

Title (en)
Device for fuel injection for an internal-combustion engine.

Title (de)
Vorrichtung zur Brennstoffeinspritzung in einen Verbrennungsmotor.

Title (fr)
Dispositif d'injection de carburant pour moteur à combustion interne.

Publication
EP 0056916 A1 19820804 (FR)

Application
EP 81401902 A 19811201

Priority
FR 8100679 A 19810115

Abstract (en)
1. A fuel injection arrangement for an internal combustion engine comprising : an injection chamber (5) which is closed by a needle subjected to the force of a closure spring and the pressure in a discharge chamber (9) ; a control system (12) having two differential pistons which are fixed with respect to each other and comprising : - a delivery piston (13) delimiting a metering chamber (14) communicating with the injection chamber (5) and supplied with fuel at an intermediate feed pressure ; - a control piston (16) which is larger in section than the delivery piston (13), delimiting a control chamber (17) which can be subjected to a high control pressure by means of a three-way electrically operated valve system ; and - control means for discharging the discharge chamber (9) when the metered amount of fuel has been subjected to the injection pressure by the action of the high control pressure on the control piston (16) ; the dimensions of said discharge chamber (9) and the characteristics of the injector (1) being such that prior to injection the needle (2) remains in the closure position, when the injection chamber (5) is at the injection pressure obtaining in the metering chamber (14), the high control pressure being applied to the control piston (16) and the discharge chamber (9) being subjected to the control pressure ; the section (Sd) of the discharge chamber (9) where the control pressure occurs and the closure spring (10) of the injector being such that the forces which result therefrom tending to hold the needle in the closure position are greater than the force tending to open the needle and resulting from the action of the injection pressure in the metering chamber (14), the arrangement being characterised in that the control means for discharging the discharge chamber (9) comprise a sliding spool-type distributor (51) which is pilot-controlled by the high control pressure and by the pressure obtaining in the metering chamber (14) and that the spool of the distributor (51) is subjected on the one hand to the action of the high control pressure obtaining in a first pilot-control chamber (58) and on the other hand to the action of the pressure obtaining in a second pilot-control chamber (59), the second chamber communicating with a lower passage (66) opening into the metering chamber (14) and being capable of being closed by the delivery piston (13) and with an upper passage (67) communicating with the low pressure of the tank and being capable of being closed by the delivery piston (13), one of the said two passages being opened irrespective of the position of the delivery piston (13).

Abstract (fr)
Le dispositif comprend un système de commande à deux pistons différentiels solidaires (12) et une électrovanne à trois voies (43) pour décharger la chambre de décharge (9) lorsque la quantité de carburant dosé dans la chambre (14) a été soumise à la pression d'injection par une action d'amplification due à la haute pression de commande dans la chambre de commande (17) agissant sur le piston de commande (16). On obtient ainsi une injection de carburant notamment pour les moteurs Diesel de véhicule automobile avec prédosage, accumulation et amplification de pression.

IPC 1-7
F02M 47/02

IPC 8 full level
F02M 47/02 (2006.01); **F02M 59/10** (2006.01)

CPC (source: EP)
F02M 47/025 (2013.01); **F02M 59/105** (2013.01)

Citation (search report)
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