiments of the present application. Apparently, the embodiments described are only a part of the embodiments of the present application, but not all of the embodiments.

The following description of at least one exemplary embodiment is actually illustrative only, and is never served as any limitation to the present application and application or use thereof. Based on the embodiments in the present application, all other embodiments obtained by those of ordinary skill in the art without creative work fall within a scope of protection of the present application.

[0036] It is to be noted that terms used herein only aim to describe specific implementation manners, and are not intended to limit exemplar implementations of this application. As used herein, unless otherwise directed by the context, singular forms of terms are intended to include plural forms. Besides, it will be also appreciated that when terms "contain" and/or "include" are used in the description, it is indicated that features, steps, operations, devices, assemblies and/or a combination thereof exist.

[0037] As shown in Fig. 1, the air conditioner of Embodiment 1 includes a substrate 10, an air duct part 20, an air guiding assembly 30 and a first driving mechanism 40. Herein, the air duct part 20 is disposed on the substrate 10. The air guiding assembly 30 is moveably disposed on the air duct part 20; and the first driving mechanism 40 is disposed on the substrate 10 and drives the air guiding assembly 30 to move, the air guiding assembly 30 is detachably connected with an output end of the first driving mechanism 40.

[0038] The technical scheme of the present embodiment is applied, the first driving mechanism 40 is disposed on the substrate 10. When the air guiding assembly 30 needs to be disassembled, the air guiding assembly 30 is disassembled from the output end of the first driving mechanism 40 so that the air guiding assembly 30 may be taken down, and wire-disconnecting and wire-connecting operations are not required for the first driving mechanism 40. At the same time, because the first driving mechanism 40 is not disposed on the air duct part 20, a situation that water enters a motor while the air duct part 20 is disassembled and cleaned is prevented too. Therefore, the technical scheme of the present embodiment is capable of solving problems in an existing technology that an air sweeping structure and an air duct structure of the air conditioner are inconvenient for disassembling and cleaning.

[0039] As shown in Fig. 2, in the technical scheme of Embodiment 1, the air guiding assembly 30 includes an air guiding element 31 and a transmission element 32, the transmission element 32 is disposed between the first driving mechanism 40 and the air guiding element 31, the transmission element 32 is detachably connected with an output end. Specifically, the transmission element 32 is disposed on the air duct part 20, the transmission element 32 is capable of converting a driving force of the first driving mechanism 40 into movement of the air guiding element 31. Certainly, in an unshown implementation mode, the above transmission element 32 may also not be disposed, namely the air guiding element 31 is directly connected with the first driving mechanism 40.

[0040] As shown in Fig. 3, in the technical scheme of Embodiment 1, the output end is an output shaft 41. The transmission element 32 includes a first transmission gear 321 and a connecting shaft 3212 connected with the first transmission gear 321. The connecting shaft 3212 is detachably connected with the output shaft 41. Specifically, the output shaft 41 makes rotation movement. The connecting shaft 3212 is connected with the output shaft 41, and the connecting shaft 3212 and the output shaft 41 are synchronously rotated, thereby the first transmission gear 321 is driven to rotate. When the air guiding element 31 needs to be disassembled, the air guiding element 31 and the transmission element 32 may be separated from the first driving mechanism 40 only by disassembling the connecting shaft 3212 and the output shaft 41. Thereby the air duct part 20 or the air guiding assembly 30 is disassembled relative to the substrate 10.

[0041] As shown in Fig. 11 to Fig. 13, in the technical scheme of Embodiment 1, an end face of the output shaft 41 is provided with an accommodating recess 411, the connecting shaft 3212 is stretched into the accommodating recess 411. Specifically, assembly of the connecting shaft 3212 and the output shaft 41 may be completed by enabling an end part of the connecting shaft 3212 to be inserted into the accommodating recess 411.

[0042] As shown in Fig. 11 to Fig. 13, in the technical scheme of Embodiment 1, a peripheral surface of the connecting shaft 3212 is provided with a first anti-rotating surface 3213, an inner side wall of the accommodating recess 411 is provided with a second anti-rotating surface 412 cooperated with the first anti-rotating surface 3213. Specifically, the above first anti-rotating surface 3213 and second anti-rotating surface 412 may guarantee synchronous rotation of the connecting shaft 3212 and the output shaft 41. Preferably, an end part of the connecting shaft 3212 is a hexagonal prism structure, namely there are six the above first anti-rotating surfaces 3213. Correspondingly, an inner side wall of the accommodating recess 411 is a hexagonal prism structure too, namely there are six the above second anti-rotating surfaces 412. Further, the synchronous rotation of the connecting shaft 3212 and the output shaft 41 may also be guaranteed by other structures. For example, in an unshown implementation mode, a anti-rotating pin may also be disposed between the connecting shaft 3212 and the output shaft 41.

[0043] As shown in Fig. 4, in the technical scheme of Embodiment 1, the first transmission gear 321 further includes a clamping mechanism 3214 disposed on the connecting shaft 3212, the clamping mechanism 3214 is cooperated with a peripheral surface of the output shaft 41. Specifically, the clamping mechanism 3214 is in clamping fit with an outer surface of the output shaft 41, thereby the connecting shaft 3212 is prevented from being disconnected from the accommodating recess 411 along a circumferential direction. The above structure is capable of enabling connection between the first transmission gear 321 and the output shaft 41 to be closer.

[0044] As shown in Fig. 4, in the technical scheme of Embodiment 1, the clamping mechanism 3214 includes a first clamping jaw 3215 and a second clamping jaw 3216 disposed oppositely. Each of the first clamping jaw 3215 and second clamping jaw 3216 includes a connecting rod 3217 and a clamping rod 3218. Herein, a first end of the connecting rod 3217 is connected with the connecting shaft 3212, and a second end of the connecting rod 3217 is extended towards a direction departing from the connecting shaft 3212. The second end of the connecting rod 3217 is connected with a middle of the clamping rod 3218, one end, towards the output shaft 41, of the clamping rod 3218 is bended to an inner side, and one end, departing from the output shaft 41, of the clamping rod 3218 is bended to an outer side. Specifically, it may be observed from Fig. 4 that a left end of the clamping rod 3218 is bended in 90 degrees and forms a clamping head. After the clamping rod 3218 is bended to the outer side preferably, a cantilever is formed. In addition preferably, a connecting point between the connecting rod 3217 and the clamping rod 3218 is close to one end, towards the output shaft 41, of the clamping rod 3218. The above structure is capable of enabling the connecting rod 3217 and the clamping rod 3218 to form a structure similar to a lever. When a user inwards extrudes a right end of the clamping rod 3218, the left end of the clamping rod 3218 is upwards lifted and may be separated from an outer surface of the output shaft 41.

[0045] Further, structures of the first clamping jaw 3215 and the second clamping jaw 3216 are the same, and both of them are arranged in mirror image relative to the connecting shaft 3212. A left end of the clamping rod 3218 of the first clamping jaw 3215 and a left end of the clamping rod 3218 of the second clamping jaw 3216 are respectively disposed at two sides of the output shaft 41. When the first transmission gear 321 needs to be disassembled from the output shaft 41, the user inwards extrudes a right end of the clamping rod 3218 of the first clamping jaw 3215 and a right end of the clamping rod 3218 of the second clamping jaw 3216, at the same time, the left end of the clamping rod 3218 of the first clamping jaw 3215 and the left end of the clamping rod 3218 of the second clamping jaw 3216 are outwards expanded and released, at this moment, the connecting shaft 3212 may be drawn out from the accommodating recess 411. When the first transmission gear 321 and the output shaft 41 need to be installed together, the above step may be reversely operated. The above structure is capable of enabling installation and disassembly between the transmission element 32 and the first driving mechanism 40 to be simple and convenient greatly, a fastener, such as a bolt, is not required, and operations, such as wire-disconnecting and wire-connecting, are not required for the first driving mechanism 40 too, so electrical safety of the user operation is guaranteed.

[0046] As shown in Fig. 3 and Fig. 4, in the technical scheme of Embodiment 1, a peripheral surface of the output shaft 41 is provided with a positioning convex edge

413, one end, towards the output shaft 41, of the clamping rod 3218 is clamped at one side, departing from the connecting shaft 3212, of the positioning convex edge 413. Specifically, the above positioning convex edge 413 is a ring-shaped convex edge, when the first transmission gear 321 is installed on the output shaft 41, a left bending end of the clamping rod 3218 of the first clamping jaw 3215 and a left bending end of the clamping rod 3218 of the second clamping jaw 3216 are clamped at a left side of the positioning convex edge 413, at this moment, the connecting shaft 3212 is not able to be rightwards drawn out from the accommodating recess 411. When the first transmission gear 321 needs to be disassembled, the user inwards extrudes the right end of the clamping rod 3218 of the first clamping jaw 3215 and the right end of the clamping rod 3218 of the second clamping jaw 3216, at the same time, the left end of the clamping rod 3218 of the first clamping jaw 3215 and the left end of the clamping rod 3218 of the second clamping jaw 3216 are outwards expanded and released. In this case, a distance between the left end of the clamping rod 3218 of the first clamping jaw 3215 and the left end of the clamping rod 3218 of the second clamping jaw 3216 is greater than a diameter of the positioning convex edge 413, therefore the connecting shaft 3212 is able to be rightwards freely moved and disconnected from the accommodating recess 411.

[0047] As shown in Fig. 11, Fig. 14 and Fig. 15, in the technical scheme of Embodiment 1, the air duct part 20 is provided with a first clamping slot 21, and the connecting shaft 3212 is clamped in the first clamping slot 21. Specifically, the first clamping slot 21 is a slot with an open, and the connecting shaft 3212 is inwards embedded into the first clamping slot 21. The first clamping slot 21 provides an installing position for the connecting shaft 3212.

[0048] As shown in Fig. 11, Fig. 14 and Fig. 15, in the technical scheme of Embodiment 1, the transmission element 32 further includes a first shaft sleeve 322, the first shaft sleeve 322 is disposed on the connecting shaft 3212 in a sleeving manner, and an outer surface of the first shaft sleeve 322 is cooperated with the first clamping slot 21. Specifically, the first shaft sleeve 322 is capable of enabling rotation of the connecting shaft 3212 to be smoother.

[0049] As shown in Fig. 5, in the technical scheme of Embodiment 1, the air guiding element 31 includes a rotating shaft 311 and air guiding blades 312 connected with the rotating shaft 311. The transmission element 32 further includes a second transmission gear 323 disposed at a first end of the rotating shaft 311, the first transmission gear 321 is meshed with the second transmission gear 323. A second end of the rotating shaft 311 is rotatably connected with the air duct part 20. Specifically, while the first driving mechanism 40 is operated, the output shaft 41 drives the first transmission gear 321 to rotate, the first transmission gear 321 drives the second transmission gear 323 to rotate, and finally the ro-

tating shaft 311 is driven to rotate. While the rotating shaft 311 rotates, an angle of the air guiding blades 312 on the rotating shaft 311 is also changed along with it, and a function of adjusting a wind direction is achieved.

[0050] Further, it may be observed from Fig. 20 that, through installing the first transmission gear 321 and the second transmission gear 323, a central axis of the output shaft 41 and a central axis of the rotating shaft 311 are staggered, thereby the first driving mechanism 40 may avoid structures such as a drainpipe.

[0051] As shown in Fig. 6 and Fig. 7, and as shown in Fig. 16 and Fig. 17, in the technical scheme of Embodiment 1, the air duct part 20 is provided with a clamped in the second clamping slot 22. Specifically, the second clamping slot 22 is a slot with an open. The air duct part 20 is provided with an air outlet, a longitudinal side wall of a left side of the air outlet is provided with the above second clamping slot 22. The second clamping slot 22 may have a supporting effect to a left side of the rotating shaft 311.

[0052] As shown in Fig. 6 and Fig. 7, in the technical scheme of Embodiment 1, the air guiding element 31 further includes a second shaft sleeve 313, the second shaft sleeve 313 is disposed on the first end of the rotating shaft 311 in a sleeving manner, and an outer surface of the second shaft sleeve 313 is cooperated with the second clamping slot 22. The second shaft sleeve 313 may guarantee that the rotating shaft 311 rotates smoothly.

[0053] As shown in Fig. 6 and Fig. 8, in the technical scheme of Embodiment 1, the air duct part 20 is provided with a third clamping slot 23, the second end of the rotating shaft 311 is clamped in the third clamping slot 23. Specifically, the third clamping slot 23 is a slot with an open. The air duct part 20 is provided with the air outlet, a longitudinal side wall of a right side of the air outlet is provided with the above third clamping slot 23. The third clamping slot 23 is able to have a supporting effect to the right side of the rotating shaft 311.

[0054] As shown in Fig. 6 and Fig. 8, in the technical scheme of Embodiment 1, the air guiding element 31 further includes a third shaft sleeve 314, the third shaft sleeve 314 is disposed on the second end of the rotating shaft 311 in a sleeving manner, an outer surface of the third shaft sleeve 314 is cooperated with the third clamping slot 23. The third shaft sleeve 314 may guarantee that the rotating shaft 311 is rotated smoothly.

[0055] As shown in Fig. 6, Fig. 9, Fig. 10, Fig. 18 and Fig. 19, in the technical scheme of Embodiment 1, the air duct part 20 is provided with a fourth clamping slot 24, the fourth clamping slot 24 is positioned between the second clamping slot 22 and the third clamping slot 23, the rotating shaft 311 is clamped in the fourth clamping slot 24. Specifically, there are two fourth clamping slots 24 in the present embodiment, and the two fourth clamping slots 24 are interval-arranged. The above fourth clamping slots 24 are able to support a middle of the rotating shaft 311. Preferably, a part, cooperated with the fourth clamping slots 24, of the rotating shaft 311 is a

circular and smooth outer surface. Certainly, the above fourth clamping slot 24 may also be installed in other number, for example, one or more than two fourth clamping slots 24 are installed.

[0056] As shown in Fig. 5, in the technical scheme of Embodiment 1, the air guiding blades 312 are slantwise arranged relative to the rotating shaft 311. Specifically, when the rotating shaft 311 is rotated, an inclined direction of the air guiding blades 312 is changed along with it, thereby a function of adjusting a wind direction is achieved. Preferably, an inclined angle of the air guiding blades 312 relative to the rotating shaft 311 is within a range of 30 degrees to 60 degrees. Further preferably, the above angle is 45 degrees.

[0057] It is to be noted that the above air guiding blades 312 achieves an effect of left and right air sweeping.

[0058] Preferably, in the technical scheme of Embodiment 1, the first driving mechanism 40 is a driving motor. A motor shaft of the driving motor is the above output shaft 41. The driving motor may be a stepping motor preferably, thereby a purpose of accurately adjusting the angle of the air guiding blades 312 is achieved.

[0059] As shown in Fig. 1 and Fig. 2, in the technical scheme of Embodiment 1, the air conditioner further includes an outlet air frame part 50 and a second driving mechanism 60 disposed on the air duct part 20, the outlet air frame part 50 is provided with an air deflector 51, the second driving mechanism 60 is cooperated with the air deflector 51 and drives the air deflector 51 to swing. Specifically, the air deflector 51 may upwards and downwards swing so as to achieve a function of upper and lower air sweeping. Through cooperation with the above air guiding blades 312, air sweeping of the air conditioner in upper-lower directions and left-right directions is achieved.

[0060] As shown in Fig. 2, in the technical scheme of Embodiment 1, the second driving mechanism 60 is disposed on the substrate 10. Preferably, the above second driving mechanism 60 is a driving motor, and the first driving mechanism 40 and the second driving mechanism 60 are respectively positioned at left and right two sides of the substrate 10.

[0061] As shown in Fig. 6, in the technical scheme of Embodiment 1, the air duct part 20 includes an air outlet 25, the air deflector 31 is disposed at the air outlet 25, and transmission element 32 is disposed at an inner side of the air outlet 25. Specifically, the above air outlet 25 is surrounded by upper and lower two side walls and left and right two side walls. It may be observed in combination with Fig. 7 that the above transmission element 32 is disposed at the inner side of the air outlet.

[0062] As shown in Fig. 21, a difference between Embodiment 1 and Embodiment 2 of the air conditioner according to the present application is that the first driving mechanism 40 and the second driving mechanism 60 are positioned at the same side of the substrate 10. Specifically, it may be observed from Fig. 21 that the transmission element 32 is disposed at a right side of the air

outlet 25, at the same time, the first driving mechanism 40 and the second driving mechanism 60 are positioned at the right side of the substrate 10. The transmission element 32 is disposed at the inner side of the air outlet 25.

[0063] As shown in Fig. 22, a difference between Embodiment 3 and Embodiment 2 of the air conditioner according to the present application is that, the transmission element 32 is disposed at an outer side of the air outlet 25.

[0064] It may be observed from the above Embodiment 2 and Embodiment 3 that installing positions of the transmission element 32, the first driving mechanism 40 and the second driving mechanism 60 may be adjusted by those skilled in the art according to arrangement needs of specific parts.

[0065] Further, it may be observed from the above structure that in the above air conditioner, the transmission assembly is formed together among the first driving mechanism 40, the first transmission gear 321 and the connecting shaft 3212. The above transmission assembly is not limited to be used in the above air conditioner. For other home appliances, and mechanical structures, the above transmission assembly may also be used, and a purpose of quick disassembly between the first driving mechanism 40 and the connecting shaft 3212 is achieved.

[0066] According to the above structure, the air conditioner of the present application has the following features.

[0067] A specific function structure of the embodiment of the present application includes: a substrate part, it is a main body which carries all parts of the modular air conditioner, and also carries the left and right air sweeping motor and a related fixing structure thereof used in the present embodiment. The middle of the substrate is equipped with the air duct part (bottom housing part), a right side is equipped with a motor base assembly, the top of the motor base assembly is equipped with a driving assembly for fixing and driving the air deflector, and a left side of the substrate is equipped with a left and right air sweeping motor driving assembly. An assembling mode of an air duct is that it is fixed by a slide rail and bolts, a fixing mode of left and right two driving assemblies is that they are fixed on the corresponding parts by using clamping buttons and bolts. The outlet air frame part is assembled in the front of the main body formed by the substrate and the air duct part and the like, and forms the entire air outlet (reference to Fig. 1 and Fig. 2 for details) with an air outlet portion of the air duct part together. The air deflector is assembled on the outlet air frame part, and the rotating shaft at the right side is in inserted-connection with an output shaft of an air deflector driving assembly so as to achieve transmission of the air deflector, because the air deflector is a general fixing mode that a conventional air deflector is leftwards and rightwards inserted and the rotating shaft in the middle is fixed on a bottom housing, it is not repeatedly described here. The air deflector is provided here, it is only to show

positions of air outlets of left and right air sweeping mechanisms of the present embodiment inside the air deflector, and both do not have a technical problem of mutual interference in operation, reference to a sectional view of the main body assembled while the air deflector and the left and right air sweeping mechanisms are at an extreme position as shown in Fig. 18 for details. A structure feature of the present embodiment is a position, adjacent to the interior, positioned at the air outlet, namely a position, adjacent to the inside, of the air deflector and left and right air sweeping blades fixed on the air duct part and a related gear driving mechanism thereof. A core part (a structure which achieves the left and right air sweeping by using a gear transmission mechanism) of the present application is described in detail below.

[0068] It may be known by analyzing Fig. 3 to Fig. 5 that the overall left and right air sweeping blades include: air sweeping blades, a connecting rod, a driven gear, connecting rod end heads, positioning bulges and connecting rod smooth sections. When assembling, shaft sleeves with opens (made of a POM material, having lubrication and abrasion-proof effects in movement, and preventing an abnormal noise) may be installed between the driven gear and the left positioning bulge and between the right positioning bulge and the right connecting rod end head in a sleeving manner, and then respectively clamped and assembled in a bottom housing left installing groove and a bottom housing right installing groove of the air duct part; the shaft sleeves are in clearance fit with the a shaft, the rotated shaft in transmission is protected better; after the two shaft sleeves here are assembled in slot positions, the outlet air frame part may be assembled while the whole transmission mechanism is assembled completely, an edge of the air outlet of the outlet air frame part is aligned to a bottom housing air outlet of the air duct part, the left and right installing grooves of the bottom housing are directly sealed by cooperation with the edge, so that two ends of the air sweeping blades are not able to jump up and take off due to the transmission. Middle portions of the connecting rod are provided with two sections of the cylinder cooperated smooth sections, the smooth sections are respectively clamped in a middle supporting groove, designed between upper and lower edges of the air outlet, in the air duct part, have a supporting effect to the air sweeping blade connecting rod, and prevent the middle thereof from sagging.

[0069] It may be known by analyzing Fig. 4 that the overall left and right air sweeping driving gear includes: a transmission end head with a left end part hexagonal prism, an input shaft left end clamping port, an input shaft left end clamping port pressing arm, an input shaft positioning bulge, a driving gear and an input shaft main body shaft section. When assembling, the transmission end head with the hexagonal prism is inserted and connected in the output shaft of the left and right air sweeping driving motor, the input shaft left end clamping port pressing arm is pinched at the same time during the assembly so that

the input shaft left end clamping port is opened to clamp the exterior of the motor output shaft and cooperated with a step of a right end of the motor output shaft, so as to prevent an inserting end from being disconnected; a smooth circular shaft section is between the driving gear and the positioning bulge, and equipped with a shaft sleeve with an open, and then it is clamped in position from an opening of a big gear shaft installing groove at a left side of the bottom housing, and assembled inside the installing groove. During the transmission, because gear meshing transmission analyzed in Fig. 17 may generate a separation force (F separation marked in Fig. 17), a groove wall here may also apply a restrictive limitation force (F limitation 1 marked in Fig. 15 and F limitation 2 marked in Fig. 19) to the shaft, so as to ensure that the shaft may not be disconnected.

[0070] The above two large-steps of the assembly achieve the overall assembly of the transmission mechanism. In actual production, a gear transmission portion (including the air sweeping blades) of the transmission mechanism is pre-assembled inside the air duct part, to form the air duct part together. After the air duct part is integrally assembled to the substrate, the input shaft (namely the left end part hexagonal prism end head of the driving gear) of the left and right air sweeping driving gear is butted to the motor output shaft of the left and right air sweeping motor driving assembly fixed on the substrate, so as to achieve the transmission from left to right.

[0071] The specific transmission may be analyzed according to Fig. 6, the core left and right air sweeping mechanism is assembled in the air duct part fixed on the substrate part, and fixed in a middle position of the air outlet of the bottom housing part. A main body movement part in the left and right air sweeping mechanism includes: a left and right air sweeping driving motor output shaft, a left and right air sweeping driving gear body, and a left and right air sweeping blade body. It may be observed in combination with Fig. 11 that the overall transmission mechanism is rotated by the motor output shaft of the left and right air sweeping motor driving assembly at the left side, rotation output drives an input shaft of the left and right air sweeping driving gear, thereby an integrated left and right air sweeping gear transmission mechanism driving gear is driven, the rotation is transmitted to a left and right air sweeping gear transmission mechanism driven gear positioned at a left end portion of the left and right air sweeping blade part by a meshing transmission effect of the gear transmission, the driven gear and the air sweeping blades are integrally injection-formed, driven gear rotation brought by the transmission may drive the entire air sweeping blade part to rotate, and an included angle between a plane (an angle in 45 degrees is formed between the air sweeping blades designed in this structure and a main body rotation axis) that has a certain designed angle already and the draft direction is changed, thereby the effect of changing a movement direction of the outlet airflow is achieved, and

left and right adjustment of the wind direction is realized.

[0072] Such a design flexibly realizes the separation of the left and right air sweeping motor from the air duct part and the outlet air frame part which need to be disassembled and cleaned, and it is also guaranteed that the automatic left and right air sweeping is realized. The reason that direct transmission of an air sweeping motor output shaft and the air sweeping blade rotating shaft is not used, but it is transmitted by a driving big gear, is to achieve off-axis transmission, and avoid an interference problem (analyzed by Fig. 12 and Fig. 20, the air sweeping blade transmission shaft and the leftwards and rightwards symmetrical drainpipes are consistent in space position, once the air sweeping blade transmission shaft is straight-through directly transmitted, the interference may exist inevitably) of left and right drainpipes and an air sweeping blade transmission shaft. It may also be observed by analyzing other advantages that such an air sweeping blade form allows the air sweeping blades to be positioned in the outermost position of the air outlet of the bottom housing, compared with traditional air sweeping blades which are limited inside the air outlet by a designed position, the air sweeping blades in the new scheme have the advantages of less wind resistance and lower noise. In addition, compared with a form of the traditional air sweeping blades that multiple sets of the air sweeping blades are assembled, and connected with the connecting rods in the middle, the air sweeping blades of the present application which are integrally directly injection-formed have higher injection production efficiency and assembly efficiency.

[0073] According to the above structure, the air conditioner of the present application has the following advantages.

[0074] The present application mainly solves problems that a left and right air sweeping structure of an existing wall-hanging air conditioner is complicated and unstable, the wind resistance is too larger, and the noise is too high.

[0075] In addition, problems that the air sweeping blade structure is complicated and inconvenient for injection-processing and the scattered blades are low in assembly efficiency are solved too.

[0076] A technical problem that it is limited by the lack of space encountered in the development of modular air conditioners in the company, and it is necessary to achieve the separation of live parts and cleaning parts, convenient for user and after-sale disassembly is specifically solved.

[0077] A structure form of left and right air sweeping is simplified, air sweeping efficiency and assembling efficiency of the mechanism are improved, and the wind resistance and the noise are reduced. At the same time, the adaptability of the left and right air sweeping structure is improved too, it conveniently realizes a structure design of the left and right air sweeping under more complicated space conditions, and a technical problem, encountered in this time of developing an easy-disassembled modular air conditioner, that it is difficult to separate

the left and right air sweeping motor from a cleaning main body module is directly solved.

[0078] Unless specifically stated otherwise, relative arrangements, numerical expressions and numerical values of parts and steps elaborated in these embodiments do not limit a scope of the present application. At the same time, it should be understood that, for ease of description, a size of each part shown in the drawings is not drawn according to an actual proportional relationship. Technologies, methods and devices well-known to those of ordinary skill in the related art may not be discussed in detail, but in the suitable case, the technologies, the methods and the devices should be considered as a part of the authorized description. In all examples shown and discussed here, any specific values should be explained as exemplary merely, but not served as limitation. Therefore, other examples of the exemplary embodiment may have different values. It should be noted that: similar reference signs and letters represent similar items in the following drawings, therefore, once a certain item is defined in one drawing, it does not need to be further discussed in the subsequent drawings.

[0079] In the description of the present application, it should be understood that orientation or position relationships indicated by orientation words such as "front, back, up, down, left, right", "transverse, vertical, perpendicular, horizontal" and "top, bottom" are usually based on the orientation or position relationships shown in the drawings, it is just for conveniently describing the present application and simplifying the description, in the case without contrary statement, these orientation words do not indicate and imply that devices or elements referred must have a specific orientation or be constructed and operated in the specific orientation, therefore it may not be understood as the limitation to a scope of protection of the present application; and the orientation words "inside and outside" refer to the inside and outside relative to an outline of each part itself.

[0080] For ease of description, spatial relative terms such as "over", "above", "on an upper surface" and "upper" may be used herein for describing a spatial position relation between a device or feature and other devices or features shown in the drawings. It will be appreciated that the spatial relative terms aim to contain different orientations in usage or operation besides the orientations of the devices described in the drawings. For example, if the devices in the drawings are inverted, devices described as "above other devices or structures" or "over other devices or structures" will be located as "below other devices or structures" or "under other devices or structures". Thus, an exemplar term "above" may include two orientations namely "above" and "below". The device may be located in other different modes (rotated by 90 degrees or located in other orientations), and spatial relative descriptions used herein are correspondingly explained.

[0081] In addition, it is to be noted that words "first", "second" and the like are used to limit the parts, it is just

for conveniently distinguishing the corresponding parts, unless otherwise stated, the above words have no special meaning, therefore it may not be understood as the limitation to the scope of protection of the present application.

[0082] The above are only the preferred embodiments of the present disclosure and are not intended to limit the present disclosure. For those skilled in the art, the present disclosure may have various modifications and variations. Any modifications, equivalent replacements, improvements and the like made within the spirit and principle of the present disclosure shall fall within the scope of protection of the present disclosure.

Claims

1. A transmission assembly, comprising:

a first driving mechanism (40);
a transmission element (32), wherein the transmission element (32) is detachably connected with an output end of the first driving mechanism (40); and
a clamping mechanism (3214), disposed on the transmission element (32), wherein the clamping mechanism (3214) clamps the output end and fixes a relative position between the first driving mechanism (40) and the transmission element (32).

2. The transmission assembly as claimed in claim 1, wherein the output end is an output shaft (41), the transmission element (32) comprises a connecting shaft (3212), the connecting shaft (3212) is detachably connected with the output shaft (41), and the clamping mechanism (3214) is disposed on the connecting shaft (3212).

3. The transmission assembly as claimed in claim 2, wherein an end face of the output shaft (41) is provided with an accommodating recess (411), and the connecting shaft (3212) is stretched into the accommodating recess (411).

4. The transmission assembly as claimed in claim 3, wherein a peripheral surface of the connecting shaft (3212) is provided with a first anti-rotating surface (3213), and an inner side wall of the accommodating recess (411) is provided with a second anti-rotating surface (412) cooperated with the first anti-rotating surface (3213).

5. The transmission assembly as claimed in any one of claims 2 to 4, wherein the clamping mechanism (3214) comprises a first clamping jaw (3215) and a second clamping jaw (3216) disposed oppositely, each of the first clamping jaw (3215) and second

clamping jaw (3216) comprises:

a connecting rod (3217), wherein a first end of the connecting rod (3217) is connected with the connecting shaft (3212), and a second end of the connecting rod (3217) is extended towards a direction departing from the connecting shaft (3212); and

a clamping rod (3218), wherein the second end of the connecting rod (3217) is connected with a middle of the clamping rod (3218), one end, towards the output shaft (41), of the clamping rod (3218) is bended to an inner side, and one end, departing from the output shaft (41), of the clamping rod (3218) is bended to an outer side.

6. The transmission assembly as claimed in claim 5, wherein a peripheral surface of the output shaft (41) is provided with a positioning convex edge (413), one end, towards the output shaft (41), of the clamping rod (3218) is clamped at one side, departing from the connecting shaft (3212), of the positioning convex edge (413).

7. The transmission assembly as claimed in claim 2, wherein the transmission element (32) further comprises a first transmission gear (321), the first transmission gear (321) and the connecting shaft (3212) are coaxially connected.

8. An air conditioner, comprising:

a substrate (10);
an air duct part (20), disposed on the substrate (10); and
an air guiding element (31) and the transmission assembly as claimed in any one of claims 1 to 7, the air guiding element (31) is moveably disposed on the air duct part (20), wherein, the first driving mechanism (40) is disposed on the substrate (10), and the transmission element (32) is connected with the air guiding element (31).

9. The air conditioner as claimed in claim 8, wherein the transmission assembly is the transmission assembly as claimed in claim 2, the air duct part (20) is provided with a first clamping slot (21), the connecting shaft (3212) of the transmission element (32) is clamped in the first clamping slot (21).

10. The air conditioner as claimed in claim 9, wherein the air conditioner further comprises a first shaft sleeve (322), the first shaft sleeve (322) is disposed on the connecting shaft (3212) in a sleeving manner, an outer surface of the first shaft sleeve (322) is cooperated with the first clamping slot (21).

11. The air conditioner as claimed in claim 8, wherein the air guiding element (31) comprises a rotating shaft (311) and air guiding blades (312) connected with the rotating shaft (311), the first driving mechanism (40) drives the rotating shaft (311) to rotate.
12. The air conditioner as claimed in claim 11, wherein the transmission assembly is the transmission assembly as claimed in claim 2, a first end of the rotating shaft (311) forms the connecting shaft (3212) of the transmission element (32), and a second end of the rotating shaft (311) is rotatably connected with the air duct part (20).
13. The air conditioner as claimed in claim 11, wherein the transmission assembly is the transmission assembly as claimed in claim 7, the transmission element (32) further comprises a second transmission gear (323) disposed on a first end of the rotating shaft (311), the first transmission gear (321) and the second transmission gear (323) of the transmission element (32) are cooperated mutually, a second end of the rotating shaft (311) is rotatably connected with the air duct part (20).
14. The air conditioner as claimed in claim 12 or 13, wherein the air duct part (20) is provided with a second clamping slot (22), the first end of the rotating shaft (311) is clamped in the second clamping slot (22).
15. The air conditioner as claimed in claim 14, wherein the air guiding element (31) further comprises a second shaft sleeve (313), the second shaft sleeve (313) is disposed on the first end of the rotating shaft (311) in a sleeving manner, and an outer surface of the second shaft sleeve (313) is cooperated with the second clamping slot (22).
16. The air conditioner as claimed in claim 14, wherein the air duct part (20) is provided with a third clamping slot (23), the second end of the rotating shaft (311) is locked in the third clamping slot (23).
17. The air conditioner as claimed in claim 16, wherein the air guiding element (31) further comprises a third shaft sleeve (314), the third shaft sleeve (314) is disposed on the second end of the rotating shaft (311) in a sleeving manner, and an outer surface of the third shaft sleeve (314) is cooperated with the third clamping slot (23).
18. The air conditioner as claimed in claim 16, wherein the air duct part (20) is provided with a fourth clamping slot (24), the fourth clamping slot (24) is positioned between the second clamping slot (22) and the third clamping slot (23), and the rotating shaft (311) is clamped in the fourth clamping slot (24).
19. The air conditioner as claimed in claim 11, wherein the air guiding blades (312) are slantwise disposed relative to the rotating shaft (311).
20. The air conditioner as claimed in claim 19, wherein an inclined angle of the air guiding blades (312) relative to the rotating shaft (311) is within a range of 30 degrees to 60 degrees.
21. The air conditioner as claimed in claim 8, wherein the first driving mechanism (40) is a driving motor.
22. The air conditioner as claimed in claim 8, wherein the air conditioner further comprises an outlet air frame part (50) and a second driving mechanism (60) disposed on the air duct part (20), the outlet air frame part (50) is provided with an air deflector (51), the second driving mechanism (60) is cooperated with the air deflector (51) and drives the air deflector (51) to swing.
23. The air conditioner as claimed in claim 22, wherein the second driving mechanism (60) is disposed on the substrate (10).
24. The air conditioner as claimed in claim 22, wherein the first driving mechanism (40) and the second driving mechanism (60) are respectively positioned at two opposite sides of the substrate (10), or the first driving mechanism (40) and the second driving mechanism (60) are positioned at a same side of the substrate (10).
25. The air conditioner as claimed in claim 8, wherein the air duct part (20) comprises an air outlet (25), the air deflector (31) is disposed at the air outlet (25), the transmission element (32) is disposed at an inner side of the air outlet (25), or the transmission element (32) is disposed at an outer side of the air outlet (25).

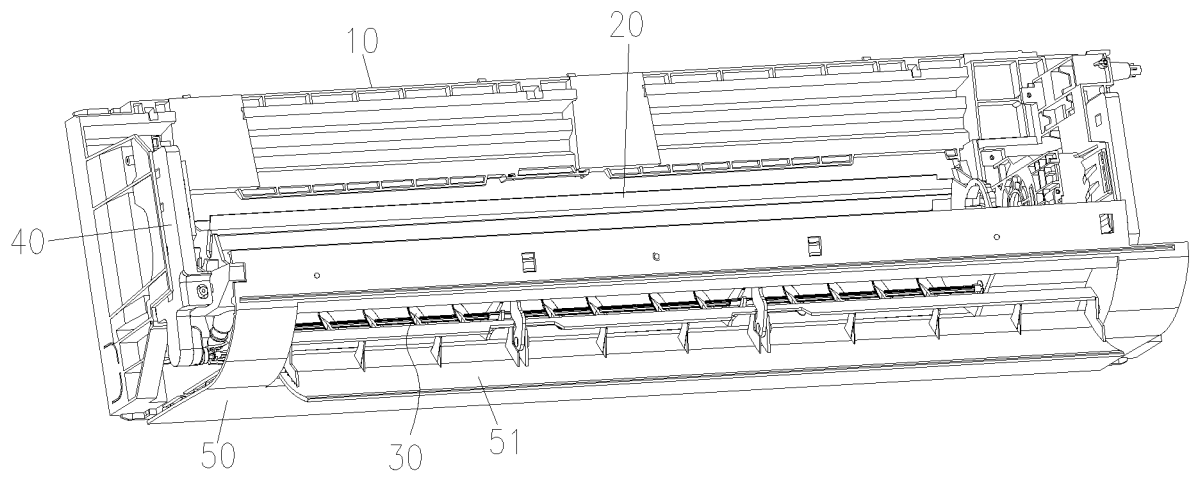


Fig.1

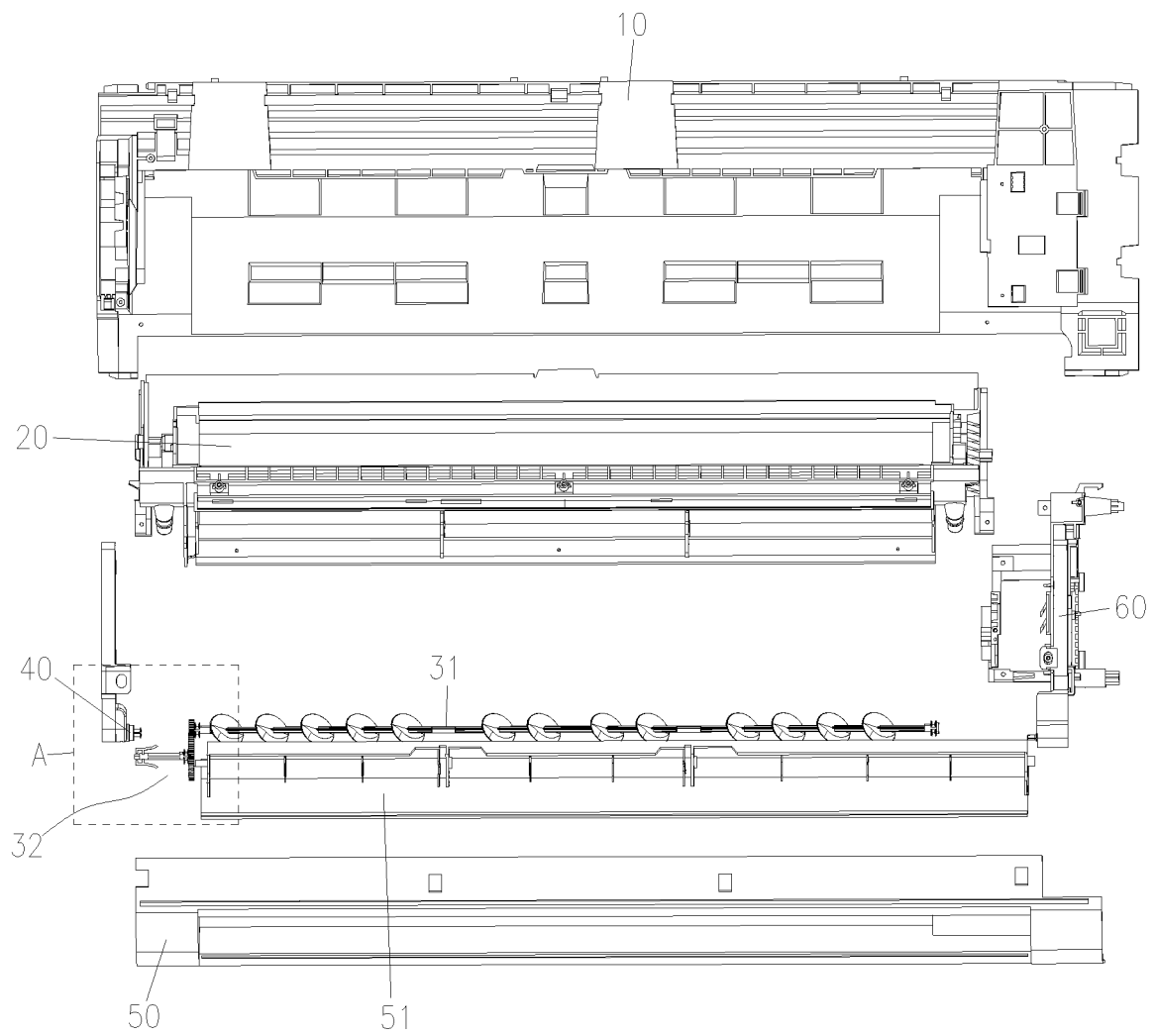


Fig.2

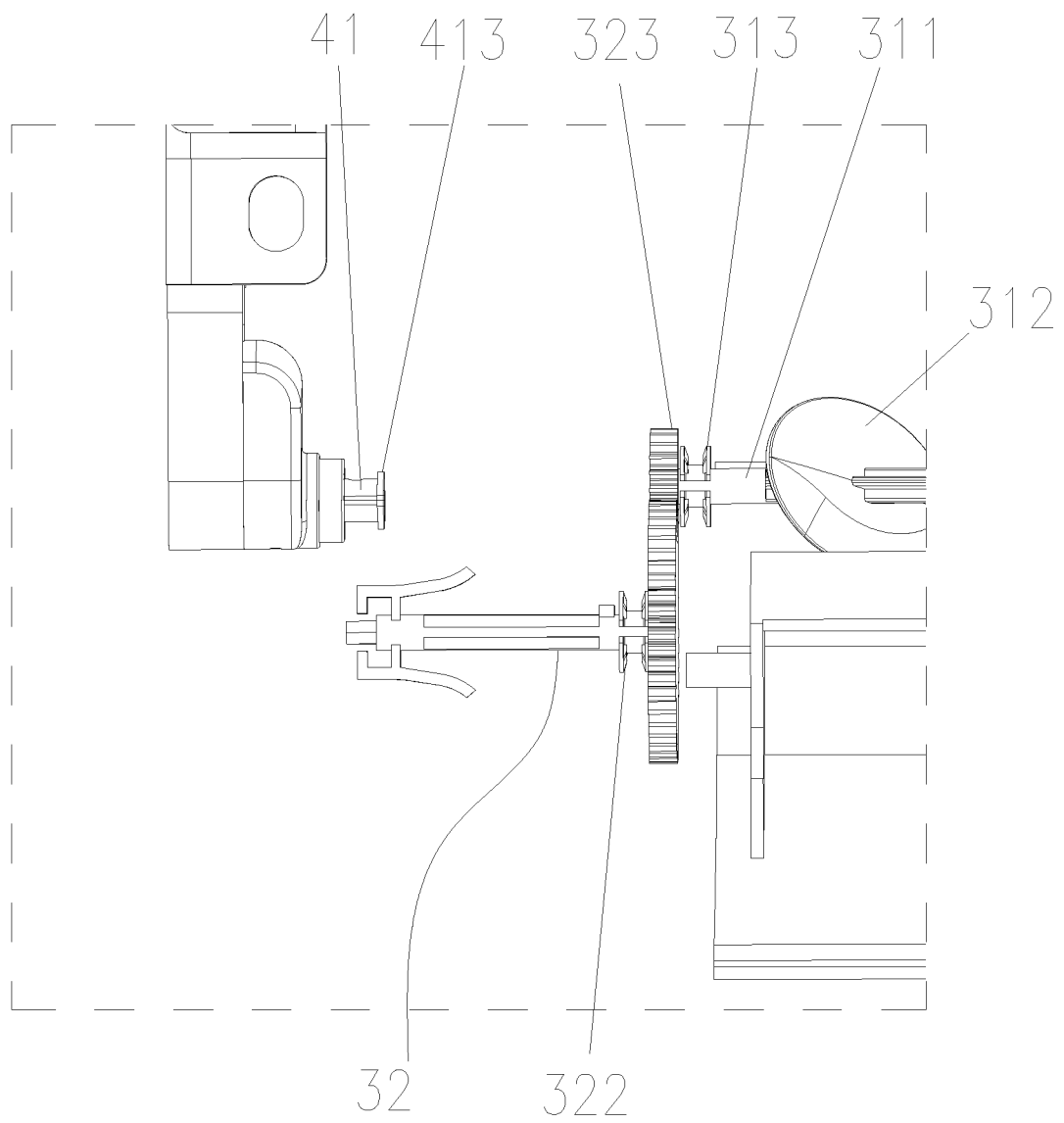


Fig.3

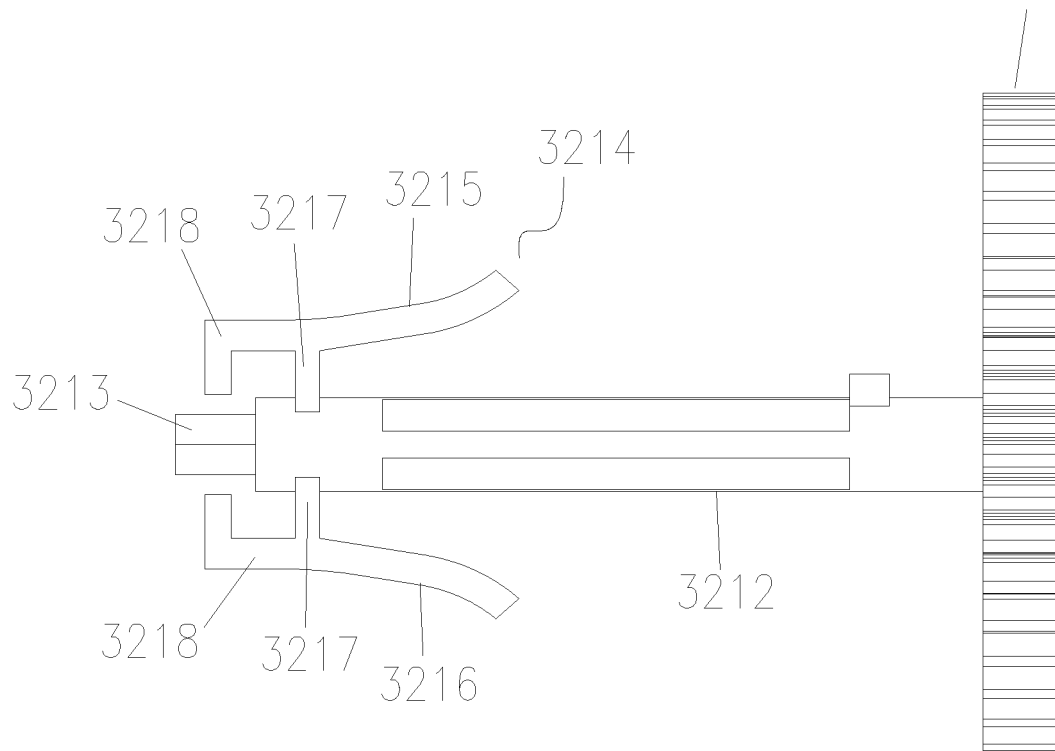


Fig.4

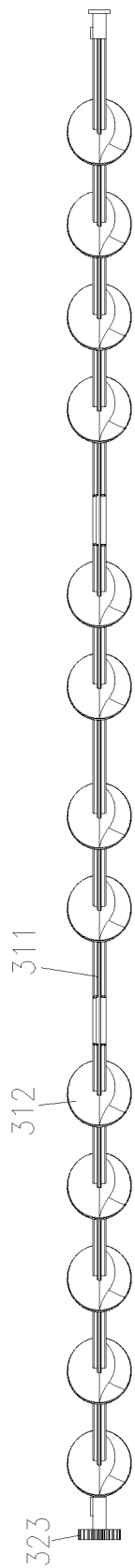


Fig.5

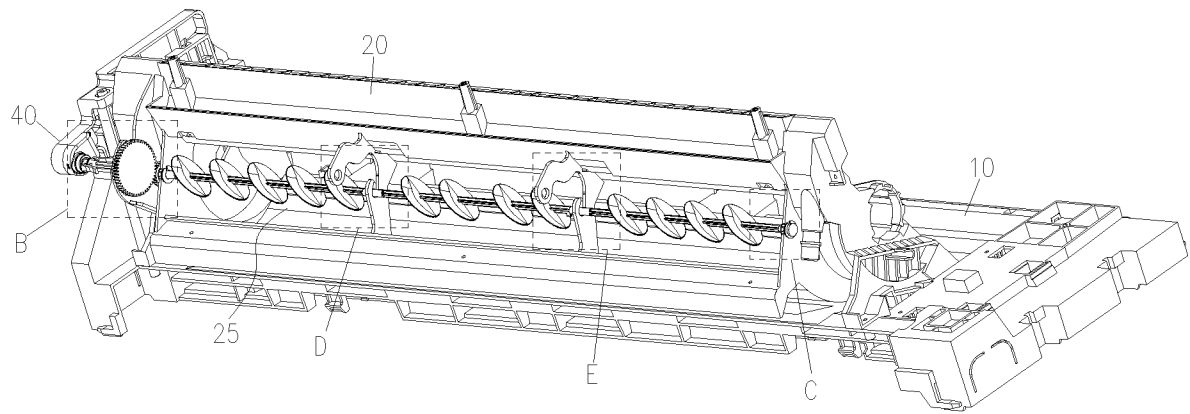


Fig.6

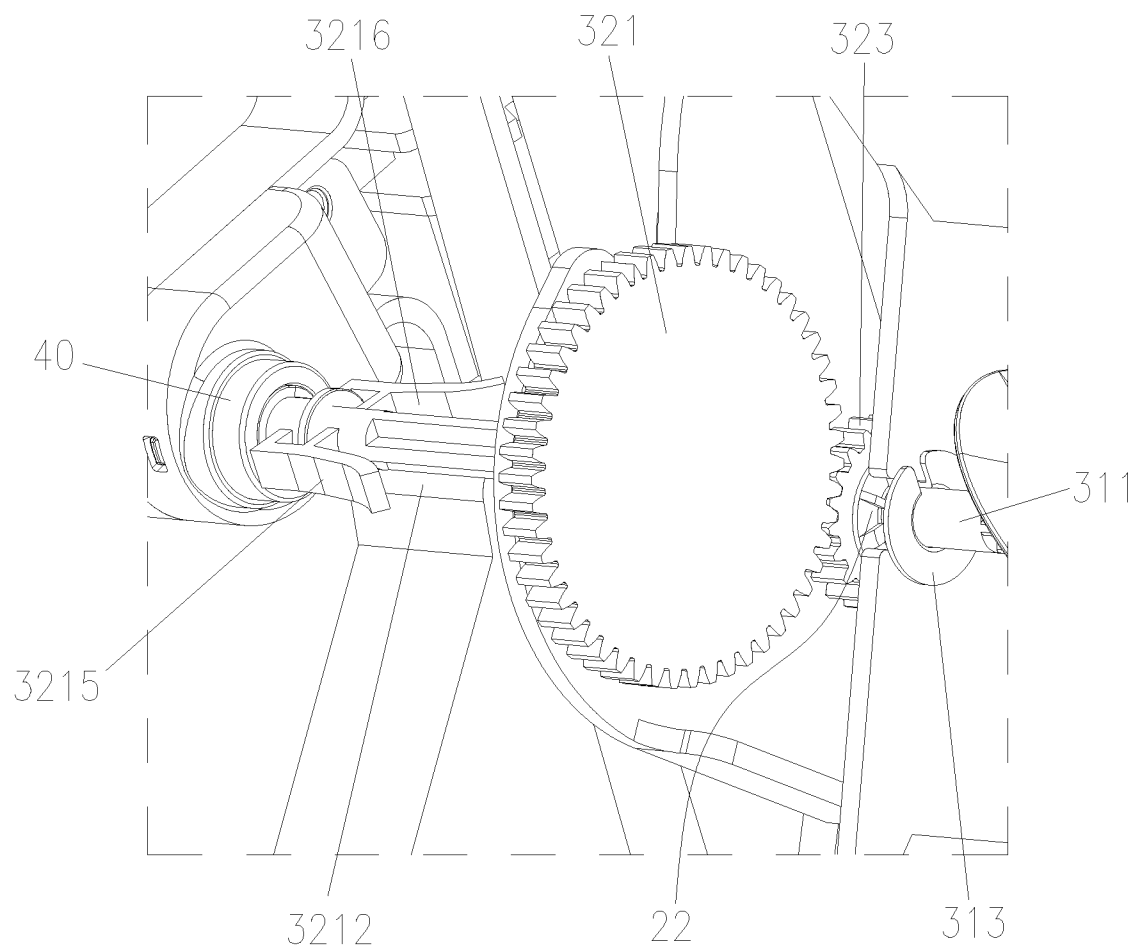


Fig.7

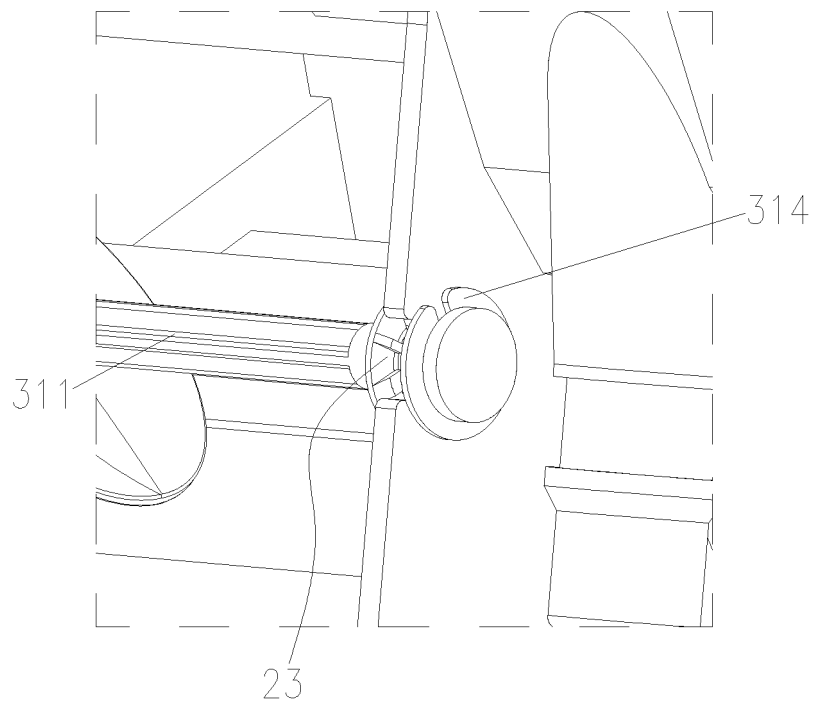


Fig.8

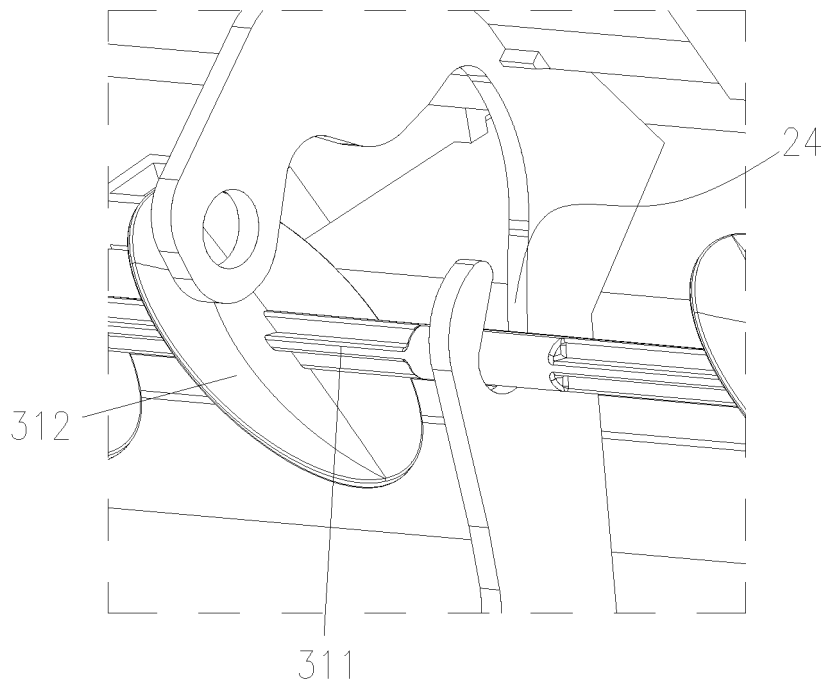


Fig.9

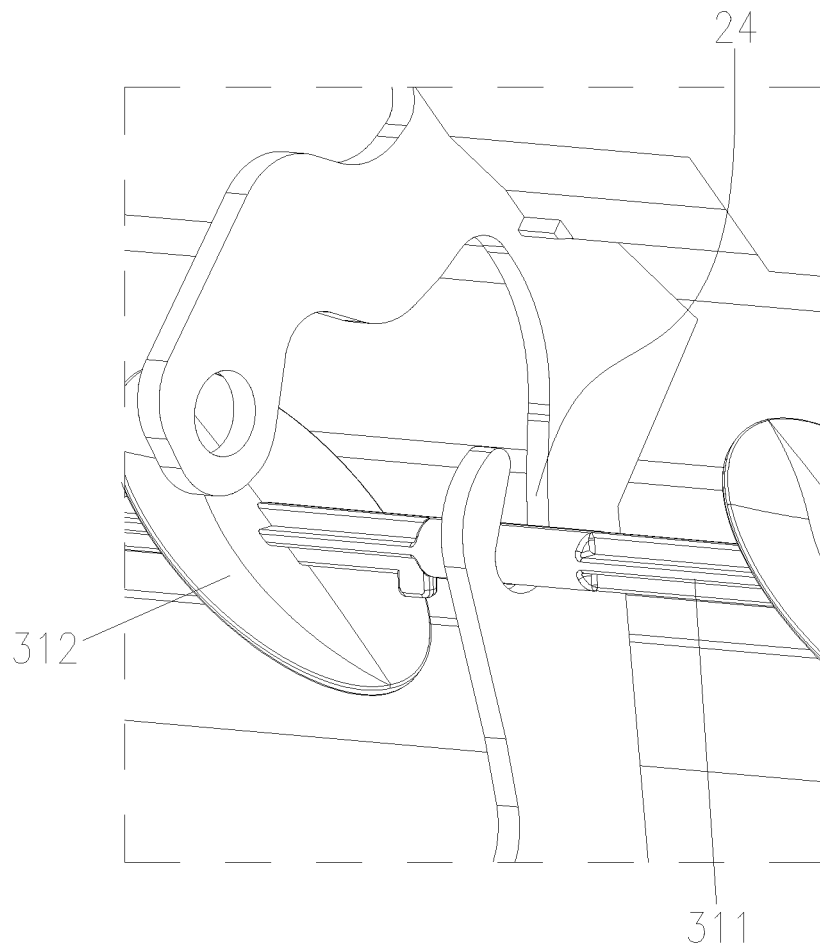


Fig.10

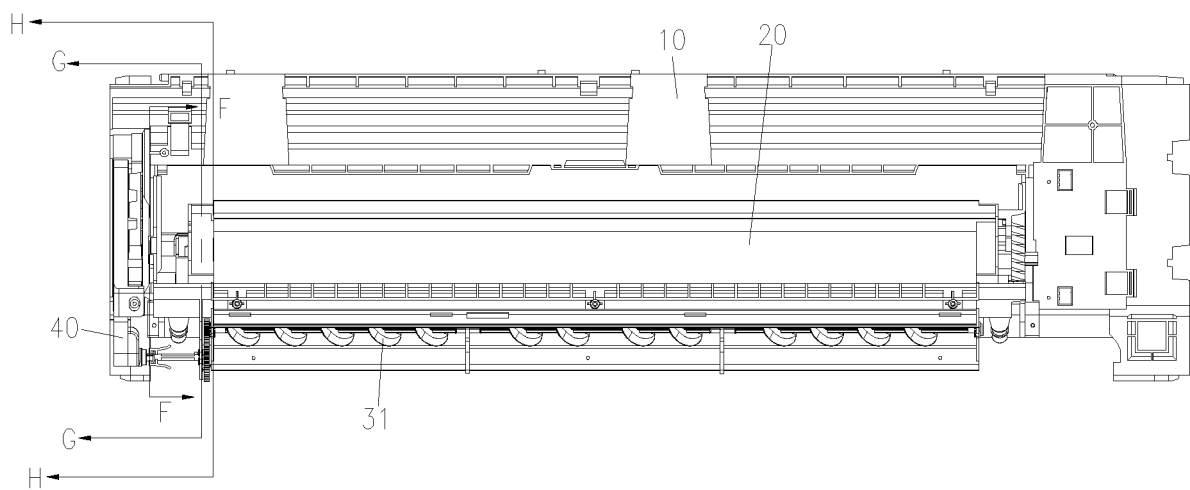


Fig.11

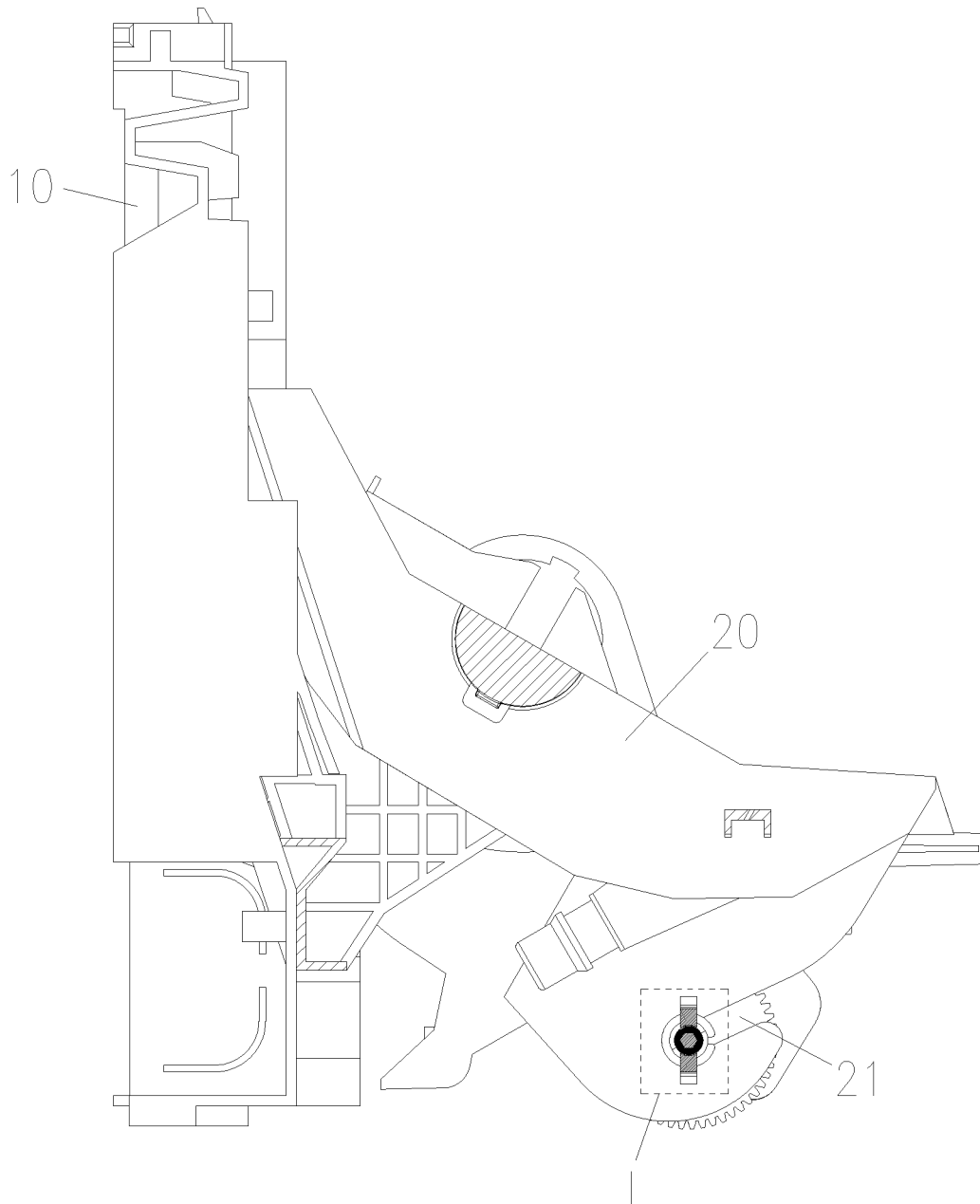


Fig.12

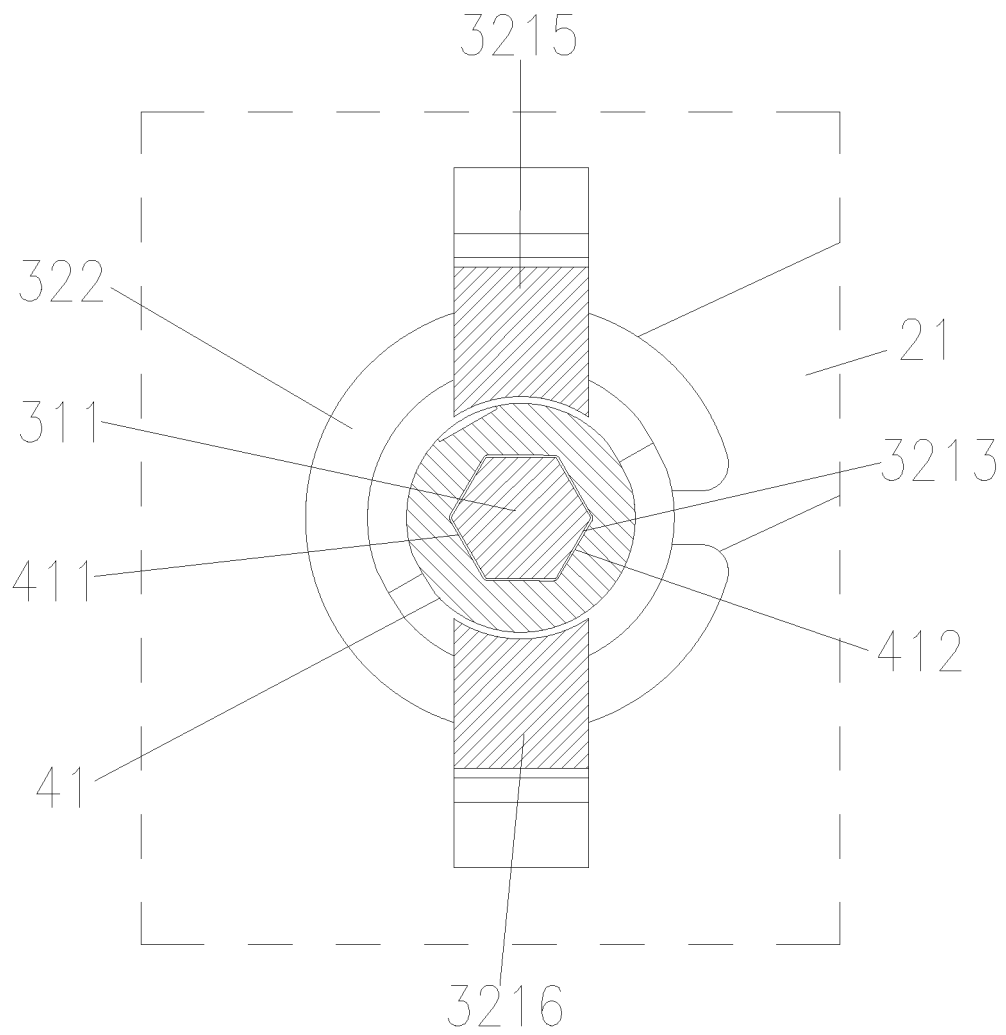


Fig.13

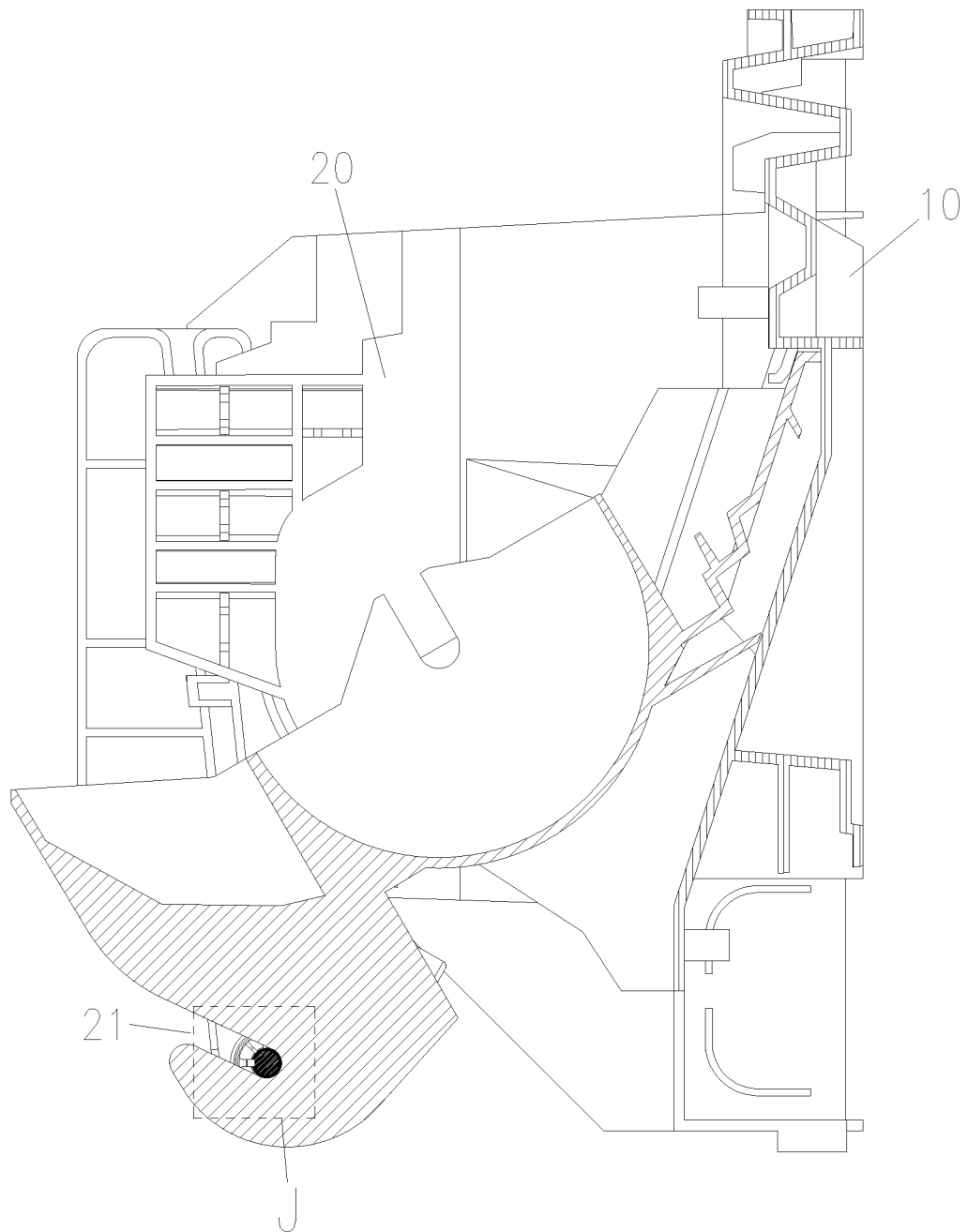


Fig.14

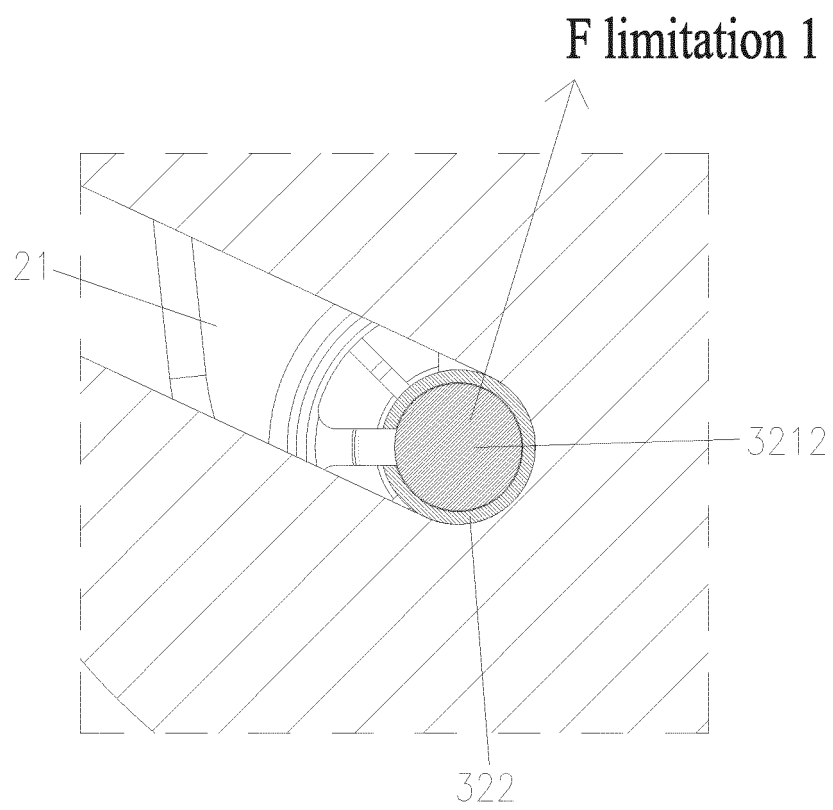


Fig.15

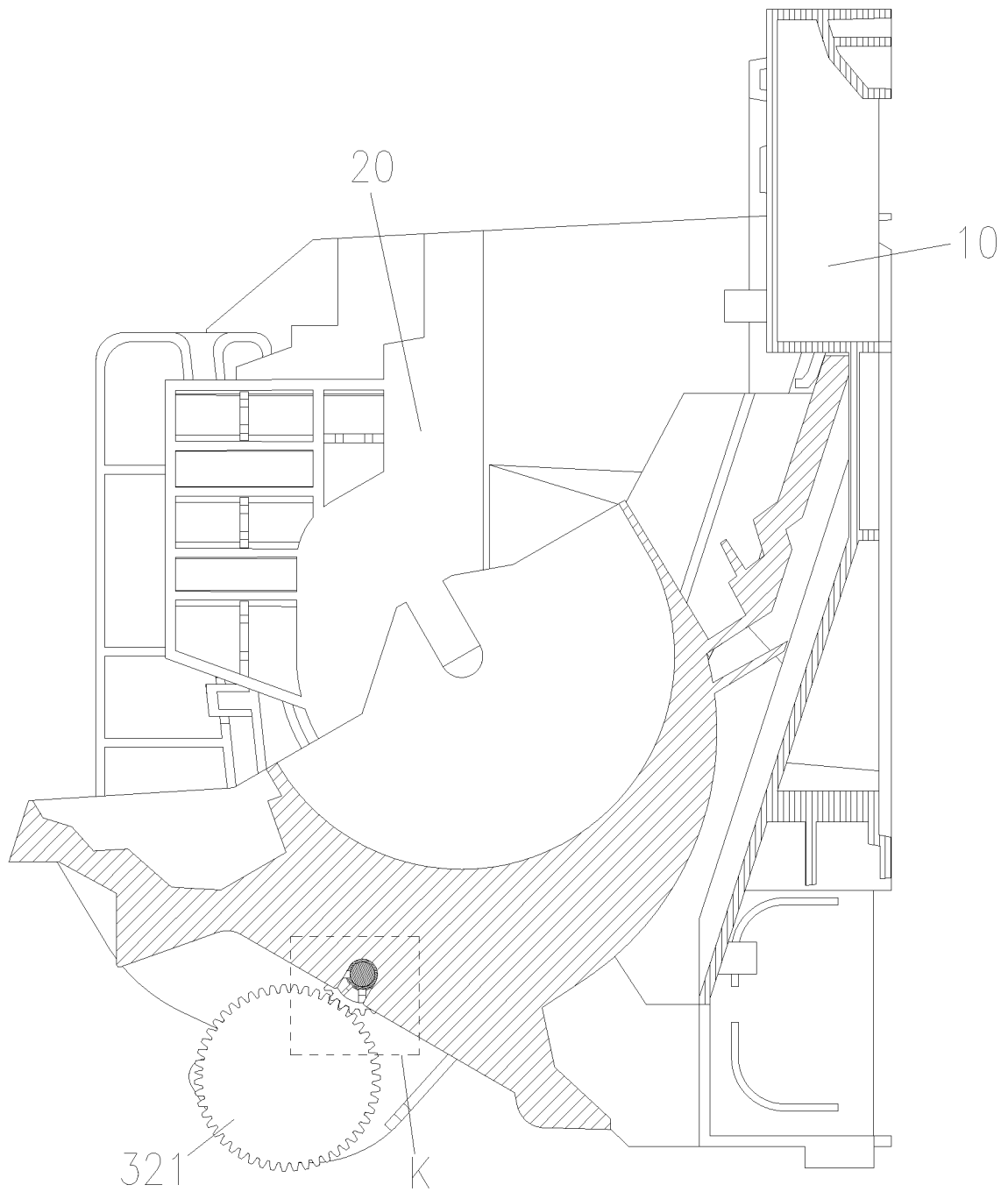


Fig.16

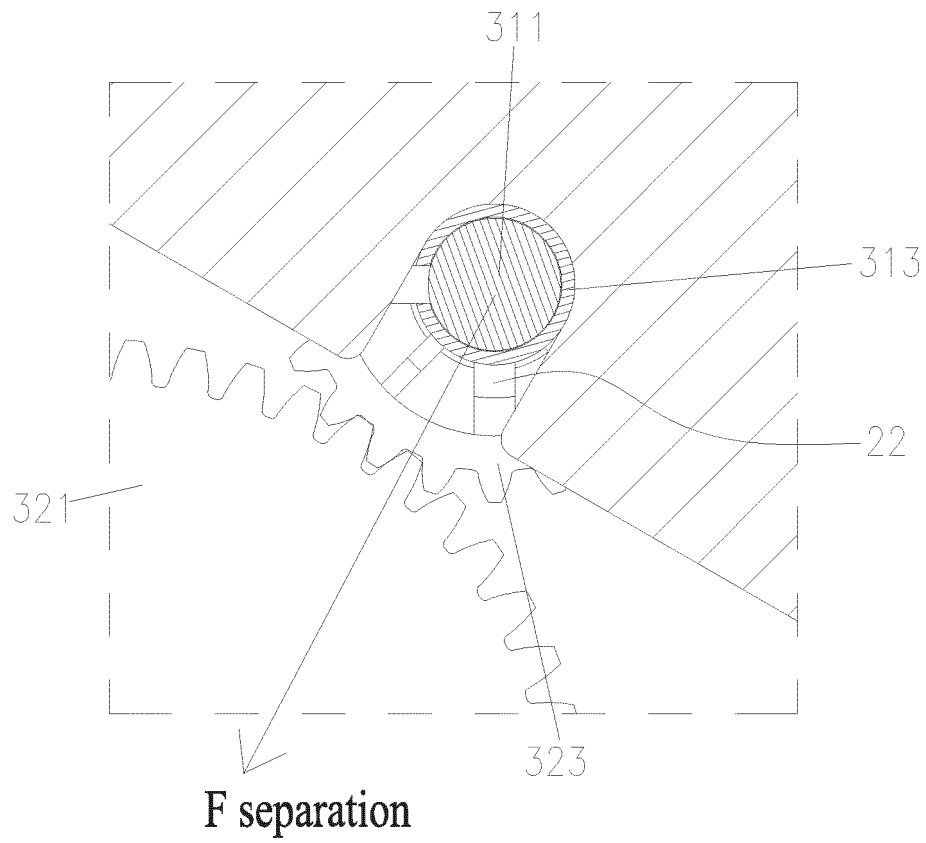


Fig.17

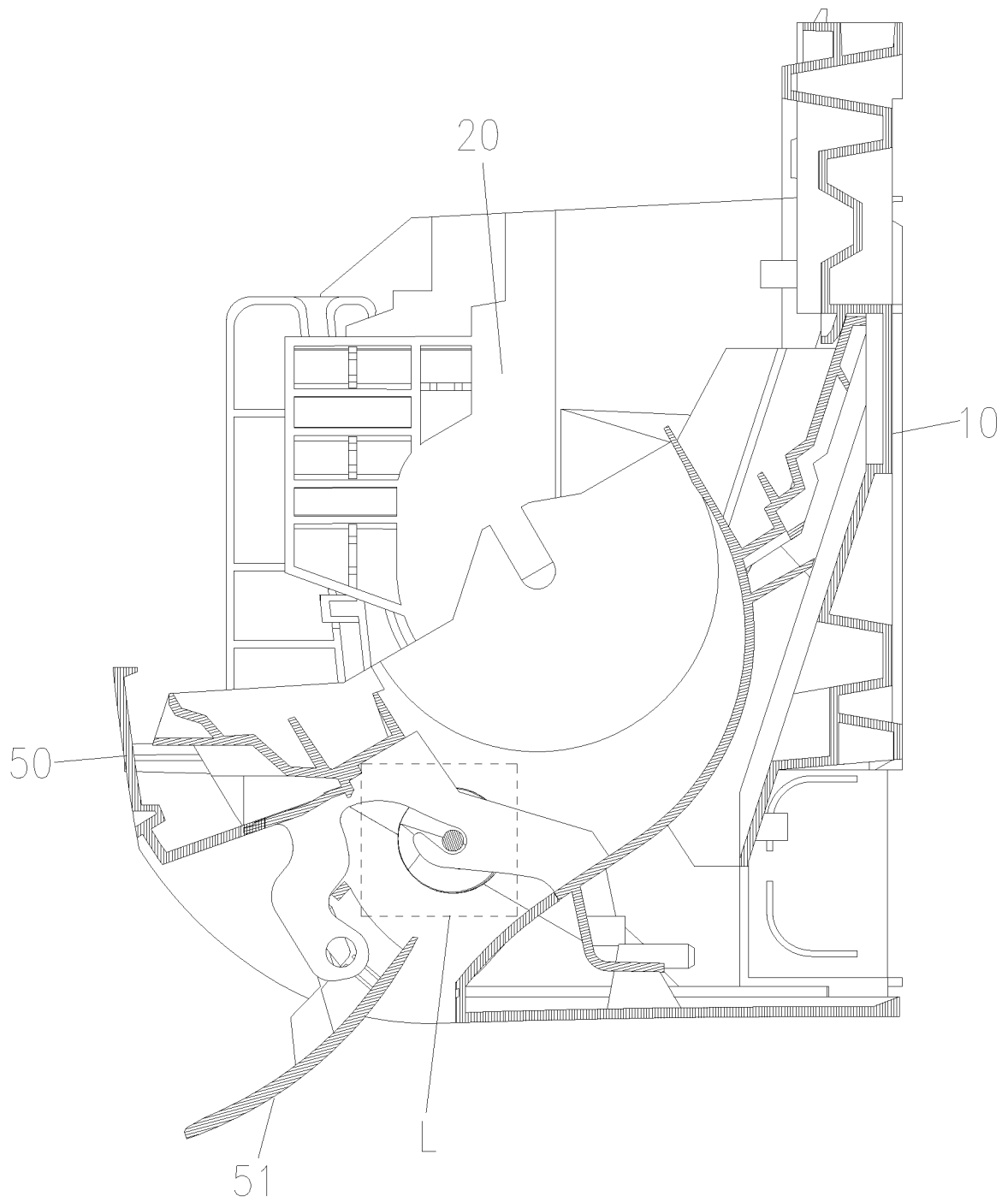


Fig.18

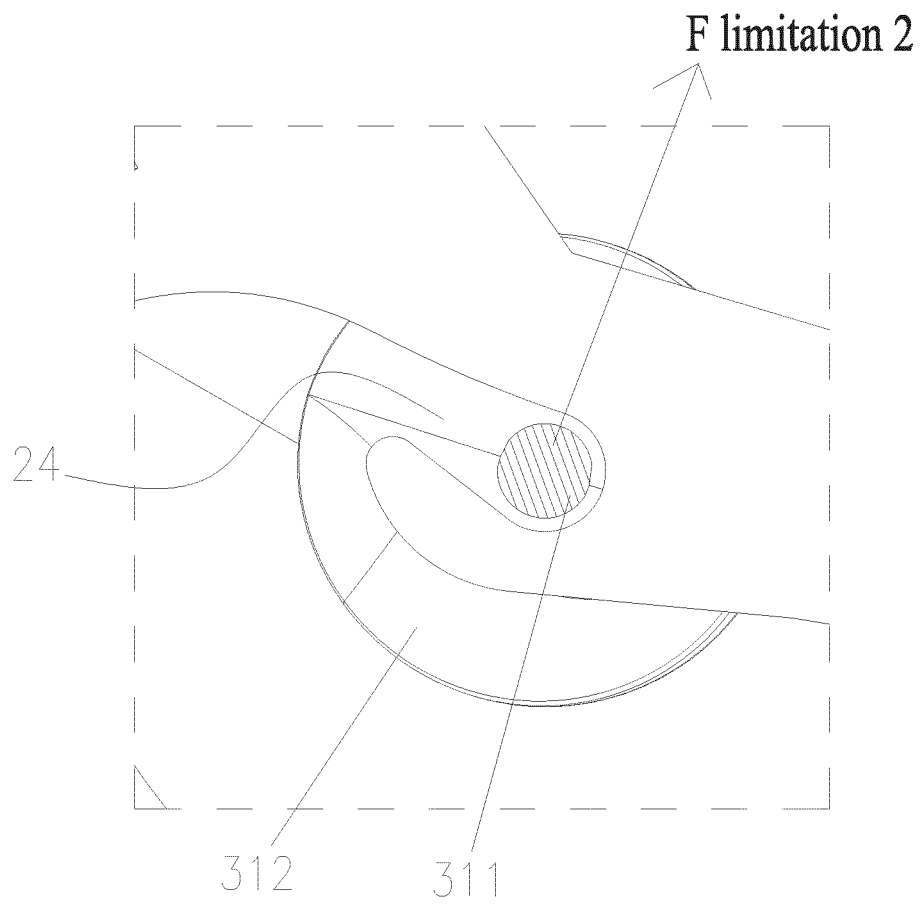


Fig.19

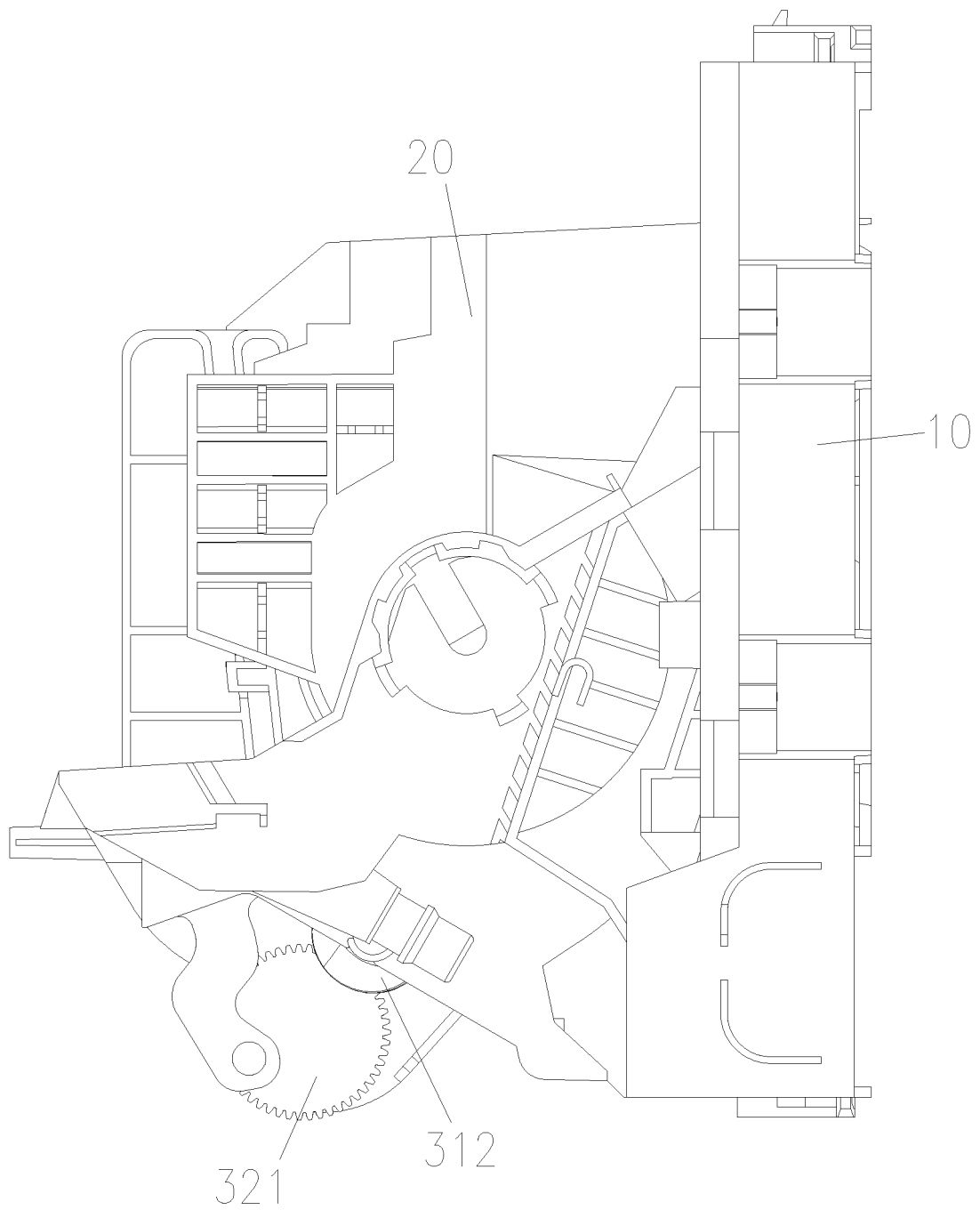


Fig.20

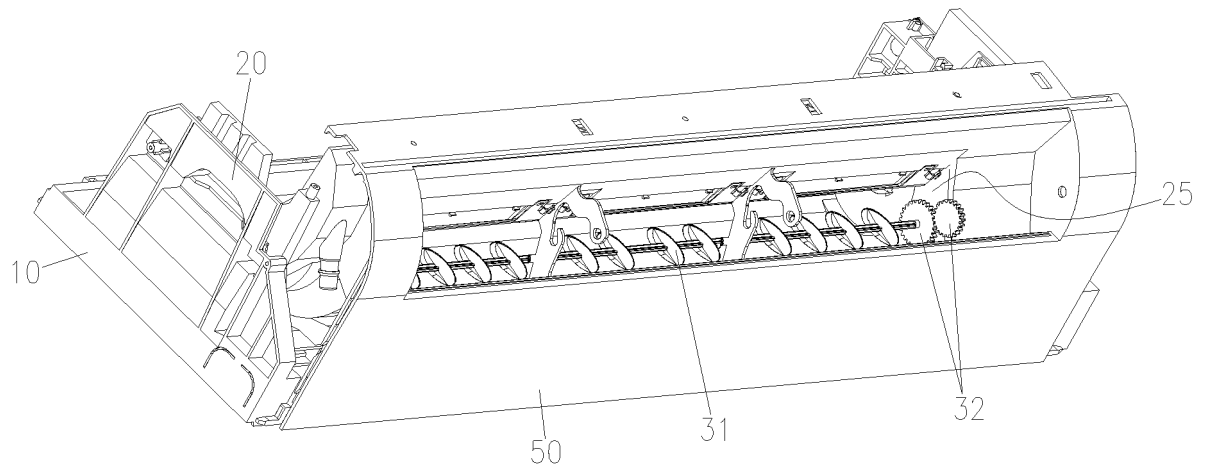


Fig. 21

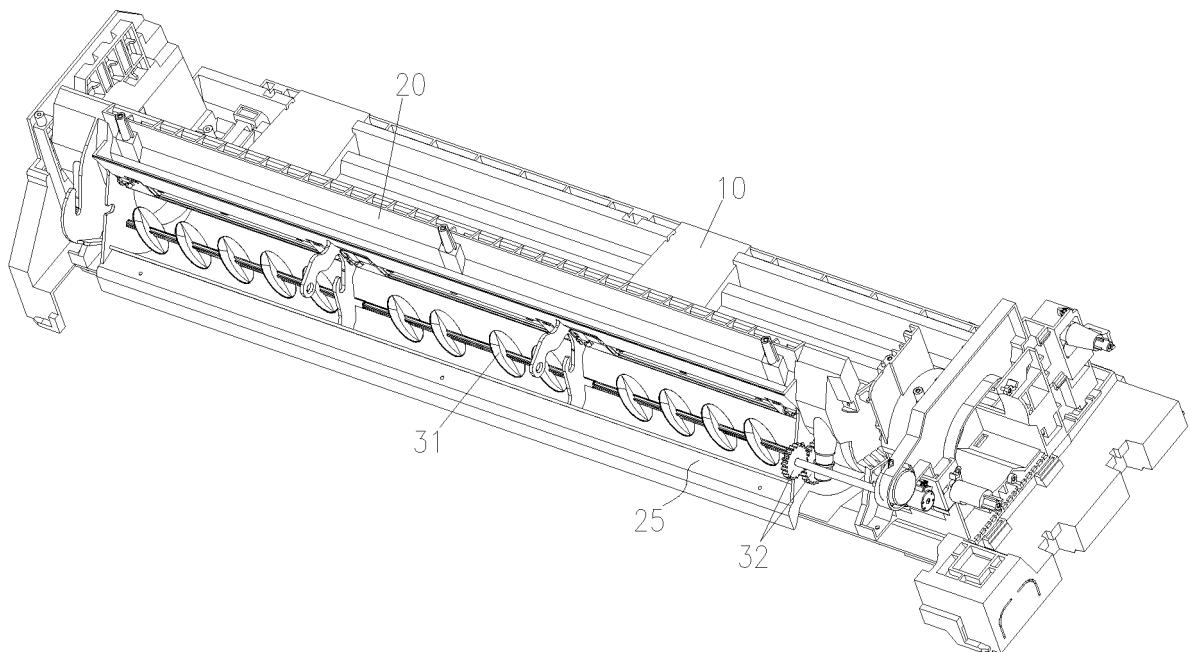


Fig. 22

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/120359

A. CLASSIFICATION OF SUBJECT MATTER F24F 1/00(2019.01)i; F24F 13/14(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) CNABS, CNKI, DWPI, VEN: 传动, 驱动, 输出轴, 可拆卸, 夹紧, 固定, 空调, 导风, transmission, drive, output shaft, removable, clamp, fixed, air conditioner, guide wind																					
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>CN 206937820 U (ZHUJI YUEBO ENTERPRISE MANAGEMENT CONSULTING CO., LTD.) 30 January 2018 (2018-01-30) description, paragraphs [0019]-[0020], and figures 1-4</td> <td>1-4, 7</td> </tr> <tr> <td>PX</td> <td>CN 108426317 A (GREE ELECTRIC APPLIANCES INC. OF ZHUHAI) 21 August 2018 (2018-08-21) claims 1-25</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>CN 204902162 U (TCL AIR CONDITIONER (ZHONGSHAN) CO., LTD.) 23 December 2015 (2015-12-23) entire document</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>CN 204591666 U (SHENGZHOU DONGGE MACHINERY EQUIPMENT CO., LTD.) 26 August 2015 (2015-08-26) entire document</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>CN 202598686 U (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.) 12 December 2012 (2012-12-12) entire document</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>KR 20050019604 A (SEUNG GWANG CO., LTD.) 03 March 2005 (2005-03-03) entire document</td> <td>1-25</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	CN 206937820 U (ZHUJI YUEBO ENTERPRISE MANAGEMENT CONSULTING CO., LTD.) 30 January 2018 (2018-01-30) description, paragraphs [0019]-[0020], and figures 1-4	1-4, 7	PX	CN 108426317 A (GREE ELECTRIC APPLIANCES INC. OF ZHUHAI) 21 August 2018 (2018-08-21) claims 1-25	1-25	A	CN 204902162 U (TCL AIR CONDITIONER (ZHONGSHAN) CO., LTD.) 23 December 2015 (2015-12-23) entire document	1-25	A	CN 204591666 U (SHENGZHOU DONGGE MACHINERY EQUIPMENT CO., LTD.) 26 August 2015 (2015-08-26) entire document	1-25	A	CN 202598686 U (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.) 12 December 2012 (2012-12-12) entire document	1-25	A	KR 20050019604 A (SEUNG GWANG CO., LTD.) 03 March 2005 (2005-03-03) entire document	1-25	<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex. * 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 “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 “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	CN 206937820 U (ZHUJI YUEBO ENTERPRISE MANAGEMENT CONSULTING CO., LTD.) 30 January 2018 (2018-01-30) description, paragraphs [0019]-[0020], and figures 1-4	1-4, 7																				
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Name and mailing address of the ISA/CN State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																					

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