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(54) **ROTARY COMPRESSOR----------**

(57) A rotary compressor comprising a cylinder (5) having a cylinder chamber (51) having a suction hole (52) and an exhaust hole (53) both formed therein, a roller (7) adapted to fit over an eccentric shaft portion (31) of a driving shaft (3) and to be installed in the cylinder chamber (51), and a blade (9) dividing the interior of the cylinder chamber (51) into a low pressure chamber (X) communicating with a suction port (54) and a high pressure chamber (Y) communicating with an exhaust port (55), wherein the suction hole (52) is formed in the internal circumferential surface of the cylinder chamber (51) in such a manner as to be inclined towards the blade (9) relative to a normal (c) perpendicular to a tengent (b) at the portion where the suction hole (52) is formed. Due to this configuration, the flow resistance caused when gas fluid is sucked from the suction hole (52) into the low pressure chamber (X) of the cylinder

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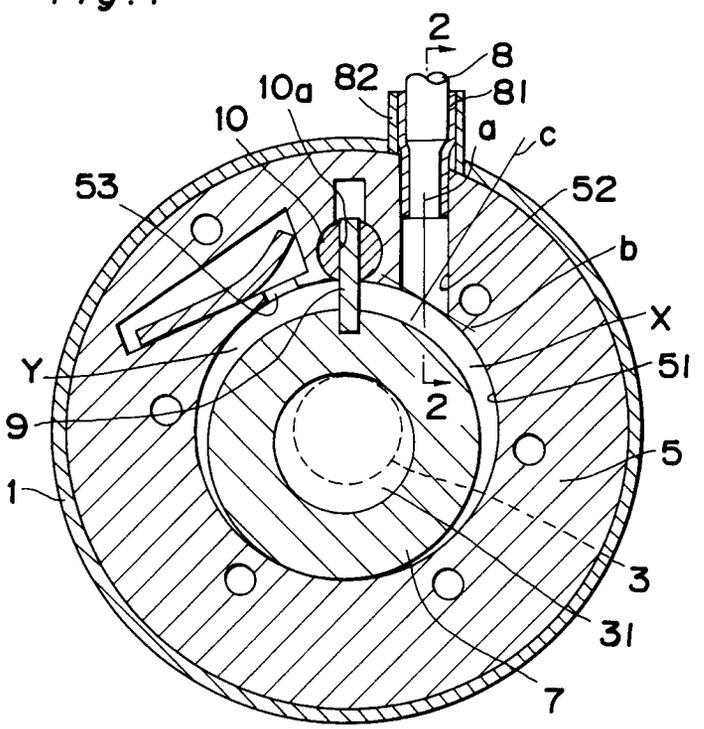
chamber (51) is made small, whereby pressure loss in the low pressure chamber (X) of the suction gas can be reduced.

Fig. 1



TECHNICAL FIELD

The present invention relates to a rotary compressor primarily employed in a refrigeration apparatus.

BACKGROUND ART

Conventionally, as a rotary compressor, there has been known a compressor described, for example, in Japanese Utility Model Application Laid-Open Publication No.63-54882. The conventional compressor is configured, as shown in Fig. 9, so that a roller C fitted on an eccentric portion S of a drive shaft is installed in a cylinder chamber A1 of a cylinder A with a front head (not shown) being arranged on one axial end face of the cylinder A and a rear head (not shown) being arranged on the other end face thereof, a suction port D and a discharge port E opened to the cylinder chamber A1 are formed at a predetermined interval in the circumferential direction, a blade holding groove F extending in the radial direction is formed between the suction port D and discharge port E, a blade G is provided on the blade holding groove F so as to be movable back and forth and by contacting a tip end of the blade G with the outer circumferential face of the roller C at all times, the inside of the cylinder chamber A1 is divided into a suction chamber X communicating to the suction port D and a high pressure chamber Y communicating to the discharge port E. In addition, the suction port D is positioned near the blade G on the cylinder A and is formed radially toward the center of the cylinder chamber A1, in other words, in a direction normal to a tangent at an intersection point of a center line of the suction port D with an inner circumferential face of the cylinder chamber A1. It is to be noted here that the roller C is constituted by two inner and outer roller members.

In the above-mentioned configuration, however, because the suction port D is formed, near the blade G, radially toward the central portion of the cylinder chamber A1, when gaseous fluid flows into the suction chamber X of the cylinder chamber A1 from the suction port D, after perpendicularly colliding with the outer periphery of the roller C from the suction port D, the gaseous fluid is introduced toward the counter-blade side of the suction chamber X approximately in the direction normal to the blade as indicated by an arrow m in Fig. 9, while being urged to be bounded approximately normal to the outer periphery of the roller C. As a result, there has been such a problem that the suction pressure loss in the suction chamber is increased because of the large flow resistance of the suction gas introduced from the suction port D to the suction chamber X.

DISCLOSURE OF THE INVENTION

The object of the present invention is to provide a rotary compressor which is able to reduce flow resistance in introducing gaseous fluid from a suction port to a low pressure chamber of a cylinder chamber to reduce suction pressure loss in the low pressure chamber.

In order to achieve the above-described object, according to the present invention, there is provided a rotary compressor which comprises: a cylinder having a cylinder chamber to which a suction port and a discharge port are opened; a roller fitted on an eccentric portion of a drive shaft and arranged within the cylinder chamber; and a blade partitioning the inside of the cylinder chamber into a low pressure chamber communicating to the suction port and a high pressure chamber communicating to the discharge port; and wherein the suction port is formed so that a center line of the suction port at an opening side to the cylinder chamber is inclined toward the blade with respect to a normal line perpendicular to a tangent of an inner circumferential surface of the cylinder chamber at an imaginary point at which the center line and the inner circumferential surface cross each other.

In the configuration described above, because the suction port is formed so that the center line of the suction port at least at the opening side to the cylinder chamber is inclined toward the blade with respect to the normal line perpendicular to the tangent of the inner circumferential surface of the cylinder chamber at the imaginary point at which the center line and the inner circumferential surface cross each other, when gaseous fluid is sucked into the low pressure chamber of the cylinder chamber from the suction port, the suction gas fluid collides with an outer circumferential surface of the roller not perpendicularly but at an acute angle relative to a tangent at the outer circumferential surface. Accordingly, the suction gas after collision is reflected toward a rotation direction of the drive shaft and introduced smoothly to the low pressure chamber, and thus, the flow resistance of the suction gas fluid can be reduced and the pressure loss of the suction gas fluid in the low pressure chamber can be reduced.

In another embodiment of the present invention, a center line of the suction port at a suction pipe connection side is directed to a center of the cylinder chamber.

Accordingly, when press-fixing the suction pipe or an inlet tube for connecting the suction pipe into the suction port, the suction pipe and so on can be connected toward the center of the cylinder and as a result, trouble arising when the suction pipe or inlet tube is pressed in the same direction as that

of the center line of the suction port at the opening side, that is, trouble of deformations of parts and deviations in assembly clearance which is likely to take place due to rotating moment applied to the cylinder when press-inserting it in the direction of the center line at the opening side, can be eliminated. Furthermore, generally in a rotary compressor, when a blade is positioned closely to a suction port and a cylinder is combined with the closing members of front and rear heads by tightening bolts, a sufficient space for bolt tightening can not obtained between the blade and the suction port, which results in the decrease in face pressure between the end faces of the cylinder and the closing members arranged in the axial direction of the cylinder, and consequent leakage between respective end faces. In the compressor of the embodiment, however, the leakage can be also eliminated. Furthermore, in the case of supporting the suction pipe with a coupling tube, if the center line of an entire suction port is inclined so as to make an acute angle relative to a tangent of an inner circumferential surface of a cylinder chamber, that is to say, is inclined toward a blade with respect to a normal line perpendicular to the tangent, the coupling tube must be also fixed to the cylinder in the direction of this center line and therefore, the coupling tube becomes peculiar in shape, which prevents sharing parts in common and makes welding difficult. In this embodiment, the above defect can be also eliminated.

Accordingly, deformations in parts and deviations in assembly clearance can be prevented while reducing the pressure loss in the low pressure chamber through reduction of flow resistance of suction gas, and by securing a sufficient space between the arrangement position of the blade and the opening side of the suction port, tightening of a bolt can be made possible, and thus, the leakage from the end faces of the closing members can be prevented. Furthermore, because the coupling tube to be installed in connecting the suction pipe can be connected in the direction toward the center of the cylinder, the commonness of the coupling tube conventionally employed can be achieved and the welding operation can be also simplified.

In another embodiment of the present invention, on a closing member provided on one axial end of the cylinder so as to close one axial end of the cylinder chamber, a suction passage communicating to a suction pipe is formed so that an end of the suction passage is inclined toward the cylinder and connected to the suction port.

With this configuration, even when the cylinder and roller are formed flat by shortening the axial lengths thereof, suction gas can be introduced from the closing member with low flow resistance. Namely, in the case of forming a compressor flat by decreasing the widths of a blade and the roller and compacting the compressor by shortening the axial lengths thereof or shortening the axial length of one cylinder in using plural cylinders, the inner diameter of the suction pipe to be connected to the cylinder becomes smaller and a sufficient size of the suction port can not be obtained according as the axial length of the compressor is reduced. However, by providing a suction passage on the closing member such as the rear head, a necessary size of the suction port can be secured. Also, by inclining the end side of the suction passage toward the cylinder chamber and connecting the suction passage to the suction port inclined toward the blade with respect to a normal line perpendicular to the tangent on the inner circumferential surface of the cylinder chamber, suction gas of a necessary volume matching the volume of the cylinder chamber can be introduced with low flow resistance from the suction pipe to the low pressure chamber of the cylinder chamber via the suction passage and suction port, and thus, the pressure loss in the low pressure chamber can be reduced.

In still another embodiment of the present invention, the center line of a suction passage of a closing member on the inlet side communicating to a suction pipe is directed toward the center of a cylinder chamber and the center line of the suction passage at the connection side to a suction port is formed to be inclined in the same direction as that of the center line of the suction port on the opening side thereof to a cylinder chamber.

In this case, the suction pipe can be connected toward the center of the cylinder. Accordingly, gaseous fluid of a necessary volume corresponding to the volume of the cylinder chamber can be introduced with low flow resistance into the low pressure chamber of the cylinder chamber from the suction pipe via the suction passage and suction port, while reducing pressure loss in the low pressure chamber. Further, deformations of parts and deviations in assembly clearance can be prevented, and by securing the necessary space for bolt tightening between the arrangement position of the blade and the inlet side of the suction port, leakage can be also prevented.

In still another embodiment, a blade is protrudedly connected to the outer circumferential surface of a roller, a swing bush having a receiving groove for receiving an end portion of the blade movably back and forth is swingably held in the cylinder, and a concave guide groove for guiding the suction gas introduced from the suction port to the low pressure chamber is provided at the position of the outer circumferential surface of a roller confronting the suction port formed on the cylinder.

In this case, the space between the outlet of the suction port and the outer circumferential surface of the roller can be enlarged, and by this space, the suction resistance of the suction gas sucked into the cylinder chamber from the suction port can be reduced. Furthermore, by the guide groove, the suction gaseous fluid can be guided more smoothly to the side of the low pressure chamber. As a result, flow resistance can be further reduced and thus, the pressure loss of suction gaseous fluid in the low pressure chamber can be further reduced.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a transverse cross-sectional view showing the essential portion of a rotary compressor according to a first embodiment of the present invention;

Fig. 2 is an enlarged sectional view taken along line 2-2 in Fig.1;

Fig. 3 is a transverse cross-sectional view showing a second embodiment of the present invention;

Fig. 4 is a transverse cross-sectional view showing a third embodiment of the present invention;

Fig. 5 is an enlarged sectional view taken along line 5-5 in Fig. 4;

Fig. 6 is a transverse cross-sectional view showing a fourth embodiment of the present invention;

Fig. 7 is a partly broken plan view showing a fifth embodiment of the present invention;

Fig. 8 is a longitudinal sectional view showing the overall configuration of a rotary compressor; and

Fig. 9 is a cross-sectional view showing a conventional rotary compressor.

BEST MODE FOR CARRYING OUT THE INVENTION

The first embodiment of the present invention is described below with reference to the accompanying drawings. A rotary compressor shown in Fig. 8 is provided with a motor 2 arranged on the inner upper portion of a hermetic casing 1 and a compressing element 4 which is rotatingly driven by a drive shaft 3 extending from the motor 2 is arranged on the lower side of the motor 2. The compressing element 4 is provided with a cylinder 5 having a cylinder chamber 51 therein, closing members 6, 6 composed of a front head and a rear head closing both axial ends of the cylinder 5, and a roller 7 fitted on an eccentric portion of the drive shaft 3 and installed within the cylinder chamber 51.

In addition, as is clear from Figs. 1 and 2, the cylinder 5 is provided with a suction port 52 one end of which is connected with a suction pipe 8 inserted from the outside of the hermetic casing 1 via an inlet tube 81 and the other end of which is opened to the cylinder chamber 51, a discharge port 53 opened in a discharge space within the casing 1 and a blade 9 arranged between the suction port 52 and discharge port 53 so as to partition the inner space of the cylinder chamber 51 into a low pressure chamber X communicating to the suction port 52 and a high pressure chamber Y communicating to the discharge port 53.

Furthermore, the rotary compressor of the first embodiment constitutes a swing type compressor with the blade 9 being arranged to be swingable. In other words, the compressor is constituted as follows. On a certain portion of the outer circumference of the roller 7, the blade 9 is embedded at its base end portion so as to radially protrude outward, and on the cylinder chamber side, in the radial direction of the cylinder 5 and between the suction port 52 and discharge port 53, a circular pillar-shaped swing bush 10 having a receiving groove 10a for movably receiving an end portion of the blade 9 is held so as to be rotatable in the circumferential direction. By inserting the protruded end of the blade 9 into the receiving groove 10a of the swing bush 10 so as to be movable back and forth and swingable, the blade 9 is back and forth moved in the receiving groove 10a of the bush 10 along with the rotation of the drive shaft 3 and while swinging the blade 9 with respect to the cylinder 5 via the bush 10, the roller 7 is revolved within the cylinder chamber 51 without rotating, thereby to partition the internal space of the cylinder chamber 51 into the low pressure chamber X communicating to the suction port 52 and the high pressure chamber Y communicating to the discharge port 53.

In the above-mentioned swing type compressor, because the blade 9 is integrally coupled with the roller 7, the leakage of high pressure fluid in the high pressure chamber Y to the low pressure chamber X can be more effectively prevented, because there is not the leakage through the contact face of a roller with a blade as caused in a rotary compressor contacting a tip end of a blade with an outer circumference at all times, and thus, the compression efficiency can be improved. Furthermore, because the blade 9 does not slide along the outer circumference of the roller 7, the friction loss between the roller 7 and blade 9 can be eliminated and thus power loss can be also reduced.

In the above-described configuration of the rotary compressor shown in Figs. 1 and 2, the suction port 52 is formed so that the center line a of the suction port 52 is inclined toward the blade 9,

at least on the opening side to the cylinder chamber 51, so as to make an acute angle relative to the tangent b at the intersection point of the center line a with the inner circumference of the cylinder chamber 51. Namely, assuming that the center line of the suction port is a, the tangent at the intersection of the center line a with the inner circumference of the cylinder chamber 51 is b and a normal line crossing the tangent b at a right angle is c, the suction port 52 is formed on the cylinder 5 so that the center line a of the suction port 52 is inclined toward the blade 9 side with respect to the line c so as to approach the tangent b.

As described above, by forming the suction port 52 on the cylinder 5 so that the center line a of the suction port 52 is inclined toward the blade 9 with respect to a normal line C perpendicular to the tangent b at the position on the inner circumference of the cylinder chamber 51 where the suction port 52 is formed, when gaseous fluid is taken into the low pressure chamber X of the cylinder chamber 51 through the suction port 52, the suction gaseous fluid does not collide with the outer circumference of the roller 7 perpendicularly but collide at an acute angle relative to the tangent at the outer circumference. Therefore the suction gaseous fluid after collision is reflected in the rotation direction of the drive shaft 3. As a result, suction gaseous fluid is introduced smoothly into the low pressure chamber X from the suction port 52 with low flow resistance, and thus, the pressure loss in the low pressure chamber X can be reduced.

Subsequently, the second embodiment of the present invention is described below. In a rotary compressor shown in Fig. 3, the shape of a suction port 52 formed in a cylinder 5 is modified so that a center line d on a suction pipe connection side of the suction port 52 is directed to the center of a cylinder chamber 51 and the suction port 52 is bent in the same plane as a cross-section in Fig. 3 so as to incline the center line a on the opening side of the suction port 52 to the cylinder chamber 51 toward a blade 9 with respect to a normal line c perpendicular to a tangent b at the intersection point of the center line a with the inner circumferential surface of the cylinder chamber 51, whereby the later-described trouble taking place in the first embodiment can be eliminated.

Specifically, as in the first embodiment, in connecting the suction tube 8 to the suction port 52 via the inlet tube 81, when the inlet tube 81 is connected by pressfixing in the direction of the center line a, although there is an effect of reducing pressure loss through reduction of flow resistance in the cylinder chamber, the action rotating the cylinder 5 is caused by the pressinsertion in the direction of the center line a, and troubles such as deformations of components and deviations in assembly clearance are likely to take place due to rotation moment arising as a result.

Furthermore, according to the first embodiment, because the arranged positions of the blade 9 and suction port 52 are too close to each other, a sufficient space for tightening a bolt can not be obtained between the blade 9 and suction port 52, which results in leakage through clearances between respective end faces due to face pressure drop between the end faces of the cylinder 5 and those of the closing members 6 arranged in the axial direction of the cylinder 5. In addition, when the inlet tube 81 is supported with a connection tube 82, the connection tube 82 is also to be fixed to the casing 1 in the direction of the center line a and the connection tube 82 takes a special shape. As a result, it is impossible to use parts employed conventionally, resulting in the failure to obtain the commonness of parts. In addition, there is a trouble of difficulty of welding operation.

As the second embodiment of Fig. 3 shows, by configuring so that the center line d on the suction pipe connection side of the suction port 52 is directed to the center of the cylinder and the center line a of the opening side to the cylinder chamber of the suction port is inclined toward the blade 9 so as to make an acute angle relative to the tangent b at the intersection point with the inner circumference of the cylinder chamber 51, the inlet tube 81 can be press-inserted toward the center of the cylinder 5 when connecting the suction pipe 8 with the suction port 52 via the inlet tube 81 and thus, the troubles taking place when the inlet tube 81 is pressinserted in the same direction as the center line a can be eliminated. As a result, deformations of parts and deviations in the assembling clearance can be prevented while reducing the pressure loss in the low pressure chamber X through reduction of flow resistance of suction gaseous fluid, a sufficient space can be secured between the arranged position of the blade 9 and the inlet side of the suction port 52, which makes it possible to arrange a fixing bolt for coupling the closing members 6 and the cylinder 5 between the blade 9 and suction port 52 and the leakage through between respective end faces of the cylinder 5 and closing end members 6 can be also prevented. Furthermore, because the coupling tube 82 employed when press-inserting the inlet tube 81 also can be connected in the direction toward the center of the cylinder 5, the commonness of coupling tubes conventionally used in general can be achieved and welding operation also can be conducted simply.

Next, the third embodiment is described below with reference to Figs. 4 and 5. As shown in Fig. 3, in forming the rotary compressor in a flat shape by

shortening the axial length of the roller 7 and blade 9 in such a case of shortening the axial length of the compressor or constituting the compressor with plural cylinders, when the suction pipe 8 is connected to the cylinder 5, the inner diameter thereof is affected by the thickness of the cylinder 5 and as the thickness becomes thinner, the suction tube size is restricted, leading to the pressure loss. In the rotary compressor shown in Figs. 4 and 5, one of closing members 6, for example, a lower closing member 6, that is a rear head is increased in thickness and on this rear head 6, a suction passage 61 is formed so that a center line a of the suction passage 61 is inclined toward a blade 9 so as to make an acute angle to the tangent b at the intersection point of the center line a with the inner circumference of the cylinder chamber 51 as shown in Fig. 4 and the end side of the suction passage 61 is inclined upward toward the cylinder chamber 51 as shown in Fig. 5 and the suction pipe 8 is connected to the outer side of the suction passage 61 via the inlet tube 81. On the other hand, the suction port 52 provided on the cylinder 5 is formed as shown in Fig. 4 so that the center line a of the suction pipe 8 is inclined toward the blade 9 so as to make an acute angle relative to the tangent b at the intersection of the center line a with the inner circumference of the cylinder chamber, similarly to the suction passage 61 and inclined downward so as to be connected with the end side of the suction passage 61. Thereby, the suction pressure loss due to the restriction of the suction port size can be avoided.

Namely, by configuring as described above, the inner diameter of the suction passage 61 can be sized sufficiently large irrespective of the thickness of the cylinder 5, and because the suction passage 61 is connected with the suction port 52 in a slanted state, suction gaseous fluid can be smoothly introduced into the low pressure chamber X of the cylinder chamber 51 from the suction passage 61 via the suction port 52 with a little flow resistance, and thus, the shortage in the suction quantity of gaseous fluid in the cylinder chamber 51 can be avoided while reducing the pressure loss of the gaseous fluid in the low pressure chamber X. Namely, even in the case of down-sizing the cylinder 5 and roller 7 in the axial direction, by configuring as described above, gaseous fluid can be introduced from the suction passage 61 to the low pressure chamber X of the cylinder chamber 51 via the suction port 52 with low flow resistance, thus to reduce the pressure loss in the low pressure chamber X, and the shortage in the suction gas quantity introduced in the cylinder chamber 51 can be avoided.

It is to be noted here that in the third embodiment, the blade 9 is formed integrally with the roller 7 so as to protrude from a part of the outer circumference of the roller 7.

In addition, when configuring so as to connect the suction pipe 8 to the closing member 6 in the case of shortening the axial dimension of the cylinder 5 and roller 7, it is preferable to form so that the center line on the inlet side communicating with the suction pipe 8 in the suction passage 61 formed in the closing member 6 is directed to the center of the cylinder chamber 51 and the center line on the connection side to the suction port 52 of the suction passage 61 is inclined, as shown the fourth embodiment in Fig. 6, in the same direction as that of the center line on the opening side to the cylinder chamber 51 of the suction port 52. By doing so, the suction pipe 8 can be connected toward the center of the cylinder chamber 51 via the inlet tube 81 as with the above-described second embodiment. As a result, the necessary quantity of gaseous fluid matching the volume of the cylinder chamber 51 can be introduced with reduced flow resistance from the suction pipe 8 to the low pressure chamber X on the cylinder chamber 51 via the suction passage 61 and suction port 52, and deformations of parts and deviations in the assembly clearance can be prevented while achieving the reduction of the pressure loss in the low pressure chamber X. In addition, because the space for tightening a bolt can be secured between the arranged position of the blade 9 and the inlet side of the suction port 52, leakage can be also prevented.

In the embodiment described above, while the suction passage 61 is formed in the rear head as the lower closing member 6, the suction passage 61 may be formed in the front head as the upper closing member 6. In a rotary compressor wherein two cylinders on the upper and lower side are employed with a middle plate being inserted between the cylinders and gaseous fluid is compressed in the cylinder chamber of each cylinder, a suction passage can be formed also in the middle plate.

In addition, in each embodiment described above, description has been made of a swing type rotary compressor. In the case of configuring such a rotary compressor of swing type, because the roller 7 is merely revolved around the center of the cylinder chamber without rotating by the swinging motion of the blade 9, the position of the roller portion confronting the suction port 52 is invariable. Accordingly, it is preferable to form, as shown in Fig. 7, a concave guide groove 71 of a circular-arc shape for more smoothly guiding the suction gas introduced from the suction port 52 to the low pressure chamber X on the roller outer circumference portion confronting the suction port 52, by utilizing the revolution motion of the roller 7.

By adopting the configuration, the space between the outlet of the suction port 52 and the circumferential surface of the roller 7 can be enlarged, and by this space, the suction resistance of suction gas fluid sucked into the cylinder chamber 51 from the suction port 52 can be reduced. Further, the suction gas fluid sucked into the cylinder chamber 51 from the suction port 52 is more smoothly guided into the low pressure chamber X via the guide groove 71 of a circular-arc shape. Accordingly, the flow resistance of the gas fluid sucked into the cylinder chamber 51 can be reduced further and thus, the pressure loss of the suction gas fluid in the low pressure chamber can be further reduced.

In addition, in the embodiment shown in Fig. 7, because the guide groove 71 for guiding the gas fluid sucked from the suction port 52 to the outer circumference of the roller 7 is formed in a concave shape, while the rotary compressor is required to be formed of a swing type, rotary compressors are not necessarily required to be of a swing type but may be of a revolving type around the center of the cylinder chamber 51. In addition, in third and fourth embodiments, while the cylinder 5 and the roller 7 are formed to be flat, in the case of connecting the suction tube 8 to the closing member 6, the cylinder 5 and roller 7 are not necessarily required to be flat.

INDUSTRIAL APPLICABILITY

The rotary compressor according to the present invention is employed primarily for the refrigeration apparatus.

Claims

1. A rotary compressor which comprises:

a cylinder (5) having a cylinder chamber (51) to which a suction port (52) and a discharge port (53) are opened;

a roller (7) fitted on an eccentric portion (31) of a drive shaft (3) and arranged within the cylinder chamber (51); and

a blade (6) partitioning the inside of the cylinder chamber (51) into a low pressure chamber (X) communicating to the suction port (52) and a high pressure chamber (Y) communicating to the discharge port (53); and

wherein the suction port is formed so that a center line (a) of the suction port (52) at an opening side to the cylinder chamber (51) is inclined toward the blade (9) with respect to a normal line (c) perpendicular to a tangent (b) of an inner circumferential surface of the cylinder chamber (51) at an imaginary point at which the center line (a) and the inner circumferential surface cross each other.

2. A rotary compressor as described in Claim 1 wherein a center line (d) of the suction port (52) on a suction pipe connection side is directed to a center of the cylinder chamber (51).

3. A rotary compressor as described in Claim 1, wherein on a closing member (6) provided on one axial end of the cylinder (5) so as to close one axial end of the cylinder chamber (51), a suction passage (61) communicating to a suction pipe (8) is formed so that an end side of the suction passage (61) is inclined toward the cylinder (5) and connected to the suction port (52).

4. A rotary compressor as described in Claim 3, wherein a center line of the suction passage (61) of the closing member (6) on an inlet side communicating to the suction pipe (8) is directed toward a center of the cylinder chamber (51) and a center line of the suction passage (61) on a side communicating to the suction port (52) is formed to be inclined in the same direction as that of the center line (a) of the suction port (52) on an opening side to the cylinder chamber (51).

5. A rotary compressor as described in Claim 1, wherein the blade (9) is protruded by provided on an outer circumference of the roller (7), a swing bush (10) having a receiving groove (10a) for receiving a protruded end portion of the blade (9) movably back and forth is swingably supported on the cylinder (5), and a concave guide groove (71) for guiding suction gas introduced from the suction port (52) to the low pressure chamber (X) is provided at a position of an outer circumferential surface of the roller (7) confronting the suction port (52) opened to the cylinder chamber (51).

Fig. 1

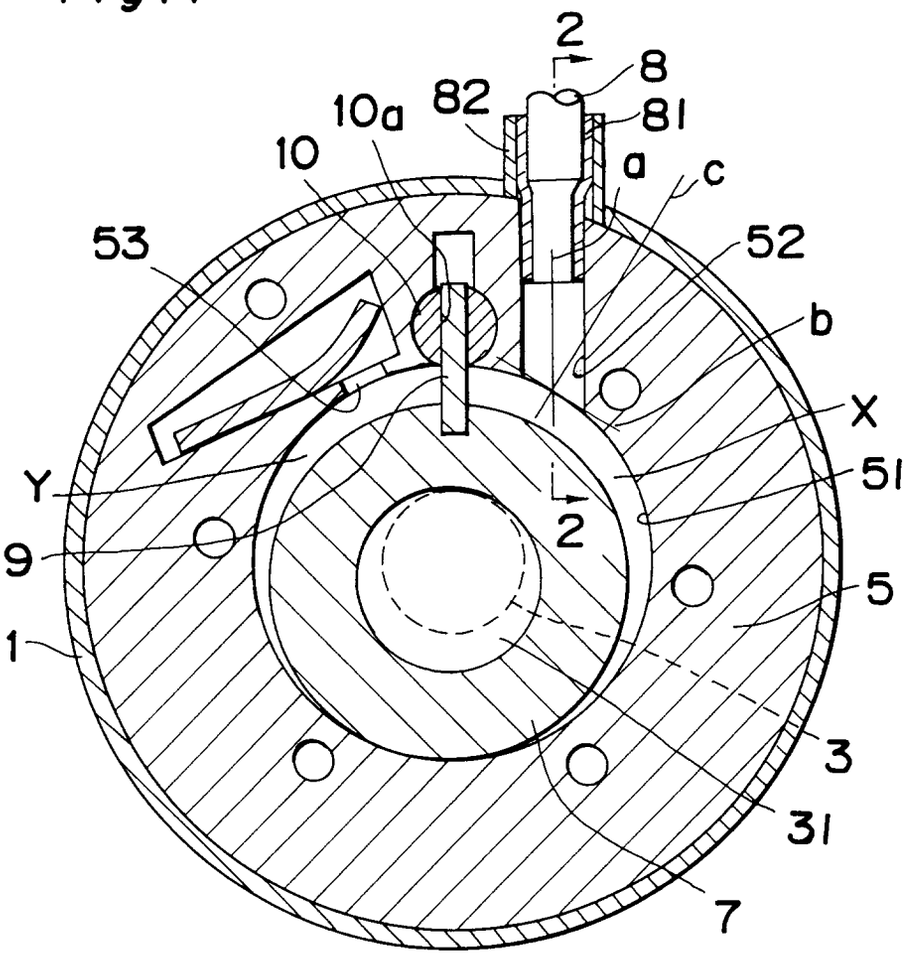


Fig. 2

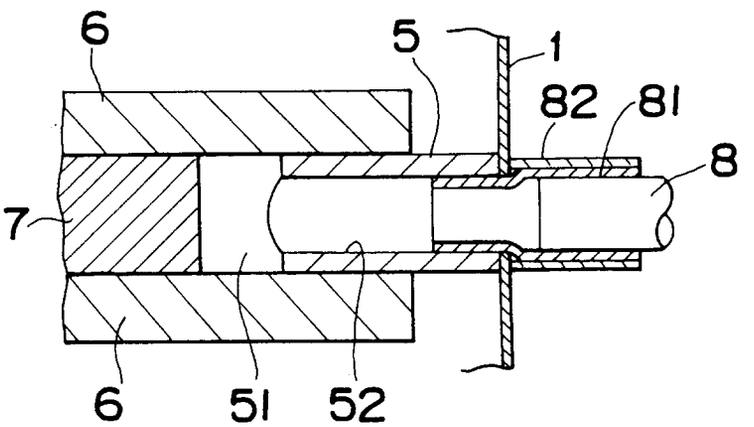


Fig. 3

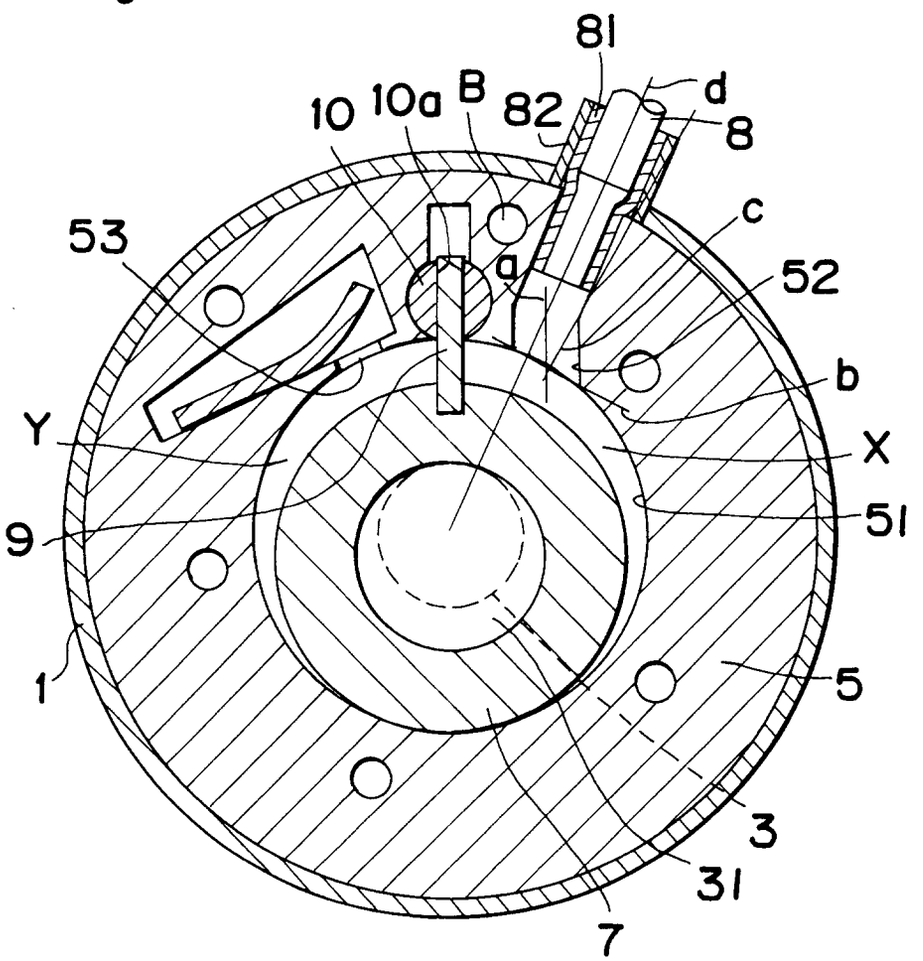


Fig. 4

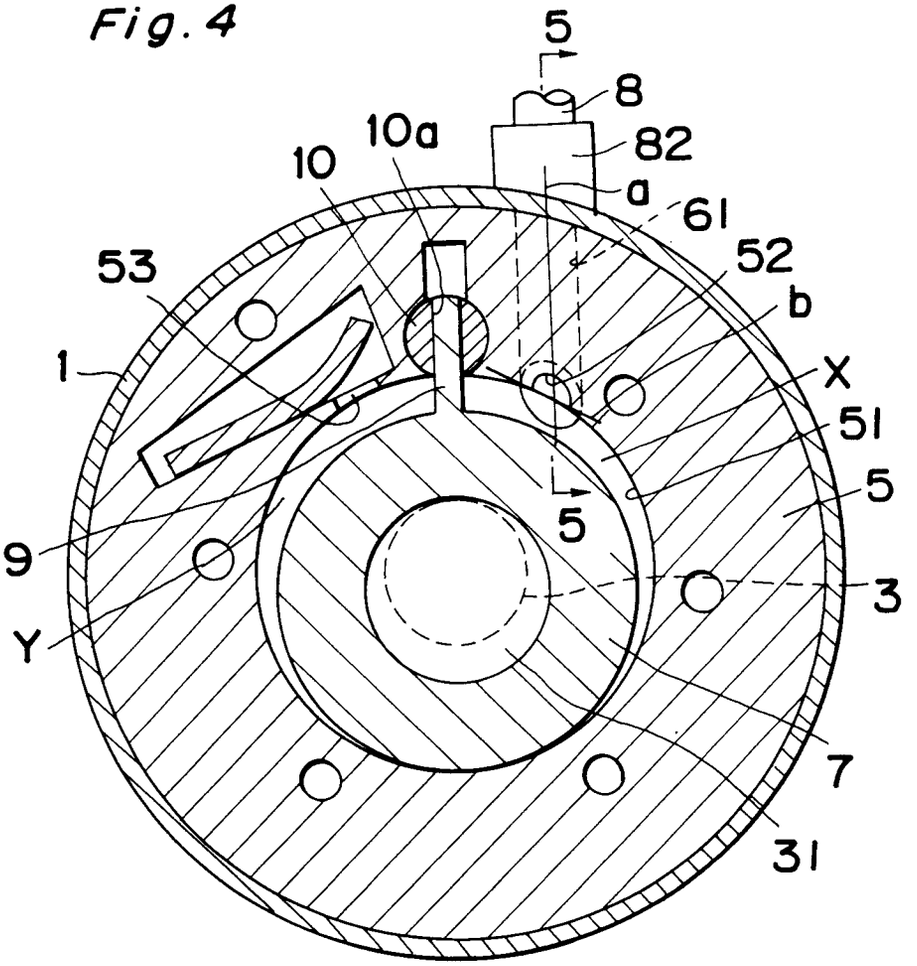


Fig. 5

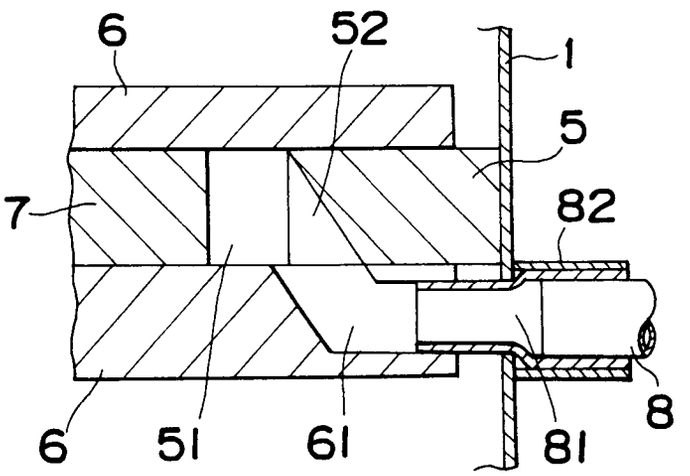


Fig. 6

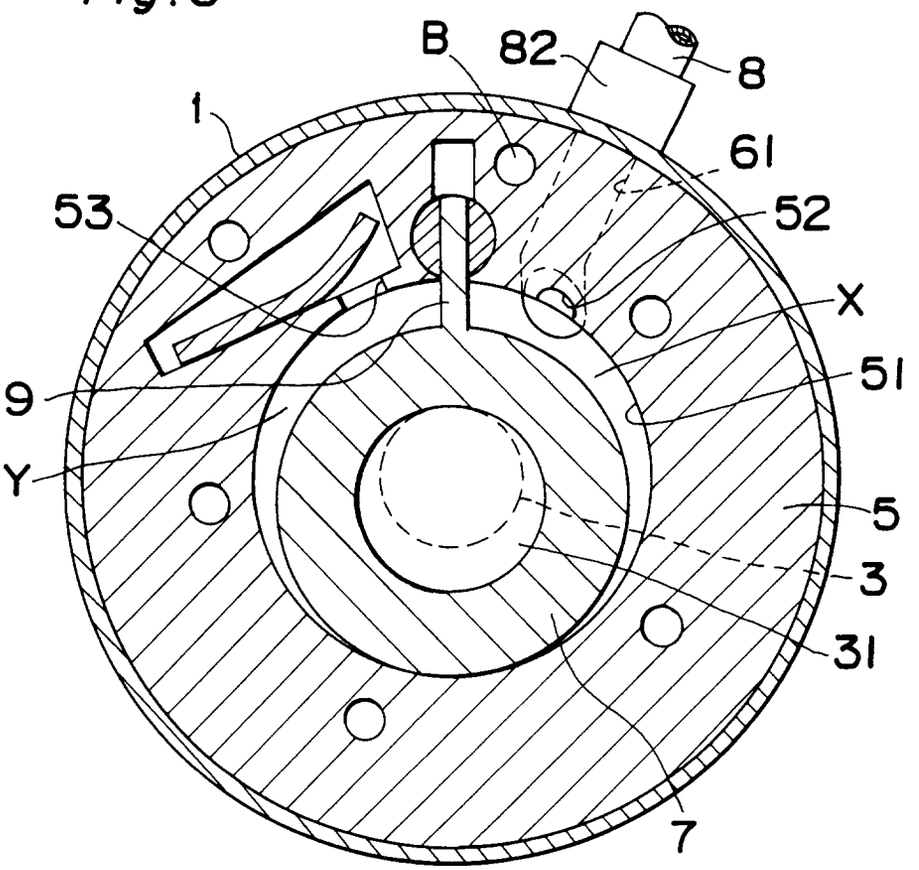


Fig. 7

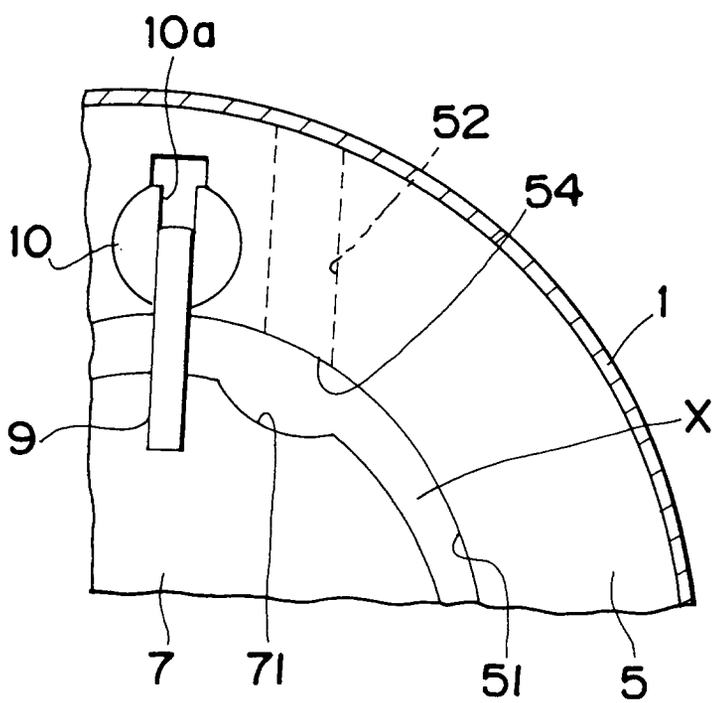


Fig. 8

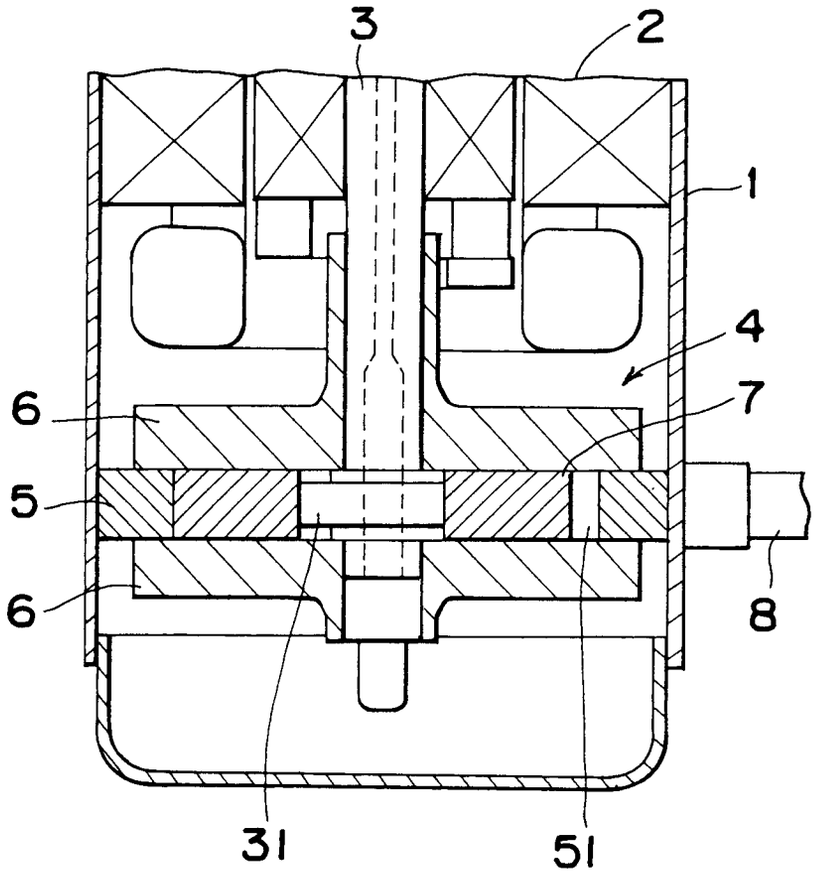
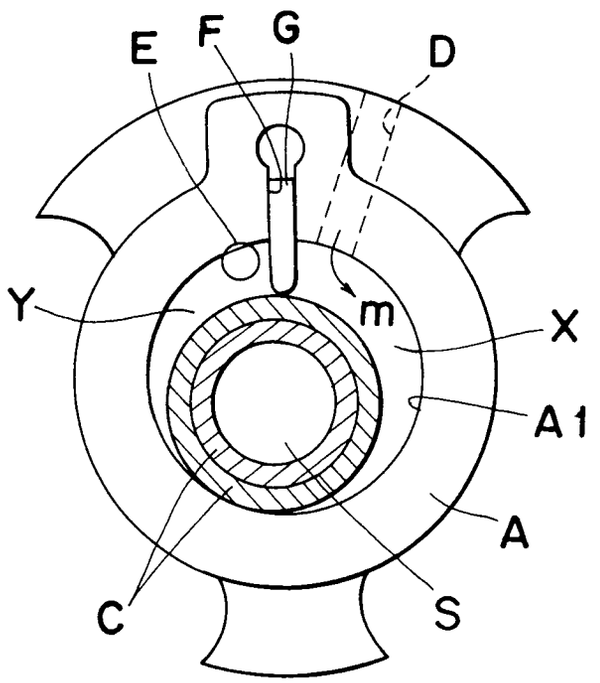


Fig. 9



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP94/02052

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl^6 F04C29/00, F04C18/356

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl^6 F04C29/00, F04C18/356, F04C18/30-18/34

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1926 - 1993
Kokai Jitsuyo Shinan Koho 1971 - 1993

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP, U, 58-175188 (Sanyo Electric Co., Ltd. and another), November 22, 1983 (22. 11. 83), Lines 8 to 14, left column, page 1, Fig. 1, (Family: none)	1-5
Y	JP, U, 62-97290 (Mitsubishi Electric Corp.), June 20, 1987 (20. 06. 87), Claim, left column, page 1, Fig. 4, (Family: none)	1-5
Y	JP, Y2, 58-52394 (Daikin Industries, Ltd.), November 29, 1983 (29. 11. 83), Lines 12 to 15, right column, page 2, Fig. 1, (Family: none)	3
Y	JP, A, 3-70890 (Daikin Industries, Ltd.), March 26, 1991 (26. 03. 91), Lines 5 to 15, upper right column, page 2, Fig. 4, (Family: none)	4

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
January 12, 1995 (12. 01. 95)	January 31, 1995 (31. 01. 95)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

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