

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 August 2010 (12.08.2010)

(10) International Publication Number
WO 2010/090672 A3

(51) International Patent Classification:
F01N 13/18 (2010.01) *F01N 13/08* (2010.01)

(21) International Application Number:
PCT/US2009/066702

(22) International Filing Date:
4 December 2009 (04.12.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/367,686 9 February 2009 (09.02.2009) US

(71) Applicant (for all designated States except US): **EMCON TECHNOLOGIES LLC** [US/US]; 1209 Orange Street, Wilmington, Delaware 19801 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CALLAHAN, Joseph E.** [US/US]; 6160 Deerwood Drive, Greenwood, Indiana 46143 (US). **LEEHAUG, David J.** [US/US]; 821 Shoreview Court, Columbus, Indiana 47201 (US).

(74) Agent: **LABA, Kerrie A.**; Emcon Technologies, 950 W 450 S, Bldg. 4, Columbus, Indiana 47201 (US).

(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, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

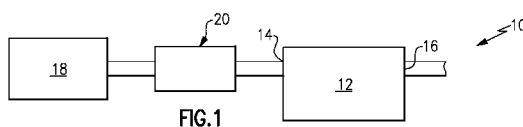
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, 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))

(88) Date of publication of the international search report:
28 October 2010

(54) Title: TUBE STRUCTURE FOR EXHAUST COMPONENT



(57) Abstract: A vehicle exhaust component includes an outer shell defining an internal cavity, at least one baffle located within the internal cavity, and at least one tube supported by the baffle. The baffle is fixed to the outer shell and includes at least one opening. The tube has first and second tube ends with one of the first and second tube ends being supported within the opening in the baffle. At least one slot is formed within the one of the first and second tube ends at the at least one opening. The slot facilitates noise reduction during cool down of the vehicle exhaust component.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/066702

A. CLASSIFICATION OF SUBJECT MATTER

F01N 13/18(2010.01)i, F01N 13/08(2010.01)i

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)

F01N 13/18; F01N 1/08; F01N 1/10; F01N 3/04; F01N 7/00; F01N 7/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: outer shell, baffle, tube, slot, exhaust component.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4930597 A1 (UDELL) 05 June 1990 See the abstract; Figs. 1-3; column 3, line 32-column 4, line 56.	1, 13, 14
Y	US 5187334 A1 (ABBOTT et al.) 16 February 1993 See the abstract; Fig. 8; column 5, lines 45-60.	1, 13, 14
A	US 4643272 A1 (GAFFRIG) 17 February 1987 See the abstract; Figs. 4 and 5; column 5, lines 6-66.	1-14
A	JP 03-006015 U (KAWASAKI HEAVY IND. CO., LTD.) 22 January 1991 See the abstract; Fig. 2; column 1, lines 2-7.	1-14

☐ 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 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

13 JULY 2010 (13.07.2010)

Date of mailing of the international search report

13 JULY 2010 (13.07.2010)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

YANG Kyung Jinn

Telephone No. 82-42-481-8556



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/066702

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4930597 A1	05.06.1990	None	
US 5187334 A1	16.02.1993	GB 2245654 A JP 05-150788 A US 5216809 A1	08.01.1992 18.06.1993 08.06.1993
US 4643272 A1	17.02.1987	None	
JP 03-006015 U	22.01.1991	None	