

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 065 356 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
28.03.2001 Bulletin 2001/13

(51) Int. Cl.⁷: **F01M 13/02**, F02M 25/06,
F02B 39/00

(43) Date of publication A2:
03.01.2001 Bulletin 2001/01

(21) Application number: **00111188.9**

(22) Date of filing: **24.05.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **24.05.1999 JP 14267499**

(71) Applicant:
YAMAHA HATSUDOKI KABUSHIKI KAISHA
Iwata-shi Shizuoka-ken (JP)

(72) Inventors:
• **Yoshikatsu, Iida**
Iwata-Shi, Shizuoka-ken (JP)
• **Yasunobu, Fujiwara**
Iwata-Shi, Shizuoka-ken (JP)

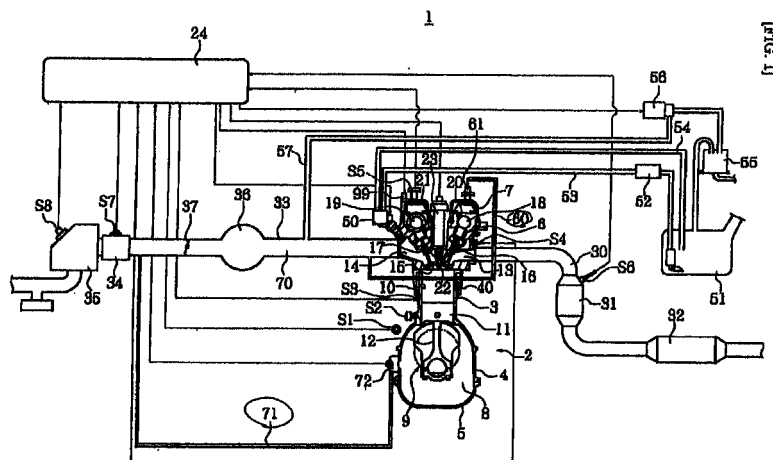
(74) Representative:
Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
80538 München (DE)

(54) Four-stroke cycle engine

(57) A four-stroke cycle engine (1) having an intake passage (14) and an exhaust passage (30) both opening to a combustion chamber (15), and having an intake valve (17) for opening and closing the intake passage (14) and an exhaust valve (16) for opening and closing the exhaust passage (30), with blowby leaking from the combustion chamber (15) into a crank chamber (8) returned to the intake passage (14) through a circulation

passage (60) and with the circulation passage (60).

A fresh air intake passage (71) is provided to make fluid communication between part of the intake passage (14) on the upstream side of a throttle valve (37) and the crank chamber (8), with the fresh air intake passage (71) provided with a fresh air inflow valve (72).



EP 1 065 356 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 1188

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.7)
X	US 2 252 974 A (LOWTHER W W) 19 August 1941 (1941-08-19) * page 3, left-hand column, line 49 - right-hand column, line 61 * * figure 1', reference numbers 26',30'.46 *	1,3	F01M13/02 F02M25/06 F02B39/00
A	---	2,4-11	
X	DE 19 16 788 A (NISSAN MOTOR CO LTD) 9 April 1970 (1970-04-09) * page 2, line 20 - page 3, line 24; figures 2,6,11-13 *	1,3	
A	---	2,4-11	
A	GB 661 649 A (COOK C A) 21 November 1951 (1951-11-21) * page 1, line 16 - line 58; figure *	1-11	
A	DE 20 06 233 A (FORD-WERKE AG) 3 September 1970 (1970-09-03) * page 2, line 22 - page 3, line 5; figure * -----	1-11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F01M F02M F02B
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 5 December 2000	Examiner Fietz
<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>			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 1188

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-12-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2252974 A	19-08-1941	NONE	
DE 1916788 A	09-04-1970	FR 2013078 A	27-03-1970
		GB 1258511 A	30-12-1971
		NL 6905648 A	20-01-1970
		US 3589347 A	29-06-1971
GB 661649 A		NONE	
DE 2006233 A	03-09-1970	NONE	