



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
15.12.1999 Bulletin 1999/50

(51) Int Cl.6: **F02P 1/08, F02P 15/12**

(43) Date of publication A2:
10.12.1997 Bulletin 1997/50

(21) Application number: **97630031.9**

(22) Date of filing: **03.06.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

(72) Inventors:
• **Nozue, Yutaka**
Nitta-gun, Gunma-ken (JP)
• **Yanase, Atsushi**
Sawa-gun, Gunma-ken (JP)

(30) Priority: **05.06.1996 JP 16530396**

(71) Applicant: **Mitsuba Corporation Co., Ltd.**
Kiryu-shi, Gunma-ken (JP)

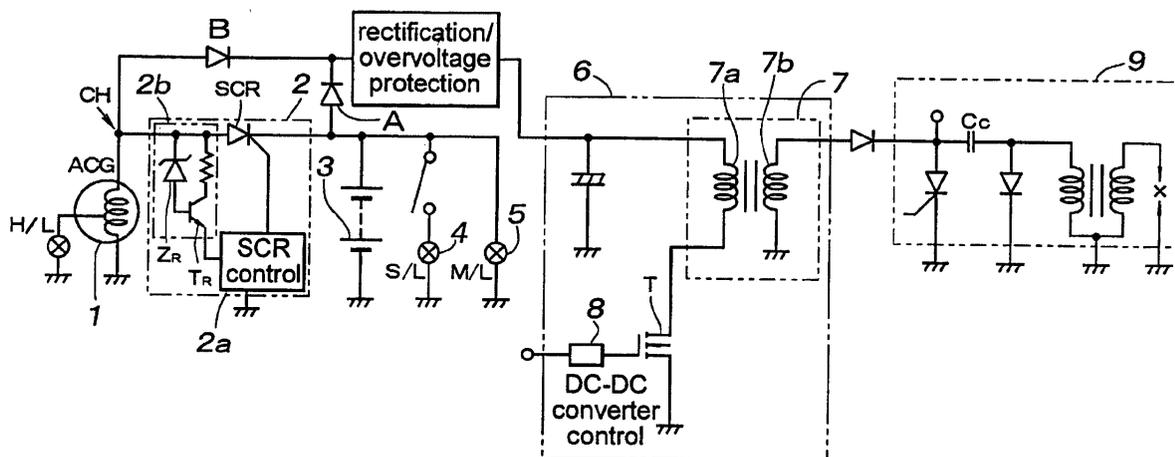
(74) Representative: **Waxweiler, Jean et al**
Dennemeyer & Associates S.A.,
P.O. Box 1502
1015 Luxembourg (LU)

(54) **Ignition system with generator voltage distribution control**

(57) In an ignition system for an internal combustion engine of a motorcycle comprising an electric generator (1); an ignition circuit (6,9) connected to the electric generator for producing a spark voltage for a spark plug; a battery (3) having an end connected to the electric generator (1) via switching means (2), and another end connected to the ground; and an electrical load (4,5) connected in parallel with the battery, the switching means includes a voltage detector (2b) for detecting an output voltage of the electric generator (1), and a switching element (2a) for disconnecting the battery (3) and the

electrical load (4,5) from the electric generator (1) when the output voltage detected by the voltage detector (2b) is below a prescribed value. Because the electrical load (4,5) and the battery (3) are disconnected from the generator (1) when the output voltage of the generator (1) is below a prescribed value, the output voltage can go up to the prescribed value or higher which is sufficient for the ignition circuit (6,9) to properly operate so as to produce a spark voltage for a spark plug, with the result that the internal combustion engine can be easily started by operating a kickstarter of the motorcycle.

Fig. 3





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 63 0031

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.6)
X	EP 0 684 381 A (DUCATI ENERGIA SPA) 29 November 1995 (1995-11-29) * column 4, line 24 - column 5, line 1 * * column 8, line 44 - column 9, line 4 * * column 9, line 33 - column 11, line 2 * * figures 3,5-9 *	1-3,5,6	F02P1/08 F02P15/12
A	EP 0 642 892 A (ILLINOIS TOOL WORKS) 15 March 1995 (1995-03-15) * column 2, line 23 - column 3, line 6 * * column 4, line 23 - line 51 * * figures *	1,3,4	
A	PATENT ABSTRACTS OF JAPAN vol. 016, no. 480 (M-1321), 6 October 1992 (1992-10-06) & JP 04 175466 A (KOKUSAN DENKI CO LTD), 23 June 1992 (1992-06-23) * abstract *	1,3,4,6, 7	
A	PATENT ABSTRACTS OF JAPAN vol. 009, no. 042 (M-359), 22 February 1985 (1985-02-22) & JP 59 183078 A (NISSAN JIDOSHA KK), 18 October 1984 (1984-10-18) * abstract *	1,3	TECHNICAL FIELDS SEARCHED (Int.Cl.6) F02P G01P
A	US 4 687 991 A (KRUNCOS FRANCIS E) 18 August 1987 (1987-08-18) * figure * * column 1, line 30 - line 39 * * column 2, line 45 - column 3, line 55 *	1,6	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14 October 1999	Examiner Lapeyronnie, P
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	

EPO FORM 1503 03.82 (P04C01)

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

EP 97 63 0031

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.

14-10-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0684381 A	29-11-1995	IT 1270142 B	29-04-1997
		US 5630404 A	20-05-1997
		CN 1119702 A	03-04-1996
		JP 8066096 A	08-03-1997
EP 0642892 A	15-03-1995	US 5415136 A	16-05-1995
		AU 663827 B	19-10-1995
		AU 6887394 A	23-03-1995
		BR 9402776 A	04-04-1995
		CA 2129587 A,C	01-03-1995
		DE 69418402 D	17-06-1999
		DE 69418402 T	07-10-1999
		JP 7156076 A	20-06-1995
		KR 9711037 B	05-07-1997
		NZ 264323 A	24-10-1997
		ZA 9406054 A	16-03-1995
JP 04175466 A	23-06-1992	JP 2653240 B	17-09-1997
JP 59183078 A	18-10-1984	NONE	
US 4687991 A	18-08-1987	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82