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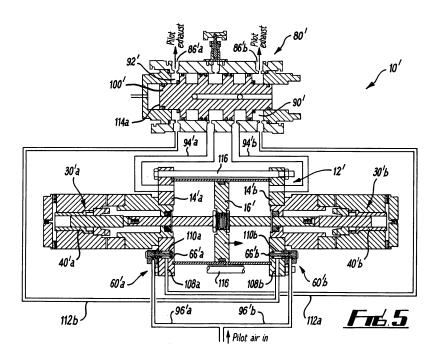
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(54) **A pump**

(57) There is disclosed a pump, in particular a reciprocating pump. In one embodiment, a reciprocating pump (10) is disclosed which comprises an actuating cylinder (12); an actuating piston (16) mounted for reciprocating movement within the actuating cylinder; a discharge cylinder (52); a sleeve (40) releasably mounted within the discharge cylinder, to thereby define an operating diam-

eter of the discharge cylinder; and a discharge piston (30) coupled to the actuating piston and mounted for reciprocating movement within the sleeve to successively draw fluid into and discharge fluid from the discharge cylinder. There is also disclosed a sleeve for such a pump, and a method of changing output flow from such a pump.





EUROPEAN SEARCH REPORT

Application Number

EP 06 25 5287

Category	Citation of document with in of relevant pass	ndication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)		
X Y	2 July 1985 (1985-0	- column 8, line 51;	1-5, 8-27,34 1-34	INV. F04B9/12 F04B5/02 F04B7/02		
Х	US 5 092 744 A (BOE 3 March 1992 (1992-	ERS ARIE [US] ET AL) 03-03)	1-5, 8-11, 13-26, 32,34			
Υ	* column 4, line 18 figures 1-3,6-9 *	B - column 9, line 9;	1-34			
Χ	US 3 556 689 A (HEC 19 January 1971 (19		35,36			
Υ	* column 1, line 33	- line 42; figures 2,3	1,3-5,7, 8,10,11, 13-32,34			
Х	US 3 669 572 A (KIN 13 June 1972 (1972-		1,2,4,5, 8,9,11, 14-24, 27-29,34	TECHNICAL FIELDS SEARCHED (IPC)		
	* column 3, line 27	' - line 54; figures 1,2		F04B		
Υ	* column 7, line 71	column 8, line 29 *	1-34			
Υ	GB 1 420 424 A (FLC 7 January 1976 (197		1-5, 7-30,32, 34			
	* page 2, line 60 - figures 2-11 *	page 7, line 86;				
Υ	US 3 368 458 A (SHI 13 February 1968 (1 * column 5, line 67 figure 2 *		33			
		-/				
	The present search report has	been drawn up for all claims				
	Place of search	Date of completion of the search		Examiner		
	Munich	22 January 2009	Jur	ado Orenes, A		
		T : theory or principle E : earlier patent door after the filing date her D : dooument cited in	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			



EUROPEAN SEARCH REPORT

Application Number EP 06 25 5287

- I	DOCUMENTS CONSIDERE				
Category	Citation of document with indicati of relevant passages	on, where appropriate	₹,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Υ	US 5 094 596 A (ERWIN 10 March 1992 (1992-03 * column 9, line 23 -	-10)	·	,7	
Y	GB 530 050 A (BYRON JA 4 December 1940 (1940- * page 5, line 12 - li	12-04)	3 1 *	1	
					TECHNICAL FIELDS SEARCHED (IPC)
	The present search report has been o				Funning
	Place of search	Date of completion of		1	Examiner
X : parti Y : parti docu A : tech	Munich ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with another iment of the same category nological background written disclosure	E : ea afte D : do L : do	ory or principle un rlier patent docum er the filing date cument cited in the cument cited for of		

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

EP 06 25 5287

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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-01-2009

	Patent document ed in search report		Publication date		Patent family member(s)		Publication date
US	4526000	A	02-07-1985	JP	60088201	Α	18-05-198
US	5092744	A	03-03-1992	DE DE EP JP JP	69019337 69019337 0448906 3000065 3267585	T2 A2 B2	14-06-199 14-09-199 02-10-199 17-01-200 28-11-199
US	3556689	Α	19-01-1971	NONE			
US	3669572	Α	13-06-1972	DE FR GB	2128261 2096025 1320432	A5	16-12-197 11-02-197 13-06-197
GB	1420424	A	07-01-1976	AU CA DE IL IN IT JP JP JP NL SE	6425974 1006787 2401341 43965 141336 1008123 1344088 49101906 61004997 7400433 398911	A1 A1 A1 B C A B	10-07-197 15-03-197 25-07-197 31-03-197 12-02-197 10-11-197 29-10-198 26-09-197 14-02-198 16-07-197 23-01-197
US	3368458	Α	13-02-1968	NONE			
US	5094596	Α	10-03-1992	CA	2042891	A1	02-12-199
GB	530050	Α	04-12-1940	NONE			

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