

Title (en)  
FUEL INJECTOR FOR AN INTERNAL-COMBUSTION ENGINE

Publication  
**EP 0096312 B1 19901219 (DE)**

Application  
**EP 83105257 A 19830527**

Priority  
DE 3221442 A 19820607

Abstract (en)  
[origin: US4747545A] A fuel injection nozzle for internal combustion engines is proposed, which includes a valve needle stressed by a closing spring and a damping device to partially damp the opening movement of the valve needle. The damping is effected in accordance with the stroke frequency, the stroke length of the valve needle, or both, or the quantity of fuel throughput per injection cycle, and the damping effect is preferably variable automatically by shifting the time of the onset of damping relative to the onset of injection. As a result, an adaptation of the damping effect to the operating state of the engine at a particular time can be attained which substantially meets the ideal parameters for such damping.

IPC 1-7  
**F02M 61/08**; **F02M 61/16**

IPC 8 full level  
**F02M 61/08** (2006.01); **F02M 61/10** (2006.01); **F02M 61/16** (2006.01); **F02M 61/20** (2006.01)

CPC (source: EP US)  
**F02M 61/08** (2013.01 - EP US); **F02M 61/205** (2013.01 - EP US)

Cited by  
EP0153494A1; US9879645B2; WO2017142777A1

Designated contracting state (EPC)  
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**EP 0096312 A1 19831221**; **EP 0096312 B1 19901219**; DE 3221442 A1 19831208; DE 3382065 D1 19910131; JP H0429873 B2 19920520; JP S593165 A 19840109; US 4747545 A 19880531

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**EP 83105257 A 19830527**; DE 3221442 A 19820607; DE 3382065 T 19830527; JP 10035583 A 19830607; US 42995582 A 19820930