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(71) Applicant: **mitsubishi heavy industries
thermal systems, ltd.**
108-8215 Tokyo (JP)

(72) Inventors:
• **ichikizaki, wataru**
Tokyo, 108-8215 (JP)
• **yamada, hiroyuki**
Tokyo, 108-8215 (JP)

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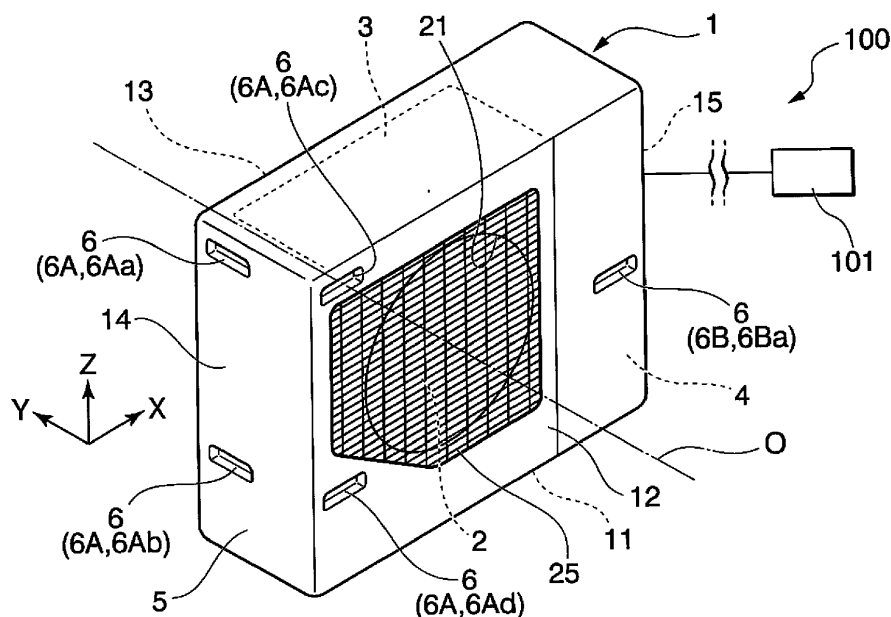
(74) Representative: **Cabinet Beau de Loménie**
158, rue de l'Université
75340 Paris Cedex 07 (FR)

(54) **OUTDOOR UNIT AND AIR CONDITIONER**

(57) An outdoor unit of an air conditioner includes a heat exchanger (3) through which refrigerant from an indoor unit (101) flows; a fan (2) which is provided in proximity to the heat exchanger (3) and is configured to discharge air after exchanging heat with the heat exchanger (3); a housing (5) which is configured to accommodate the heat exchanger (3) and the fan (2); and a plurality of handles (6) provided in pairs in each of a first end portion

of the housing (5) in a width direction (X) and a second end portion in the width direction (X) to be separated from each other in a depth direction (Y) of the housing (5), wherein a plurality of pairs of handles (6) provided in pairs in the depth direction (Y) are provided in at least one of the first end portion in the width direction (X) and the second end portion in the width direction (X), at positions apart from each other in a height direction (Z).

FIG. 1



Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to an outdoor unit of an air conditioner and an air conditioner including the same.

Description of Related Art

[0002] An air conditioner includes an indoor unit that supplies conditioned air into a room, and an outdoor unit that is connected to the indoor unit. The indoor unit and the outdoor unit constitute a refrigeration cycle in which a refrigerant circulates while repeating evaporation and condensation. A housing of the outdoor unit mainly accommodates a heat exchanger for exchanging heat between the refrigerant and the outside air, a fan for discharging the outside air after the heat exchange, and a compressor which compresses the refrigerant after the heat exchange in the heat exchanger.

[0003] Since the outdoor unit is provided with various devices in this way, a weight thereof is large and it takes time and effort to transport the outdoor unit. Therefore, in the outdoor unit described in Patent Document 1, by providing a handle portion of transporting handles at a height of 600 mm or more and 700 mm or less from an installation floor surface, transportation of the outdoor unit is facilitated.

[Patent Documents]

[0004] [Patent Document 1] Japanese Unexamined Patent Application, First Publication No. 2004-85155

[0005] However, in a case in which all the handles are provided at approximately the same height as in Patent Document 1, for example, when two workers transport the outdoor unit using stairs, the burden on one worker increases. This is because, if an attempt is made to transport the outdoor unit while keeping the bottom surface of the outdoor unit in a substantially horizontal state, it is necessary to adopt either one of a transporting method in which a worker on an upper side of the stairs transports the outdoor unit with his or her waist bent or a transporting method in which a worker on a lower side of the stairs transports the outdoor unit with his or her hand lifted high. As described above, since the outdoor unit is heavy, and the worker has to transport the outdoor unit in an unnatural posture, there has been a problem that transporting properties were not good. There is a possibility that similar problems may occur not only when transporting the outdoor units using stairs, but also when transporting the outdoor units on steep slopes.

SUMMARY OF THE INVENTION

[0006] In view of this, the present invention provides an outdoor unit of an air conditioner capable of being easily transported, regardless of a transporting place, and an air conditioner including the same.

[0007] An outdoor unit according to an aspect of the present invention includes a heat exchanger through which a refrigerant from an indoor unit flows; a fan which is provided in proximity to the heat exchanger and is configured to discharge air that has exchanged heat with the heat exchanger; a housing which is configured to accommodate the heat exchanger and the fan; and a plurality of handles provided in pairs in each of a first end portion of the housing in a width direction and a second end portion in the width direction to be separated from each other in a depth direction of the housing intersecting the width direction, wherein the plurality of pairs of handles provided in pairs in the depth direction are provided in at least one of the first end portion in the width direction and the second end portion in the width direction, at positions apart from each other in a height direction intersecting the width direction and the depth direction.

[0008] According to such an outdoor unit, the plurality of pairs of handles provided in pairs in the depth direction are provided in at least one of the first end portion in the width direction and the second end portion in the width direction of the housing to be separated from each other in a height direction. Thus, when the outdoor unit is transported (carried in and out), for example, using stairs, a worker on an upper stage side of the stairs can grasp the handles provided on the upper part. Alternatively, a worker on the lower stage side of the stairs can grasp the handles provided on the lower part. Thus, the worker is not forced to assume an unnatural posture when transporting the outdoor unit.

[0009] In the above aspect, the plurality of pairs of first handles provided at the first end portion in the width direction among the handles may be provided at positions apart from each other in the height direction, and only a pair of second handles provided at the second end portion in the width direction among the handles may be provided at a height position between the first handles provided at an uppermost portion in the height direction and the second handles provided at a lowermost portion in the height direction.

[0010] In this way, by providing only a pair of second handles between the plurality of pairs of first handles on the other side in the width direction, it is possible to reduce the cost of installing the handles as compared with the case in which a plurality of second handles are provided.

[0011] Further, in the above aspect, the outdoor unit may further include a control box accommodated in the housing on the other side in the width direction from the fan, wherein the second handle may be provided at a position in the width direction corresponding to a position of the control box.

[0012] The control box has an electronic device, and

it is difficult to secure a space for providing the handle at the position at which the control box is provided. It is possible to solve the problem of securing such installation space of the handle by providing only a pair of second handles. Furthermore, when a large number of handles are provided at the position at which the control box is provided, there is a possibility of rainwater or the like entering the housing from the position of the handle. Therefore, by reducing the installation number of the second handles, it is possible to reduce the possibility of water entering the housing. Furthermore, the control box is heavier than the fan. Therefore, because the second handles are provided at a position higher than the first handles provided on the lowermost part, a worker does not need to lift the other side of the housing in the width direction, which is a side on which the control box is installed, to a high position. Thus, the worker is not forced to assume an unnatural posture and can easily transport the outdoor unit.

[0013] In the above aspect, a plurality of pairs of first handles provided at the first end portion in the width direction among the handles, and a plurality of pairs of second handles provided on the second end portion in the width direction among the handles may be provided at positions apart from each other in the height direction.

[0014] By providing a plurality of pairs of handles on both sides of the housing in the width direction to be separated from each other in the height direction in this way, when the outdoor unit is transported using stairs, even if any part of the housing in the width direction is disposed on the upper stage side of the stairs, workers are not forced to assume an unnatural posture. That is, as long as the worker grasps the handles provided at the high position on the upper stage side of the stairs, and the worker grasps the handles provided at a low position on the lower stage side of the stairs, the outdoor unit can be easily transported.

[0015] In addition, in the above-described aspect, a dimension of an interval in the height direction between the plurality of pairs of handles provided at positions apart from each other in the height direction may be half of a maximum diameter of the fan or more.

[0016] When a plurality of pairs of handles are provided at such positions and an outdoor unit is transported using stairs, a worker on the upper stage side of the stairs handles the upper handle, and a worker on the lower stage side of the stairs handles the lower handle. Thus, the workers are not forced to assume an unnatural posture and can easily transport the outdoor unit.

[0017] In addition, in the above-described aspect, the plurality of pairs of handles provided at positions apart from each other in the height direction may be provided above and below an imaginary line passing through a rotational center of the fan and extending in the width direction to sandwich the imaginary line.

[0018] By providing a plurality of pairs of handles at such a position, it is possible to secure an installation space of the handles without interfering with the fan. In

addition, when the outdoor unit is transported using stairs, since a worker on the upper stage side of the stairs grasps the handle on the upper side and a worker on the lower stage side of the stairs handles the handle on the lower side, the workers are not forced to assume an unnatural posture and can easily transport the outdoor unit.

[0019] An air conditioner according to an aspect of the present invention includes the outdoor unit, and an indoor unit in which a refrigerant circulates between the outdoor unit and the indoor unit.

[0020] According to such an air conditioner, since a plurality of pairs of handles are provided in the housing of the outdoor unit at positions apart from each other in the height direction, when the outdoor unit is transported, for example, using stairs, a worker is not forced to assume an unnatural posture.

[0021] In the outdoor unit and the air conditioner described above, by providing a plurality of pairs of handles on the housing at positions apart from each other in the height direction, transportation can be easily performed regardless of a transporting place.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022]

FIG. 1 is an overall perspective view of an outdoor unit of an air conditioner according to a first embodiment of the present invention as viewed from a front surface side.

FIG. 2 is an overall perspective view of the outdoor unit of the air conditioner according to the first embodiment of the present invention as viewed from a rear surface side.

FIG. 3 is a plan view of the outdoor unit of the air conditioner according to the first embodiment of the present invention as viewed from the front surface.

FIG. 4 is a view showing an aspect of transporting the outdoor unit of the air conditioner according to the first embodiment of the present invention.

FIG. 5 is an overall perspective view of an outdoor unit of an air conditioner according to a second embodiment of the present invention as viewed from the front surface side.

FIG. 6 is an overall perspective view of the outdoor unit of the air conditioner according to the second embodiment of the present invention as viewed from the rear surface side.

FIG. 7 is an overall perspective view of an outdoor unit of an air conditioner according to a third embodiment of the present invention as viewed from the front surface side.

FIG. 8 is an overall perspective view of the outdoor unit of the air conditioner according to the third embodiment of the present invention as viewed from the rear surface side.

DETAILED DESCRIPTION OF THE INVENTION

[First embodiment]

[0023] Hereinafter, an air conditioner 100 according to an embodiment of the present invention will be described with reference to the drawings. As shown in FIGS. 1 to 3, the air conditioner 100 includes an outdoor unit 1, and an indoor unit 101 connected to the outdoor unit 1.

[0024] The indoor unit 101 is installed indoors. Although not shown, the indoor unit 101 mainly includes a heat exchanger through which a refrigerant flows to perform heat exchange with indoor air, and a fan for blowing the air after the heat exchange into the room as conditioned air.

[0025] The outdoor unit 1 is installed outside a room to be air-conditioned. The outdoor unit 1 includes a heat exchanger 3 through which the refrigerant circulating between the outdoor unit 1 and the indoor unit 101 flows, a fan 2 which discharges the air (outside air) that has exchanged heat with the heat exchanger 3, a control box 4 which performs an operation control of the fan 2, a housing 5 which accommodates the heat exchanger 3, the fan 2 and the control box 4, and handles 6 provided on the housing 5.

[0026] Although not shown, in addition to the heat exchanger 3, the fan 2 and the control box 4, a compressor for compressing the refrigerant, an expansion valve, a four-way switching valve and the like are further accommodated in the housing 5 of the outdoor unit 1. Further, the outdoor unit 1 constitutes a refrigeration cycle in which the refrigerant circulates between the indoor unit 101 and the outdoor unit 1 while repeating evaporation and condensation.

[0027] The housing 5 has a rectangular parallelepiped shape in this embodiment. That is, the housing 5 has a bottom surface 11 facing an installation surface, a front surface 12 extending upward in a height direction Z from the bottom surface 11 and serving as a front when the outdoor unit 1 is installed, and a rear surface 13 extending upward in the height direction Z from the bottom surface 11 and serving as a back when the outdoor unit 1 is installed. A direction from the front surface 12 to the rear surface 13 is defined as a depth direction Y.

[0028] Further, the housing 5 has a pair of side surfaces 14 and 15 which are disposed on both sides in a width direction X orthogonal (intersecting) to the depth direction Y and the height direction Z, and connect the bottom surface 11, the front surface 12, and the rear surface 13. Hereinafter, as shown in FIG. 3, among the pair of side surfaces 14 and 15, a surface on a left side as viewed from the front surface 12 is referred to as a left side surface 14, and a surface on a right side as viewed from the

front surface 12 is referred to as a right side surface 15. In the present embodiment, a dimension of the housing 5 in the width direction X is larger than a dimension thereof in the depth direction Y.

[0029] Opening portions 21 and 22 penetrating in the depth direction Y are provided on the front surface 12 and the rear surface 13 of the housing 5. A reticulated fan guard 25 is provided in the opening portion 21 of the front surface 12. A filter 26 is provided in the opening portion 22 of the rear surface 13.

[0030] The fan 2 rotates around a rotary axis O extending in the depth direction Y. The fan 2 is accommodated in the housing 5 at a position close to the left side which is one side of the housing 5 in the width direction X.

[0031] The heat exchanger 3 is provided in the housing 5 in the vicinity of the fan 2 to surround the fan 2 from the outer periphery. The refrigerant flows through the heat exchanger 3. In the heat exchanger 3, heat exchange is performed between the air (outside air) taken into the housing 5 by the fan 2 and the refrigerant. The air after the heat exchange is discharged to the outside of the housing 5 through the opening portion 21 by the fan 2.

[0032] The control box 4 is provided in the housing 5 on the right side that is the other side in the width direction X from the fan 2. The control box 4 has an electronic device that controls the operation of the fan 2, a compressor (not shown), and the like. The weight of the control box 4 is larger than a total weight of the fan 2 and the heat exchanger 3, and the weight of the outdoor unit 1 is larger on the right side than on the left side in the width direction X.

[0033] In the present embodiment, the handles 6 are a recessed portion that is recessed inward from each surface of the housing 5.

[0034] As shown in FIGS. 1 and 2, the handles 6 are provided on the left side surface 14, the front surface 12, and the rear surface 13. Two handles 6 (first handles 6A) are provided on the left side surface 14 to be separated from each other in the height direction Z. The first handle 6A of the left side surface 14 is provided at the end portion of the left side surface 14 close to the rear surface 13. The first handle 6A of the left side surface 14 is open, and the interior of the housing 5 is in an exposed state. That is, when viewed from the left side surface 14, the heat exchanger 3 inside the housing 5 is visible. That is, the heat exchanger 3 can be cooled through the first handle 6A. Here, among the first handles 6A of the left side surface 14, the handle 6 provided at the upper part is defined as a first handle 6Aa. Further, among the first handles 6A of the left side surface 14, the handle 6 provided at the lower part is referred to as a first handle 6Ab.

[0035] Further, two handles 6 (first handles 6A) are provided at an end portion on the left side of the front surface 12 to be separated from each other in the height direction Z. Here, among the first handles 6A of the front surface 12, a handle 6 provided at the upper part is referred to as a first handle 6Ac. Also, among the first han-

dles 6A of the front surface 12, a handle 6 provided at the lower part is referred to as a first handle 6Ad. The first handle 6Aa on the upper part of the left side surface 14 and the first handle 6Ac at the upper part of the front surface 12 are provided at the same height position, and the first handle 6Ab of the lower part of the left side surface 14 and the first handle 6Ad of the lower part of the front surface 12 are provided at the same height position.

[0036] Hereinafter, the expression "provided at the same height position" means that portions on which hands are put on the handles 6 are provided at the same height position. In the present embodiment, since an upper bottom surface (a surface facing downward) 8 (see FIG. 3) of the handle 6 which is the recessed portion is a portion on which a hand is put, in the handles 6 provided at the same height position, the height positions of the upper bottom surface 8 are the same position.

[0037] In this way, since a pair of first handles 6Aa and 6Ac are provided at the left end portion of the housing 5 in the upper part in the height direction Z to be separated from each other in the depth direction Y, and a pair of first handles 6Ab and 6Ad are provided at the left end portion of the housing 5 in the lower part in the height direction Z to be separated from each other in the depth direction Y, a plurality of pairs of first handles 6A arranged in pairs in the depth direction Y are provided in the height direction Z.

[0038] As shown in FIG. 3, as the first handles 6A provided at the end portion close to the left side surface 14 on the front surface 12, a pair of first handles 6Aa and 6Ac are provided in the upper part and a pair of first handles 6Ab and 6Ad are provided in the lower part across a virtual line VL passing through the rotational center of the fan 2, orthogonal to (intersecting) the rotary axis O and extending in the width direction X. Furthermore, the upper bottom surface 8 of the upper first handles 6Aa and 6Ac and the upper bottom surface 8 of the lower first handles 6Ab and 6Ad are separated from each other by half of a maximum diameter R of the fan 2 or more and less than the dimension of the housing 5 in the height direction Z.

[0039] At the right end portion of the front surface 12, one handle 6 (a second handle 6B) is provided below the center of the housing 5 in the height direction Z. More specifically, the second handle 6B is provided at a position in the width direction X corresponding to the position in the width direction X at which the control box 4 is provided, and is provided at a height position between the upper first handle 6Ac and the lower first handle 6Ad provided at the left end portion of the front surface 12. Hereinafter, the second handle 6B of the front surface 12 is referred to as a second handle 6Ba.

[0040] Furthermore, at the right end portion (a position on the left side toward the paper surface in FIG. 2) of the rear surface 13, one handle 6 (a second handle 6B) is provided below the center of the housing 5 in the height direction Z. More specifically, the second handle 6B is provided at a position in the width direction X correspond-

ing to the position in the width direction X at which the control box 4 is provided. Hereinafter, the second handle 6B of the rear surface 13 is referred to as a second handle 6Bb. The second handle 6Bb is provided at the same height as the second handle 6Ba provided on the front surface 12. Therefore, only the pair of second handles 6Ba and 6Bb arranged in a pair in the depth direction Y are provided at the right end portion of the housing 5.

[0041] Here, the first handles 6Aa and 6Ac, the first handles 6Ab and 6Ad and the second handles 6Ba and 6Bb paired in the depth direction Y may not be provided at completely the same height position. That is, the handles 6 arranged in the depth direction Y may be provided at positions slightly shifted in the height direction Z.

[0042] In the aforementioned air conditioner 100 of the present embodiment, the outdoor unit 1 includes a plurality of pairs (two pairs) of first handles 6A provided in pairs in the depth direction Y at the left end portion of the housing 5 to be separated from each other in the height direction Z.

[0043] Here, it is preferable that the outdoor unit 1 be transported with the bottom surface 11 of the housing 5 horizontal. When the outdoor unit 1 is transported, the bottom surface 11 of the housing 5 of the outdoor unit 1 is kept horizontal, and the outdoor unit 1 is transported (carried in and out), for example, using stairs ST as shown in FIG. 4, a worker H1 on an upper stage side of the stairs ST can grasp the first handles 6Aa and 6Ac provided on the upper part. At this time, as compared with a case of grasping the first handles 6Ab and 6Ad provided on the lower part, the housing 5 can be supported at a higher position, and the worker H1 is not forced to assume an unnatural posture such as a posture in which his or her waist is bent.

[0044] Also, since the second handles 6Ba and 6Bb provided on the right end portion are provided below the upper first handles 6Aa and 6Ac provided at the left end portion, if a worker H2 on the lower stage side of the stairs ST grasps the second handles 6Ba and 6Bb, the worker H2 is not forced to assume an unnatural posture when keeping the outdoor unit 1 horizontal. That is, both the worker H1 on the upper stage side and the worker H2 on the lower stage side of the stairs ST can maintain a comfortable posture at the time of transportation. Therefore, it is possible to easily transport the outdoor unit 1 regardless of a transporting place.

[0045] Unlike the case of FIG. 4, the worker H2 on the lower stage side of the stairs ST may grasp the first handles 6Ab and 6Ad of the left lower part of the housing 5, and the worker H1 on the upper stage side of the stairs ST may grasp the second handles 6Ba and 6Bb on the right side of the housing 5 to transport the outdoor unit 1.

[0046] By providing only a pair of second handles 6B in the depth direction Y between the two pairs of first handles 6A on the right side in the width direction X, as compared to a case in which a plurality of pairs of handles 6 are also provided on the right side in the width direction X similarly to the left side, the cost of installing the handles

6 can be reduced.

[0047] Further, at the position at which the control box 4 is provided, it is difficult to secure a space for providing the handles 6 in the housing 5. Therefore, by providing only a pair of second handles 6B at the right end portion of the housing 5, it is possible to solve the problem of securing such space. Furthermore, when a large number of handles 6 are provided at the position at which the control box 4 is provided, there is a possibility of rainwater or the like entering the housing 5 from the position of the handle 6. Therefore, by reducing the number of the handles 6 provided at the position at which the control box 4 is provided, it is possible to reduce the possibility of water entering the housing 5.

[0048] Furthermore, the control box 4 is heavier than the fan 2. Therefore, because the second handles 6Ba and 6Bb of the right end portion of the housing 5 are provided at a position higher than the first handles 6Ab and 6Ad provided in the lower part of the left end portion of the housing 5, the worker H2 does not need to lift the right side of the housing 5 in the width direction X on which the control box 4 is installed to a high position.

[0049] Further, a distance L in the height direction Z between the a plurality of pairs first handles 6A provided at positions apart from each other in the height direction Z is separated by half of the maximum diameter R of the fan 2 or more. Therefore, when the outdoor unit 1 is transported using stairs ST, the worker H1 is not forced to assume an unnatural posture and can easily transport the outdoor unit 1.

[0050] Further, the plurality of pairs of first handles 6A provided at positions apart from each other in the height direction Z are provided above and below the imaginary line VL which extends in the width direction X passing through the rotational center of the fan 2. Therefore, the first handle 6A does not interfere with the fan 2, and the outdoor unit 1 can be easily transported while securing the installation space of the first handle 6A.

[Second Embodiment]

[0051] Next, an air conditioner 200 according to a second embodiment of the present invention will be described. In the second embodiment to be described below, since only an installation number and an installation position of the second handle 6B are different from those of the first embodiment, the same parts as in the first embodiment are denoted by the same reference numeral, and repeated explanation will be omitted.

[0052] As shown in FIG. 5, the first handles 6Aa, 6Ab, 6Ac and 6Ad at the left end portion are provided in plural pairs (two pairs) to be separated from each other in the height direction Z as in the first embodiment. Further, in the present embodiment, two pairs of second handles 6B of the right end portion are also provided to be separated from each other in the height direction Z. Hereinafter, the handle 6 provided on the front surface 12 among the upper second handles 6B will be referred to as a

second handle 6Ba, and as shown in FIG. 6, the handle 6 provided on the rear surface 13 among the upper second handles 6B will be referred to as a second handle 6Bc. Further, the handle 6 provided on the front surface 12 among the lower second handles 6B will be referred to as a second handle 6Bb, and the handle 6 provided on the rear surface 13 among the upper second handles 6B will be referred to as a second handle 6Bd.

[0053] The upper first handles 6Aa and 6Ac and the upper second handles 6Ba and 6Bc are provided at the same height position, and the lower first handles 6Ab and 6Ad and the lower second handles 6Bb and 6Bd are provided at the same height position.

[0054] Among the pair of second handles 6Ba and 6Bc of the upper part, the second handle 6Ba is provided at the end portion close to the right side surface 15 at the front surface 12, and the second handle 6Bc is provided at the end portion close to the right side surface 15 at the rear surface 13. Among the pair of second handles 6Bb and 6Bd of the lower part, the second handle 6Bb is provided at the end portion close to the right side surface 15 at the front surface 12, and the second handle 6Bd is provided at the end portion close to the right side surface 15 at the rear surface 13.

[0055] In the aforementioned air conditioner 200 of the present embodiment, a plurality of pairs of first handles 6A and a plurality of pairs of second handles 6B are provided on both sides of the housing 5 of the outdoor unit 71 in the width direction X to be separated from each other in the height direction Z. Therefore, when transporting the outdoor unit 71 using the stairs ST, even if any part of the housing 5 in the width direction X is disposed on the upper stage side of the stairs ST, the workers H1 and H2 (see FIG. 4) are not forced to take an unreasonable posture. That is, as long as the worker H1 grasps the first handles 6Aa and 6Ac or the second handles 6Ba and 6Bc provided at a high position on the upper stage side, and the worker H2 grasps the second handles 6Bb and 6Bd or the first handles 6Ab and 6Ad provided at a low position on the lower stage side, the outdoor unit 71 can be easily transported, irrespective of the direction of the case 5 at the time of transportation.

[Third Embodiment]

[0056] Next, an air conditioner 300 according to a third embodiment of the present invention will be described. In the third embodiment to be described below, since only the installation position of the first handle 6A is different from that of the first embodiment, the same parts as those of the first embodiment are denoted by the same reference numerals, and repeated explanation will be omitted.

[0057] As shown in FIG. 7, as in the first embodiment, among the upper first handles 6Aa and 6Ac paired in the depth direction Y, the first handle 6Ac is provided at the end portion close to the left side surface 14 on the front surface 12, and as shown in FIG. 8, the first handle 6Aa

is provided at the end portion close to the left side surface 14 on the rear surface 13. Further, as shown in FIG. 7, among the lower first handles 6Ab and 6Ad paired in the depth direction Y, the first handle 6Ad is provided at the end portion close to the left side surface 14 on the front surface 12, and as shown in FIG. 8, the first handle 6Ab is provided at the end portion close to the left side surface 14 on the rear surface 13. In the present embodiment, all the handles 6 are provided on the front surface 12 and the rear surface 13.

[0058] In the aforementioned air conditioner 300 of the present embodiment, the handle 6 of the outdoor unit 81 is not provided on the right side surface 15 and the left side surface 14. Therefore, the workers H1 and H2 (see FIG. 4) can grasp the first handle 6A and the second handle 6B in the state of orienting the palms of both hands in the width direction X, and the outdoor unit 81 is easily transported.

[0059] Although the embodiments of the present invention have been described above in detail with reference to the drawings, the respective configurations and combinations thereof in the respective embodiments are merely examples, and additions, omissions, substitutions and other changes of configurations are possible within the scope that does not departing from the gist of the present invention. Further, the present invention is not limited by the embodiments, and is limited only by the claims.

[0060] The installation position of the handle 6 is not limited to the above-described case. For example, one of the second handles 6B paired in the depth direction Y may be provided on the right side surface 15 rather than the rear surface 13.

[0061] Also, three or more pairs of handles 6 paired in the width direction X may be provided at intervals in the height direction Z.

[0062] The housing 5 is not limited to the case of having a rectangular parallelepiped shape. Also, the handle 6 may be provided at the left end portion and the right end portion in the width direction X at least across the rotational center of the fan 2.

[0063] The shape of the handle 6 is not limited to the above case, and the handle 6 may be, for example, a protruding portion protruding from the housing 5 rather than the recessed portion. Also, the shapes of all the handles 6 are not necessarily the same.

[Industrial Applicability]

[0064] According to the outdoor unit and the air conditioner described above, by providing a plurality of pairs of handles on the housing at positions apart from each other in the height direction, it is possible to easily transport the outdoor unit, regardless of the transporting place

Claims

1. An outdoor unit (1) of an air conditioner (100) comprising:

a heat exchanger (3) through which a refrigerant from an indoor unit (101) flows;

a fan (2) which is provided in proximity to the heat exchanger (3) and is configured to discharge air that has exchanged heat with the heat exchanger (3);

a housing (5) which is configured to accommodate the heat exchanger (3) and the fan (2); and a plurality of handles (6) provided in pairs in each of a first end portion of the housing (5) in a width direction and a second end portion in the width direction to be separated from each other in a depth direction of the housing (5) intersecting the width direction,

wherein the plurality of pairs of handles (6) provided in pairs in the depth direction are provided in at least one of the first end portion in the width direction and the second end portion in the width direction, at positions apart from each other in a height direction intersecting the width direction and the depth direction.

2. The outdoor unit (1) of the air conditioner (100) according to claim 1, wherein the plurality of pairs of first handles (6) provided at the first end portion in the width direction among the handles (6) are provided at positions apart from each other in the height direction, and

only a pair of second handles (6B) provided at the second end portion in the width direction among the handles (6) are provided at a height position between the first handles (6A) provided at an uppermost portion in the height direction and the second handles (6B) provided at a lowermost portion in the height direction.

3. The outdoor unit (1) of the air conditioner (100) according to claim 2, further comprising:

a control box (4) accommodated in the housing (5) on the other side in the width direction from the fan (2),

wherein the second handles (6B) are provided at a position in the width direction corresponding to a position of the control box (4).

4. The outdoor unit (1) of the air conditioner (100) according to claim 1, wherein the plurality of pairs of first handles (6A) provided at the first end portion in the width direction among the handles (6), and the plurality of pairs of second handles (6B) provided on the second end portion in the width direction among the handles (6) are provided at positions apart from

each other in the height direction.

5. The outdoor unit (1) of the air conditioner (100) according to claim 1 or 2, wherein a dimension of an interval in the height direction between the plurality of pairs of handles (6) provided at positions apart from each other in the height direction is half of a maximum diameter of the fan (2) or more. 5
6. The outdoor unit (1) of the air conditioner (100) according to claim 1 or 2, wherein the plurality of pairs of handles (6) provided at positions apart from each other in the height direction are provided above and below an imaginary line passing through a rotational center of the fan (2) and extending in the width direction to sandwich the imaginary line. 10 15
7. An air conditioner (100) comprising:
- the outdoor unit (1) according to claim 1 or 2; and 20
an indoor unit (101), wherein said outdoor unit (1) and indoor unit (101) are configured so that a refrigerant circulates between the outdoor unit (1) and the indoor unit (101). 25

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FIG. 1

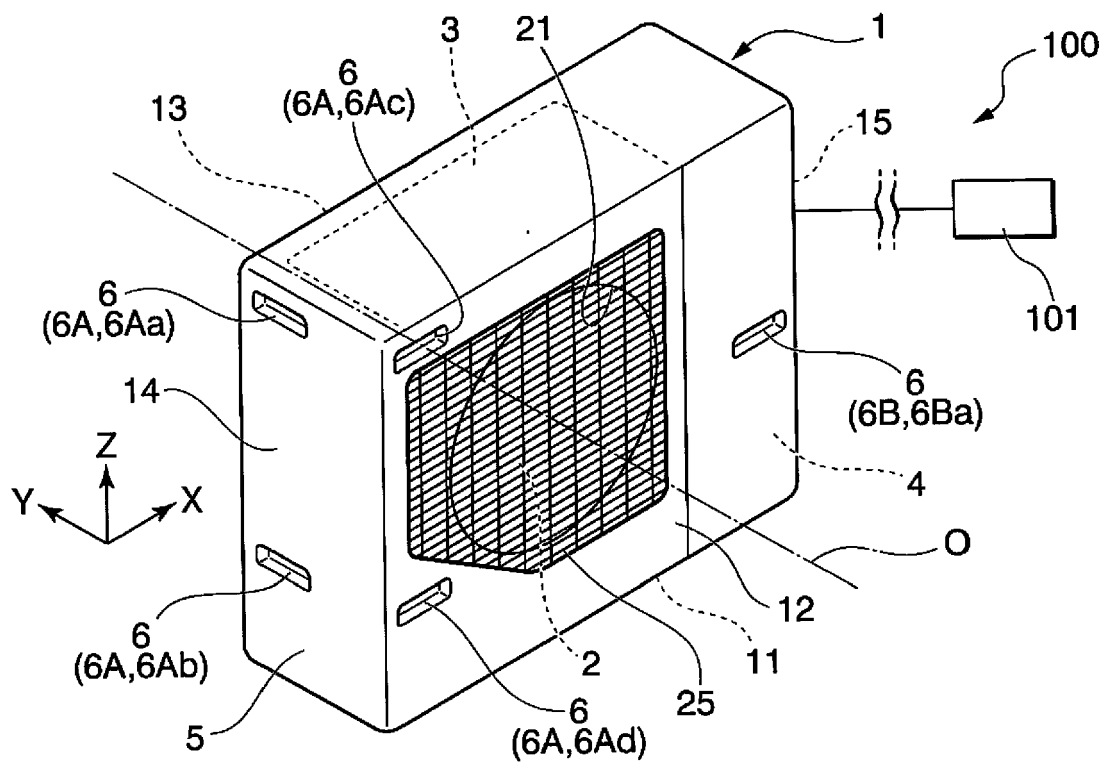


FIG. 2

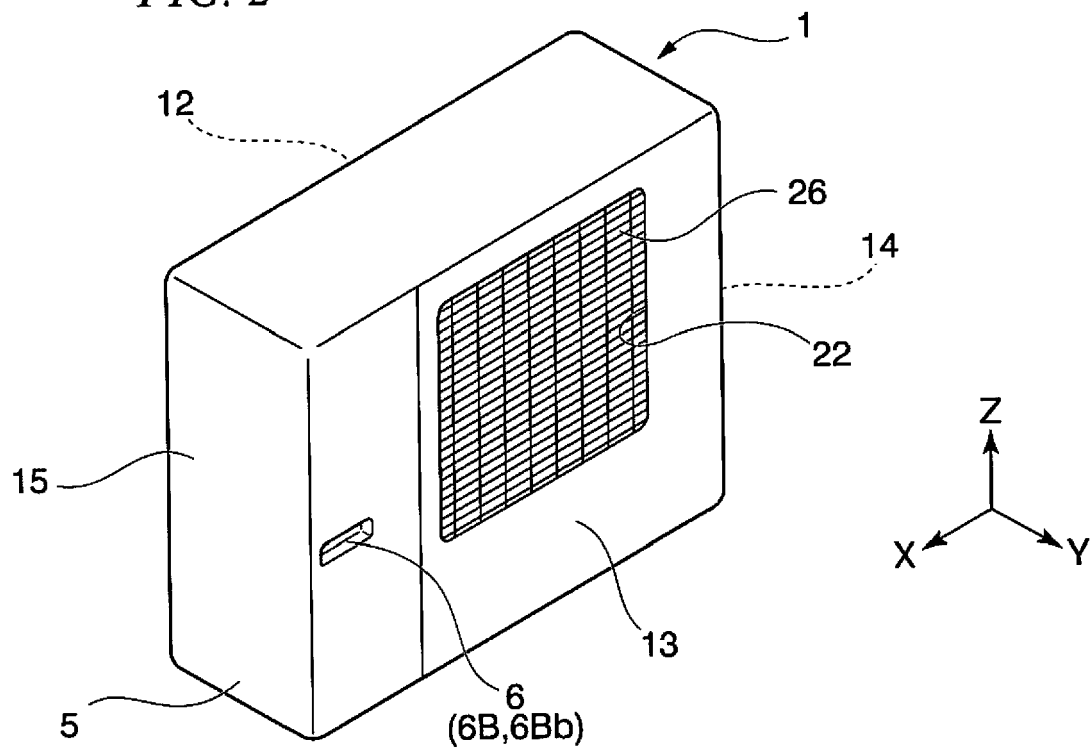


FIG. 3

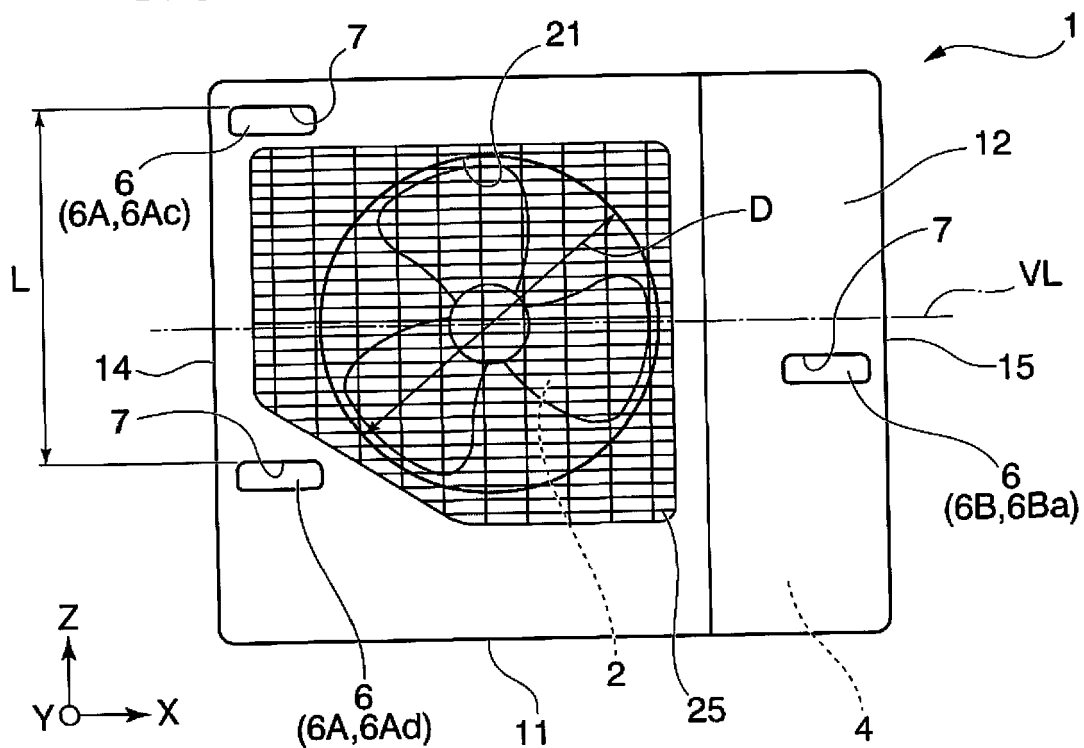


FIG. 4

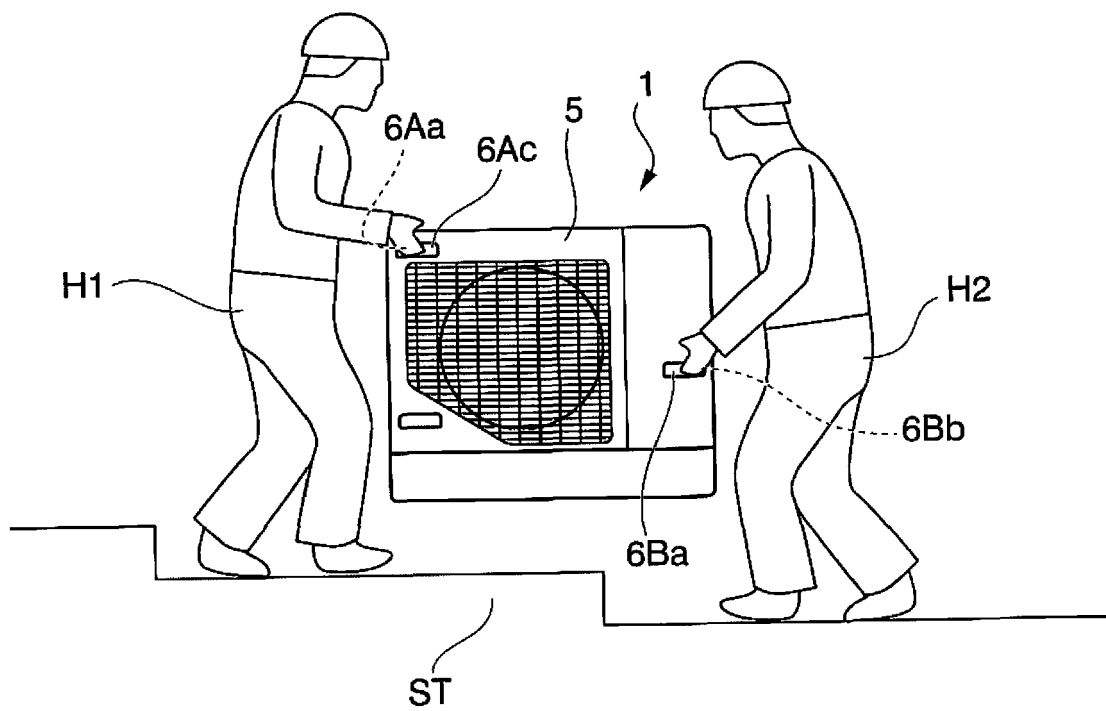


FIG. 5

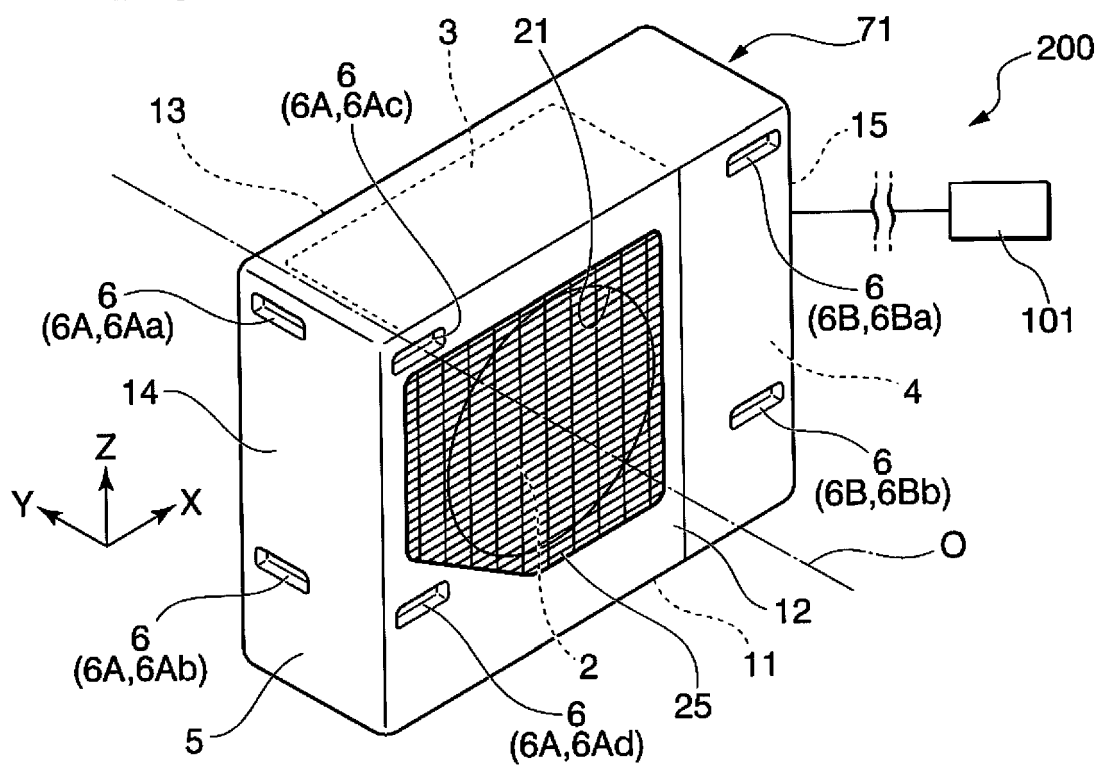


FIG. 6

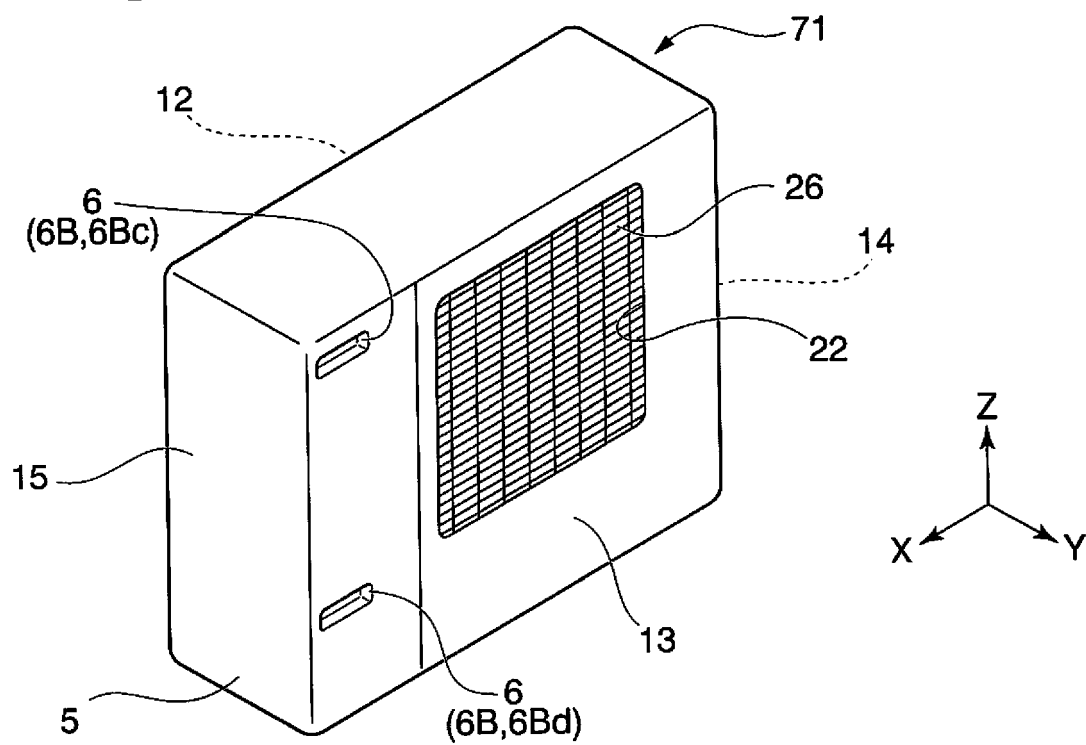


FIG. 7

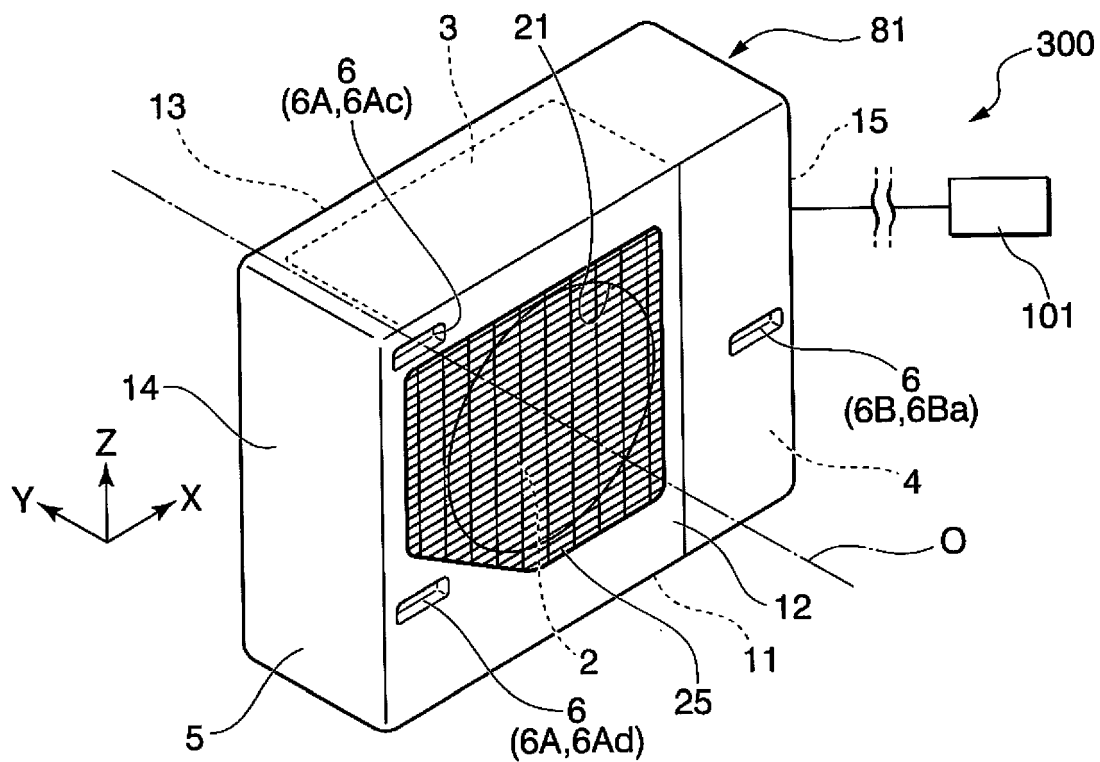
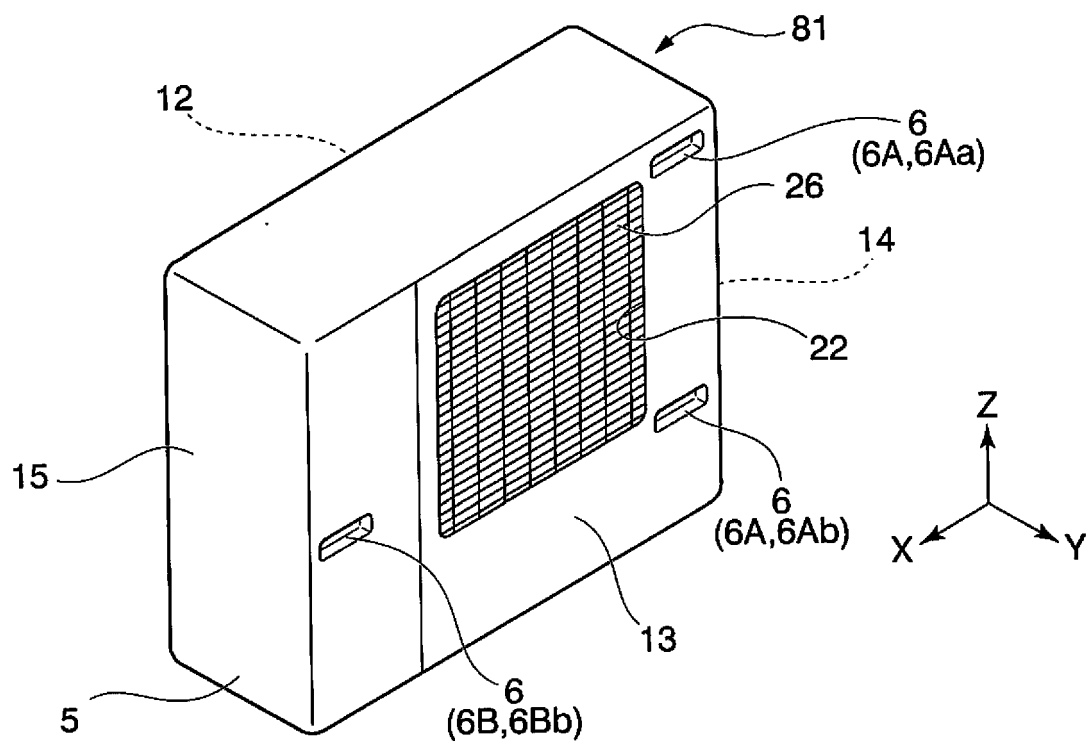


FIG. 8





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Place of search Munich		Date of completion of the search 11 July 2019	Examiner Degen, Marcello
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