

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 June 2008 (26.06.2008)

PCT

(10) International Publication Number
WO 2008/074915 A1

(51) International Patent Classification:

E03F 1/00 (2006.01) **B63B 29/14** (2006.01)
B60R 15/00 (2006.01) **B64D 11/02** (2006.01)
B61D 35/00 (2006.01)

(21) International Application Number:

PCT/FI2007/050697

(22) International Filing Date:

17 December 2007 (17.12.2007)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

20065842 21 December 2006 (21.12.2006) FI

(71) Applicant (for all designated States except US): **EVAC INTERNATIONAL OY** [—/FI]; Sinimäentie 14, FI-02630 Espoo (FI).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LAPPALAINEN, Vesa** [FI/FI]; Herttuantie 1 B 27, Vantaa, FI-01520 (FI).

(74) Agent: **AWEK INDUSTRIAL PATENTS LTD OY**; P.O.Box 230, Lautatarhankatu 6, FI-00101 Helsinki (FI).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

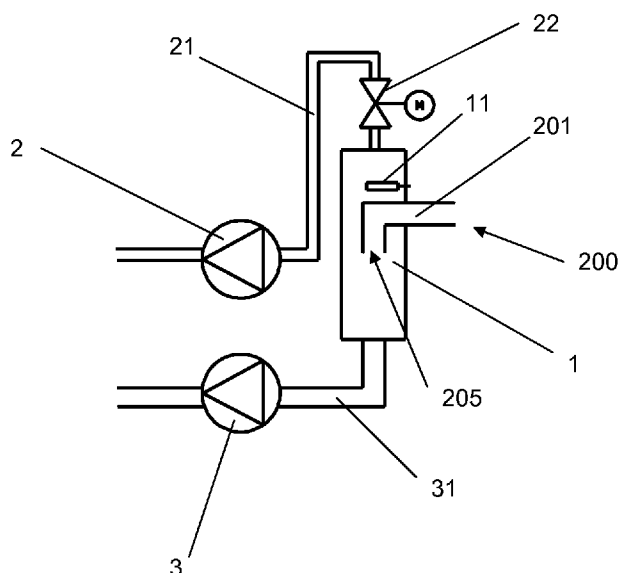
(84) Designated States (unless otherwise indicated, for every

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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: VACUUM SEWAGE SYSTEM



(57) Abstract: The invention relates to a vacuum sewage system, which includes a sanitary unit, such as a toilet unit, vacuum sewer piping (200) connected to the sanitary unit, a discharge valve between the sanitary unit and the vacuum sewer piping, and a vacuum generating device for generating vacuum in the vacuum sewer piping. The system comprises an on-line separator device (1) in the vacuum sewer piping (200, 201) and a first pump means (2) and a second pump means (3) connected in parallel with the on-line separator device (1). The first pump means (2) is a vacuum pump for generating vacuum in the vacuum sewer piping (200, 201) and for evacuating air from the sewage flow flowing into the on-line separator device (1) and the second pump means (3) is arranged for pumping mainly sewage from the sewage flow flowing into the on-line separator device (1).

WO 2008/074915 A1