ABATEMENT SYSTEM HAVING ENHANCED EFFLUENT SCRUB AND MOISTURE CONTROL

Abstract: Apparatus for improved treatment of effluents are provided herein. In some embodiments, an abatement system may include an exhaust conduit to flow an effluent stream therethrough; a plurality of packed beds disposed in the exhaust conduit to remove non-exhaustible effluents from the effluent stream; one or more spray jets to provide an effluent treating agent between adjacent packed beds, the effluent treating agent to remove non-exhaustible effluents from the effluent stream; and a dripper disposed in the exhaust conduit above an uppermost packed bed to provide the effluent treating agent in large droplets to wet and rinse particulate from an upper surface of the uppermost packed bed substantially without forming fine droplets.

FIG. 2

(Continued on next page)
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. Published:

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A. CLASSIFICATION OF SUBJECT MATTER

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)

BOID 53/78, BOID 47/00, BOID 47/06, BOID 47/14, COIB 17/00

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 exhaust, packed bed, spray, dripper

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
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<tr>
<td>Y</td>
<td>US 5660615 A (NEUMANN et al.) 26 August 1997 See abstract, figure 1, column 1, lines 22-28, column 3, line 20 to column 5, line 16</td>
<td>1-6,10-12</td>
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<td>Y</td>
<td>US 4374813 A (CHEN et al.) 22 February 1983 See abstract, figures 4-6, column 1, lines 10-16, column 6, lines 44-58, column 7, lines 15-39</td>
<td>1-6,10-12</td>
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<td>A</td>
<td>US 6312503 B1 (FINEK et al.) 06 November 2001 See abstract, figure 1, column 3, lines 19-32, column 5, line 62 to column 6, line 32</td>
<td>1-6,10-12</td>
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<td>A</td>
<td>US 2005/0022667 A1 (SCHWAB JAMES J.) 03 February 2005 See abstract, figure 1, paragraphs [0001] and [0029], claims 1 and 6</td>
<td>1-6,10-12</td>
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Date of the actual completion of the international search

08 JUNE 2010 (08 06 2010)

Date of mailing of the international search report

09 JUNE 2010 (09.06.2010)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
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Facsimile No 82-42-472-7140

Authorized officer

Yu, Cheul Jong

Telephone No 82-42-481-8296

International application No

PCT/US2009/063523

**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 7-9, 13-15 because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 64(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
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