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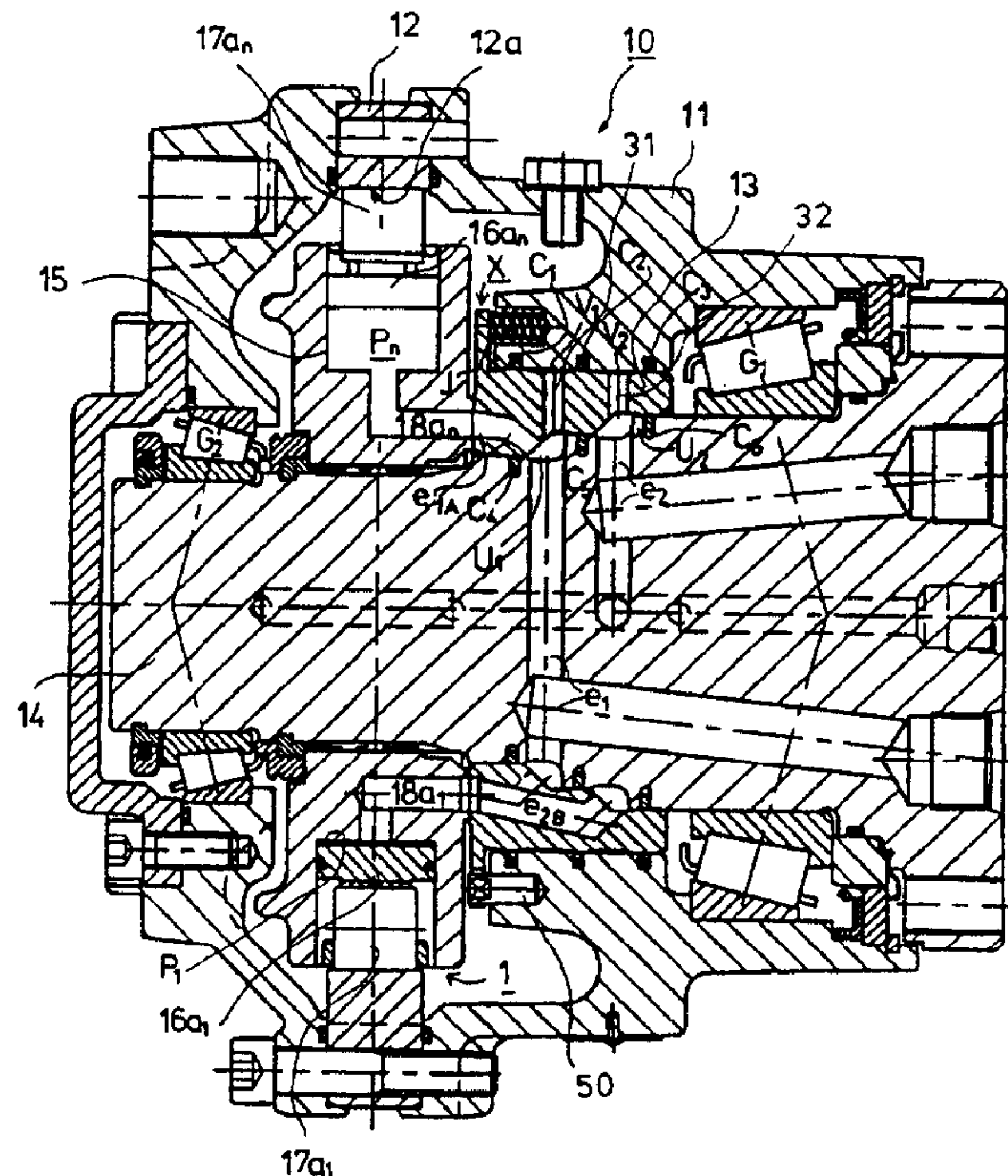
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(72) Inventeur/Inventor:
LEINONEN, MAUNO, FI

(73) Propriétaire/Owner:
VALMET HYDRAULICS OY, FI

(74) Agent: SIM & MCBURNEY

(54) Titre : MOTEUR HYDRAULIQUE A PISTONS RADIAUX
(54) Title: RADIAL PISTON HYDRAULIC MOTOR



(57) **Abrégé/Abstract:**

The invention concerns a radial-piston hydraulic motor (10), which comprises one or several cylinder groups (1) placed in a stationary position, which cylinder groups contain piston mechanisms (16a₁, 16a₂; 17a₁, 17a₂...) moving radially back and forth. The piston mechanisms (16a₁, 16a₂; 17a₁, 17a₂...) comprise a piston (16a₁, 16a₂) and a press wheel (17a₁, 17a₂...). A hydraulic

(57) Abrégé(suite)/Abstract(continued):

fluid is passed into the cylinder spaces (p_1 , p_2 ...) of the piston mechanisms so that the press wheels ($17a_1$, $17a_2$...) of the pistons ($16a_1$, $16a_2$...) that are at a power stage are pressed with force against the wave-shaped face (12a) of the cam ring (12) and bring the cam ring (12) into a revolving movement. The cam ring (12) is connected with a box frame (11) and the box frame (11) with a distributor valve (13), which controls the pressurized fluid flow at the correct time into the cylinder spaces (p_1 , p_2 ...) of the pistons ($16a_1$, $16a_2$...) that are at the power stage, and that, at the same time, the distributor valve (13) connects the cylinder spaces (p_1 , p_2) of the pistons ($16a_1$, $16a_2$...) that start their return movement to a lower pressure. In the equipment, the sense of rotation of the motor can be reversed by reversing the direction of flow of the fluid through the distributor valve (13). The fluid is passed to the distributor valve (13) through the sets of ducts (e_1 , e_2) in the shaft (14) which is placed in a stationary position together with the cylinder frame(s) (15) of one or several cylinder groups (1). In the distributor (13) in accordance with the invention, there is a duct (31), which communicates with the power pressure and which is opened on the side face (13a) of the distributor (13). In this connection the force is applied, through the fluid at the power pressure, to the side face (13a) of the distributor (13).

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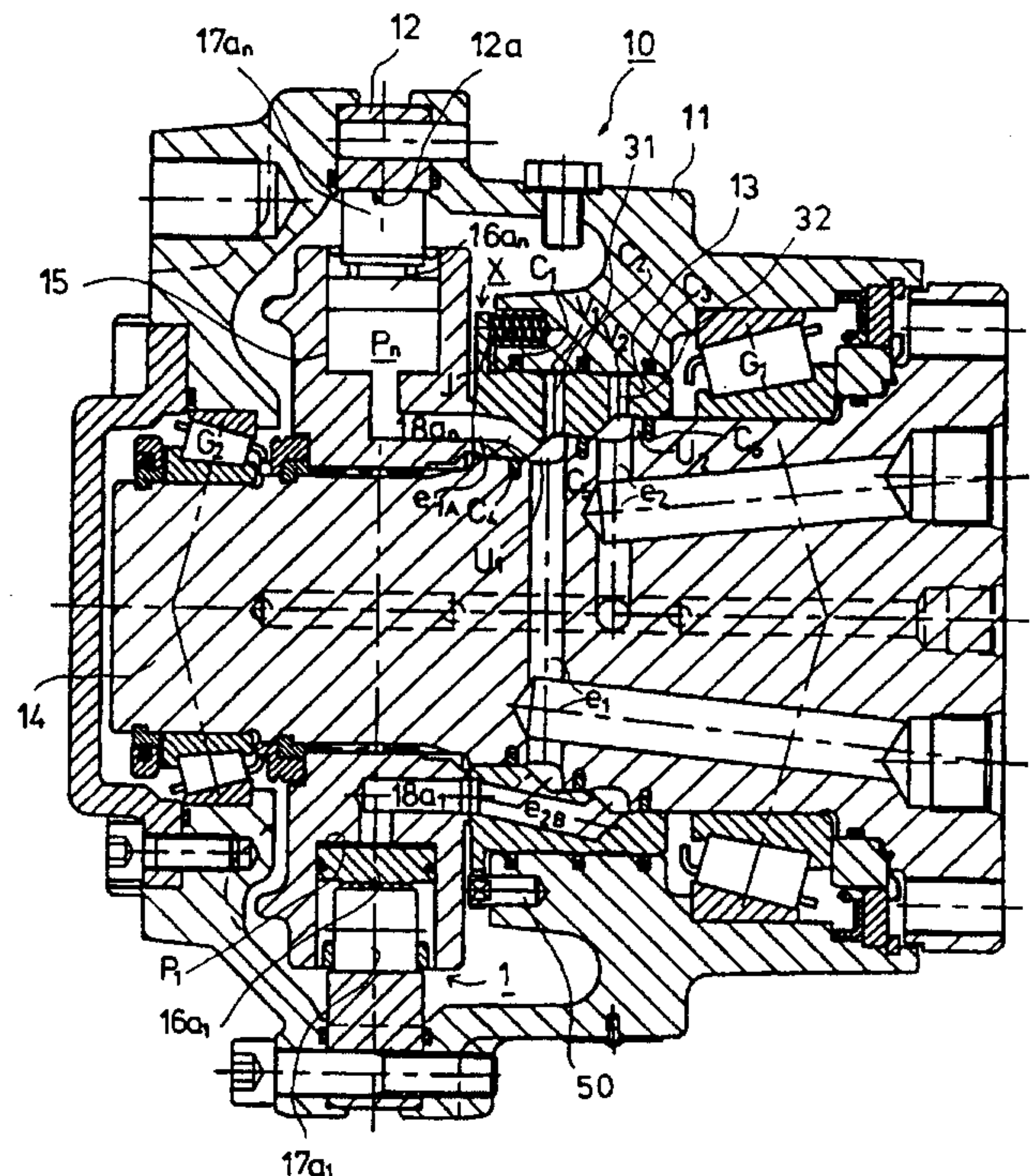
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(21) International Application Number: PCT/FI98/00868 (22) International Filing Date: 9 November 1998 (09.11.98) (30) Priority Data: 974195 11 November 1997 (11.11.97) FI (71) Applicant (for all designated States except US): VALMET HYDRAULICS OY [FI/FI]; P.O. Box 633, FIN-40101 Jyväskylä (FI). (72) Inventor; and (75) Inventor/Applicant (for US only): LEINONEN, Mauno [FI/FI]; Sienitie 2 C 59, FIN-40640 Jyväskylä (FI). (74) Agent: FORSSÉN & SALOMAA OY; Yrjönkatu 30, FIN-00100 Helsinki (FI).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>In English translation (filed in Finnish).</i>

(54) Title: RADIAL PISTON HYDRAULIC MOTOR**(57) Abstract**

The invention concerns a radial-piston hydraulic motor (10), which comprises one or several cylinder groups (1) placed in a stationary position, which cylinder groups contain piston mechanisms (16a₁, 16a₂; 17a₁, 17a₂...) moving radially back and forth. The piston mechanisms (16a₁, 16a₂; 17a₁, 17a₂...) comprise a piston (16a₁, 16a₂) and a press wheel (17a₁, 17a₂...). A hydraulic fluid is passed into the cylinder spaces (p₁, p₂...) of the piston mechanisms so that the press wheels (17a₁, 17a₂...) of the pistons (16a₁, 16a₂...) that are at a power stage are pressed with force against the wave-shaped face (12a) of the cam ring (12) and bring the cam ring (12) into a revolving movement. The cam ring (12) is connected with a box frame (11) and the box frame (11) with a distributor valve (13), which controls the pressurized fluid flow at the correct time into the cylinder spaces (p₁, p₂...) of the pistons (16a₁, 16a₂...) that are at the power stage, and that, at the same time, the distributor valve (13) connects the cylinder spaces (p₁, p₂) of the pistons (16a₁, 16a₂...) that start their return movement to a lower pressure. In the equipment, the sense of rotation of the motor can be reversed by reversing the direction of flow of the fluid through the distributor valve (13). The fluid is passed to the distributor valve (13) through the sets of ducts (e₁, e₂) in the shaft (14) which is placed in a stationary position together with the cylinder frame(s) (15) of one or several cylinder groups (1). In the distributor (13) in accordance with the invention, there is a duct (31), which communicates with the power pressure and which is opened on the side face (13a) of the distributor (13). In this connection the force is applied, through the fluid at the power pressure, to the side face (13a) of the distributor (13).



Radial-piston hydraulic motor

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The invention concerns a radial-piston hydraulic motor.

From the prior art, solutions of radial-piston hydraulic motors are known in which a box frame is rotated and in which the box frame is connected with a distributor
10 attached to the box frame. The distributor is a what is called distributor valve, which comprises bores placed parallel to the longitudinal axis of the distributor sleeve and opening on the front face of the distributor. Inlet ducts pass into the distributor, and outlet ducts pass out of the distributor. The inlet ducts open on the front face of the distributor, and so do the outlet ducts. The ducts at each particular time concerned
15 in the distributor valve communicate alternately with pistons spaces, which piston spaces comprise pistons and press wheels connected with the pistons, said press wheels being fitted to move against a cam ring fitted in connection with the box frame. Thus, some of the pistons are in a power stage, and some are not. Pressurized medium is passed into the pistons that are at the power stage through the ducts
20 in the distributor, and in a corresponding way, those pistons that have by-passed the power stage discharge fluid through the distributor through the outlet ducts in the distributor. The press wheels provided on the pistons press the cam ring provided on the box frame. The cam ring has a wave-formed shape, the cam ring and the connected box frame being rotated by means of the press wheels. In order that the
25 distributor should operate as well as possible, the front face of the distributor must be in tight glide fitting against the front face of the cylinder frame, which cylinder frame comprises the ducts passing into the piston spaces.

In practice, it has been noticed that the pressurized fluid attempts to work/distort the
30 distributor, and, thus, the contact on said front faces tends to deteriorate.

In view of avoiding this problem, in the present patent application, it is suggested as a solution that the distributor comprises ducts which pass to its side face and which open in annular grooves on the side face of the distributor. In this way it is possible to avoid torques that distort the distributor by passing the force to the side faces of the distributor. The distributor preferably comprises bores passing into a first annular groove on the side face and into a second annular groove on the side face.

The first annular groove communicates with the power pressure ducts, and the second annular groove communicates with the return ducts. However, when the sense of rotation of the motor is reversed, the functions of said ducts can be changed so that the power pressure ducts become return ducts, and the return ducts become power pressure ducts. Favourably, on the distributor, on its cylindrical face, there are seals between the annular grooves. Thus, leakage through the annular grooves is prevented. The seals have been fitted favourably at the ends of annular projection edges on the side face of the distributor in separate seal cavities, which are placed on the revolving box frame. The seals are composed of annular seals.

In accordance with one aspect of the present invention, there is provided a radial-piston hydraulic motor, which comprises one or several cylinder groups placed in a stationary position, which cylinder groups contain piston mechanisms moving radially back and forth, which piston mechanisms comprise a piston and a press wheel, and in which motor a hydraulic fluid is passed into the cylinder spaces of the piston mechanisms so that the press wheels of the pistons that are at a power stage are pressed with force against a wave-shaped face of a cam ring and bring the cam ring into a revolving movement, and so that the cam ring is connected with a box frame and the box frame with a distributor valve, which controls pressurized fluid flow at a correct time into the cylinder spaces of the pistons that are at a power stage, and so that, at the same time, the distributor valve connects the cylinder spaces of the pistons that start their return movement to a lower pressure, and in which motor the sense of rotation of the motor can be reversed by reversing the direction of flow of the fluid through the distributor valve, and so that the fluid is passed to the distributor valve

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through a sets of ducts in the shaft which is placed in a stationary position together with cylinder frame(s) of one or several cylinder groups, wherein, in the distributor, there is a duct, which communicates with the power pressure and which is opened on the side face of the distributor, in which the force is applied, through the fluid at the power pressure, to the side face of the distributor.

In the following, the invention will be described with reference to some preferred embodiments of the invention illustrated in the figures in the accompanying drawings, the invention being, yet, not supposed to be confined to said embodiments alone.

Figure 1A is a sectional view of a radial-piston hydraulic motor in accordance with the invention.

Figure 1B is an illustration of principle of the coupling and joint operation between the cam ring and the pistons.

Figure 2 shows the area X subject of the present invention in connection with the distributor in Fig. 1A in an enlarged scale.

Figure 3A shows the distributor viewed from the end.

Figure 3B is a sectional view taken along the line I—I in Fig. 3A.

5 Figure 3C is a sectional view taken along the line II—II in Fig. 3A. The distributor comprises separate ducts passing to the side face of the distributor.

Figure 4A shows an embodiment of the invention in which the pressure is applied to one pressure medium space V_1 only in connection with the side face of the distributor valve.
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Figure 4B shows the area A_{10} out of Fig. 4A in an enlarged scale.

Fig. 1A is a sectional view of a radial-piston hydraulic motor 10. Fig. 2 shows the
15 area X subject of the present invention out of Fig. 1A in an enlarged scale. The radial-piston hydraulic motor 10 comprises a rotated box frame 11. The box frame 11 is connected with a cam ring 12. In the embodiment shown in the figure, the box frame 11 is rotated, and the box frame is connected with a distributor 13 placed in a stationary position. The distributor 13 is a distributor valve, which comprises a
20 number of axial bores $e_{1A}; e_{2B}$, which communicate with the inlet duct e_1 and the outlet duct e_2 in the central shaft 14. The distributor 13 revolves along with the box frame 11, and the pressurized ducts e_{1A} and the return fluid ducts e_{2B} enter alternately into contact with the duct ends of the flow ducts $18a_1, 18a_2 \dots$ passing into the cylinder spaces $p_1, p_2 \dots$ for the pistons $16a_1, 16a_2 \dots$ provided in the cylinder
25 frame 15. Thus, some of the pistons $16a_1, 16a_2 \dots$ in the cylinders are at a power stage, in which case the pressurized medium is passed through the distributor 13 into the cylinder spaces $p_1, p_2 \dots$, and some of the pistons $16a_1, 16a_2 \dots$ are at an idle stage, in which case fluid is passed out of the cylinder spaces p_1, p_2 of said pistons $16a_1, 16a_2 \dots$ through the distributor 13 into the outlet duct e_2 . The non-revolving
30 cylinder frame 15 provided on the non-revolving central shaft 14 comprises a cylinder group 1, and in the cylinder frame 15 there are a number of cylinder spaces $p_1, p_2 \dots$ and a number of pistons $16a_1, 16a_2 \dots$ in said cylinder spaces. The piston

16a₁,16a₂... has been fitted to move in the piston space p₁,p₂... by the effect of the fluid pressure introduced into said piston space. As is shown in the figure, each piston 16 comprises a press wheel 17a₁,17a₂... of circular section freely mounted on the top face of the piston. When the piston 16a₁,16a₂... is pressed with force against the wave-shaped face 12a of the cam ring 12, the cam ring 12 and the connected box frame 11 and the distributor valve 13 connected with the box frame 11 can be made to revolve. Through the ducts 31 and 32, a pressurized medium is passed into the groove V₁ and V₂ provided on the face 13a of the distributor 13. In this connection, an annular radial power effect is produced in the grooves V₁,V₂, and the distributor 13 is kept straight, and its front face f is sealed so that no lateral leakage of fluid occurs through the front face f.

The box frame 11 has been mounted to revolve on the bearings G₁ and G₂ in relation to the central shaft 14.

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In the figure, a spring is denoted with the letter J. By means of the spring, the front face of the distributor valve 13 is pressed against the front face of the cylinder frame 15. The function of the spring J is, in the starting situation, to provide an initial force by whose means the dividing face between the parts 13 and 15 is kept tight. The shapes of the spaces U₁,U₂ in the pressure ducts have been chosen so that, after a pressure has been generated in the ducts, the pressure acts upon the distributor valve 13 and presses it with a force axially against the front face of the cylinder frame 15.

Fig. 1B is an illustration of principle of the interaction between the cam ring 12 and the pistons 16a₁,16a₂. Some of the pistons 16a₁,16a₂ are at a power pressure, and some of the pistons have been connected through the distributor 13 to the side of the lower return pressure.

As is shown in Fig. 2, the distributor 13 comprises the ducts 31 and 32. The ducts 31 communicate with the annular space U₁ between the central shaft 14 and the distributor 13 and with the annular groove V₁ on the side face of the distributor 13.

Further, the inlet duct e_1 passes into said annular space U_1 . The annular groove V_1 on the side face of the distributor has been sealed towards the sides by means of the seal N_1, C_1 and N_2, C_2 . Likewise, the annular space U_1 between the central shaft 14 and the distributor 13 has been sealed by means of the seals C_4 and C_5 provided on the shaft. Into the annular space U_1 , the pressurized medium, i.e. the power pressure, is passed through the duct e_1 . Out of the annular space U_1 , ducts e_{1A} pass to the front face of the distributor and further to the pistons. The ends of the ducts e_{1A} are denoted with the reference letters A in Fig. 3A. The annular seals C_1 , C_2 and C_3 are placed in annular cavities O_1 , O_2 and O_3 in the box frame 11. The seal rings N_1 , N_2 and N_3 proper of the seal extend into the cavities O_1 , O_2 and O_3 . What is concerned is a seal of two parts, which consists of an O-ring C_1 , C_2 and C_3 of rubber and of its support ring, i.e. a seal ring N_1 , N_2 and N_3 , which is favourably made of a teflon-bronze alloy.

The outlet duct e_2 is opened into the second annular space U_2 between the central shaft and the distributor, out of which space a duct 32 passes into the annular groove V_2 placed on the side face of the distributor. The annular groove V_2 has been sealed towards the sides by means of seals N_2, C_2 and N_3, C_3 passing around the distributor. Out of the annular space U_2 , ducts e_{2B} also open to the front face f of the distributor 13, and through said ducts e_{2B} the fluid that is displaced by the pistons $16a_1, 16a_2$ that are not at a power stage is passed first into the annular space U_2 and further into the return duct e_2 . When the sense of rotation of the motor is reversed, the functions of the ducts are changed. The seals C_4 , C_5 and C_6 are placed on the shaft 14 in its grooves O_4 , O_5 and O_6 . The seals C_4 and C_5 are placed at both sides of the annular space U_1 , and the seals C_5 and C_6 are placed at both sides of the annular space U_2 , so that no leakage of fluid takes place towards the sides through the boundary faces between the distributor 13 and the shaft 14.

Fig. 3A shows the distributor as viewed from ahead. Fig. 3B is a sectional view taken along the line I—I in Fig. 3A. Fig. 3C is a sectional view taken along the line II—II in Fig. 3A.

In Fig. 3A, the reference letters A denote the duct ends of the power pressure ducts e_{1A} on the front face f of the distributor 13. The ducts e_{1A} open at the opposite end in the annular space U_1 between the central shaft 14 and the distributor 13. The end openings of the return ducts e_{2A} are denoted with the reference letters B. Said ducts e_{2B} open in the annular space U_2 between the central shaft 14 and the distributor 13 and further in the return duct e_2 .

Fig. 3B is a sectional view taken along the line I—I in Fig. 3A. As is shown in the figure, a duct e_{1A} passes from the annular space U_1 in the distributor to the front face f of the distributor. Similarly, from the other annular space U_2 , which has been formed between the distributor 13 and the central shaft 14, a return duct e_{2B} passes to the front face f.

Fig. 3C is a sectional view taken along the line II—II in Fig. 3A. As is shown in Fig. 3C, the ducts 31 open at opposite sides of the distributor 13 on the side face 13a of the distributor 13 in the first annular groove V_1 on the side face and, similarly, from the annular space U_2 , at opposite sides of the distributor, the ducts 32 open on the side face 13a of the distributor in the second annular groove V_2 on the side face 13a.

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In the embodiment illustrated in the figures above, the fluid at the power pressure has been passed into a groove V_1, V_2 provided on the side face of the distributor which groove is defined both by the construction of the distributor and by the opposite backup face, which is composed of the box frame 11 in the embodiments described above. The box frame 11 has been connected with the distributor valve 13 so that the box frame 11 rotates the distributor valve 13. Said coupling has been permitted by means of cotter pins 50, which are illustrated in the figures above. Between the face T_1 of the box frame 11 and the face 13a of the distributor valve 13, there is a glide fitting. Said arrangement permits application of a backup force against the distributor by passing a pressure into the grooves V_1, V_2 . The cotter pin 50 transfers the rotation torque to the distributor valve 13, in which connection the distributor valve 13 revolves while rotated by the box frame 11. The play of the

cotter pin, however, permits an axial movement of the distributor valve 13, in which connection, by means of the spring force of the spring J and by means of hydraulic pressure, the distributor valve 13 can be pressed against the cylinder frame in order that a tight dividing face could be obtained.

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Within the scope of the present invention, an embodiment as shown in Figs. 4A and 4B is also possible, in which the groove V_2 has been formed in the same way as in the embodiments described above on the side face 13a of the distributor valve 13, but the backup face is the inner face 60' of a separate ring 60. The ring 60 is placed
10 freely on the face 13a of the distributor valve 13 between the shoulder 130 on the distributor valve 13 and the locking ring 70. The seal construction is similar to that in the embodiments described above, and the ring 60 comprises seals N_1, C_1 and N_2, C_2 pressed against the distributor valve 13 and fitted in the grooves in the ring so as to seal the space V_2 towards the sides, while the space V_2 has, in this embodi-
15 ment, been formed in the ring 60 on its inner face 60'.

In the embodiment shown in Figs. 4A and 4B, the box frame 11 has been connected by means of cotter pins 80 with the locking ring 70, while the locking ring 70 has been connected with the distributor valve 13 by means of pins 90. The cotter pin 80
20 has been connected with the locking ring 70 with a loosely fitting glide fitting, in which case an axial movement between the distributor valve 13 and the connected locking ring 70 is permitted. The cotter pins 80 and 90 interconnect the parts 13, 70 and the box frame 11 so that the rotation torque is transferred to the distributor valve 13 from the box frame 11. Thus, the distributor valve 13 revolves while rotated by
25 the box frame 11 and along with the box frame. The ring 60 is placed freely with a glide fitting on the side face 13a of the distributor 13. The space V_2 communicates with the pressurized fluid duct through the duct 32.

In order that the distributor valve 13 could revolve reliably in relation to the central
30 shaft and in order that there should not be any resistance to rotation, the locking ring 70 must be connected with the box frame 11 so that a certain radial movement is also permitted for the locking ring in relation to the central shaft 14. Said radial

movement is permitted so that a groove a_1 has been made into the locking ring 70, into which groove a_1 a pin 90 has been fitted. The pin 90 is further connected with a pin hole a_2 in the distributor valve 13. Thus, the locking ring 70 is kept axially in a stationary position in relation to the distributor valve 13, but a certain radial movement is permitted for the locking ring. Thus, the locking ring 70 can position itself freely in a suitable radial position. On the other hand, by means of the cotter pin 80 between the locking ring 70 and the box frame 11, an axial movement is permitted for the distributor valve 13, but the locking ring 70 and the box frame 11 are kept radially immobile in relation to one another. By means of the cotter pin 80 passed through the holes b_1 in the locking ring 70, the rotation drive and the torque are, however, transferred from the box frame 11 to the distributor valve 13.

In the embodiment of the invention shown in Figs. 4A and 4B, the pressurized medium is passed into one annular space V_2 only, which space has been fitted in the right-side end of the distributor, as shown in the figure. In practice, it has been noticed that this part of the distributor valve 13 is less rigid, in which case the greatest advantage is obtained from the arrangement in accordance with the invention so that the pressure space V_2 is placed in said portion of the distributor valve 13. Thus, in the embodiment shown in Figs. 4A and 4B, there is one groove V_2 only, which has been made onto the inner face 60' of the ring 60 in this embodiment, and said groove communicates with the duct 32 and further with the rest of the system of ducts in the way shown in the figures. The embodiment shown in these figures can also be such that it is fully similar to the earlier embodiments, and, thus, there are two grooves, i.e. the grooves V_1 and V_2 , on the inner face 60' of the ring 60. The arrangement of supply of the pressure medium is similar to that of the earlier embodiment. Figs. 4A and 4B, however, show a simplified embodiment, in which the supply of pressure has been arranged at the portion of the construction at which a compensation of forces is expressly needed.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A radial-piston hydraulic motor, which comprises one or several cylinder groups placed in a stationary position, which cylinder groups contain piston mechanisms moving radially back and forth, which piston mechanisms comprise a piston and a press wheel, and in which motor a hydraulic fluid is passed into spaces of the piston mechanisms so that the press wheels of the pistons that are at a power stage are pressed with force against a wave-shaped face of a cam ring and bring the cam ring into a revolving movement, and so that the cam ring is connected with a box frame and the box frame with a distributor valve, which controls pressurized fluid flow at a correct time into the cylinder spaces of the pistons that are at a power stage, and so that, at the same time, the distributor valve connects the cylinder spaces of the pistons that start their return movement to a lower pressure, and in which motor the sense of rotation of the motor can be reversed by reversing the direction of flow of the fluid through the distributor valve, and so that the fluid is passed to the distributor valve through a set of ducts in a shaft which is placed in a stationary position together with cylinder frame(s) of one or several cylinder groups, wherein, in the distributor, there is a duct, which communicates with the power pressure and which is opened on a side face of the distributor, in which force is applied, through the fluid at the power pressure, to the side face of the distributor.
2. A radial-piston hydraulic motor as claimed in claim 1, wherein the pressurized fluid is passed to the side face of the distributor by the duct which has been formed into the distributor and which communicates with a groove provided on the side face of the distributor, which groove runs preferably around the distributor.
3. A radial-piston hydraulic motor as claimed in claim 2, wherein the duct is opened at one end in the groove placed between the side face of the distributor and the box frame and, at the opposite end, in an annular space, which has been formed between a central shaft and the distributor and from which annular space ducts pass to the front face of the distributor, and the distributor, when it revolves, distributes pressurized medium to the pistons at the power stage.

4. A radial-piston hydraulic motor as claimed in any one of claims 1 to 3, wherein the groove has been formed onto the side face of the distributor, and the groove has been sealed towards by means of O-ring seals and by means of seal rings, which have been fitted into seal cavities provided in the box frame.
5. A radial-piston hydraulic motor as claimed in any one of claims 1 to 4, wherein there is a second duct, which communicates with return fluid flow coming from the pistons.
6. A radial-piston hydraulic motor as claimed in claim 5, wherein the second duct that is connected with the return fluid flow is opened into a second annular groove placed on the side face of the distributor and, from the opposite end, in a second annular space provided between the central shaft and the distributor, from which second annular space second annular space ducts pass to the front face of the distributor and into an outlet duct, and that the second annular groove has been sealed by means of second O-ring seals and second seal rings, which have been fitted into second seal cavities in the box frame.
7. A radial-piston hydraulic motor as claimed in any one of claims 1 to 6, wherein, when the sense of rotation of the hydraulic motor is reversed, the pressurized medium is passed into a second return duct and further into the second annular space and further through said space into the second annular groove provided on the side face of the distributor and to the front face of the distributor, and similarly, return flow from the pistons is passed through the annular space ducts into a third annular space between the distributor and the shaft and further, through said space, into the return duct, in which connection the functions of the sets of ducts have been reversed in respect of the power pressure and the return pressure, as compared with the reversed drive of sense of rotation.
8. A radial-piston hydraulic motor as claimed in any one of claims 1 to 7, wherein the radial-piston hydraulic motor comprises third seals in connection with the annular spaces placed between the distributor and the shaft, in which connection, at both sides of the annular space, there are the seals, and at both sides of the second

annular space, there are the seals, in which way leakage through the boundary face between the central shaft and the distributor is prevented.

9. A radial-piston hydraulic motor as claimed in claim 1, wherein pressurized medium is passed into a space, preferably a groove, placed between the side face of the distributor and a separate ring fitted around the distributor.

10. A radial-piston hydraulic motor as claimed in claim 9, wherein the groove has been formed on the inner face of the ring, and that the groove has been sealed at both sides by means of seals.

11. A radial-piston hydraulic motor as claimed in claim 10, wherein the ring has been fitted between a shoulder on the side face of the distributor valve and a locking ring connected with the distributor valve, and the locking ring has been coupled with the box frame of the radial-piston hydraulic motor by means of cotter pins so that the locking ring is mobile in the axial direction but has no play in the direction of rotation, in which case, by means of the cotter pins, the movement of rotation of the box frame is transferred to the locking ring and further, through the ring, to the distributor valve, in which connection the distributor valve is rotated through the box frame along with the box frame, and in which construction an axial movement of the distributor valve is, however, permitted while a spring presses the front face of the distributor valve tightly against the front face of the cylinder frame.

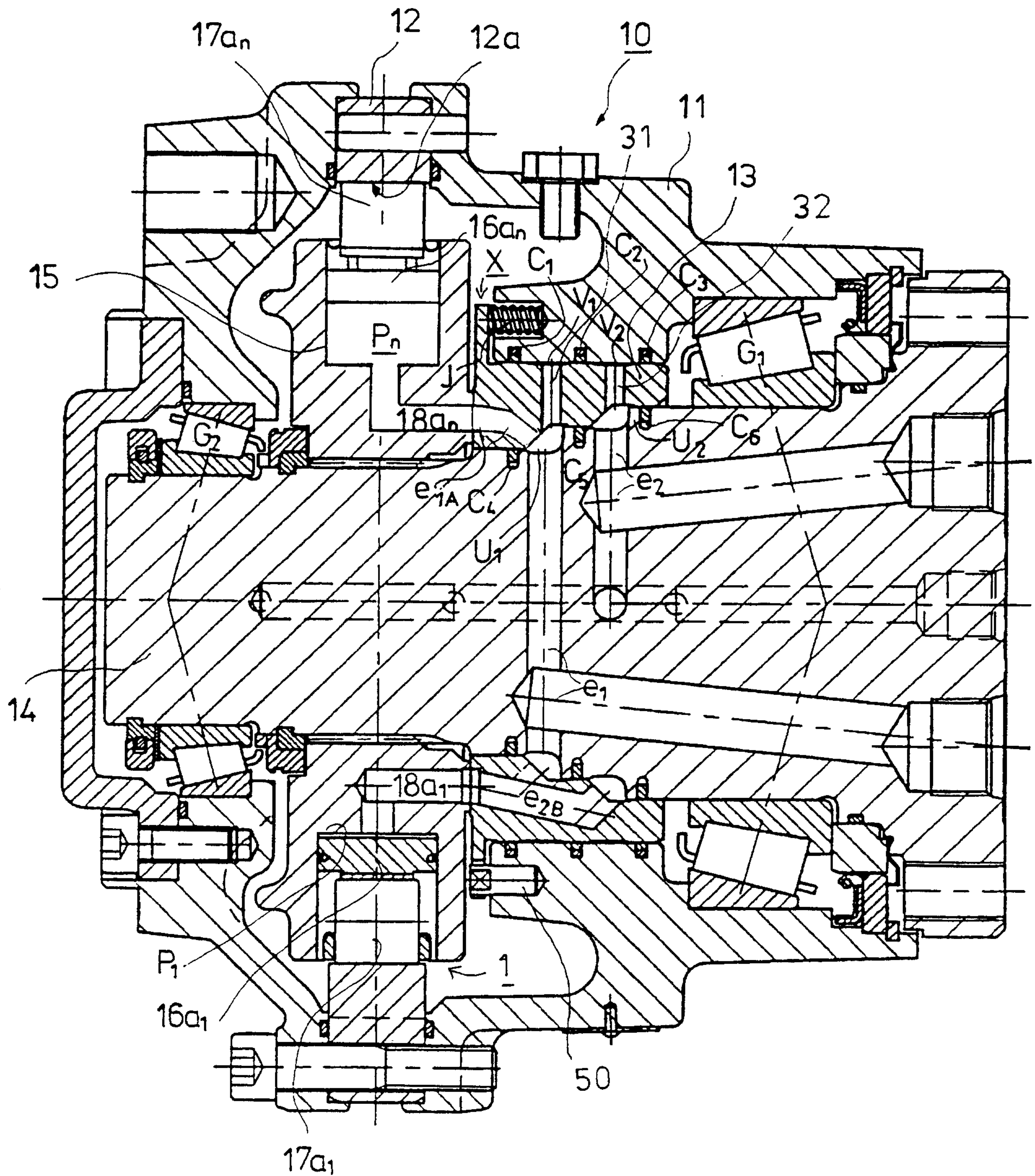


FIG. 1A

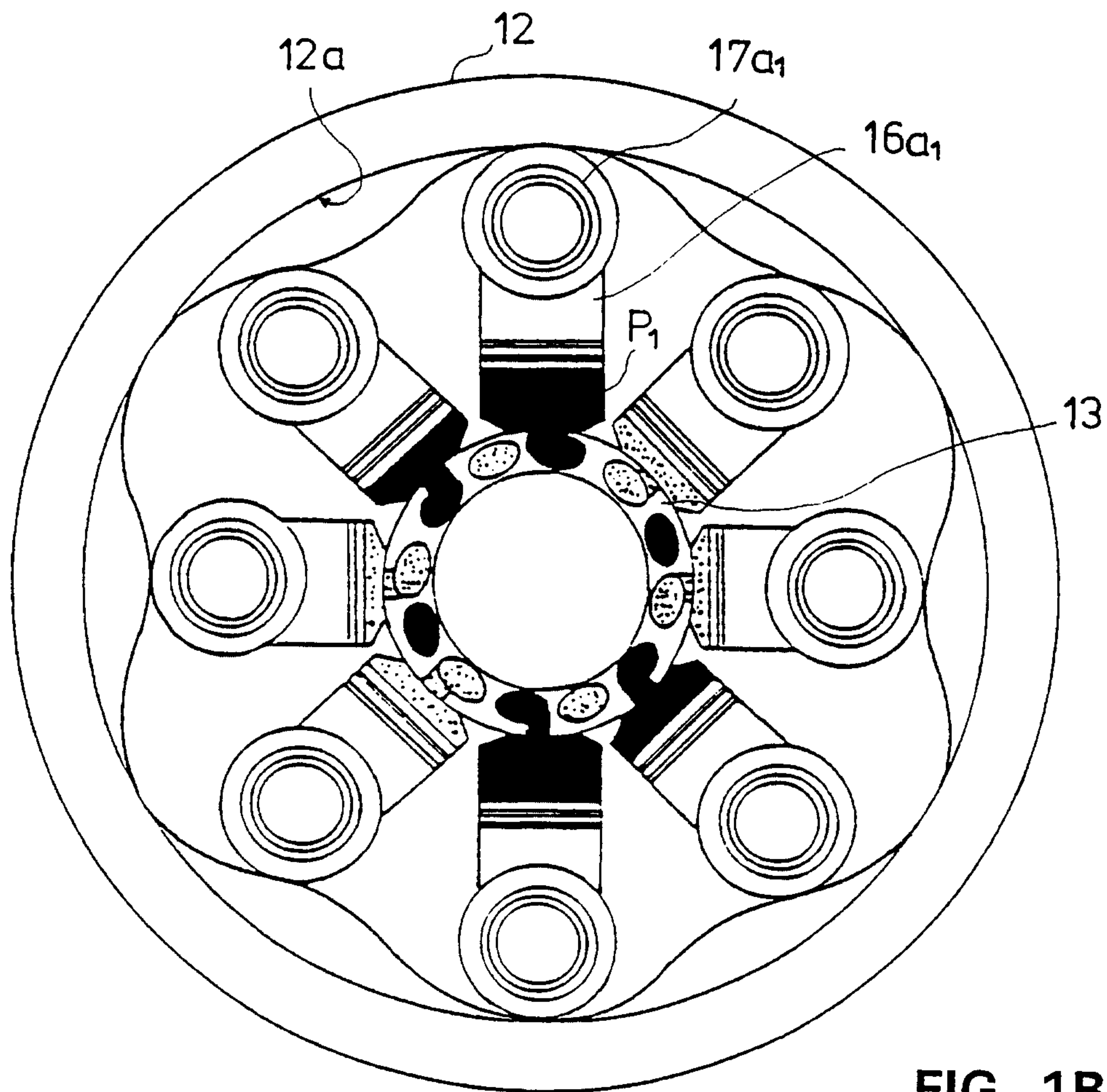


FIG. 1B

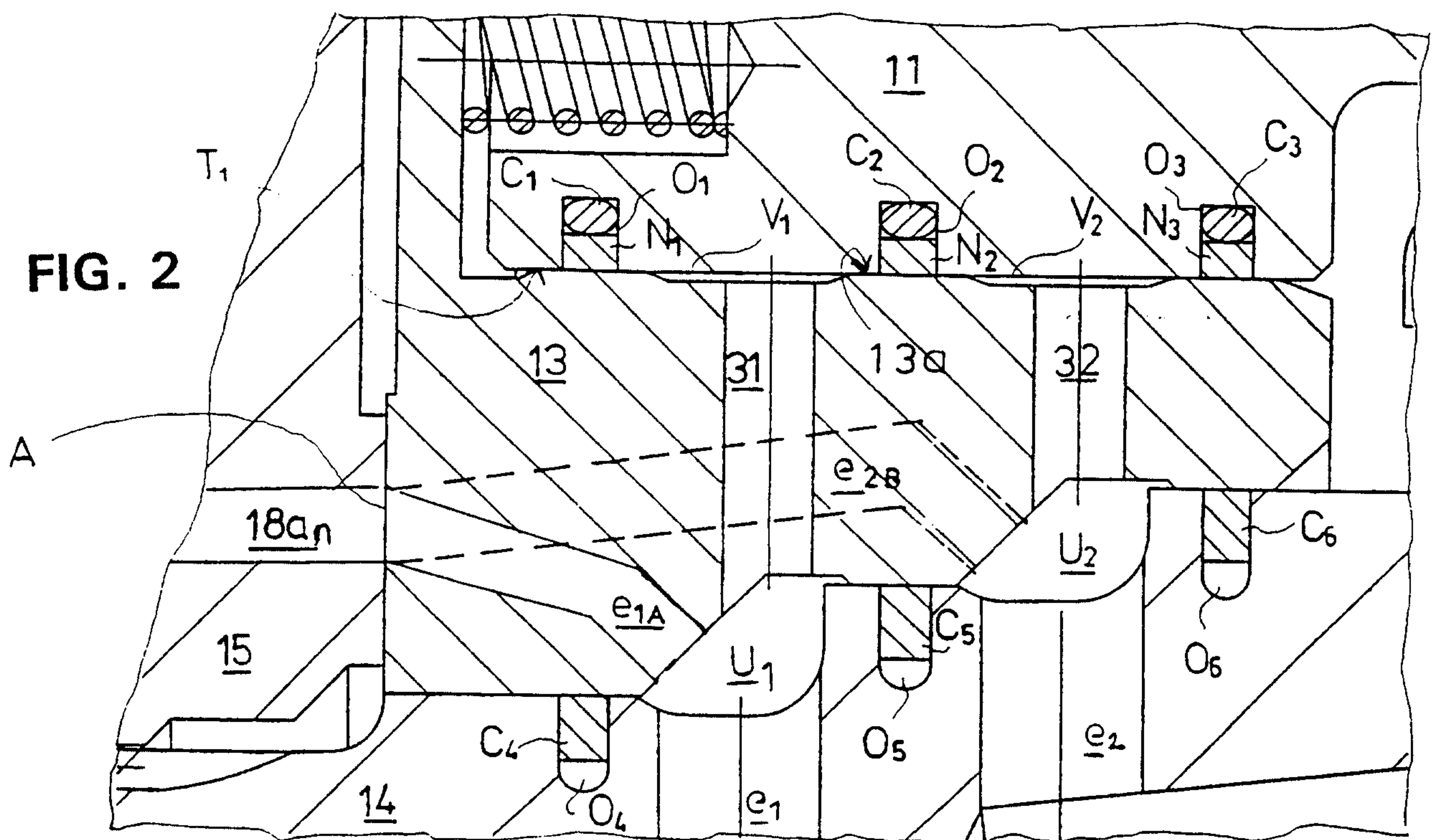


FIG. 2

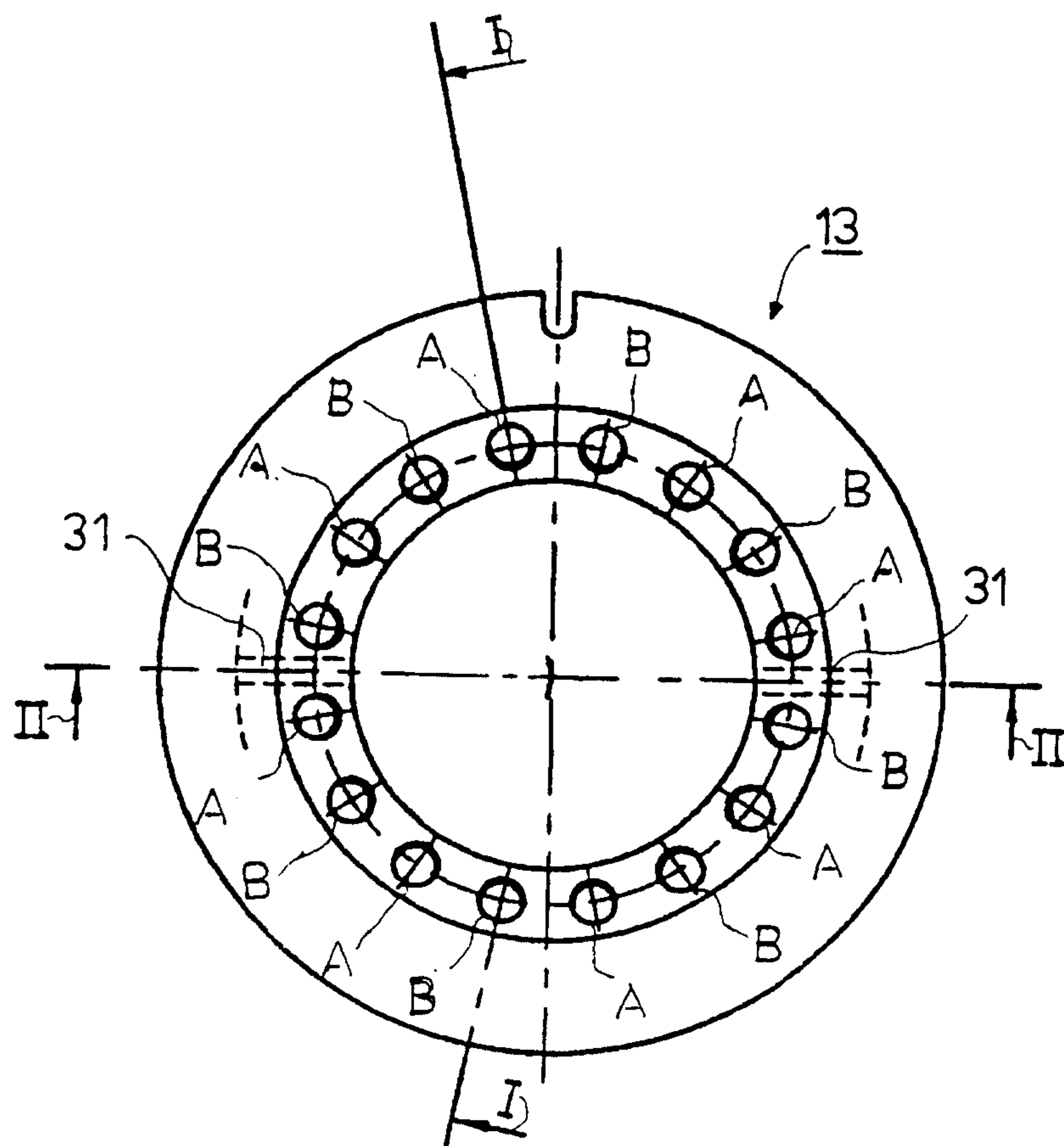


FIG. 3A

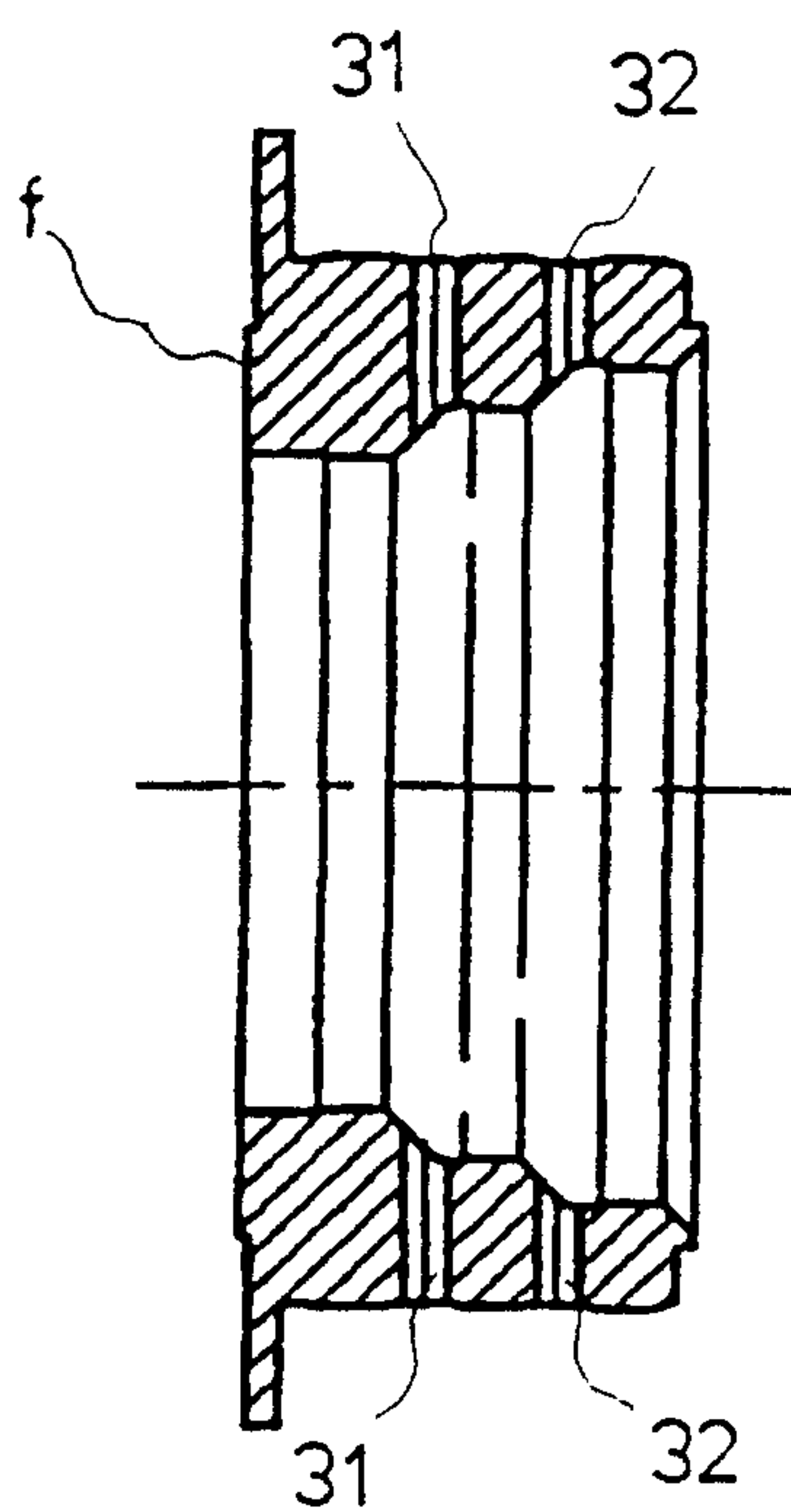


FIG. 3C

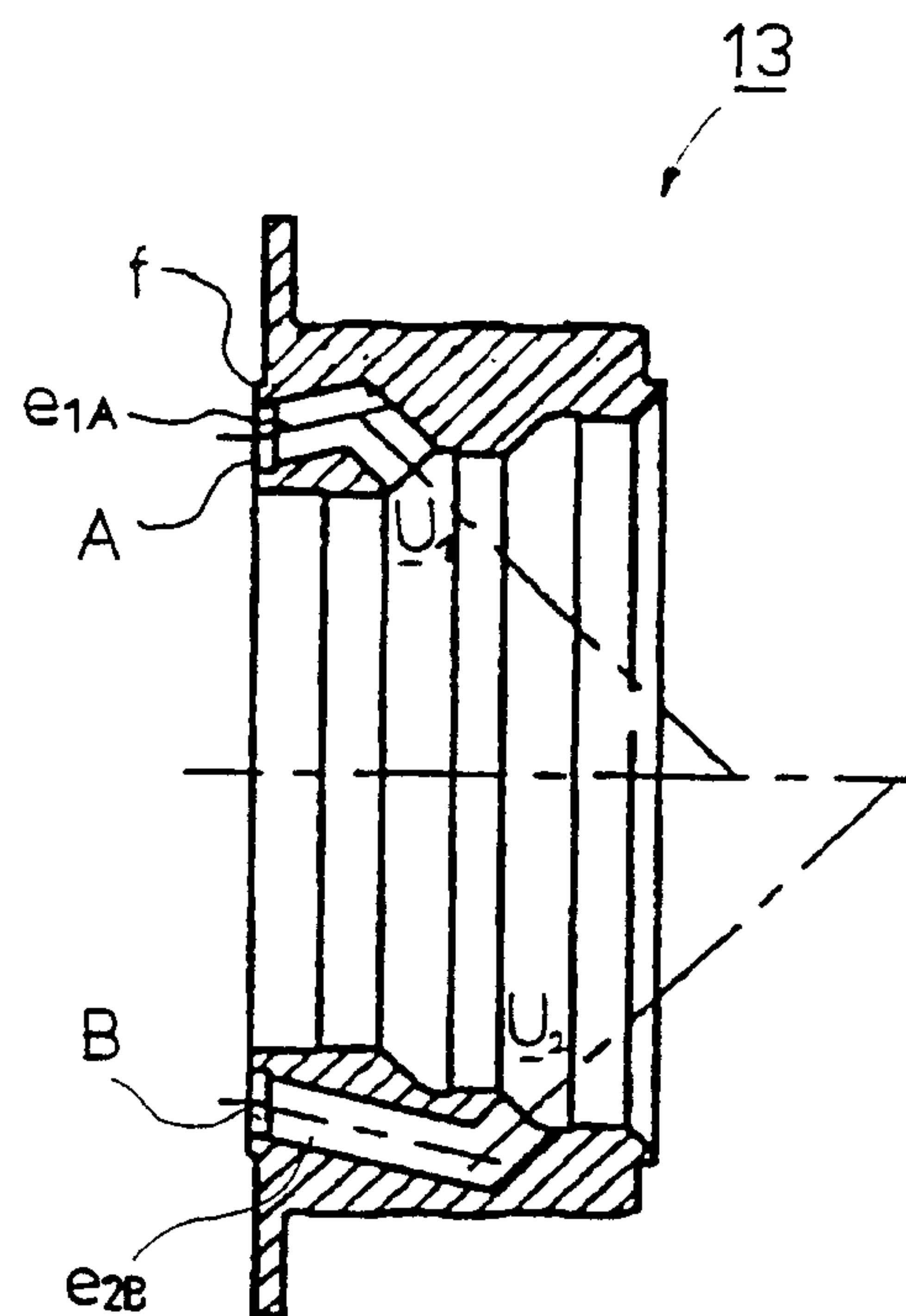


FIG. 3B

