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Title: **WATER** PURIFIED BY ELECTROFLOTATION - FOR RAPID **SEDIMENTATION** AND CLEAN CLARIFIED **WATER**

Abstract: Source: FR2256903A (Claim 1) REVsKsICATIONS t.- Procède pour traiter les eaux d'égouts, caractérisé par le fait qu'on fait passer les eaux d'égouts à travers une unité d'électroflottation dans laquelle de petites bulles d'oxygène et d'hydrogène sont dégagées par électrolyse dans la zone du fond de ces eaux d'égouts liquides, les bulles s'élevant à travers le liquide en transportant vers le haut les solides en suspension et les produits en émulsion. Process for treating **waste water** comprises passing it through an electroflotation station where small bubbles of H₂ and O₂ are produced electrolytically within the lower regions of the **water** and as these bubbles rise they entrain solids held in suspension or in emulsion. Pref. large solid particles are broken up before **treatment** and chemical flocculants may be added during electrolysis. Also claimed is an apparatus for carrying out this process in which the electroflotation station is provided with one or more electrolysis grids each having several spaced-apart anodes and cathodes. Process is rapid (3-90 min. if 12-36 hr. for classical **sedimentation** processes), and is applicable to **waters** not amenable to purely biological purification (e.g. those contg. detergents or other poisons) and those at any temp. Since the clarified **water** produced is fairly clean further **treatment** stages may be effected in relatively small apparatus.

Classifications:

International (IPC 8-9): C02F1/46 C02F1/463 C02F1/465

C02F3/04 (Advanced/Invention);

C02F11/02 (Advanced/Non-invention);

C02F1/46 C02F1/461 C02F1/463 C02F3/04 (Core/Invention);

C02F11/02 (Core/Non-invention)

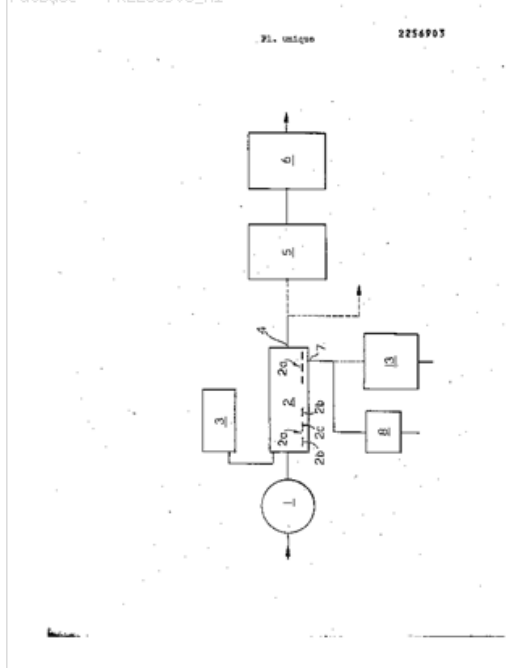
International (IPC 1-7): B01D21/00 C02C1/00 C02C1/18 C02C1/40

C02C5/12

CPC: Y02W10/15 C02F1/465 C02F3/04 C02F11/02

European: C02F1/465 C02F3/04 M02F11/02

PatBase - FR2256903_A1



Family:

Publication number	Publication date	Application number	Application date
AU197477026 A1	19760701	AU19740077026	19741231
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BR7500124 A	19751104	BR19750000124	19750108
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ZA7408238 A	19760128	ZA19740008238	19741230

Priority:

GB19740000739 19740108

Probable Assignee: BARVIEW DEV LTD

Assignee(s): (std): BARRIEW DEVELOPMENTS LTD ; BARVIEW DEV ; BARVIEW DEV LTD ; BARVIEW DEVELOPMENTS LIMITED ; BARVIEW DEVELOPMENTS LTD

Assignee(s): BARVIEW DEVELOPMENTS LTD GB ; BARVIEW DEVELOPMENTS TE LONDEN LTD ; BARVIEW DEVELOPMENTS LIMITED TE LONDEN

Inventor(s): (std): BARRETT F ; BARRETT FREDERICK

Inventor(s): FREDERICK BARRETT

Title: GAS DISSOLVING SYSTEM AND **METHOD**

Abstract: Source: US5049320A An improved gas dissolving and releasing system involving the use of multistages of porous gas dissolving media at the center and near the wall of a pressure vessel is described. The gas dissolving system includes a liquid pressure pump, a pressure vessel with tangential inlet and outlet, a gas injector, an inlet nozzle assembly, a center gas dissolving tube, one or more wall-mounted gas dissolving plate assembly, a gas compressor, gas regulators, gas flow meter(s), pressure gauge(s), safety valve(s), sight tube(s), a bleed-off point, a pressurized water release unit, and a liquid flow meter. The liquid flow pattern inside of the pressure vessel is controlled to be of either swirling upflow, swirling downflow or swirling horizontal flow at a rotation speed of over 2,500 rpm. A set of special nozzles with different orifices is designated for precise liquid flow control and liquid rotation speed control. More than one gases introduced at different inlets are dissolved simultaneously and efficiently in the pressure vessel under controlled pressure at 2-7 atm. The improved gas dissolving system is compact, simple and cost-effective, and is applied to ozonation, chlorination, recarbonation, oxygenation, nitrogenation, aeration, and flotation processes.

Classifications:

International (IPC 8-9): B01D53/04 B01D53/46 B01D53/68 B01D53/72 B01D53/86 B01F13/06 B01F3/04 B01F5/04 B01J19/18 B03D1/02 B03D1/04 B03D1/14 B09B3/00 B09C1/00 B09C1/02 B09C1/08 B09C1/10 B60K35/00 C02F1/20 C02F1/24 C02F1/28 C02F1/463 C02F1/465 C02F1/52 C02F1/66 C02F1/72 C02F11/02 C02F3/00 C02F3/12 C02F3/26 C02F3/34 G01D11/28 G01D13/02 G02F1/1335 G02F1/13357 G04B19/32 G04G9/00 G09F13/20 G09F13/42 G09F9/00 H01H13/02 H01H13/712 H05B33/00 (Advanced/Invention);

B01F5/00 C02F1/00 C02F1/52 (Advanced/Non-invention); B01D53/04 B01D53/46 B01D53/86 B01F13/00 B01F3/04 B01F5/04 B03D1/00 B03D1/14 B09C1/00 B60K35/00 C02F1/20 C02F1/24 C02F1/461 C02F1/463 C02F1/52 C02F1/72 C02F11/02 C02F3/00 C02F3/12 C02F3/26 C02F3/34 G01D11/28 G01D13/00 G02F1/13 G04B19/30 G04G9/00 G09F13/00 G09F13/20 G09F9/00 H01H13/02 H01H13/70 H05B33/00 (Core/Invention); B01F5/00 C02F1/00 C02F1/52 (Core/Non-invention)

International (IPC 1-7): B01D11/14 B01D17/035 B01D33/64 B01D53/02 B01D53/04 B01D53/14 B01D53/34 B01F3/04 B08B3/14 C02F1/20 C02F1/24 C02F1/28 C02F1/52 C02F1/72 C02F11/02 C02F11/14 C02F3/02 C02F3/12 C02F3/22 C02F3/26 C02F3/30 C02F3/34 C02F9/00

CPC: B01D53/10 B01D53/46 B01D53/68 B01J19/18 B09B3/0075 B09C1/00 B09C1/08 B09C1/10 C02F2301/022 Y10S261/75 Y10S210/908 B01F3/04836 B01F3/0446 B01F3/04496 B01F5/045 B01F5/0476 B01F13/065 B01F2003/0439 B01F2003/04865 B01F2003/04893 B01F2003/04907 B01F2003/04921 B01F2005/0017 B01F2005/002 B01F2215/0431 B01F2215/0468 B01J2219/182 B01J2219/187 C02F1/463 C02F1/52 C02F3/12 C02F3/26 C02F2301/02 C02F2301/024 C02F2301/026 C02F2301/066 C02F3/1263 B01D53/72 B01D53/8668 B01J2208/00 B01J2219/00029 B01J2219/00164 B01J2219/00177 B03D1/02 B03D1/04 B03D1/1431 B03D1/1437 C02F1/24 C02F1/465 C02F3/34 C02F3/342 C02F2303/04 B03D1/028 B03D1/1462 B03D1/1493 Y02W10/27 Y02W10/15 C02F3/006 B01D53/04 B01D53/047 B01D2253/102 B01D2253/202 B01D2257/708 B01D2259/401 B09C1/02

European: B01D53/04 B01D53/10 B01D53/46 B01D53/68 B01D53/72 B01D53/86P B01F13/06B B01F3/04C4 B01F3/04C4C B01F3/04C9A B01F5/04C13 B01F5/04C14C2 B01J19/18 B03D1/02 B03D1/04 B03D1/14 B03D1/14D B03D1/14E B09B3/00M B09C1/00 B09C1/02 B09C1/08 B09C1/10 C02F1/24 C02F1/463 C02F1/465 C02F3/00R C02F3/12 C02F3/12N8 C02F3/26 C02F3/34 C02F3/34B L01D253/102 L01D253/202 L01D257/708 L01D259/401 L01D53/04 L01D53/047 L01F215/04F2F L01F215/04F4N L01F3/04C1B2U10 L01F3/04C20B12 L01F3/04C20B4 L01F3/04C20B6 L01F3/04C20B8 L01F5/00A6 L01F5/00A8 L01J208/00 L01J219/00A6B L01J219/00B12 L01J219/00B6 L01J219/18B L01J219/18F M02F1/52 M02F301/02 M02F301/02B M02F301/02D M02F301/02F M02F301/06D M02F303/04

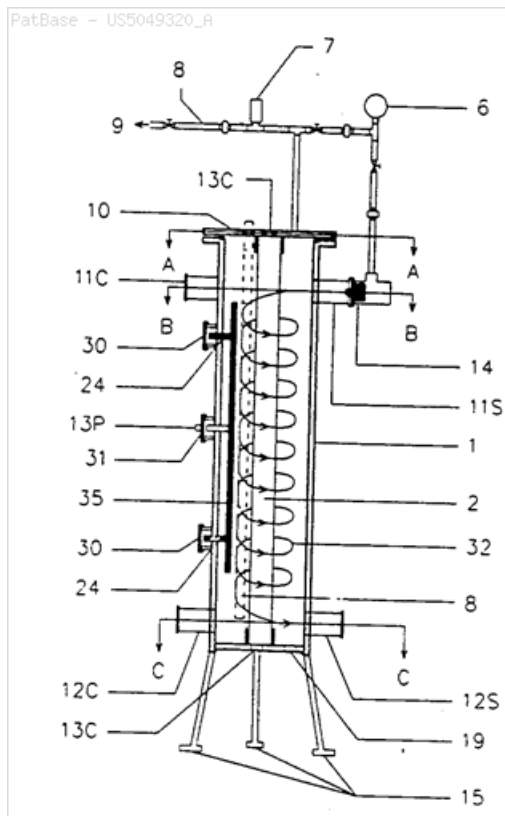
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Family:

Publication number	Publication date	Application number	Application date
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US5167806 A	19921201	US19910708777	19910529
US5232584 A	19930803	US19920929987	19920817
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US5275732 A	19940104	US19920984319	19921202
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Priority:

US19900547982 19900703	US19900550515 19900710	US19910714381 19910611
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US19920984319 19921202		

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INC ; INTERNATIONAL ENVIRONMENTAL SYSTEMS INC ; INTERNATIONAL ENVIRONMENTAL SYSTEMS
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WANG LAWRENCE KONGPU ; SUNG MU HAO ; KURLKO L ; HYRCYK OREST ; HRYCYK OREST

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Title: **METHODS** OF CULTURING MICROORGANISMS IN NON-AXENIC MIXOTROPHIC CONDITIONS

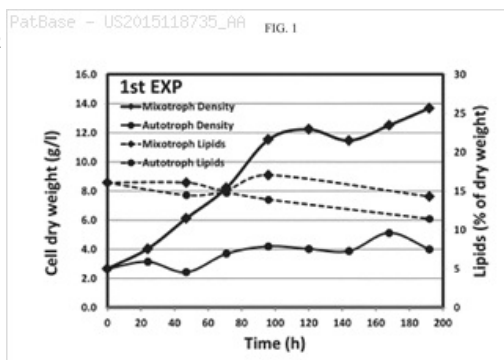
Abstract: Source: US2015118735A **Methods** of culturing microorganisms in non-axenic mixotrophic conditions are disclosed. A **method** of culturing microalgae mixotrophically and controlling bacterial contamination with an acetic acid/pH auxostat system is specifically described. **Methods** of culturing microalgae mixotrophically with an increased productivity through an increase in oxygen transfer to the culture, and controlling bacterial contamination with an oxidative agent are also described.

Classifications:

International (IPC 8-9): A01G33/00 B03C3/017 C12M1/00 C12M1/02 C12M1/06 C12M1/12 C12M1/34 C12N1/12 C12N1/34 C12N1/38 C12N13/00 C12N5/00 C12Q3/00 (Advanced/Invention)

CPC: B03C3/0175 C12M37/00 C12M47/02 C12N13/00 C12N1/34 C12N1/38 C12M23/34 A01G33/00 C12Q3/00 C12N1/12 C12M41/26 C12M21/02 C12M23/18 C12M27/06 C12M41/24 C12M23/38 C12N1/20

US: 435/257.3 435/289.1 435/292.1 435/3 435/303.3



Family:

Publication number	Publication date	Application number	Application date
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CA2903544 AA	20150901	CA20142903544	20140314
CL2015001054 A1	20150703	CL20150001054	20150423
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CN105189725 A	20151223	CN201480015829	20140314
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ID201701741 A	20170303	ID2015P0002614	20131108
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JP2016512687 T2	20160509	JP20160502843T	20140314
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MX2015010818 A1	20160621	MX20150010818	20140314
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US2015232802 AA	20150820	US20150699633	20150429
US2015240199 AA	20150827	US20150699659	20150429
US2015344830 AA	20151203	US20150822716	20150810
US2017145378 AA	20170525	US20170422829	20170202
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WO14074769 A8	20151001	WO2013US69046	20131108
WO14074770 A2	20140515	WO2013US69047	20131108
WO14074770 A3	20141218	WO2013US69047	20131108
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WO14074790 A1	20140515	WO2013US69091	20131108
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Priority:

US20120724710P 20121109	US20130798969P 20130315	US20130799151P 20130315
US20130883805P 20130927	US20130877894P 20130913	US20130877894P 20130909
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Probable Assignee: HELIAE DEVELOPMENT LLC

Assignee(s): (std): HELIAE DEV LLC

Assignee(s): GANUZA ENKO ; LICAMELE JASON DAVID ; TONKOVICH ANNA LEE ; HELIAE DEVELOPMENT LLC ; SULLIVAN TIMOTHY JAMES ; LICAMELE JASON ; ADAME THOMAS ; ESLER JAMES ; GALVEZ ADRIANO ; GALVEZ ADRIANO III ; HELIAE DEVELOPMENT LLC

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Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; SMART AND BIGGAR; SILVA AND CIA PATENTES Y MARCAS LTDA; BASSIL NICHOLAS CHARLES; NABILA AM BADAR SH LLM; LEN; HELIAE DEVELOPMENT LLC; KNIEP JUSTIN

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG

SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW