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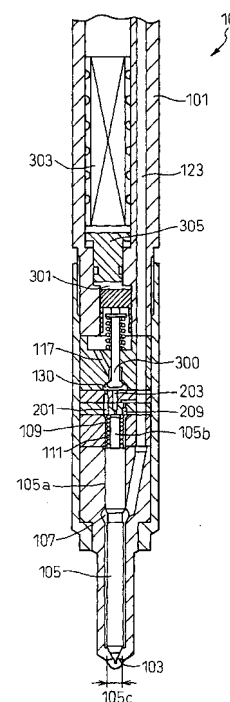
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(54) **A fuel injection valve**

(57) A fuel injection valve (10) is provided with a valve needle (105) which is urged by the pressure of fuel in a control chamber (109) to a closed position where the valve needle (105) closes the fuel injection hole (103). A supply passage (209) with a throttled portion connects a high pressure fuel passage (123) to the control chamber (109). The control chamber (109) is connected to a leak chamber (130) by two return passages (201,203). The leak chamber (130) has a leak passage (117) for spilling fuel in the leak chamber (130) to the outside of the fuel injection valve (10). A control valve (300) is provided in the leak chamber (130). The control valve (300) is capable of taking any of a closed position where the leak passage (117) is closed, a medium lift position where the leak passage (117) and two return passages (201,203) are opened, and a full lift position where the leak passage (117) and only one return passage (201) are opened. In the closing position of the control valve (300), the pressure in the control chamber (109) is high and the valve needle (105) is kept at the closing position. In the medium lift position and the full lift position, fuel in the control chamber (109) is spilled through the leak passage (117) via return passages (201,203) and the leak chamber (130). This causes the valve needle (105) to move to the position where the fuel injection hole (103) is opened. However, at the full lift position, since only one return passage (201) is opened, the rate of the pressure drop in the control chamber (109) is smaller and the speed of the lift of the

valve needle (105) is lower. Therefore, the fuel injection characteristics can be changed by switching the position of the control valve (300) between the medium lift position and the full lift position during fuel injection.

Fig.2





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Place of search THE HAGUE		Date of completion of the search 16 September 2003	Examiner Nobre, S
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