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(71) **Demandeur/Applicant:**
ZHONGSHAN BROAD-OCEAN MOTOR CO., LTD., CN

(72) **Inventeurs/Inventors:**
WANG, XIONGCHENG, CN;
LEI, WEI, CN

(74) **Agent:** H&M PATENT AND TRADEMARK AGENTS

(54) **Titre : STRUCTURE DE JOINT D'ETANCHEITE DE VOLUTE DE VENTILATEUR DE TIRAGE**
(54) **Title: DRAUGHT FAN VOLUTE SEAL STRUCTURE**

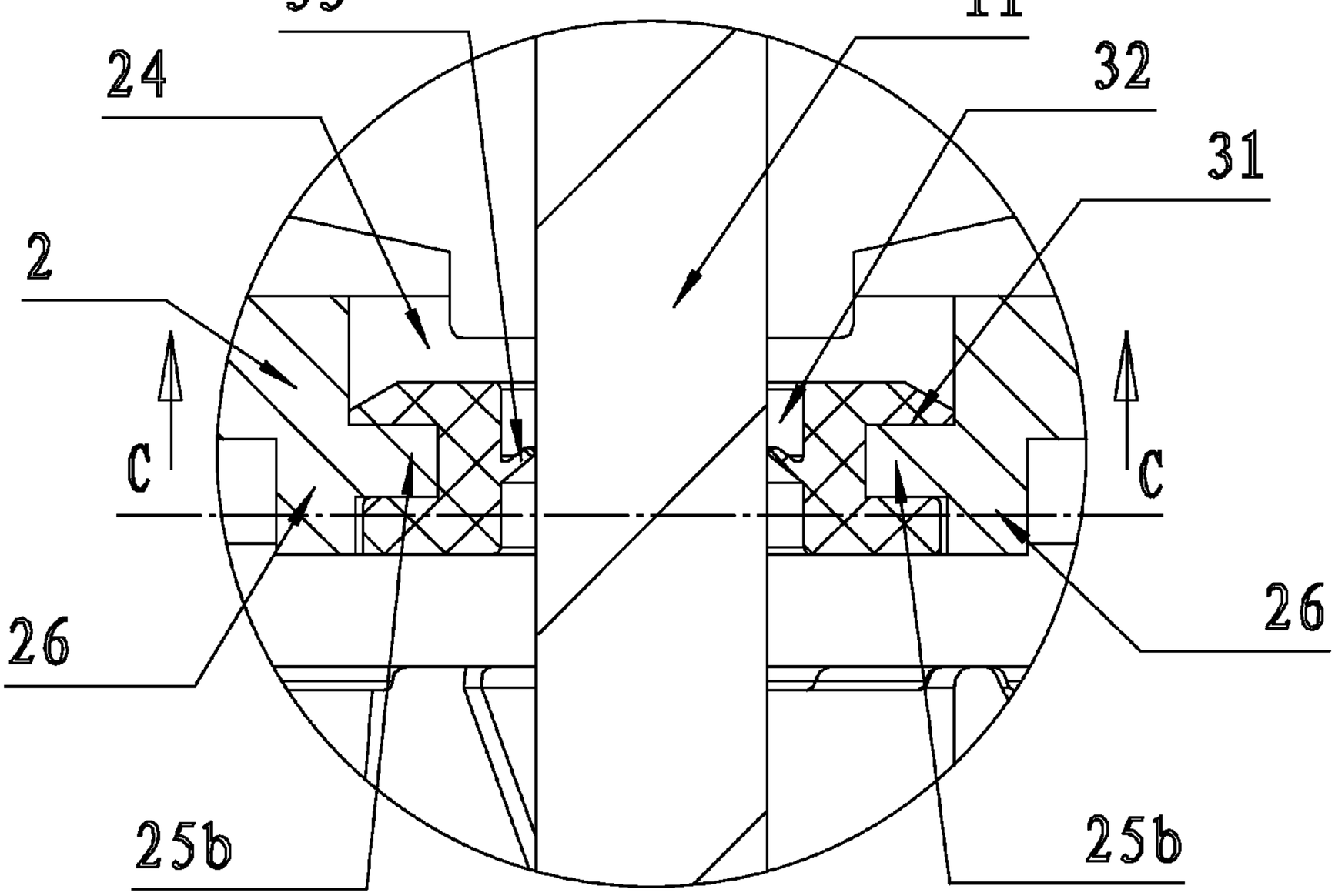

图 6 / **Fig.** 6

(57) **Abrégé/Abstract:**
A draught fan volute seal structure comprises a motor (1), a volute (2) and a wind wheel (23). An air inlet (21) and an air outlet (22) are arranged on the volute (2); the wind wheel (23) is arranged inside the volute (2); a through hole (24) is arranged at the top of

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(57) **Abrégé(suite)/Abstract(continued):**
the volute (2); a rotating shaft (11) of the motor (1) penetrates the through hole (24) and is connected with the wind wheel (23); a seal ring (3) is arranged at the position of the through hole (24) on the volute (2); an annular groove (31) engaged with the volute (2) is arranged on an external side of the seal ring (3); a central hole (32) is arranged in the middle of the seal ring (3); an annular edge (33) is protruded from the middle of a wall face of the central hole (32); the rotating shaft (11) passes through the center hole (32) and clings to the annular edge (33). The draught fan volute seal structure is simple in structure, convenient to assemble and good in seal effect, prevents foreign matters like dust from entering the volute, and guarantees normal working of the wind wheel.

ABSTRACT

A draught fan volute seal structure comprises a motor (1), a volute (2) and a wind wheel (23). An air inlet (21) and an air outlet (22) are arranged on the volute (2); the wind wheel (23) is arranged inside the volute (2); a through hole (24) is arranged at the top of the volute (2); a rotating shaft (11) of the motor (1) penetrates the through hole (24) and is connected with the wind wheel (23); a seal ring (3) is arranged at the position of the through hole (24) on the volute (2); an annular groove (31) engaged with the volute (2) is arranged on an external side of the seal ring (3); a central hole (32) is arranged in the middle of the seal ring (3); an annular edge (33) is protruded from the middle of a wall face of the central hole (32); the rotating shaft (11) passes through the center hole (32) and clings to the annular edge (33). The draught fan volute seal structure is simple in structure, convenient to assemble and good in seal effect, prevents foreign matters like dust from entering the volute, and guarantees normal working of the wind wheel.

DRAUGHT FAN VOLUTE SEAL STRUCTURE

FIELD OF THE INVENTION

[0001] The invention relates to a seal structure of a volute for an induced draught fan.

BACKGROUND OF THE INVENTION

[0002] A traditional induced draught fan structure includes a motor, a volute, and a wind wheel. The top of the volute is provided with a through-hole. The shaft of the motor travels through the through-hole and is connected with the wind wheel. A gap between the shaft and the volute is provided at the through-hole. Foreign matters such as dust are easy to enter the inside of the volute through the gap, which influences the normal operation of the wind wheel.

SUMMARY OF THE INVENTION

[0003] The invention aims at providing a seal structure of a volute for an induced draught fan which has advantages of a simple structure, easy installation procedures and a good seal effect to keep foreign matters such as dust from entering the inside of the volute and keep the normal operation of the wind wheel.

[0004] The objective of the invention is achieved according to the following technical schemes.

[0005] A seal structure of a volute for an induced draught fan comprises a motor, a volute and a wind wheel. The volute is provided with an air inlet and an air outlet. The wind wheel is arranged inside the volute. The top of the volute is provided with a through-hole. A shaft of the motor travels through the through-hole and is connected with the wind wheel. A seal ring is

arranged at the through-hole on the volute. The outer side of the seal ring is provided with a ring-like groove. The volute is embedded in the ring-like groove. The middle of the seal ring is provided with a center hole. The middle of the side wall of the center hole is provided with a ring-like edge. The shaft travels through the center hole and contacts with the ring-like edge.

[0006] An inner wall of the through-hole protrudes to form a ring-like boss. The ring-like boss is embedded in the groove of the seal ring.

[0007] An outer side of the seal ring protrudes to form hooks which get stuck between ribs on the top of the volute.

[0008] The edge of the through-hole on the top of the volute protrudes to form a surrounding edge. The inner side wall of the surrounding edge protrudes to form a ring-like convex block. The ring-like convex block is embedded in the groove of the seal ring.

[0009] The outer side of the seal ring protrudes to form convex lugs which are embedded in gaps provided on the surrounding edge.

[0010] The seal ring is made of rubber.

[0011] Compared to the prior art, the seal structure of a volute for an induced draught fan has the following advantages: 1) A seal ring is arranged at the through-hole on the volute. The outer side of the seal ring is provided with a ring-like groove. The volute is embedded in the ring-like groove. The middle of the seal ring is provided with a center hole. The middle of the wall of the center hole is provided with a convex ring-like edge. The shaft travels through the center hole and contacts with the ring-like edge. The invention has advantages of a simple structure, easy installation procedures and a good seal effect to keep foreign matters such as dust entering into the inside of the volute and keep the normal operation of the wind wheel. 2) The outer side of the seal ring protrudes to form hooks which get stuck between the ribs on the top of the volute. The invention has reasonable and compact structural design. 3) The seal ring is made of rubber, with

low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a stereogram of a seal structure of a volute for an induced draught fan of the invention;

[0013] FIG. 2 is a sectional view of a seal structure of a volute for an induced draught fan of Example 1 of the invention;

[0014] FIG. 3 is a local enlarged view of part A-A of FIG. 2;

[0015] FIG. 4 is a stereogram of a seal ring of Example 1;

[0016] FIG. 5 is a sectional view of a seal structure of a volute for an induced draught fan of Example 2 of the invention;

[0017] FIG. 6 is a local enlarged view of part B-B of FIG. 5;

[0018] FIG. 7 is a sectional view of FIG. 6 taken from line C-C; and

[0019] FIG. 8 is a stereogram of a seal ring of Example 2.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0020] Detailed description of the invention will be given below in conjunction with accompanying drawings.

Example 1

[0021] As shown in Figure 1, Figure 2, Figure 3 and Figure 4, the invention provides a seal

structure of a volute for an induced draught fan. The seal structure comprises a motor 1, a volute 2 and a wind wheel 23. The volute 2 is provided with an air inlet 21 and an air outlet 22. The wind wheel 23 is arranged inside the volute 2. The top of the volute is provided with a through-hole 24. The shaft 11 of the motor 1 travels through the through-hole 24 and is connected with the wind wheel 23. A seal ring 3 is arranged at the through-hole 24 on the volute 2. The outer side of the seal ring 3 is provided with a ring-like groove 31. The volute 2 is embedded in the ring-like groove 31. The middle of the seal ring 3 is provided with a center hole 32. The middle of the side wall of the center hole 32 is provided with a ring-like edge 33. The shaft 11 travels through the center hole 32 and contacts with the ring-like edge 33. The inner wall of the through-hole 24 protrudes to form a ring-like boss 25a. The ring-like boss 25a is embedded in the groove of the seal ring 3. The outer side of the seal ring 3 protrudes to form hooks which get stuck between ribs 27 on the top of the volute 2. The seal ring 3 is made of rubber.

Example 2

[0022] The edge of the through-hole 24 on the top of the volute 2 protrudes to form a surrounding edge 26. The inner side wall of the surrounding edge 26 protrudes to form a ring-like convex block 25b. The ring-like convex block 25b is embedded in the groove 31 of the seal ring 3. The outer side of the seal ring 3 protrudes to form convex lugs 35 which are embedded in gaps 260 provided on the surrounding edge 26.

[0023] In the invention, the seal ring 3 is arranged at the through-hole 24 on the volute 2. The outer side of the seal ring 3 is provided with a ring-like groove 31. The volute 2 is embedded in the ring-like groove 31. The middle of the seal ring 3 is provided with a center hole 32. The middle of the wall of the center hole 32 is provided with a ring-like boss 33. The shaft 11 travels through the center hole 32 and contacts with the ring-like edge 33. The gap between the shaft and

the volute is sealed to keep foreign matters from entering the volute and keep the normal operation of the wind wheel.

CLAIMS

1. A seal structure of a volute for an induced draught fan comprising a motor (1), a volute (2) and a wind wheel (23), the volute (2) comprising an air inlet (21) and an air outlet (22), the wind wheel (23) being arranged inside the volute (2), a top of the volute being provided with a through-hole (24), and a shaft (11) of the motor (1) traveling through the through-hole (24) and being connected with the wind wheel (23), wherein

a seal ring (3) is arranged at the through-hole (24) on the volute (2);

the outer side of the seal ring (3) is provided with a ring-like groove (31);

the volute (2) is embedded in the ring-like groove (31);

a middle of the seal ring (3) is provided with a center hole (32);

a middle of the side wall of the center hole (32) is provided with a ring-like edge (33); and

the shaft (11) travels through the center hole (32) and contacts with the ring-like edge (33).

2. The seal structure of claim 1, **characterized in that** an inner wall of the through-hole (24) protrudes to form a ring-like boss (25a), and the ring-like boss (25a) is embedded in the groove (31) of the seal ring (3).

3. The seal structure of claim 2, **characterized in that** an outer side of the seal ring (3) protrudes to form hooks which get stuck between ribs (27) on the top of the volute (2).

4. The seal structure of claim 1, **characterized in that** the edge of the through-hole (24) on the top of the volute (2) protrudes to form a surrounding edge (26); the inner side wall of the surrounding edge (26) protrudes to form a ring-like convex block (25b); and the ring-like convex block (25b) is embedded in the groove (31) of the seal ring (3).

5. The seal structure of claim 4, **characterized in that** the outer side of the seal ring (3) protrudes to form convex lugs (35) which are embedded in gaps (260) provided on the surrounding edge (26).

6. The seal structure of claim 1, 2, 3, or 4, **characterized in that** the seal ring (3) is made of rubber.

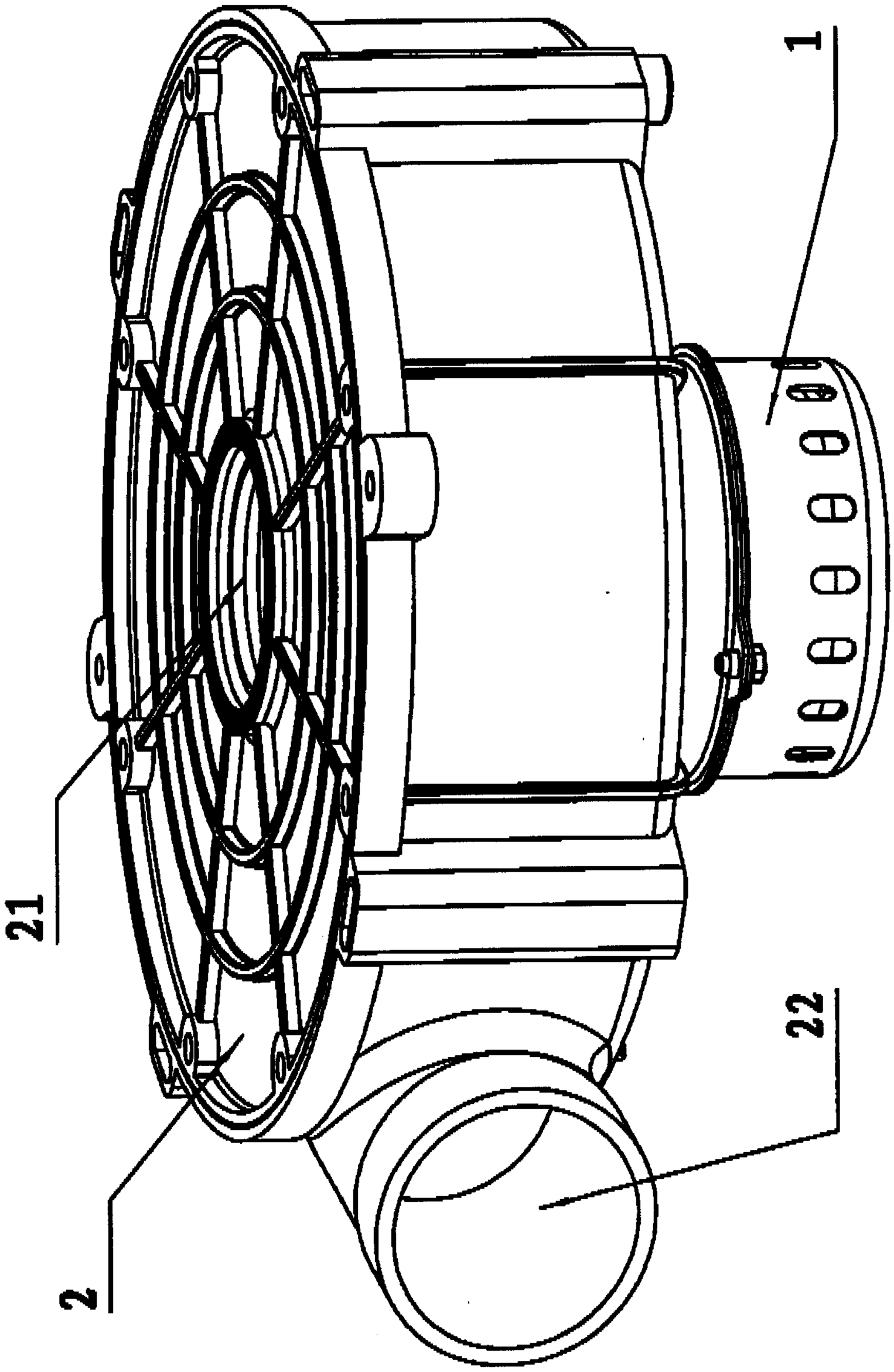

FIG. 1

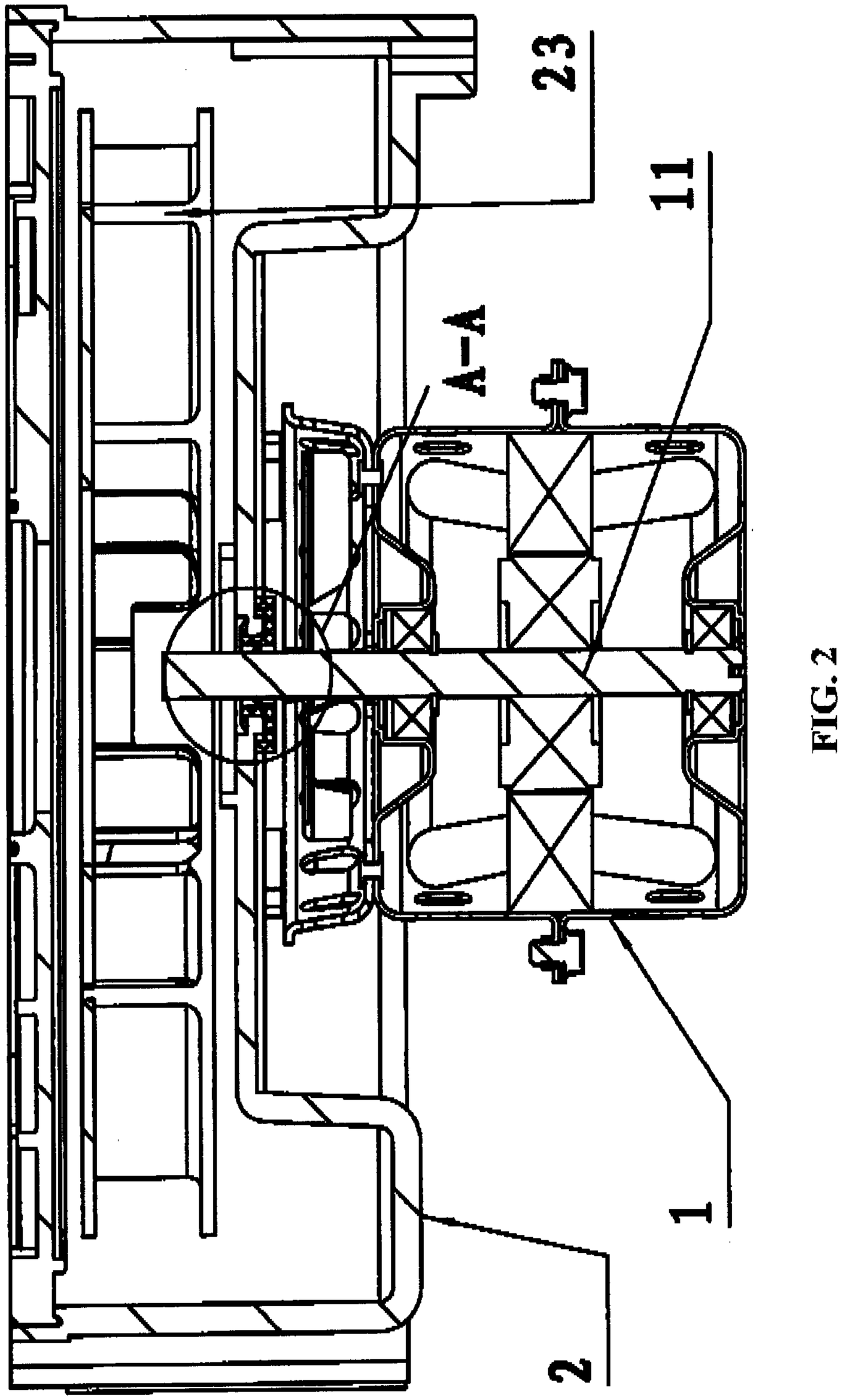

FIG. 2

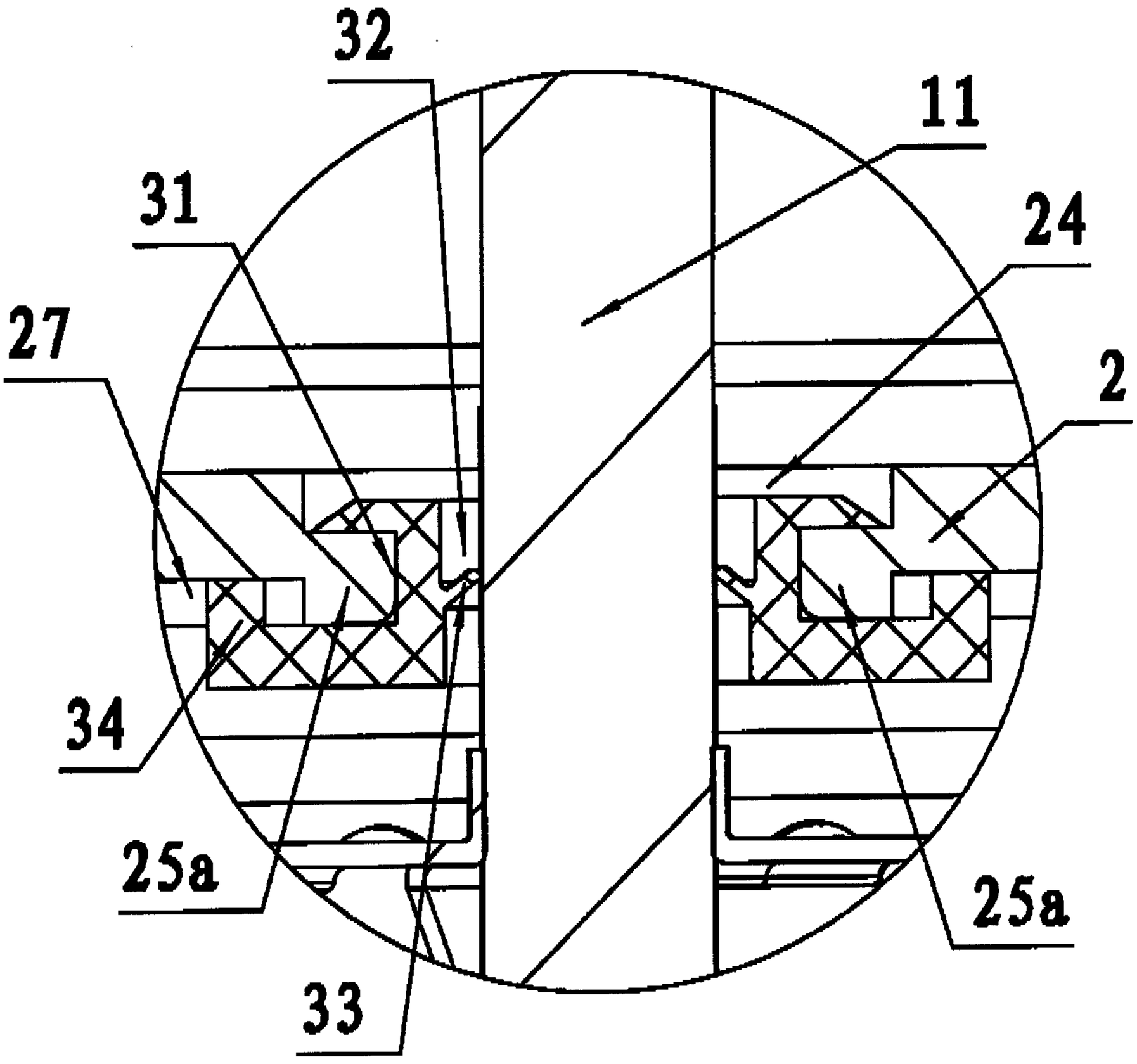

FIG. 3

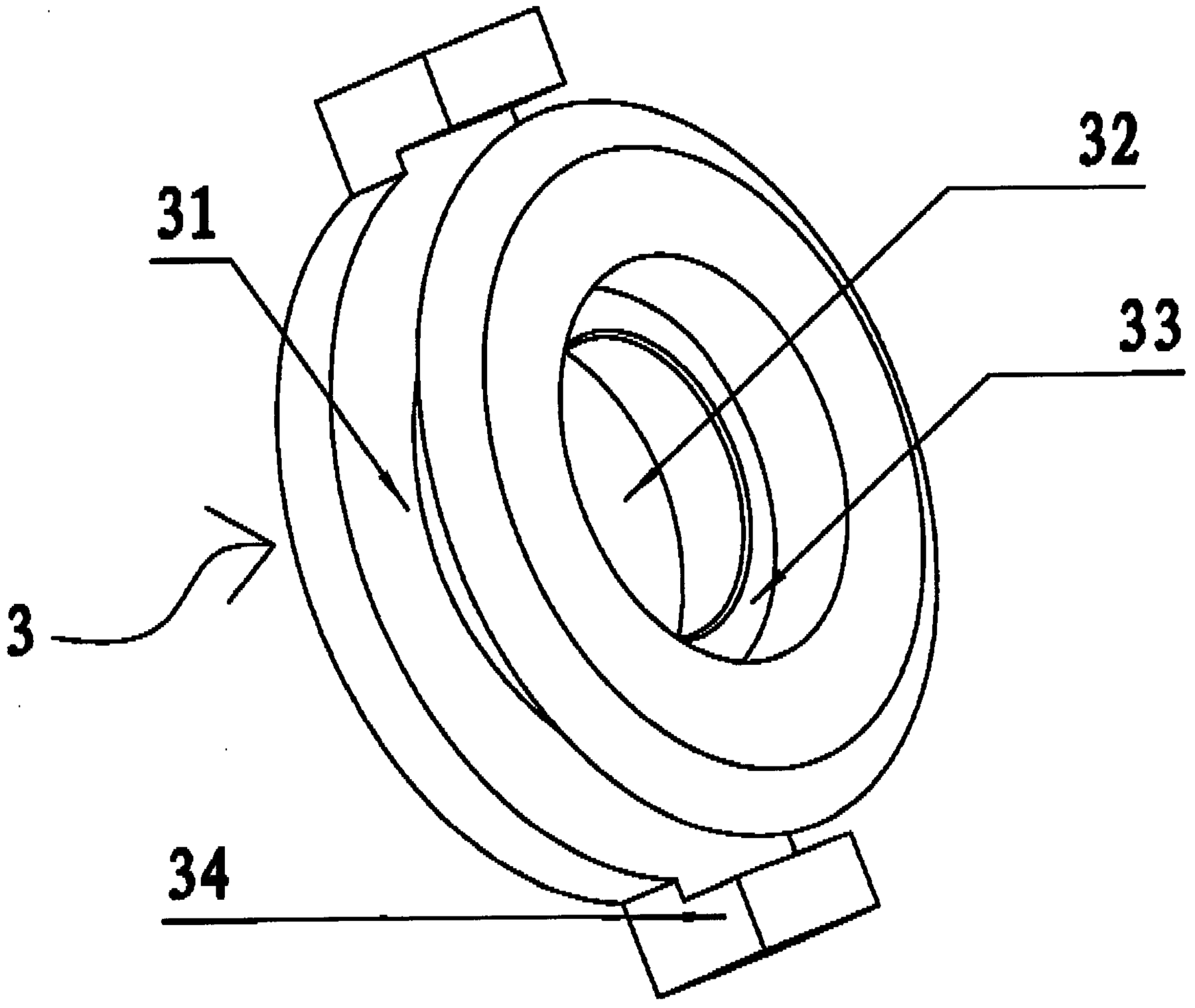

FIG. 4

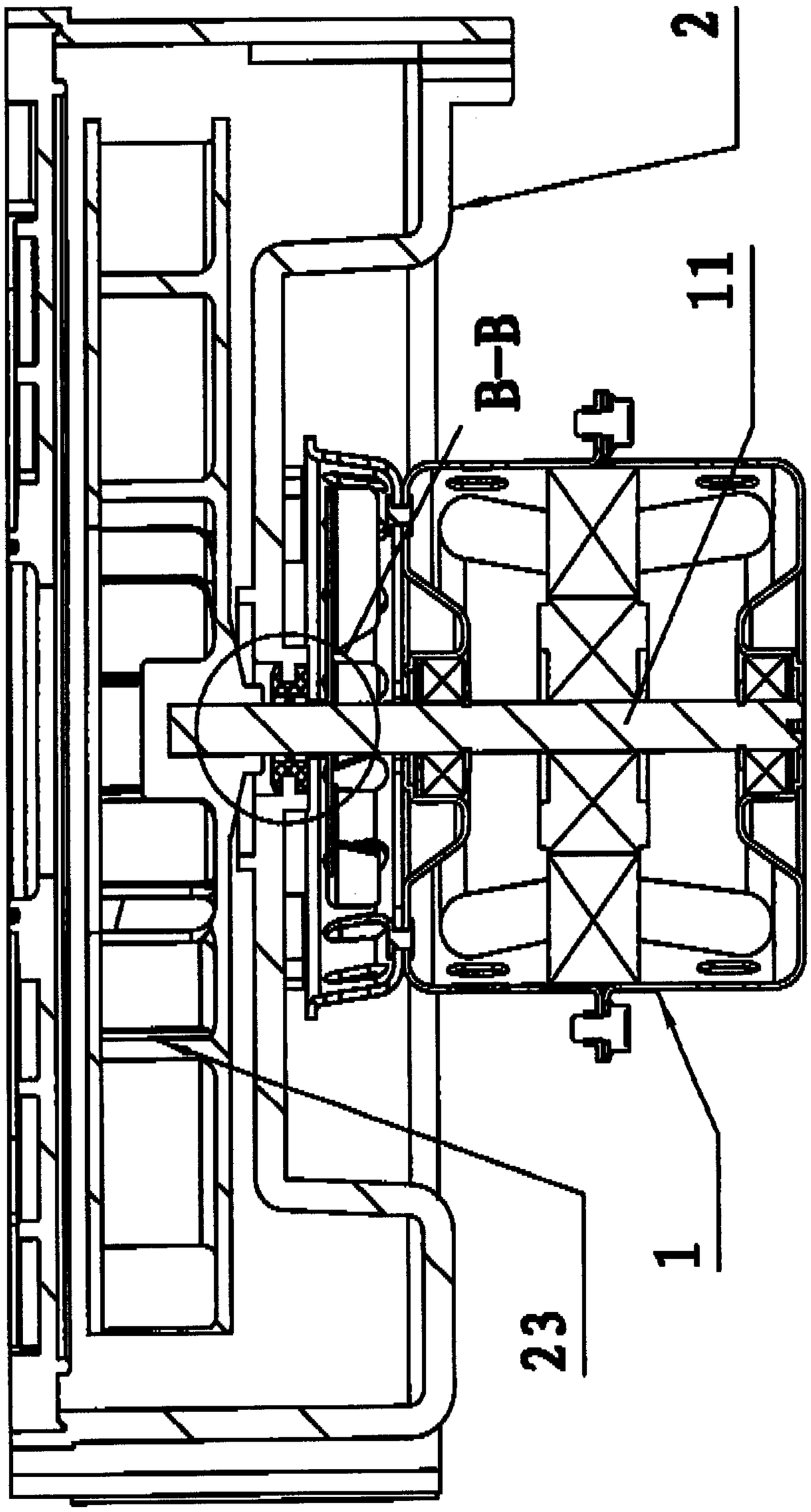

FIG. 5

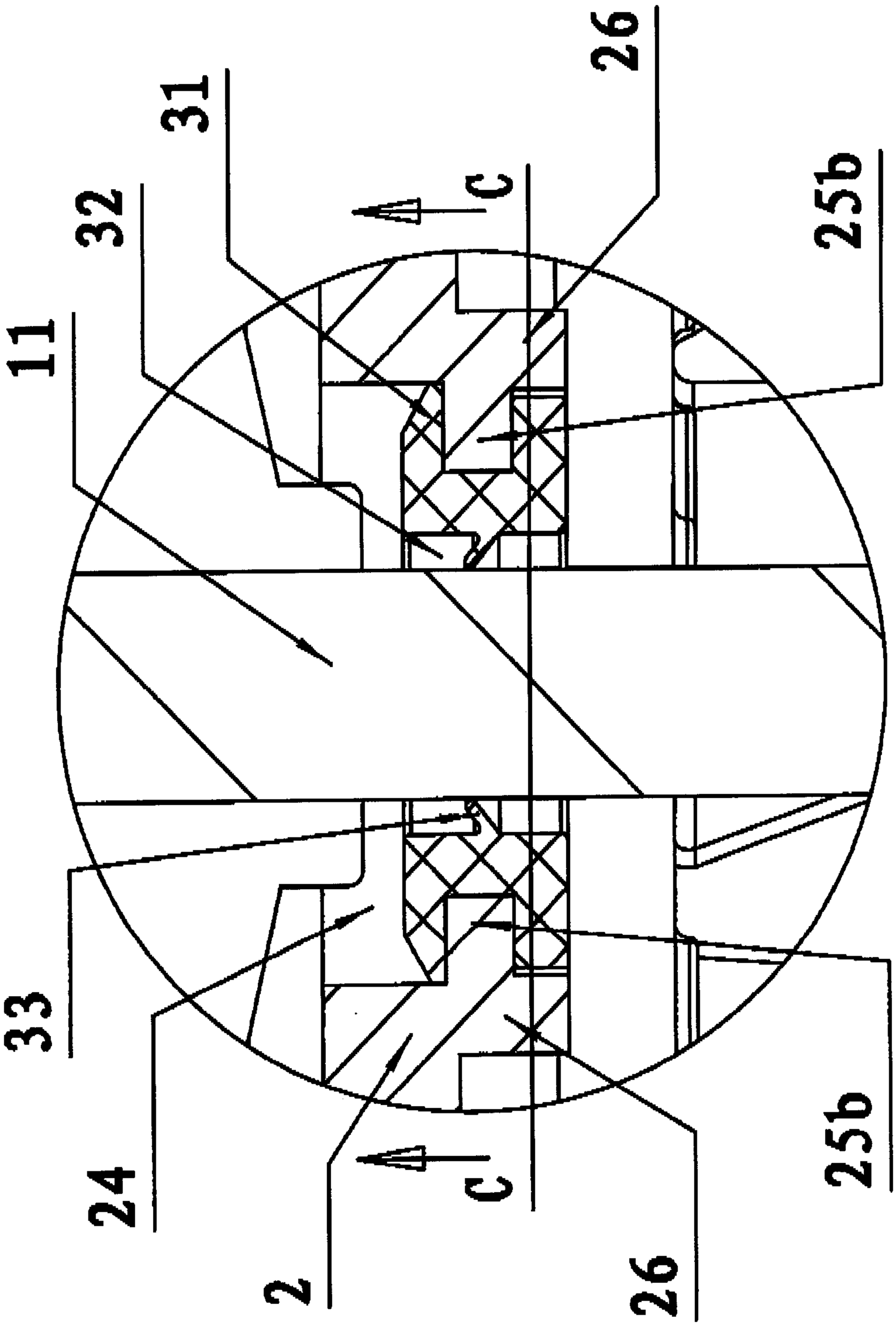

FIG. 6

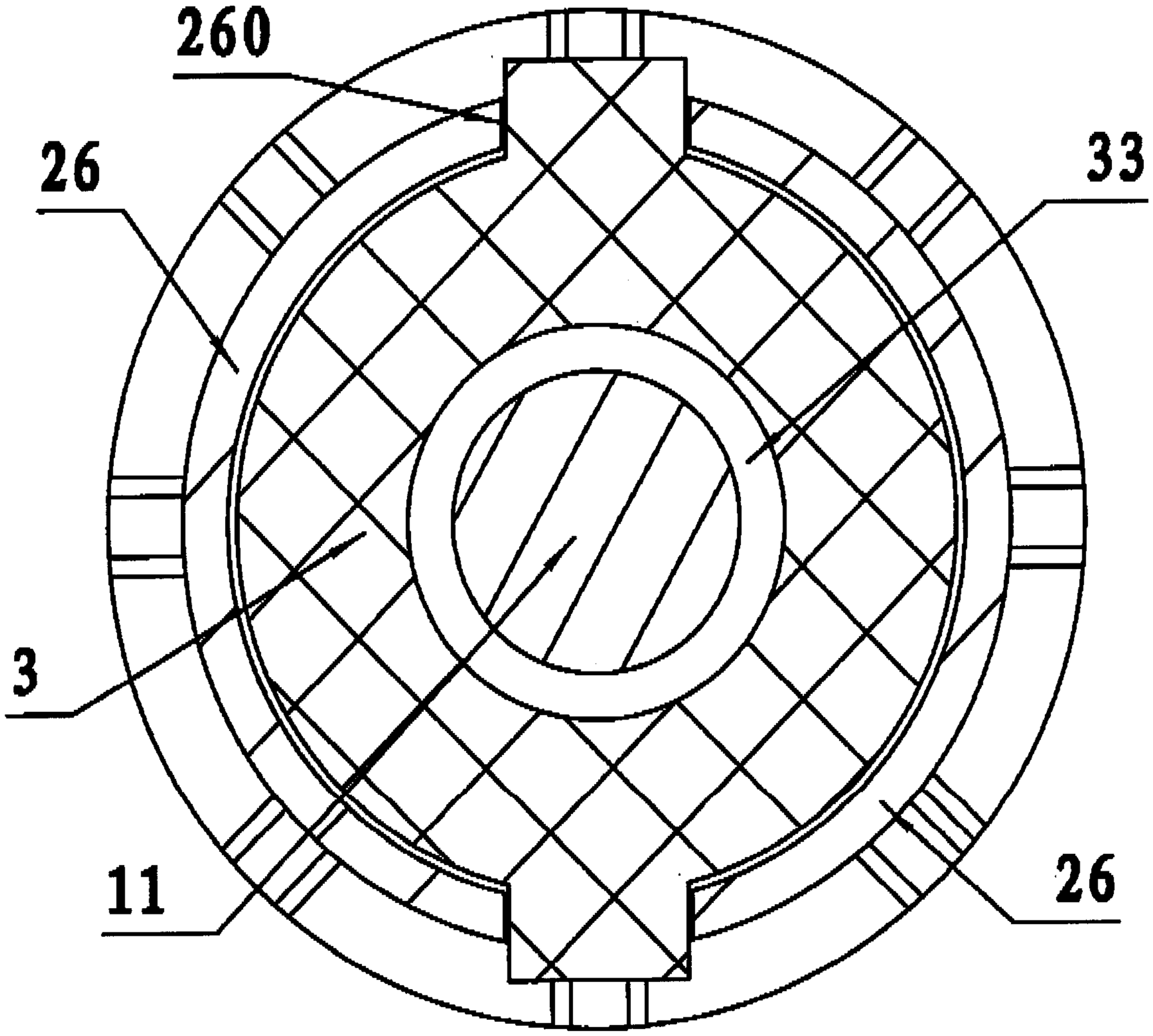

FIG. 7

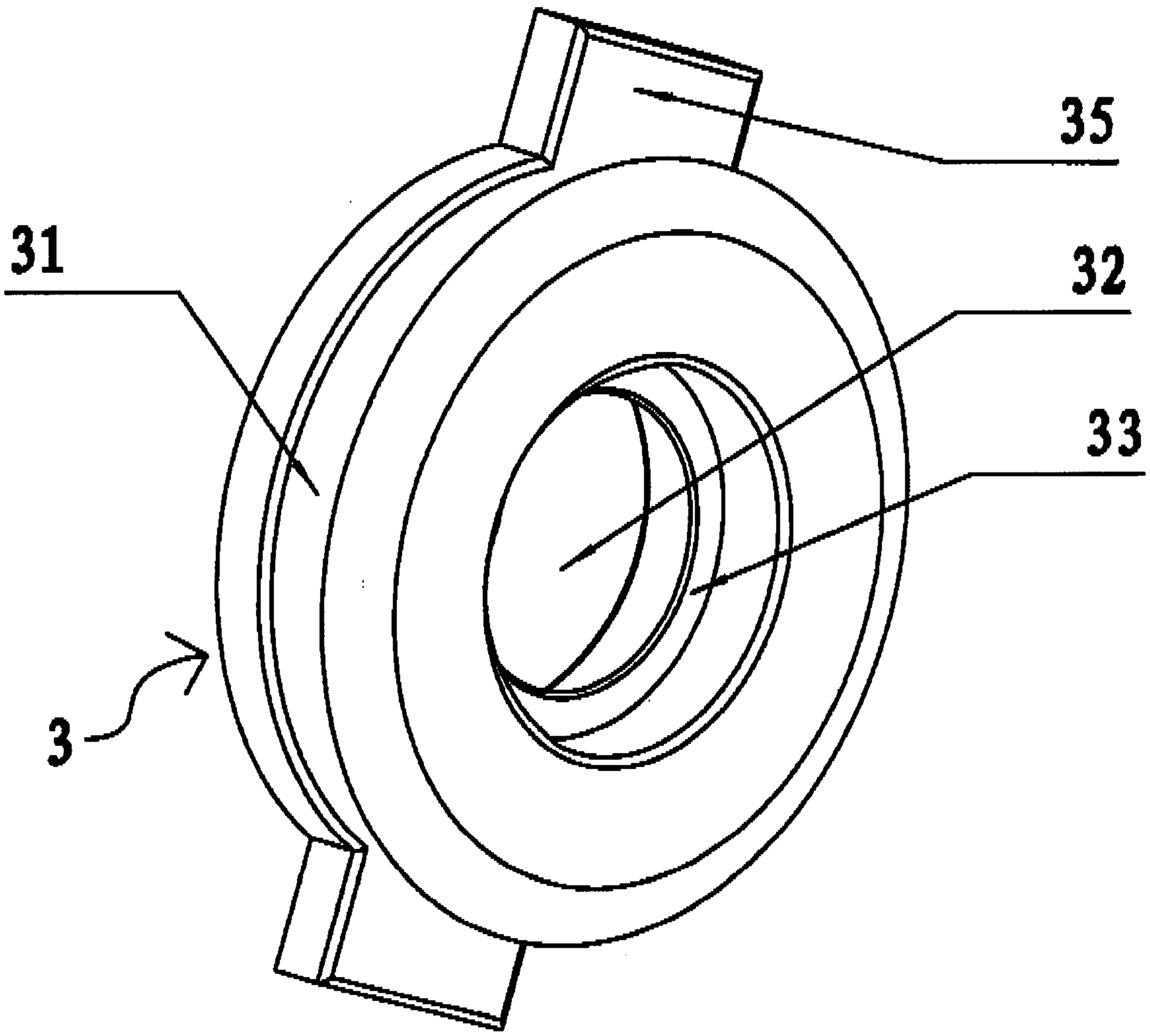

FIG. 8

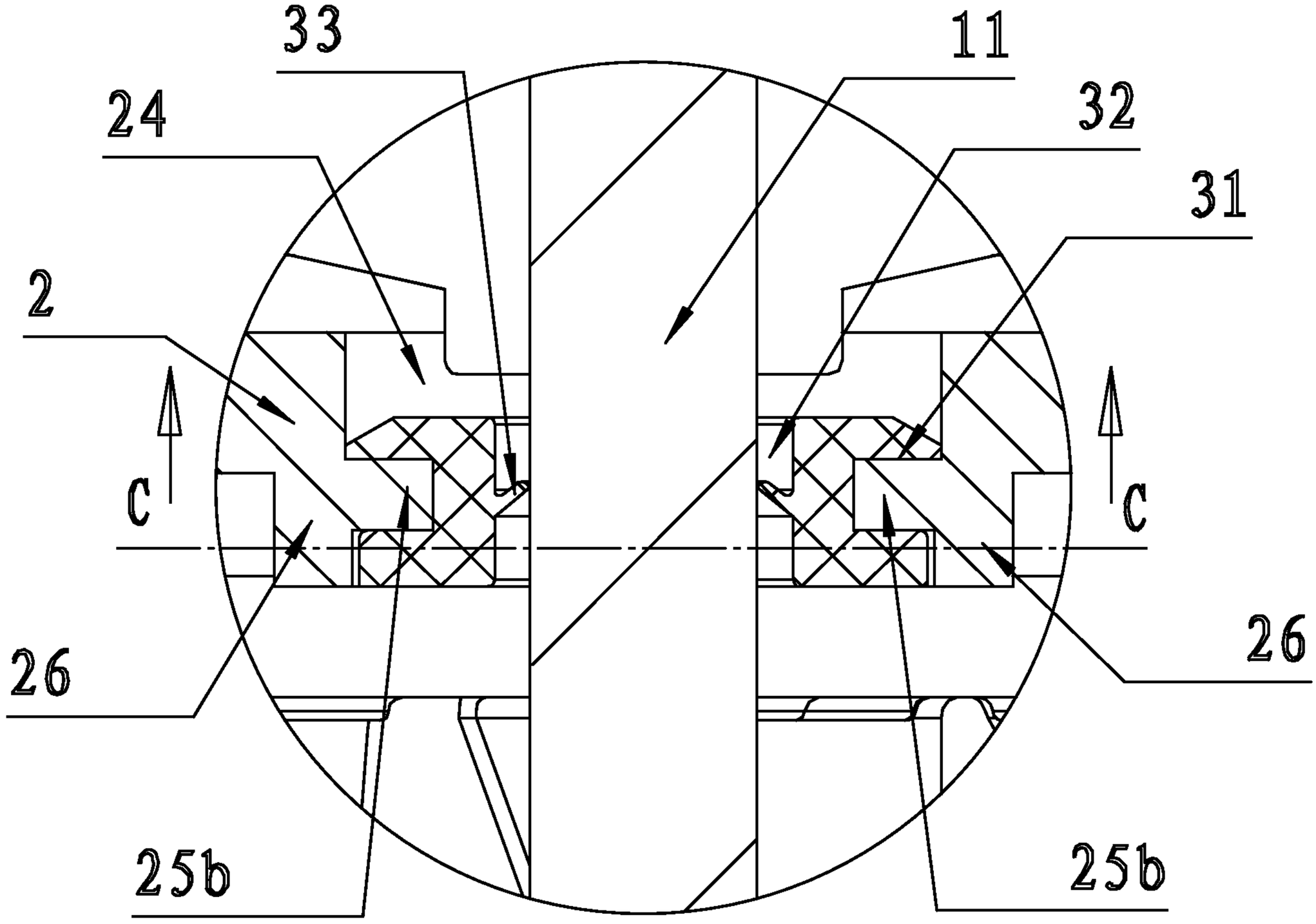

图 6 / **Fig.** 6