(11) **EP 1 101 922 A3** 

(12)

## **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: **02.05.2002 Bulletin 2002/18** 

(51) Int Cl.<sup>7</sup>: **F02F 1/38**, F02F 1/42

(43) Date of publication A2: 23.05.2001 Bulletin 2001/21

(21) Application number: 00123126.5

(22) Date of filing: 25.10.2000

(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: 22.11.1999 JP 33114099

(71) Applicant: Kabushiki Kaisha Toyota Jidoshokki Kariya-shi, Aichi-ken (JP)

(72) Inventor: Asano, Tetsuo
2 chome, Kariya-shi, Aichi-ken (JP)

(74) Representative:

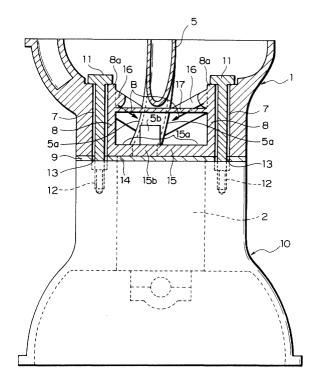
Leson, Thomas Johannes Alois, Dipl.-Ing. et al Patentanwälte Tiedtke-Bühling-Kinne & Partner, Bavariaring 4 80336 München (DE)

## (54) Cylinder head for use in an internal combustion engine

(57) In a cylinder head 1 has boss portions 8 for head bolts 11 which are formed inside of both sides of the cylinder head 1, and a discharge/intake port 5 which extends from an intermediate portion 15a of a lower-sur-

face deck 15 that is in contact with a gasket 9. In this cylinder head 1, ribs 16 are connected and supported from an upper portion 8a of the boss portions 8 toward a lower portion 5a of the intake port 5.

FIG. I



EP 1 101 922 A3



## **EUROPEAN SEARCH REPORT**

Application Number

EP 00 12 3126

Category	Citation of document with indication	n, where appropriate,	Relevant	CLASSIFICATION OF THE		
Jalegory	of relevant passages		to claim	APPLICATION (Int.CI.7)		
A	EP 0 233 555 A (BAYERISO AG) 26 August 1987 (1987 * figure 5 * * abstract *		1	F02F1/38 F02F1/42		
A	US 4 497 289 A (BORTOLUS 5 February 1985 (1985-02 * figures 1,2 * * abstract *		1-3			
A	US 4 430 968 A (FUTAKUCH 14 February 1984 (1984-0 * figure 1 * * abstract *		1-3			
A	US 5 957 104 A (OHSAWA H 28 September 1999 (1999- * figures 2,3 * * column 5, line 1 - lin * abstract *	-09-28)	1			
A	US 5 983 856 A (YOSHIKAW 16 November 1999 (1999-1 * figure 1 * * abstract *		1	TECHNICAL FIELDS SEARCHED (Int.CI.7) F02F		
	The present search report has been dra	,				
	Place of search	Date of completion of the search	112.	Examiner		
THE HAGUE  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		E : earliér patent do after the filing da D : document cited i	arch 2002 Wassenaar, G  T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filling date D: document cited in the application L: document cited for other reasons			
		***************************************	& : member of the same patent family, corresponding document			

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

EP 00 12 3126

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.

13-03-2002

Patent document cited in search report		Publication date		Patent family member(s)		Publication date	
EP	0233555	Α	26-08-1987	DE	3603582	C1	05-03-1987
				ΕP	0233555	A2	26-08-1987
				ES	2028799	T3	16-07-1992
US	4497289	Α	05-02-1985	FR	2528511	A1	16-12-1983
				DΕ	3360670	D1	03-10-1985
				EP	0098180	A1	11-01-1984
US	4430968	A	14-02-1984	JP	1592061	С	14-12-1990
				JP	57163141	Α	07-10-1982
				JP	63040269	В	10-08-1988
				DE	3271626	D1	17-07-1986
				DE	61778	T1	03-03-1983
				EP	0061778	A1	06-10-1982
				US	RE32582	E	26-01-1988
US	5957104	A	28-09-1999	JP	10331709	Α	15-12-1998
us Us	5983856	A	16-11-1999	JP	3027926	B2	04-04-2000
				JP	8312449	Α	26-11-1996
				JP	3030413	B2	10-04-2000
				JP	9079040	Α	25-03-1997
				DE	19619782	A1	21-11-1996
				KR	233933	B1	15-12-1999
				SE		C2	05-07-1999
				SE	9601857	Α	16-11-1996
				US	5913554		22-06-1999
				US	5836284	Α	17-11-1998

FORM P0459

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