Europäisches Patentamt

European Patent Office

Office européen des brevets



(11) **EP 0 918 162 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 22.03.2000 Bulletin 2000/12

22.03.2000 Bulletin 2000/12(43) Date of publication A2:

26.05.1999 Bulletin 1999/21

(21) Application number: 98117594.6

(22) Date of filing: 16.09.1998

(51) Int. Cl.7: **F15B 15/08**

(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

(30) Priority: 20.11.1997 IT MO970213

(71) Applicant: Borghi, Ivan

41030 Villavara di Bomporto (Modena) (IT)

(72) Inventor: Borghi, Ivan 41030 Villavara di Bomporto (Modena) (IT)

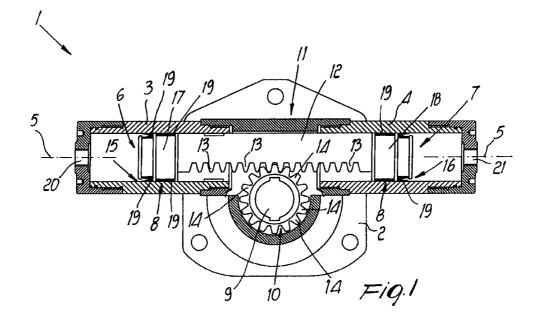
(74) Representative:

Modiano, Guido, Dr.-Ing. et al Modiano Gardi Patents, Via Meravigli, 16 20123 Milano (IT)

(54) Hydromechanically actuated rotating unit

(57) The hydromechanically actuated rotating unit comprises: a fixed bell-shaped element (2); a first cylinder (3) and a second cylinder (4), which are mutually aligned along an axis (5) which intersects the bell-shaped element (2) and in which respectively a first piston (6) and a second piston (7) are fitted so that they can move, with sealing elements (8) interposed; a rotating shaft (9), which is mounted so that it can rotate axi-

ally in the bell-shaped element (2); a pinion (10), which is rigidly coupled to the shaft; a rack (11) which meshes with the pinion (10) and to which the first and second pistons (6, 7) are rigidly coupled; and elements for distributing pressurized fluid, which are connected to the first and second cylinders.





EUROPEAN SEARCH REPORT

Application Number

EP 98 11 7594

i		ERED TO BE RELEVAN indication, where appropriate,	Relevant	CLASSIFICATION OF THE	
Category	of relevant pass		to claim	APPLICATION (Int.Cl.6)	
X	GB 826 460 A (STEIN * figures 1,2 *	ER)	1-9	F15B15/08	
X	US 3 494 205 A (HEE 10 February 1970 (1 * figure 4 *		1-9		
X	EP 0 047 613 A (WOR 17 March 1982 (1982 * abstract; figures		1-9		
X	US 5 323 690 A (SIM 28 June 1994 (1994- * abstract; figure	06-28)	1-9		
A	WO 94 08836 A (BEND 28 April 1994 (1994 * figures 3,6 *		1,4		
A	WO 92 07195 A (H & 30 April 1992 (1992 * page 3, paragraph	-04-30)	4	TECHNICAL FIELDS SEARCHED (Int.Cl.6)	
	The present search report has	been drawn up for all claims			
	Place of search	Date of completion of the sear	ph	Examiner	
THE HAGUE		1 February 200	ebruary 2000 SLEIGHTHOLME, G		
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		E : earlier pate after the fill ther D : document o L : document o	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 8: member of the same patent family, corresponding document		

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

EP 98 11 7594

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.

01-02-2000

Patent document cited in search report		Publication date	Patent family member(s)		Publication date	
GB	826460	Α		NONE		
US	3494205	Α	10-02-1970	NONE		
EP	0047613	A	17-03-1982	AR	226745 A	13-08-19
				ΑT	7812 T	15-06-19
				AU	549489 B	30-01-19
				AU	7465281 A	11-03-19
				BR	8105652 A	08-09-19
				CA	1144398 A	12-04-19
				DK	387081 A	05-03-19 16-06-19
				ES FI	505178 A 812714 A	05-03-19
				GB	2084253 A,B	05-03-1
				HK	44084 A	25-05-19
				IN	153748 A	18-08-19
				JP	1031041 B	23-06-1
				JP	1548155 C	09-03-1
				JP	57076305 A	13-05-1
				KR	8601716 B	18-10-1
				MY	55785 A	31-12-1
				NO	812962 A,B,	05-03-1
				NZ	198260 A	31-05-1
				SG	14284 G	15-02-1
				US	4487111 A	11-12-1
				ZA 	8105753 A	25-08-1
US	5323690	Α	28-06-1994	NONE		
WO	9408836	Α	28-04-1994	BR	9305757 A	28-01-1
				DE	69306374 D	16-01-1
				DE	69306374 T	30-04-1
				EP	0615502 A	21-09-1
				JP	7502236 T	09-03-1
				U\$ 	5482131 A	09-01-1
WO	9207195	Α	30-04-1992	DE	9014487 U	02-05-1
				AT	137309 T	15-05-1
				AU	8745091 A	20-05-1
				DE	59107733 D	30-05-1
				EP	0506910 A	07-10-1
				US 	5281034 A	25-01-1

FORM P0459

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