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(54) **Indoor unit of air conditioner**

(57) Provided is an indoor unit of an air conditioner, including a main body including a chassis and a front frame coupled to a front portion of the chassis, a base rotatably coupled to a rear surface of the chassis and fixed to a wall surface, a fan in the main body, the fan sucking indoor air, and a heat exchanger configured to heat-exchange the indoor air sucked by the fan with a refrigerant. The indoor unit further includes a holder member rotatably coupled to the chassis and supported against the wall surface, with being rotated from the main body, so that at least one portion of the main body is spaced apart from the wall surface.

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Description

BACKGROUND

[0001] Embodiments relate to an indoor unit of an air conditioner.

[0002] Generally, an air conditioner is a cooling/heating apparatus that cools or heats air within an inner space of a building, etc.

[0003] The air conditioner includes an outdoor unit receiving a compressor and an indoor unit installed at an indoor space to perform heat-exchange between indoor air and refrigerant. According to the types of air conditioners, the indoor unit and the outdoor unit may be integrated in one body.

[0004] An indoor heat exchanger, a fan assembly, and a filter for filtering sucked air are installed in the indoor unit. The indoor unit is classified into a wall-mounted type, a floor-mounted type, and a window type according to an installation position thereof.

[0005] Specifically, in the case of the wall-mounted type indoor unit, a piping work is performed after attaching the indoor unit to a wall surface to install the indoor unit. In other words, the indoor unit is attached to the wall surface, and then the lower end of the indoor unit is rotated forward to perform the piping work. The piping work includes disposing a refrigerant piping extending from the heat exchanger provided to the indoor unit, and a drain hose for discharging condensed water generated from the heat exchanger, at the lower end of the indoor unit, and wrapping the refrigerant piping with an insulation member, and then wrapping the refrigerant piping and the drain hose with a tape.

[0006] As such, to improve workability in installing the indoor unit, it is required to keep the rotated state of the lower end of the indoor unit forward from the wall surface.

[0007] In the related art, an installer works, supporting the lower end of the indoor unit with his/her hand after rotating it forward. Thus, the workability is reduced.

SUMMARY

[0008] Embodiments provide an indoor unit of an air conditioner.

[0009] In one embodiment, an indoor unit of an air conditioner, including: a main body including a chassis and a front frame coupled to a front portion of the chassis; a base rotatably coupled to a rear surface of the chassis and fixed to a wall surface; a fan in the main body, the fan sucking indoor air; and a heat exchanger configured to heat-exchange the indoor air sucked by the fan with a refrigerant, the indoor unit further including: a holder member rotatably coupled to the chassis and supported against the wall surface, with being rotated from the main body, so that at least one portion of the main body is spaced apart from the wall surface.

[0010] 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

[0011]

FIG. 1 is a cross-sectional view illustrating an indoor unit of an air conditioner according to an embodiment.

FIG. 2 is a partial perspective view illustrating a portion A of FIG. 1.

FIG. 3 is a cross-sectional view illustrating a rotated indoor unit for a piping work, according to an embodiment.

FIG. 4 is a bottom perspective view illustrating piping exposed through the rotated indoor unit of FIG. 3.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0012] Reference will now be made in detail to the embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings.

[0013] 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.

[0014] FIG. 1 is a cross-sectional view illustrating an indoor unit 10 of an air conditioner according to one embodiment.

[0015] Referring to FIG. 1, the indoor unit 10 of the air conditioner includes a chassis 11, a main body, a base 12, and a front panel 14. A front surface of the chassis 11 is provided with a flow guide 111 for generating airflow. The main body includes a front frame 13 coupled to a front portion of the chassis 11. An intake grill 131 is provided to an upper surface of the front frame 13. The base 12 is rotatably coupled to a rear surface of the chassis 11 and fixed to a mounting wall surface. The front panel 14 is movably coupled to a front surface of the front frame 13.

[0016] The indoor unit 10 further includes an inner panel 15, a heat exchanger 19, a fan 20, and a discharge grill 16. The inner panel 15 is linked to a rear surface of the front panel 14 and rotatably provided to the front

frame 13. The heat exchanger 19 is disposed between the front frame 13 and the chassis 11. The fan 20 is provided to a lower side of the heat exchanger 19 and sucks and discharges indoor air. The discharge grill 16 supports a lower end of the heat exchanger 19 and includes a discharge hole.

[0017] The indoor unit 10 further includes a discharge vane 21, a discharge louver 22, a bottom plate 23, and a holder member 24. The discharge vane 21 selectively covers the discharge hole. The discharge louver 22 is provided to the discharge hole and controls a discharge direction of air, together with the discharge vane 21. The bottom plate 23 covers piping passing through a lower end of the indoor unit 10. The holder member 24 is rotatably coupled to the chassis 11 and supports the piping.

[0018] The indoor unit 10 further includes a pre-filter 17 and a dust-collecting filter 18. The pre-filter 17 filters air sucked through the front surface of the front frame 13 and the intake grill 131. The dust-collecting filter 18 is provided between the pre-filter 17 and the heat exchanger 19.

[0019] FIG. 2 is a partial perspective view illustrating a portion A of FIG. 1.

[0020] Referring to FIG. 2, the holder member 24 is rotatably coupled to a rear portion of the indoor unit 10.

[0021] Particularly, a piping work on the indoor unit 10 is performed in a state where the indoor unit 10 is mounted to the wall surface. The piping connected to the indoor unit 10 or protruding from the indoor unit 10 to the outside, extends laterally along a bottom surface of the indoor unit 10. At an edge of the indoor unit 10, the piping passes through the bottom surface of the indoor unit 10 to the outside.

[0022] Thus, the piping working on the indoor unit 10 may be performed in a state where the lower end of the indoor unit 10 has been rotated from the wall surface to the front side.

[0023] To this end, the holder member 24 is rotatably connected to the rear portion of the indoor unit 10, particularly, to a lower end of the chassis 11. Particularly, the holder member 24 includes a holder body 241 bent in an L-shape, an elastic end 242 elastically bendable at an end of the holder body 241, a coupling hook 243 protruding from an outer surface of the elastic end 242, and a pressure surface 244 (refer to FIG. 3) pressed by a user's finger.

[0024] The holder body 241 includes a first body 241a and a second body 241b. The first body 241a provides a spacing distance between the main body and the wall surface in a state where the main body has been rotated. The second body 241b is bent from the first body 241a to stably support the main body against the wall surface in the state where the main body has been rotated. The first body 241a is rotatably coupled to the chassis 11, and the second body 241b is removably coupled to the chassis 11.

[0025] In the state where the holder member 24 is coupled to the chassis 11, the first body 241a extends in the up-and-down direction of the main body, and the second body 241b extends in the back-and-forth direction of the main body. Thus, when the holder member 24 rotates and closely contacts the wall surface, the first body 241a extends in the back and forth direction, and the second body 241b extends in the up-and-down direction.

[0026] A coupling rib 112 protrudes from a rear surface of the lower end of the chassis 11 to catch the coupling hook 243. In other words, the coupling rib 112 is fitted between the coupling hook 243 and the pressure surface 244 (refer to FIG. 3), so that the holder member 24 is fixed to the rear lower portion of the indoor unit 10.

[0027] As illustrated in FIG. 1, when a user applies a predetermined force F rearward to the pressure surface 244 (refer to FIG. 3) with his/her finger, the elastic end 242 is elastically deformed rearward. Then, the coupling hook 243 is released from the coupling rib 112. That is, the coupling rib 112 is removed from the coupling hook 243. In this state, the user holds the lower end of the indoor unit 10, and pushes up and rotates the indoor unit 10.

[0028] FIG. 3 is a cross-sectional view illustrating the rotated indoor unit 10 for a piping work, according to an embodiment. FIG. 4 is a bottom perspective view illustrating the piping exposed through the rotated indoor unit 10 of FIG. 3.

[0029] Referring to FIGS. 3 and 4, in the state where the indoor unit 10 is mounted to the wall surface as described above, the piping work is performed after raising and rotating the lower end of the indoor unit 10.

[0030] Particularly, the base 12 of the indoor unit 10 is fixed to the wall surface, and the lower portion of the indoor unit 10 is rotated about the upper end of the base 12 as a rotation center. The pressure surface 244 of the holder member 24 is pushed rearward to rotate the holder member 24, so that the holder member 24 is in close contact with the wall surface as illustrated in FIG. 3. In this state, a refrigerant piping P and a drain hose H is disposed at the bottom surface of the indoor unit 10 as illustrated in FIG. 4. Then, an outer surface of the refrigerant piping P is wrapped with a heat insulation cover C.

[0031] When this piping work is finished, the lower end of the indoor unit 10 is slightly raised, and then the holder member 24 is rotated forward. After that, the coupling hook 243 of the holder member 24 is caught to the coupling rib 112. Then, the holder member 24 supports the refrigerant piping P and the drain hose H to prevent them from sagging downward.

[0032] According to the embodiments, the holder member maintains the state where the lower end of the indoor unit is rotated forward from a wall surface.

[0033] Also, through the single operation of pushing the holder member backward, the holder member rotates and closely contacts a wall surface, thereby improving workability.

[0034] Also, the holder member supports the indoor unit against the wall surface, so that a user is not required to hold the indoor unit during an installing work, thereby

increasing the speed of the installing work.

[0035] Although embodiments have been described with reference to a number of illustrative embodiments thereof, it should be understood that numerous other modifications and embodiments can be devised by those skilled in the art that will fall within the spirit and scope of the principles of this disclosure. More particularly, various variations and modifications are possible in the component parts and/or arrangements of the subject combination arrangement within the scope of the disclosure, the drawings and the appended claims. In addition to variations and modifications in the component parts and/or arrangements, alternative uses will also be apparent to those skilled in the art.

Claims

1. An indoor unit of an air conditioner, including: a main body including a chassis and a front frame coupled to a front portion of the chassis; a base rotatably coupled to a rear surface of the chassis and fixed to a wall surface; a fan in the main body, the fan sucking indoor air; and a heat exchanger configured to heat-exchange the indoor air sucked by the fan with a refrigerant, the indoor unit comprising:

   a holder member rotatably coupled to the chassis and supported against the wall surface, with being rotated from the main body, so that at least one portion of the main body is spaced apart from the wall surface.

2. The indoor unit according to claim 1, wherein the holder member comprises:

   a holder body;
   an elastic end extending from the holder body; and
   a coupling hook protruding from the elastic end.

3. The indoor unit according to claim 2, wherein a coupling rib, to which the coupling hook is caught, protrudes from the chassis.

4. The indoor unit according to claim 3, wherein the elastic end is provided with a pressure surface, and the coupling rib is disposed between the coupling hook and the pressure surface when the coupling rib is coupled to the coupling hook.

5. The indoor unit according to claim 2, wherein the holder body is bent at least one time.

6. The indoor unit according to claim 2, wherein the holder body comprises:

   a first body rotatably connected to the chassis and providing a spacing distance between the main body and the wall surface; and
   a second body extending from the first body and configured to stably keep a rotated state of the main body.

7. The indoor unit according to claim 6, wherein, when the holder member is coupled to the chassis, the first body extends in an up-and-down direction of the main body, and the second body extends in a back-and-forth direction of the main body.

8. The indoor unit according to claim 6, wherein the second body is provided with the elastic end.

9. The indoor unit according to claim 1, wherein a lower portion of the main body is provided with at least one of a refrigerant piping and a drain hose, and
   the refrigerant piping or the drain hose is supported by the holder member.

Fig. 1

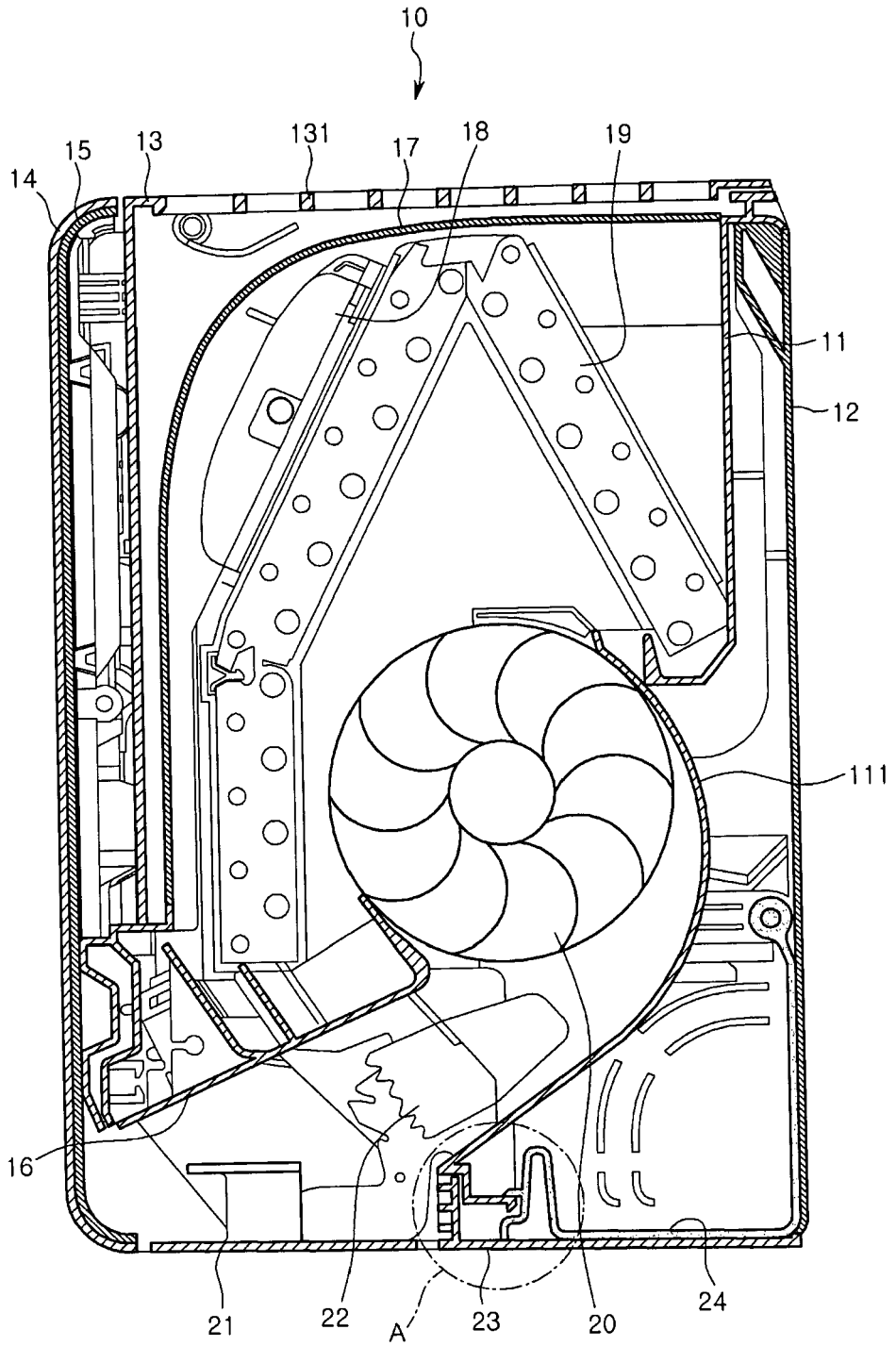

Fig. 2

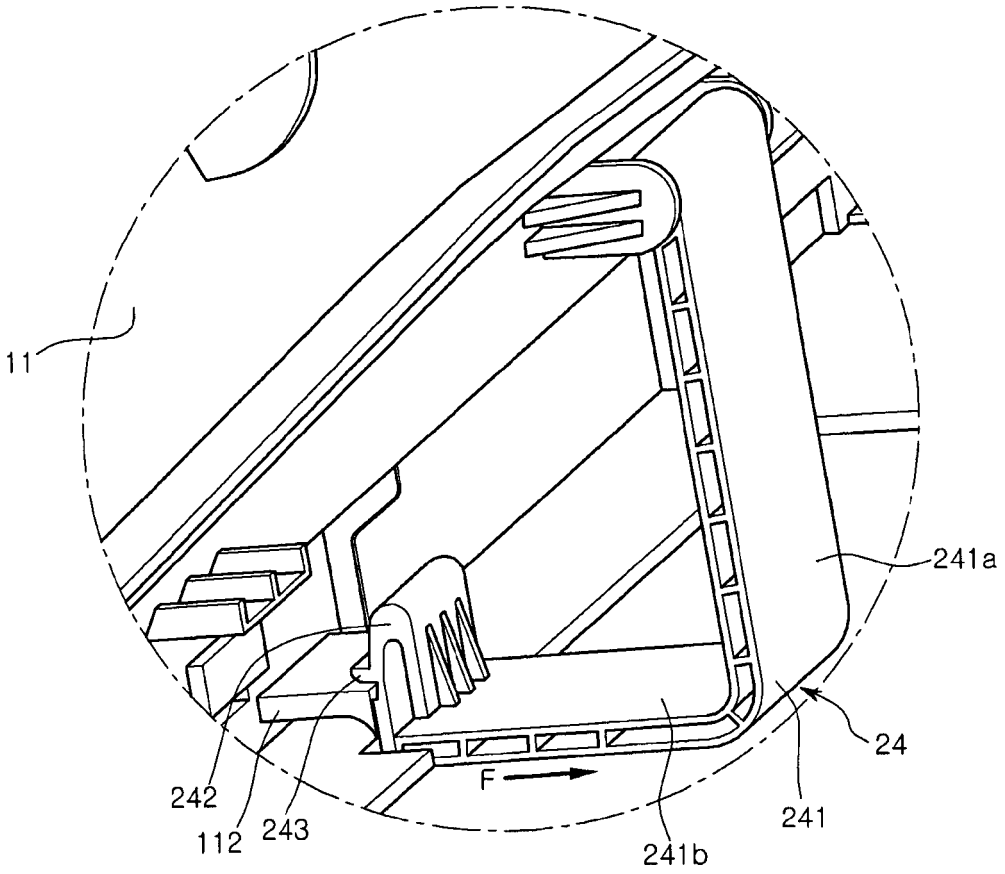

Fig. 3

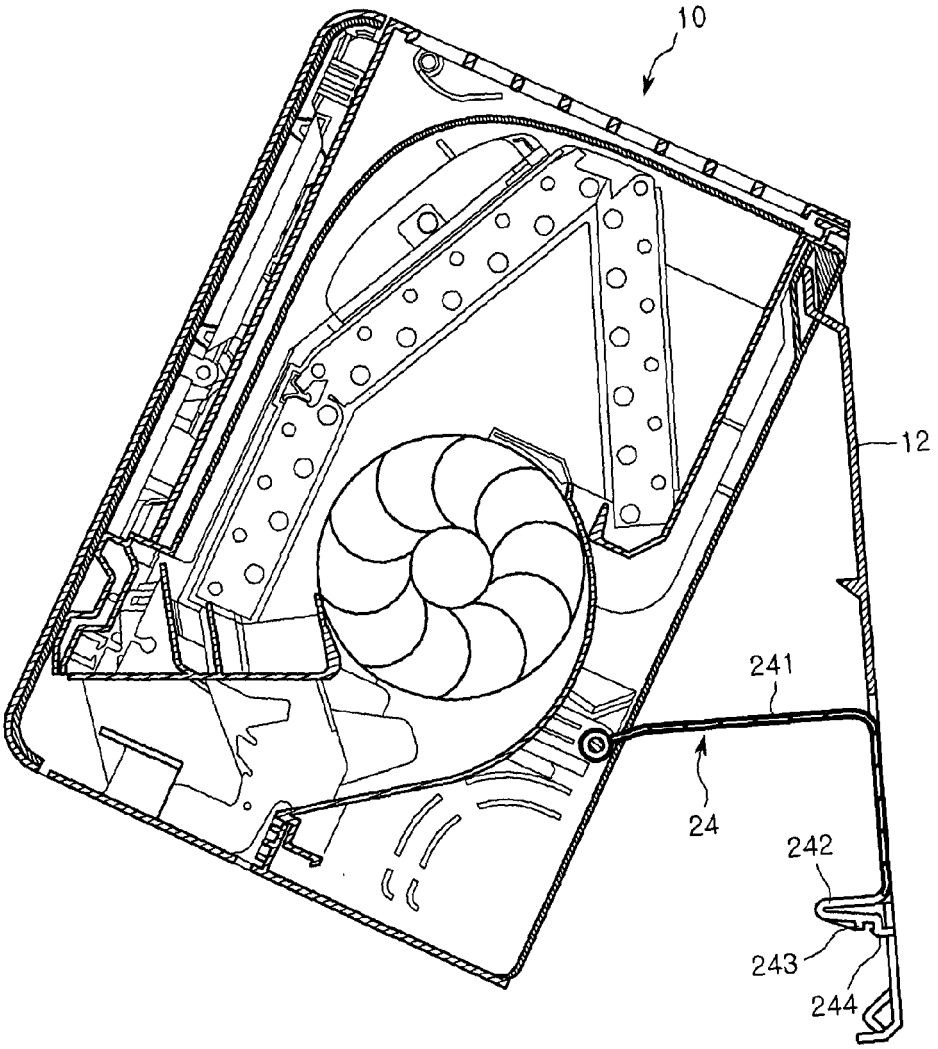

Fig. 4