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(54) **V-type internal combustion engine for motorcycle**

(57) Object: To provide a V-type internal combustion engine for a motorcycle, which is intended to realize a reasonable arrangement of a lubricating oil pump and a cooling water pump for making the rear portion of a crank case compact while suppressing enlargement of the entire engine, and sufficiently ensuring a gap between the rear portion of the crank case and a rear exhaust pipe thereby reducing the adverse effect of radiation heat produced by the exhaust pipe exerted on the crank case.

Solving Means: A lubricating oil pump 57 for supplying oil to portions to be lubricated of a front bank 4₁ and a rear bank 4₂, and a cooling water pump 62 for supplying cooling water to water jackets 24₁ and 24₂ of the front and rear banks 4₁ and 4₂ are disposed in front of and over a crank shaft 15, to thereby make a rear portion of a crank case 21 compact and to sufficiently ensure a gap between the rear portion of the crank case and a rear exhaust pipe.

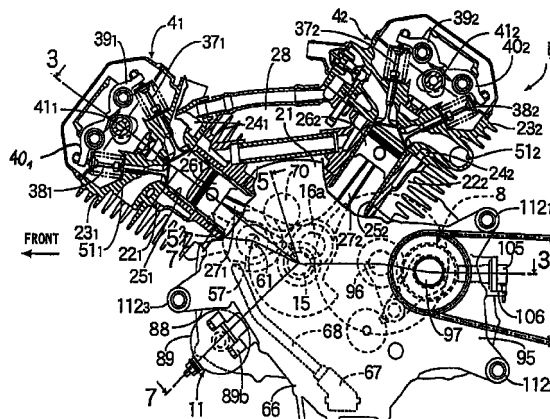


FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 99 11 6636

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (InLCI.7)
A	US 4 903 483 A (ATSUUMI MAMORU ET AL) 27 February 1990 (1990-02-27) * column 2, line 50 - column 5, line 34; figures *	1,3,5	F02B75/22 F02B61/02 F02B67/04
A	US 4 497 293 A (TAKAGI MASATOSHI ET AL) 5 February 1985 (1985-02-05) * column 3, line 20 - column 4, line 59; figures 6-9 *	1	
A	US 4 427 088 A (TSUBOI MASA HARU) 24 January 1984 (1984-01-24)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F02B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		24 October 2000	von Arx, H
CATEGORY OF CITED DOCUMENTS 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 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			

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

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The members are as contained in the European Patent Office EDP file on
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24-10-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4903483 A	27-02-1990	JP 1211618 A	24-08-1989
		JP 1211623 A	24-08-1989
		JP 2654957 B	17-09-1997
US 4497293 A	05-02-1985	JP 58093910 A	03-06-1983
US 4427088 A	24-01-1984	FR 2504192 A	22-10-1982