(1) Publication number:

**0 071 800** A3

12)

## **EUROPEAN PATENT APPLICATION**

(21) Application number: 82106366.6

(f) Int. Cl.<sup>3</sup>: **F 02 M** 59/32, F 02 M 41/14

2 Date of filing: 15.07.82

30 Priority: 10.08.81 JP 125686/81

Applicant: Hitachi, Ltd., 5-1, Marunouchi 1-chome, Chiyoda-ku Tokyo 100 (JP)

43 Date of publication of application: 16.02.83 Bulletin 83/7

> Inventor: Hoshi, Yoshikazu, 2650-62, Oaza-Muramatsu Tohkai-mura, Naka-gun Ibaraki-ken (JP)

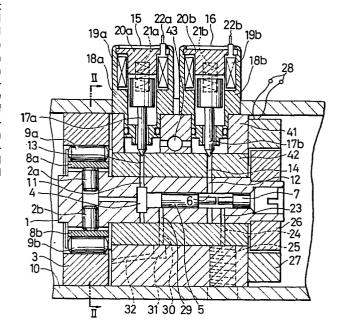
84 Designated Contracting States: CH DE FR GB IT LI NL SF

> Representative: Patentanwälte Beetz sen. - Beetz jun. Timpe - Siegfried - Schmitt-Fumian, Steinsdorfstrasse 10, D-8000 München 22 (DE)

® Date of deferred publication of search report: 18.01.84 Bulletin 84/3

54 Fuel injection pump for internal combustion engine having improved excess fuel discharger.

Disclosed is a fuel injection pump arranged such that a movable free piston (5) is provided in a high-pressure fuel chamber, and a first compression chamber (4) partitioned by the piston is supplied with fuel for determining the amount of fuel to be injected, while a second compression chamber (6) is supplied with fuel for determining injection timing, then fuel is compressed by means of a rotary compressor mechanism, and the fuel highly compressed in the second compression chamber (6) is supplied to cylinders of an internal combustion engine, wherein the abovementioned free piston (5) has a valve mechanism which opens when the piston moves toward the second compression chamber (6), thereby to abruptly release the fuel for regulating injection timing compressed in the second compression chamber (6).





## **EUROPEAN SEARCH REPORT**

0 0 700 Common Common

EP 82 10 6366

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages		opriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
A	US-A-3 427 979 * Column 1, li line 25; figures	ne 53 - col	.umn 4,	1-4	F O2 M 59/32 F O2 M 41/14
Α	US-A-3 489 093 * Column 1, li line 3; figure 1	ne 41 - col	umn 3,	1	
D,A	GB-A-2 012 360	(BENDIX)			
D,A	US-A-3 704 963	 (STANADYNE)	)		
					TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )
•					F 02 M
	The present search report has t	oeen drawn up for all cla	ims		
Place of search Date of completion THE HAGUE 12-09-			on of the search	SCHM	Examiner ID R.
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		