

12 **EUROPEAN PATENT APPLICATION**

21 Application number: **87116170.9**

51 Int. Cl.4: **F04B 1/20**

22 Date of filing: **03.11.87**

30 Priority: **04.11.86 US 926664**

43 Date of publication of application:
11.05.88 Bulletin 88/19

84 Designated Contracting States:
DE FR GB IT

88 Date of deferred publication of the search report:
17.01.90 Bulletin 90/03

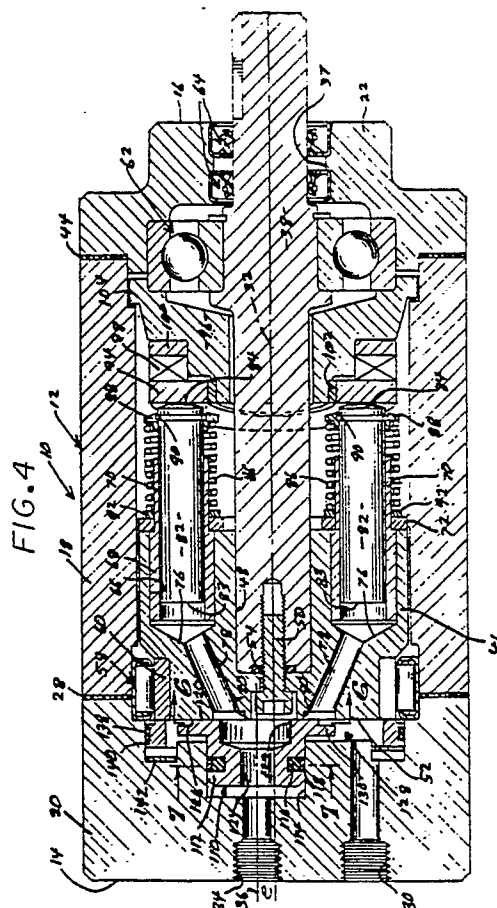
71 Applicant: **Cardillo, Joseph S.**
Palos Verdes Estates
California(US)

72 Inventor: **Cardillo, Joseph S.**
Palos Verdes Estates
California(US)

74 Representative: **Klunker . Schmitt-Nilson .**
Hirsch
Winzererstrasse 106
D-8000 München 40(DE)

54 **Ring valve pump.**

57 An eccentric ring porting system for hydraulic pumps of the type having a rotating cylinder block. The rotating cylinder block (46) has a flat annular port face (52) with a small cluster of regularly spaced cylinder ports (80) in the face circularly arrayed about the axis of rotation (32) of the cylinder block (46). A ring valve element (110) has a ring seat surface (120) held flush against the cylinder port face (52). The axis (36) of the ring seat surface (120) is eccentrically offset from the axis of rotation (32) of the cylinder block (46), and the cylinder ports (80) are uncovered inside of the inner edge of the ring seat surface (120) for output porting of the pump and outside of the outer edge of the ring seat surface (120) for inlet porting of the pump.





DOCUMENTS CONSIDERED TO BE RELEVANT			EP 87116170.9
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	<u>DE - A1 - 3 112 930</u> (VÖGELE) * Totality; especially claims; fig. 1,2 * --	1-21	F 04 B 1/20
A	<u>DE - C - 968 539</u> (UETTER) * Totality * --	1-21	
A	<u>AT - B - 312 424</u> (EICKMANN) * Totality; especially fig. * --	1-4	
A	<u>DE - A1 - 3 025 593</u> (BREINLICH) * Totality; especially fig. 9, 11 * --	1-4	
A	<u>AT - B - 242 517</u> (MANNESMANN-MEER) * Totality; especially fig. 1, 2 * ----	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			F 01 B 3/00 F 04 B 1/00 F 04 B 49/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 08-11-1989	Examiner WERDECKER
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	