

Description

BACKGROUND OF THE INVENTION

Field of the Invention

The invention relates to a swash plate type compressor with variable displacement which is particularly suitable as a refrigerant compressor for an automotive air-conditioning apparatus.

Description of the Prior Art

A swash plate refrigerant compressor with a variable displacement mechanism suitable for use in an automotive air condition system is disclosed in U.S. Patent No. 4,963,074 on which the preamble of claim 1 is based. As disclosed therein, the swash plate is supported on a rotatable shaft of the compressor so that a change in inclination angle or tilt of the slant plate causes the reciprocating stroke or stroke length of each piston to change. The swash plate is connected with a rotor plate rotatably supported on the rotatable shaft through a single hinge coupling mechanism so that the swash plate and the rotor plate rotate in unison.

The hinge coupling mechanism includes a first arm portion projecting axially from an outside surface of the rotor plate and a second arm portion projecting from the swash plate toward the first arm portion. The first and second arm portion overlap each other and are connected to one another by a guide pin which extends into a rectangular shaped hole or slot formed through the first arm portion and a pin hole formed through the second arm portion. The first arm portion and second arm portion are slidably connected with one guide pin and one snap pin through the rectangular hole. This hinge coupling mechanism is the only hinge coupling mechanism included. One of the disadvantages of the above compressor is that a large axial force acts on the single hinge coupling mechanism causing excessive wear between the outer peripheral surface of the guide pin and the surface of a rectangular shaped hole or slot of the rotor plate. As a result of this wear and deterioration of the hinge coupling mechanism, capacity control of the compressor is adversely affected and adjustment of piston stroke by adjustment of the angle of inclination or tilt of the swash plate to vary compressor capacity cannot be reliably achieved.

Furthermore, referring to Figure 1, first arm portion 27d of swash plate 27 and second arm portion 27c are symmetrically disposed with respect to the center of swash plate 27. First arm portion 27d is coupled to projection 30a of first rotor plate 30. First arm portion 27d and second arm portion 27c interconnect with projection 30a and second projection 29a through rectangular holes or slots 30b and 29b by pin 37b and 37a, respectively. Pins 37b and 37a are fixed in position by snap rings 48.

The reaction force of piston 26 due to gas compression in cylinder 25 acts against swash plate 27 and is finally applied to the hinge coupling mechanism. The moment caused by the reaction force acting on piston 26 thus acts against the hinge coupling mechanism to cause clockwise rotation at the center of swash plate 27. The above moment is product of above reaction force of pistons and the distance between the ends of the swash plate.

Also, the moment acting on the hinge coupling mechanism is product of the force acting on two hinge coupling mechanism and the distance between two hinge coupling mechanism. Accordingly, the force acted on the hinge coupling mechanism in this prior art is small compared with the force acted on one hinge coupling mechanism in former prior art since the value of distance between two hinge coupling mechanism is large compared with the value of distance between one hinge coupling mechanism and the center of swash plate in former prior art.

Therefore, two hinge mechanism more securely support the swash plate against the large moment caused by reaction force due to the compression from pistons compared with one hinge coupling mechanism.

However, such a compressor should have many parts and the intricate structure as the coupling mechanism between the swash plate and the rotor plate includes a pin and a snap ring, rectangular hole or slot of arm portion.

FR-E-57 971 discloses a compressor with an inclined plate. The plate is coupled by first coupling means to pistons. The plate is coupled by second coupling means to a drive shaft. The tilt angle of the plate is controlled by a first regulating mechanism made up by a handle for screwing a screw for changing the inclination.

It is an object of the invention to provide a variable capacity swash plate compressor having an uncomplicated structure of coupling mechanism between a swash plate and a rotor plate and to provide a variable capacity swash plate which has a superior efficiency of balance relating to a rotation motion of a drive shaft.

This object is solved by a swash plate type compressor with the features of claim 1.

Preferred embodiments of the invention are given in the subclaims.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 is a longitudinal sectional view of a swash plate refrigerant compressor with a variable displacement mechanism in accordance with the prior art.

Figure 2 is an illustrative view of a drive mechanism employing a prior art hinge coupling mechanism.

Figure 3 is a longitudinal sectional view of a swash plate refrigerant compressor with a variable displacement mechanism in accordance with one embodiment of the present invention.

Figure 4 is an illustrative view of a drive mechanism

employing a prior art contact coupling mechanism of Figure 3.

Figure 5 is a longitudinal sectional view of a swash plate refrigerant compressor with a variable displacement mechanism in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to Figure 3, a variable capacity swash plate refrigerant compressor according to this invention is shown. The compressor includes a closed cylinder housing assembly 10 formed by annular casing 20, cylinder block 11, a hollow portion such as crank chamber 38, front end plate 23 and rear end plate 21.

Front end plate 23 and valve plate 22a are mounted on one end of annular casing 20 to close one end of crank chamber 38. Front end plate 23 and valve plate 22b are fixed on casing 20 by a plurality of bolts 15. Rear end plate 21 and valve plate 22a are mounted on the other end of annular casing 20 by a plurality of bolts 15 to cover the other end of cylinder block 11. An opening 12 is formed in front end plate 23 for receiving drive shaft 24. An annular sleeve 13 with interior space 14 projects from the front end surface of front end plate 23. Bearing 45, which is disposed within cylinder block 11, supports drive shaft 24. The inner end of drive shaft 24 is provided with a first rotor plate 30.

Thrust needle bearing 46 is placed between the inner end surface of cylinder block 11 and the adjacent axial end surface of first rotor plate 30 to receive the thrust load that acts against first rotor plate 30 and to ensure smooth motion. The outer end of drive shaft 24, which extends outwardly from sleeve 13, is driven by the engine of a vehicle through a conventional pulley arrangement.

The inner end of drive shaft 24 extends into second rotor plate 29 and central bore 20a formed in the center of cylinder block 11. Second rotor plate 29 is rotatably supported therein by a bearing such as radial needle bearing 36. The inner end of drive shaft 24 is rotatably supported inside of actuator 31 which forms part of a tilt control mechanism. Coil spring 32 abuts one end of actuator 31 is disposed between actuator 31 and valve plate 22a to push actuator 31 and second rotor plate 29 toward crank chamber 38. Communication path 18 is bored longitudinally from inside of cylindrical block 11 to rear end surface of valve plate 22a. Passage 19 is bored latitudinally from communication path 18 to chamber 39. Capillary tube 17 which performs reduce the pressure of refrigerant gas passing from discharge chamber 100 to control chamber 33 through communication path 18, passage 19 and chamber 39 is fixed valve plate 22a with O-ring 8 and is coupled to filter screen 16. Chamber 39 on the rear side of actuator 31 communicates with control chamber 33 through hole 22c of valve plate 22a. Movement of actuator 31 is adjustably controlled by the inner gas compression of control chamber 33 which is control-

led by pressure control valve 35 of a pressure control system which is communication with discharge chamber 100. Cylinder block 20 includes a plurality of annular arranged cylinders 25 into which each piston 26 slides. Each piston 26 is double-headed with a piston portion slidably disposed within each cylinder 25 and connecting portion 26a connecting the piston portions.

Semi-spherical thrust bearing 28 slidably couple swash plate 27 and connecting portion 26a. The rotation of drive shaft 24 causes swash plate 27 to rotate between bearings 28, and as the inclined surface of swash plate 27 moves axially to the right and left relative to the pistons and their respective cylinder, pistons 26 reciprocate within cylinders 25.

Rear end plate 21 is shaped to define suction chamber 101 and discharge chamber 100. Valve plate 22a, which together with rear end plate 21 is fastened to the end of cylinder block 20 by bolts 15, is provided with a plurality of valve suction ports 111 connected between suction chamber 101 and respective cylinders 25, and a plurality of valve discharge ports 110 connected between discharge chamber 100 and cylinders 25. Discharge chamber 100 and control chamber 33 are connected by pressure control valve 35.

First rotor plate 30 includes projection 30c projecting axially outwardly from one side surface thereof. Swash plate 27 includes opening 48 through which drive shaft 24 is disposed. Swash plate 27 also includes a plurality of first arm 27a and second arm 27c.

A plurality of first arm 27a projects toward projection 30c of first rotor plate 30 extending from one side surface thereof as one radial side of first arm 27 faces and contacts one side of projection 30c and a round end of first arm 27 slides on an axial outer surface of projection 30c being a nearly circular cone. A round end of second arm 27c slidably contacts with surface 29d of second rotor plate 29 being a nearly circular cone and extending from one side surface thereof.

In accordance with the above construction, swash plate 27 is connected to both first rotor plate 30 and second rotor plate 29 through two slide contact coupling mechanism for rotation in unison with first rotor plate 30.

Furthermore, as shown in figure 4, first arm 27a and second arm 27c are symmetrically disposed with respect to the center of swash plate 27. First arm 27a includes first arm portion 27b which slidably contacts with outer surface 30d of first rotor plate 30. Second arm 27c includes second arm portion 27d which slidably contacts with outer surface 29d of second rotor plate 29. First rotor plate 30 includes projection 30c which is axially disposed between a pair of first arm 27a and transmit the axial torque of the rotation motion of drive shaft 24 to swash plate 27. With such an arrangement, swash plate 27 is capable of shifting between a position where the inclination angle or tilt is large and a position where the inclination angle is small. During shifting of position, first arm portion 27d frictionally slides on surface 30d and second arm portion 27b slides on surface 29d.

In operation, as drive shaft 24 is rotated by the engine of a vehicle through a pulley arrangement, first rotor plate 30 and second rotor plate 29 rotate together with drive shaft 24. The rotation motion of first rotor plate 30 is transmitted to swash plate 27 through a slide coupling mechanism which is arranged by contacting between a pair of first arm 27a and projection 30c. Also, this rotation motion of first rotor plate 30 can be transmitted to swash plate 27 provided a plurality of first arm 27a is arranged in the direction of projection 30c rotating through drive shaft 24. Upon rotational motion of these rotor plates, the inclined surface of swash plate 27 moves axially to the right and left relative to the pistons and their respective cylinders, Double-headed pistons 26, which are operatively connected to swash plate 27 by bearing 28, reciprocate within cylinders 25. As double-headed pistons 26 reciprocates, the refrigerant gas which is introduced into suction chamber 101 from the fluid inlet port is taken into each cylinder 25 and compressed. The compressed refrigerant is discharged to discharge chamber 100 from each cylinder 25 through discharge port 111 and therefrom into an external fluid circuit, for example a cooling circuit, through the fluid outlet port.

Assuming here that a reaction force of piston 26 due to gas compression constantly makes swash plate 27 perpendicular to drive shaft 24 through bearing 28 since swash plate 27 is subjected to the maximum reaction force of a gas compression when piston 26 reaches to the bottom dead center of piston stroke.

When it is desirable to decrease the refrigerant capacity of the compressor, the pressure in control chamber 33 is decreased compared with a discharge pressure due to controlling control valve 35 and communicating with discharge chamber 101. The integrated pressure force of chamber 33 and a force of recoil strength of spring 32 is smaller than the reaction force of piston 26 due to gas compression. First arm portion 27d slides downward surface 29d and second rotor plate 29 is moved toward actuator 31. Actuator 31 frictionally slides toward control chamber 33. As a result, slant angle of swash plate 27 is minimized relative to the vertical plane and the minimum stroke of double-headed pistons 26 within cylinders 25 occurs.

On the other hand, when it is desirable to increase the refrigerant capacity of a compressor, the pressure in control chamber 33 is increased compared with a suction pressure due to controlling control valve 35 and non-communicating with discharge chamber 101. The integrated pressure force of chamber 33 and a force of recoil strength of spring 32 is greater than the reaction force of piston 26 due to gas compression. Actuator 31 frictionally slides toward swash plate 27 and second rotor plate 29 is moved toward swash plate 27. First arm portion 27d slides upward on surface 29d. As a result, the slant angle of swash plate 27 is maximized relative to the vertical plane and the maximum stroke of double-headed pistons 26 within cylinders 25 occurs.

Furthermore, as shown in Figure 5, first rotor plate

30 includes projection 30a having rectangular holes or slots 30b which is positioned obliquely to drive shaft 24. Projection 30a interconnects with first arm 27a through rectangular holes or slots 30b by pin 37. Pin 37 is fixed in position by snap rings(not shown). The sliding motion of pin 37 changes the slant angle or tilt of the inclined surface of swash plate 27. Such an arrangement operates much the same as previously stated.

Therefore, two slide contact coupling mechanism securely support swash plate 27 and first rotor plate 30 and second rotor plate against the large moment caused by the reaction force due to compression from pistons same as two hinge mechanism compared with the first prior art.

Also, these arrangement provide a simplistic construction compared with the prior art since swash plate 27 is only assembled to frictionally slide with rotor plate 30 without machinery parts as pin 37 and snap ring, holes or slots 30b of projection 30a. As the result, the manufacturing costs become to be inexpensive compared with the prior art.

Furthermore, such a compressor reduces the unbalance of the rotation motion of drive shaft 24 caused by the force of inertia of machinery parts because of reducing the machinery parts between swash plate 27 and rotor plate 30 as pin 37 and snap ring, holes or slits 30b.

Claims

1. A swash plate type compressor comprising:

- a cylinder block (11) having a plurality of cylinders (25);
- a piston (26) slidably received in each of said cylinders (25);
- a drive shaft (24) rotatably supported in said cylinder block;
- a swash plate (27) coupled to said pistons (26) and said drive shaft;
- first coupling mechanism (28) for coupling said swash plate (27) to said pistons (26) so that said pistons (26) may be driven in a reciprocating motion within said cylinders (25) upon rotation of said swash plate (27);
- second coupling mechanism (27a, 30c; 37) for coupling said swash plate (27) to said drive shaft (24) for rotation therewith;
- tilt control means (31, 32, 33) slidably contacted with said swash plate (27) for controlling the tilt of said swash plate (27) by moving along said drive shaft (24);
- a first regulating mechanism (27a, 30c) for regulating the tilt of said swash plate (27) during tilting motion of said swash plate (27);
- said first regulating mechanism (27a, 30c) being incorporated with said second coupling mechanism (27a, 30c; 37),

In operation, as drive shaft 24 is rotated by the engine of a vehicle through a pulley arrangement, first rotor plate 30 and second rotor plate 29 rotate together with drive shaft 24. The rotation motion of first rotor plate 30 is transmitted to swash plate 27 through a slide coupling mechanism which is arranged by contacting between a pair of first arm 27a and projection 30c. Also, this rotation motion of first rotor plate 30 can be transmitted to swash plate 27 provided a plurality of first arm 27a is arranged in the direction of projection 30c rotating through drive shaft 24. Upon rotational motion of these rotor plates, the inclined surface of swash plate 27 moves axially to the right and left relative to the pistons and their respective cylinders, Double-headed pistons 26, which are operatively connected to swash plate 27 by bearing 28, reciprocate within cylinders 25. As double-headed pistons 26 reciprocates, the refrigerant gas which is introduced into suction chamber 101 from the fluid inlet port is taken into each cylinder 25 and compressed. The compressed refrigerant is discharged to discharge chamber 100 from each cylinder 25 through discharge port 111 and therefrom into an external fluid circuit, for example a cooling circuit, through the fluid outlet port.

Assuming here that a reaction force of piston 26 due to gas compression constantly makes swash plate 27 perpendicular to drive shaft 24 through bearing 28 since swash plate 27 is subjected to the maximum reaction force of a gas compression when piston 26 reaches to the bottom dead center of piston stroke.

When it is desirable to decrease the refrigerant capacity of the compressor, the pressure in control chamber 33 is decreased compared with a discharge pressure due to controlling control valve 35 and communicating with discharge chamber 101. The integrated pressure force of chamber 33 and a force of recoil strength of spring 32 is smaller than the reaction force of piston 26 due to gas compression. First arm portion 27d slides downward surface 29d and second rotor plate 29 is moved toward actuator 31. Actuator 31 frictionally slides toward control chamber 33. As a result, slant angle of swash plate 27 is minimized relative to the vertical plane and the minimum stroke of double-headed pistons 26 within cylinders 25 occurs.

On the other hand, when it is desirable to increase the refrigerant capacity of a compressor, the pressure in control chamber 33 is increased compared with a suction pressure due to controlling control valve 35 and non-communicating with discharge chamber 101. The integrated pressure force of chamber 33 and a force of recoil strength of spring 32 is greater than the reaction force of piston 26 due to gas compression. Actuator 31 frictionally slides toward swash plate 27 and second rotor plate 29 is moved toward swash plate 27. First arm portion 27d slides upward on surface 29d. As a result, the slant angle of swash plate 27 is maximized relative to the vertical plane and the maximum stroke of double-headed pistons 26 within cylinders 25 occurs.

Furthermore, as shown in Figure 5, first rotor plate

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Therefore, two slide contact coupling mechanism securely support swash plate 27 and first rotor plate 30 and second rotor plate against the large moment caused by the reaction force due to compression from pistons same as two hinge mechanism compared with the first prior art.

Also, these arrangement provide a simplistic construction compared with the prior art since swash plate 27 is only assembled to frictionally slide with rotor plate 30 without machinery parts as pin 37 and snap ring, holes or slots 30b of projection 30a. As the result, the manufacturing costs become to be inexpensive compared with the prior art.

Furthermore, such a compressor reduces the unbalance of the rotation motion of drive shaft 24 caused by the force of inertia of machinery parts because of reducing the machinery parts between swash plate 27 and rotor plate 30 as pin 37 and snap ring, holes or slits 30b.

Claims

1. A swash plate type compressor comprising:

- a cylinder block (11) having a plurality of cylinders (25);
- a piston (26) slidably received in each of said cylinders (25);
- a drive shaft (24) rotatably supported in said cylinder block;
- a swash plate (27) coupled to said pistons (26) and said drive shaft;
- first coupling mechanism (28) for coupling said swash plate (27) to said pistons (26) so that said pistons (26) may be driven in a reciprocating motion within said cylinders (25) upon rotation of said swash plate (27);
- second coupling mechanism (27a, 30c; 37) for coupling said swash plate (27) to said drive shaft (24) for rotation therewith;
- tilt control means (31, 32, 33) slidably contacted with said swash plate (27) for controlling the tilt of said swash plate (27) by moving along said drive shaft (24);
- a first regulating mechanism (27a, 30c) for regulating the tilt of said swash plate (27) during tilting motion of said swash plate (27);
- said first regulating mechanism (27a, 30c) being incorporated with said second coupling mechanism (27a, 30c; 37),



characterized by:

second regulating mechanism (27c, 29d) for cooperatively regulating together with said first regulating mechanism (27a, 30c) the tilt of said swash plate (27) during tilting motion of said swash plate (27);

said second regulating mechanism (27c, 29d) being incorporated with said second coupling mechanism (27a, 30c; 37).

2. The swash plate type compressor of claim 1, wherein said first and second regulating mechanisms are symmetrically arranged on opposite sides of said swash plate (27) to balance the moment of force received by said first and second regulating mechanisms upon operation of said compressor.

3. The swash plate type compressor of claim 1 or 2, wherein said second coupling mechanism includes a first arm portion (27a) extending from one side of said swash plate (27) and a projection (30c) extending from said drive shaft (24) so as to be overlapped with said first arm portion (27a), said first arm portion (27a) and said projection (30c) interfitting each other to change the tilt of said swash plate (27) in response to the movement of said tilt control means (31, 32, 33).

4. The swash plate type compressor of claim 3, wherein said first arm portion (27a) and said projection (30c) are hingedly coupled each other by a pin (37) and slot (30b) mechanism.

5. The swash plate type compressor of claim 3, wherein said first arm portion (27a) and said projection (30c) are interlocked each other in the rotating direction of said drive shaft (24) during rotation of said drive shaft (24).

6. The swash plate type compressor of claim 1, wherein said first regulating mechanism comprises a first rotor plate (30) fixed to said drive shaft (24) and including a projection (30c), said swash plate (27) on a first side thereof including a first arm portion (27a) contacting said projection (30c) on a conical surface (30d) thereof.

7. The swash plate type compressor of claim 1 or 6, wherein said second regulating mechanism comprises a second rotor plate (29) slideable along the axis of said drive shaft (24) and including a conical surface (29d),

said swash plate (27) on a second side thereof opposite to said first side including a second arm portion (27c) contacting said conical surface (29d).

Patentansprüche

1. Schiefscheibenkompressor mit:

einem Zylinderblock (11) mit einer Mehrzahl von Zylindern (25); einem gleitend verschiebbar in jedem der Zylinder (25) aufgenommenen Kolben (26); einer drehbar in dem Zylinderblock gelagerten Antriebswelle (24); einer mit den Kolben (26) und der Antriebswelle verbundenen Schiefscheibe (27); einem ersten Verbindungsmechanismus (28) zum Verbinden der Schiefscheibe (27) mit den Kolben (26) so, daß die Kolben (26) in einer Hin- und Herbewegung innerhalb der Zylinder auf die Rotation der Schiefscheibe (27) angetrieben werden können; einem zweiten Verbindungsmechanismus (27a, 30c; 37) zum Verbinden der Schiefscheibe (27) mit der Antriebswelle (24) zur Rotation damit; einem gleitend verschiebbar in Kontakt mit der Schiefscheibe (27) stehenden Neigungssteuermittel (31, 32, 33) zum Steuern der Neigung der Schiefscheibe (27), in dem es sich entlang der Antriebswelle (24) bewegt; einem ersten Reguliermechanismus (27a, 30c) zum Regulieren der Neigung der Schiefscheibe (27) während der Neigungsbewegung der Schiefscheibe (27); wobei der erste Reguliermechanismus (27a, 27c) in dem zweiten Verbindungsmechanismus (27a, 30c; 37) enthalten ist; gekennzeichnet durch: einen zweiten Reguliermechanismus (27c, 29d) zum gemeinsamen Regulieren zusammen mit dem ersten Reguliermechanismus (27a, 30c) der Neigung der Schiefscheibe (27) während der Neigungsbewegung der Schiefscheibe (27); wobei der zweite Reguliermechanismus (27c, 29d) in dem zweiten Verbindungsmechanismus (27a, 30c; 37) enthalten ist.

2. Schiefscheibenkompressor nach Anspruch 1, bei dem der erste und zweite Reguliermechanismus symmetrisch auf gegenüberliegenden Seiten der Schiefscheibe (27) zum Ausgleichen des Momentes der Kraft angeordnet sind, das von dem ersten und zweiten Reguliermechanismus auf den Betrieb des Kompressors empfangen wird.



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3. Schiefscheibenkompressor nach Anspruch 1 oder 2,

bei dem der zweite Verbindungsmechanismus einen ersten Armabschnitt (27a), der sich von einer Seite der Schiefscheibe (27) erstreckt, und einen Vorsprung (30c), der sich von der Antriebswelle (24) so erstreckt, daß er mit dem ersten Armabschnitt (27a) überlappt, enthält, wobei der erste Armabschnitt (27a) und der Vorsprung (30c) zum Ändern der Neigung der Schiefscheibe (27) als Reaktion auf die Bewegung des Neigungssteuermittels (31, 32, 33) ineinandergreifen.

4. Schiefscheibenkompressor nach Anspruch 3, bei dem der erste Armabschnitt (27a) und der Vorsprung (30c) gelenkmäßig miteinander durch einen Mechanismus eines Stiftes (37) und eines Schlitzes (30b) verbunden sind.

5. Schiefscheibenkompressor nach Anspruch 3, bei dem der erste Armabschnitt (27a) und der Vorsprung (30c) miteinander in der Rotationsrichtung der Antriebswelle (24) während der Rotation der Antriebswelle (24) verriegelt sind.

6. Schiefscheibenkompressor nach Anspruch 1, bei dem der erste Reguliermechanismus eine erste Rotorplatte (30) aufweist, die an der Antriebswelle (24) befestigt ist und einen Vorsprung (30c) enthält, wobei die Schiefscheibe (27) auf einer ersten Seite davon einen ersten Armabschnitt (27a) enthält, der mit dem Vorsprung (30c) auf einer konischen Oberfläche (30d) davon in Kontakt steht.

7. Schiefscheibenkompressor nach Anspruch 1 oder 6, bei dem der zweite Reguliermechanismus eine zweite Rotorplatte (29) aufweist, die gleitend verschiebbar entlang der Achse der Antriebswelle (24) vorgesehen ist und eine konische Oberfläche (29d) aufweist, wobei die Schiefscheibe (27) auf einer zweiten Seite davon gegenüber zu der ersten Seite einen zweiten Armabschnitt (27c) enthält, der in Kontakt mit der konischen Oberfläche (29d) steht.

Revendications

1. Compresseur du type à plateau en biais

comprenant :

un bloc cylindre (11) comprenant une pluralité de cylindres (25) ;
un piston (26) pénétrant de façon coulissante dans chacun desdits cylindres (25) ;
un arbre d'entraînement (24) maintenu en rotation dans ledit bloc cylindre ;
un plateau en biais (27) couplé auxdits pistons (26) et audit arbre d'entraînement ;
un premier mécanisme de couplage (28) pour coupler ledit plateau en biais (27) auxdits pistons (26) afin que lesdits pistons (26) puissent être entraînés dans un mouvement de réciprocité dans lesdits cylindres (25) par la rotation dudit plateau en biais (27) ;
un deuxième mécanisme de couplage (27a, 30c; 37) pour coupler ledit plateau en biais (27) audit arbre d'entraînement (24) pour assurer leur rotation ;
des moyens de commande d'assiette (31, 32, 33) mis en contact de façon coulissante avec ledit plateau en biais (27) pour commander l'inclinaison dudit plateau en biais (27) par déplacement le long dudit arbre d'entraînement (24) ;
un premier mécanisme de régulation (27a, 30c) pour réguler l'inclinaison dudit plateau en biais (27) lors du mouvement d'inclinaison dudit plateau en biais (27) ;
ledit premier mécanisme de régulation (27a, 30c) étant incorporé audit deuxième mécanisme de couplage (27a, 30c; 37), caractérisé par :
un deuxième mécanisme de régulation (27c, 29d) pour réguler en coopération avec ledit premier mécanisme de régulation (27a, 30c) l'inclinaison du plateau en biais (27) lors du mouvement d'inclinaison du plateau en biais (27) ;
ledit deuxième mécanisme de régulation (27c, 29d) étant incorporé audit deuxième mécanisme de couplage (27a, 30c; 37).

2. Compresseur du type à plateau en biais selon la revendication 1, dans lequel lesdits premier et deuxième mécanismes de régulation sont disposés de façon symétrique sur les côtés opposés dudit plateau en biais (27) afin d'équilibrer le moment de la force reçue par lesdits premier et deuxième mécanismes de régulation lors du fonctionnement dudit compresseur.

3. Compresseur du type à plateau en biais selon la revendication 1 ou 2, dans lequel ledit deuxième mécanisme de couplage comprend une première partie de bras (27a) s'étendant depuis un côté dudit plateau en biais (27) et



une projection (30c) s'étendant depuis ledit arbre d'entraînement (24) de façon être en chevauchement avec ladite première partie de bras (27a),

ladite première partie de bras (27a) et ladite première projection (30c) s'ajustant l'une dans l'autre pour modifier l'inclinaison dudit plateau en biais (27) en réponse au mouvement desdits moyens de commande d'assiette (31, 32, 33).

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4. Compresseur du type à plateau en biais selon la revendication 3, dans lequel ladite première partie de bras (27a) et ladite projection (30c) sont couplées l'une à l'autre de façon articulée par un mécanisme à broche (37) et à fentes (30b).

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5. Compresseur du type à plateau en biais selon la revendication 3, dans lequel ladite première partie de bras (27a) et ladite projection (30c) s'emboîtent l'une dans l'autre dans la direction de rotation dudit arbre d'entraînement (24) pendant la rotation dudit arbre d'entraînement (24).

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6. Compresseur du type à plateau en biais selon la revendication 1, dans lequel ledit premier mécanisme de régulation comprend un premier plateau à rotors (30) fixé audit arbre d'entraînement (24) et une projection (30c),

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ledit plateau en biais (27) sur un premier côté de celui-ci comprenant une première partie de bras (27a) étant au contact de ladite projection (30c) sur une surface conique (30d) de celle-ci.

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7. Compresseur du type à plateau en biais selon la revendication 1 ou 6, dans lequel ledit deuxième mécanisme de régulation comprend un deuxième plateau à rotors (29) capable de coulisser le long de l'axe dudit arbre d'entraînement (24) et comportant une surface conique (29d),

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ledit plateau en biais (27) comportant sur son deuxième côté opposé audit premier côté une deuxième partie de bras (27c) venant au contact de ladite surface conique (29d).

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