Title (en)

System for increasing the temperature of an air/fuel mixture delivered to an internal combustion engine.

Title (de)

Vorrichtung zur Temperaturerhöhung des einem Verbrennungsmotor gelieferten Luft/Brennstoff-Gemisches.

Title (fr)

Système pour augmenter la température du mélange air/carburant alimentant un moteur à combustion interne.

Publication

EP 0012533 A1 19800625 (EN)

Application

EP 79302663 A 19791122

Priority

GB 7845787 A 19781123

Abstract (en)

A system for utilising heat in the exhaust gas of an internal combustion engine to assist in vapourising the fuel in the air/fuel mixture supplied to the engine. To avoid the problems of overheating and cracking the fuel at large engine loads, the heating is effected by means of a connecting passage (30, 21) through which exhaust gas can be ingested into the intake passage (4). To control the exhaust gas ingestion rate at small loads, a restricted portion (19) can be provided in the connecting passage, in which the exhaust gas reaches sonic velocity, at small throttle openings. A heat exchanger (23) can be provided through which the exhaust gas gives up some of its heat to the air/fuel mixture prior to the ingestion therein. The homogeneity of the air/fuel mixture can be enhanced by the provision of obstructions in various configurations extending across the intake passage. Such obstructions are preferably heated to inhibit formation of pools of liquid fuel thereon. Control means (33) can be provided for controlling the flow of the exhaust gas through the connecting passage at higher engine loads or when the engine is fully warme up. Such control means can include pressure and temperature sensors (39 and 42) for effecting closure of the connecting passage where the intake manifold vacuum is less than a predetermined value and/or when the intake manifold temperature reaches a predetermines value.

IPC 1-7

F02M 25/06

IPC 8 full level

F02M 31/08 (2006.01); **F02M 25/07** (2006.01); **F28D 7/00** (2006.01)

CPC (source: EP)

F02M 26/19 (2016.02); **F02M 26/27** (2016.02); **F28D 7/0058** (2013.01); F02M 26/21 (2016.02)

Citation (search report)

- FR 956504 A 19500202
- US 3982395 A 19760928 - HASEGAWA KOHICHI, et al
- US 3237615 A 19660301 - DAIGH HAROLD D
- US 3866585 A 19750218 - KOPA RICHARD D
- DE 2343185 A1 19750306 - SCHLADITZ HUTZENLAUB GBR
- DE 2636139 A1 19770310 - NISSAN MOTOR
- FR 2258535 A1 19750818 - AUGUST PAUL [ES]
- US 1698099 A 19290108 - GEORGE KINGSTON
- US 3717130 A 19730220 - THORNBURGH W
- US 3648672 A 19720314 - MUROKI TAKUMI, et al
- FR 2318319 A1 19770211 - SECRETARY INDUSTRY BRIT [GB]
- DE 463919 C 19280806 - WILLIAM PHILLIPS DEPPE

Cited by

CN102155338A; DE19930416B4; DE102013215420A1; WO9945263A1

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DOCDB simple family (application)

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