



(51) International Patent Classification:

B01D 53/78 (2006.01) **F25J 5/00** (2006.01)
B01D 5/00 (2006.01)

(21) International Application Number:

PCT/US2012/021897

(22) International Filing Date:

19 January 2012 (19.01.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/435,134 21 January 2011 (21.01.2011) US

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(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, 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, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,

[Continued on next page]

(54) Title: CONDENSATION PLUME MITIGATION SYSTEM FOR EXHAUST STACKS

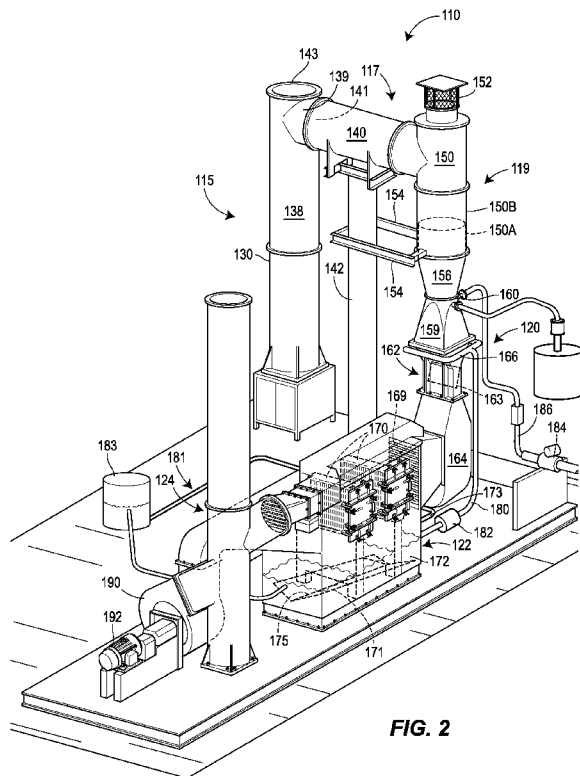


FIG. 2

(57) Abstract: An exhaust gas plume mitigation process and system includes either mixing secondary heat into a moisture rich exhaust gas stream, or diverting a moisture rich exhaust gas stream into a primary exhaust stack having hot exhaust gases flowing therethrough. Moisture rich exhaust gas from a liquid concentrator may be diverted into a high temperature exhaust stack of an engine, a generator, or a flare. The high temperature exhaust gases from the engine, the generator, or the flare raise the temperature of the moisture rich exhaust gas from the concentrator. The high temperature exhaust gases from the engine, the generator, or the flare are also lower in moisture content, so that the moisture rich exhaust gas from the concentrator is diluted by the drier high temperature exhaust gas. As a result, the mixed gas is less likely to develop a moisture plume upon exit to the atmosphere.



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).

— *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))*

Published:

— *with international search report (Art. 21(3))*

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

6 December 2012

A. CLASSIFICATION OF SUBJECT MATTER***B01D 53/78(2006.01)i, B01D 5/00(2006.01)i, F25J 5/00(2006.01)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)

B01D 53/78; C02F 1/16; F23G 7/08; C02F 1/04; F23J 11/12

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: combustion, gas, condense, humidity, wastewater, concentrator

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010-0236724 A1 (DUESEL, JR. BERNARD F. et al.) 23 September 2010 See the abstract, fig. 1-16 and paragraph [33],[42],[43],[45],[46],[52],[98]	1-3, 10-13, 15, 20
A	US 2009-0053659 A1 (DUESEL, JR. BERNARD F. et al.) 26 February 2009 See the abstract, fig. 1-9 and paragraph [5],[20],[29]	1-3, 10-13, 15, 20
A	US 2008-0277262 A1 (HARRIS JAMES JEFFREY) 13 November 2008 See the abstract, fig.1-7 and paragraph [27],[28]	1-3, 10-13, 15, 20



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

28 SEPTEMBER 2012 (28.09.2012)

Date of mailing of the international search report

08 OCTOBER 2012 (08.10.2012)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/021897**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.: 4-9, 14, 16-19
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:

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 fee, this Authority did not invite payment of any additional fee.
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.:

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

Information on patent family members

International application No.

PCT/US2012/021897

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US 2008-0277262 A1	13.11.2008	None	