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(71) Applicant: CATERPILLAR INC.
Peoria Illinois 61629-6490 (US)

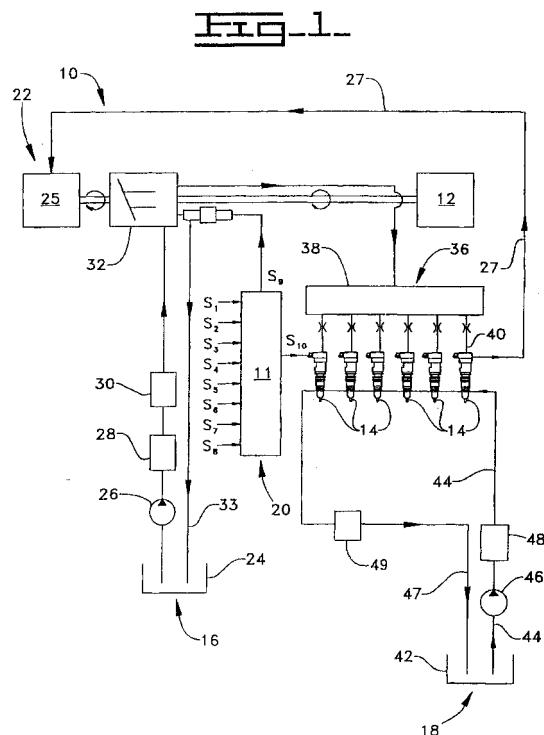
(72) Inventors:

- Chen, Shikui K.
Peoria, Illinois 61615 (US)
- Hefler, Gregory W.
Chillicothe, Illinois 61523 (US)

(74) Representative: Brunner, Michael John
GILL JENNINGS & EVERY,
Broadgate House,
7 Eldon Street
London EC2M 7LH (GB)

(54) Hydraulically-actuated fuel injector with direct control needle valve

(57) A hydraulically actuated fuel injector (14') includes an injector body (105) having an actuation fluid inlet (106) and a needle control chamber (118). A hydraulic means within the injector pressurizes fuel in the injector body (105). The hydraulic means includes an actuation fluid control valve (140) having a solenoid (130) and is movable to open and close the actuation fluid inlet (106). A needle valve member (160) includes a closing hydraulic surface (167) exposed to pressure in the needle control chamber (118). A needle control valve (136), which utilizes the same solenoid (130), is mounted in the injector body (105) and movable to open and close the needle control chamber (118) to a source of high pressure fluid (106). The slower response time of the actuation fluid control valve (140) allows for direct control of the fast responding needle valve (160) by a single fast acting two-way solenoid (130).





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EUROPEAN SEARCH REPORT

Application Number

EP 01 11 7613

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F02M			
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search		Examiner
THE HAGUE	30 October 2002		Sideris, M
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			

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

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