



(51) International Patent Classification:
C02F 3/08 (2006.01) *B01D 39/00* (2006.01)
C02F 3/10 (2006.01)

(21) International Application Number:
PCT/KR2010/001440

(22) International Filing Date:
8 March 2010 (08.03.2010)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **INHA-INDUSTRY PARTNERSHIP INSTITUTE** [KR/KR];
253, Yonghyun-dong, Nam-gu, Incheon 402-751 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BAE, Jae-Ho** [KR/KR]; 101-102, I-park Apt., Sinjeong 2-dong, Yangcheon-gu, Seoul 158-072 (KR). **KIM, Jeong-Hwan** [KR/KR]; 111-403, HANJIN-Haemoro Apts., Songdo-dong, Yeon-

su-gu, Incheon 406-840 (KR). **MCCARTY, Perry, L.** [US/US]; Stanford University, Jerry Yang & Akiko Yamazaki Environment & Energy Building, 4020, 473 Via Ortega, Stanford, California 94305 (US).

(74) Agent: **ORIGIN PATENT & LAW FIRM**; 626-30, Kangnam-ku, Yeoksam-dong, Seoul 135-908 (KR).

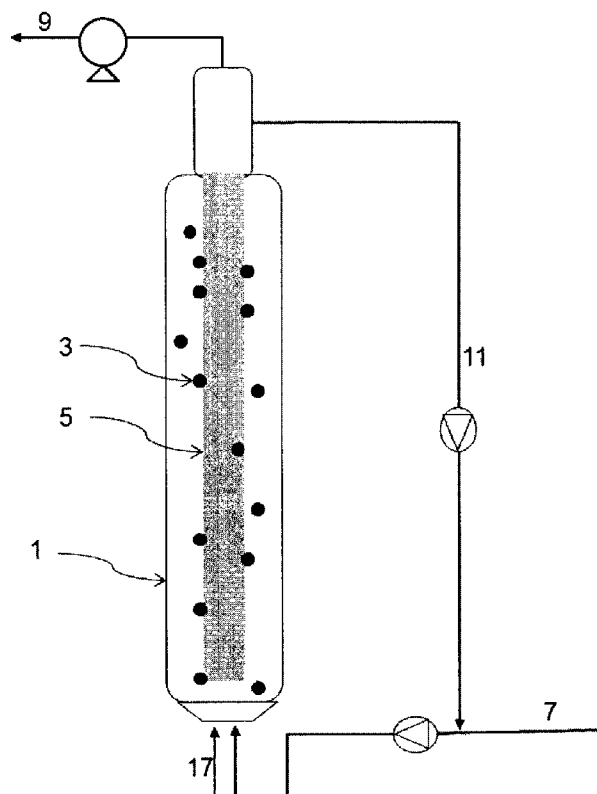
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, 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, 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,

[Continued on next page]

(54) Title: FLUIDIZED MEMBRANE BIOREACTOR

[Fig. 1]



(57) Abstract: A fluidized membrane bioreactor comprising a bioreactor including biochemically active organisms; fluidized particles which is a support media to be attached by the organisms; and membranes which permit treated water to pass through except the organisms, wherein the fluidized particles are in direct contact with the membranes. The membranes are installed internally or externally to the bioreactor. The particles may be granular activated carbon or other suitable materials. The fluidized particles serve not only as support media for microorganisms, but also as media for sorption or otherwise retention of matter that can cause membrane fouling and as an abrasive material for cleaning the membrane surface.



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))