

Title (en)  
FUEL INJECTOR VALVE FOR COMBUSTION ENGINES

Publication  
**EP 0045530 B1 19840905 (DE)**

Application  
**EP 81200371 A 19810403**

Priority  
DE 3029721 A 19800806

Abstract (en)  
[origin: US4398670A] To provide for electrical insulation between a movable valve element sealing the nozzle opening (28) of a fuel injection valve, the valve body (10, 11, 12, 13) is formed of a metal and shaped to be secured to the engine block of an internal combustion engine, and the needle valve element (15, 18) has a valve seat (17) fitting against a matching sealing surface (16) in the valve body, the valve pin element being electrically insulated from the valve body, while retained therein in reciprocable sliding connection on a guide surface by placing an aluminum sleeve or jacket around the pin and forming a coating of aluminum oxide by anodic oxidation on the outside of the aluminum sleeve to, simultaneously, provide for a wear-resistant and insulating surface capable of maintaining the valve pin in slidable, reciprocating position within the valve body while providing for electrical insulation with respect thereto, the valve pin being electrically connected to an external terminal (50, 52) to permit obtaining an electrical signal between the engine block and the terminal indicative of whether the valve elements (16, 17) controlling fuel flow through the nozzle (28) are closed or open, the valve seat elements (16, 17) themselves forming a severable electrical connection between the valve pin (15, 18) and the body due to the insulation of the valve pin by the aluminum oxide layer.

IPC 1-7  
**F02M 51/00**; **F02M 61/00**

IPC 8 full level  
**F02M 51/00** (2006.01); **F02M 61/00** (2006.01); **F02M 65/00** (2006.01)

CPC (source: EP US)  
**F02M 65/005** (2013.01 - EP US)

Cited by  
GB2125894A; FR2526483A1; GB2153907A; GB2154658A; US6155499A; WO9205363A1; WO9807980A1; EP0116168B1

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