

Title (en)

APPARATUS FOR CONTROLLING INTAKE AIR FLOW RATE IN INTERNAL COMBUSTION ENGINE

Publication

EP 0290980 A3 19891108 (EN)

Application

EP 88107348 A 19880506

Priority

- JP 11288787 A 19870509
- JP 19948987 A 19870809

Abstract (en)

[origin: EP0290980A2] An apparatus for controlling intake air flow rate in an internal combustion engine comprises a throttle valve (2) disposed in intake air passage (32) for swing movement to change a flow rate of air to be supplied to combustion chambers (33) of the engine, a stopper portion (13, 14) to which the throttle valve is abutted so as to stop swinging thereof in a full closed position thereof, a spring (15) for continually urging the throttle valve towards the full closed position, a control unit (5) for determining a desired opening degree of the throttle valve in accordance with requirements on the engine, an actuator (4) for generating a driving force for swinging the throttle valve to the desired opening degree in accordance with command signals from the control unit, and geared mechanism (1) for transmitting the driving force from the actuator to the throttle valve. The geared mechanism includes a pair of gears (11, 12), each having a gear tooth portion. The gears are able to engage with each other exclusively at such gear tooth portions. The gear tooth portion so extends that both of the gear tooth portions mesh with each other between full closed position and full open position of the throttle valve, and they are pushed out of mesh with each other on full open position of the throttle valve.

IPC 1-7

F02D 11/10

IPC 8 full level

F02D 9/02 (2006.01)

CPC (source: EP)

F02D 9/02 (2013.01); **F02D 2009/0261** (2013.01); **F02D 2009/0277** (2013.01)

Citation (search report)

- [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 63 (M-365)[1786], 20th March 1985; & JP-A-59 196 936 (HITACHI SEISAKUSHO K.K.) 08-11-1984
- [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 103 (M-377)[1826], 8th May 1985; & JP-A-59 226 244 (NISSAN JIDOSHA K.K.) 19-12-1984
- [AD] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 55 (M-362)[1778], 9th March 1985; & JP-A-59 190 440 (NISSAN JIDOSHA K.K.) 29-10-1984

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EP1371830A4; FR2670243A1; US7219653B2; US6974119B2; WO03029632A1; EP1331380A2

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