

(43) International Publication Date
10 October 2013 (10.10.2013)

(51) International Patent Classification:

F02B 29/04 (2006.01) *F01P 3/02* (2006.01)
F02M 35/10 (2006.01) *F02F 1/14* (2006.01)

(21) International Application Number:

PCT/EP2013/000996

(22) International Filing Date:

3 April 2013 (03.04.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12163 337.4 5 April 2012 (05.04.2012) EP

(71) Applicant: **CATERPILLAR MOTOREN GMBH & CO. KG** [DE/DE]; Falckensteiner Strasse 2, 24159 Kiel (DE).

(72) Inventors: **BAKINDI, Bilal**; c/o Caterpillar Motoren GmbH & Co. KG, Falckensteiner Strasse 2, 24159 Kiel (DE). **REBELEIN, Werner**; Friedrichsorter Str. 12, 24159 Kiel (DE). **RICKERT, Carsten**; Bellmannstrasse 2, 24114 Kiel (DE). **SEIDEL, Frank**; Stralsunder Weg 24, 24161 Altenholz (DE).

(74) Agent: **KRAMER - BARSKE - SCHMIDTCHEN**; Landsberger Strasse 300, 80687 Munich (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

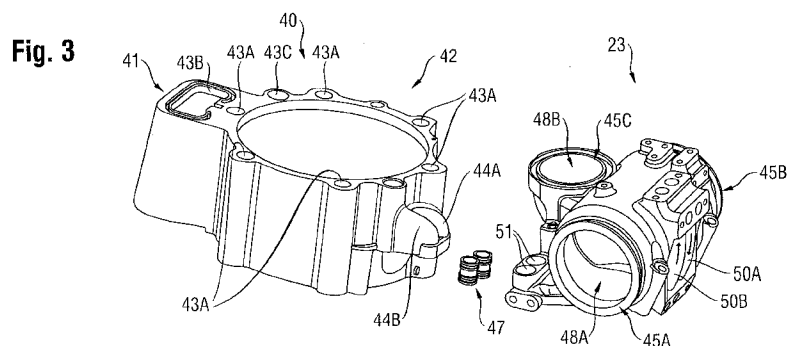
Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

13 March 2014

(54) Title: CHARGE AIR GUIDE ELEMENT FOR INTERNAL COMBUSTION ENGINE



(57) Abstract: A charge air guide element (23) and a water ring element (40) for an internal combustion engine are configured to supply cooling water to the water ring element (40) via the charge air guide element (23). Specifically, a cooling water channel system (50A, 50B) may be integrated into a wall structure of the charge air guide element (23) and comprise at least one opening at the cylinder unit side of the charge air guide element (23), which opens towards the top side of the charge air guide element (23), and at least one opening at an access side of the charge air guide element (23), the access side being opposite to the cylinder unit side. Moreover, a specific arrangement of screw guiding holes (64A, 64B) at the charge air guide element (23) may allow using the charge air guide element (23) for internal combustion engines in in-line configuration and in V-configuration.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/000996

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-9, 15(completely); 14, 17, 18(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/000996

A. CLASSIFICATION OF SUBJECT MATTER INV. F02B29/04 F02M35/10 F01P3/02 F02F1/14 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) F02B F02M F01P F02F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 43 06 137 C1 (MAK MASCHINENBAU KRUPP [DE]) 31 March 1994 (1994-03-31) the whole document	1-7,14, 15
Y	----- US 2002/043234 A1 (HOMI NOBUYUKI [JP]) 18 April 2002 (2002-04-18) paragraph [0054] - paragraph [0060]; figure 8	1,2,7, 14,15
Y	----- EP 1 329 610 A2 (WAERTSILAE TECH OY AB [FI] WAERTSILAE FINLAND OY [FI]) 23 July 2003 (2003-07-23)	1,2,7, 14,15
A	paragraph [0012] - paragraph [0014]; figure 1 ----- -/-	3-6,8,9, 17,18
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
15 October 2013		21/01/2014
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Martinez Cebollada

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/000996

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2008/104402 A1 (BEHR GMBH & CO KG [DE]; WEGNER JUERGEN [DE]; HUSTER JOACHIM [DE]) 4 September 2008 (2008-09-04) page 28, line 5 - page 29, line 10; figure 9 -----	1-7,14, 15,17,18
A	US 2009/126670 A1 (KADO HIROYUKI [JP] ET AL) 21 May 2009 (2009-05-21) the whole document -----	1-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/000996

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 15(completely); 14, 17, 18(partially)

Air intake for charged engine

2. claims: 10-13, 16(completely); 14, 17, 18(partially)

Cooling cylinder head
