

12

EUROPEAN PATENT APPLICATION

21 Application number: **86109374.8**

51 Int. Cl.³: **F 02 M 17/16**
F 02 D 41/00, F 02 M 7/08
F 02 M 69/06, F 02 M 71/00

22 Date of filing: **09.07.86**

30 Priority: **17.07.85 EP 85108945**

43 Date of publication of application:
21.01.87 Bulletin 87/4

88 Date of deferred publication of search report: **22.03.89**

84 Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

71 Applicant: **Kwik Europe London Limited**
26, Wilfred Street Buckingham Gate
London SW1E 6PL(GB)

72 Inventor: **Diener, Rudolf**
Seefeldstrasse 253
CH-8008 Zürich(CH)

74 Representative: **Scheidegger, Zwicky, Werner & Co.**
Stampfenbachstrasse 48 Postfach
CH-8023 Zürich(CH)

54 **Fuel-air ratio correcting apparatus for a rotor-type carburetor for internal combustion engines.**

57 A rotor assembly is driven by an airstream which by a centrifugal pump forces a measured quantity of fuel through a fixed orifice in direct, and substantially linear proportion to the speed of rotation of the rotor and thus to the volume of the driving airstream. The ultimate fuel-air ratio (λ value) is corrected for optimum operation by slightly changing, in response to measure parameters, one of the constituents of the mixture.

In one embodiment, the fuel discharge bore (9) of a rotor (7) is so dimensioned that the rotor-type carburetor (2) produces a lean mixture with a λ -value which is constant for all operating points of the internal combustion engine at a value of approximately 1.25.

With the fuel-air ratio correction apparatus additional amounts of fuel are brought into the atomization ring (11) of the rotor (7), with which additional amounts the fuel-air ratio in the lean mixture is changed and at the operating points of the internal combustion engine the λ -values are adjusted to those most favorable with regard to fuel consumption, output and pollutant-free exhaust gases.

The fuel-air ratio correction apparatus includes a regulated fuel injection pump (20) with an injection nozzle (39a) directed at the internal wall (13) of the atomization ring (11) from which pump at each pump stroke approximately 50 mm³ of fuel are delivered, and a regulating device (50) with a pulse generator (40) for driving the fuel injection pump (20) with

current pulses of regulated pulse repetition frequency. The regulation of the pulse repetition frequency takes place by means of control signal generators (51, 52, 53, 54, 55) in dependence on operating parameters of the internal combustion engine such as in particular the opening of the throttle valve (18) for the correction of acceleration, the coolant temperature for the cold start fuel-air ratio correction and so on.

This simple and reliable fuel-air ratio correction apparatus assures a very accurate fuel dosing.

In other embodiments, the volume of air is reduced to enrich the fuel-air ratio, and in another, the velocity of the same volume of air is increased to enrich the fuel-air ratio.

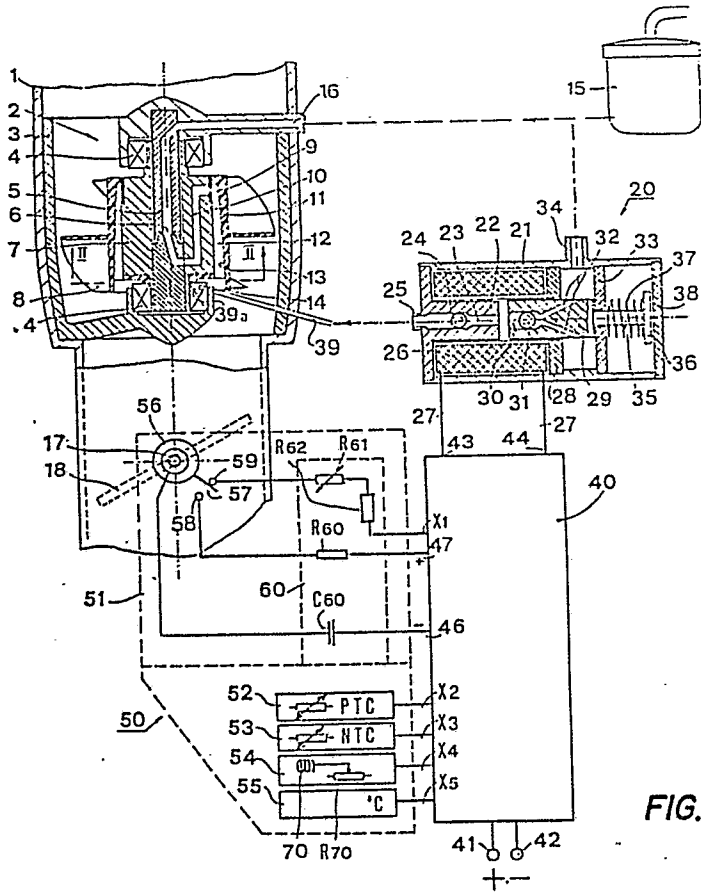


FIG. 1



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.3)
Y	US-A-2 759 718 (GIDEON) * column 2, line 58 - column 4, line 67; figures 1-10 * ---	1,2,4-7	F 02 M 17/16 F 02 D 41/00 F 02 M 7/08
Y	GB-A-1 473 952 (AUTOELEKTRONIK) * page 5, line 22 - page 6, line 59; page 8, lines 9-60; figures 1,5 * ---	1,2,4-7	F 02 M 69/06 F 02 M 71/00
Y	PATENT ABSTRACTS OF JAPAN volume 1, no. 5 (M-76) (573), 11th March 1977; & JP - A - 51 119 426 (STANLEY DENKI) 20-10-1976 ---	1,3,8	
Y,D	WO-A-8 500 412 (AUTOELEKTRONIK) * page 2, line 36 - page 7, line 4; figure 1 * ---	1,3,8	
A	US-A-4 057 604 (ROLLINS) * column 3, line 14 - column 5, line 41; figures 1-6 * ---	1,3,8	
A,D	US-A-2 823 906 (GIDEON) * column 1, lines 15-48; column 4, line 35 - column 5, line 18; figures 1-7 * ---	1,2,4-7	TECHNICAL FIELDS SEARCHED (Int. Cl.3) F 02 M 17/00 F 02 M 69/00
A	GB-A-2 093 910 (TSENTRALNY NAUCHNO-ISSLEDOVATELSKY I KONSTRUKTORSKY INSTITUT TOPLIVNOI) * page 1, line 101 - page 2, line 113; figures 1,2 * ---	1,2	
A	EP-A-0 115 447 (S.I.B.E.) * page 5, line 18 - page 10, line 9; figure 1 * --- -/-	1,8	
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 02-12-1988	Examiner NORDSTROEM U.L.N.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.3)
A	FR-A-2 519 086 (S.I.B.E.) * page 7, line 9 - page 9, line 34; figure 1 * -----	1,8	
			TECHNICAL FIELDS SEARCHED (Int. Cl.3)
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 02-12-1988	Examiner NORDSTROEM U. L. N.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			