

SPECIFICATION

SYO-9702

TITLE OF THE INVENTION

BASE FOR HERMETICALLY SEALED TYPE COMPRESSOR BUILT IN
OUTDOOR UNIT

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a base for a hermetically sealed type compressor build in an outdoor unit. More particularly, the present invention relates to a base
10 for a hermetically sealed type compressor capable of making compact an outdoor unit having a hermetically sealed type compressor, a condenser, a blower for the condenser, etc. constituting one portion of a refrigerator in which a refrigerant cycle is formed by sequentially connecting the
15 hermetically sealed type compressor, the condenser, a decompression device (such as capillary tube, expansion valve, or the like) and an evaporator to each other through refrigerant tubes.

20 2. Background Art

FIG. 1 is an explanatory view showing the interior of an outdoor unit having a hermetically sealed type compressor 1, a condenser 2, a blower 3 for the condenser, a motor 4 for operating the blower 3, an accumulator 5, a
25 partition wall 6, refrigerant tubes 7a to 7c, etc. The

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- 1 -

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hermetically sealed type compressor 1 is arranged on a base 9 having fixing portions 8a, 8b and 8c in its outer circumference, and is fixed to a bottom portion 10 of this outdoor unit through vibration-proof rubbers 11a, 11b, 11c.

5 Arrows in FIG. 1 show a refrigerant flow.

The refrigerant sucked into the hermetically sealed type compressor 1 from the refrigerant tube 7a through the accumulator 5 is compressed and is then condensed by the condenser 2 through the refrigerant tube 7b. Thereafter, the
10 refrigerant is transmitted to the exterior of the outdoor unit through the refrigerant tube 7c. The refrigerant is again returned to the refrigerant tube 7a through a decompression device (such as capillary tube, expansion valve, or the like), an evaporator, etc. sequentially
15 arranged in an unillustrated indoor device so that a refrigerant cycle is formed.

FIG. 2 is a plan view showing the interior of this outdoor unit. In FIG. 2, the same reference numerals as FIG. 1 designate the same things.

20 FIG. 3 is an exploded perspective view for explaining a fixing state of the hermetically sealed type compressor 1. In this figure, the hermetically sealed type compressor 1 is arranged on the base 9 having the fixing portions 8a, 8b, 8c formed in its outer circumference at an
25 equal interval. The hermetically sealed type compressor 1 is

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- 2 -

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fixed to the bottom portion of the outdoor unit by using fixtures 12a, 12b, 12c through the vibration-proof rubbers 11a, 11b, 11c. Reference numerals 13, 14, 15 and 16 respectively designate a sucking portion of the refrigerant, a discharging tube of the refrigerant, a wiring portion and an accumulator attaching fixture.

FIG. 5(a) is a plan view of the base 9. Holes 17a, 17b, 17c for fixing are respectively formed at centers of the fixing portions 8a, 8b, 8c of the base 9. A return portion 18 for reinforcement is formed in the entire outer circumference of the base 9. Reference numeral H designates a distance from a center of the base 9 to its outer circumferential end through each of the centers of the holes for fixing. Reference numeral W designates a width of each of the fixing portions of the base 9.

FIG. 5(b) is a perspective view of the base 9.

A place for arranging the outdoor unit tends to be narrowed. Accordingly, it is strongly required to make the outdoor unit compact and particularly thin. However, as shown in FIGS. 1 and 2, the base 9 for fixing the hermetically sealed type compressor 1 to the bottom portion of the indoor device is entirely arranged within the indoor device. The fixing portions 8a, 8b and 8c are close to a front panel and inner walls of the indoor device, etc. Accordingly, no indoor device can be made further compact and



thin. Further, problems exist in that the hermetically sealed type compressor 1 hits against the front panel of the indoor device, etc. during conveyance of the hermetically sealed type compressor, etc. and is damaged.

5

SUMMARY OF THE INVENTION

An object of the present invention is to provide a base for a hermetically sealed type compressor able to make compact and particularly thin an outdoor unit having the
10 hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor, the condenser, the blower for the condenser, etc.

The inventors, etc. have sincerely researched such
15 problems. As a result, it has been found that return portions for reinforcement are conventionally formed in an entire outer circumference of the base, but no strengths of the base itself and fixing portions themselves are reduced even when no return portions are formed in specific positions
20 of the fixing portions of this base. Further, when no return portions are formed in the specific positions of the fixing portions, a distance H from a center of the base to its outer circumferential end through each of the centers of holes for fixing, etc. can be shortened.

25 To achieve the above object, a first aspect of the



present invention is to provide a base for a hermetically sealed type compressor, having a plurality of fixing portions in circumferential portions thereof for fixing said hermetically sealed type compressor on a bottom portion of an outdoor unit through a vibration-proof rubber, said outdoor unit having at least said hermetically sealed type compressor, a condenser and a blower for a condenser wherein a refrigerator comprises a refrigerating cycle formed by sequentially connecting said hermetically sealed type compressor, said condenser, a decompression device and an evaporator to each other through refrigerant tubes, characterized in that return portions for reinforcement are formed in outer circumferences of this base except for respective outer circumferences of said fixing portions located outside respective lines which are perpendicular to lines connecting a center of the base to the centers of holes for fixing formed in said fixing portions and are drawn through the centers of said holes for fixing.

A second aspect of the present invention is characterized in that three fixing portions are formed in said circumferential portions at an equal interval in the base according to the first aspect of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an explanatory view showing the interior

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of an outdoor unit.

FIG. 2 is a plan view showing the interior of the outdoor unit of FIG. 1.

FIG. 3 is an exploded perspective view for explaining a close type compressor, a base for the hermetically sealed type compressor, a vibration-proof rubber, a fixture, etc.

FIG. 4(a) is a plan view of the base for the hermetically sealed type compressor according to the present invention.

FIG. 4(b) is a perspective view of the base for the hermetically sealed type compressor according to the present invention.

FIG. 5(a) is a plan view of a conventional base for the hermetically sealed type compressor.

FIG. 5(b) is a perspective view of the conventional base for the hermetically sealed type compressor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 4(a) is a plan view showing one example of a base for a hermetically sealed type compressor in the present invention. FIG. 4(b) is a perspective view of the base for the hermetically sealed type compressor in the present invention.

In FIGS. 4(a) and 4(b), the same holes 17a, 17b,



17c for fixing as the conventional base 9 are respectively formed at the centers of three fixing portions 8A, 8B, 8C formed at an equal interval in circumferential portions of a base 9A.

5 The base 9A differs from the conventional base 9 in that return portions 18A, 18B, 18C for reinforcement are formed in an outer circumference of the base 9A of the present invention except for specific positions of the fixing portions 8A, 8B, 8C.

10 Namely, the base 9A has no return portions for reinforcement in outer circumferences of the fixing portions 8A, 8B, 8C located outside lines a, b, c drawn through respective centers of the holes for fixing and perpendicular to lines which connect a center of the base 9A to the
15 respective centers of the holes 17a, 17b, 17c for fixing formed in the fixing portions 8A, 8B, 8C.

 No strengths of the base 9A itself and the fixing portions 8A, 8B, 8C themselves are substantially reduced even when no return portions are formed in the specific positions
20 of the fixing portions 8A, 8B, 8C. In this construction, a distance h from the center of the base 9A to its outer circumferential end through each of the centers of the holes for fixing can be shortened in comparison with the distance H of the conventional base 9 in the same position. Further, a
25 width w of each of the fixing portions of the base 9A can be



reduced in comparison with the width W of the conventional base 9 in the same position.

In the above example, the three fixing portions 8A, 8B, 8C are spaced from each other at an equal interval in the 5 circumferential portions of the base 9A. However, in the present invention, the number of fixing portions is not particularly limited.

Further, no form of the above hermetically sealed type compressor 1 is particularly limited. Concretely, the 10 hermetically sealed type compressor 1 can be constructed by a rotary type compressor, a reciprocating type compressor, a vibrating type compressor, a multivane type rotary type compressor, a scroll type compressor, etc. as examples.

When the base for the hermetically sealed type 15 compressor in the present invention is used, it is possible to make compact and particularly thin an outdoor unit having the hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor, the condenser, the 20 blower for the condenser, etc.

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WHAT IS CLAIMED IS:

1. A base for a hermetically sealed type compressor, having a plurality of fixing portions in circumferential portions thereof for fixing said hermetically sealed type compressor
5 on a bottom portion of an outdoor unit through a vibration-proof rubber, said outdoor unit having at least said hermetically sealed type compressor, a condenser and a blower for said condenser wherein a refrigerator comprises a refrigerating cycle formed by sequentially connecting said
10 hermetically sealed type compressor, said condenser, a decompression device and an evaporator to each other through refrigerant tubes, characterized in that return portions for reinforcement are formed in outer circumferences of this base except for respective outer circumferences of said fixing
15 portions located outside respective lines which are perpendicular to respective lines connecting a center of the base to the respective centers of holes for fixing formed in said fixing portions and are drawn through the centers of said holes for fixing.

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2. The base as claimed in claim 1, wherein three fixing portions are formed in said circumferential portions at an equal interval.



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ABSTRACT

A base for a hermetically sealed type compressor has plural fixing portions in circumferential portions of the base to fixedly arrange the hermetically sealed type
5 compressor on a bottom portion of an outdoor unit through a vibration-proof rubber. The base preferably has three fixing portions formed at an equal interval in the circumferential portions. Return portions for reinforcement are formed in outer circumferences of this base except for outer
10 circumferences of the fixing portions located outside lines which are perpendicular to lines connecting a center of this base to the centers of holes for fixing formed in the fixing portions and are drawn through the centers of the holes for fixing. In this construction, it is possible to provide a
15 base for the hermetically sealed type compressor able to make compact and thin an outdoor unit having the hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor, the condenser, the blower for the condenser, etc.

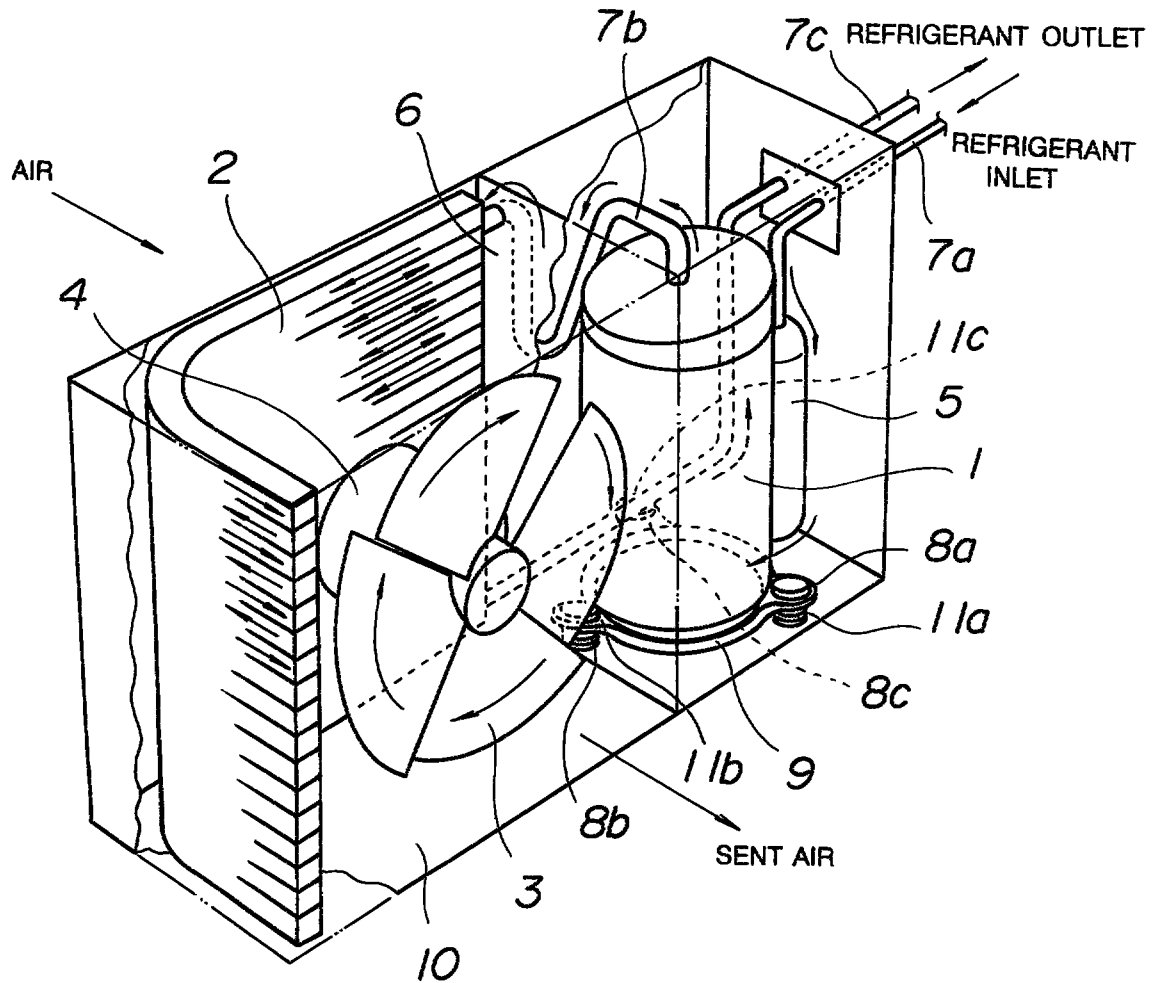
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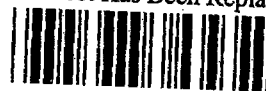


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Fig. 1

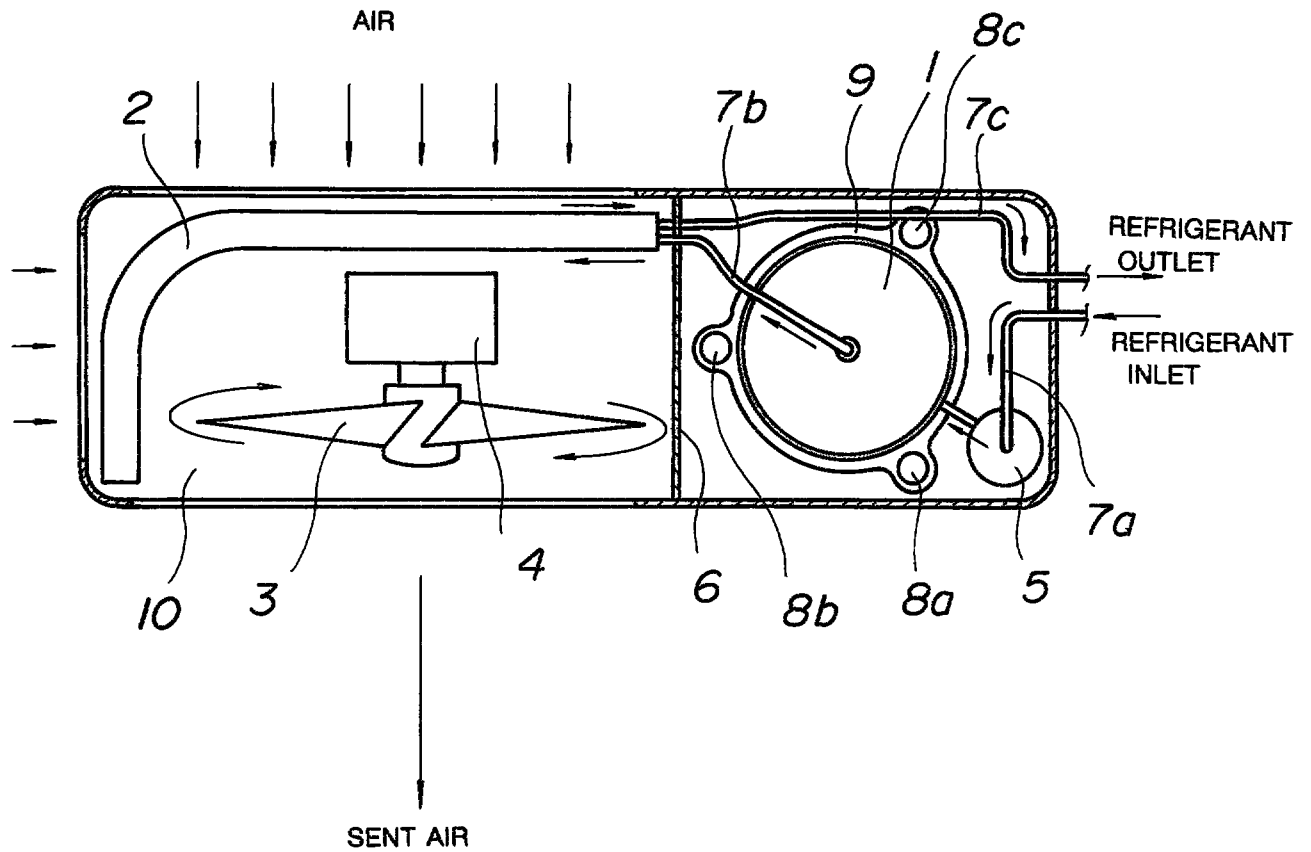


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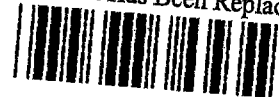


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Fig. 2

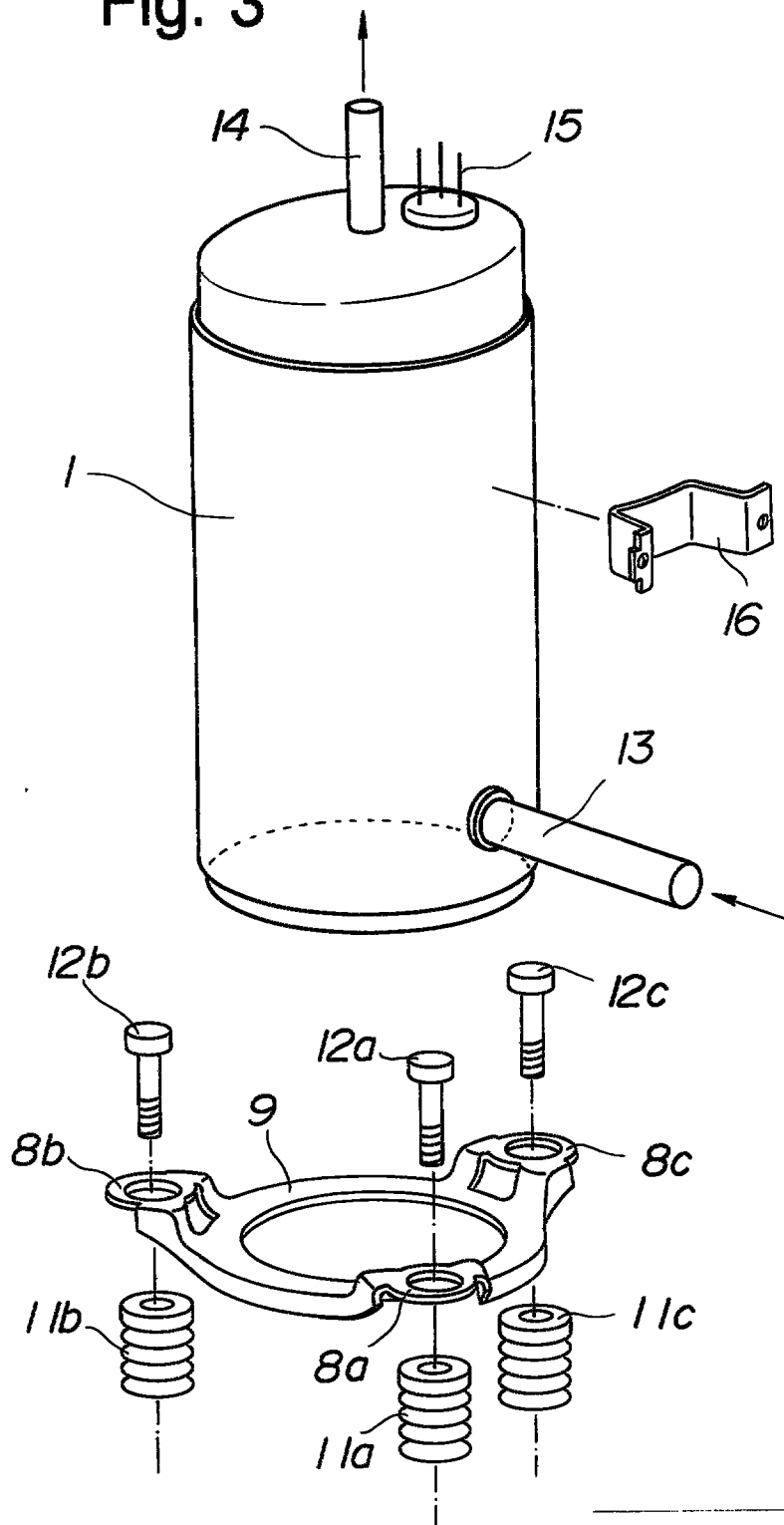


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Fig. 3



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Fig. 4(a)

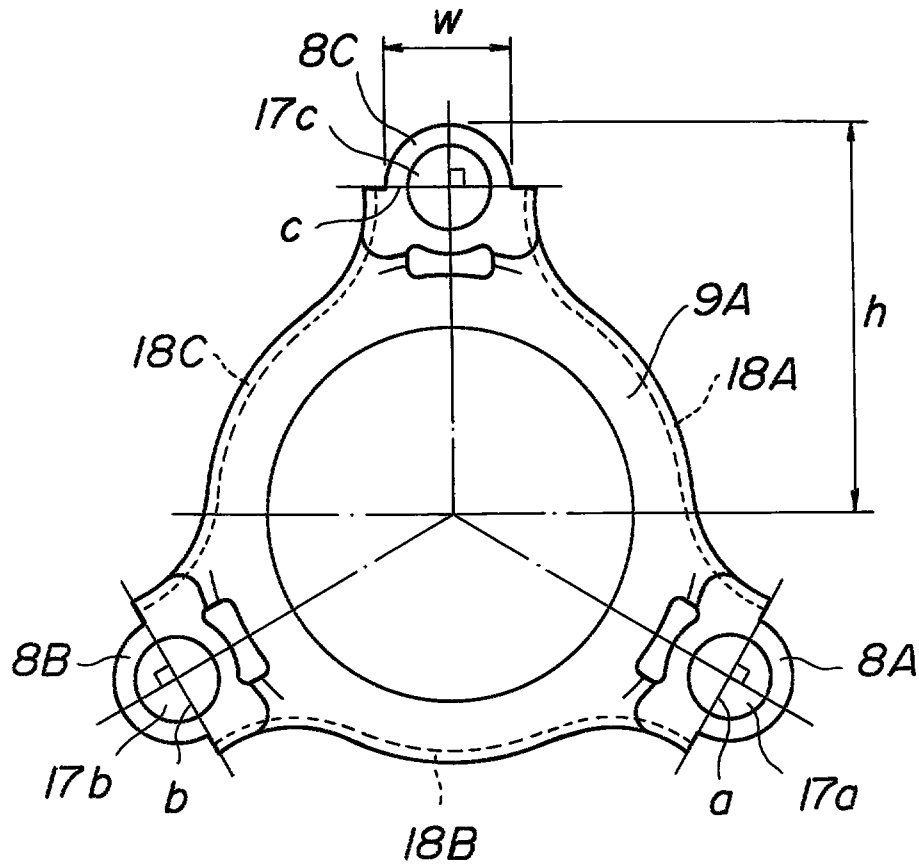
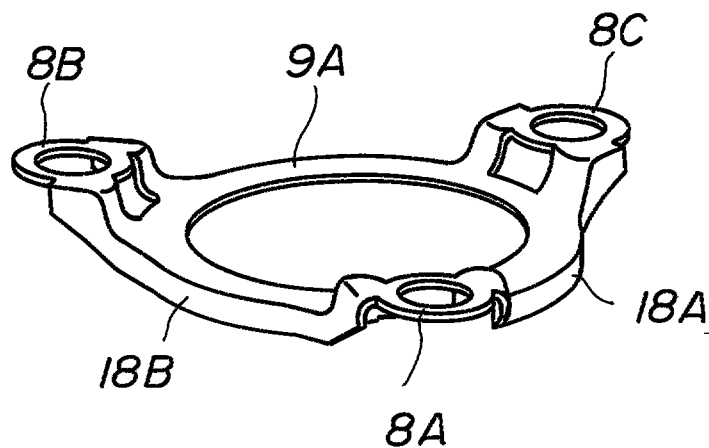
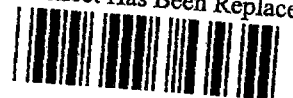


Fig. 4(b)



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Fig. 5(a)

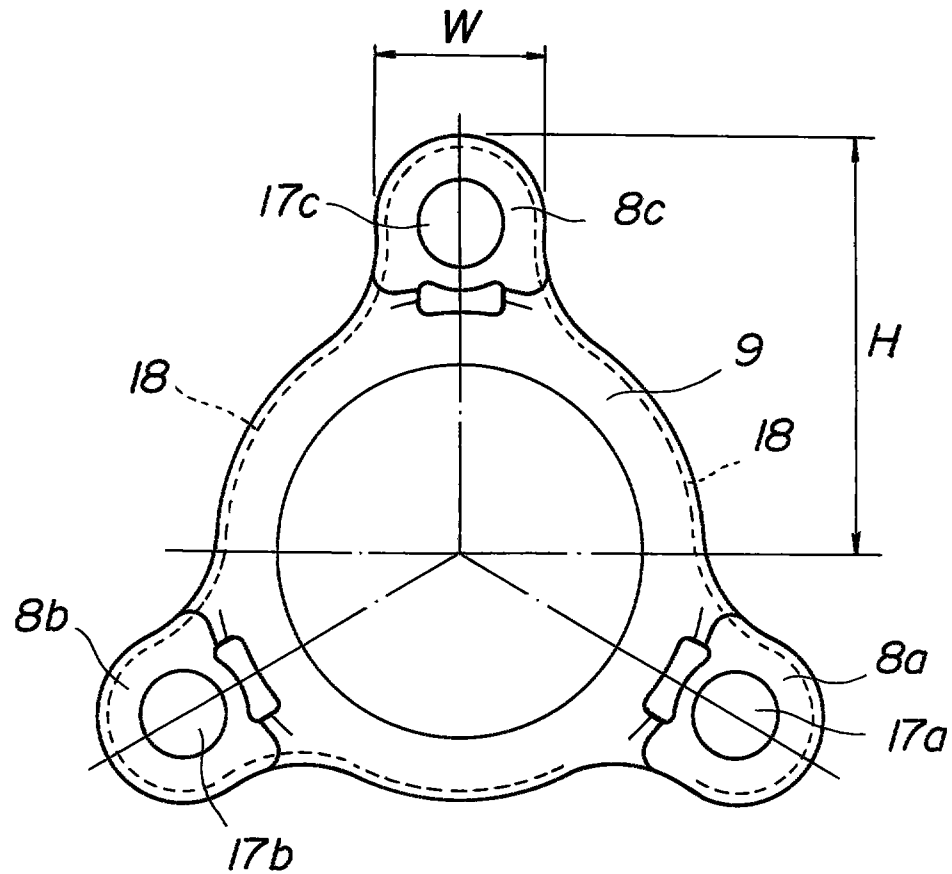
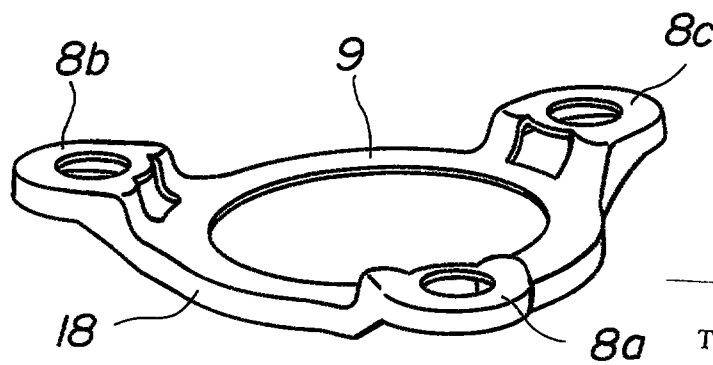


Fig. 5(b)



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SPECIFICATION

TITLE OF THE INVENTION

**BASE FOR HERMETICALLY SEALED TYPE COMPRESSOR BUILT IN
OUTDOOR UNIT**

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a base for a hermetically sealed type compressor build in an outdoor unit. More particularly, the present invention relates to a base
10 for a hermetically sealed type compressor capable of making compact an outdoor unit having a hermetically sealed type compressor, a condenser, a blower for the condenser, etc. constituting one portion of a refrigerator in which a refrigerant cycle is formed by sequentially connecting the
15 hermetically sealed type compressor, the condenser, a decompression device (such as capillary tube, expansion valve, or the like) and an evaporator to each other through refrigerant tubes.

20 2. Background Art

FIG. 1 is an explanatory view showing the interior of an outdoor unit having a hermetically sealed type compressor 1, a condenser 2, a blower 3 for the condenser, a motor 4 for operating the blower 3, an accumulator 5, a
25 partition wall 6, refrigerant tubes 7a to 7c, etc. The

27 AUG 1997

hermetically sealed type compressor 1 is arranged on a base 9 having fixing portions 8a, 8b and 8c in its outer circumference, and is fixed to a bottom portion 10 of this outdoor unit through vibration-proof rubbers 11a, 11b, 11c.

5 Arrows in FIG. 1 show a refrigerant flow.

The refrigerant sucked into the hermetically sealed type compressor 1 from the refrigerant tube 7a through the accumulator 5 is compressed and is then condensed by the condenser 2 through the refrigerant tube 7b. Thereafter, the
10 refrigerant is transmitted to the exterior of the outdoor unit through the refrigerant tube 7c. The refrigerant is again returned to the refrigerant tube 7a through a decompression device (such as capillary tube, expansion valve, or the like), an evaporator, etc. sequentially
15 arranged in an unillustrated indoor device so that a refrigerant cycle is formed.

FIG. 2 is a plan view showing the interior of this outdoor unit. In FIG. 2, the same reference numerals as FIG. 1 designate the same things.

20 FIG. 3 is an exploded perspective view for explaining a fixing state of the hermetically sealed type compressor 1. In this figure, the hermetically sealed type compressor 1 is arranged on the base 9 having the fixing portions 8a, 8b, 8c formed in its outer circumference at an
25 equal interval. The hermetically sealed type compressor 1 is

27 AUG 1997

fixed to the bottom portion of the outdoor unit by using fixtures 12a, 12b, 12c through the vibration-proof rubbers 11a, 11b, 11c. Reference numerals 13, 14, 15 and 16 respectively designate a sucking portion of the refrigerant, a discharging tube of the refrigerant, a wiring portion and an accumulator attaching fixture.

FIG. 5(a) is a plan view of the base 9. Holes 17a, 17b, 17c for fixing are respectively formed at centers of the fixing portions 8a, 8b, 8c of the base 9. A return portion 18 for reinforcement is formed in the entire outer circumference of the base 9. Reference numeral H designates a distance from a center of the base 9 to its outer circumferential end through each of the centers of the holes for fixing. Reference numeral W designates a width of each of the fixing portions of the base 9.

FIG. 5(b) is a perspective view of the base 9.

A place for arranging the outdoor unit tends to be narrowed. Accordingly, it is strongly required to make the outdoor unit compact and particularly thin. However, as shown in FIGS. 1 and 2, the base 9 for fixing the hermetically sealed type compressor 1 to the bottom portion of the indoor device is entirely arranged within the indoor device. The fixing portions 8a, 8b and 8c are close to a front panel and inner walls of the indoor device, etc. Accordingly, no indoor device can be made further compact and

27 AUG 1997

thin. Further, problems exist in that the hermetically sealed type compressor 1 hits against the front panel of the indoor device, etc. during conveyance of the hermetically sealed type compressor, etc. and is damaged.

5

SUMMARY OF THE INVENTION

An object of the present invention is to provide a base for a hermetically sealed type compressor able to make compact and particularly thin an outdoor unit having the
10 hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor, the condenser, the blower for the condenser, etc.

The inventors, etc. have sincerely researched such
15 problems. As a result, it has been found that return portions for reinforcement are conventionally formed in an entire outer circumference of the base, but no strengths of the base itself and fixing portions themselves are reduced even when no return portions are formed in specific positions
20 of the fixing portions of this base. Further, when no return portions are formed in the specific positions of the fixing portions, a distance H from a center of the base to its outer circumferential end through each of the centers of holes for fixing, etc. can be shortened.

25

To achieve the above object, a first aspect of the

27 AUG 1997

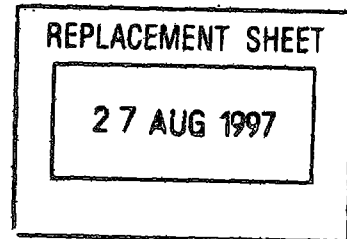
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present invention is to provide a base for a hermetically sealed type compressor, having a plurality of fixing portions in circumferential portions thereof for fixing said hermetically sealed type compressor on a bottom portion of an outdoor unit through a vibration-proof rubber, said outdoor unit having at least said hermetically sealed type compressor, a condenser and a blower for a condenser wherein a refrigerator comprises a refrigerating cycle formed by sequentially connecting said hermetically sealed type compressor, said condenser, a decompression device and an evaporator to each other through refrigerant tubes, characterized in that return portions for reinforcement are formed in outer circumferences of this base except for respective outer circumferences of said fixing portions located outside respective lines which are perpendicular to lines connecting a center of the base to the centers of holes for fixing formed in said fixing portions and are drawn through the centers of said holes for fixing.

A second aspect of the present invention is characterized in that three fixing portions are formed in said circumferential portions at an equal interval in the base according to the first aspect of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an explanatory view showing the interior



of an outdoor unit.

FIG. 2 is a plan view showing the interior of the outdoor unit of FIG. 1.

FIG. 3 is an exploded perspective view for
5 explaining a close type compressor, a base for the hermetically sealed type compressor, a vibration-proof rubber, a fixture, etc.

FIG. 4(a) is a plan view of the base for the hermetically sealed type compressor according to the present
10 invention.

FIG. 4(b) is a perspective view of the base for the hermetically sealed type compressor according to the present invention.

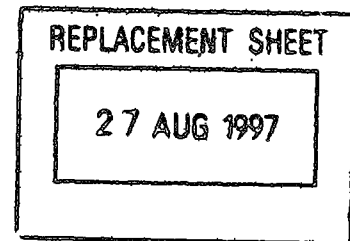
FIG. 5(a) is a plan view of a conventional base for
15 the hermetically sealed type compressor.

FIG. 5(b) is a perspective view of the conventional base for the hermetically sealed type compressor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 FIG. 4(a) is a plan view showing one example of a base for a hermetically sealed type compressor in the present invention. FIG. 4(b) is a perspective view of the base for the hermetically sealed type compressor in the present invention.

25 In FIGS. 4(a) and 4(b), the same holes 17a, 17b,



17c for fixing as the conventional base 9 are respectively formed at the centers of three fixing portions 8A, 8B, 8C formed at an equal interval in circumferential portions of a base 9A.

5 The base 9A differs from the conventional base 9 in that return portions 18A, 18B, 18C for reinforcement are formed in an outer circumference of the base 9A of the present invention except for specific positions of the fixing portions 8A, 8B, 8C.

10 Namely, the base 9A has no return portions for reinforcement in outer circumferences of the fixing portions 8A, 8B, 8C located outside lines a, b, c drawn through respective centers of the holes for fixing and perpendicular to lines which connect a center of the base 9A to the
15 respective centers of the holes 17a, 17b, 17c for fixing formed in the fixing portions 8A, 8B, 8C.

 No strengths of the base 9A itself and the fixing portions 8A, 8B, 8C themselves are substantially reduced even when no return portions are formed in the specific positions
20 of the fixing portions 8A, 8B, 8C. In this construction, a distance h from the center of the base 9A to its outer circumferential end through each of the centers of the holes for fixing can be shortened in comparison with the distance H of the conventional base 9 in the same position. Further, a
25 width w of each of the fixing portions of the base 9A can be

27 AUG 1997

reduced in comparison with the width W of the conventional base 9 in the same position.

In the above example, the three fixing portions 8A, 8B, 8C are spaced from each other at an equal interval in the circumferential portions of the base 9A. However, in the present invention, the number of fixing portions is not particularly limited.

Further, no form of the above hermetically sealed type compressor 1 is particularly limited. Concretely, the hermetically sealed type compressor 1 can be constructed by a rotary type compressor, a reciprocating type compressor, a vibrating type compressor, a multivane type rotary type compressor, a scroll type compressor, etc. as examples.

When the base for the hermetically sealed type compressor in the present invention is used, it is possible to make compact and particularly thin an outdoor unit having the hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor; the condenser, the blower for the condenser, etc.

27 AUG 1997

WHAT IS CLAIMED IS:

1. A base for a hermetically sealed type compressor, having a plurality of fixing portions in circumferential portions thereof for fixing said hermetically sealed type compressor
5 on a bottom portion of an outdoor unit through a vibration-proof rubber, said outdoor unit having at least said hermetically sealed type compressor, a condenser and a blower for said condenser wherein a refrigerator comprises a refrigerating cycle formed by sequentially connecting said
10 hermetically sealed type compressor, said condenser, a decompression device and an evaporator to each other through refrigerant tubes, characterized in that return portions for reinforcement are formed in outer circumferences of this base except for respective outer circumferences of said fixing
15 portions located outside respective lines which are perpendicular to respective lines connecting a center of the base to the respective centers of holes for fixing formed in said fixing portions and are drawn through the centers of said holes for fixing.
- 20
2. The base as claimed in claim 1, wherein three fixing portions are formed in said circumferential portions at an equal interval.



27 AUG 1997

BASE FOR HERMETICALLY SEALED TYPE COMPRESSOR BUILT IN
OUTDOOR UNIT

ABSTRACT

A base for a hermetically sealed type compressor has plural fixing portions in circumferential portions of the base to fixedly arrange the hermetically sealed type compressor on a bottom portion of an outdoor unit through a vibration-proof rubber. The base preferably has three fixing portions formed at an equal interval in the circumferential portions. Return portions for reinforcement are formed in outer circumferences of this base except for outer circumferences of the fixing portions located outside lines which are perpendicular to lines connecting a center of this base to the centers of holes for fixing formed in the fixing portions and are drawn through the centers of the holes for fixing. In this construction, it is possible to provide a base for the hermetically sealed type compressor able to make compact and thin an outdoor unit having the hermetically sealed type compressor, a condenser, a blower for the condenser, etc. without changing the hermetically sealed type compressor, the condenser, the blower for the condenser, etc.

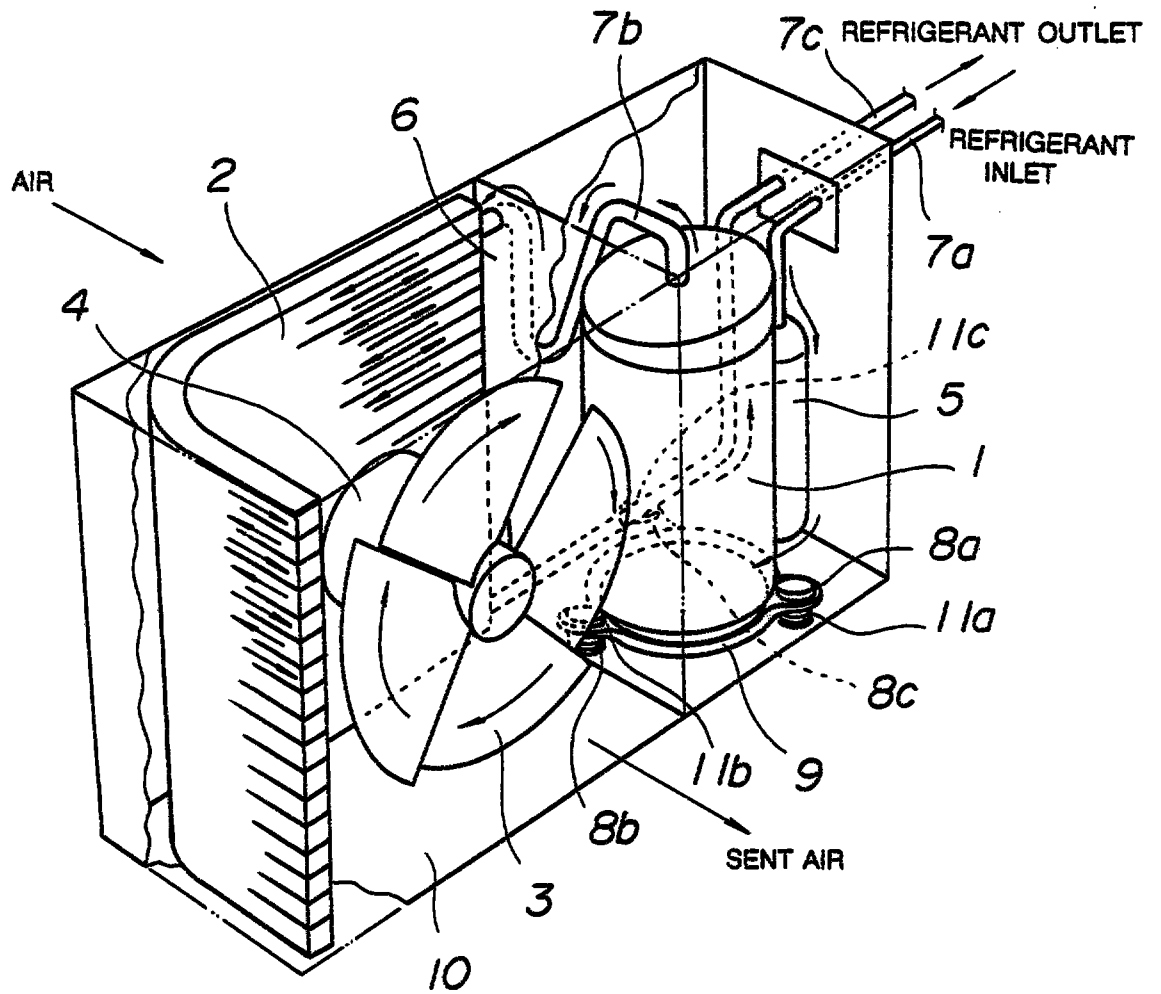
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Figure 1

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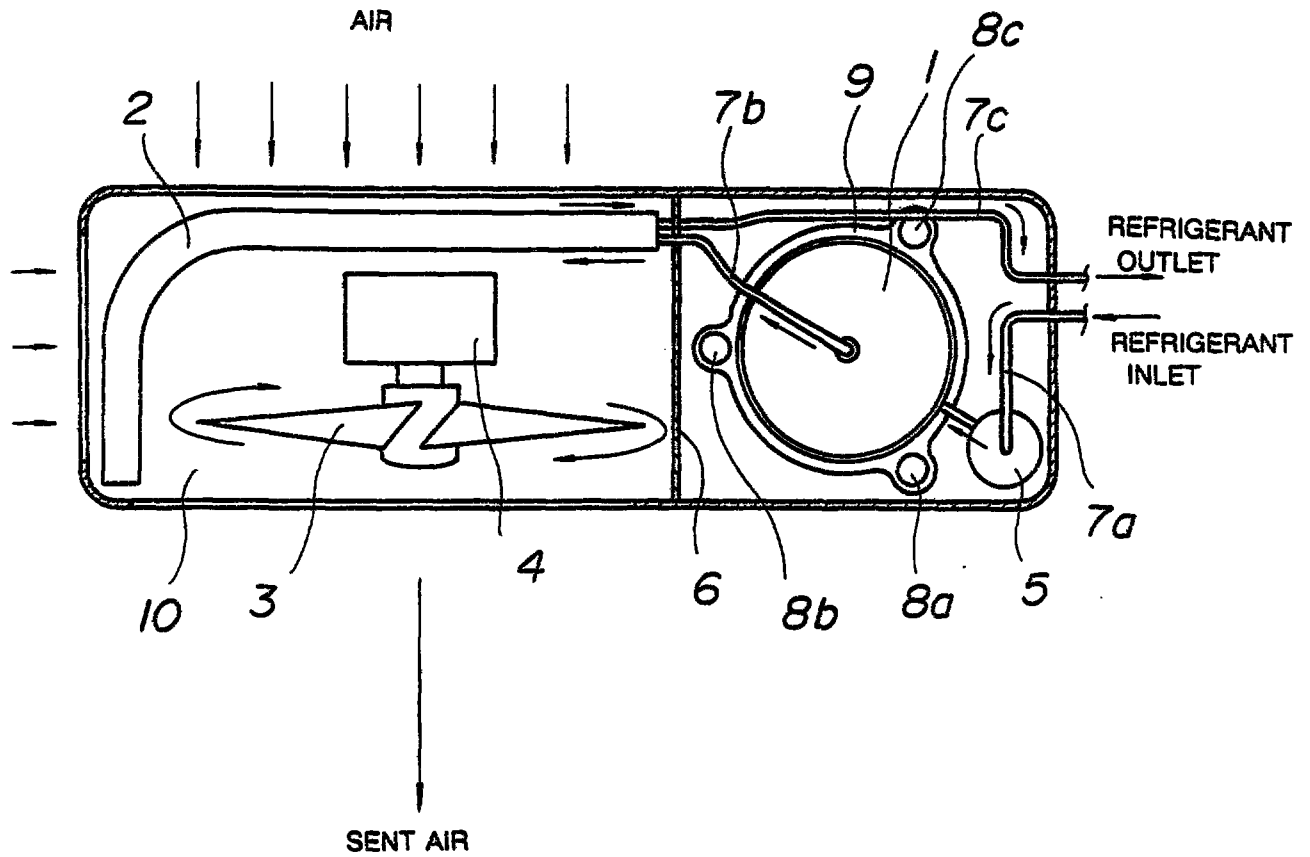
Fig. 1



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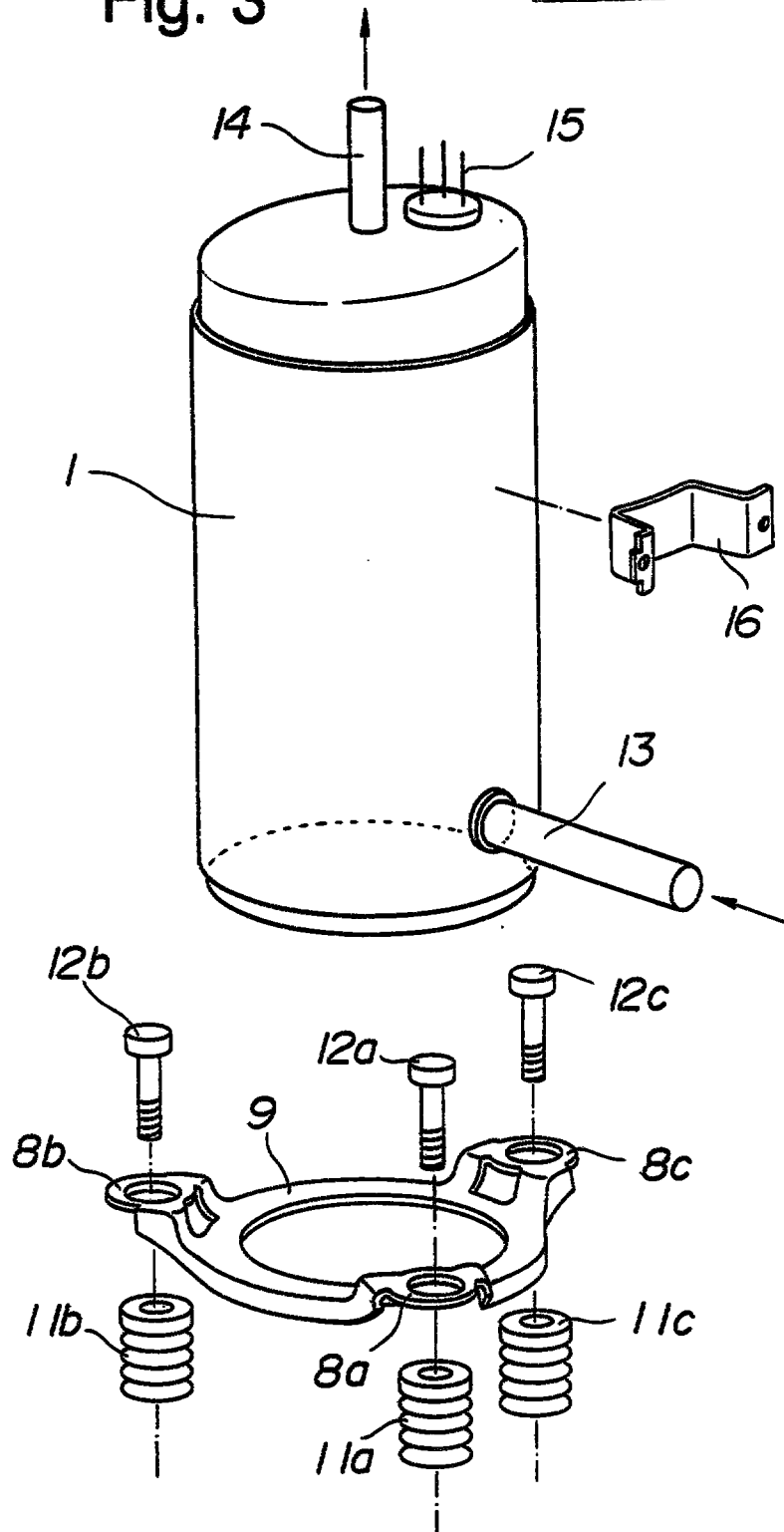
Fig. 2



27 AUG 1997

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Fig. 3



27 AUG 1997

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Fig. 4(a)

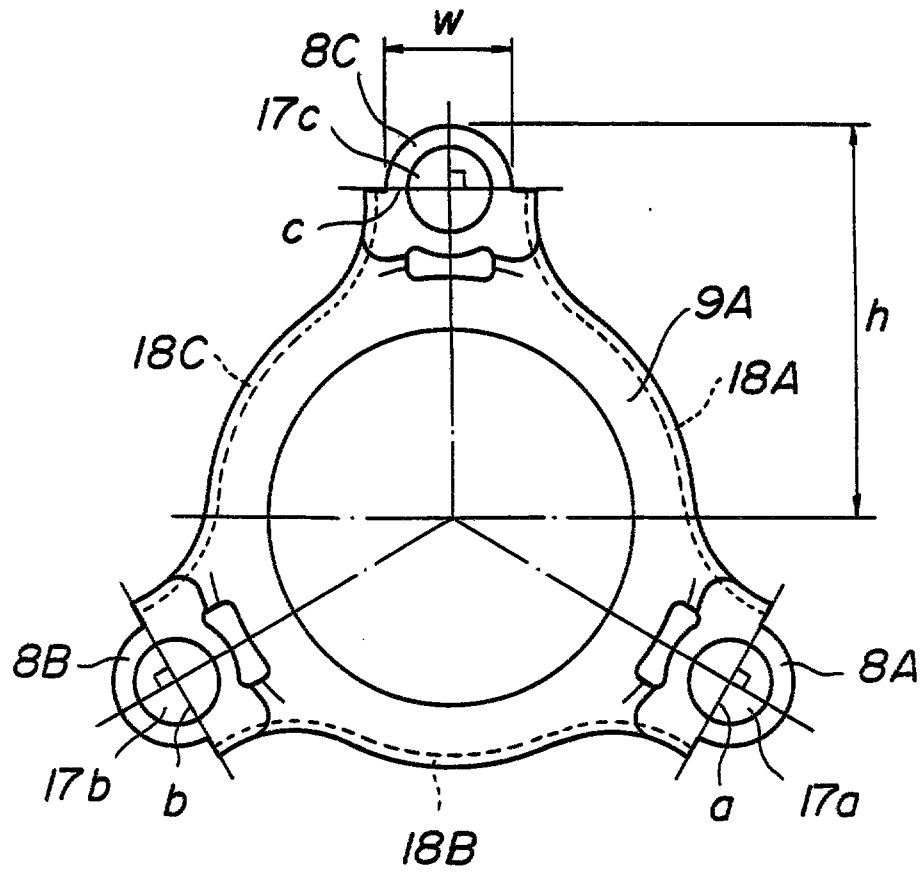
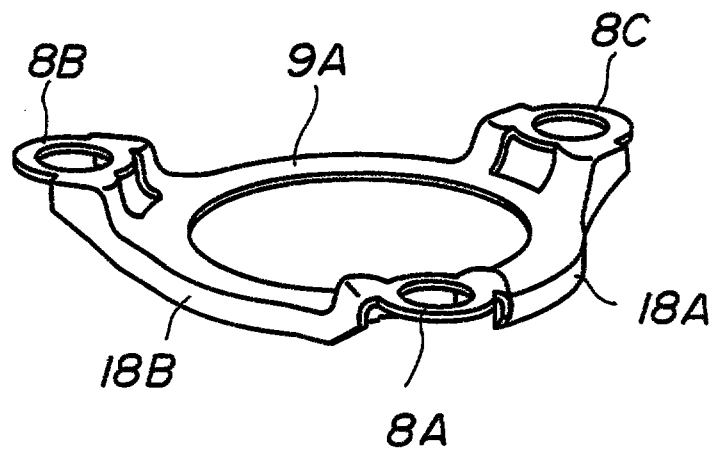


Fig. 4(b)



27 AUG 1997

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Fig. 5(a)

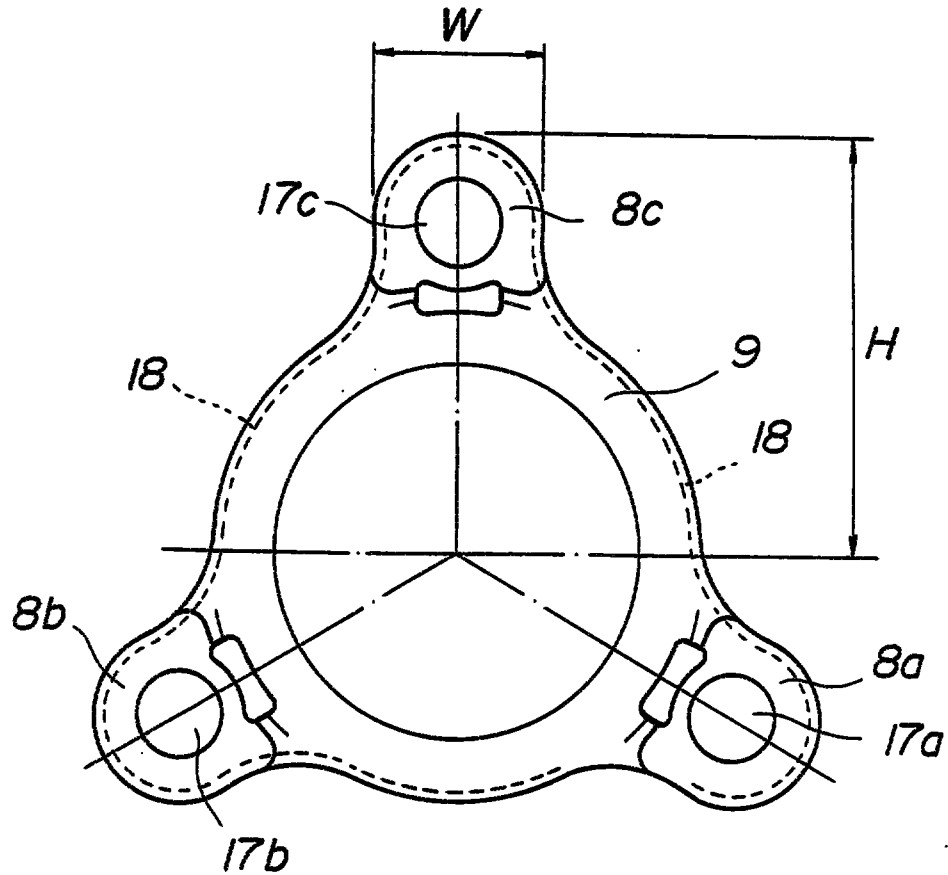


Fig. 5(b)

