

Title (en)

A multi-nozzle injector for an internal combustion engine.

Title (de)

Mehrlocheinspritzdüse für Brennkraftmaschinen.

Title (fr)

Buse d'injection à plusieurs orifices pour moteur à combustion interne.

Publication

**EP 0361359 A1 19900404 (EN)**

Application

**EP 89117661 A 19890925**

Priority

IT 5342188 U 19880927

Abstract (en)

A multi-nozzle injector with orientated jets, in particular for an internal combustion engine of the type having one or more inlet valves for each cylinder, supplied by one or more ducts in which the valve means for the injection and metering of the fuel comprise an axially movable shutter member (18), a valve seat (19) cooperating in a fluid-tight manner with the shutter member (18) and at least one pair of nozzles (20) hydraulically connected with the valve seat through a common calibrated duct (21) adapted to meter the flow of fuel passing from the said valve seat (19) towards the said nozzles (20), in which the valve seat (19) and the calibrated duct (21) are formed in an insert element (30) defining an end wall of a hollow body (12) of the said injector housing the shutter, and in which the nozzles (20) are formed in an insert (32) fixedly inserted into the interior of a recess in the insert element (30).

IPC 1-7

**F02M 61/18**; **F02M 69/04**

IPC 8 full level

**F02M 61/18** (2006.01); **F02M 69/04** (2006.01)

CPC (source: EP)

**F02M 61/1806** (2013.01); **F02M 61/1853** (2013.01); **F02M 69/044** (2013.01)

Citation (search report)

- [X] US 4657189 A 19870414 - IWATA MINORU [JP], et al
- [X] EP 0257475 A2 19880302 - NIPPON DENSO CO [JP]
- [Y] EP 0242978 A1 19871028 - GEN MOTORS CORP [US]
- [Y] DE 3229716 A1 19840216 - BOSCH GMBH ROBERT [DE]
- [A] FR 2355175 A1 19780113 - BENDIX CORP [US]

Cited by

CN114060722A; GB2237065A; GB2296039A; CN108431400A; EP1138936A3; EP4187072A1; WO2017114634A1

Designated contracting state (EPC)

DE ES FR GB SE

DOCDB simple family (publication)

**EP 0361359 A1 19900404**; IT 215076 Z2 19900730; IT 8853421 V0 19880927

DOCDB simple family (application)

**EP 89117661 A 19890925**; IT 5342188 U 19880927