(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 299 190 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
23.03.2011 Bulletin 2011/12

(51) Int Cl.:
F24F 1/00 *(2011.01)* ***F24F 13/20*** *(2006.01)*

(21) Application number: **09252622.7**

(22) Date of filing: **16.11.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(30) Priority: **10.09.2009 KR 20090085618**
10.09.2009 KR 20090085620
10.09.2009 KR 20090085619

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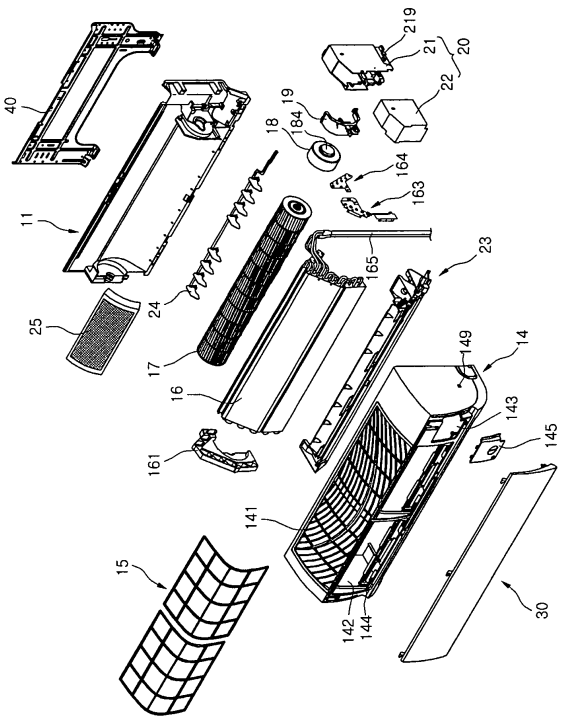
(54) Indoor unit of air conditioner

(57) The present embodiment provides an indoor unit of an air conditioner. The indoor unit of the air conditioner includes: a main body that includes a chassis and a front frame coupled to the chassis; a fan that is provided inside the main body to compulsorily flow air; a fan motor that rotates the fan; a fan receiving part that receives a portion of the fan, the fan receiving part being formed at the chassis; and a fan motor seating part on which the fan motor is seated, the fan motor being formed at the chassis; wherein a receiving groove that receives the portion of the fan is formed on one side of the fan receiving part and the fan motor seating part is formed on the other side of the fan receiving part.

Fig.2



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Description

BACKGROUND

[0001] The present embodiment relates to an indoor unit of an air conditioner.

[0002] In general, an air conditioner is an apparatus that cools or heats an internal space such as a building, etc.

[0003] The air conditioner includes an indoor unit in which a compressor is received and an outdoor unit that is mounted indoors to allow refrigerant to perform a heat exchange with indoor air, wherein the indoor unit may be integrated with the outdoor unit according to products.

[0004] The indoor unit includes an indoor heat exchanger, a main body with a built-in fan assembly, and a panel that opens a portion of the main body in order to repair the inside of the main body or to replace components thereof, etc. And, one or more inlets are formed in the main body and a filter that filters air passing through the one or more inlets is included in the inside of the main body. The indoor heat exchanger is connected to the outdoor unit through a pipe unit, and the pipe unit is drawn out to the outside of the indoor unit from the inside of the indoor unit.

SUMMARY

[0005] In one embodiment, an indoor unit of an air conditioner including a main body that includes a chassis and a front frame coupled to the chassis; a fan that is provided inside the main body to compulsorily flow air; a fan motor that rotates the fan; a fan receiving part that receives a portion of the fan, the fan receiving part being formed at the chassis; and a fan motor seating part on which the fan motor is seated, the fan motor being formed at the chassis; wherein a receiving groove that receives the portion of the fan is formed on one side of the fan receiving part and the fan motor seating part is formed on the other side of the fan receiving part.

[0006] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

FIG. 1 is a perspective view of an indoor unit of an air conditioner according to the present embodiment;
FIG. 2 is an exploded perspective view of the air conditioner according to the present embodiment;
FIG. 3 is a vertical cross-sectional view of the air conditioner according to the present embodiment;
FIGS. 4 and 5 are partially exploded perspective views showing the internal constitution of the air conditioner according to the present embodiment;
FIG. 6 is a perspective view of the chassis according to the present embodiment;
FIG. 7 is a diagram showing the position relation between the pipe unit and the chassis according to the present embodiment;
FIG. 8 is a perspective view of the fan motor cover according to the present embodiment;
FIG. 9 is a perspective view of the fan according to the present embodiment;
FIG. 10 is a diagram showing a state where the fan motor cover is coupled to the chassis;
FIG. 11 is a perspective view of the box body according to the present embodiment;
FIG. 12 is a perspective view showing a state where the box body according to the present embodiment is seated on the control box seating part;
FIG. 13 is a perspective view showing a state where the fan motor is coupled to the fan; and
FIG. 14 is a cross-sectional view showing the relation between the switch and the front panel in a state where the front panel is closed.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0008] Reference will now be made in detail to the embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings.

[0009] In the following detailed description of the preferred embodiments, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration specific preferred embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is understood that other embodiments may be utilized and that logical structural, mechanical, electrical, and chemical changes may be made without departing from the spirit or scope of the invention. To avoid detail not necessary to enable those skilled in the art to practice the invention, the description may omit certain information known to those skilled in the art. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined only by the appended claims.

[0010] FIG. 1 is a perspective view of an indoor unit of an air conditioner according to the present embodiment, FIG. 2 is an exploded perspective view of the air conditioner according to the present embodiment, and FIG. 3 is a vertical cross-sectional view of the air conditioner according to the present embodiment.

[0011] In FIG. 1, a wall type indoor unit is shown by way of example.

[0012] Referring to FIGS. 1 to 3, the indoor unit 1 according to the present embodiment includes a main body 10 in which various components are provided, and a front panel 30 that is coupled rotatably to the main body 10 to selectively open the main body 10.

[0013] The main body 10 includes a chassis 11, a front

frame 14 that is coupled to the front surface of the chassis 11 and is formed with a suction grill 141, a pre-filter 15 that purifies air sucked through the suction grill 141, a heat-exchanger 16 that performs heat exchange between the air passing through the pre-filter 15 and internal refrigerant, a fan 17 that compulsorily flows the air, a fan motor 18 that rotates the fan 17, a control box 20 that is configured of components for controlling the operation of the indoor unit 1, a discharge assembly 23 that guides the discharge of the air passing through the heat-exchanger 16, a louver unit 24 that controls the direction of the discharged air, and a dust collector 25 that is coupled to the heat-exchanger 16.

[0014] And, the front panel 30 is disposed in front of the front frame 14 and an install panel 40 that allows the indoor unit 1 to be installed on a wall is coupled to the rear side of the chassis 11.

[0015] More specifically, the suction grill 141 is formed on the top surface of the front frame 14 by way of example. The suction grill 141 forms inlet holes through which air is sucked and serves to protect the heat-exchanger 16 from the outside.

[0016] One or more opening parts 142 that allow the pre-filter 15 to come and go are formed on the front surface of the front frame 14. In FIG. 2, two opening parts 142 are shown by way of example but there is no limitation in the number of the opening part 142. And, the opening part 142 and the pre-filter 15 are provided in the same number.

[0017] The opening part 142 is opened and closed by the front panel 30 that is coupled rotatably to the front frame 14. The lower end of the front panel 30 may be rotated centering on the upper end thereof by way of example.

[0018] Therefore, after rotating the front panel 30, the pre-filter 15 can be mounted or the pre-filter 15 can be drawn out through the opening part 142. Also, a filter supporting part 144 that supports the pre-filter 15 is formed at the front frame 14. Herein, although not shown, a plasma filter can be coupled to the front of the filter supporting part 144.

[0019] A service hole 143 for the replacement or repair, etc. of the control box 20 is formed at the front surface of the front frame 14. The service hole 143 may be opened and closed by a service cover 145 coupled to the front frame 14.

[0020] And, in a state where the service cover 145 covers the service hole 143, the service cover 145 is covered by the front panel 30. Therefore, in order to replace or repair the control box 20, the service cover 145 is separated after the front panel 30 is rotated.

[0021] One or more air flowing holes 149 that flow air are formed at one side surface (for example, right side surface in FIG. 2) of the front frame 14.

[0022] The heat-exchanger 16 is bent one times or more so that it may be divided into a plurality of portions. In the present embodiment, the heat-exchanger 16 is shown to be divided into three portions by way of example. And, the pre-filter 15 is positioned at the upper stream side of the heat-exchanger 16.

[0023] A heat-exchanger holder 161 is coupled to one side of the heat-exchanger 16 and a plurality of fixing plates 163 and 164 are coupled to the other side of the heat-exchanger 16. And, as the heat-exchanger holder 161 and the plurality of fixing plates 163 and 164 are fixed to the chassis 11, the position of the heat-exchanger 16 is fixed. The heat-exchanger 16 is connected to an outdoor unit that is not shown by a pipe unit 165.

[0024] As the fan 17, a cross flow fan may be applied. And, the fan motor 18 is coupled to the fan 17 in one side direction of the fan 17. And, the control box 20 is disposed in the side direction of the fan motor 18.

[0025] In other words, in the present embodiment, the fan motor is positioned between the fan 17 and the control box 20.

[0026] The control box 20 includes a box body 21 in which various components such as a PCB,etc. are installed, and a box cover 22 that covers the box body 21.

[0027] In order to guide the flow of the fan 17, a flow guide 111 is formed at the chassis 11, and a stabilizer 232 is formed in the discharge assembly 23. And, an outlet 231 through which the heat-exchanged air is discharged to the indoor is formed in the discharge assembly 23.

[0028] In other words, the discharge channel of the heat-exchanged air is defined by the flow guide 111 and the discharge assembly 23.

[0029] Meanwhile, a temperature sensor 219 that senses the temperature of indoor air sucked through the air flow hole 149 is provided at one side of the box body 21, that is, at a surface facing a surface on which the air flow hole 149 of the front frame 14 is formed.

[0030] The temperature sensed by the temperature sensor 219 is transmitted to a controller not shown (it may be an element that constitutes the control box), and the controller compares a set temperature (desire temperature) with the temperature sensed by the temperature sensor 219 to control the operation of the indoor unit or the outdoor unit.

[0031] According to the present embodiment, the air flow hole 149 is formed at the side surface of the front frame 14 so that the temperature of the air sucked through the air flow hole 149 is sensed by the temperature sensor 219, making it possible to exactly sense the current indoor temperature.

[0032] In other words, the air flow hole 149 is positioned to be spaced from the outlet 231 so that it is difficult for the discharge air to be flowed into through the air flow hole 149. Therefore, the indoor air is flowed into through the air flow hole 149, making it possible to exactly sense the current indoor temperature.

[0033] FIGS. 4 and 5 are partially exploded perspective views showing the internal constitution of the air conditioner according to the present embodiment, FIG. 6 is a perspective view of the chassis according to the present embodiment, and FIG. 7 is a diagram showing the posi-

tion relation between the pipe unit and the chassis according to the present embodiment.

[0034] Referring to FIGS. 1 to 7, a fan receiving part in which both sides of the fan 17 are received is included in the chassis 11 according to the present embodiment. The fan receiving part includes a first fan receiving part 112 and a second fan receiving part 113. And, the channel guide 111 is positioned between the first receiving part 112 and the second receiving part 113.

[0035] A first receiving groove 112a that receives a portion of the left side of the fan 17 and has a vertical cross-section in an approximately semicircular shape is formed in the first receiving part 112. Also, although not shown in the first receiving part 112, a bearing seating part 112b on which a bearing that is coupled to the left side of the fan 17 to guide the rotation of the fan 17 is seated is formed.

[0036] A second receiving groove 113a that receives the right entirety of the fan 17 is formed in the left side of the second receiving part 113. And, a fan motor seating part 120 on which the fan motor 18 is seated is formed on the right side of the second receiving part 113, and a control box seating part 130 on which the control box 20 is seated is formed at one side of the fan motor seating part 120.

[0037] And, a shaft penetration hole 115 through which a motor shaft 181 of the fan motor 18 penetrates is formed in the second receiving part 113. The motor shaft 181 penetrates through the shaft penetration hole 115 in right and left directions.

[0038] The shaft penetration hole 115 includes a first hole 115a formed in the central portion of the second receiving part 113 and a second hole 115b that is extended forward from the first hole 115a. The first hole 115a has a vertical cross-section formed in a circular shape.

[0039] Therefore, the shaft penetration hole 115 is formed entirely in a non circular shape, wherein the front and rear length is formed to be longer than the top and bottom width. This is to allow the motor shaft 181 to be easily coupled to the fan 17. The detailed reasons thereof will be described later.

[0040] The fan motor seating part 120 includes a first supporting part 122 and a second supporting part that support both sides of the fan motor 18, and a motor receiving space 121 that is formed between the first supporting part 122 and the second supporting part 123 to receive the fan motor 18 therein.

[0041] The first supporting part 122 is integrally formed at the right side surface of the second receiving part 113, and the second supporting part 123 is integrally formed at the front surface of the control box seating part 130. The second supporting part 123 is projected forward from the front surface of the control box seating part 130.

[0042] That is, the first supporting part 122 is not spaced from the second receiving part 113 but is integrally formed at the right side surface of the second receiving part 113. In other words, no gap is formed between the first supporting part 122 and the second receiving part 113.

[0043] Therefore, according to the present embodiment, since the fan motor 18 is positioned directly at the right side of the second receiving part 113, the length of the motor shaft 181 of the fan motor 18 can be minimized so that the horizontal size of the indoor unit 1 becomes small, making it possible to make the indoor unit compact.

[0044] And, if the fan motor 18 is seated on the fan motor seating part 120, an end portion 181a adjacent to a first reduction part 182 of the motor shaft 181 is seated on the shaft penetration hole 115, specifically, on the first hole 115a. From a different point of view, the most inner portion from the motor shaft 181 projected from the fan motor 18 may be explained to be positioned on the first hole 115a.

[0045] In the present embodiment, as the fan motor 18, an AC motor or a BLDC motor may be used by way of example.

[0046] And, the cross-section of a portion at least coupled to the fan 17, of the motor shaft 181 of the fan motor 18, is formed in a non-circular shape. For example, the cross-section of the motor shaft 181 may be formed in a

 ?shape.

[0047] Seating grooves 122a and 123a each in a semicircular shape are formed in the first supporting part 122 and the second supporting part 123. And, one or more cooling holes 124 through which air for cooling the fan motor 18 is flowed are formed in the fan motor seating part 120.

[0048] A vibration reduction part formed of elastic material that minimizes vibration in a state the fan motor 18 is seated on the fan motor seating part 120 is coupled to both sides of the fan motor 18. In the present embodiment, it will be explained that the vibration reduction part constitutes a portion of the fan motor 18.

[0049] The vibration reduction part includes a first reduction part 182 that is coupled to the left side of the fan motor 18, and a second reduction part 184 (shown in FIG. 2) that is coupled to the right side of the fan motor 18.

[0050] Substantially, the first reduction part 182 is seated on the first supporting part 122 and the second reduction part 184 is seated on the second supporting part 123.

[0051] And, one or more supporting ribs 126 that support the fan motor cover 19 are formed on the inner circumferential surface of the fan motor seating part 120.

[0052] Meanwhile, the control box seating part 130 is projected forward from the back surface part 110 of the chassis 11.

[0053] In other words, the control box seating part 130 includes a plurality of extending parts 130a that are substantially vertically extended forward based on the back surface part 110 and a connecting part 130b that connects the front ends of the plurality of extending parts 130a.

[0054] Therefore, the horizontal cross-section of the

control box seating part 130 is formed in a 뱃쫓 shape, having a rear surface that is opened, and a space part 131 is defined by the plurality of extending part 130a and the connecting part 130b. The space part 131 is formed to be vertically long.

[0055] From a different point of view, the space part 131 may be understood to be formed as the back surface part of the chassis 110 is collapsed forward.

[0056] And, the pipe unit 165 positioned in the space part 13 and the space part 131 are covered by the install panel 40.

[0057] And, a side surface opening part 132 through which the pipe unit 165 passes is formed at the extending part 130a adjacent to the fan motor seating part 120, of the plurality of extending parts 130a.

[0058] One or more reinforcing ribs 133 that improve the strength of the control box seating part 130 are formed at the control box seating part 130. In FIG. 7, a plurality of reinforcing ribs 133 are formed at the back surface of the control box seating part 130 by way of example, wherein the plurality of reinforcing ribs 133 are spaced vertically from each other.

[0059] The reinforcing ribs 133 are formed over the plurality of extending parts 130a and the connecting part 130b.

[0060] Although the pipe unit 165 positioned in the space part 131 is bumped into the control box seating part 130 at the time of installation of the pipe unit 165, the breakage of the control box seating part 130 can be prevented by the reinforcing ribs 133.

[0061] And, a guide rib 135 that guides the seating of the control box 20 is formed at the front surface part of the control box seating part 130.

[0062] Referring to FIG. 7, the pipe unit 165 connected to the heat-exchanger 16 is extended backward to the back surface part 110 of the chassis 11 and is bent on the upper of the fan motor seating part 120, thereby being extended in right and left directions through the side surface opening part 132.

[0063] And, the pipe unit 165 passing through the side surface opening part 132 is bent downward from the space part 131. And, the pipe unit 165 is extended downward along the space part 131, thereby being drawn out to the outside of the main body 10.

[0064] According to the present embodiment as described above, the pipe unit 165 connected to the heat-exchanger 16 is vertically extended from the rear of the control box seating part 130 so that the main body 10 does not require a space for avoiding the pipe unit 165, having advantages that product size becomes small and the fan motor 18 and the control box 20 are easily installed.

[0065] In other words, since the pipe unit 165 is positioned in the rear of the control box 20 by passing through the upper of the fan motor 18, interference with the fan motor 18 disappears so that the fan motor 18 and the fan 17 can be positioned to be adjacent to each other at maximum, making it possible to reduce the entire size of the product.

[0066] Compared with the related art, when the pipe unit 165 is positioned in front of the fan motor 18 or in front of the control box 20, the fan motor 18 and the control box 20 should be installed by avoiding the pipe unit 165 so that the entire size of the main body 10 becomes large and it is difficult to install the fan motor 18 and the control box 20. However, with the present embodiment, these problems can be solved.

[0067] FIG. 8 is a perspective view of the fan motor cover according to the present embodiment, FIG. 9 is a perspective view of the fan according to the present embodiment, and FIG. 10 is a diagram showing a state where the fan motor cover is coupled to the chassis.

[0068] Referring to FIGS. 1 to 10, the fan motor cover 19 has a vertical cross-section formed in an approximately C shape. The fan motor cover 19 covers a portion of the fan motor 18 that is projected to the external side of the motor receiving space 121 in a state where the fan motor 18 is received in the motor receiving space 121. In other words, the portion of the fan motor 18 is received in the motor receiving space 121 and the rest of the fan motor 18 are covered by the fan motor cover 19.

[0069] A first covering part 192 that covers the first reduction part 182 seated on the first supporting part 122 and an attaching/detaching hook 193 that is hung by a hanging end 114 formed at the side surface of the right-side receiving part 113 are formed at the left side of the fan motor cover 19.

[0070] A first engagement end 194 that is engaged with the second supporting part 123 by an engagement member (not shown) is formed at the right side of the fan motor cover 19. A first engagement hole 194a through which the engagement member penetrates is formed in the first engagement end 194.

[0071] And, an engagement hook 196 that is engaged with the box body 21 is formed at the top surface (or front surface) of the fan motor cover 19.

[0072] Therefore, in a state where the fan motor 18 is received in the motor receiving space 121, the attaching/detaching hook 193 is primarily hanged by the hanging end 114 so that the position of the fan motor cover 19 can be fixed. And, the first engagement end 194 of the fan motor cover 19 is put on the top surface of an engagement part 125 formed at the second supporting part 123 and the fan motor cover 19, specifically, the first covering part 192, covers the top side of the first reduction part 182.

[0073] If the first covering part 192 covers the first reduction part 182 in a state where the first reduction part 182 is seated on the first supporting part 122, the moving of the first reduction part 182 can be prevented.

[0074] In other words, in the present embodiment, the fan motor cover 19 allows one side of the fan motor 18, that is, the position of the first reduction part 182, to be fixed.

[0075] Meanwhile, the fan 17 includes a plurality of

blades 172 that are spaced from each other and a connecting part 174 that connects the blades 172. The basic structure of the fan is the same as the structure of the publicly known cross flow fan so that the detailed description thereof will be omitted.

[0076] A shaft coupling part 175 that couples a motor shaft 181 of the fan motor 18 is formed at the connection part positioned on the outermost outside, of the connecting part 174. And, a shaft coupling hole 176 is formed in the shaft coupling part 175. The shaft coupling hole 176 is formed in the shape corresponding to the motor shaft 181. In other words, the shaft coupling hole 176 and the motor shaft 181 are formed in a non-circular shape, making it possible to prevent the motor shaft 181 from idling as to the fan 17.

[0077] FIG. 11 is a perspective view of the box body according to the present embodiment, and FIG. 12 is a perspective view showing a state where the box body according to the present embodiment is seated on the control box seating part.

[0078] Referring to FIGS. 1 to 12, the box body 21 includes a frame 210 whose vertical cross-section is formed in an approximately " ⊏ " shape and front surface is opened. And, various components such as a PCB, etc. may be installed through the opened front surface of the frame 210. At least a portion of the opened front surface of the frame 210 may be covered by the box cover 22.

[0079] A second covering part 212 that covers the second reduction part 184, a second engagement end 215 that is engaged with the first engagement end 194 by the engagement member, and a hook hanger 214 by which the engagement hook 196 is hanged and formed at one side surface of the frame 210 (left-side surface in FIG. 11). And, a second engagement hole 215a with which the engagement member is engaged is formed in the second engagement end 215.

[0080] In the present embodiment, the engagement hook 196 is described to be formed at the fan motor cover 19 and the hook hanger 214 is described to be formed at the frame 210, that is, at the control box. However, differently therefrom, the engagement hook may also be formed at the frame and the hook hanger may also be formed at the fan motor cover.

[0081] A switch seating part 216 on which a switch 218 (see FIG. 4) that senses the closing of the front panel 30 is seated is formed at the front surface side of the frame 210.

[0082] And, if the box body 21 is seated on the control box seating part 130, the second supporting part 123 and the second covering part 212 are aligned. And, the second reduction part 184 is positioned between the second supporting part 123 and the second covering part 212.

[0083] In other words, in the present embodiment, the box body 21 allows the other side of the fan motor 18, that is, the position of the second reduction part 184, to be fixed.

[0084] Hereinafter, the assembling order of the main body in connection with the fan motor and the control box will be described.

[0085] FIG. 13 is a perspective view showing a state where the fan motor is coupled to the fan.

[0086] Referring to FIGS. 1 to 13, the right side of the fan 17 is received in the second receiving part 113 and the left side of the fan 17 is received in the first receiving part 112. Then, the motor shaft 181 of the fan motor 18 penetrates through the shaft penetration hole 115 to allow the motor shaft 181 to be coupled to the right side of the fan 17.

[0087] More specifically, the motor shaft 181 first penetrates through the second hole 115b and then the motor shaft 181 moves to the first hole 115a. And, the fan motor 18 is seated on the fan motor seating part 120, while the motor shaft 181 moved to the first hole 115a being coupled to the shaft coupling part 175.

[0088] Since the first supporting part 122 is formed at the right side of the second receiving part 113, the motor shaft 181 becomes short compared to that in the related art so that the motor shaft 181 straightly passes through the first hole 115a, being difficult to be coupled to the shaft coupling part 175. However, in the present embodiment, a second hole 115b extended from the first hole 115a is additionally formed. Therefore, while the motor shaft 181 being moved to the first hole 115a after the motor shaft 181 first passes through the second hole 115b, if the coupling and of the motor shaft 181 and the seating of the fan motor 18 are performed, the motor shaft 181 can be coupled to the shaft coupling part 175.

[0089] If the motor shaft 181 is coupled to the fan 17, the first reduction part 182 is seated on the first supporting part 122, the second reduction part 184 is seated on the second supporting part 123, and a portion of the fan motor 18 is received nit eh motor receiving space 121. Thereafter, the fan motor cover 19 covers the fan motor 18. Then, the attaching/detaching hook 193 is hanged by the hanging end 114 and the first covering part 192 covers the first reduction part 182.

[0090] Thereafter, the control box 20 is seated on the control box seating part 130. Then, the second covering part 212 covers the second reduction part 184, the engagement hook 196 is hanged by the hook hanger 214, and the second engagement end 215 is put on the top surface of the first engagement end 194.

[0091] And, the engagement member allows the second engagement end 214, the first engagement end 195, and the engagement part 125 to be simultaneously engaged.

[0092] Therefore, according to the present embodiment, since the fan motor is positioned directly at the right side of the second receiving part, the length of the motor shaft of the fan motor can be minimized so that the horizontal size of the indoor unit becomes small, making it possible to make the indoor unit compact.

[0093] Moreover, since the fan motor cover covers one side of the fan motor and the control box controls the

other side of the fan motor, the fan motor and the control box are positioned to be adjacent to each other, making it possible to reduce the horizontal width of the main body.

[0094] Furthermore, since the pipe unit passes through the rear of the control box, an additional space for avoiding the pipe unit is not required, making it possible to increase space utilization.

[0095] FIG. 14 is a cross-sectional view showing the relation between the switch and the front panel in a state where the front panel is closed.

[0096] Referring to FIGS. 2, 5, and 14, the switch 218 is seated at a front portion of the box body 21 (portion facing the front panel) and the switch 218 faces the front in a state where the box body 21 is seated on the control box seating part 130.

[0097] Meanwhile, a pressing part 302 that selectively presses the switch 218 is projected backward from the back surface of the front panel 30, and a penetration hole 148 through which the pressing part 302 is selectively penetrated is formed in the front frame 14. The penetration hole 148 is positioned downward the service hole 143.

[0098] Referring to FIG. 10, the pressing part 302 presses the switch 218 by penetrating through the penetration hole 148 in a state where the front panel 30 is closed. The switch 218 is for sensing the state where the front panel 30 is closed. If the switch 218 is pressed, the switch 218 is turned on and the turn-on signal of the switch 218 is transmitted to the controller not shown. Then, the controller operates the dust collector and/or the plasma filter.

[0099] In other words, if the turn-on signal of the indoor unit is input in a state where the front panel 30 is not closed, the controller does not operate the dust collector and/or the plasma filter and when the closing of the front panel 30 is sensed, the controller operates the dust collector and/or the plasma filter.

[0100] With the present embodiment, as the control box seating part is projected forward from the chassis, the switch can be positioned to be adjacent to the penetration hole in a state where the box body is seated on the control box seating part.

[0101] Therefore, the pressing part formed at the back surface of the front panel can press directly the switch seated on the box body, making it possible to smoothly arrange electrical wires connected to the switch.

[0102] While the present disclose has been particularly shown and described with reference to exemplary embodiments thereof, it will be understood by those of ordinary skill in the art that various changes in form and details may be made therein without departing from the scope of the present disclose as defined by the following claims.

Claims

1. An indoor unit of an air conditioner, comprising: a main body that includes a chassis and a front frame coupled to the chassis; a fan that is provided inside the main body to compulsorily flow air; a fan motor that rotates the fan; a fan receiving part that receives a portion of the fan, the fan receiving part being formed at the chassis; and a fan motor seating part on which the fan motor is seated, the fan motor being formed at the chassis; **characterized in that**,
a receiving groove that receives the portion of the fan is formed on one side of the fan receiving part and the fan motor seating part is formed on the other side of the fan receiving part.

2. The indoor unit of the air conditioner according to claim 1, wherein the fan motor seating part includes a first supporting part that supports one side of the fan motor, a second supporting part that supports the other side of the fan motor, and a motor receiving space formed between the first supporting part and the second supporting part,
wherein the first supporting part is integrally formed with the other side of the fan receiving part.

3. The indoor unit of the air conditioner according to claim 2, wherein a shaft penetration hole through which a motor shaft of the fan motor penetrates is formed at the fan receiving part, the shaft penetration hole having a vertical cross-section formed in a non-circular shape.

4. The indoor unit of the air conditioner according to claim 3, wherein when the fan motor is seated on the fan motor seating part, an inner portion of the motor shaft projected from the fan motor is positioned at the shaft penetration hole.

5. The indoor unit of the air conditioner according to claim 3, wherein the shaft penetration hole includes a first hole formed in the central portion of the fan receiving part and a second hole that is extended outward from the first hole.

6. The indoor unit of the air conditioner according to claim 3, wherein a portion coupled to the fan, of the motor shaft, has a cross-section formed in a non-circular shape, and a shaft coupling hole coupled to the motor shaft and having a cross-section in a shape corresponding to the motor shaft is formed in the fan.

7. The indoor unit of the air conditioner according to claim 2, further comprising a fan motor cover that covers the fan motor,
wherein an engagement hook is formed at the fan motor cover and a hanging part by which the engagement hook is hanged is formed at the other side of the fan receiving part.

8. The indoor unit of the air conditioner according to

claim 1, further comprising a control box in which control components for operating the main body are included, and a fan motor cover that covers the fan motor,
wherein in a state where the fan motor is seated on the fan motor seating part, the fan motor cover fixes the position of one side of the fan motor and the control box fixes the position of the other side of the fan motor.

9. The indoor unit of the air conditioner according to claim 8, wherein the fan motor seating part includes a first supporting part that supports one side of the fan motor, a second supporting part that supports the other side of the fan motor, and a motor receiving space formed between the first supporting part and the second supporting part.

10. The indoor unit of the air conditioner according to claim 9, wherein a first covering part that covers one side of the fan motor seated on the first supporting part is included in the fan motor cover, and a second covering part that covers the other side of the fan motor seated on the second supporting part is included in the control box.

11. The indoor unit of the air conditioner according to claim 9, wherein the chassis includes a control box seating part, and the second supporting part is projected forward from the control box seating part.

12. The indoor unit of the air conditioner according to claim 8, wherein after the fan motor cover first covers the fan motor, the control box covers the fan motor, and the fan motor cover and the control box are engaged with the chassis by a single engagement member.

13. The indoor unit of the air conditioner according to claim 8, wherein an engagement hook is formed at any one of the fan motor cover and the control box and a hook hanger to which the engagement hook is coupled is formed at the other one.

Fig.1

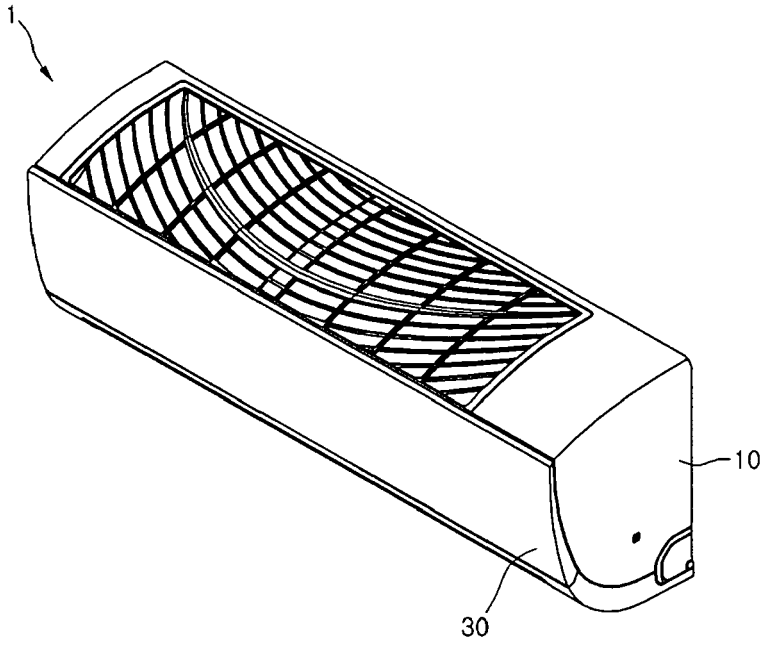

Fig.2

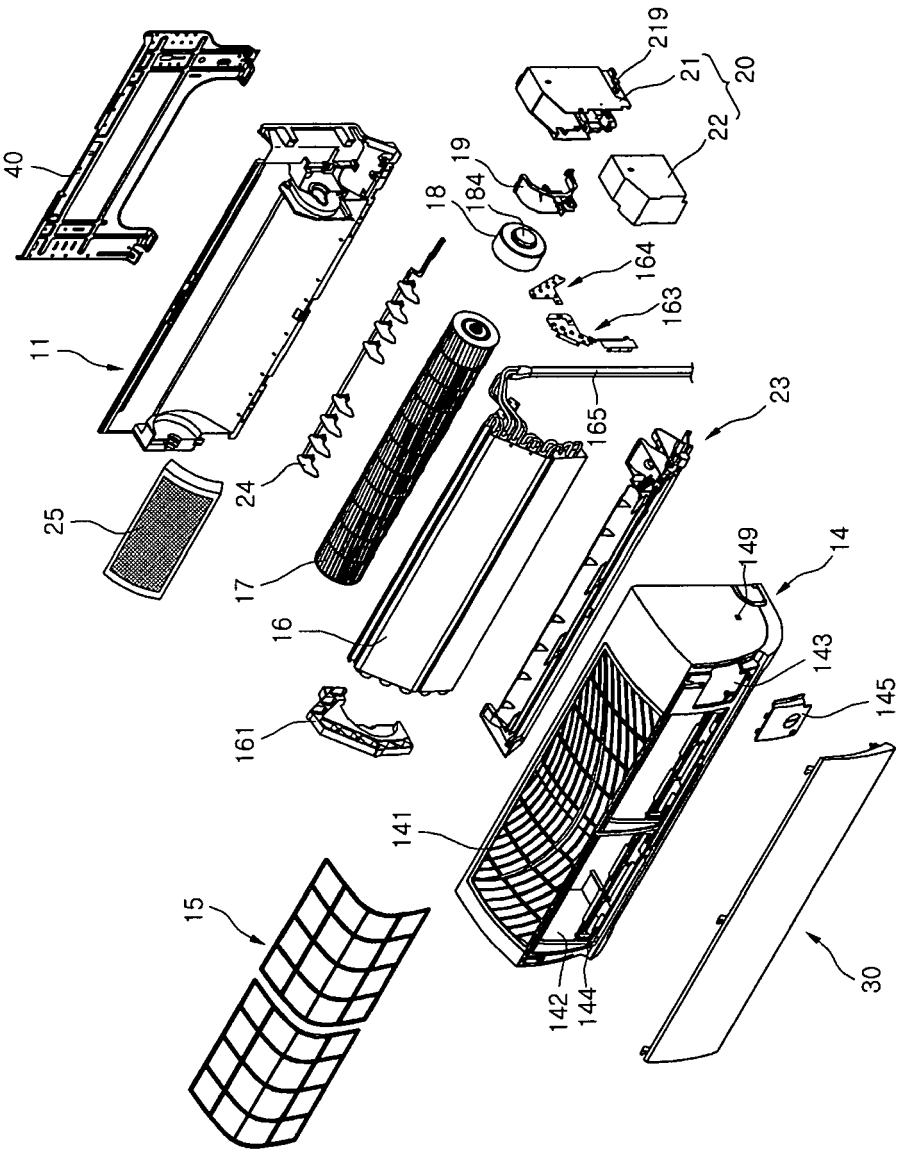
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Fig.3

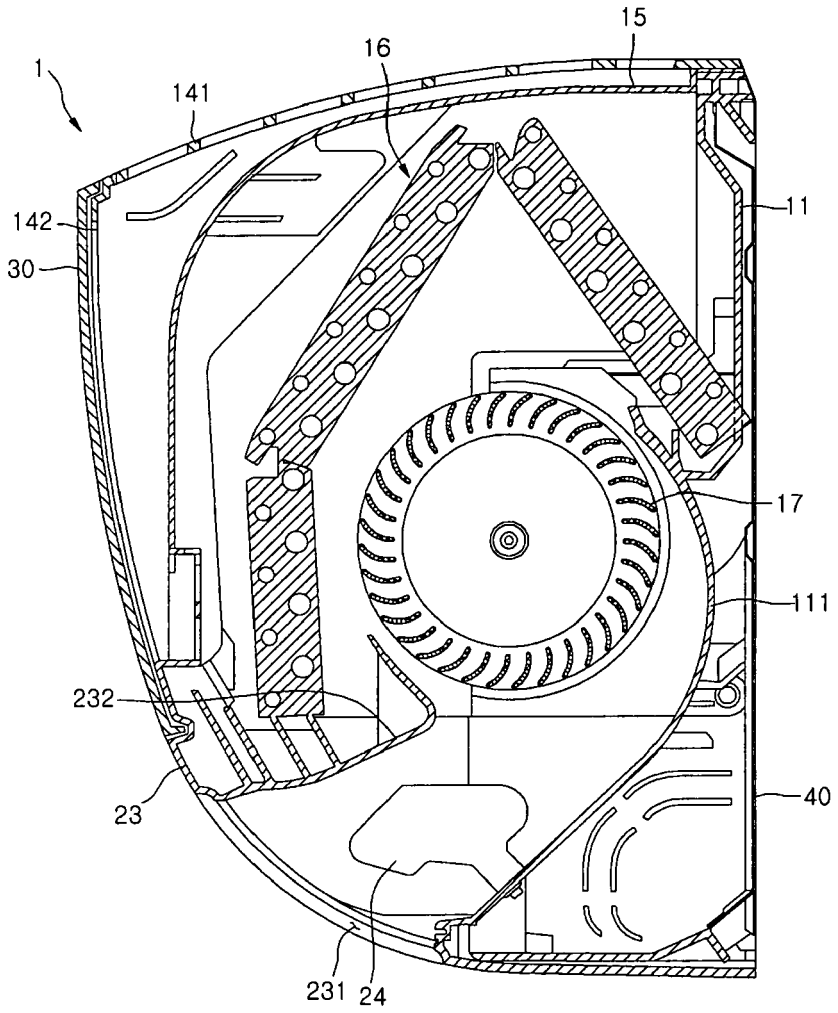

Fig.4

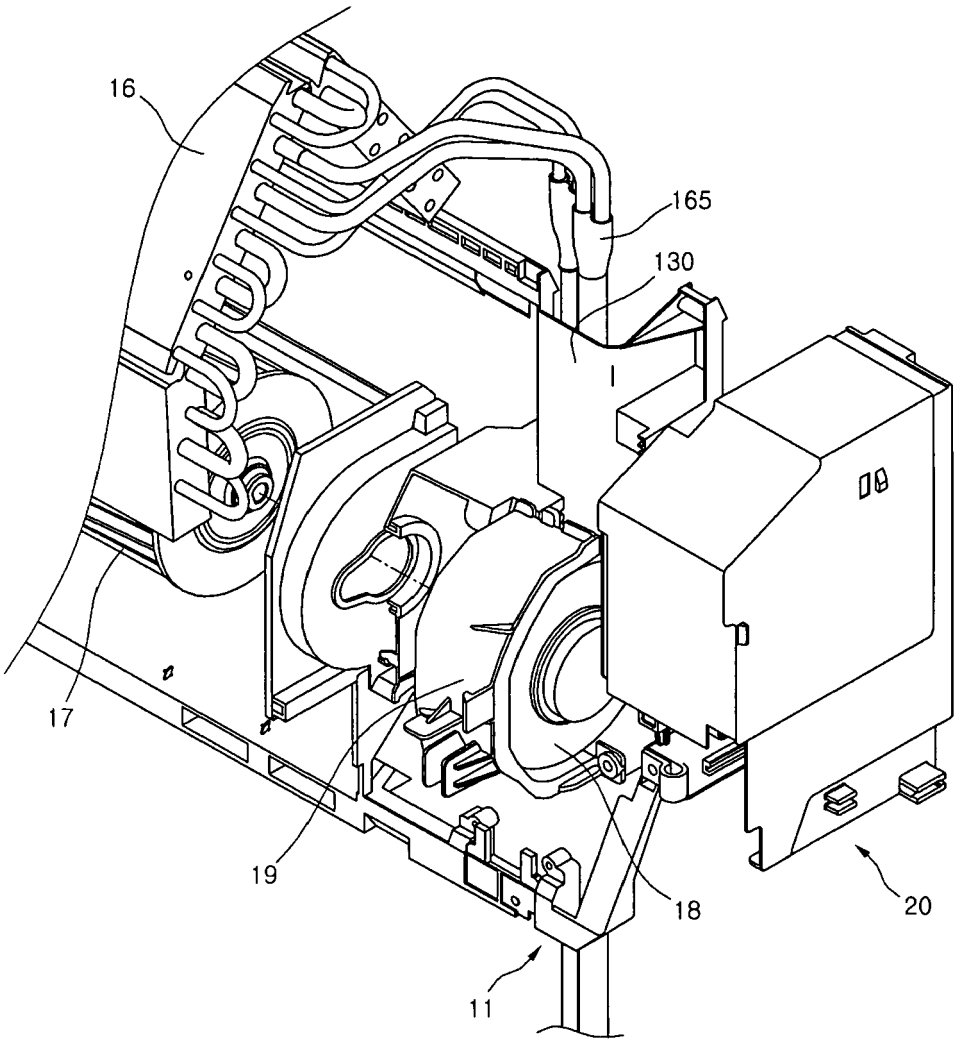

Fig.5

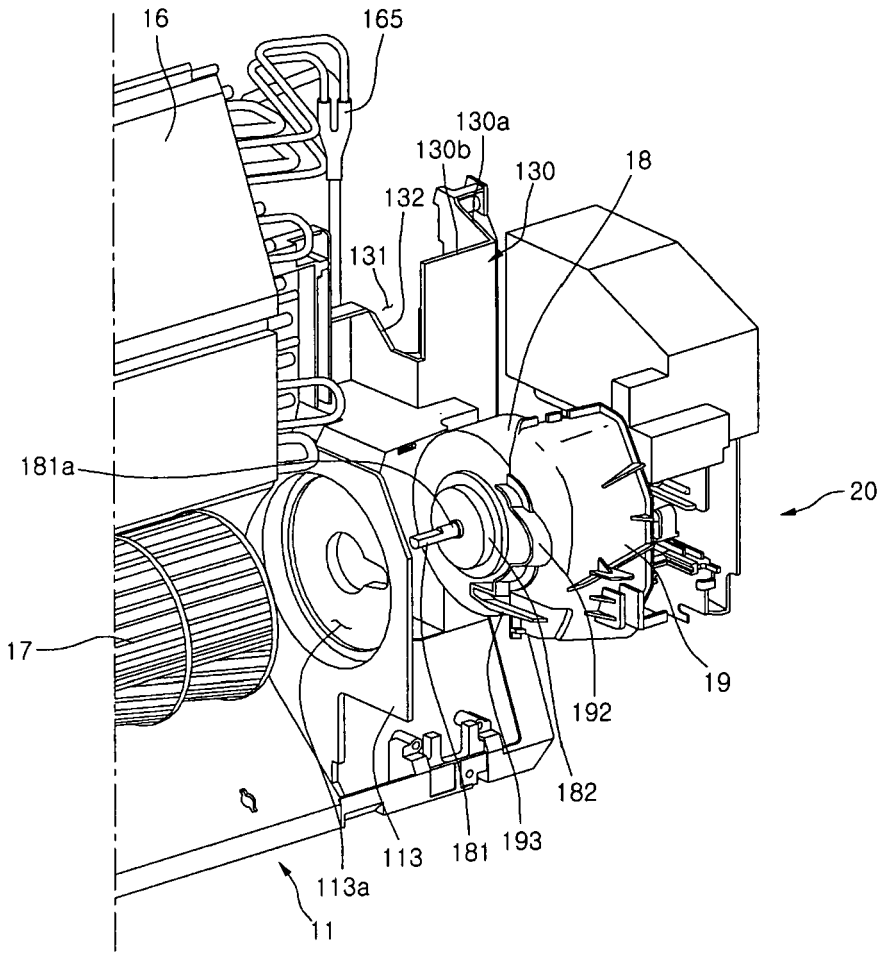
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Fig.6

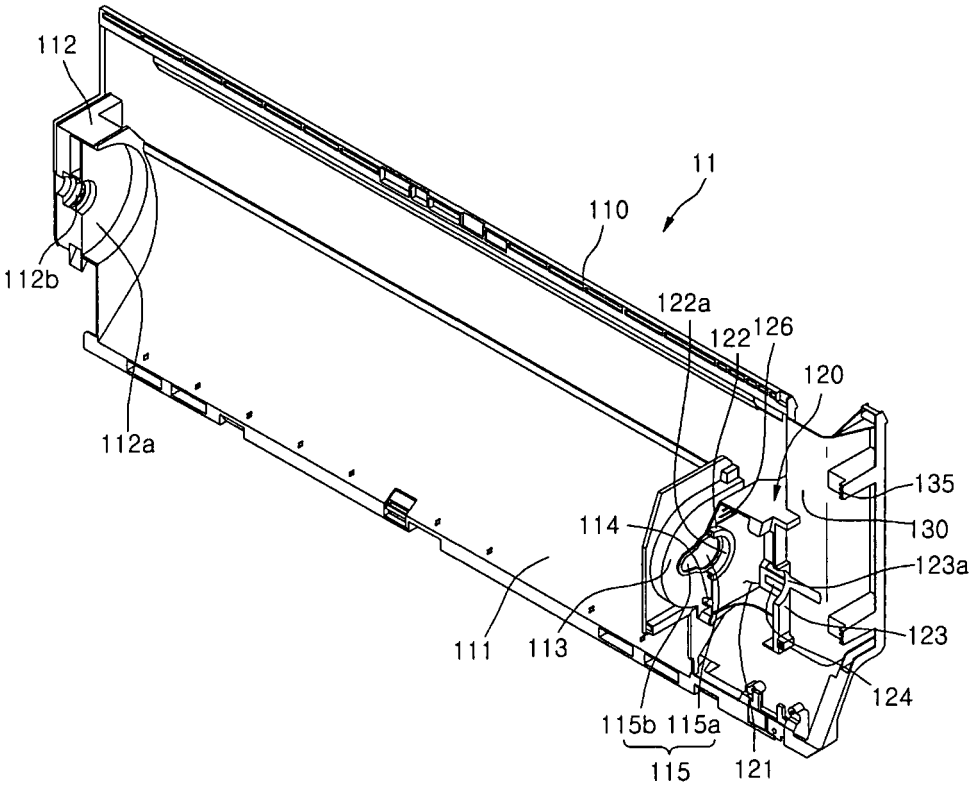
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Fig.7

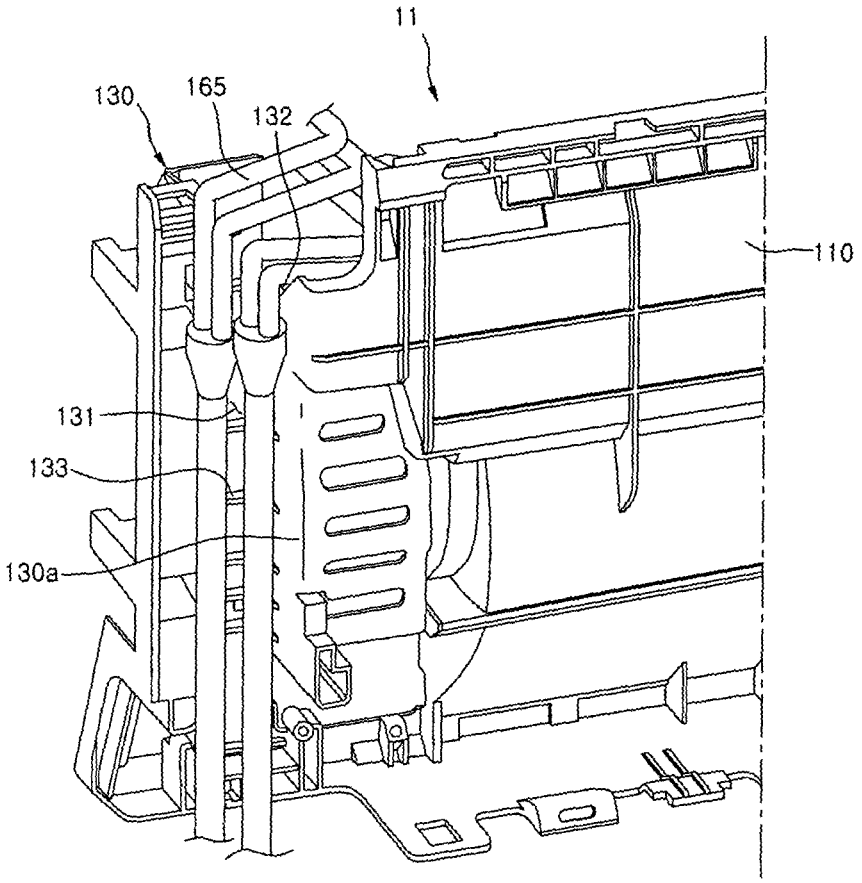

Fig.8

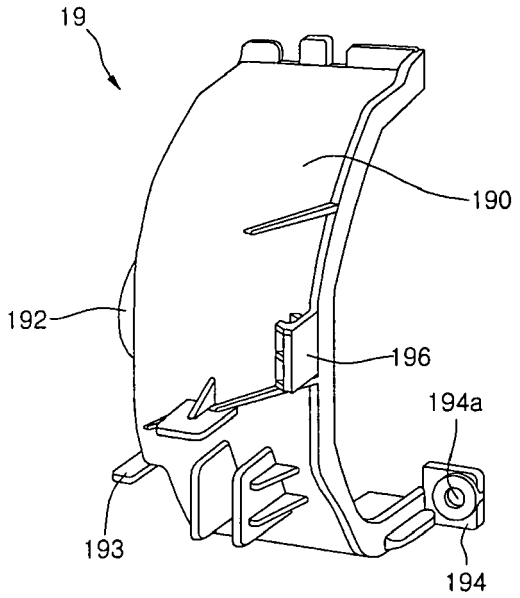

Fig.9

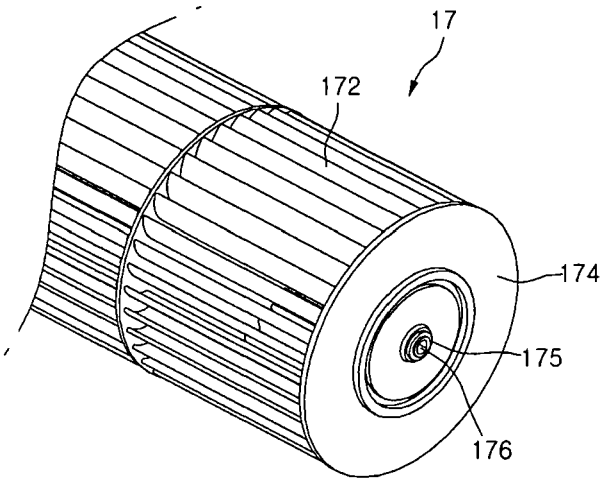

Fig.10

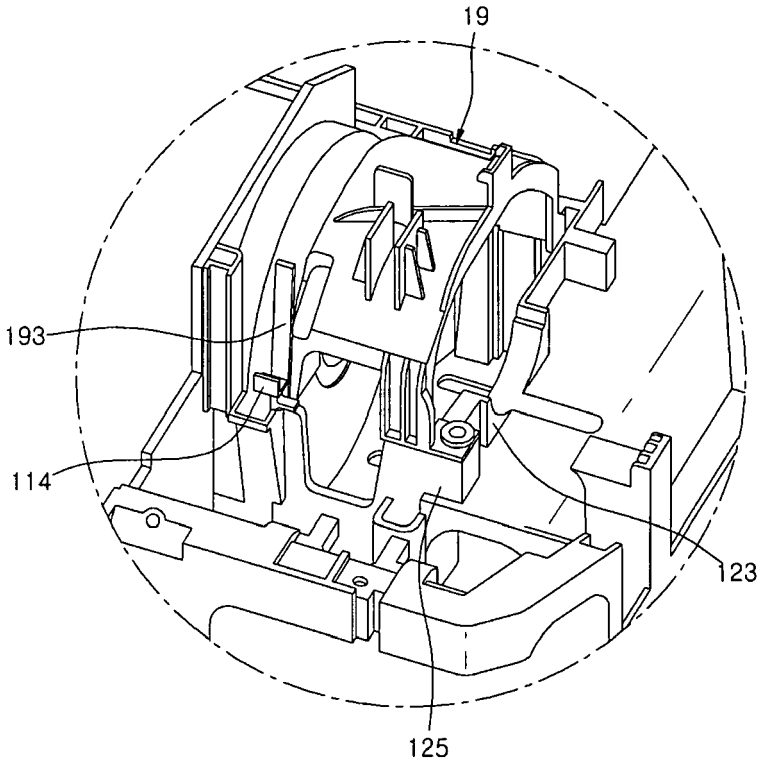

Fig.11

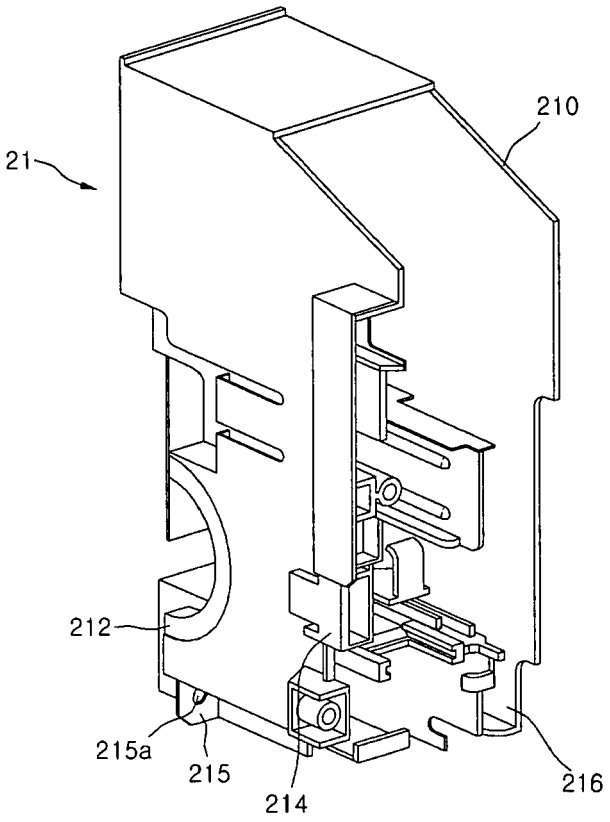

Fig.12

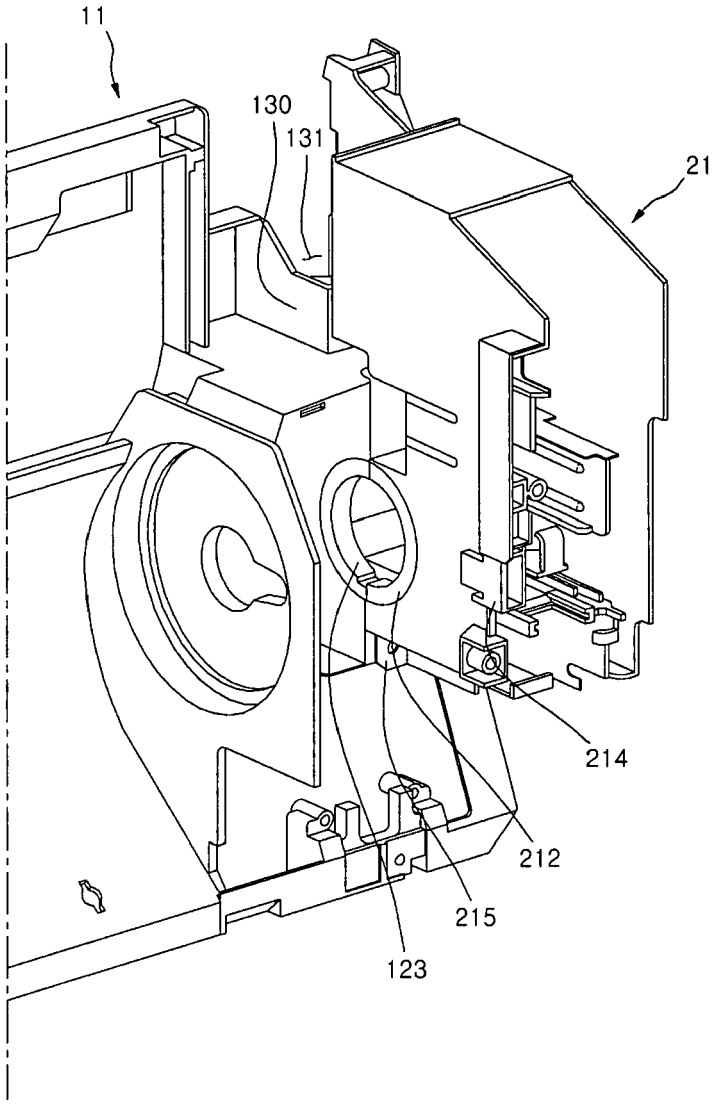

Fig.13

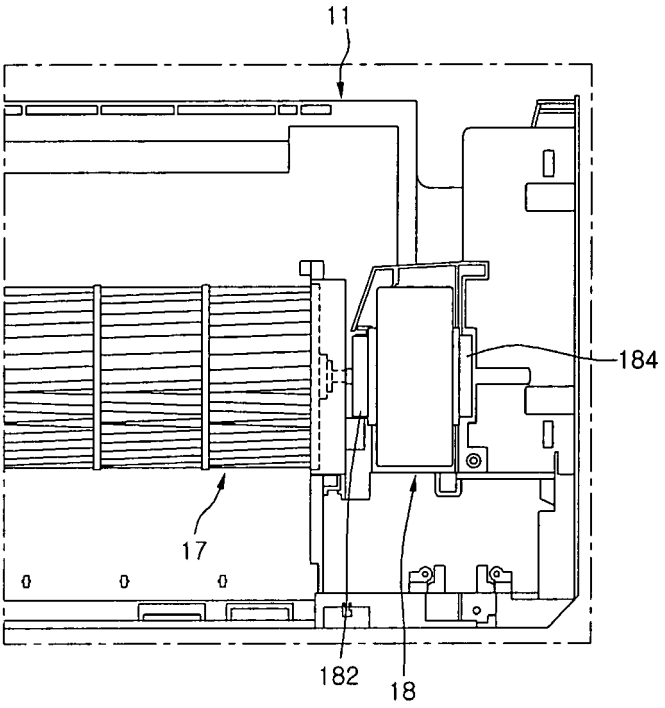

Fig.14