

Title (en)
Injector for internal-combustion engines

Title (de)
Einspritzventil für Brennkraftmaschinen

Title (fr)
Injecteur pour moteurs à combustion interne

Publication
EP 1070844 A1 20010124 (EN)

Application
EP 00115462 A 20000718

Priority
IT TO990642 A 19990720

Abstract (en)

An injector for internal-combustion engines, comprising: a base body (12) having a valve seat (20); a needle element (22) which can slide inside the base body (12) and is designed to open and close the aforesaid valve seat; and an actuator device which is designed to control sliding of said needle element (22). The piezoelectric actuator (28) is an amplified piezoelectric actuator having a bar (30) made of piezoelectric material, which co-operates with an amplifying structure (32). The bar (30) of piezoelectric material is set orthogonally to the direction of sliding of said needle element (22). <IMAGE>

IPC 1-7
F02M 51/06

IPC 8 full level
F02M 51/06 (2006.01); **F02M 63/00** (2006.01); **F02M 47/02** (2006.01)

CPC (source: EP)
F02M 51/0603 (2013.01); **F02M 47/027** (2013.01); **F02M 2200/701** (2013.01)

Citation (search report)

- [X] US 4022166 A 19770510 - BART HANS U
- [XA] US 4720077 A 19880119 - MINOURA MIKIO [JP], et al
- [A] DE 695974 C 19400916 - AUDI AG
- [X] PATENT ABSTRACTS OF JAPAN vol. 014, no. 331 (M - 0999) 17 July 1990 (1990-07-17)
- [X] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08 30 June 1998 (1998-06-30)

Cited by
FR2836536A1; DE10216084A1; US9455394B2; US6994110B2

Designated contracting state (EPC)
DE ES FR GB SE

DOCDB simple family (publication)
EP 1070844 A1 20010124; IT 1310126 B1 20020211; IT TO990642 A1 20010120

DOCDB simple family (application)
EP 00115462 A 20000718; IT TO990642 A 19990720