

Title (en)

Injection valve with a needle biased by a spring

Title (de)

Einspritzventil mit einer durch eine Feder vorgespannten Nadel

Title (fr)

Soupape d'injection avec une aiguille précontrainte par un ressort

Publication

**EP 1460263 A1 20040922 (EN)**

Application

**EP 03006304 A 20030319**

Priority

EP 03006304 A 20030319

Abstract (en)

The invention describes a fuel injection valve with an armature and a needle that is assigned to a valve seat. The connection between the armature and the needle is not rigid, but a spring is arranged between the armature and the needle biasing the needle in the direction of the valve seat. If the injection valve is closed, then the needle 6 is pushed onto the valve seat 5, whereby the needle 6 moves relatively to the armature 7 against the tension of the second spring 36. Using the spring connection between the armature and the needle 6, the impulse is reduced, by means of which the needle 6 is pushed onto the valve seat 5 by closing the injection valve. The second spring 36 reduces the bouncing effect that is generated by closing the needle 6 with high speed. <IMAGE>

IPC 1-7

**F02M 51/06**; **F02M 61/20**

IPC 8 full level

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CPC (source: EP)

**F02M 51/066** (2013.01); **F02M 51/0685** (2013.01); **F02M 61/20** (2013.01)

Citation (search report)

- [XY] DE 10065528 A1 20020704 - BOSCH GMBH ROBERT [DE]
- [Y] US 5088467 A 19920218 - MESENICH GERHARD [DE]
- [X] US 5114077 A 19920519 - CERNY MARK S [US]
- [X] WO 0025018 A1 20000504 - BOSCH GMBH ROBERT [DE], et al
- [X] WO 0079120 A1 20001228 - BOSCH GMBH ROBERT [DE], et al
- [A] EP 0851116 A2 19980701 - ELASIS SISTEMA RICERCA FIAT [IT]

Cited by

JP2015519514A; EP2597296A1; EP1835167A1; CN103890370A; KR20140079510A; EP2527637A1; CN103547791A; EP2535552A1; CN102828873A; KR20120138710A; US9316194B2; US8528842B2; US9664161B2; WO2013060717A1; WO2013189639A1; WO2012160100A1; WO2005113973A1; US8931718B2; US9394869B2

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