



(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
19.04.2000 Bulletin 2000/16

(51) Int Cl.7: F04B 43/073

(43) Date of publication A2:
02.06.1999 Bulletin 1999/22

(21) Application number: 98830707.0

(22) Date of filing: 25.11.1998

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: 28.11.1997 IT RM970739

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(54) Hydraulically driven double acting diaphragm pump

(57) A pumping device for liquids or aeriform substances of a double-acting reciprocating type, characterized in that it comprises a first and a second pumping unit provided with a separating element between a working fluid and a pumped fluid, and connected to an oil

control assembly arranged to induce reciprocating motions in said separating elements of said units by means of pressurized oil so as to produce a suction phase in one unit and a delivery phase in the other unit and vice-versa, in a continuous way.

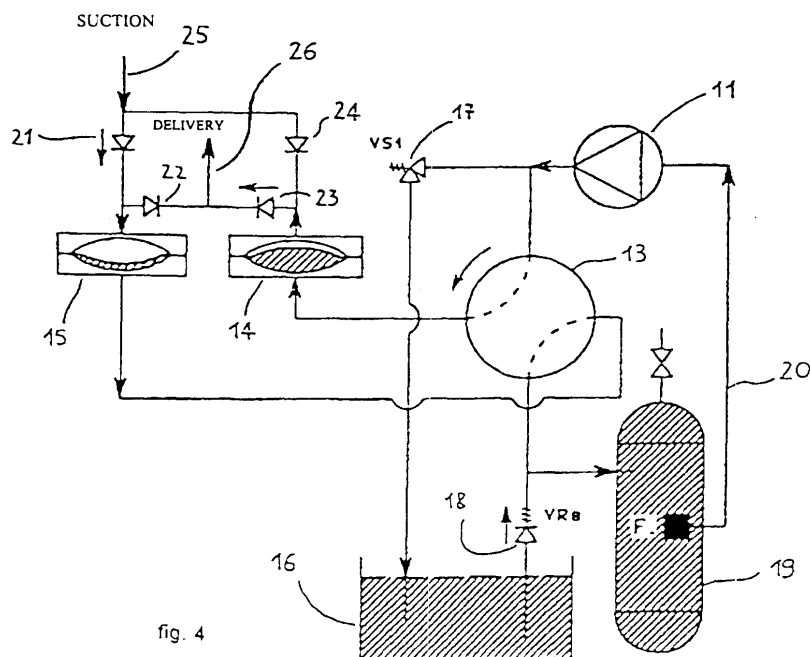


fig. 4



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 98 83 0707

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.6)
X	EP 0 568 742 A (COOPER IND INC) 10 November 1993 (1993-11-10)	1,3,14	F04B43/073
Y	* the whole document *	2,4-8,12	
Y	EP 0 627 555 A (ENEA ENTE NUOVE TEC) 7 December 1994 (1994-12-07)	2,4-8,12	
	* the whole document *		
X	US 4 543 044 A (SIMMONS WALTER J) 24 September 1985 (1985-09-24)	1,2	
	* the whole document *		
X	FR 2 549 904 A (PAUL HYDRAULIQUE) 1 February 1985 (1985-02-01)	1,3,14	
	* the whole document *		
X	US 2 703 055 A (VETH J.) 1 March 1955 (1955-03-01)	1,2	
	* figure 1 *		
A	US 4 523 901 A (SCHIPPERS HEINZ ET AL) 18 June 1985 (1985-06-18)	3	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
	* figures 3-5 *		F04B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		24 February 2000	Ingelbrecht, P
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			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 83 0707

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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24-02-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0568742 A	10-11-1993	CA 2095764 A	09-11-1993
EP 0627555 A	07-12-1994	IT 1262358 B	19-06-1996
		DE 69404899 D	18-09-1997
		DE 69404899 T	05-03-1998
		ES 2106487 T	01-11-1997
US 4543044 A	24-09-1985	AU 565779 B	24-09-1987
		AU 3515584 A	16-05-1985
		CA 1224082 A	14-07-1987
		DE 3441054 A	15-05-1985
		FR 2554515 A	10-05-1985
		IN 161834 A	13-02-1988
		JP 1626166 C	28-11-1991
		JP 2043031 B	26-09-1990
		JP 60116882 A	24-06-1985
		ZA 8408740 A	30-07-1986
		ZW 20384 A	06-03-1985
FR 2549904 A	01-02-1985	NONE	
US 2703055 A	01-03-1955	NONE	
US 4523901 A	18-06-1985	DE 3238421 A	05-05-1983
		US 4648810 A	10-03-1987

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82