

Title (en)  
FUEL INJECTION DEVICE FOR INTERNAL-COMBUSTION ENGINES

Publication  
**EP 0121689 B1 19880504 (DE)**

Application  
**EP 84101517 A 19840214**

Priority  
DE 3307826 A 19830305

Abstract (en)  
[origin: US4526149A] The fuel injection quantity of a fuel injection apparatus provided with a fuel injection pump is electrically regulated by means of the opening duration of a metering valve. Additionally, a shift in the instant of supply onset controlled in accordance with operating characteristics is attained by means of a change in the return-flow fuel quantity, which is diverted into a refill reservoir and then refilled completely into the pump work chamber by the beginning of the next subsequent injection stroke. Serving as the sole connection between the refill reservoir and a pump work chamber is an overflow conduit, the overflow opening of which, located at the discharge location into the pump work chamber, is opened by two control locations on the pump piston at the end of supply and once again shortly before bottom dead center. The two control locations are embodied by an oblique control edge on the pump piston that determines the end of supply and by a horizontal, end-face control edge, with the horizontal control edge assuring that shortly before bottom dead center any remnant quantity of the return-flow fuel still remaining in the refill reservoir is refilled back into the pump work chamber.

IPC 1-7  
**F02M 59/20**; **F02M 59/44**

IPC 8 full level  
**F02M 51/00** (2006.01); **F02D 1/02** (2006.01); **F02M 59/20** (2006.01); **F02M 59/26** (2006.01); **F02M 59/36** (2006.01); **F02M 59/44** (2006.01)

CPC (source: EP US)  
**F02M 59/20** (2013.01 - EP US); **F02M 59/26** (2013.01 - EP US); **F02M 59/366** (2013.01 - EP US); **F02M 59/44** (2013.01 - EP US)

Citation (examination)  
GB 2034403 A 19800604 - BENDIX CORP

Cited by  
EP0399179A3; EP0458529A1; EP0191922A3; EP2172642A1

Designated contracting state (EPC)  
AT DE FR GB IT

DOCDB simple family (publication)  
**EP 0121689 A1 19841017**; **EP 0121689 B1 19880504**; AT E34016 T1 19880515; DE 3307826 A1 19840906; DE 3470909 D1 19880609; JP S59168259 A 19840921; US 4526149 A 19850702

DOCDB simple family (application)  
**EP 84101517 A 19840214**; AT 84101517 T 19840214; DE 3307826 A 19830305; DE 3470909 T 19840214; JP 3635284 A 19840229; US 58504284 A 19840301