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(54) **CO-ROTATING SCROLL COMPRESSOR**

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(57) **ABSTRACT**

A co-rotating scroll compressor includes: a driving-side scroll member; a driven-side scroll member; a pin ring mechanism that transmits driving force from the driving-side scroll member to the driven-side scroll member so that the driving-side scroll member and the driven-side scroll member rotationally move in a same direction at a same angular velocity; and a coil spring that biases a distal end of a driving-side wall and a distal end of a driven-side wall in a direction toward a driven-side end plate and a driving-side end plate that are opposed to the distal end of the driving-side wall and the distal end of the driven-side wall.

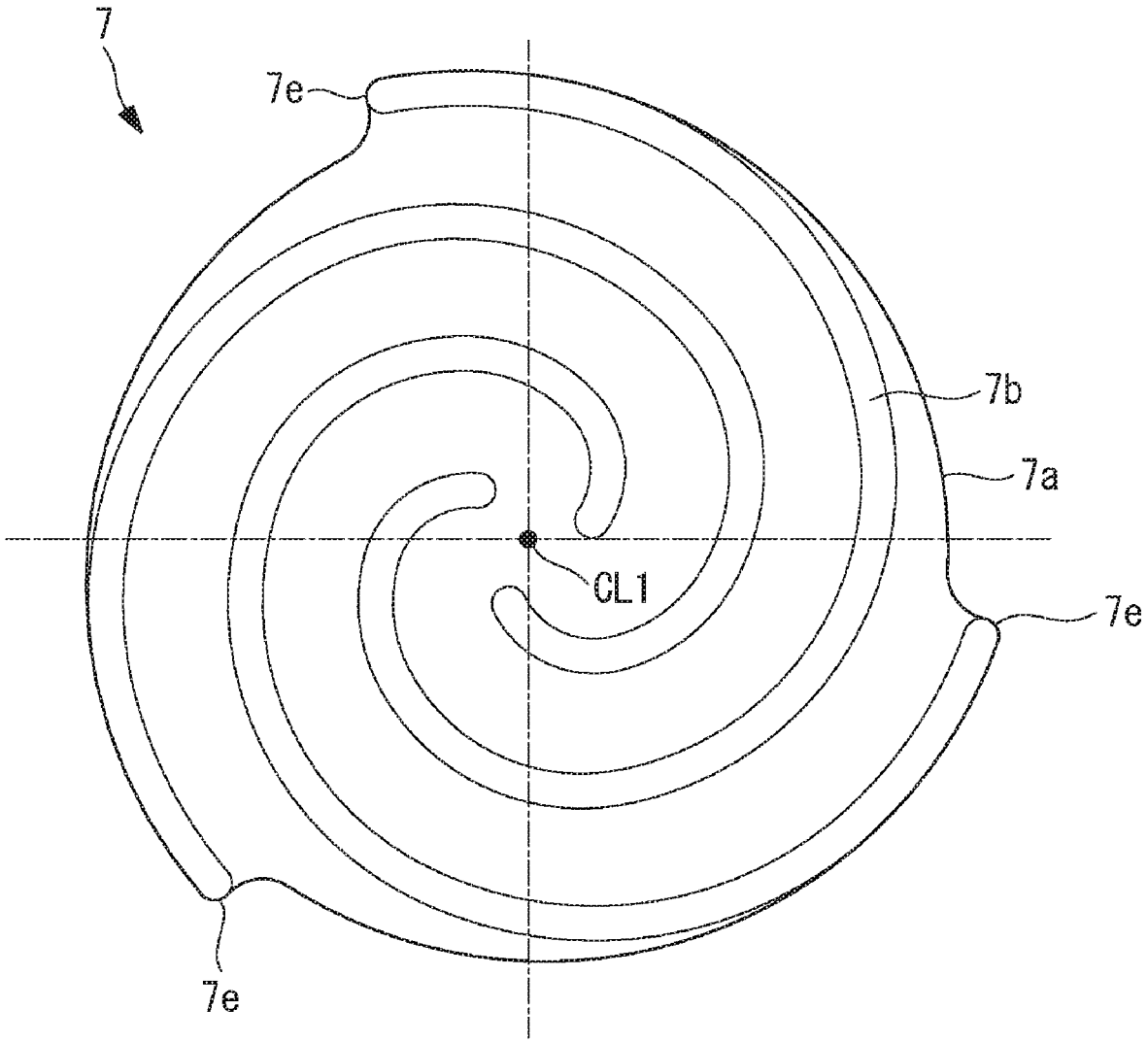
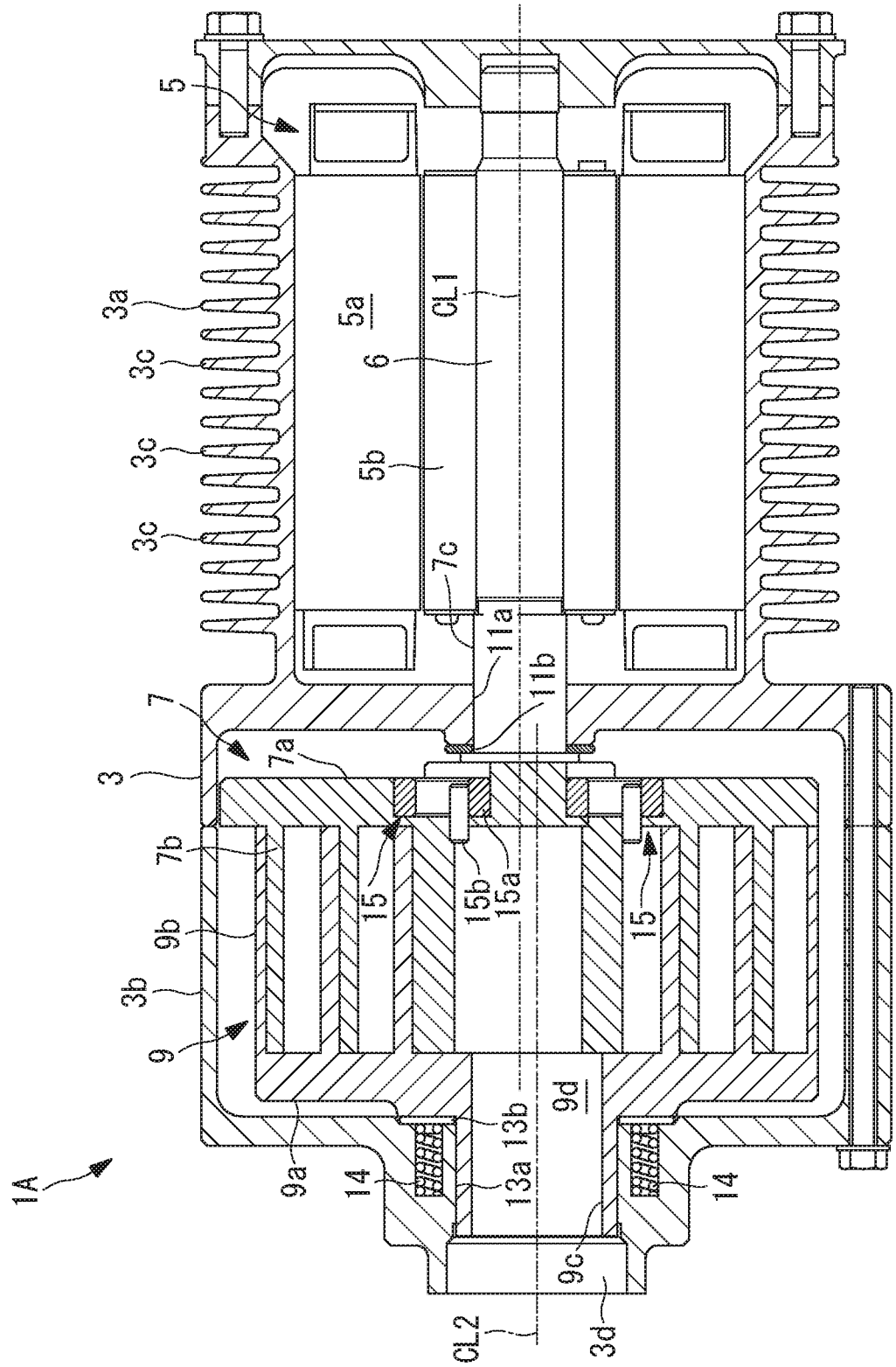


FIG. 1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3a
3c
3c
3c
5a
CL1
6
5b
7c
11a
11b
7
7a
3
7b
9b
3b
9
15
15b
15a
15
9d
13b
13a
14
14
9a
9c
3d
CL2
1A

FIG. 2

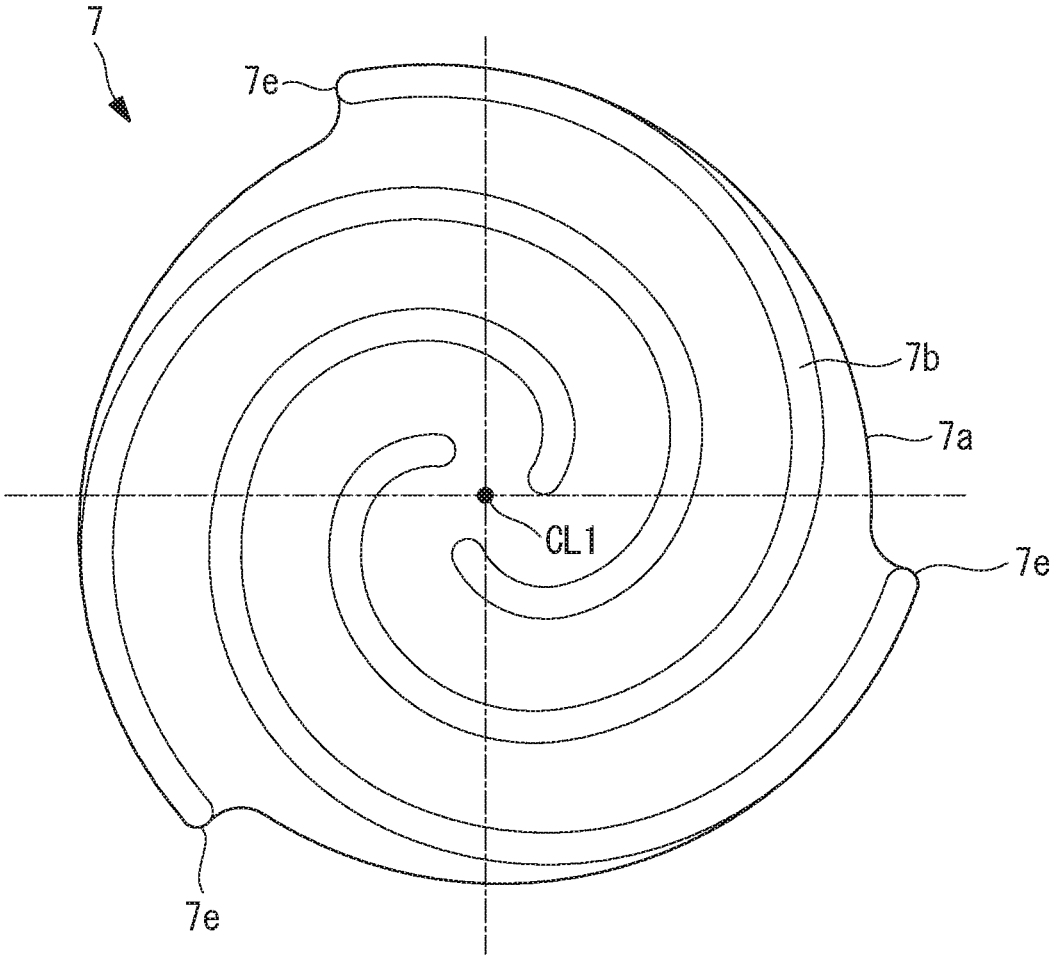


FIG. 3

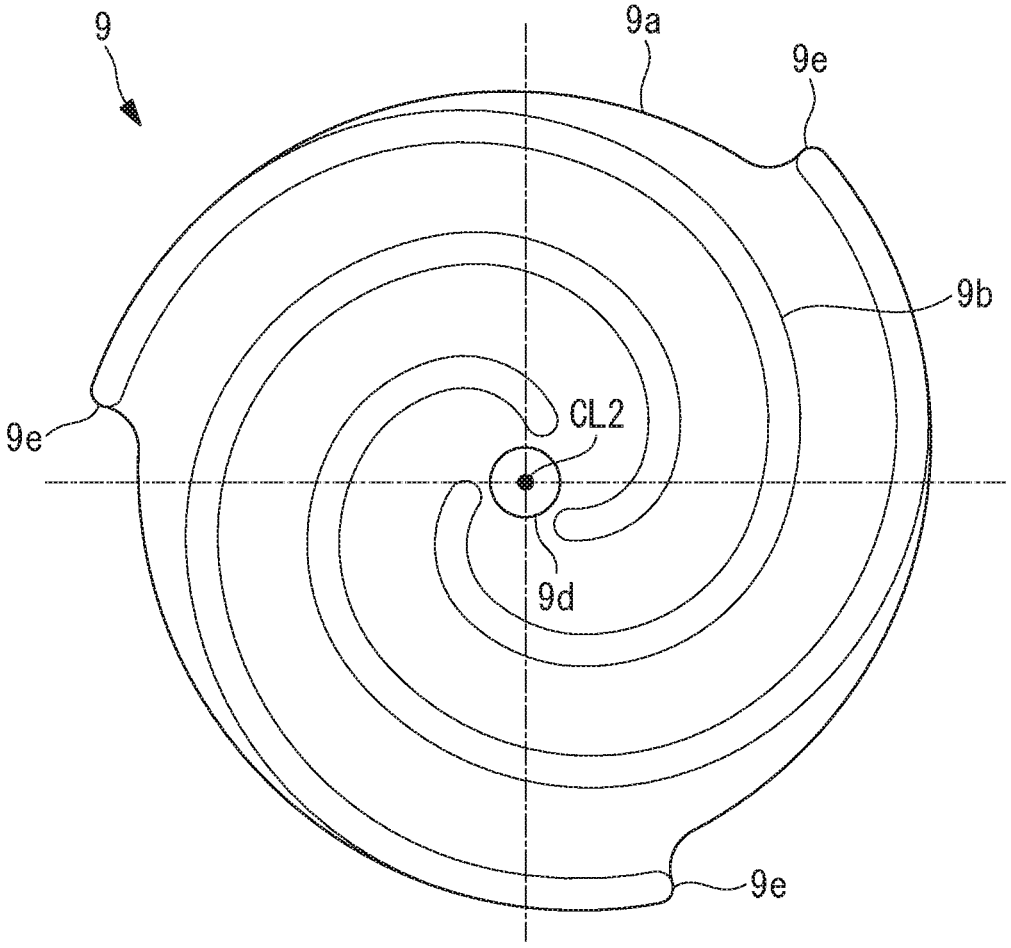
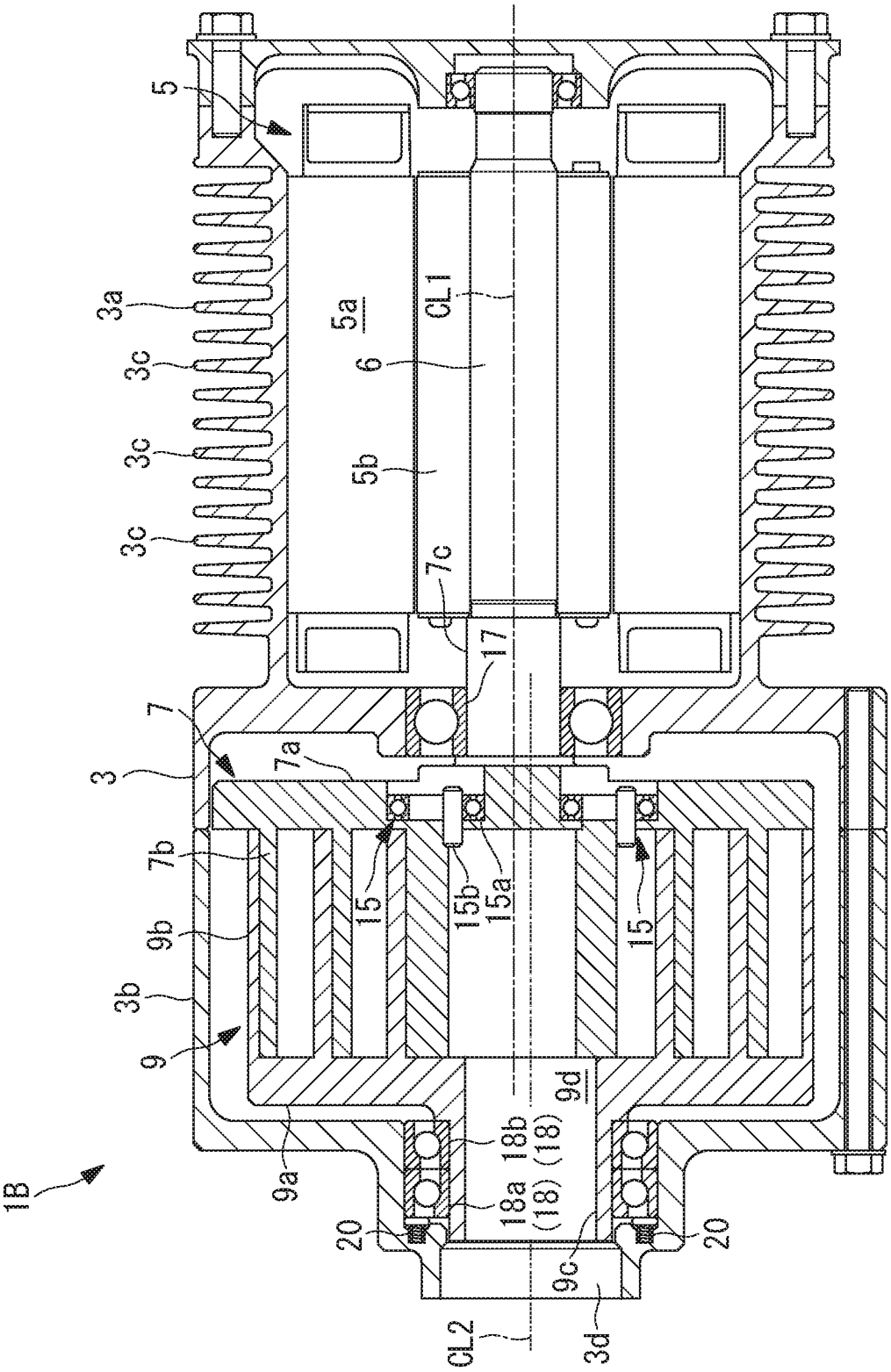


FIG. 4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3
3a
3b
3c
3c
3c
5
5a
5b
6
7
7a
7b
7c
9
9a
9b
9c
9d
15
15
15b
15a
17
18a
18b
(18)
(18)
20
20
CL1
CL2
3d

FIG. 5

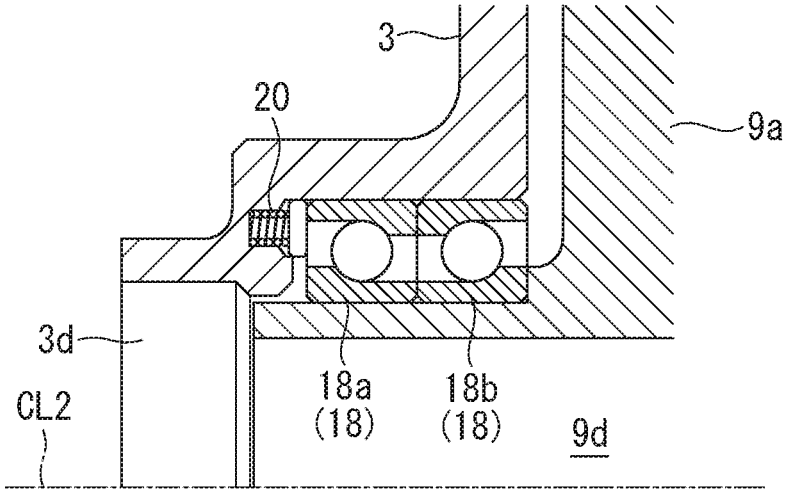
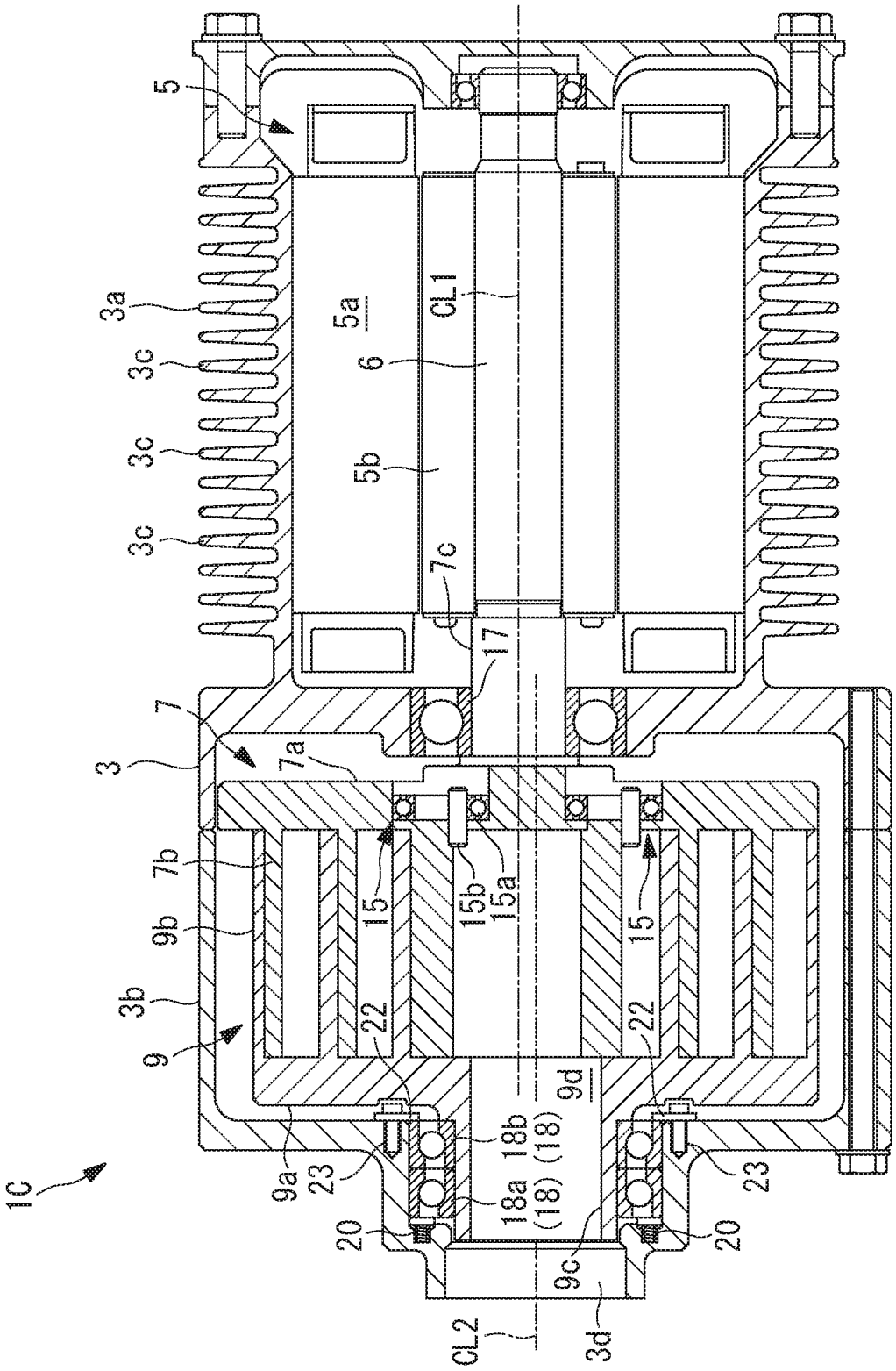


FIG. 6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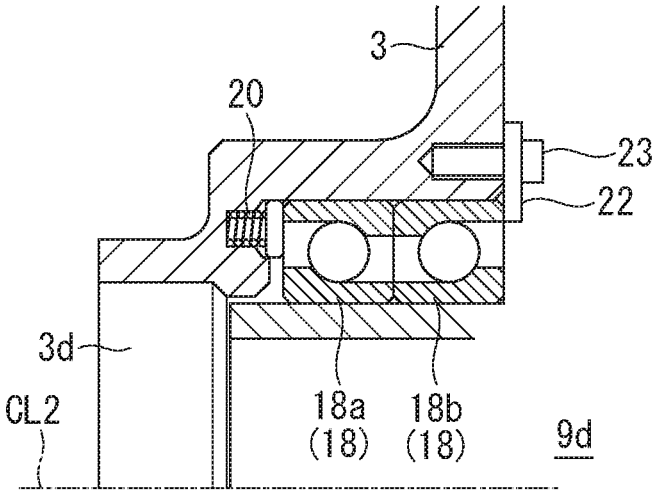
3a
3b
3c
3c
3c
3d
5
5a
5b
6
7
7a
7b
7c
9
9a
9b
9c
9d
15
15
15a
15b
17
18a
18b
(18)
(18)
20
20
22
22
23
23
CL1
CL2

FIG. 7



CO-ROTATING SCROLL COMPRESSOR

TECHNICAL FIELD

[0001] The present invention relates to a co-rotating scroll compressor.

BACKGROUND ART

[0002] Hitherto, a co-rotating scroll compressor is known (see PTL 1). The co-rotating scroll compressor includes a driving-side scroll and a driven-side scroll that rotates together with and in synchronization with the driving-side scroll. The co-rotating scroll compressor rotates the driving shaft and the driven shaft in the same direction at the same angular velocity by offsetting a driven shaft that supports the rotation of the driven-side scroll from a driving shaft that rotates the driving-side scroll by the turning radius.

CITATION LIST

Patent Literature

[PTL 1]

the Publication of Japanese Patent No. 4556183

SUMMARY OF INVENTION

Technical Problem

[0003] In the scroll-type compressor as described above, a tip seal is generally provided between a spiral wall and an end plate opposed thereto in order to prevent the leakage of compressed fluid. In order to accommodate the tip seal, a tip seal groove is formed in the distal end of the spiral wall.

[0004] However, in order to process the tip seal groove in the distal end of the spiral wall, a predetermined processing accuracy is required, and there is also a problem in that the workload increases.

[0005] The present invention has been made in view of the situation as above, and an object thereof is to provide a co-rotating scroll compressor capable of omitting a process of processing a tip seal groove in a distal end of a wall.

Solution to Problem

[0006] In order to solve the abovementioned problems, a co-rotating scroll compressor of the present invention employs the following solutions.

[0007] That is, the co-rotating scroll compressor according to the present invention includes: a driving-side scroll member driven by a drive unit so as to rotate, and comprising a spiral driving-side wall arranged on a driving-side end plate; a driven-side scroll member in which a spiral driven-side wall corresponding to the driving-side wall is arranged on a driven-side end plate, the driven-side wall being engaged with the driving-side wall so as to form a compression space; a synchronous driving mechanism that transmits driving force from the driving-side scroll member to the driven-side scroll member so that the driving-side scroll member and the driven-side scroll member rotationally move in a same direction at a same angular velocity; and a biasing means for biasing a distal end of the driving-side wall and a distal end of the driven-side wall in a direction toward the driven-side end plate and the driving-side end plate that are respectively opposed to the distal end of the driving-side wall and the distal end of the driven-side wall.

[0008] The compressed space is formed when the driving-side wall arranged on the driving-side end plate of the driving-side scroll member and the driven-side wall of the driven-side scroll member are engaged with each other. The driving-side scroll member is driven by the drive unit so as to rotate, and the driving force transmitted to the driving-side scroll member is transmitted to the driven-side scroll member via the synchronous driving mechanism. As a result, the driven-side scroll member rotationally moves in the same direction at the same angular velocity as the driving-side scroll member while rotating. As described above, the double rotating-type scroll-type compressor in which both of the driving-side scroll member and the driven-side scroll member rotate is provided.

[0009] The biasing means for biasing the distal end of the driving-side wall and the distal end of the driven-side wall in a direction toward the driven-type end plate and the driving-side end plate that are opposed thereto is provided. As a result, a tip clearance that is the clearance between each of the distal ends of the walls and each of the end plates is reduced, and the leakage of the fluid from the compressed space can be reduced. As a result, the tip seals provided on the distal ends of the walls can be omitted. Accordingly, the tip seal grooves for arranging the tip seals do not need to be formed in the distal ends of the walls. Therefore, the processing of the tip seal groove becomes unnecessary, and hence the workload when the scroll member is manufactured can be reduced.

[0010] Note that synchronous driving mechanisms include a mechanism in which a pin and a ring are combined, an Oldham ring, and the like, for example.

[0011] Further, in the co-rotating scroll compressor of the present invention, the biasing means comprises an elastic member provided between a driven-side thrust bearing that receives thrust force of the driven-side scroll member and a housing that accommodates the driven-side scroll member.

[0012] The elastic member is provided between the driven-side thrust bearing that receives the thrust force of the driven-side scroll member and the housing that accommodates the driven-side scroll member. By the elastic member, the driven-side scroll member is biased to the driving-side scroll member side via the driven-side thrust bearing.

[0013] Elastic members include a coil spring, a ring spring, a corrugated plate spring, and the like, for example.

[0014] Further, the co-rotating scroll compressor of the present invention further includes a driven-side rolling bearing provided between a driven-side shaft portion connected to the driven-side end plate and a housing that accommodates the driven-side scroll member, and the biasing means includes an elastic member provided between the driven-side rolling bearing and the housing.

[0015] The driven-side scroll member is rotatably supported by providing the driven-side rolling bearing between the driven-side shaft portion and the housing. Further, the elastic member is provided between the driven-side rolling bearing and the housing. By the elastic member, the driven-side scroll member is biased to the driving-side scroll member side via the driven-side rolling bearing.

[0016] Elastic members include a coil spring, a ring spring, a corrugated plate spring, and the like, for example.

[0017] Further, the co-rotating scroll compressor of the present invention further includes a displacement amount

restricting means for restricting a displacement amount between the driving-side scroll member and the driven-side scroll member.

[0018] Biasing is performed by the biasing means in the direction in which the distance between the driving-side scroll member and the driven-side scroll member decreases. The displacement amount by the biasing force is restricted by the displacement amount restricting means. As a result, the tip clearance between the distal ends of the walls and the end plates that are opposed thereto can be managed to be a predetermined amount, and seizing and excessive wear between the distal ends of the walls and the end plates that are opposed thereto can be prevented.

Advantageous Effects of Invention

[0019] The biasing means for biasing the distal end of the driving-side wall and the distal end of the driven-side wall in a direction toward the driven-type end plate and the driving-side end plate that are opposed thereto is provided, and hence a configuration that omits the tip seal of the distal end of the wall can be employed, and the processing of the tip seal groove becomes unnecessary.

BRIEF DESCRIPTION OF DRAWINGS

[0020] FIG. **1** is a longitudinal cross-sectional view illustrating a co-rotating scroll compressor according to a first embodiment of the present invention.

[0021] FIG. **2** is a plan view illustrating a driving-side scroll member in FIG. **1**.

[0022] FIG. **3** is a plan view illustrating a driven-side scroll member in FIG. **1**.

[0023] FIG. **4** is a longitudinal cross-sectional view illustrating a co-rotating scroll compressor according to a second embodiment of the present invention.

[0024] FIG. **5** is a longitudinal cross-sectional view illustrating the region around a coil spring in FIG. **4** in an enlarged manner.

[0025] FIG. **6** is a longitudinal cross-sectional view illustrating a co-rotating scroll compressor according to a third embodiment of the present invention.

[0026] FIG. **7** is a longitudinal cross-sectional view illustrating the region around a stopper in FIG. **6** in an enlarged manner.

DESCRIPTION OF EMBODIMENTS

[0027] Embodiments according to the present invention are described below with reference to the drawings.

First Embodiment

[0028] A first embodiment of the present invention is described below with reference to FIG. **1** and the like.

[0029] FIG. **1** illustrates a co-rotating scroll compressor **1**A. The co-rotating scroll compressor **1**A can be used as a supercharger that compresses combustion air (fluid) to be supplied to an internal combustion engine such as a vehicle engine, a compressor for supplying compressed air to an air electrode of a fuel cell, or a compressor for supplying compressed air used in a braking device of a vehicle such as a train, for example.

[0030] The co-rotating scroll compressor **1**A includes a housing **3**, a motor (drive unit) **5** accommodated in one end side of the housing **3**, and a driving-side scroll member **7** and a driven-side scroll member **9** accommodated in the other end side of the housing **3**.

[0031] The housing **3** has a substantially cylindrical shape, and includes a motor accommodation portion **3***a* that accommodates the motor **5**, and a scroll accommodation portion **3***b* that accommodates the scroll members **7** and **9**.

[0032] Cooling fins **3***c* for cooling the motor **5** are provided on the outer periphery of the motor accommodation portion **3***a*. An exhaust opening **3***d* for exhausting air that has been compressed is formed in end portion of the scroll accommodation portion **3***b*. Note that, although not shown in FIG. **1**, an air suction opening that sucks air is provided in the housing **3**.

[0033] The motor **5** is driven by being supplied with electric power from a power supply source (not shown). The rotation control of the motor **5** is performed in accordance with instructions from a control unit (not shown). A stator **5***a* of the motor **5** is fixed to the inner peripheral side of the housing **3**. A rotor **5***b* of the motor **5** rotates about a driving-side rotational axis CL**1**. A driving shaft **6** extending on the driving-side rotational axis CL**1** is connected to the rotor **5***b*. The driving shaft **6** is connected to the driving-side scroll member **7**.

[0034] The driving-side scroll member **7** includes a driving-side end plate **7***a*, and a spiral driving-side wall **7***b* provided on one side of the driving-side end plate **7***a*. The driving-side end plate **7***a* is connected to the driving-side shaft portion **7***c* connected to a driving shaft **6**, and extends in a direction orthogonal to the driving-side rotational axis CL**1**.

[0035] The tip seal is not provided on a distal end of the driving-side wall **7***b* in the height direction. Therefore, the distal end of the driving-side wall **7***b* has a flat surface because the tip seal groove is also not provided.

[0036] The driving-side shaft portion **7***c* is provided so as to be rotatable with respect to the housing **3** via a driving-side radial sliding bearing **11***a*. On the side of the driving-side radial sliding bearing **11***a*, a driving-side thrust sliding bearing **11***b* that receives thrust force by coming into contact with a place between the housing **3** and a shoulder portion of the driving-side shaft portion **7***c* is provided.

[0037] As illustrated in FIG. **2**, the driving-side end plate **7***a* has a substantially disk-like shape when seen in planar view. The driving-side scroll member **7** includes three spiral driving-side walls **7***b*, that is, three lines of spiral driving-side walls **7***b*. The three lines of driving-side walls **7***b* are provided about the driving-side rotational axis CL**1** at regular intervals. Radially outside end portions **7***e* of the driving-side walls **7***b* are not fixed to other wall portions and are independent. That is, wall portions that connect the radially outside end portions **7***e* to each other so as to provide reinforcement are not provided.

[0038] As illustrated in FIG. **1**, the driven-side scroll member **9** is arranged so as to engage with the driving-side scroll member **7**, and includes a driven-side end plate **9***a* and a spiral driven-side wall **9***b* arranged on one side of the driven-side end plate **9***a*.

[0039] The tip seal is not provided on a distal end of the driven-side wall **9***b* in the height direction. Therefore, the distal end of the driven-side wall **9***b* has a flat surface because the tip seal groove is also not provided.

[0040] A driven-side shaft portion **9***c* extending in the direction of a driven-side rotational axis CL**2** is connected to

the driven-side end plate **9***a*. The driven-side shaft portion **9***c* is provided so as to be rotatable with respect to the housing **3** via a driven-side radial sliding bearing **13***a*. On the side of the driven-side radial sliding bearing **13***a*, a driven-side thrust sliding bearing **13***b* that receives thrust force by coming into sliding contact with a place between the housing **3** and the driven-side end plate **9***a* is provided.

[0041] A coil spring (elastic member, biasing means) **14** is provided so as to abut against an end surface of the driven-side thrust sliding bearing **13***b*. A plurality of the coil springs **14** are provided in the circumferential direction about the driven-side axis CL**2** at predetermined intervals. The coil springs **14** are stored in bottomed holes formed in the housing **3** toward the direction of the driven-side rotational axis CL**2**. The coil springs **14** are provided so as to bias the driven-side end plate **9***a* in the direction of the driving-side end plate **7***a* that is opposed thereto.

[0042] As illustrated in FIG. **3**, the driven-side end plate **9***a* has a substantially disk-like shape when seen in planar view. Three spiral driven-side walls **9***b*, that is, three lines of spiral driven-side walls **9***b* are provided in the driven-side scroll member **9**. The three lines of driven-side walls **9***b* are arranged about the driven-side rotational axis CL**2** at regular intervals. An exhaust port **9***d* that exhausts air that has been compressed is formed in the driven-side end plate **9***a* on the substantially middle thereof. The exhaust port **9***d* is in communication with the exhaust opening **3***d* formed in the housing **3**. The radially outside end portions **9***e* of the driven-side wall **9***b* are not fixed to other wall portions and are independent. That is, wall portions that connect the radially outside end portions **9***e* to each other so as to provide reinforcement are not provided.

[0043] As described above, as illustrated in FIG. **1**, the driving-side scroll member **7** rotates about the driving-side rotational axis CL**1** and the driven-side scroll member **9** rotates about the driven-side rotational axis CL**2**. The driving-side rotational axis CL**1** and the driven-side rotational axis CL**2** are offset from each other by a distance with which a compression chamber can be formed.

[0044] A plurality of pin ring mechanisms **15** are provided between the driving-side scroll member **7** and the driven-side scroll member **9**. The pin ring mechanism **15** is used as a synchronous driving mechanism that transmits driving force from the driving-side scroll member **7** to the driven-side scroll member **9** so that both of the scroll members **7** and **9** rotationally move in the same direction at the same angular velocity. Specifically, as illustrated in FIG. **1**, the pin ring mechanism **15** includes a ring member **15***a* that is a ball bearing, and a pin member **15***b*. The ring member **15***a* is fixed in a state in which an outer ring is fitted in a hole portion formed in the driving-side end plate **7***a*. The pin member **15***b* is fixed in a state of being inserted in a mounting hole formed in a distal end (the right end in FIG. **1**) of the driven-side wall **9***b*. Note that, in FIG. **1**, the state in which the pin member **15***b* is inserted in the distal end of the driven-side wall **9***b* is not clearly illustrated due to the position along which FIG. **1** is taken in the illustration, and only the pin member **15***b* is illustrated for the ease of understanding. When a side portion of a distal end of the pin member **15***b* moves while being in contact with an inner peripheral surface of an inner ring of the ring member **15***a*, rotationally moving in the same direction at the same angular velocity is realized.

[0045] The co-rotating scroll compressor **1**A having the abovementioned configuration operates as follows.

[0046] When the driving shaft **6** is rotated about the driving-side rotational axis CL**1** by the motor **5**, the driving-side shaft portion **7***c* connected to the driving shaft **6** also rotates. As a result, the driving-side scroll member **7** rotates about the driving-side rotational axis CL**1**. When the driving-side scroll member **7** rotates, the driving force is transmitted to the driven-side scroll member **9** via the pin ring mechanism **15**, and the driven-side scroll member **9** rotates about the driven-side rotational axis CL**2**. At this time, the pin member **15***b* of the pin ring mechanism **15** moves while being in contact with the ring member **15***a*, and hence both of the scroll members **7** and **9** rotationally move in the same direction at the same angular velocity.

[0047] When both of the scroll members **7** and **9** rotationally and pivotally move, the air sucked from the suction opening in the housing **3** is sucked from the outer periphery side of both of the scroll members **7** and **9**, and is taken into the compression chamber formed by both of the scroll members **7** and **9**. The capacity of the compression chamber decreases as the compression chamber approaches the center side, and air is compressed accordingly. The air compressed as above flows through the exhaust port **9***d* in the driven-side scroll member **9** and is exhausted to the outside from the exhaust opening **3***d* in the housing **3**.

[0048] The effects of this embodiment are as follows.

[0049] The driven-side wall **9***b* is biased by the coil springs **14** in the direction of the driven-side rotational axis CL**2** via the driven-side thrust sliding bearing **13***b*. As a result, the driven-side scroll member **9** and the driving-side scroll member **7** are biased in directions in which the driven-side scroll member **9** and the driving-side scroll member **7** approach each other, the tip clearance between the distal end of the driven-side wall **9***b* and the driving-side end plate **7***a* and the tip clearance between the distal end of the driving-side wall **7***b* and the driven-side end plate **9***a* decrease, and the fluid leakage from the compressed space decreases.

[0050] Therefore, the tip seals provided on the distal ends of the walls **7***b* and **9***b* can be omitted. Accordingly, the tip seal grooves for arranging the tip seals do not need to be formed in the distal ends of the walls **7***b* and **9***b*. Therefore, the processing of the tip seal groove becomes unnecessary, and hence the workload when the scroll member is manufactured can be reduced.

Second Embodiment

[0051] Next, a second embodiment of the present invention is described with reference to FIG. **4** and the like. The sliding bearings **11***a*, **11***b*, **13***a*, and **13***b* are used as the bearings of the driving-side scroll member **7** and the driven-side scroll member **9** in the first embodiment, but this embodiment is different in that a ball bearing (rolling bearing) is used. Other configurations are similar. Therefore, similar configurations are denoted by the same reference characters and description thereof is omitted.

[0052] As illustrated in FIG. **4**, in a co-rotating scroll compressor **1**B according to this embodiment, the driving-side shaft portion **7***c* of the driving-side scroll member **7** is rotatably supported by a driving-side ball bearing **17**.

[0053] As illustrated in FIG. **4** and FIG. **5**, the driven-side shaft portion **9***c* of the driven-side scroll member **9** is

provided so as to be rotatable with respect to the housing **3** via a driven-side ball bearing **18** formed as a double row angular ball bearing.

[0054] A plurality of coil springs **20** (elastic members, biasing means) are provided so as to press the exhaust opening **3***d* side and the outer ring side (stationary side) of the driven-side ball bearing **18** formed to have a double row. The plurality of coil springs **20** are provided in the circumferential direction about the driven-side axis CL**2** at predetermined intervals. The coil springs **20** are stored in bottomed holes formed in the housing **3** toward the direction of the driven-side rotational axis CL**2**. The coil springs **20** are provided so as to bias the driven-side end plate **9***a* in the direction of the driving-side end plate **7***a* that is opposed thereto. That is, the biasing force from the coil spring **20** is transmitted from the outer ring of a ball bearing **18***a* on the exhaust opening **3***d* side to the outer ring of a ball bearing **18***b* on the driven-side end plate **9***a* side, and is transmitted to the driven-side end plate **9***a* via the ball and the inner ring of the ball bearing **18***b* on the driven-side end plate **9***a* side. As described above, a back-to-back (DB combination) configuration in which a line connecting the contact points with respect to the driven-side rotational axis CL**2** is longer than the distance between the bearings is obtained. As described above, a structure in which the entire driven-side ball bearing **19** moves in the thrust direction is obtained. Meanwhile, a mechanism that causes the internal clearance to be 0 (zero) with an angular bearing that is generally a preload mechanism does not have a structure in which the entire bearing moves.

[0055] The effects of this embodiment are as follows.

[0056] The driven-side wall **9***b* is biased by the coil springs **20** in the direction of the driven-side rotational axis CL**2** via the driven-side ball bearing **18**. As a result, the driven-side scroll member **9** and the driving-side scroll member **7** are biased in directions in which the driven-side scroll member **9** and the driving-side scroll member **7** approach each other, the tip clearance between the distal end of the driven-side wall **9***b* and the driving-side end plate **7***a* and the tip clearance between the distal end of the driving-side wall **7***b* and the driven-side end plate **9***a* decrease, and the fluid leakage from the compressed space decreases.

[0057] Therefore, the tip seals provided on the distal ends of the walls **7***b* and **9***b* can be omitted. Accordingly, the tip seal grooves for arranging the tip seals do not need to be formed in the distal ends of the walls **7***b* and **9***b*. Therefore, the processing of the tip seal groove becomes unnecessary, and hence the workload when the scroll member is manufactured can be reduced.

[0058] In addition, the coil springs **20** are formed so as to press the outer ring of the ball bearing **18***a* on the exhaust opening **3***d* side, and can press the stationary outer ring with respect to the housing **3**. Therefore, there is no fear of wear and seizing of the coil spring **20**.

Third Embodiment

[0059] Next, a third embodiment of the present invention is described with reference to FIG. **6** and the like. This embodiment is different from the second embodiment in that a stopper that restricts the displacement amount of the driven-side ball bearing **18** is provided. Other configurations are similar to that of the second embodiment. Therefore, similar configurations are denoted by the same reference characters and description thereof is omitted.

[0060] As illustrated in FIG. **6** and FIG. **7**, in a co-rotating scroll compressor **1**C according to this embodiment, a stopper (displacement amount restricting means) **22** is provided on the side of the ball bearing **18***b* on the driven-side end plate **9***a* side. The stopper **22** is a plate-like body having a predetermined thickness, and is fixed to the housing **3** side via a bolt **23**. Note that a shim having a predetermined thickness may be inserted between the stopper **22** and the housing **3**. As a result, the distance between the stopper **22** and the ball bearing **18***b* on the driven end plate **9***a* side can be adjusted.

[0061] This embodiment has the following effects in addition to the effects of the second embodiment.

[0062] Biasing is performed by the coil springs **20** in a direction in which the distance between the driving-side scroll member **7** and the driven-side scroll member **9** decreases. The displacement amount by the biasing force is restricted by the stopper **22**. As a result, the tip clearance between the distal ends of the walls **7***b* and **9***b* and the end plates **7***a* and **9***a* that are opposed thereto can be managed to be a predetermined amount, and seizing and excessive wear between the distal ends of the walls and the end plates that are opposed thereto can be prevented.

[0063] Note that the coil spring is used as a member that biases the driven-side scroll member **9** in the abovementioned embodiments, but the present invention is not limited thereto, and a ring spring or a corrugated plate spring may be used, for example.

REFERENCE SIGNS LIST

[0064] **1**A, **1**B, **1**C co-rotating scroll compressor
[0065] **3** housing
[0066] **3***a* motor accommodation portion
[0067] **3***b* scroll accommodation portion
[0068] **3***c* cooling fin
[0069] **3***d* exhaust opening
[0070] motor (drive unit)
[0071] **5***a* stator
[0072] **5***b* rotor
[0073] **6** driving shaft
[0074] **7** driving-side scroll member
[0075] **7***a* driving-side end plate
[0076] **7***b* driving-side wall
[0077] **7***c* driving-side shaft portion
[0078] **7***e* radially outside end portion
[0079] **9** driven-side scroll member
[0080] **9***a* driven-side end plate
[0081] **9***b* driven-side wall
[0082] **9***c* driven-side shaft portion
[0083] **9***d* exhaust port
[0084] **9***e* radially outside end portion
[0085] **11***a* driving-side radial sliding bearing
[0086] **11***b* driving-side thrust sliding bearing
[0087] **13***a* driven-side radial sliding bearing
[0088] **13***b* driven-side thrust sliding bearing
[0089] **14** coil spring (elastic member, biasing means)
[0090] **15** pin ring mechanism (synchronous driving mechanism)
[0091] **15***a* ring member
[0092] **15***b* pin member
[0093] **17** driving-side ball bearing (rolling bearing)
[0094] **18** driven-side ball bearing (rolling bearing)
[0095] **18***a* ball bearing on exhaust opening side
[0096] **18***b* ball bearing on driven-side end plate side

[0097] **20** coil spring (elastic member, biasing means)

[0098] **22** stopper (displacement amount restricting means)

[0099] **23** bolt

[0100] CL**1** driving-side rotational axis

[0101] CL**2** driven-side rotational axis

1-4. (canceled)

5. A co-rotating scroll compressor, comprising:

a driving-side scroll member driven by a drive unit so as to rotate, and comprising a spiral driving-side wall arranged on a driving-side end plate;

a driven-side scroll member in which a spiral driven-side wall corresponding to the driving-side wall is arranged on a driven-side end plate, the driven-side wall being engaged with the driving-side wall so as to form a compression space;

a synchronous driving mechanism that transmits driving force from the driving-side scroll member to the driven-side scroll member so that the driving-side scroll member and the driven-side scroll member rotationally move in a same direction at a same angular velocity; and

a biasing means for biasing a distal end of the driving-side wall and a distal end of the driven-side wall in a direction toward the driven-side end plate and the driving-side end plate that are respectively opposed to the distal end of the driving-side wall and the distal end of the driven-side wall.

6. The co-rotating scroll compressor according to claim **5**, wherein the biasing means comprises an elastic member that abuts against a bearing provided with respect to the driven-side scroll member.

7. The co-rotating scroll compressor according to claim **5**, wherein the biasing means comprises an elastic member provided between a driven-side thrust bearing that receives thrust force of the driven-side scroll member and a housing that accommodates the driven-side scroll member.

8. The co-rotating scroll compressor according to claim **5**, further comprising a driven-side rolling bearing provided between a driven-side shaft portion connected to the driven-side end plate and a housing that accommodates the driven-side scroll member, wherein the biasing means comprises an elastic member provided between the driven-side rolling bearing and the housing.

9. The co-rotating scroll compressor according to claim **5**, further comprising a displacement amount restricting means for restricting a displacement amount between the driving-side scroll member and the driven-side scroll member.

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