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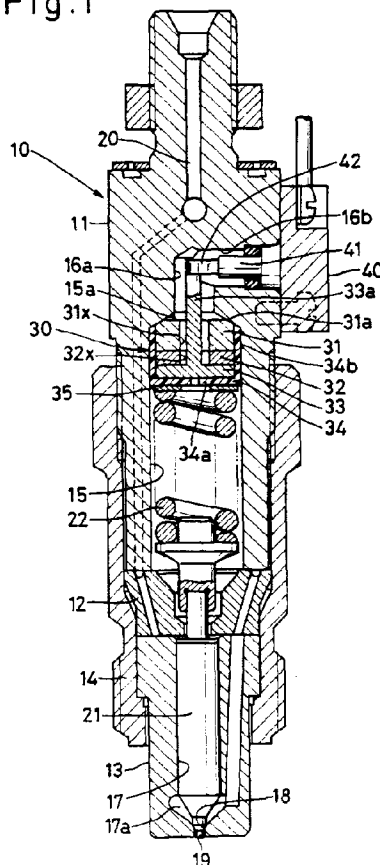
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(54) Fuel injection device

(57) A fuel injection device comprises a body (10), a needle valve (21) axially slidably received in the body, a nozzle spring (22) for biasing the needle valve (21) toward a valve seat (18), and a detection assembly for detecting a time point for lifting the needle valve, that is, a fuel injection time. The detection assembly and the nozzle spring are received in a spring receiving hole (15). The detection assembly has an earth plate (31), a piezoelectric device (32) and an electrode plate (33) arranged in order toward the valve seat. A conical receiving surface (15a) is formed on an upper end of the spring receiving hole (15). The earth plate has an abutment surface (31a) which can be brought into surface contact with the receiving surface.

Fig.1



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EUROPEAN SEARCH REPORT

Application Number
EP 95 30 6276

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	US-A-4 662 564 (OKUDA SHINJI) 5 May 1987 * column 3, line 49 - column 4, line 12; figure 1 *	1,5	F02M65/00
D,A	JP-U-40 047 163 (ZEXEL CORP) 22 April 1992 * figures *	1,2	
A	US-A-4 483 480 (YASUHARA SEISHI) 20 November 1984 * abstract; figures 1,2 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F02M
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 October 1996	Examiner Torle, E
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			

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