



(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
29.03.2006 Bulletin 2006/13

(51) Int Cl.:
F02F 1/38 (2006.01) F02F 7/00 (2006.01)
F01L 1/053 (2006.01)

(43) Date of publication A2:
15.09.2004 Bulletin 2004/38

(21) Application number: 04005616.0

(22) Date of filing: 09.03.2004

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

- Sakono, Takashi
Aki-gun
Hiroshima 730-8670 (JP)
- Abe, Ryoji
Aki-gun
Hiroshima 730-8670 (JP)

(30) Priority: 10.03.2003 JP 2003062891

(71) Applicant: Mazda Motor Corporation
Aki-gun,
Hiroshima 730-8670 (JP)

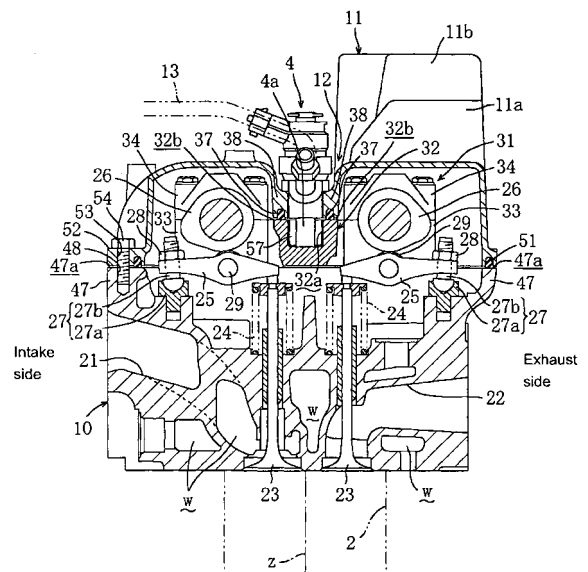
(74) Representative: Müller-Boré & Partner
Patentanwälte
Grafinger Strasse 2
81671 München (DE)

(72) Inventors:
• Iso, Naohide
Aki-gun
Hiroshima 730-8670 (JP)

(54) Cylinder head structure of a direct-injection diesel engine and a direct injection diesel engine

(57) A cam holder 31, constructed separately from a cylinder head 10, for supporting an intake and exhaust camshaft 26 is mounted on a middle deck of the cylinder head 10. At end pivots 27 of each swing arm 25 located at both the right and left ends when viewed from the front of the engine, mechanical lash adjuster mechanisms are provided, respectively. The height of a peripheral wall at both the right and left sides adjacent to the end pivots 27 is located lower than a mating surface between a cam journal 33 and a cam cal 34 of the cam holder 31.

FIG. 3





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D, Y	EP 1 094 213 A (HYUNDAI MOTOR COMPANY) 25 April 2001 (2001-04-25) * the whole document *	1-10	F02F1/38 F02F7/00 F01L1/053
Y	EP 0 967 370 A (YAMAHA HATSUDOKI KABUSHIKI KAISHA) 29 December 1999 (1999-12-29) * figures 1,2,7,8 *	1-10	
Y	US 5 207 197 A (KLINGMANN ET AL) 4 May 1993 (1993-05-04) * figure 2 *	1-10	
Y	US 2002/046744 A1 (SUGANAMI TOMOJI ET AL) 25 April 2002 (2002-04-25) * figure 2 *	1-10	
Y	EP 1 134 402 A (MAZDA MOTOR CORPORATION) 19 September 2001 (2001-09-19) * figure 4 *	1-10	
A	US 5 711 266 A (ASTNER ET AL) 27 January 1998 (1998-01-27) * figure 3 *	1-10	TECHNICAL FIELDS SEARCHED (IPC) F01L F02F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 February 2006	Examiner Yates, J
<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>			

2
EPO FORM 1503 03.82 (P04C01)

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

EP 04 00 5616

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.

03-02-2006

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1094213	A	25-04-2001	JP 2001115891 A	24-04-2001
			KR 2001037508 A	07-05-2001
			US 6408808 B1	25-06-2002

EP 0967370	A	29-12-1999	DE 69924432 D1	04-05-2005
			DE 69924432 T2	18-08-2005
			US 2001003281 A1	14-06-2001

US 5207197	A	04-05-1993	DE 4116944 C1	02-07-1992
			EP 0514643 A1	25-11-1992
			JP 2597935 B2	09-04-1997
			JP 5195865 A	03-08-1993

US 2002046744	A1	25-04-2002	NONE	

EP 1134402	A	19-09-2001	JP 2001329907 A	30-11-2001
			US 2001035142 A1	01-11-2001

US 5711266	A	27-01-1998	DE 19548088 C1	17-07-1997
			EP 0780560 A1	25-06-1997
			KR 237252 B1	15-01-2000
