(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 310 296 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
24.01.2024 Bulletin 2024/04

(21) Application number: **23197661.4**

(22) Date of filing: **15.09.2023**

(51) International Patent Classification (IPC):
F01C 17/06 *(2006.01)* ***F04C 18/02*** *(2006.01)*

(52) Cooperative Patent Classification (CPC):
F01C 17/066; F04C 18/0215

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(30) Priority: **19.07.2022 CN 202210847163**
19.07.2022 CN 202221994377 U

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Remarks:
A request for re-establishment of rights in respect of the twelve-month period from the date of filing of the first application has been granted (Art.87(1) and Art.122 EPC).

(54) SCROLL COMPRESSOR AND OLDHAM RING AND MATING COMPONENT FOR SCROLL COMPRESSOR

(57) Scroll compressor, Oldham ring and a mating component for the scroll compressor.
The Oldham ring (20) for a scroll compressor (1), comprises: an annular body (21); andone or more keys (22a, 22b, 23a, 23b) protruding from the annular body (21) along an axial direction of the annular body (21), wherein the key (22a) is configured to be engaged with a corresponding sliding slot (16a) of a mating component (10) and has a contact root (33, 34) and a circumferential end surface (31, 32) to be engaged with the sliding slot (16a) whereby at least one of the keys (22a, 22b, 23a, 23b) is provided with a hollow portion (26a, 26a', 26a", 26a"') located at the contact root (33, 34), and an engagement wall (35, 36) with a predetermined stiffness and being elastically deformable is formed between the hollow portion (26a, 26a', 26a", 26a"') and the circumferential end surface (31, 32).

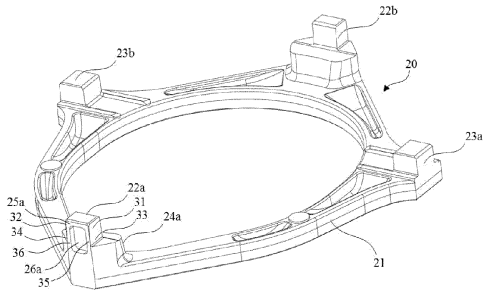

FIG. 4

EP 4 310 296 A2

Description

FIELD

[0001] The present application relates to a scroll compressor, and an Oldham ring and a mating component for a scroll compressor.

BACKGROUND

[0002] The content of this part provides only background information relevant to the present application, which may not constitute the prior art.

[0003] A scroll compressor includes a fixed scroll component and a movable scroll component eccentrically opposite to each other. The movable scroll component revolves around the fixed scroll component to compress an operating fluid. The scroll compressor generally further includes an Oldham ring for preventing self-rotation of the movable scroll component. The Oldham ring generally includes an annular body and two pairs of keys protruding along an axial direction of the annular body. A first pair of keys is fitted in sliding slots of the fixed scroll component or other stationary structure of the scroll compressor, and a second pair of keys is fitted in sliding slots of the movable scroll component, so as to restrict the movable scroll component to only revolve around the fixed scroll component, but not to rotate around its axis at the same time. Due to the presence of the keys, the Oldham ring is subjected to a torsional moment during operation. As a result, the Oldham ring may be tilted and torsionally deformed in the sliding slot, resulting in reduction in the contact areas between the keys and the sliding slots and the wear of the components due to stress concentration. Regions where the keys are in contact with the sliding slots are particularly likely to be worn. The wear of the keys may lead to deviation of an angle between the fixed scroll component and the movable scroll component, leakage of compressed gas, or the like, which seriously affects the performance of the scroll compressor.

SUMMARY

[0004] An objective of the present application is to reduce the wear of engagement walls on which an Oldham ring and a scroll component mate with each other in a scroll compressor.

[0005] Another objective of the present application is to optimize the stress distribution between the Oldham ring and the scroll component in the scroll compressor, thereby improving the performance of the scroll compressor.

[0006] According to an aspect of the present application, an Oldham ring for a scroll compressor is provided. The Oldham ring includes an annular body and one or more keys protruding from the annular body along an axial direction of the annular body. The key is configured to be engaged with a corresponding sliding slot of a mating component and has a contact root and a circumferential end surface to be engaged with the sliding slot. At least one of the keys is provided with a hollow portion located at the contact roots, and an engagement wall with a predetermined stiffness and being elastically deformable is formed between the hollow portion and the circumferential end surface.

[0007] In an embodiment, a thickness of a radially outer side of the engagement wall may be less than or equal to a thickness of a radially inner side of the engagement wall.

[0008] In an embodiment, in the axial direction, the contact root of the key may be located near a central part of the hollow portion.

[0009] In an embodiment, in the axial direction, a circumferential width of the central part of the hollow portion may be greater than or equal to a circumferential width of an end part of the hollow portion.

[0010] In an embodiment, in a circumferential direction, a minimum thickness of the engagement wall may be less than one third of a circumferential width of the key.

[0011] In an embodiment, the hollow portion may include at least one recessed slot, which is formed on an outer peripheral surface of the key.

[0012] In an embodiment, the recessed slot may include a rectangular recessed slot extending along the axial direction or a circular slot.

[0013] In an embodiment, a through hole which is in communication with the recessed slot may be formed on an inner peripheral surface of the key.

[0014] In an embodiment, the recessed slot may extend through a free end surface of the key along the axial direction.

[0015] In an embodiment, a depth of the recessed slot in a radial direction may be less than a thickness of the engagement wall.

[0016] According to another aspect of the present application, a mating component for an Oldham ring for a scroll compressor is provided. The mating component includes a body portion. One or more sliding slots are formed in the body portion, and the sliding slot is configured to be engaged with a corresponding key of the Oldham ring. A hollow portion is provided at each of two circumferential sides of at least one of the sliding slots. An engagement wall with a predetermined stiffness and being elastically deformable in a circumferential direction is formed between the hollow portion and the at least one sliding slot.

[0017] In an embodiment, in the circumferential direction, a thickness of the engagement wall may be less than one third of a circumferential width of the sliding slot.

[0018] In an embodiment, the mating component may be a scroll component of the scroll compressor. The scroll component may further include a scroll extending from the body portion. A flange extending along a radial direction may be provided on the body portion, and the sliding slot is formed in the flange.

[0019] In an embodiment, the hollow portion may extend through the body portion along an axial direction and may extend to an outer peripheral surface of the flange.

[0020] According to yet another aspect of the present application, a scroll compressor is provided. The scroll compressor includes the Oldham ring according to the aspect and/or the mating component according to the another aspect.

[0021] In embodiments of the present application, the stiffness of the engagement walls on which the Oldham ring and the mating component of the scroll compressor mate with each other is reduced by reducing materials, thereby allowing elastic deformation of the engagement walls to a certain extent, increasing the effective contact areas between the engagement walls of the Oldham ring and the mating component, distributing the contact stresses, and reducing the wear of the components.

[0022] Other fields of application of the present application will become more apparent from the detailed description below. It should be understood that the detailed description and specific examples, although illustrating preferred embodiments of the present application, are intended for purposes of exemplary illustration and are not intended to limit the present application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Embodiments of the present application will be described below only by way of example with reference to the accompanying drawings. In the accompanying drawings, the same features or components are represented by the same reference numerals. The accompanying drawings are not necessarily drawn to scale. For example, some parts may be exaggerated for clarity. In the accompanying drawings:

FIGS. 1 to 3 schematically show a top perspective view, a bottom perspective view, and a side view of a fixed scroll component and an Oldham ring that mate with each other in a scroll compressor according to an embodiment of the present application, respectively;

FIG. 4 shows a perspective view of an Oldham ring according to an embodiment of the present application;

FIG. 5 shows a partial perspective view of an Oldham ring according to another embodiment of the present application;

FIG. 6 shows a partial perspective sectional view of an Oldham ring according to another embodiment of the present application;

FIG. 7 shows a partial perspective view of an Oldham ring according to another embodiment of the present application;

FIG. 8 shows a partial perspective view of an Oldham ring according to another embodiment of the present application;

FIG. 9 shows a partial perspective view of an Oldham ring according to another embodiment of the present application;

FIG. 10 shows a perspective view of a fixed scroll component according to an embodiment of the present application;

FIG. 11 shows an enlarged view of a sliding slot of the fixed scroll component in FIG. 10; and

FIG. 12 shows a perspective view of a fixed scroll component according to another embodiment of the present application.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0024] Exemplary embodiments will be described more fully below with reference to the accompanying drawings.

[0025] The exemplary embodiments are provided so that the present application will be exhaustive and will more fully convey the scope to those skilled in the art. Many specific details such as examples of specific components, devices, and methods are set forth to provide a thorough understanding of the embodiments of the present application. It will be clear to those skilled in the art that the exemplary embodiments may be implemented in many different forms without using specific details, none of which should be construed as limiting the scope of the present application. In some exemplary embodiments, well-known processes, well-known device structures, and well-known technologies are not described in detail.

[0026] In the following description, the orientation terms related to "upper" and "lower", used herein are described according to the upper and the lower positions of the views shown in the accompanying drawings. In practical applications, the positional relationships of "upper" and "lower" used herein may be defined according to practical conditions. These relationships may be reversed.

[0027] A scroll compressor 1 according to an embodiment of the present application is firstly described with reference to FIGS. 1 to 3. The scroll compressor 1 may include a housing, a compression mechanism accommodated in the housing, a drive mechanism for driving the compression mechanism, a sealing assembly, and the like. For the sake of simplicity, only a fixed scroll component and an Oldham ring of the scroll compressor 1 are shown herein, and no other well-known structures of the scroll compressor 1 are shown.

[0028] FIGS. 1 to 3 schematically show a top perspective view, a bottom perspective view and a side view of a fixed scroll component 10 and an Oldham ring 20 that mate with each other in the scroll compressor 1, respectively. The compression mechanism of the scroll compressor 1 includes the fixed scroll component 10 and a movable scroll component (not shown). In order to clearly illustrate the mating relationship between the fixed scroll component 10 and the Oldham ring 20, the movable scroll component is not shown in FIGS. 1 to 3.

[0029] The fixed scroll component 10 includes a body portion having an end plate 11 and a fixed scroll 12 formed on one side of the end plate 11. Correspondingly, the movable scroll component includes a body portion having an end plate and a movable scroll formed on one side of the end plate. In the assembled state, the movable scroll component is arranged between the fixed scroll component 10 and the Oldham ring 20, so that the fixed scroll 12 and the movable scroll mesh with each other to form a series of compression chambers between the fixed scroll 12 and the movable scroll. The compression chambers have gradually decreased volumes from a radially outer side to a radially inner side. An air inlet 13 is provided at a radially outer side of the fixed scroll component 10, and an exhaust port 14 is provided at a substantially central part of the end plate 11 of the fixed scroll component 10. The body portion of the fixed scroll component 10 further includes two flanges 15a, 15b located on two radially opposite sides of the body portion and protruding radially outward around the fixed scroll 12. Sliding slots 16a, 16b extending along the radial direction are provided at lower surfaces of the flanges 15a, 15b, respectively.

[0030] The Oldham ring 20 includes an annular body 21 and a first pair of keys 22a, 22b and a second pair of keys 23a, 23b protruding from an upper surface of the annular body 21 along an axial direction of the annular body 21. It should be noted that the "annular body" as described herein is of a closed ring shape, but is not necessarily circular. The first pair of keys 22a, 22b is arranged opposite to each other and the second pair of keys 23a, 23b is arranged opposite to each other. The first pair of keys 22a, 22b is configured to be fitted in the sliding slots 16a, 16b on the flanges 15a, 15b of the fixed scroll component 10, and the second pair of keys 23a, 23b is configured to be fitted in corresponding sliding slots arranged on the body portion of the movable scroll component, whereby the Oldham ring 20, the fixed scroll component 10 and the movable scroll component define engagement walls on which the Oldham ring 20, the fixed scroll component 10, and the movable scroll component may be engaged with each other in a circumferential direction. In the assembled state, there is a gap between each of the keys and a corresponding sliding slot. When the scroll compressor 1 is in operation, the drive mechanism drives the movable scroll component to revolve around the fixed scroll component 10, and the Oldham ring 20 restricts the movable scroll component to revolve only around the center axis of the fixed scroll component 10 and not rotate around the center axis of the movable scroll component itself.

[0031] FIG. 4 shows an Oldham ring 20 according to an embodiment of the present application. The first pair of keys 22a, 22b may be of the same structure, and only one key 22a of the keys is illustrated herein as an example. The key 22a is arranged on a protruding portion 24a of the annular body 21. The circumferential width of the protruding portion 24a is greater than the circumferential width of the key 22a such that the key 22a and the protruding portion 24a form a stepped shape. Referring back to FIG. 3, in the assembled state, the key 22a is fitted in the sliding slot 16a on the flange 15a of the fixed scroll component 10, and an upper surface of the protruding portion 24a is spaced apart from a lower surface of the flange 15a of the fixed scroll component 10 by a certain distance.

[0032] The key 22a has circumferential end surfaces 31, 32 for engagement with the sliding slot 16a. Parts, closer to the annular body 21, of the circumferential end surfaces 31, 32 are referred to herein as contact roots 33, 34 of the key 22a, respectively. In a case that the Oldham ring 20 is tilted or torsionally deformed during the operation of the scroll compressor, the contact roots 33, 34, particularly the radially outer sides of the contact roots 33, 34 of the key 22a are most likely to be worn. In the embodiment shown in FIG. 4, the key 22a extends upwardly from the annular body 21 along an axial direction, i.e., towards the fixed scroll component 10. Accordingly, the contact roots 33, 34 of the key 22a are located at lowermost ends of the parts, in contact with the sliding slot 16a of the fixed scroll component 10, of the circumferential end surfaces 31, 32. However, in other embodiments, the first pair of keys of the Oldham ring may be mated with other stationary structures other than the fixed scroll component in the scroll compressor. For example, when the first pair of keys of the Oldham ring extends downwardly from the annular body 21 along the axial direction and is mated with corresponding sliding slots in a fixed mating component, the contact roots of each of the keys may be located at uppermost ends of the parts, in contact with the sliding slot, of the circumferential end surfaces of the key.

[0033] A recessed slot 26a recessed radially inwardly is formed on an outer peripheral surface 25a of the key 22a, engagement walls 35, 36 with a certain thickness are formed between the recessed slot 26a and the circumferential end surfaces 31, 32 of the key 22a, and the circumferential end surfaces 31, 32 of the key 22a form parts, which are engaged with the sliding slot 16a of the fixed scroll component 10, of the engagement walls 35, 36, respectively. As shown in FIG. 4, in an embodiment, the recessed slot 26a may be substantially rectangular-shaped. The recessed slot 26a may extend through a part of the key 22a and a part of the protruding portion 24a along the axial direction of the Oldham ring 20, such that in the axial direction, the contacting roots 33, 34 of

the key 22a are located near a central part of the recessed slot 26a.

[0034] With the provision of the recessed slot 26a, a hollow portion arranged inside the key 22a is formed near the contact roots 33, 34 of the key 22a by reducing materials, thereby reducing the local stiffness of the engagement walls 35, 36. As a result, when the Oldham ring 20 is subjected to a torsional moment, the engagement walls 35, 36 are elastically deformable to a certain extent, so as to increase the effective contact areas between the engagement walls 35, 36 of the key 22a and the corresponding engagement walls of the sliding slot 16a, distribute the contact stresses, thereby reducing the wear. Preferably, the contact roots 33, 34 of the key 22a correspond substantially to the central part of the recessed slot 26a in the axial direction, which can minimize the local stiffness in the vicinity of the contact roots 33, 34 of the key 22a.

[0035] In other embodiments of the present application, any other suitable form of hollow portions may be formed inside the key 22a. Figures 5 to 9 show partial views of the key 22a with different forms of hollow portions.

[0036] As shown in FIG. 5, a through-hole 28a which is in communication with the recessed slot 26a is formed on an inner peripheral surface 27a of the key 22a. The diameter of the through-hole 28a is less than the circumferential width of the recessed slot 26a, such that a step portion is formed between the through-hole 28a and the recessed slot 26a. The through-hole 28a may allow lubricant and refrigerant to pass through, thereby further reducing the wear and enhancing cooling.

[0037] FIG. 6 shows a partial sectional view of an Oldham ring with a variable cross-section recessed slot 26a' taken along a central axial section of the recessed slot 26a'. In the axial direction, the contact roots 33, 34 of the key 22a (only one contact root 34 is shown in FIG. 6) may be located near the central part of the recessed slot 26a'. Four sidewalls of the recessed slot 26a' taper from the radially outer side towards the radially inner side, such that the dimension of the radially outer side of the recessed slot 26a' is greater than the dimension of the radially inner side of the recessed slot 26a'. When viewed in the radial direction, the thickness of the radially outer side of each of the engagement walls 35, 36 (only one engagement wall 36 is shown in FIG. 6) of the key 22a is less than the thickness of the radially inner side of each of the engagement walls 35, 36. When viewed in the axial direction, the circumferential width of the central part of the recessed slot 26a' is greater than the circumferential width of an end part of the recessed slot 26a'. In other words, when viewed in the axial direction, the thickness tl at the upper and lower ends of the engagement walls 35, 36 of the key 22a is greater than the thickness t2 at the central part. Therefore, the radially outer sides of the contact roots 33, 34 of the key 22a correspond to the thinnest regions of the engagement walls 35, 36 of the key 22a. During operation of the scroll compressor, the radially outer sides of the contact roots 33, 34 of the key 22a tend to be most likely to be worn, and this design of the variable cross-section recessed slot allows for a relatively maximum flexibility of the radially outer sides of the contact roots 33, 34 of the key 22a, and thus allows for further optimization of the distribution of stresses on the key 22a in the radial direction and in the axial direction.

[0038] FIG. 7 shows a key 22a having an irregularly-shaped recessed slot 26a" substantially in the shape of "8". The recessed slot 26a" may be regarded as including two or more circular slots connected to each other. The recessed slot 26a" can be easily formed by drilling the two or more circular slots connected to each other using a circular drill bit during the machining of the Oldham ring. FIG. 8 shows that a through hole 28a" which is in communication with the irregularly-shaped recessed slot 26a" is formed on an inner peripheral surface 27a of the key 22a, thereby facilitating lubrication and cooling.

[0039] FIG. 9 shows a key 22a according to another embodiment of the present application. In the embodiment, a rectangular recessed slot 26a‴ extends through a free end surface 29a (i.e., the upper end surface of the key 22a shown in FIG. 9) of the key 22a along the axial direction. An Oldham ring with such a recessed slot can be formed directly by casting without additional machining of the Oldham ring.

[0040] As shown in FIG. 9, the depth d of the recessed slot 26a‴ in the radial direction is preferably less than the thickness t of the engagement walls 35, 36, and the thickness t of the engagement walls 35, 36 is preferably less than one third or one quarter of the circumferential width w of the key 22a, so that the engagement walls 35, 36 of the key 22a have a more desirable stiffness and stress distribution. The dimensional feature may also apply to recessed slots in other embodiments, in particular, the rectangular recessed slot 26a shown in FIG. 4. For embodiments in which the engagement walls have a non-constant thickness, it is preferred that the minimum thickness of the engagement walls in the circumferential direction is less than one third or one quarter of the circumferential width of the key. Furthermore, it is preferred that parts having the minimum thickness of the engagement walls are arranged near the contact roots of the key.

[0041] In other embodiments, the key 22a may be provided with any other suitably shaped recessed slot or any other suitable form of hollow portions to reduce the stiffness of at least a part of the engagement walls of the key 22a, such that the engagement walls of the key 22a have a predetermined stiffness and are elastically deformable. For example, the key 22a may include a single circular recessed slot, or the key 22a may include multiple separate recessed slots. For example, two grooves extending along the axial direction may be formed near the two circumferential end surfaces 31, 32 of the key 22a, respectively.

[0042] It should be understood that although only the first pair of keys 22a, 22b, mated with the fixed scroll

component 10, of the Oldham ring 20 is described above, the above structure of keys with various hollow portions may also be applied to the second pair of keys 23a, 23b, mated with the movable scroll component, of the Oldham ring 20. In addition, alternatively, the first pair of keys 22a, 22b may be mated with sliding slots arranged on stationary structures other than the fixed scroll component 10 in the scroll compressor 1, for example, sliding slots arranged on a main bearing seat.

[0043] A fixed scroll component according to another aspect of the present application is described below with reference to FIGS. 10 to 12.

[0044] FIG. 10 shows a perspective view of a fixed scroll component 10 according to an embodiment of the present application. The fixed scroll component 10 includes flanges 15a, 15b with sliding slots 16a, 16b. The sliding slots 16a, 16b may be of the same structure, and only the sliding slot 16a is illustrated below as an example. A pair of grooves 17a, 18a is provided on two circumferential sides of the sliding slot 16a. Two engagement walls 41, 42 configured to be engaged with the key 22a of the Oldham ring 20 are formed between the groove 17a and the sliding slot 16a and between the groove 18a and the sliding slot 16a, respectively. The grooves 17a, 18a may be configured to allow the engagement walls 41, 42 of the sliding slot 16a to have a predetermined stiffness. As a result, during operation of the scroll compressor, the engagement walls 41, 42 of the sliding slot 16a can be elastically deformed to a certain extent in the circumferential direction, thereby increasing the effective contact areas between the engagement walls 35, 36 of the key 22a of the Oldham ring 20 and the engagement walls 41, 42 of the sliding slot 16a, distributing the contact stresses, and thereby reducing the wear. Preferably, the grooves 17a, 18a extend to an outer peripheral surface 19a of the flange 15a. In this way, the stiffness at the radially outer sides of the engagement walls 41, 42 of the sliding slot 16a can be further reduced.

[0045] FIG. 11 shows an enlarged view of the sliding slot 16a in FIG. 10. As shown in FIG. 11, the thickness T of the engagement walls 41, 42 of the sliding slot 16a of the fixed scroll component 10 is preferably less than one third of the circumferential width W of the sliding slot 16a, so that the engagement walls 41, 42 of the sliding slot 16a have a more desirable stiffness and stress distribution.

[0046] FIG. 12 shows a perspective view of the fixed scroll member 10 according to another embodiment of the present application. In the embodiment, grooves 17a, 18a located on the two circumferential sides of the sliding slot 16a of the fixed scroll component 10 extend through the body portion of the fixed scroll component 10 along the axial direction. The fixed scroll component with such grooves can be formed directly by casting without additional machining of the fixed scroll component.

[0047] Although the structure of the sliding slots of the fixed scroll component 10 is described above, it should be understood that the above structure of the sliding slots can also be applied to the movable scroll component or other mating components, such as a main bearing seat, mated with the Oldham ring in the scroll compressor.

[0048] In embodiments of the present application, the hollow portion is provided near at least one of engagement walls of the key of the Oldham ring and a corresponding sliding slot of the mating component, to reduce the thickness and stiffness of the at least one engagement wall, so that the at least one engagement wall has a predetermined stiffness and is elastically deformable to a predetermined extent. As a result, the effective contact area between the Oldham ring and the mating component can be increased, the stress concentration can be reduced, and the Oldham ring can be avoided from being tilted and the wear of the engagement walls can be reduced, thereby improving the performance of the scroll compressor and extending the service life of the scroll compressor.

[0049] Exemplary embodiments of the scroll compressor, the Oldham ring, and the mating component according to the present application have been described in detail herein, but it should be understood that the present application is not limited to the specific embodiments described and illustrated in detail above. Various embodiments according to the present application may be implemented individually or in combination. Without departing from the subject matter and scope of the present application, various variations and variants can be made by those skilled in the art to the present application. All the variations and variants shall fall within the scope of the present application. Moreover, all of the components described herein can be replaced by other technically equivalent components.

Claims

1. An Oldham ring (20) for a scroll compressor (1), comprising:

   an annular body (21); and
   one or more keys (22a, 22b, 23a, 23b) protruding from the annular body (21) along an axial direction of the annular body (21), wherein
   the key (22a) is configured to be engaged with a corresponding sliding slot (16a) of a mating component (10) and has a contact root (33, 34) and a circumferential end surface (31, 32) to be engaged with the sliding slot (16a),
   characterized in that at least one of the keys (22a, 22b, 23a, 23b) is provided with a hollow portion (26a, 26a', 26a", 26a‴) located at the contact root (33, 34), and an engagement wall (35, 36) with a predetermined stiffness and being elastically deformable is formed between the hollow portion (26a, 26a', 26a", 26a‴) and the circumferential end surface (31, 32).

2. The Oldham ring (20) according to claim 1, wherein a thickness of a radially outer side of the engagement wall (35, 36) is less than or equal to a thickness of a radially inner side of the engagement wall (35, 36).

3. The Oldham ring (20) according to claim 1, wherein, in the axial direction, the contact root (33, 34) of the key (22a) is located near a central part of the hollow portion (26a, 26a', 26a", 26a‴).

4. The Oldham ring (20) according to claim 3, wherein, in the axial direction, a circumferential width of the central part of the hollow portion (26a, 26a', 26a", 26a‴) is greater than or equal to a circumferential width of an end part of the hollow portion (26a, 26a', 26a", 26a‴).

5. The Oldham ring (20) according to claim 1, wherein, in a circumferential direction, a minimum thickness of the engagement wall (35, 36) is less than one third of a circumferential width of the key (22a).

6. The Oldham ring (20) according to any one of claims 1 to 5, wherein the hollow portion (26a, 26a', 26a", 26a‴) comprises at least one recessed slot (26a, 26a', 26a", 26a‴), which is formed on an outer peripheral surface (25a) of the key (22a).

7. The Oldham ring (20) according to claim 6, wherein the recessed slot (26a, 26a", 26a‴) comprises a rectangular recessed slot extending along the axial direction or a circular slot.

8. The Oldham ring (20) according to claim 6, wherein a through hole (28a, 28a") which is in communication with the recessed slot (26a, 26a") is formed on an inner peripheral surface (27a) of the key (22a).

9. The Oldham ring (20) according to claim 6, wherein the recessed slot (26a‴) extends through a free end surface (29a) of the key (22a) along the axial direction.

10. The Oldham ring (20) according to claim 6, wherein a depth of the recessed slot (26a, 26a', 26a", 26a‴) in a radial direction is less than a thickness of the engagement wall (35, 36).

11. A mating component (10) for an Oldham ring (20) for a scroll compressor (1), comprising:

a body portion, wherein one or more sliding slots (16a, 16b) are formed in the body portion, the sliding slot (16a, 16b) is configured to be engaged with a corresponding key (22a, 22b, 23a, 23b) of the Oldham ring (20),
characterized in that a hollow portion (17a, 18a) is provided at each of two circumferential sides of at least one of the sliding slots (16a), and an engagement wall (41, 42) with a predetermined stiffness and being elastically deformable in a circumferential direction is formed between the hollow portion (17a, 18a) and the at least one sliding slot (16a).

12. The mating component (10) according to claim 11, wherein, in the circumferential direction, a thickness of the engagement wall (41, 42) is less than one third of a circumferential width of the sliding slot (16a).

13. The mating component (10) according to claim 11 or 12, wherein the mating component (10) is a scroll component (10) of the scroll compressor (1), the scroll component further comprises a scroll (12) extending from the body portion, wherein a flange (15a, 15b) extending along a radial direction is provided on the body portion, and the sliding slot (16a, 16b) is formed in the flange (15a, 15b).

14. The mating component (10) according to claim 13, wherein the hollow portion (17a, 18a) extends through the body portion along an axial direction and extends to an outer peripheral surface of the flange (15a, 15b).

15. A scroll compressor (1), comprising:

an Oldham ring (20); and
a mating component (10) configured to be mated with the Oldham ring (20), wherein
characterized in that the Oldham ring (20) is the Oldham ring (20) according to any one of claims 1 to 10, and/or the mating component (10) is the mating component (10) according to any one of claims 11 to 14.

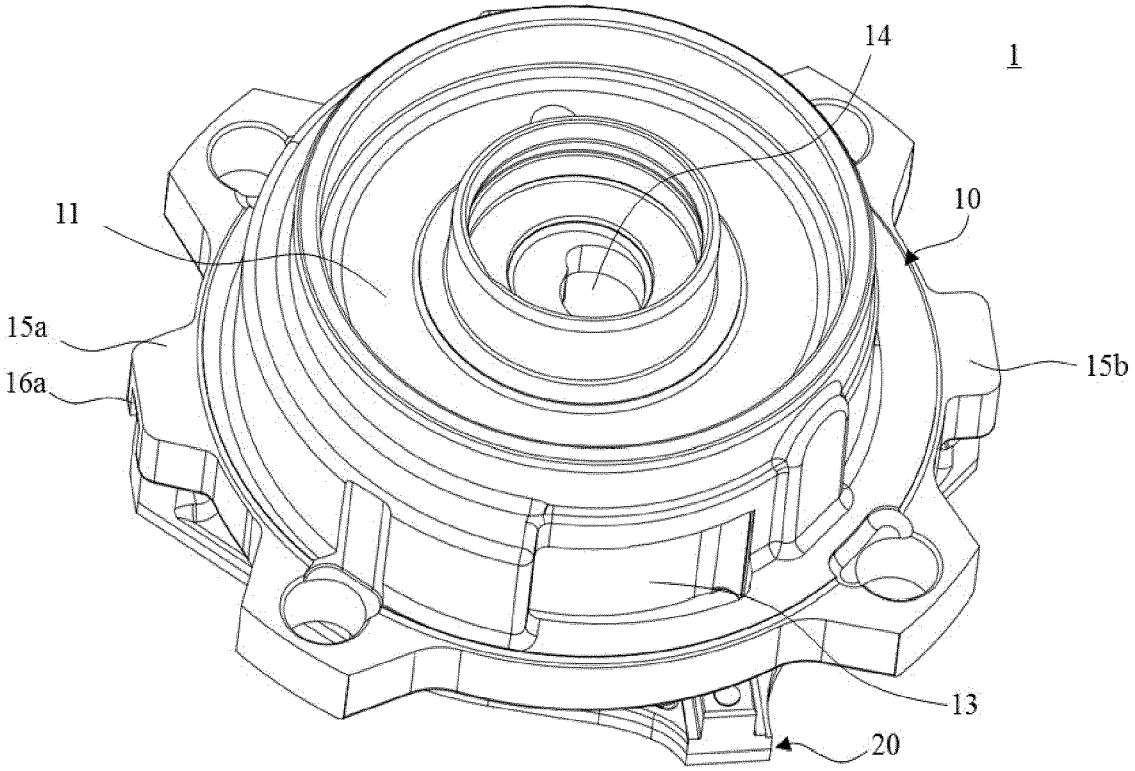

FIG. 1

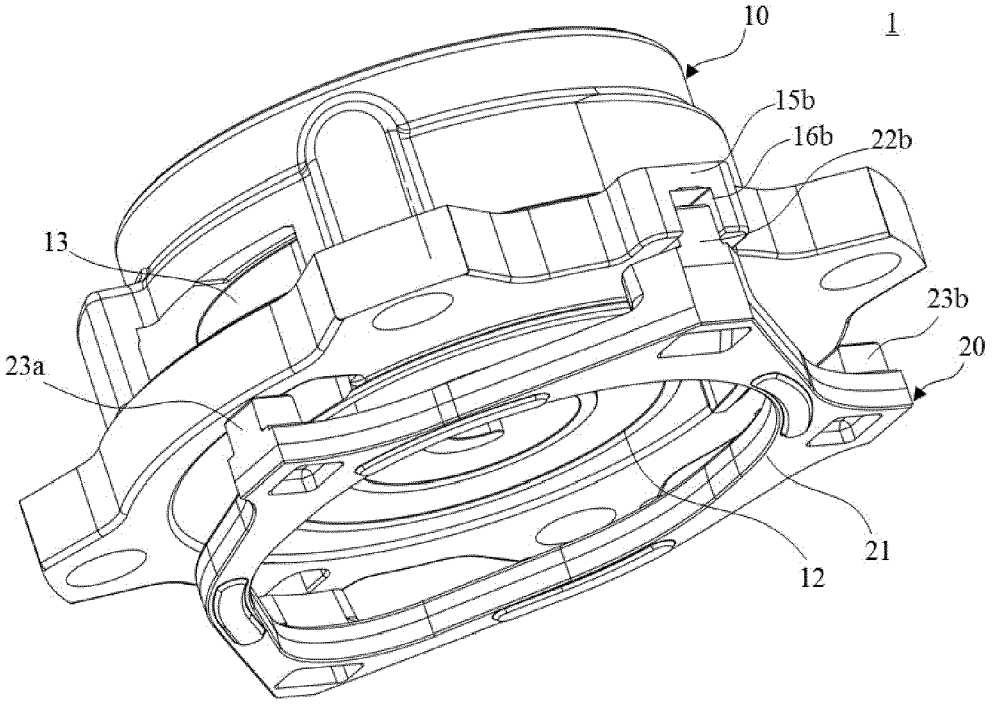

FIG. 2

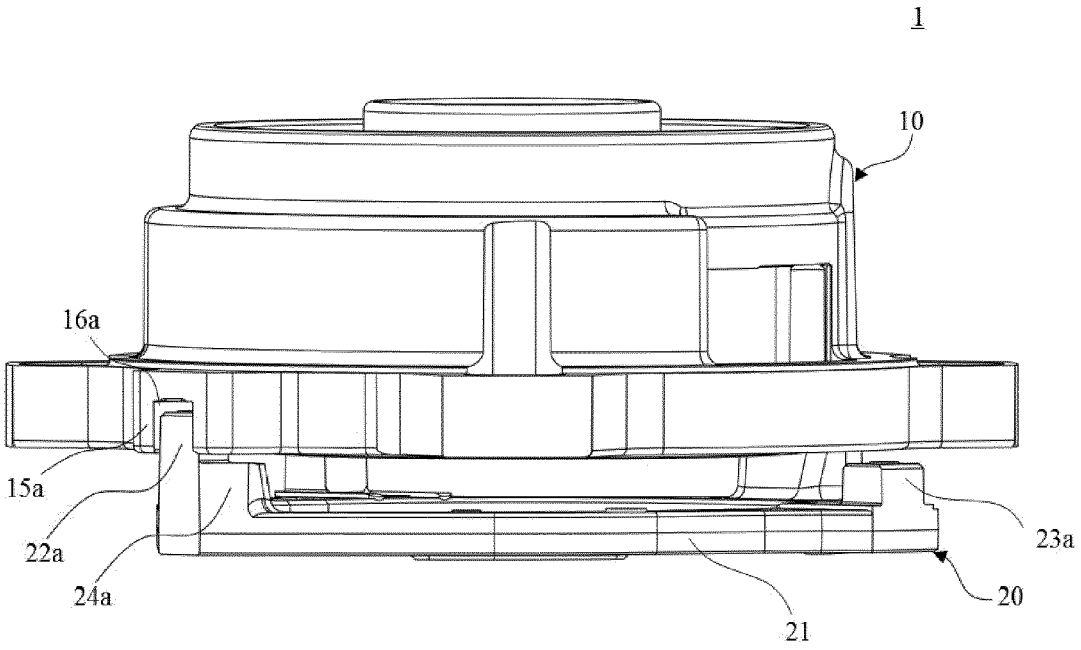

FIG. 3

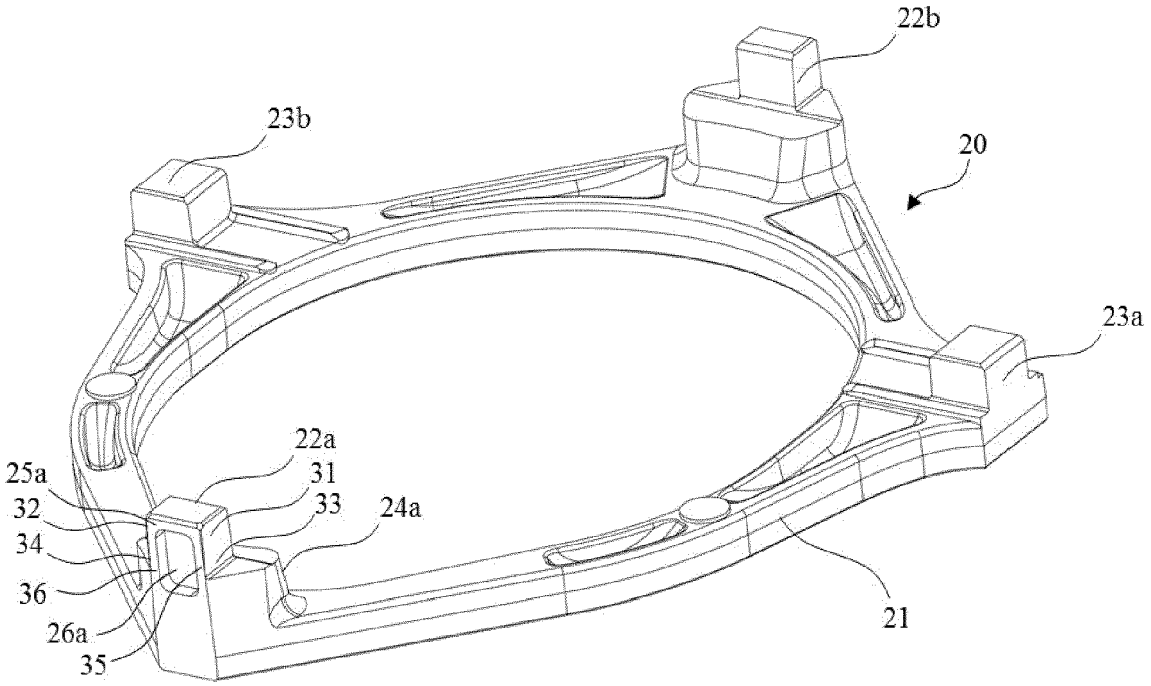

FIG. 4

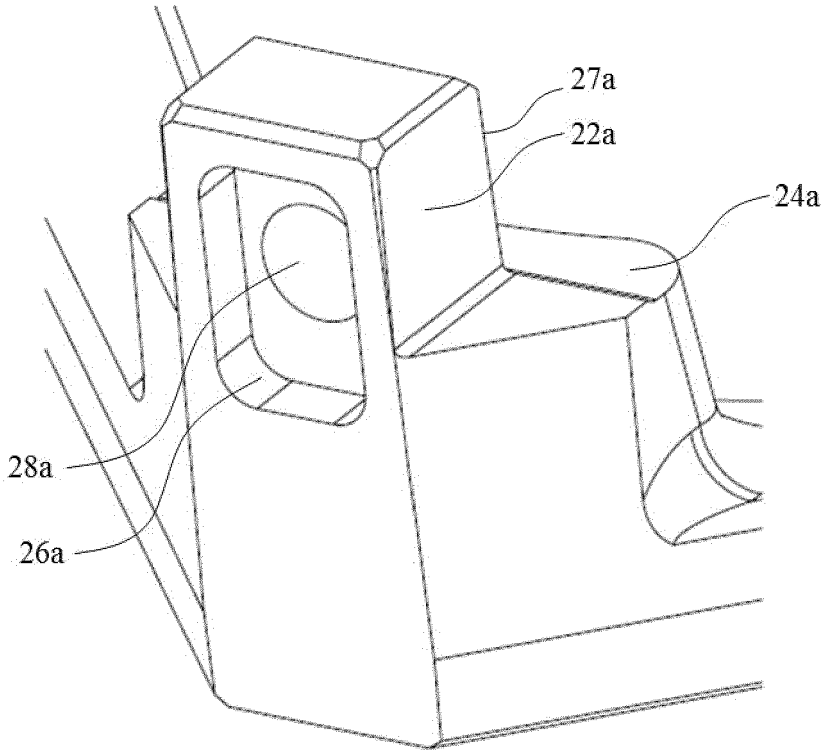

FIG. 5

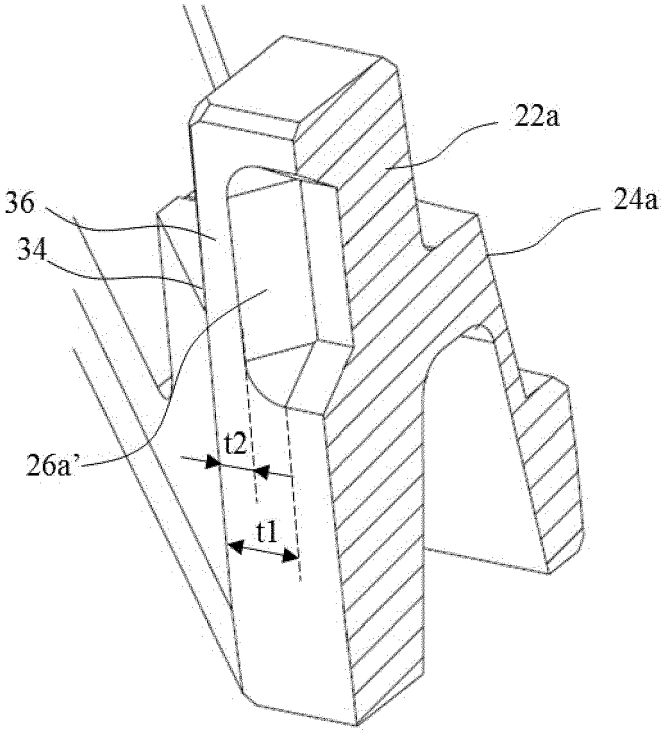

FIG. 6

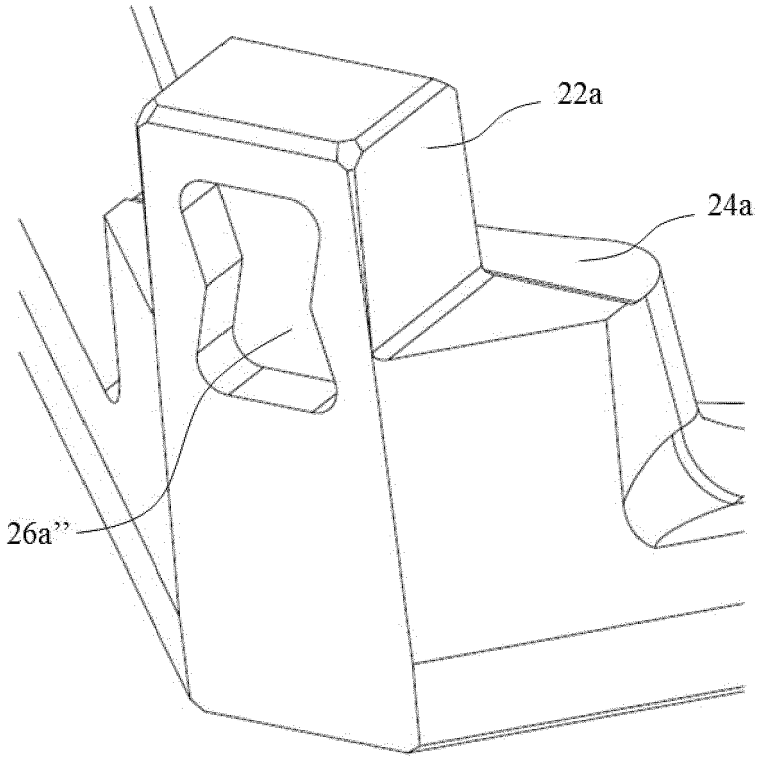

FIG. 7

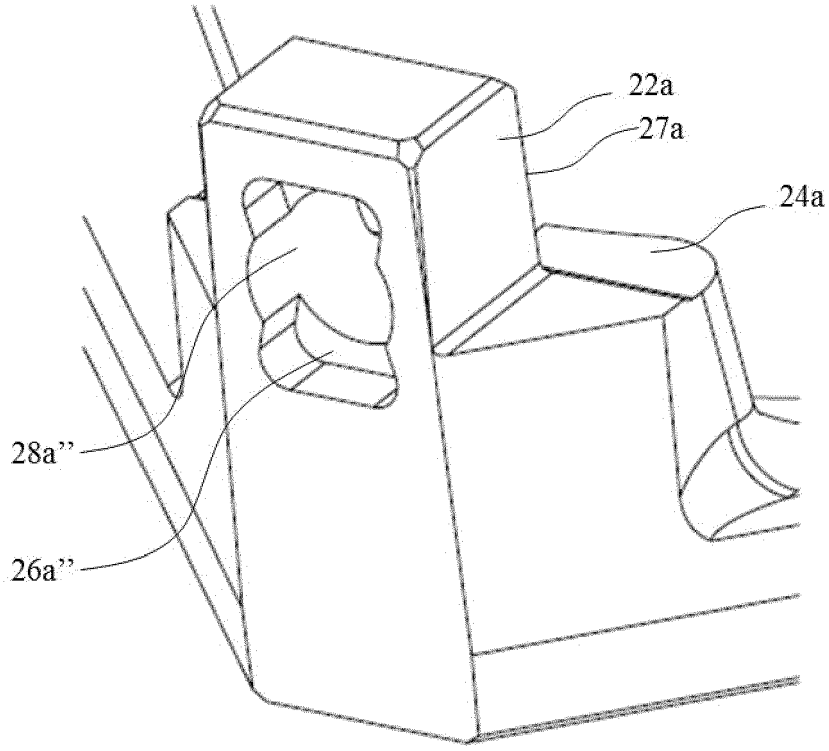

FIG. 8

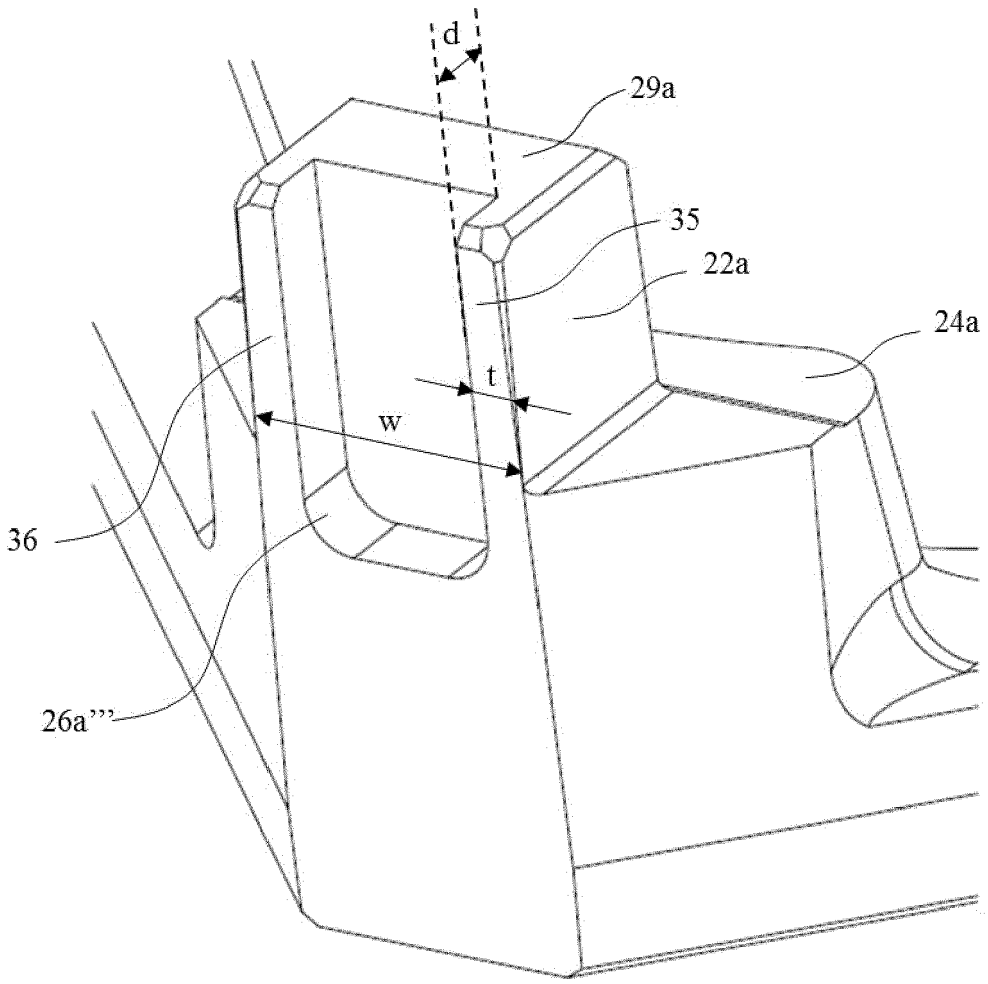

FIG. 9

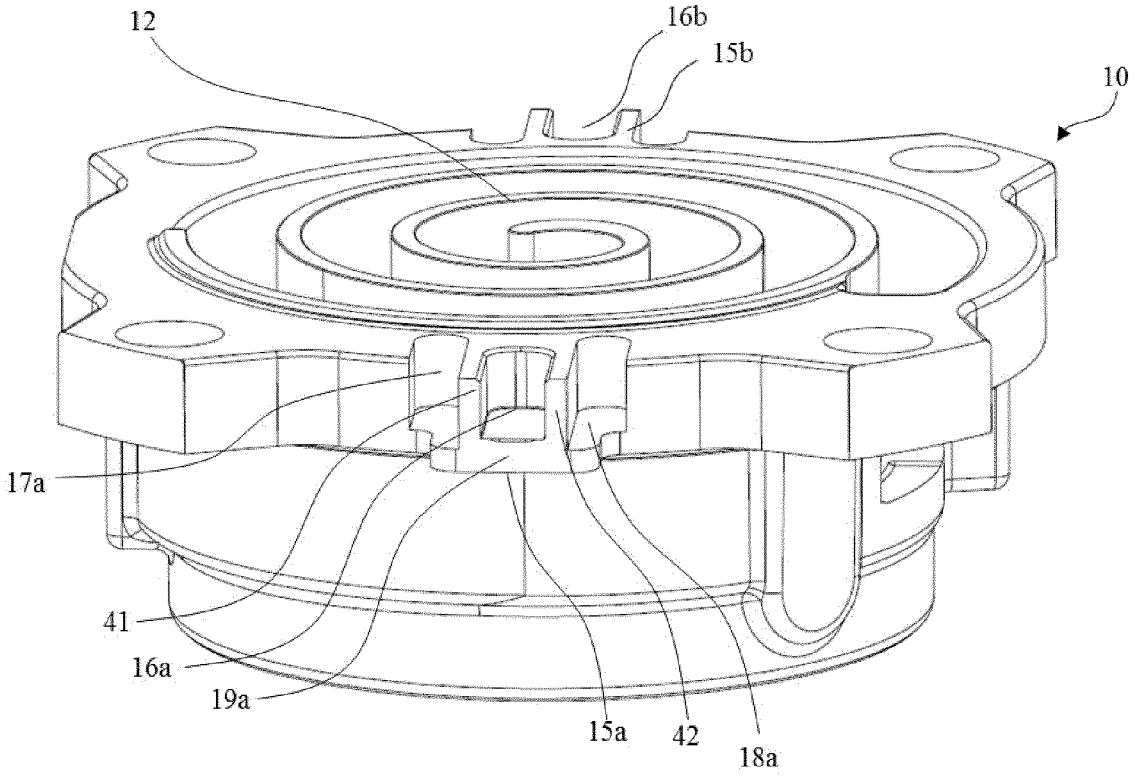

FIG. 10

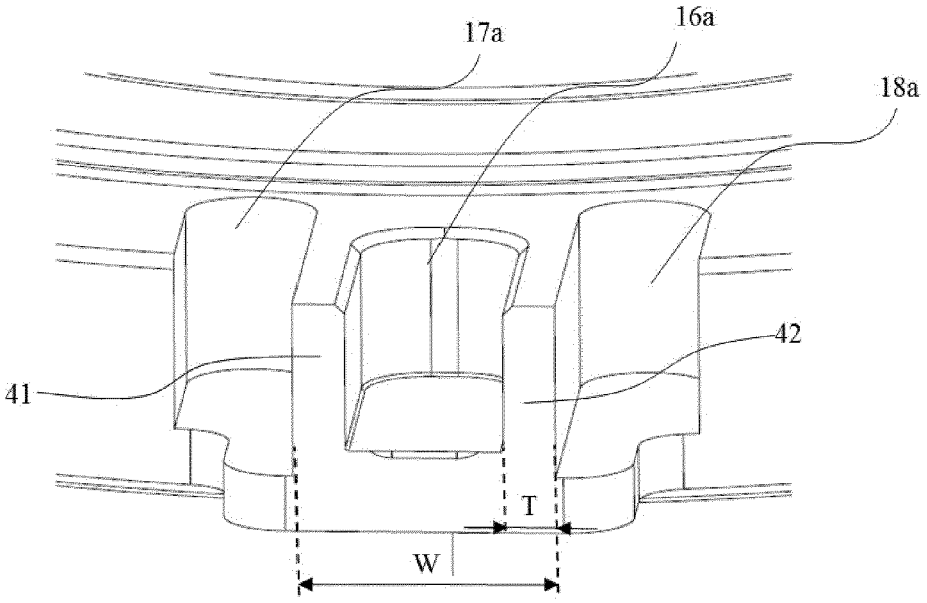

FIG. 11

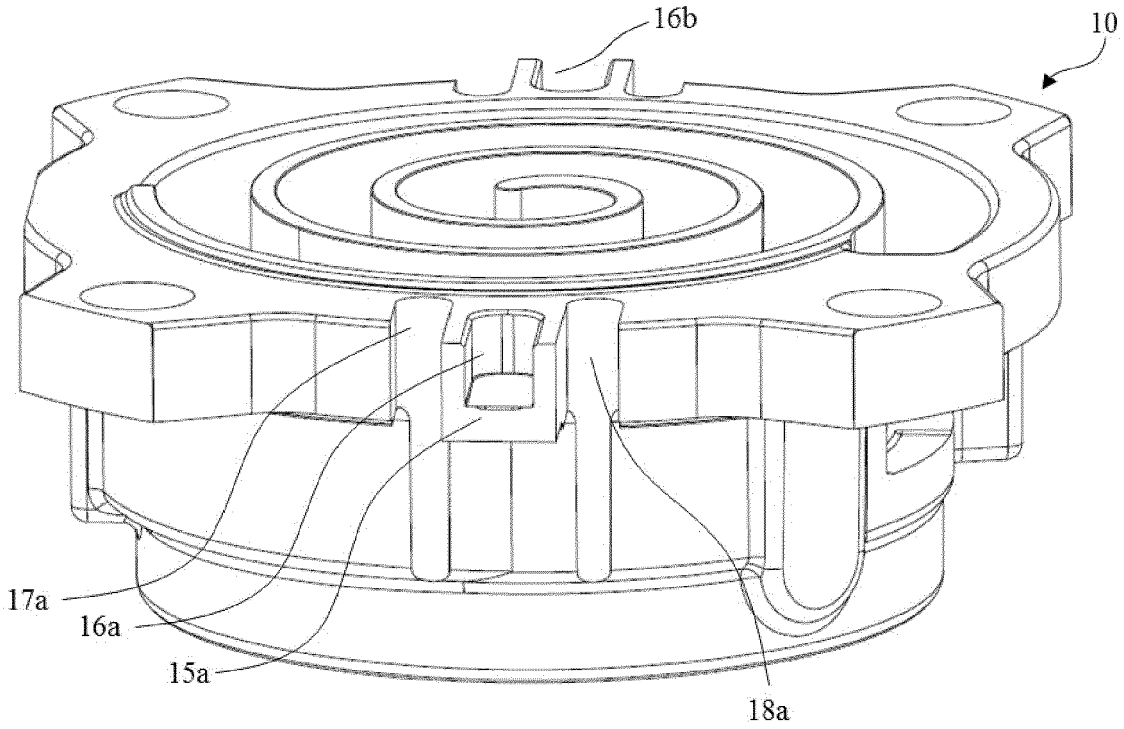

FIG. 12