

Title (en)

FUEL INJECTION DEVICE FOR INJECTION-TYPE INTERNAL COMBUSTION ENGINES.

Title (de)

KRAFTSTOFFEINSPRIZTEINRICHTUNG FÜR EINSPRITZBRENNKRAFTMASCHINEN.

Title (fr)

SYSTEME D'INJECTION DE CARBURANT POUR MOTEURS A COMBUSTION INTERNE A INJECTION.

Publication

EP 0461221 B1 19940302

Application

EP 91900714 A 19901222

Priority

- DE 4000043 A 19900103
- DE 4029159 A 19900914

Abstract (en)

[origin: WO9110059A1] In a fuel injection device for injection-type internal combustion engines, with a main injection piston (4) and pre-injection piston (1) which is coaxial with, separate from, and of smaller diameter than the latter, the lifting movement of the pre-injection piston (1) is imparted by the main injection piston (4), which drives the pre-injection piston (1) non-positively against the force of at least one spring (5) that holds it against the main injection piston (4). During the main injection, the working space (13) of the pre-injection piston (1) communicates with the working space (8) of the main injection piston (4), so that after the end of pre-injection and an injection pause, the pre-injection piston (1) delivers part of the main quantity of injected fuel and the fuel pressure generated in the working space (13) of the pre-injection piston (1) boosts the action of the spring (5).

IPC 1-7

F02M 45/06

IPC 8 full level

F02M 45/04 (2006.01); **F02M 45/06** (2006.01); **F02M 59/02** (2006.01); **F02M 59/08** (2006.01)

CPC (source: EP US)

F02M 45/06 (2013.01 - EP US); **F02M 59/08** (2013.01 - EP US)

Designated contracting state (EPC)

CH DE FR GB IT LI SE

DOCDB simple family (publication)

DE 4029159 A1 19910704; CZ 697590 A3 19930915; DE 59004816 D1 19940407; EP 0461221 A1 19911218; EP 0461221 B1 19940302; JP H04506102 A 19921022; RU 2060403 C1 19960520; US 5178110 A 19930112; WO 9110059 A1 19910711

DOCDB simple family (application)

DE 4029159 A 19900914; CS 697590 A 19901229; DE 59004816 T 19901222; DE 9000991 W 19901222; EP 91900714 A 19901222; JP 50118791 A 19901222; SU 5001623 A 19901222; US 75243491 A 19910819