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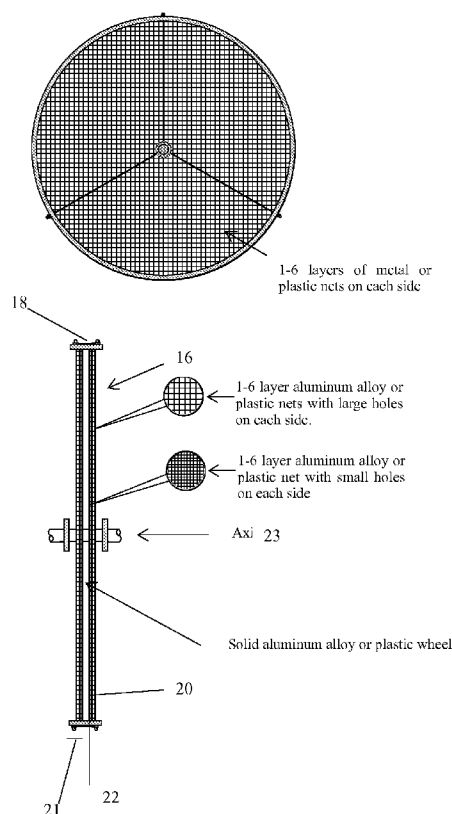
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[Continued on next page]

(54) Title: BIOREACTOR AND USES THEREOF

(57) Abstract: Disclosed are bioreactor systems and methods to transfer a gaseous composition into a liquid composition in a closed environment. Also disclosed are bioreactor systems and methods for high-density culture of microorganisms and stably culture of activated sludge.

Fig 1





(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.

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A. CLASSIFICATION OF SUBJECT MATTER*C12M 1/06(2006.01)i, C12M 3/02(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)

C12M 1/06; C02F 3/08; C02F 3/00

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: rotating wheel assembly, net structure, gas, wheel plate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2007-0023356 A1 (MANUEL CUENCA) 01 February 2007 See claims 1-6; fig. 1,2,4; abstract	1-10, 12-35 11
X A	US 2005-0133444 A1 (THEODORE WARROW) 23 June 2005 See claims 1-11; fig. 1,2,4,5,13,16-19; abstract	1-10, 12-35 11
X A	US 6783669 B1 (OKAGAWA; FUMIHIKO et al.) 31 August 2004 See claims 1-5; fig. 3,4,10-13; abstract	1-10, 12-35 11
X A	US 4729828 A1 (MILLER; GARY) 08 March 1988 See claim 1; fig. 4,5,7,9,11,14; abstract	13, 14, 24-32 1-12, 15-23, 33-35
X A	KR 20-2000-0012085 U 05 July 2000 See claims 1-6; fig. 2,3	13, 14, 32 1-12, 15-31, 33-35
X	EP 0853067 A2 15 July 1998 See claims 1,2; fig. 1-3; abstract	13, 14, 32



Further documents are listed in the continuation of Box C.



See patent family annex.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A		1-12, 15-31, 33-35

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 4729828 A1	08.03.1988	None	
KR 20-2000-0012085 U	05.07.2000	None	