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EUROPEAN PATENT APPLICATION

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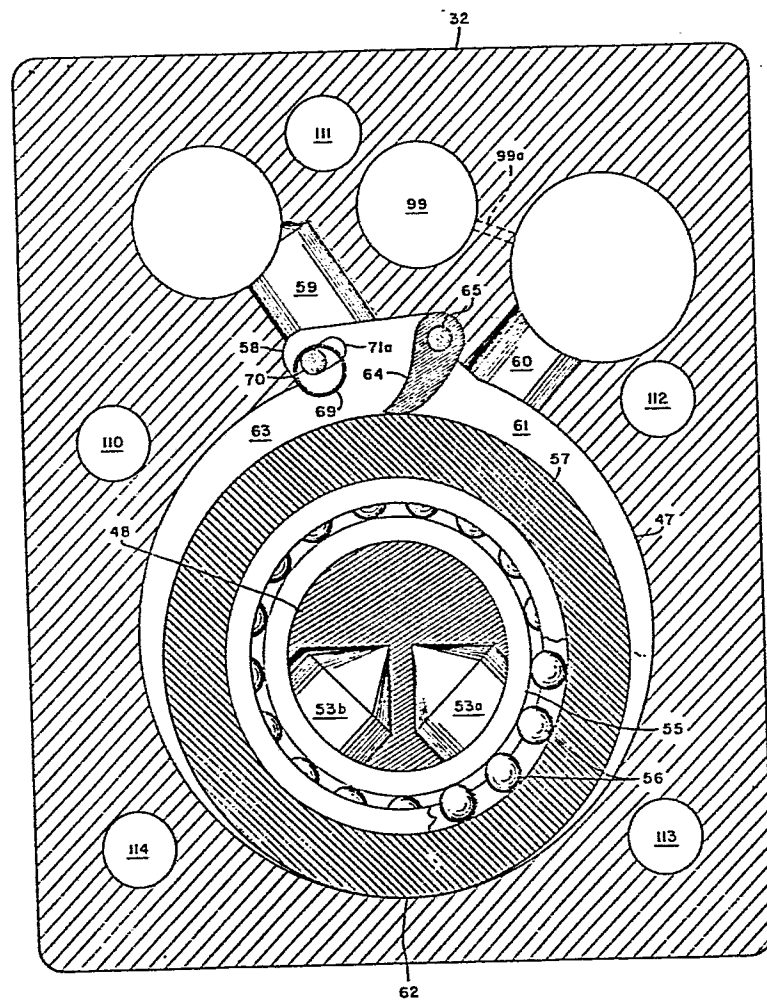
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⑤④ **Hydraulic energy-conversion device.**

⑤⑦ A device capable of functioning as a fluid pump or motor has a shaft provided with an eccentric (48) rotating with the shaft in an axially short cylindrical chamber (47). A ring (57) is rotatable on the eccentric, the thickness of the ring being close enough to the minimum distance from the periphery of the eccentric to the wall of the cylindrical chamber to cause the ring to roll along the wall on rotation of the shaft. The presence of the bearing (56) interposed between the ring and the eccentric has the effect of adding to the thickness of the ring in this relationship. A high pressure (59) and a low pressure port (60) are closely spaced about the chamber periphery, and a moveable dam (64) is mounted between these ports. A second moveable dam (69) is mounted on the opposite side of the high-pressure port from the first dam.

A valve and a related hydraulic circuit control the relationship of the case pressure to the pressure in the high-pressure port, and another system suppresses pressure pulsations otherwise arising from the sequential operation of one or more of the sections of the device. Mechanical provision is made for providing greater axial length of roller bearing engagement against the convex surface of the eccentric than is present on the concave inner surface of the ring. The shaft is balanced by recesses (53a, 53b) in the eccentric, and these are surrounded by a continuous sleeve (55) functioning as the inner bearing race.

FIG. 3





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
XY	<u>GB - A - 484 040 (TEBALDI)</u> * Page 1, line 36 - page 2, line 23; figures * --	1,5	F 04 C 2/26 F 04 C 15/00
Y	<u>GB - A - 315 376 (ENGER)</u> * Page 1, line 102 - page 2, line 9; figure 1; page 2, line 126 - page 3, line 20; figure 7 * --	1,5	
Y	<u>US - A - 1 684 274 (HINDS)</u> * Page 1, line 45 - page 2, line 51; figures * --	1	
A		5,6	TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
A	<u>US - A - 3 289 602 (HUDGENS)</u> * Column 2, four last lines; column 4, lines 43-53; figures 1,2,5 * -----	7	F 04 C 2/46 F 01 C 1/46
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		25-05-1984	KAPOULAS
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid,
namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

☒ LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions,
namely:

- 1) Claims 1,5,6,7
- 2) Claims 2,4,13,14,3
- 3) Claims 8,9,11: Pulse suppressor system
- 4) Claims 10,12: Case-pressure control system.

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid,
namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,
namely claims: 1,5,6,7