

Base : FAMPAT

SEARCH STRATEGY

SS Results

13	239	12 AND PLATE+/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
12	273	11 AND SEAL+/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
11	485	10 AND 9
10	48469516	PD<20150204
9	563	8 AND BRINE/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
8	1942	7 AND MEMBRANE/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
7	2837	6 AND ELECTROD+/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
6	3075	5 AND ELECTROL+/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
5	3576	4 AND (CARTRIDGE OR CELL)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
4	5457	3 AND 2
3	4758488	(INSERT OR FOAM)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX
2	45059	..SIMILARITY SS 1 RANKED 1
1	1	(WO2016126940)/PN

27 Documents

Publication numbers	Title	Current assignees
WO2011133835 A1	Electrolyzing system	SPRAYING SYSTEMS
IL-60369 A	Method of generating halogen and electrolysis cell	ELTECH SYSTEMS, ...
US20090127128 A1	Membrane-electrode assembly, electrolytic cell employing the same, electrolytic-water sprayer, and method of sterilization	DE NORA PERMELEC
GB9910714 D0	Gaskets for use with electrode structures	INEOS ENTERPRISES
WO201450865 A1	Electrolyzed water production device, electrolyzed water production method, and electrolytic bath	MORINAGA MILK INDUSTRY
BR9400627 A1	Method and device for producing electrolytic water	NIPPON INTEK
US20080067078 A1	Membrane-electrode assembly, electrolytic unit using the same, electrolytic water ejecting apparatus, and method of sterilization	INSTITUTE OF NATIONAL COLLEGES OF TECHNOLOGY JAPAN, ...
WO200544738 A1	Electrolysis vessel and apparatus for generating electrolyzed water	HONDA MOTOR
JP2946328 B1	Soda electrolytic cell provided with gas diffusion electrode	TOAGOSEI, ...
WO2013161836 A1	Cell for ion exchange membrane electrolysis	THYSSENKRUPP UHDE CHLORINE ENGINEERS
WO200333768 A2	Pressure electrolyser and method for operating one such electrolyser	GESSELLSCHAFT FUER HOCHLEISTUNGSELEKTROLYSEURE ZUR WASSERSTOFFERZEUGUNG MBH
WO2012132873 A1	Bipolar-electrode electrolytic cell	MORINAGA MILK INDUSTRY
JP3041796 B1	Electrolytic cell using gas diffusion electrode and power distribution method for the electrolytic cell	TOAGOSEI, ...
JP4712915 B1	Electrolytic device and method for producing weakly acidic electrolysed water	HOCL
WO201096505 A1	Internally reinforced structural composites and associated methods of manufacturing	ADVANCED GREEN INNOVATIONS, ...
PT-81186 A	Seal for electrolytic cells	DENORA
IT2002MI1203 D0	Distributing element for electrolyte percolation electrochemical cell	INDUSTRIE DE NORA
NO200301539 D0	Ion exchange membrane electrolyzer	TOSOH
EP-68049 A1	Membrane support assembly for electrolytic cell and method of making same	DOW CHEMICAL
FR2488914 A1	Electrolytic cell for ion exchange membrane method	CHLORINE ENGINEERS
DE4224492 C1	Device for the electrolytic treatment of liquids in anodic and	UHDE

Publication numbers	Title	Current assignees
	cathodic compartments	
WO2006123716 A1	Ion exchange membrane electrolytic cell	KANEKA, ...
JP3002993 B1	Gas diffusion electrode and brine electrolytic bath	KANEKA, ...
CA2164789 A1	Pressure compensated electrochemical cell	BAYER
CA2053278 A1	Electrode structure for an electrolytic cell.	DE NORA PERMELEC
GB201100769 D0	Electrodialysis unit for water treatment	OCEANSAVER
US5425858 A	Method and apparatus for capacitive deionization and electrochemical purification and regeneration of electrodes	UNIVERSITY OF CALIFORNIA

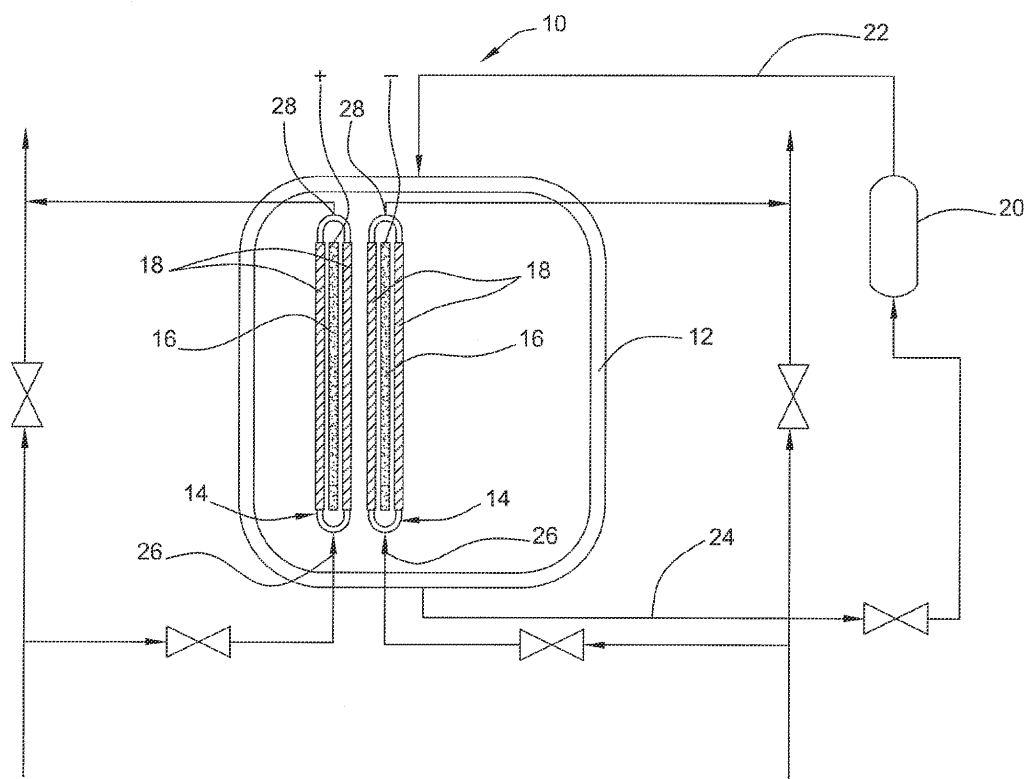
Family 1/27 - FAMPAT - ©Questel

Title

(EP2561121)

Electrolyzing system

Images



Publication data including kind & date

WO2011133835	A1	2011-10-27	WO2011133835
US20110259760	A1	2011-10-27	US20110259760
CA2796904	A1	2011-10-27	CA2796904
SG184969	A1	2012-11-29	SG-184969
MX2012012252	A	2012-12-17	MX2012012252
EP2561121	A1	2013-02-27	EP2561121
CN102947490	A	2013-02-27	CN102947490
CO6640233	A2	2013-03-22	CO6640233
CL2012002941	A1	2013-04-12	CL2941201200
KR20130062933	A	2013-06-13	KR20130062933
JP2013525607	A	2013-06-20	JP2013525607
BR112012027028	A1	2013-07-02	BR112012027028
ZA201208339	B	2013-07-31	ZA201208339
NZ603195	A	2014-03-28	NZ-603195
TH134778	A	2014-06-11	TH-134778
US8753489	B2	2014-06-17	US8753489
AU2011242614	B2	2014-07-24	AU2011242614
US20140202872	A1	2014-07-24	US20140202872
EP2561121	A4	2014-10-22	EP2561121
US9103043	B2	2015-08-11	US9103043
JP5761874	B2	2015-08-12	JP5761874



SG10201503169S	A	2015-08-28	SG10201503169S				
IN9032/CHENP/2012	A	2015-12-18	IN2012CN09032				
CN102947490	B	2016-04-13	CN102947490B				
EP2561121	B1	2016-06-01	EP2561121				
BR112012027028	A2	2016-07-19	BR112012027028				
ES2584652	T3	2016-09-28	ES2584652				
MX343210	B	2016-10-27	MX-343210				
HK1177479	A1	2017-03-24	HK1177479				
PL2561121	T3	2017-09-29	PL2561121				
KR101861864	B1	2018-06-29	KR101861864				
CA2796904	C	2018-12-18	CA2796904				

Abstract

(EP2561121)

An **electrolyzing** system for **electrolyzing** a brine solution of water and an alkali salt to produce acidic **electrolyzed** water and alkaline **electrolyzed** water is provided. The system includes an internal chamber for receiving the brine solution and two **electrolyzer** cells immersed in a brine bath. Each **electrolyzer cell** includes an electrode, at least one ion permeable membrane supported relative to the electrode to define a space communicating between a fresh water supply and a chemical outlet into which brine enters only through the membrane. One of the electrodes is coupled to a positive charging electrical supply and the other to a negative charging electrical supply.

Inventors

SWARTZ GREGORY JOHN

SWARTZ JAMES B

MOYER JAMES IRA

Latest standardized assignees - inventors removed

SPRAYING SYSTEMS

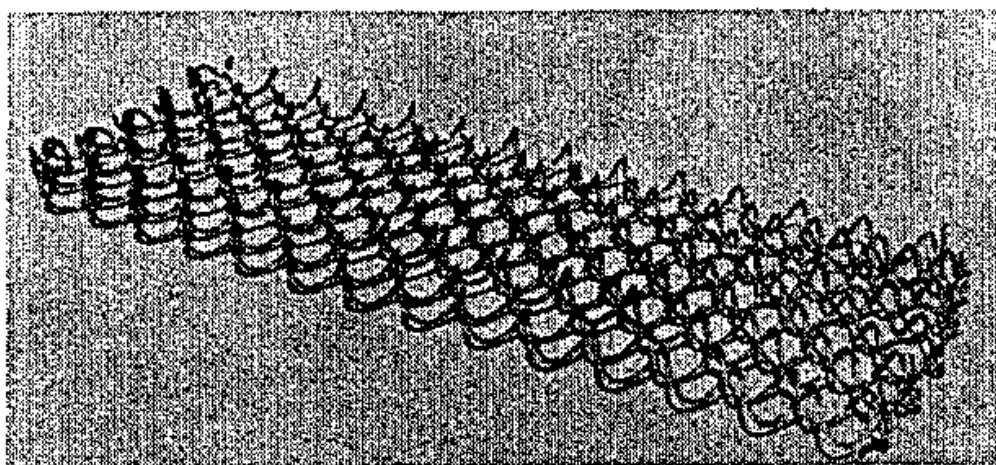
Family 2/27 - FAMPAT - ©Questel

Title

(US4693797)

Method of generating halogen and **electrolysis cell**

Images



Publication data including kind & date

IL60369	A	1980-09-16	IL--60369				
SE8005483	L	1981-02-04	SE8005483				



NO802140	A	1981-02-04	NO8002140
FI802041	A	1981-02-04	FI8002041
NL8004238	A	1981-02-05	NL8004238
AU6065280	A	1981-02-05	AU8060652
BR8004848	A	1981-02-10	BR8004848
FR2463199	A1	1981-02-20	FR2463199
DE3028970	A1	1981-02-26	DE3028970
GB2056493	A	1981-03-18	GB2056493
ES493948	A0	1981-06-16	ES-493948
ES8105793	A1	1981-06-16	ES8105793
PL225975	A1	1981-09-04	PL80225975
DD152585	A5	1981-12-02	DD-152585
GR69342	B	1982-05-17	GR--69342
AR226315	A1	1982-06-30	AR-226315
ES499974	A0	1982-07-01	ES-499974
ES8205880	A1	1982-07-01	ES8205880
US4340452	A	1982-07-20	US4340452
GB2056493	B	1983-05-25	GB2056493
RO81917	B	1983-05-30	RO--81917
RO81917	A	1983-06-01	RO--81917
AU529947	B2	1983-06-23	AU-529947
YU193380	A	1983-06-30	YU8001933
DD201810	A5	1983-08-10	DD-201810
IL60369	B	1983-10-31	IL--60369
CS8004925	A2	1984-02-13	CS8004925
PL128849	B1	1984-03-31	PL-128849
US4444632	A	1984-04-24	US4444632
PH17445	A	1984-08-29	PH--17445
EG14586	A	1984-09-30	EG--14586
IN154318	B	1984-10-13	IN-154318
HU184798	B	1984-10-29	HU-184798
CH646462	A5	1984-11-30	CH-646462
SE8501986	D0	1985-04-24	SE8501986
SE8501986	L	1985-04-24	SE8501986
FR2553792	A1	1985-04-26	FR2553792
FI68429	B	1985-05-31	FI--68429
CS237315	B2	1985-07-16	CS-237315
US4530743	A	1985-07-23	US4530743
NL8501269	A	1985-08-01	NL8501269
FI68429	C	1985-09-10	FI--68429
CA1219239	A	1987-03-17	CA1219239
DE3051012	C2	1987-05-21	DE3051012
NL182232	B	1987-09-01	NL-182232
US4693797	A	1987-09-15	US4693797
NO157544	B	1987-12-28	NO-157544
MX155163	A	1988-02-01	MX-155163
NO157544	C	1988-04-06	NO-157544
SE455508	B	1988-07-18	SE-455508



YU42534	B	1988-10-31	YU--42534
MX159843	A	1989-09-15	MX-159843
FR2463199	B1	1989-11-17	FR2463199
NL182232	C	1992-05-18	NL-182232
DE3028970	C2	1993-06-03	DE3028970
FR2553792	B1	1994-02-04	FR2553792
SK363585	A3	1996-09-04	SK8503635
SK278309	B6	1996-09-04	SK-278309



Abstract

(US4693797)

An **electrolysis cell** comprising a **cell** housing containing at least one pair of oppositely charged electrodes separated by an ion exchange diaphragm characterized in that at least one of said electrodes comprises an electrochemically charged electroconductive element, screen or **plate** spaced from the diaphragm by a resilient compressible mat, said mat being open to gas and **electrolyte** flow, resistant to the **cell** environment and capable when compressed of distributing pressure laterally along the diaphragm and a novel method of generating halogen by **electrolysis** of a halide containing **electrolyte**.

Inventors

DENORA ORONZIO

Latest standardized assignees - inventors removed

ELTECH SYSTEMS

ELTECH SYSTEMS FOREIGN SALES

ORONZIO DENORA TECHNOLOGIES

ELGARD

DE NORA PERMELEC

Family 3/27 - FAMPAT - ©Questel

Title

(EP2078701)

Membrane-electrode assembly, electrolytic cell employing the same, electrolytic-water sprayer, and method of sterilization

Images

electrode (7); a tubular diaphragm (8) disposed around the periphery of the electrode; and a wire-form counter electrode (9) disposed around the periphery of the diaphragm, the diaphragm being fixed to the rod-form or tubular electrode with the wire-form counter electrode to thereby form an electrode chamber (10) having a gas/liquid passage between the diaphragm and the rod-form or tubular electrode.

Inventors

KITAORI NORIYUKI

SEKIDO KOTA

FURUTA TSUNETO

NISHIKI YOSHINORI

SHIBATA TOMOYASU

SUZUKI TOMOHISA

TANAKA MASASHI

Latest standardized assignees - inventors removed

DE NORA PERMELEC

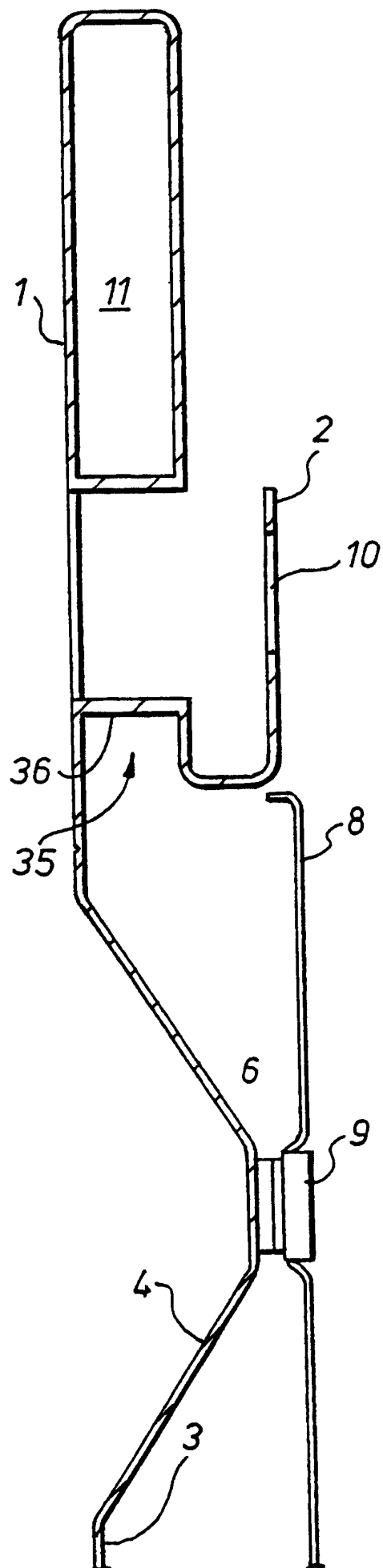
Family 4/27 - FAMPAT - ©Questel

Title

(EP1469103)

Gaskets for use with electrode structures

Images



Publication data including kind & date

GB9910714	D0	1999-07-07	GB9910714
WO200068463	A2	2000-11-16	WO200068463
CA2373098	A1	2000-11-16	CA2373098
AU4587100	A	2000-11-21	AU200045871
WO200068463	A3	2001-04-12	WO200068463
NO20015493	D0	2001-11-09	NO200105493
NO20015493	A	2002-01-09	NO200105493
BR0010411	A	2002-02-19	BR200010411
BRPI0010411	A1	2002-02-19	BRPI0010411
KR20020013534	A	2002-02-20	KR20020013534
CZ20014027	A3	2002-03-13	CZ200104027
EP1190115	A1	2002-03-27	EP1190115
SK16202001	A3	2002-05-09	SK200101620
CN1352704	A	2002-06-05	CN1352704
HU0201133	A2	2002-08-28	HU200201133
AR023875	A1	2002-09-04	AR--23875
MXPA01011385	A	2002-11-04	MX2001PA011385
JP2002544383	A	2002-12-24	JP2002544383
TR200103228	T2	2003-03-21	TR200103228
CO5271754	A1	2003-04-30	CO5271754A1
TW531568	B	2003-05-11	TW-531568
PL351744	A1	2003-06-16	PL2000351744
HU0201133	A3	2003-07-28	HU200201133
EP1190115	B1	2003-12-17	EP1190115
AT256768	T	2004-01-15	ATE256768
DE60007311	D1	2004-01-29	DE60007311
RU2223347	C2	2004-02-10	RU2223347
ZA200110076	B	2004-03-08	ZA200110076
DK1190115	T3	2004-04-19	DK1190115T
PT1190115	E	2004-05-31	PT1190115
ES2209875	T3	2004-07-01	ES2209875
US6761808	B1	2004-07-13	US6761808
EP1469103	A2	2004-10-20	EP1469103
DE60007311	T2	2004-10-21	DE60007311
AU777533	B2	2004-10-21	AU-777533
VN0004836	B	2005-04-25	VN---4836B
IN1523/MUMNP/2001	A	2005-08-26	IN2001MN01523
CN1222639	C	2005-10-12	CN1222639C
IN0531/MUMNP/2005	A	2005-11-11	IN2005MN00531
SA1267	B1	2006-09-13	SA---1267
KR100645463	B1	2006-11-13	KR100645463
IN206348	B	2007-07-13	IN-206348
SK285920	B6	2007-11-02	SK-285920
PL195913	B1	2007-11-30	PL-195913
EP1469103	A3	2008-09-24	EP1469103
IN206352	B	2008-10-17	IN-206352
BRPI0010411	A2	2010-01-19	BR200010411



CA2373098	C	2010-02-09	CA2373098
BR0010411	B1	2011-03-22	BR200010411
CZ302573	B6	2011-07-20	CZ-302573
HU228287	B1	2013-02-28	HU-228287
NO333310	B1	2013-04-29	NO-333310



Abstract

(EP1469103)

An electrode structure for use, for example, in a bipolar **electrolyser** comprising (i) a pan with a dished recess and a flange around the periphery thereof for supporting gasket means for sealing a separator between the flanges in adjacent electrode structures, which separator is disposed between the surface of the anode of a first electrode structure and the cathode of a second electrode structure such that the anode surface is substantially parallel to and faces but is insulated and spaced apart from the cathode surface by the separator and is hermetically-sealed to the separator, (ii) an electrically conductive **plate** spaced from the pan, (iii) a plurality of electrically-conductive members to which the electrically conductive **plate** is electroconductively attached and which provide electrically-conductive pathways between the pan and the electrically conductive **plate**, (iv) inlet for **electrolyte** and (v) outlets for liquids and gases wherein where the electrode structure is an anode structure the dished recess is provided with a plurality of inwardly projecting projections and where the electrode structure is a cathode structure the dished recess is provided with a plurality of outwardly projecting projections such that the inwardly projecting projections in the dished recess of the pan of the anode structure mate with the outwardly projecting projections in the dished recess of the pan of an adjacent cathode structure in a bipolar **electrolyser** comprising a plurality of the electrode structures.

Inventors

REVILL BRIAN KENNETH
DUTTON MICHAEL FREDERICK
STANLEY KEITH ALBERT
NAYLOR ALAN ROBERT

Latest standardized assignees - inventors removed

INEOS ENTERPRISES

Family 5/27 - FAMPAT - ©Questel

Title

(EP2902532)

Electrolyzed water production device, **electrolyzed** water production method, and **electrolytic** bath

Images

JP5836243	B2	2015-12-24	JP5836243				
JP5871766	B2	2016-03-01	JP5871766				
HK1210506	A1	2016-04-22	HK1210506				
EP2902532	A4	2016-05-25	EP2902532				
IN2670/DELNP/2015	A	2016-06-10	IN2015DN02670				
KR101781012	B1	2017-09-25	KR101781012				
CN104662205	B	2017-10-24	CN104662205B				
US20180222775	A1	2018-08-09	US20180222775				

Abstract

(EP2902532)

This **electrolyzed** water production device (1A) includes an **electrolytic** bath (3) that discharges **electrolyzed** products generated by **electrolysis** of a raw material solution from an outlet (2); a mixing section (4) that mixes the **electrolyzed** products with dilution water to generate **electrolyzed** water; and a mounting section (6) that has a connecting section (19) where a hole section (20) connected to the outlet (2) is formed and that allows the **electrolytic** bath (3) to be detachably mounted thereto. By moving either the **electrolytic** bath (3) or the connecting section (6) relative to the other, the communication between the outlet (2) and the hole section (20) is allowed or released. Additionally, the **electrolytic** bath (3) is mounted on the mounting section (6) in a state where the inside of the **electrolytic** bath (3) is filled with a predetermined amount of the raw material solution and sealed in advance and an additional raw material solution cannot be injected thereinto.

Inventors

MATSUYAMA KOKI

SHIRATO MASAYASU

Latest standardized assignees - inventors removed

MORINAGA MILK INDUSTRY

Family 6/27 - FAMPAT - ©Questel

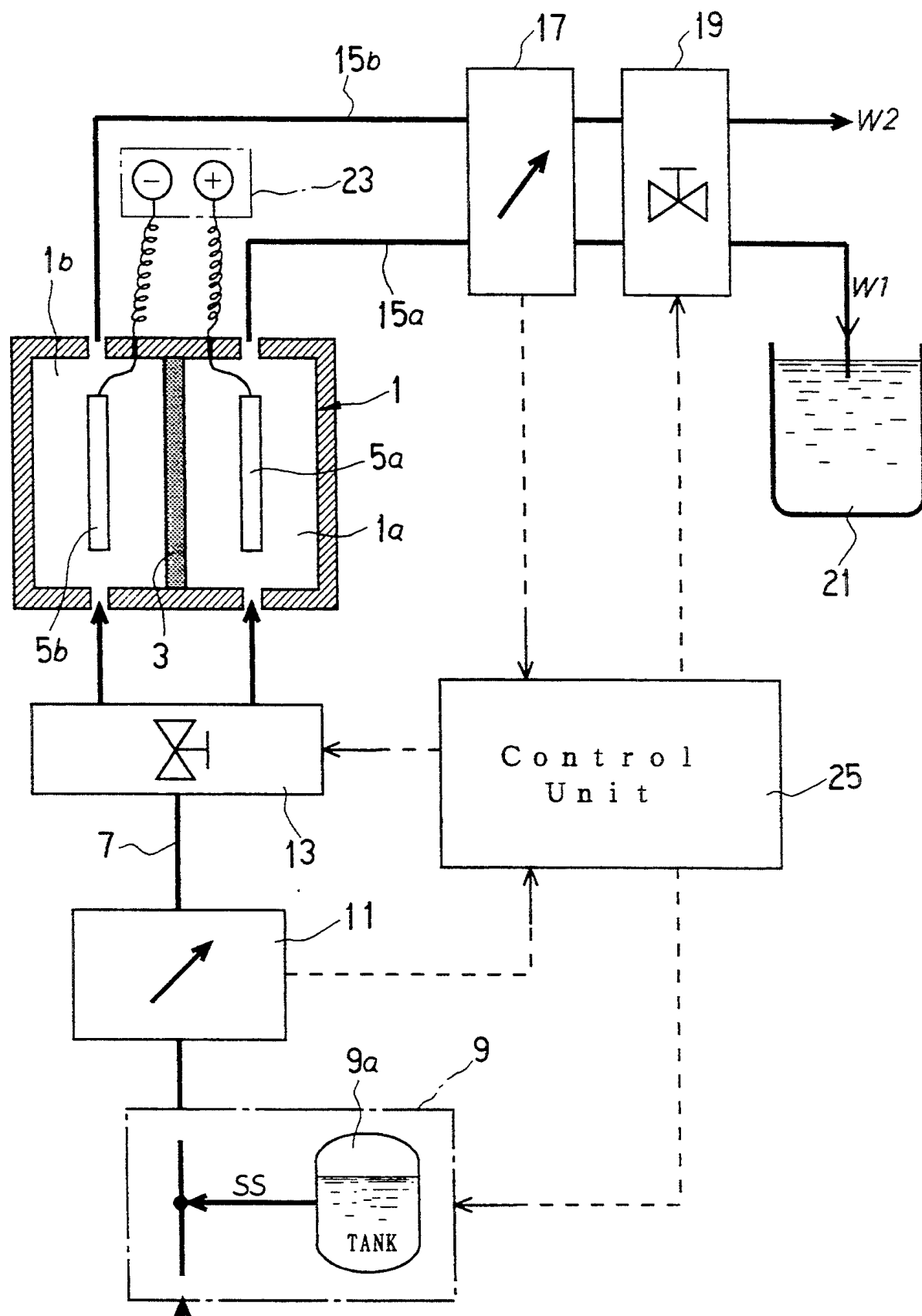
Title

(EP-612694)

Method and device for producing **electrolytic** water

Images

FIG. 1



Publication data including kind & date

BRPI9400627

A1 1994-03-22

BR9400627

CA2116045

A1 1994-08-23

CA2116045

AU5527494

A 1994-08-25

AU9455274

EP0612694

A1 1994-08-31

EP-612694



JPH06246271	A	1994-09-06	JP06246271				
KR19940019610	A	1994-09-14	KR19940019610				
CN1092478	A	1994-09-21	CN1092478				
BR9400627	A	1994-09-27	BR9400627				
US5445722	A	1995-08-29	US5445722				
AU677618	B2	1997-05-01	AU-677618				
KR100133975	D1	1997-12-26	KR100133975				
KR0133975	B1	1998-04-20	KR100133975				
EP0612694	B1	1998-05-06	EP-612694				
DE69409996	D1	1998-06-10	DE69409996				
ES2115156	T3	1998-06-16	ES2115156				
DE69409996	T2	1999-01-14	DE69409996				
CA2116045	C	2000-08-08	CA2116045				
CN1055904	C	2000-08-30	CN1055904C				
BRPI9400627	B1	2000-10-17	BR9400627				
JP3234025	B2	2001-12-04	JP3234025				
MY131555	A	2007-08-30	MY-131555				

Abstract

(EP-612694)

An **electrolytic** water producing method and device can control the **electrolytic** degree of **electrolytic** water (W1,W2) discharged from an **electrolyzer** (1,301,601) having anode and cathode chambers (1a,1b;301a,301b;401a,401b; 501a,501b;601a,601b) partitioned by an ion-permeable barrier membrane (3,303,503,603) so as to produce **electrolytic** water having the desired pH value in accordance with the pH value, electric conductivity, oxidation-reduction potential, and ion concentration. The **electrolytic** degree of the **electrolytic** water is controlled by injecting a regulated **electrolyte** solution (SS) into raw water (WO) to be supplied into the **electrolyzer** (1,301,601), regulating the flow quantity of the raw water and/or the **electrolytic** water discharged from the **electrolyzer**, and/or varying the capacity of the anode and/or cathode chamber. <IMAGE>

Inventors

YAMAGUTI SHUJI

UKON MASAYUKI

MISAWA SHIROJI

ARISAKA MASAKAZU

Latest standardized assignees - inventors removed

NIPPON INTEK

Family 7/27 - FAMPAT - ©Questel

Title

(EP1903128)

Membrane-electrode assembly, **electrolytic** unit using the same, **electrolytic** water ejecting apparatus, and method of sterilization

Images

CN101187037	B	2011-03-30	CN101187037B
US7964068	B2	2011-06-21	US7964068
KR101081447	B1	2011-11-08	KR101081447
TWI354581	B	2011-12-21	TWI354581
JP4980016	B2	2012-07-18	JP4980016



Abstract

(EP1903128)

The present invention provides: a membrane-electrode assembly having a first electrode (7) having a shape of a rod-form or a cylindrical-form, a strip-form diaphragm (8) covering the periphery of the first electrode, and a second electrode (9) disposed on a surface of the strip-form diaphragm; an electrolytic unit (6) containing the membrane-electrode assembly; an electrolytic water ejecting apparatus containing the electrolytic unit; and a method of sterilization using the membrane-electrode assembly.

Inventors

KITAORI NORIYUKI

SEKIDO KOTA

YAMANE GENZO

HAMAGUCHI KATSUMI

TANAKA HOZUMI

NISHIKI YOSHINORI

FURUTA TSUNETO

Latest standardized assignees - inventors removed

INSTITUTE OF NATIONAL COLLEGES OF TECHNOLOGY JAPAN

DE NORA PERMELEC

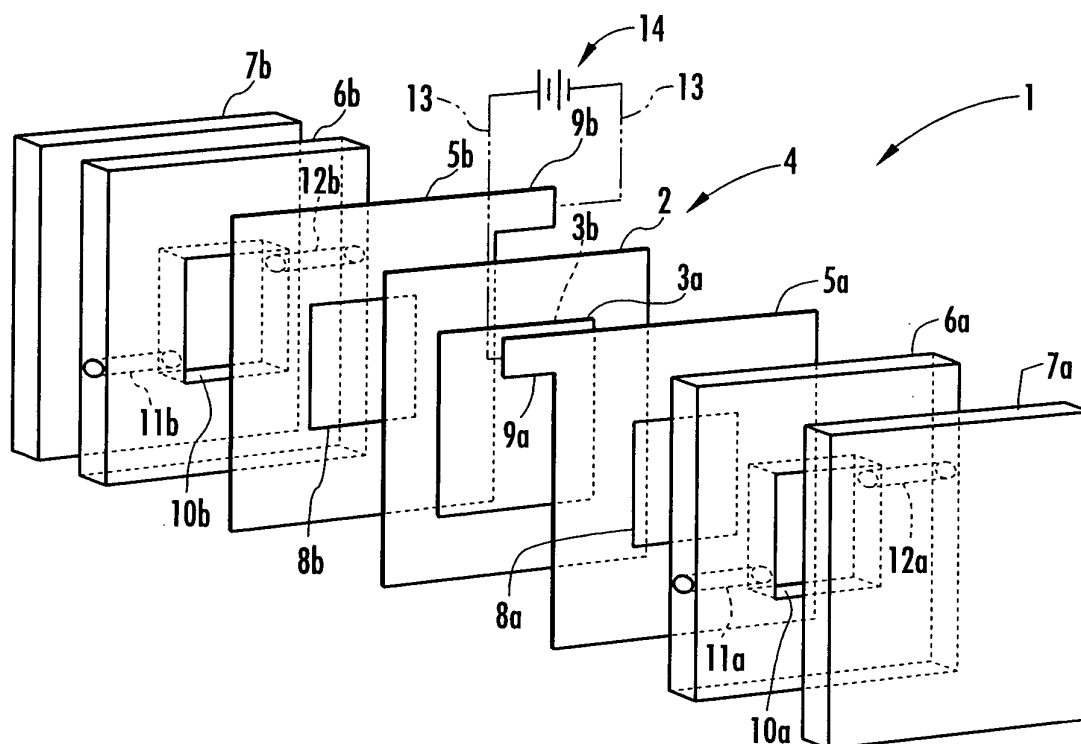
Family 8/27 - FAMPAT - ©Questel

Title

(EP1688395)

Electrolysis vessel and apparatus for generating electrolyzed water

Images



Publication data including kind & date

WO2005044738	A1	2005-05-19	WO200544738				
JP2005144240	A	2005-06-09	JP2005144240				
WO2005044738	A8	2005-07-07	WO200544738				
EP1688395	A1	2006-08-09	EP1688395				
JP2006213932	A	2006-08-17	JP2006213932				
KR20060113676	A	2006-11-02	KR20060113676				
CN1878729	A	2006-12-13	CN1878729				
US20070131541	A1	2007-06-14	US20070131541				
CN100396620	C	2008-06-25	CN100396620C				
EP1688395	A4	2008-12-24	EP1688395				
KR101071636	B1	2011-10-10	KR101071636				

Abstract

(EP1688395)

Provided is an **electrolysis cell** and an **electrolyzed** water producing equipment which are each small in size, has excellent **electrolysis** efficiency and can reduce an anion concentration in acidic **electrolyzed** water. The **electrolysis cell** is equipped with **electrolysis** rooms 10a and 10b located opposite to each other via an ion permeable membrane 2, raw water supply units 11a and 11b, electrodes 3a and 3b disposed with the membrane interposed therebetween, and **electrolyzed** water discharge units 12a and 12b. The membrane 2 is an anion permeable film. The electrodes 3a and 3b are formed so as to firmly adhere to both surfaces of the anion permeable membrane 2 and expose a portion of the anion permeable membrane 2. Only raw water fed to the **electrolysis** room 10b on the cathode side contains an **electrolyte**. The electrodes 3a and 3b are porous and they each has an electrode base material made of a powdery titanium compound such as TiC or TiN, a catalyst such as **platinum** black or iridium black and a binder such as PVA. The electrodes 3a and 3b may be mesh-shaped or comb-shaped. The electrodes 3a and 3b are formed by applying a conductive paste containing conductive powders onto the surfaces of the anion permeable membrane 2, followed by heating or pressurization.

Inventors

MIYASHITA KOHICHI

Latest standardized assignees - inventors removed

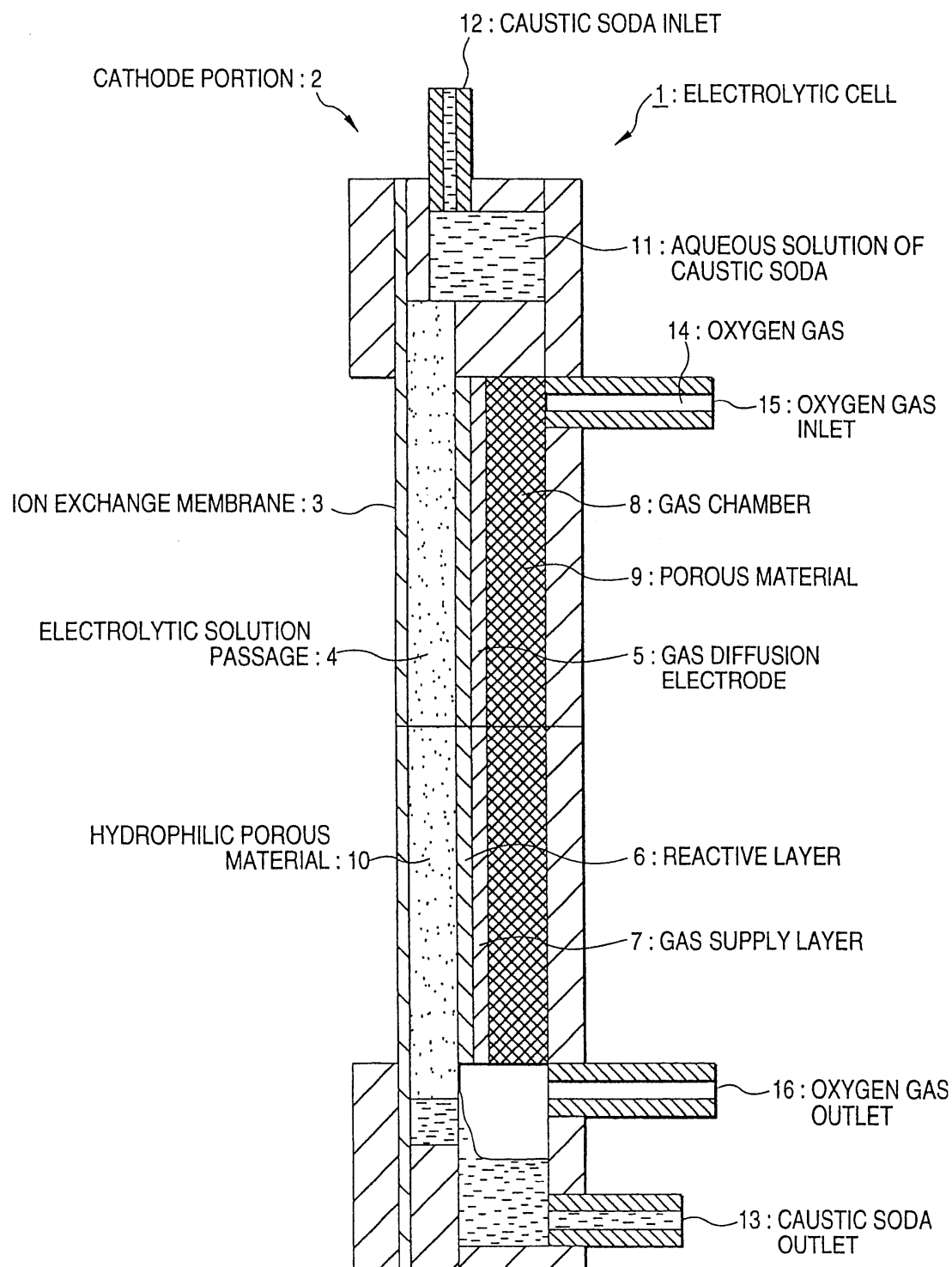
HONDA MOTOR

Family 9/27 - FAMPAT - ©Questel

Title

(EP1033419)

Soda **electrolytic cell** provided with gas diffusion electrode**Images**


Publication data including kind & date

JP2946328	B1	1999-09-06	JP2946328
JP2987585	B1	1999-12-06	JP2987585
JP2000064074	A	2000-02-29	JP2000064074
WO200011242	A1	2000-03-02	WO200011242
JP2000119886	A	2000-04-25	JP2000119886
EP1033419	A1	2000-09-06	EP1033419
CN1275175	A	2000-11-29	CN1275175
EP1033419	A4	2001-11-28	EP1033419
US6368473	B1	2002-04-09	US6368473
CN1198968	C	2005-04-27	CN1198968C
EP1033419	B1	2006-01-11	EP1033419



CN104254644	A	2014-12-31	CN104254644				
KR20150013171	A	2015-02-04	KR20150013171				
EP2843084	A1	2015-03-04	EP2843084				
US20150114830	A1	2015-04-30	US20150114830				
IN2335MUN2014	A	2015-08-14	IN2014MN02335				
EP2843084	A4	2016-04-13	EP2843084				
JP5945154	B2	2016-07-05	JP5945154				
CN104254644	B	2017-03-01	CN104254644B				
EP2843084	B1	2017-11-15	EP2843084				
US9828684	B2	2017-11-28	US9828684				
KR101858485	B1	2018-05-16	KR101858485				

Abstract

(EP2843084)

Provided is a **cell** for ion exchange membrane **electrolysis** obtained by improving the performance in **electrolysis** of an existing bipolar **cell** for ion exchange membrane **electrolysis**, in which a cathode partition wall and a rigid cathode being connected together by a plurality of intermediating V-shaped springs, by a simple method. It is a **cell** for ion exchange membrane **electrolysis** which is separated by an ion exchange membrane (7) into an anode chamber (1) having a rigid anode (1a) and an anode partition wall (1b) and a cathode chamber (2) having a rigid cathode (2a) and a cathode partition wall (2b), the rigid cathode (2a) and the cathode partition wall (2b) being connected together by a plurality of intermediating V-shaped springs (3). It is a **cell** for ion exchange membrane **electrolysis** in which a metal elastic body (5) and a flexible cathode (6) are disposed in layers on the surface of the rigid cathode (2a), the surface being opposite to the surface to which the V-shaped springs (3) are attached, and a conductive member (4) is disposed near one end on the opening side of a V-shaped spring (3), which conductive member (4) is electrically connected with the V-shaped spring (3) when the V-shaped spring (3) is compressed.

Inventors

ASAUMI KIYOHITO

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HUANG ZHENGKAN

OKAMOTO MITSUMASA

YOSHIMURA KOJI

Latest standardized assignees - inventors removed

THYSSENKRUPP UHDE CHLORINE ENGINEERS

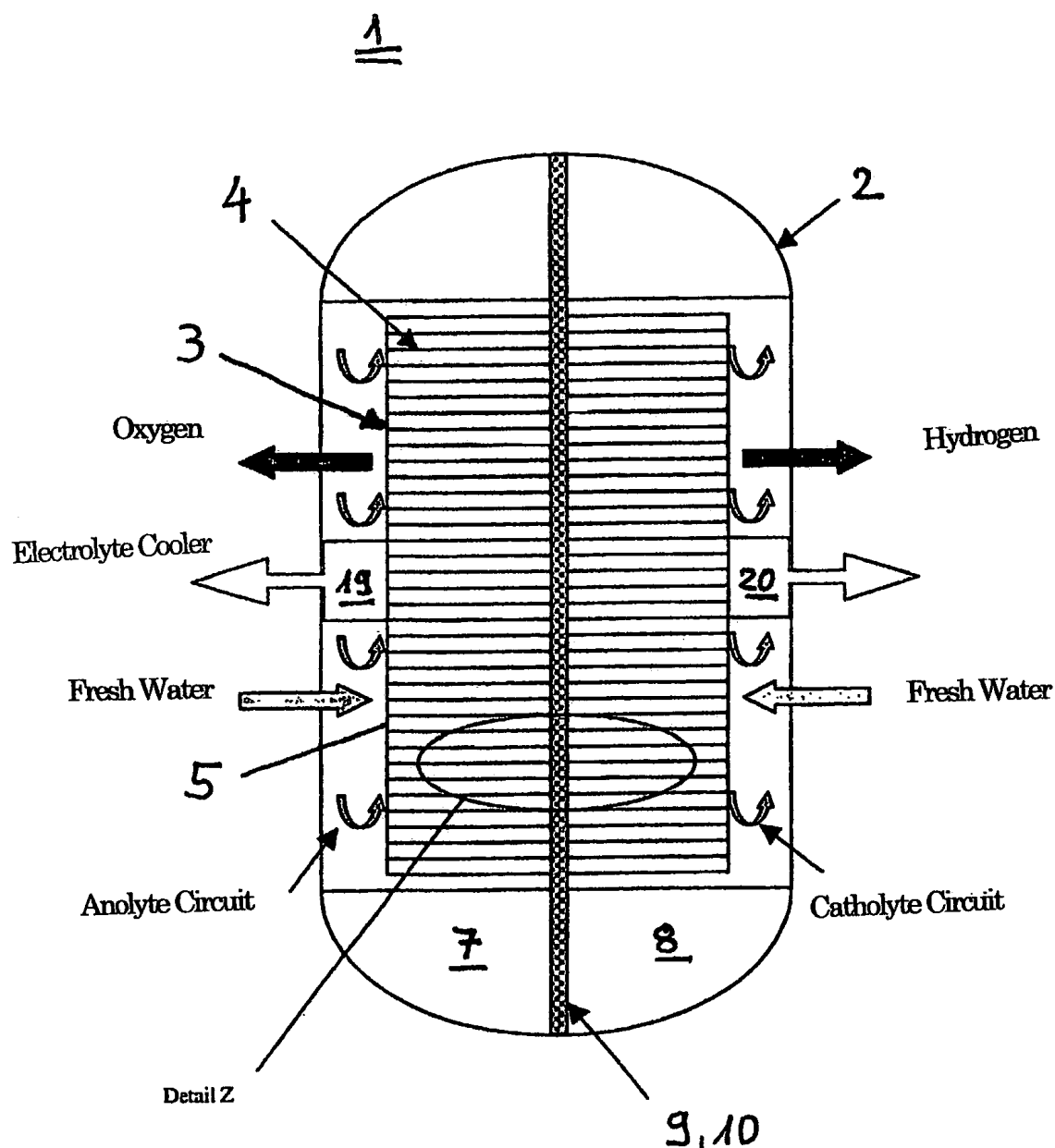
Family 11/27 - FAMPAT - ©Questel

Title

(EP1436447)

Pressure **electrolyser** and method for operating one such **electrolyser**

Images



Publication data including kind & date

WO03033768	A2	2003-04-24	WO200333768
CA2462146	A1	2003-04-24	CA2462146
DE10150557	A1	2003-04-30	DE10150557
WO03033768	A3	2003-10-30	WO200333768
DE10150557	C2	2003-12-18	DE10150557
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BR0213274	A	2004-10-26	BR200213274
BRPI0213274	A1	2004-10-26	BRPI0213274
HU0401449	A2	2004-10-28	HU200401449
EP1436447	B1	2005-01-05	EP1436447
AT286545	T	2005-01-15	ATE286545
DE50201972	D1	2005-02-10	DE50201972
JP2005505698	A	2005-02-24	JP2005505698
DK1436447	T3	2005-03-29	DK1436447T
US20050077174	A1	2005-04-14	US20050077174



PT1436447	E	2005-04-29	PT1436447				
RU2004114858	A	2005-05-10	RU2004114858				
PL370300	A1	2005-05-16	PL2002370300				
CN1620524	A	2005-05-25	CN1620524				
ES2233870	T3	2005-06-16	ES2233870				
RU2258099	C1	2005-08-10	RU2258099				
ZA200401864	B	2005-08-29	ZA200401864				
JP3869416	B2	2007-01-17	JP3869416				
CN100350076	C	2007-11-21	CN100350076C				
US7314539	B2	2008-01-01	US7314539				
BRPI0213274	A2	2010-11-16	BR200213274				

Abstract

(EP1436447)

The invention relates to a pressure **electrolyser** comprising a pressure reservoir (2) and an **electrolysis cell** block (3) which is arranged in the pressure reservoir and contains a number of **electrolysis** cells (4) forming a stack. Said **electrolysis** cells (4) respectively contain anodes (11) and cathodes (12), and a lye circulation system is provided for supplying an anolyte to the anodes (11) and for supplying a catholyte to the cathodes (12). The **electrolysis cell** block (3) comprises a housing (5) which creates a seal in relation to the inside of the pressure reservoir (2). According to the invention, the housing (5) of the **electrolysis cell** block (3) and the pressure reservoir (2) form at least two separated chambers (7, 8) which form part of the lye circulation system and are defined by the housing (5), in relation to the **electrolysis** cells (4), and by the pressure reservoir (2), in relation to the environment. In preferred embodiments, one of the separated chambers (7) forms part of an anolyte circulation system and the other separated chamber (8) forms part of a catholyte circulation system.

Inventors

BRAND ROLF AUGUST

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RAEMISCH MARKO

Latest standardized assignees - inventors removed

GESSELLSCHAFT FUER HOCHLEISTUNGSELEKTROLYSEURE ZUR WASSERSTOFFERZEUGUNG MBH

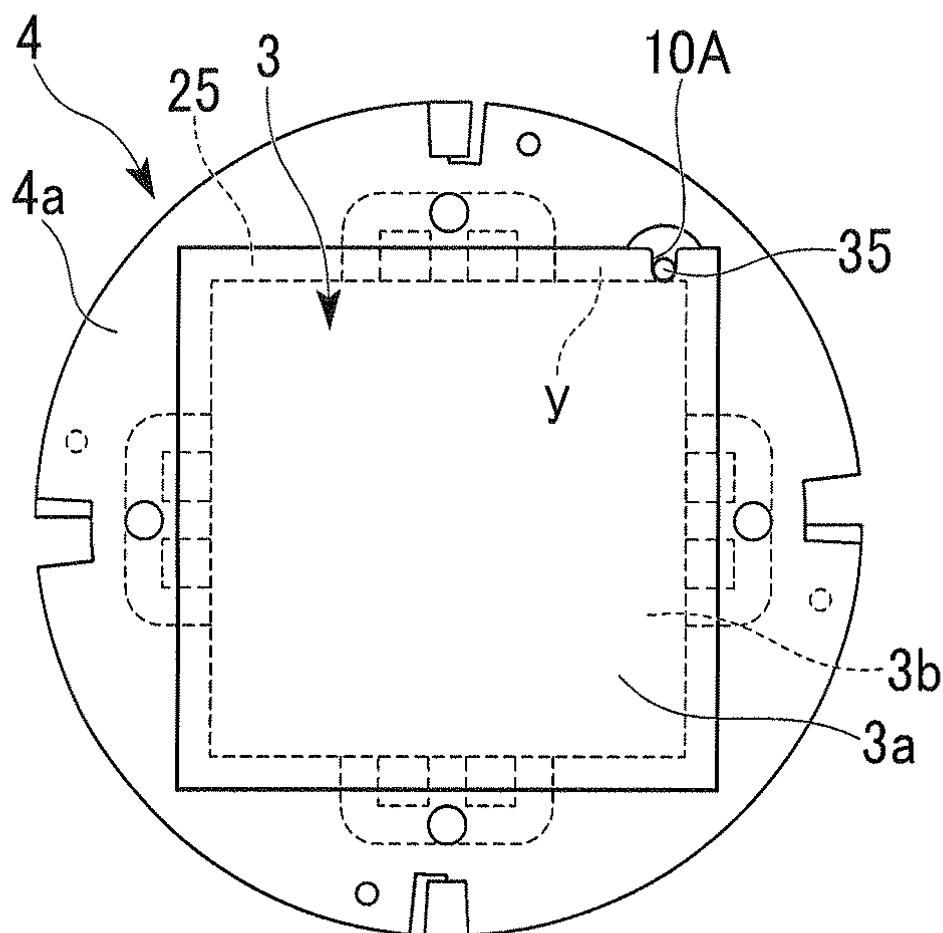
Family 12/27 - FAMPAT - ©Questel

Title

(EP2915782)

Bipolar-electrode **electrolytic cell**

Images



WO2012132873	A1	2012-10-04	WO2012132873
JP2012205982	A	2012-10-25	JP2012205982
TW201245497	A	2012-11-16	TW201245497
KR20130108648	A	2013-10-04	KR20130108648
CN103347817	A	2013-10-09	CN103347817
SG193593	A1	2013-10-30	SG-193593
US20140021040	A1	2014-01-23	US20140021040
EP2692697	A1	2014-02-05	EP2692697
TWI438306	B	2014-05-21	TWI438306
EP2692697	A4	2014-09-17	EP2692697
IN8327/DELNP/2013	A	2014-12-19	IN2013DN08327
KR20150080035	A	2015-07-08	KR20150080035
JP5751884	B2	2015-07-22	JP5751884
EP2915782	A1	2015-09-09	EP2915782
US20160097135	A1	2016-04-07	US20160097135
US9309600	B2	2016-04-12	US9309600
HK1210459	A1	2016-04-22	HK1210459
KR20160062224	A	2016-06-01	KR20160062224
EP2692697	B1	2016-12-14	EP2692697



[EP2915782](#)

B1 2017-09-27 EP2915782

[US9903029](#)

B2 2018-02-27 US9903029

**Abstract**

(EP2915782)

The present invention provides a bipolar-electrode **electrolytic cell** which includes a chassis (2), an electrode **plate** (3) performing **electrolysis** in **electrolyte** solution and generating **electrolyzed** products, and a **plate-shaped** spacer (4) having a concavity on which the electrode **plate** (3) is disposed, and in which a unit **cell** (C), which is formed by connecting a plurality of spacers (4) in which the electrode **plate** (3) is disposed on the concavity so that one **plate** surface of the electrode **plate** (3) is directed to one direction, is disposed inside the chassis (2), wherein the spacer (4) has a latching portion (26) formed on the **plate** surface and a latched portion (27) which latches the latching portion (26) of another spacer (4) and performs connection thereto.

Inventors

MATSUZAKI YAMATO

MATSUYAMA KOKI

Latest standardized assignees - inventors removed

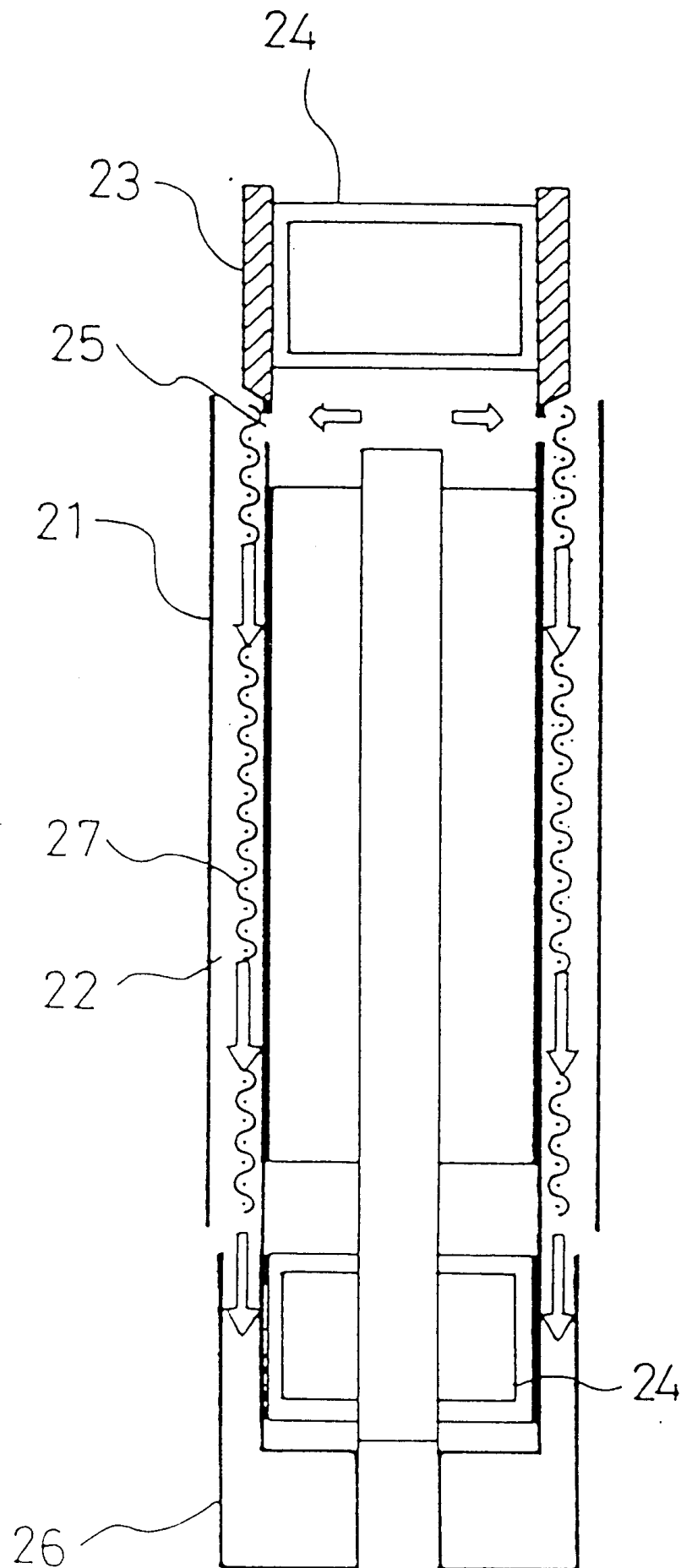
MORINAGA MILK INDUSTRY

Family 13/27 - FAMPAT - ©Questel

Title

(EP1092789)

Electrolytic cell using gas diffusion electrode and power distribution method for the **electrolytic cell****Images**



Publication data including kind & date

JP3041796	B1	2000-05-15	JP3041796
JP3041794	B1	2000-05-15	JP3041794
JP3041793	B1	2000-05-15	JP3041793
JP3041795	B1	2000-05-15	JP3041795
JP3041792	B1	2000-05-15	JP3041792
JP3086856	B1	2000-09-11	JP3086856
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JP2000282279	A	2000-10-10	JP2000282279
JP2000282283	A	2000-10-10	JP2000282283
JP2000282282	A	2000-10-10	JP2000282282
JP2000282284	A	2000-10-10	JP2000282284
JP2000282278	A	2000-10-10	JP2000282278
WO200060140	A1	2000-10-12	WO200060140
EP1092789	A1	2001-04-18	EP1092789
CN1297493	A	2001-05-30	CN1297493
US6383349	B1	2002-05-07	US6383349
EP1092789	A4	2003-01-02	EP1092789
CN1163634	C	2004-08-25	CN1163634C
EP1092789	B1	2011-08-10	EP1092789

**Abstract**

(EP1092789)

The invention relates to **electrolytic** cells employing an oxygen cathode which are used for, e.g., sodium chloride **electrolysis** by the ion-exchange membrane method. Disclosed are **electrolytic** cells of: the type in which a caustic chamber frame comprising an upper chamber, as caustic solution discharge openings, and a lower chamber, as caustic solution introduction openings, which are connected to each other through caustic solution passageways is disposed at outer edges of the **electrolytic cell** to thereby diminish caustic solution leakage; the type in which a lower gas chamber is disposed at the lower outer edge of a cathode element so as to cope with caustic solution leakage through the gas diffusion electrode into the gas chamber; the type in which the thickness of a caustic chamber is reduced as much as possible to thereby attain a reduced energy loss and low voltage; the type in which chambers having many holes for oxygen gas feed and discharge are attached to the cathode collector frame to thereby enable oxygen gas to be evenly fed to and discharged from the gas chamber having a gas diffusion electrode; the type in which a gas- and liquid-permeable gas diffusion electrode is used so that oxygen gas and water are fed from an upper chamber connected to the gas chamber and the gas and caustic solution are discharged into a lower chamber; the type in which a cathode collector frame of an oxygen cathode is disposed so as to face a meshed metallic material of a cathode chamber frame conductor of a cathode element and a necessary planar pressure is maintained with a gas pressure to bring the cathode collector frame into contact with the meshed metallic material and electrically connect these; etc. The **electrolytic** cells thus have constitutions in which, for example, caustic solution leakage is prevented or oxygen gas can be evenly fed to and discharged from the gas chamber. <IMAGE>

Inventors

SAKATA AKIHIRO

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KATAYAMA SHINJI

YAMAGUCHI KENZO

Latest standardized assignees - inventors removed

TOAGOSEI

MITSUI CHEMICALS

KANEKA

CHLORINE ENGINEERS

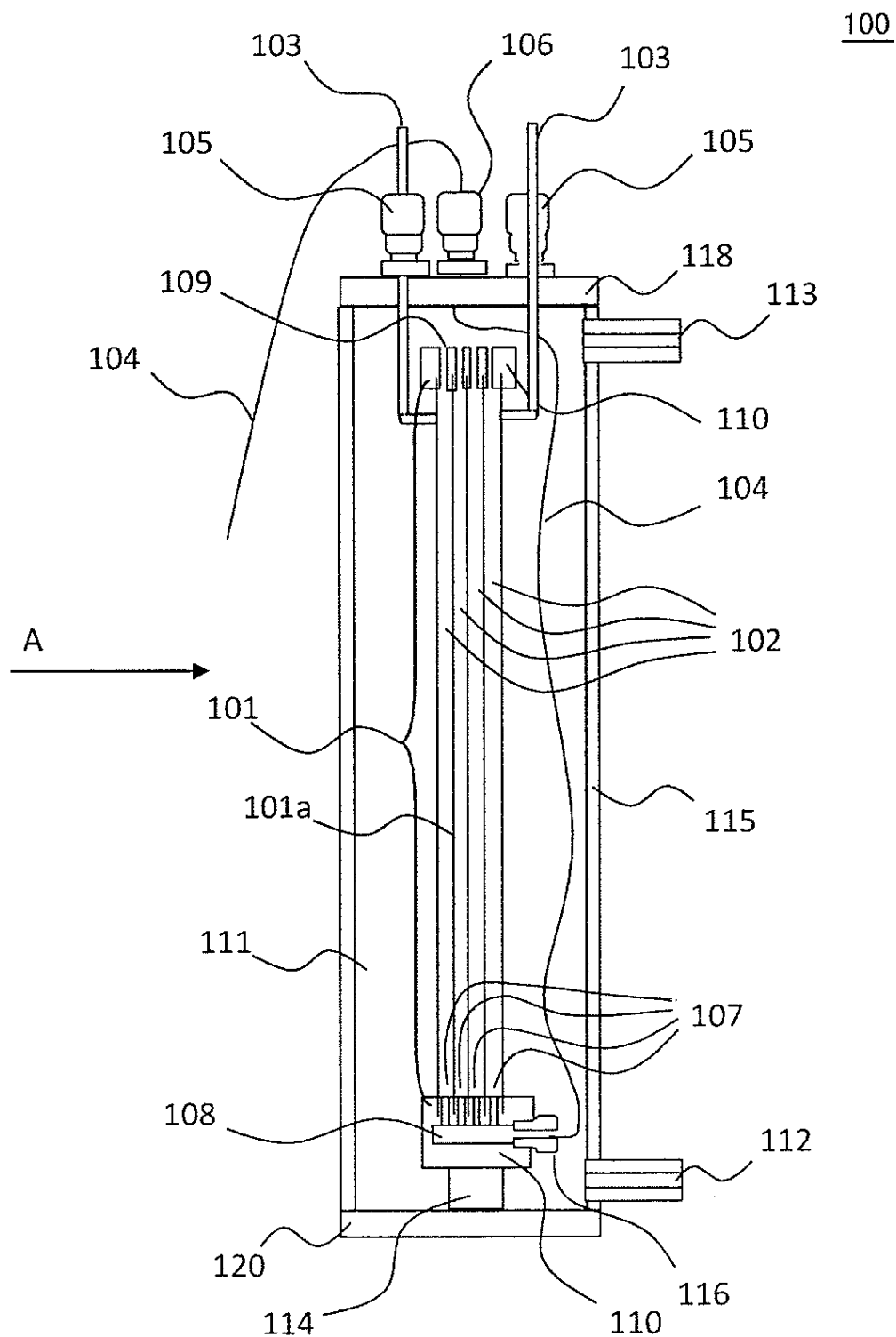
Family 14/27 - FAMPAT - ©Questel

Title

(EP2570389)

Electrolytic device and method for producing weakly acidic electrolysed water

Images



	B1	2011-06-29	JP4712915				
TW201144485	A	2011-12-16	TW201144485				
WO2011158279	A1	2011-12-22	WO2011158279				
EP2570389	A1	2013-03-20	EP2570389				
CN103080019	A	2013-05-01	CN103080019				
US20130112571	A1	2013-05-09	US20130112571				
JPWO2011158279	A1	2013-08-15	JP2011158279W				
EP2570389	A4	2013-11-13	EP2570389				
TWI418662	B	2013-12-11	TWI418662				
CN103080019	B	2014-07-23	CN103080019B				
EP2570389	B1	2016-08-10	EP2570389				

Abstract

(EP2570389)

(Technical Problem) To provide an **electrolytic** apparatus and a method for producing slightly acidic **electrolyzed** water with a molecular hypochlorous acid component by **electrolysis** of a chlorine containing composition. (Solution to Problem) The **electrolytic** apparatus 300 for producing slightly acidic **electrolyzed** water with hypochlorous acid by **electrolyzing** a chlorine containing composition with chloride ions and then diluting the **electrolyzed** solution comprises a container 115 for providing a dilution water passage 111 for diluting the **electrolyzed** solution, an electrode stack 101, disposed in the container 115 while including a diaphragm-less unit **electrolysis cell** defined between planar electrodes and the electrode holder frame 107 for supplying chlorine composition at the position corresponding to the unit **electrolysis cell**, and an electrode holder frame 110 comprising a reservoir part 108 fluid-communicated to the opening 107 while retaining the chlorine containing composition prior to the supply of the chlorine containing composition to the unit **electrolysis cell**. The total area S of the opening fluid-communicating between the reservoir part 108 and the unit **electrolytic cell** is not more than 10 mm².

Inventors

DOI TOYOHICO

Latest standardized assignees - inventors removed

HOCL

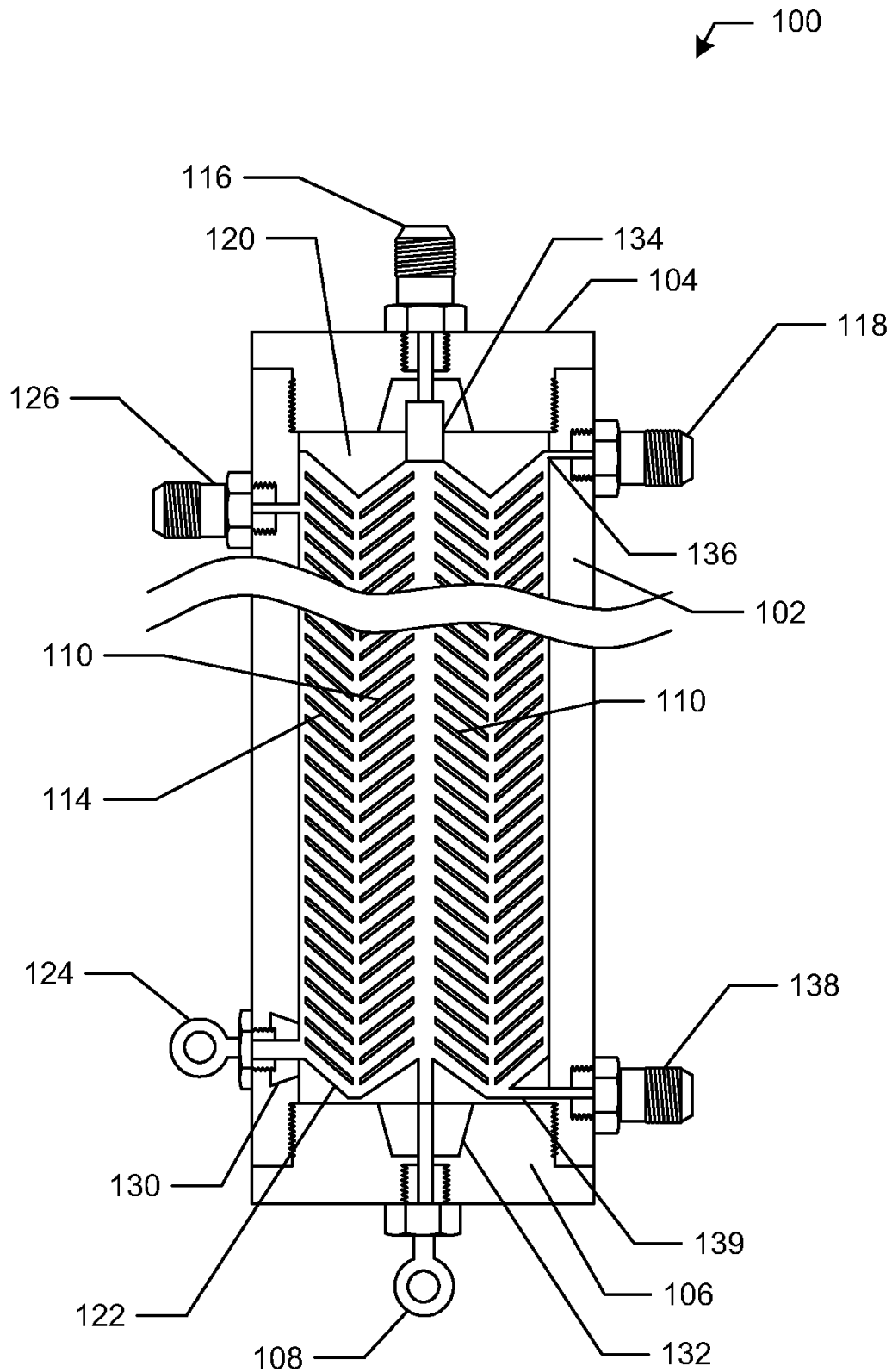
Family 15/27 - FAMPAT - ©Questel

Title

(EP2625031)

Internally reinforced structural composites and associated methods of manufacturing

Images



Publication data including kind & date

WO2010096505	A1	2010-08-26	WO201096505
WO2010096504	A1	2010-08-26	WO201096504
WO2010096503	A1	2010-08-26	WO201096503
US20100213052	A1	2010-08-26	US20100213052
US20100213076	A1	2010-08-26	US20100213076
CA2752825	A1	2010-08-26	CA2752825
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CA2752698	A1	2010-08-26	CA2752698				
WO2011028233	A2	2011-03-10	WO201128233				
WO2011028400	A2	2011-03-10	WO201128400				
WO2011028402	A2	2011-03-10	WO201128402				
WO2011028401	A2	2011-03-10	WO201128401				
CA2770510	A1	2011-03-10	CA2770510				
WO2011034677	A2	2011-03-24	WO201134677				
US20110081586	A1	2011-04-07	US20110081586				
WO2011053341	A2	2011-05-05	WO201153341				
WO2011034677	A3	2011-05-12	WO201134677				
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WO2011053341	A3	2011-06-23	WO201153341				
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WO2011100731	A2	2011-08-18	WO2011100731				
WO2011100726	A2	2011-08-18	WO2011100726				
WO2011100722	A2	2011-08-18	WO2011100722				
CA2789703	A1	2011-08-18	CA2789703				
CA2788429	A1	2011-08-18	CA2788429				
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WO2011102851	A1	2011-08-25	WO2011102851				
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SG173718	A1	2011-09-29	SG-173718				
US20110253526	A1	2011-10-20	US20110253526				
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IL214693	A	2011-12-01	IL-214693				
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ECSP11011332	A	2011-12-30	EC201111332				
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VN28606	A	2012-01-30	VN--28606				
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AU2010289904	A1	2012-02-23	AU2010289904				
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IN3482/KOLNP/2011	A	2012-03-23	IN2011KN03482				
CN102396093	A	2012-03-28	CN102396093				
CN102395710	A	2012-03-28	CN102395710				
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IL217860	A	2012-03-29	IL-217860				
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EP2470788	A2	2012-07-04	EP2470788				
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CA2752707	C	2014-01-07	CA2752707				
CA2752825	C	2014-01-14	CA2752825				
EP2533975	A4	2014-01-15	EP2533975				
KR101352231	B1	2014-01-15	KR101352231				
EG26525	A	2014-01-19	EG--26525				
CA2752698	C	2014-01-28	CA2752698				
US8641810	B2	2014-02-04	US8641810				
JP5406384	B2	2014-02-05	JP5406384				
JP2014025587	A	2014-02-06	JP2014025587				
JP5411299	B2	2014-02-12	JP5411299				
US20140061060	A1	2014-03-06	US20140061060				
US8668814	B2	2014-03-11	US8668814				
NZ595213	A	2014-03-28	NZ-595213				
NZ595216	A	2014-03-28	NZ-595216				
EP2470787	A4	2014-04-16	EP2470787				
SG2014014484	A	2014-04-28	SG2014014484				
NZ595218	A	2014-04-30	NZ-595218				
US20140120025	A1	2014-05-01	US20140120025				
KR101397751	B1	2014-05-20	KR101397751				
CA2788429	C	2014-05-20	CA2788429				
KR20140070674	A	2014-06-10	KR20140070674				
SG2014014336	A	2014-06-27	SG2014014336				
JP5547753	B2	2014-07-16	JP5547753				
JP5547752	B2	2014-07-16	JP5547752				
CN102395709	B	2014-09-17	CN102395709B				
SG2014014260	A	2014-09-26	SG2014014260				
RU2013115169	A	2014-10-10	RU2013115169				
US20140326597	A1	2014-11-06	US20140326597				
IL214691	B	2014-12-31	IL-214691				
US20150010450	A1	2015-01-08	US20150010450				
RU2537321	C2	2015-01-10	RU2537321				
EG26967	A	2015-02-11	EG--26967				
CN102395710	B	2015-02-11	CN102395710B				
JP2015028339	A	2015-02-12	JP2015028339				

IL214693	B	2015-02-26	IL-214693				
EP2470786	A4	2015-03-04	EP2470786				
US8980416	B2	2015-03-17	US8980416				
CN102712020	B	2015-04-01	CN102712020B				
CN102884361	B	2015-04-15	CN102884361B				
MY154200	A	2015-05-15	MY-154200				
US9040012	B2	2015-05-26	US9040012				
EP2470311	A4	2015-06-03	EP2470311				
US20150165725	A1	2015-06-18	US20150165725				
US20150184532	A1	2015-07-02	US20150184532				
US20150184305	A1	2015-07-02	US20150184305				
KR101534996	B1	2015-07-08	KR101534996				
EP2470752	A4	2015-08-05	EP2470752				
CN102713281	B	2015-08-19	CN102713281B				
KR101547007	B1	2015-08-24	KR101547007				
VN0014347	B	2015-08-25	VN--14347B				
RU2562336	C2	2015-09-10	RU2562336				
MY155100	A	2015-09-15	MY-155100				
US9133552	B2	2015-09-15	US9133552				
CN102906514	B	2015-11-25	CN102906514B				
CN102713280	B	2015-11-25	CN102713280B				
US9231267	B2	2016-01-05	US9231267				
CN102713282	B	2016-01-06	CN102713282B				
EP2398937	B1	2016-01-06	EP2398937				
CN103124692	B	2016-01-13	CN103124692B				
JP5852576	B2	2016-02-03	JP5852576				
CN102396093	B	2016-02-17	CN102396093B				
BR112012003227	A2	2016-03-01	BR112012003227				
BR112012004093	A2	2016-03-08	BR112012004093				
BRPI1008697	A2	2016-03-08	BR201008697				
BRPI1008696	A2	2016-03-08	BR201008696				
BRPI1008695	A2	2016-03-08	BR201008695				
BR112012004315	A2	2016-03-15	BR112012004315				
IL217860	B	2016-03-31	IL-217860				
EP2398938	B1	2016-04-06	EP2398938				
CN102844264	B	2016-04-20	CN102844264B				
BR112012020282	A2	2016-05-03	BR112012020282				
JP5922577	B2	2016-05-24	JP5922577				
IL214692	B	2016-05-31	IL-214692				
EP2625031	A4	2016-06-08	EP2625031				
US9394169	B2	2016-07-19	US9394169				
US9409126	B2	2016-08-09	US9409126				
EP2567066	A4	2017-02-08	EP2567066				
EP2470788	A4	2017-04-05	EP2470788				
BR112012020275	A2	2018-04-17	BR112012020275				

Abstract

(EP2625031)

Internally reinforced structural composites, suitable uses for such composites, and associated methods of manufacturing

are disclosed herein. In one embodiment, a method of making a reinforced structural component includes forming a precursor having a crystal structure with a plurality of lattice layers and exfoliating the precursor. As a result, a distance between adjacent pairs of the plurality of lattice layers is expanded. The method also includes wrapping the exfoliated precursor with a surface support material around at least a portion of a circumference of the individual lattice layers in the exfoliated precursor.

Inventors

MCALISTER ROY E

Latest standardized assignees - inventors removed

ADVANCED GREEN INNOVATIONS

MCALISTER TECHNOLOGIES

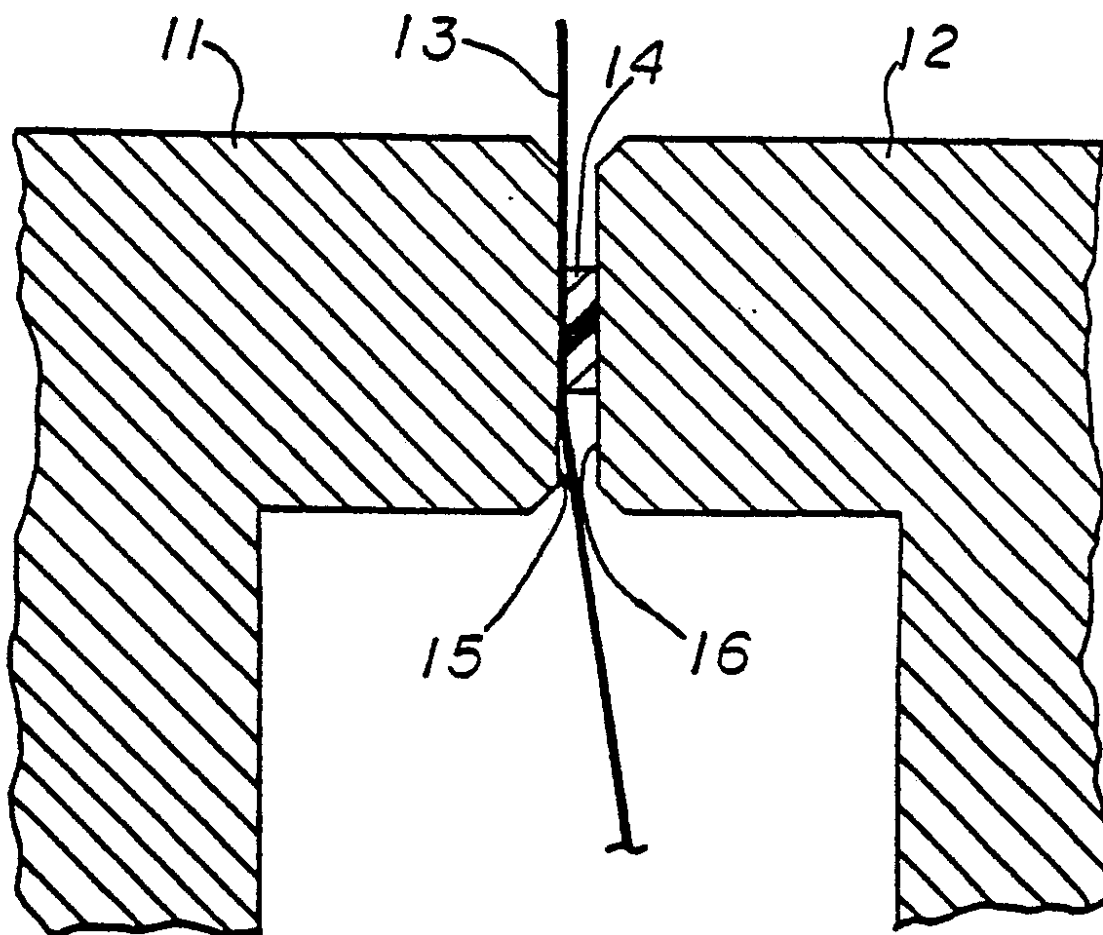
Family 16/27 - FAMPAT - ©Questel

Title

(EP-195072)

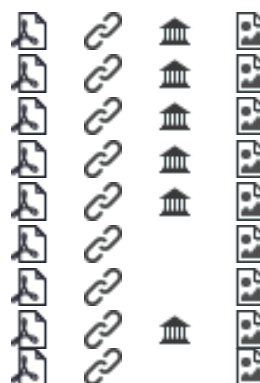
Seal for electrolytic cells

Images



Publication data including kind & date

PT81186	A	1985-10-01	PT--81186
GR852320	B	1986-01-24	GR-852320
IL76462	A	1986-01-31	IL--76462
WO8601838	A1	1986-03-27	WO8601838
AU4960485	A	1986-04-08	AU8549604
FI861974	A	1986-05-12	FI8601974
FI861974	A0	1986-05-12	FI8601974
DK239186	A	1986-05-22	DK8602391



DK239186	D0	1986-05-22	DK8602391				
NO862060	A	1986-05-23	NO8602060				
PL255502	A1	1986-07-15	PL85255502				
KR19867000272	A	1986-08-01	KR19867000272				
JPS61501638	A	1986-08-07	JP61501638				
US4610765	A	1986-09-09	US4610765				
EP0195072	A1	1986-09-24	EP-195072				
BR8506943	A	1986-12-23	BR8506943				
EP0195072	A4	1987-01-20	EP-195072				
DD243052	A5	1987-02-18	DD-243052				
CN85108000	A	1987-04-01	CN85108000				
ZA8507346	B	1987-05-27	ZA8507346				
HUT41851	A	1987-05-28	HU-T41851				
ES547223	A0	1987-07-01	ES-547223				
ES8706853	A1	1987-07-01	ES8706853				
AU564709	B2	1987-08-20	AU-564709				
JPS6256237	B2	1987-11-25	JP87056237				
IL76462	B	1988-08-31	IL--76462				
CA1242990	A	1988-10-11	CA1242990				
EP0195072	B1	1989-05-31	EP-195072				
KR890002055	B1	1989-06-15	KR890002055				
AT43654	T	1989-06-15	ATE043654				
DE3570707	D1	1989-07-06	DE3570707				
IN165594	B	1989-11-25	IN-165594				
PT81186	B	1994-10-31	PT--81186				

Abstract

(EP-195072)

An **electrolytic cell** assembly of the filter press-type comprising a first frame (11), a second frame (12), a separator (13) is interposed between the frames to space apart an anode and a cathode, and a pre-compressed seal (14) is interposed between the first or second frames and the separator.

Inventors

BEAVER, RICHARD, NEAL

NEWTON, GENE, H.

DANG, HIEP, D.

Latest standardized assignees - inventors removed

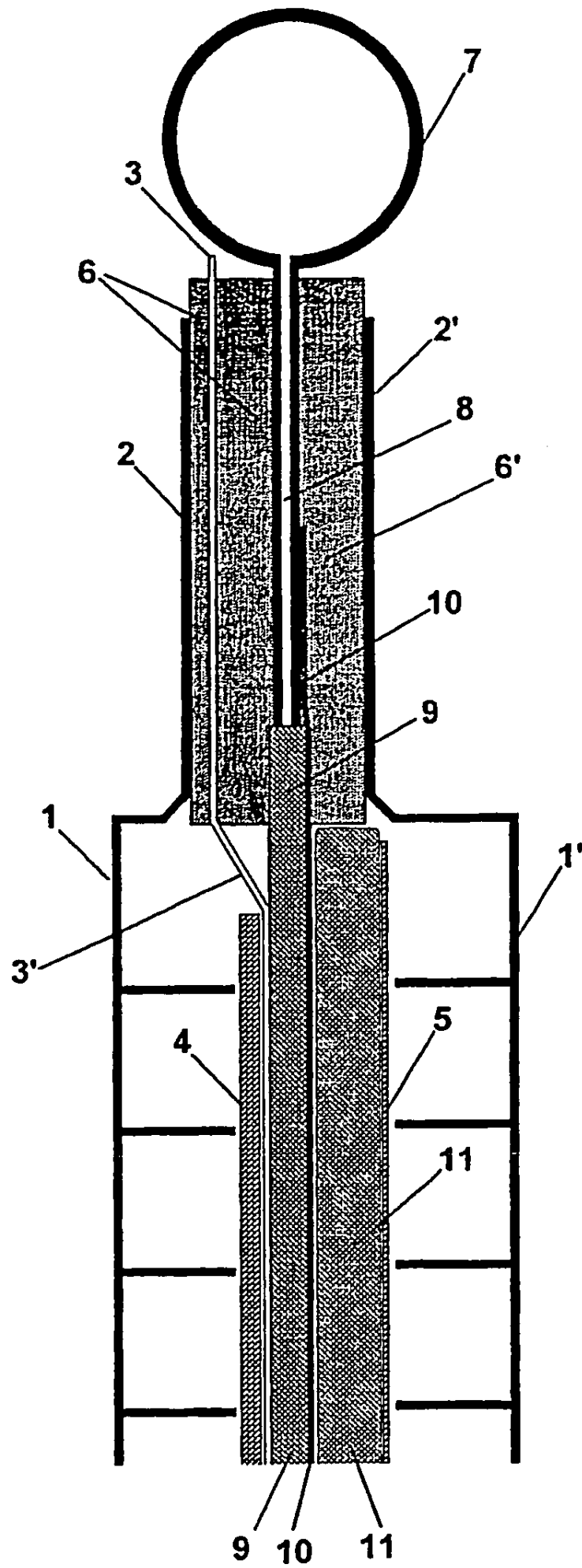
DENORA

Family 17/27 - FAMPAT - ©Questel

Title

(EP1509639)

Distributing element for **electrolyte** percolation electrochemical **cell****Images**



Publication data including kind & date

ITMI20021203	D0	2002-06-04	IT2002MI1203				
ITMI20021203	A1	2003-12-04	IT2002MI1203				
WO03102271	A2	2003-12-11	WO2003102271				
CA2488634	A1	2003-12-11	CA2488634				
AU2003250820	A1	2003-12-19	AU2003250820				
AU2003250820	A8	2003-12-19	AU2003250820				
WO03102271	A3	2004-02-05	WO2003102271				
EP1509639	A2	2005-03-02	EP1509639				
US20050183951	A1	2005-08-25	US20050183951				
MXPA04012140	A	2005-09-21	MX2004PA012140				
JP2005528528	A	2005-09-22	JP2005528528				
EP1509639	B1	2005-10-26	EP1509639				
AT307915	T	2005-11-15	ATE307915				
DE60302067	D1	2005-12-01	DE60302067				
CN1723300	A	2006-01-18	CN1723300				
ES2249730	T3	2006-04-01	ES2249730				
IN1781/KOLNP/2004	A	2006-07-14	IN2004KN01781				
DE60302067	T2	2006-07-20	DE60302067				
IN228799	B	2009-02-13	IN-228799				
US7828941	B2	2010-11-09	US7828941				
CA2488634	C	2011-04-26	CA2488634				
JP4768988	B2	2011-09-07	JP4768988				
CN1723300	B	2012-05-30	CN1723300B				

Abstract

(EP1509639)

A distributing element for an electrolyte percolating-type electrochemical cell comprises an external feeding manifold (7) and an assembly formed by a gas diffusion electrode (10), a percolator (9) and optionally an ion-exchange membrane (3'). The element is particularly suitable for chlor-alkali electrolysis cells and alkaline fuel cells. It is also disclosed a method for retrofitting membrane electrochemical cells by inserting the distributing element of the invention therein.

Inventors

OLDANI DARIO

PASQUINUCCI ANTONIO

Latest standardized assignees - inventors removed

INDUSTRIE DE NORA

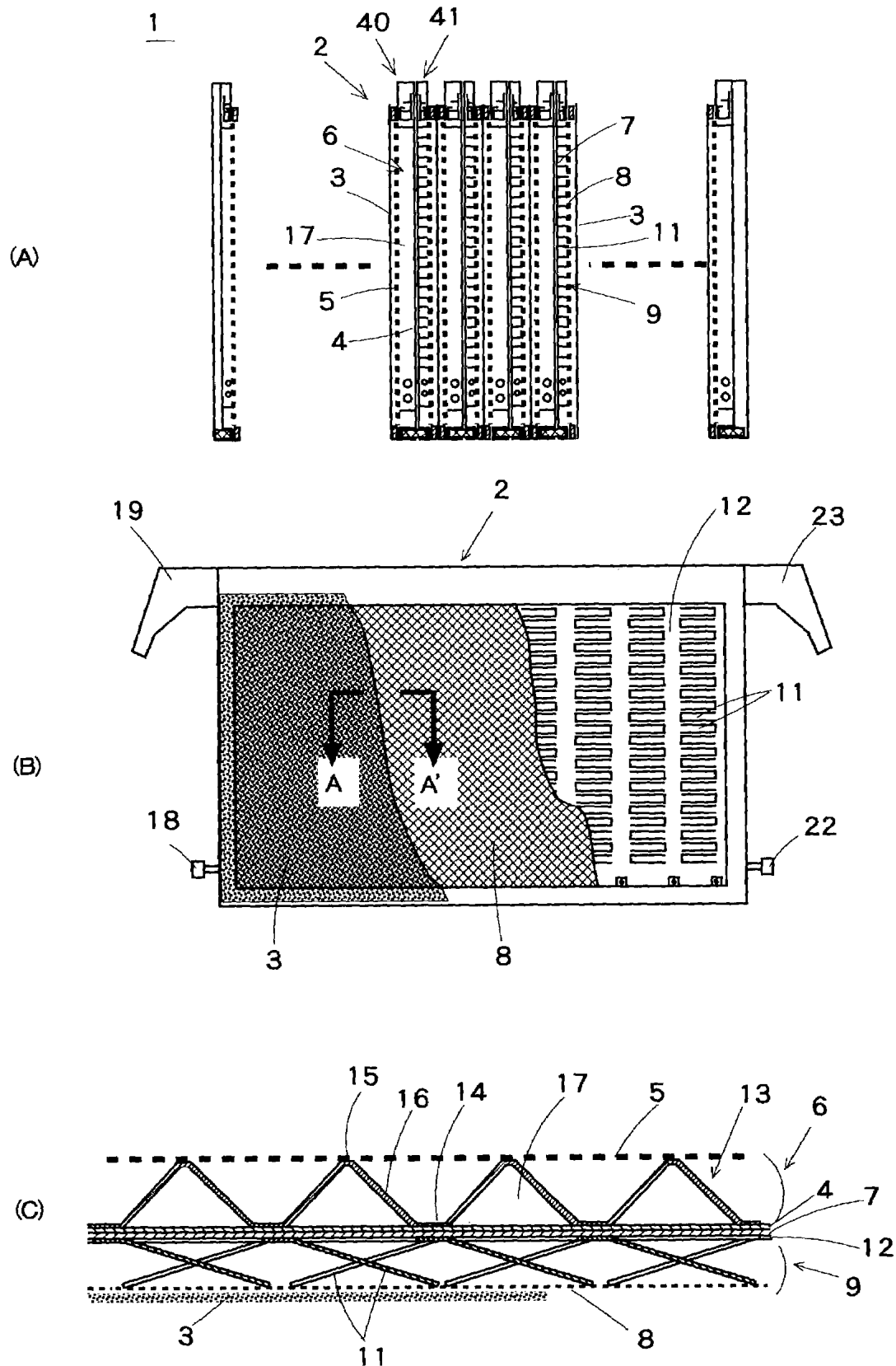
Family 18/27 - FAMPAT - ©Questel

Title

(EP1378589)

Ion exchange membrane electrolyzer

Images



Publication data including kind & date

NO20031539	D0	2003-04-04	NO200301539
NO20031539	A	2003-10-06	NO200301539
US20030188966	A1	2003-10-09	US20030188966
KR20030079788	A	2003-10-10	KR20030079788
CN1451786	A	2003-10-29	CN1451786
EP1378589	A1	2004-01-07	EP1378589



JP2004002993	A	2004-01-08	JP2004002993				
JP3501453	B2	2004-03-02	JP3501453				
CN1204296	C	2005-06-01	CN1204296C				
KR100509300	B1	2005-08-18	KR100509300				
EP1378589	B1	2005-12-07	EP1378589				
DE60302610	D1	2006-01-12	DE60302610				
US7045041	B2	2006-05-16	US7045041				
DE60302610	T2	2006-07-06	DE60302610				
IN0282/CHE/2003	A	2007-07-06	IN2003CH00282				
IN241732	B	2010-07-30	IN-241732				

Abstract

(EP1378589)

The invention provides an ion exchange membrane **electrolyzer**.An electric current is passed through at least one electrode while the electrode is in contact with a plurality of comb-like flat leaf spring tags extending at an angle from a flat leaf spring form of retainer member located on an electrode partition provided in an electrode chamber.Each pair of comb-like flat leaf spring tags are arranged in such a way that adjacent flat leaf spring tags extend in mutually opposite directions. <IMAGE>

Inventors

KATAYAMA SHINJI

Latest standardized assignees - inventors removed

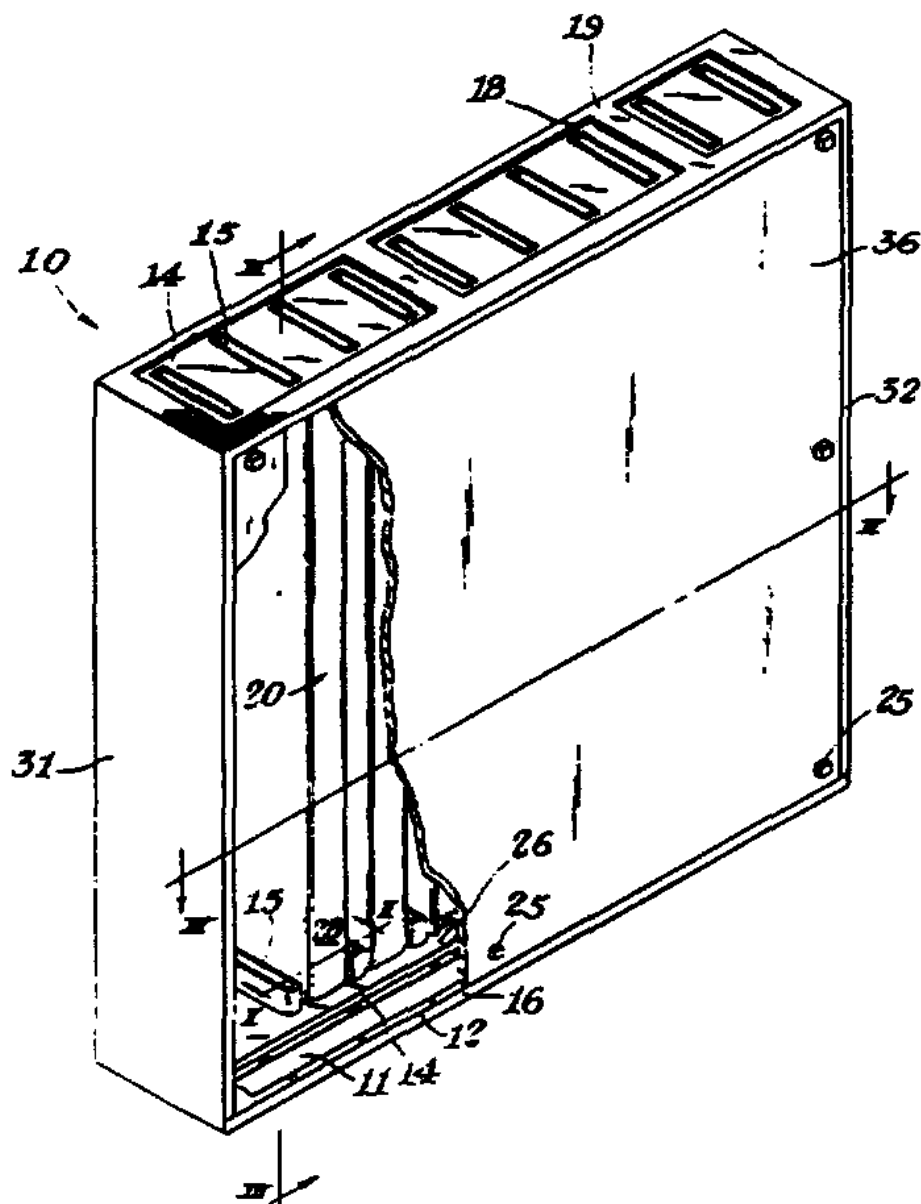
TOSOH

Family 19/27 - FAMPAT - ©Questel

Title

(EP--68049)

Membrane support assembly for **electrolytic cell** and method of making same**Images**



Publication data including kind & date

EP0068049	A1	1983-01-05	EP--68049
EP0068049	B1	1985-09-04	EP--68049
DE3172133	D1	1985-10-10	DE3172133



Abstract

(EP--68049)

Method of supporting a preformed membrane in an electrolytic cell, and apparatus therefor, which comprises casting in situ support plates (26) about the open edges (28, 30) of the membrane (22).

Inventors

KNIGHT, ALLAN RUSSELL

MATHUR, INDRESH

Latest standardized assignees - inventors removed

DOW CHEMICAL

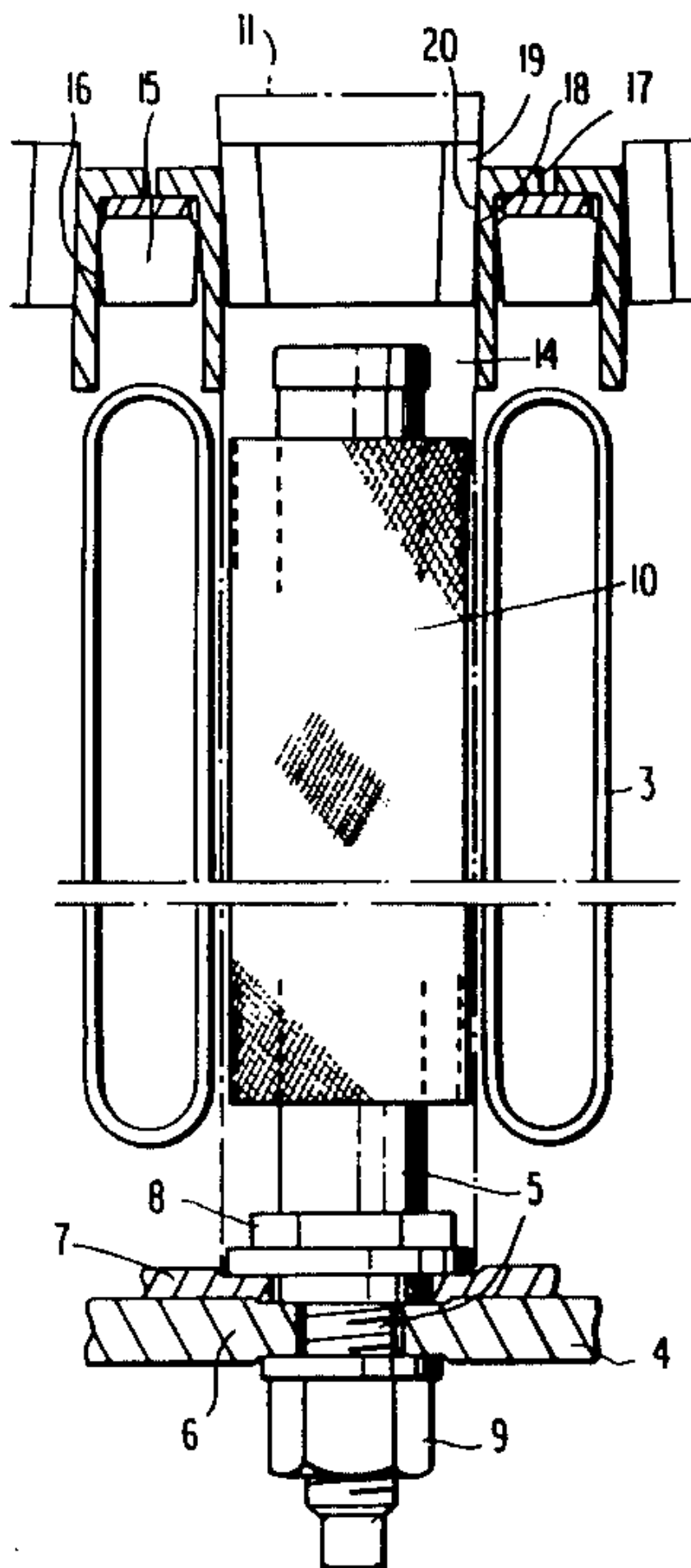
Family 20/27 - FAMPAT - ©Questel

Title

(US4409084)

Electrolytic cell for ion exchange membrane method

Images



Publication data including kind & date

FR2488914	A1	1982-02-26	FR2488914
JPS5741386	A	1982-03-08	JP57041386
GB2082633	A	1982-03-10	GB2082633
DE3132108	A1	1982-04-01	DE3132108
PL232747	A1	1982-05-10	PL81232747
DD201919	A5	1983-08-17	DD-201919
US4409084	A	1983-10-11	US4409084
CA1165727	A	1984-04-17	CA1165727
GB2082633	B	1984-06-20	GB2082633
PL129891	B1	1984-06-30	PL-129891
JPS6143437	B2	1986-09-27	JP86043437
DE3132108	C2	1987-03-19	DE3132108
JP1374172	C	1987-04-07	JP1374172
FR2488914	B1	1987-08-07	FR2488914

**Abstract**

(US4409084)

An **electrolytic cell** for the ion exchange membrane method, which comprises:

- (a) an **electrolytic cell** main body;
 - (b) a lid covering the
 - (c) porous and hollow tubular cathodes disposed in the body;
 - (d) a bottom **plate** having apertures through which an electrically conductive bar can be extended;
 - (e) electrically conductive bars provided with a flange at a lower portion thereof, each inserted through the apertures of the bottom **plate** into the interior of the body and secured to the bottom **plate** by the flange;
 - (f) porous anodes each connected to the electrically conductive bar and placed vertically in a face-face relation to the cathode, and disposed between the cathodes;
 - (g) bag-shaped elements, portions of which facing the anodes and the cathodes are formed by a cation exchange membrane, the bottom of which has at least one aperture through which the electrically conductive bar can be extended, and which have each an open top; and
 - (h) a partition **plate** having openings, which **plate** is on the top of the body,
- wherein

one or more anodes are in the bag-shaped element,

the bottom of the bag-shaped element is secured to the bottom **plate** together with the electrically conductive bar extending through the aperture of the bottom of the bag-shaped element by the flange of the electrically conductive bar so that an anode compartment is defined in the bag-shaped element, and

the opening of the top of the bag-shaped element is secured to the opening of the partition **plate** by a gasket and a gasket cap.

Inventors

YAMAGUCHI KENZO

ICHISAKA TERUO

IKEGAMI TADAO

Latest standardized assignees - inventors removed

CHLORINE ENGINEERS

Family 21/27 - FAMPAT - ©Questel

Title

(EP-579910)

Device for the **electrolytic** treatment of liquids in anodic and cathodic compartments

Images

Publication data including kind & date

DE4224492	C1	1993-12-09	DE4224492
EP0579910	A1	1994-01-26	EP-579910
EP0579910	B1	1996-10-09	EP-579910
AT144006	T	1996-10-15	ATE144006
DE59304090	D1	1996-11-14	DE59304090
ES2093311	T3	1996-12-16	ES2093311

**Abstract**

(EP-579910)

The object is to achieve a better liquid mixing in the respective **electrolysis** chambers without external aids and with as uniform as possible membrane loading avoiding **foam** formation in the membrane region using a device (1) for the **electrolytic** treatment of liquids in an anodic (2) and a cathodic compartment (3) which are separated from one another by an ion exchanger membrane (4). The chambers (2, 3) are equipped with an inlet opening (5) and an outlet opening (6) for the flowing **electrolyte** and with one two-dimensional electrode in each case having associated power-supply terminals (8, 9). A strongly acidified anolyte solution can be fed to the membrane **cell** as feedstock without the ion exchanger membrane becoming inoperative prematurely. This is achieved by providing at least one separating element (10) having circulating flow in some areas to produce a defined mixing flow in each chamber (2, 3). <IMAGE>

Inventors

DULLE KARL-HEINZ

LUEKE BENNO DR

PRASSER JOCHEN

STREWE WOLFGANG DR

SCHULZE JOACHIM DR

WOLLNY MARTIN

Latest standardized assignees - inventors removed

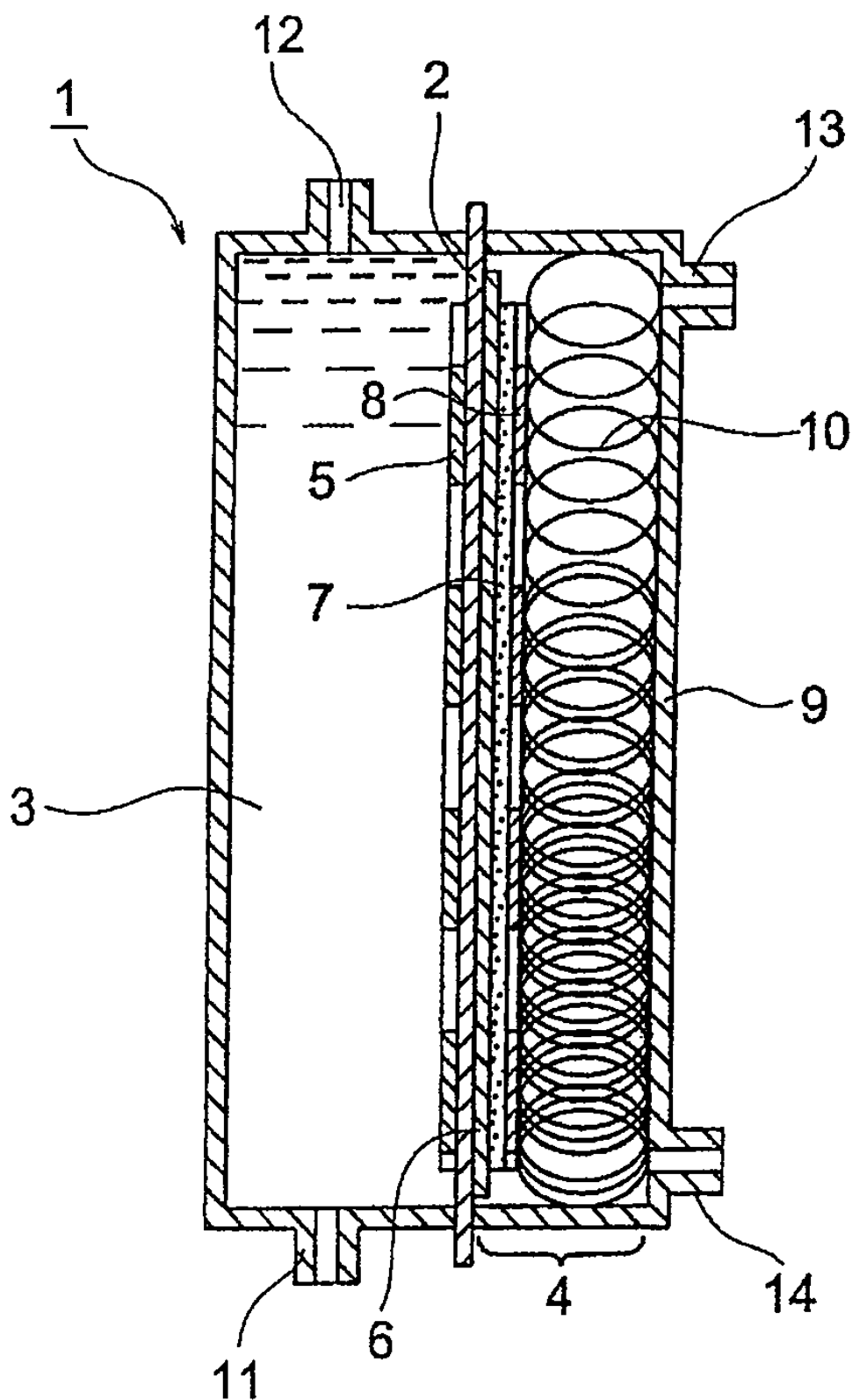
UHDE

Family 22/27 - FAMPAT - ©Questel

Title

(EP2662477)

Ion exchange membrane **electrolytic cell****Images**



Publication data including kind & date

WO2006123716	A1	2006-11-23	WO2006123716
JP2006322018	A	2006-11-30	JP2006322018
EP1882758	A1	2008-01-30	EP1882758
CN101175871	A	2008-05-07	CN101175871
US20090071820	A1	2009-03-19	US20090071820
CN101175871	B	2010-12-15	CN101175871B
EP1882758	A4	2011-05-04	EP1882758



JP4834329	B2	2011-12-14	JP4834329
EP1882758	B1	2012-01-11	EP1882758
AT541071	T	2012-01-15	ATE541071
EP2428594	A1	2012-03-14	EP2428594
US8197649	B2	2012-06-12	US8197649
EP2662476	A2	2013-11-13	EP2662476
EP2662477	A2	2013-11-13	EP2662477
EP2662476	A3	2015-02-18	EP2662476
EP2662477	A3	2015-02-18	EP2662477
EP2428594	B1	2017-04-12	EP2428594



Abstract

(EP2662477)

The invention resides an ion exchange membrane **electrolytic cell** comprising an anode chamber accommodating an anode and a cathode gas chamber accommodating a gas diffusion electrode which are divided by an ion exchange membrane characterized in that a metallic cushion is accommodated under compression between a back **plate** of the cathode gas chamber and the gas diffusion electrode, wherein the pressures applied to the ion exchange membrane and the anode are minimised by generating a repulsive force to equal, or be larger than, the differential pressures such that the pressures applied are different from one another depending on the depth of the **electrolytic cell**. The metallic cushion can be configured such that a repulsive force of the metallic cushion at a bottom part, of the cathode gas chamber is larger than that at a top part of the cathode gas chamber. The invention also resides in a method of the **electrolysis** of brine and producing caustic soda or chlorine by employing an ion exchange membrane **electrolytic cell** according to claim 1.

Inventors

SAIKI KOJI

ASAUMI KIYOHITO

HAMAMORI MITSU HARU

OSAKABE TSUGIYOSHI

Latest standardized assignees - inventors removed

KANEKA

TOAGOSEI

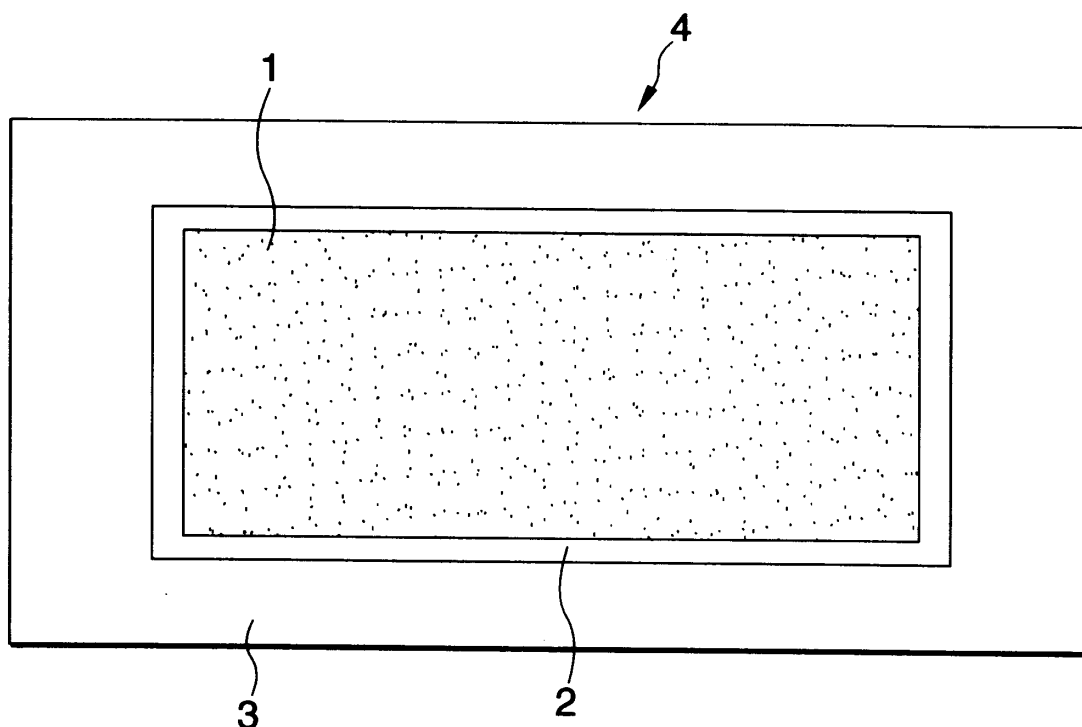
Family 23/27 - FAMPAT - ©Questel

Title

(EP1076115)

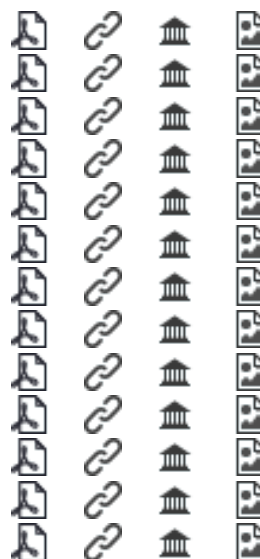
Gas diffusion electrode and brine **electrolytic** bath

Images



Publication data including kind & date

JP3002993	B1	2000-01-24	JP3002993
JP3002992	B1	2000-01-24	JP3002992
WO200050668	A1	2000-08-31	WO200050668
JP2000239875	A	2000-09-05	JP2000239875
JP2000239881	A	2000-09-05	JP2000239881
JP2000239880	A	2000-09-05	JP2000239880
JP3086854	B1	2000-09-11	JP3086854
JP3086853	B2	2000-09-11	JP3086853
JP2000273674	A	2000-10-03	JP2000273674
EP1076115	A1	2001-02-14	EP1076115
CN1294641	A	2001-05-09	CN1294641
US6423194	B1	2002-07-23	US6423194
CN1148467	C	2004-05-05	CN1148467C



Abstract

(EP1076115)

The invention relates to a gas diffusion electrode and a gas diffusion electrode and gas chamber which are suitable for use as an oxygen cathode of an ion-exchange type sodium chloride electrolytic cell, and the like, and a sodium chloride electrolytic cell using the same. The invention provides a gas diffusion electrode supported by a metal frame characterized in that the gas diffusion electrode is joined to the metal frame via a silver member or a member having a silver surface. The joints are leakproof against liquid and gas. No gasket is needed between the gas diffusion electrode and an electrolytic cell frame. The metal-framed gas diffusion electrode can be made large-sized by using a metal frame having two or more openings, to each of which a gas diffusion electrode is joined via a silver member or a member having a silver surface by hot pressing. The distance to an ion-exchange membrane can be reduced by shaping the metal frame in such a manner that the gas diffusion electrode supported thereon projects forward. A gas diffusion electrode and gas chamber which is tightly sealed against liquid is made by joining an electrode pan to the back side of the metal-framed gas diffusion electrode to form a gas chamber between that side and the electrode pan. An electrolytic cell is made by using the gas diffusion electrode and gas chamber. <IMAGE>

Inventors

FURUYA NAGAKAZU

Latest standardized assignees - inventors removed

KANEKA

MITSUI CHEMICALS

TOAGOSEI

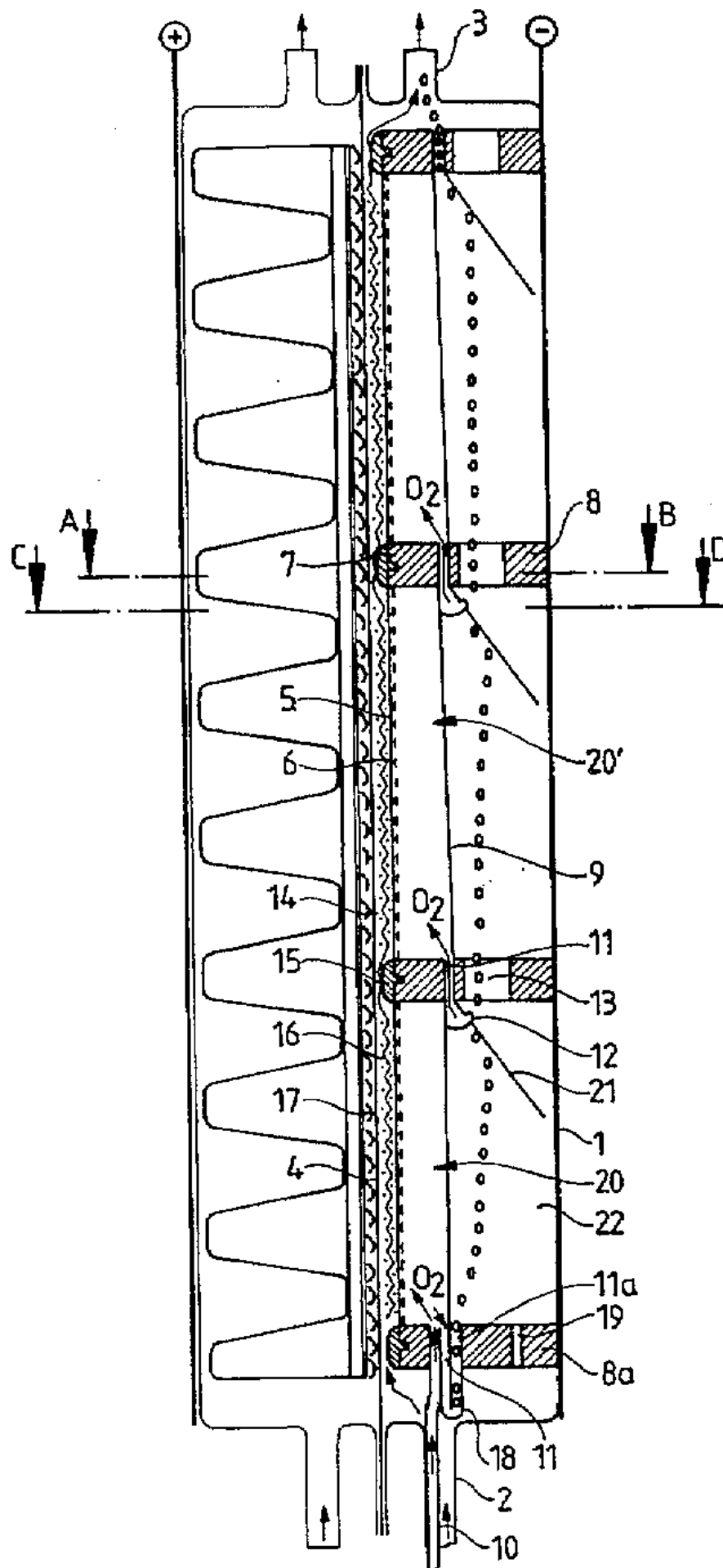
Family 24/27 - FAMPAT - ©Questel

Title

(EP-717130)

Pressure compensated electrochemical cell

Images



Publication data including kind & date

CA2164789	A1	1996-06-13	CA2164789				
EP0717130	A1	1996-06-19	EP-717130				
KR19960027022	A	1996-07-22	KR19960027022				
JPH08225975	A	1996-09-03	JP08225975				
DE4444114	A1	1996-09-19	DE4444114				
CN1133355	A	1996-10-16	CN1133355				
DE4444114	C2	1997-01-23	DE4444114				
TW301805	B	1997-04-01	TW-301805				
US5693202	A	1997-12-02	US5693202				
EP0717130	B1	1998-04-08	EP-717130				
AT164891	T	1998-04-15	ATE164891				
DE59501842	D1	1998-05-14	DE59501842				
ES2114265	T3	1998-05-16	ES2114265				
JP3043607	B2	2000-05-22	JP3043607				
CN1075567	C	2001-11-28	CN1075567C				
KR100393947	B1	2003-11-01	KR100393947				

Abstract

(EP-717130)

The electro-chemical half-cell comprises an electrode space (14) contg. an electrolyte (22), a gas space (23) and, between them, at least one gas diffusion electrode (5), acting as either anode or cathode. The gas space (23) is divided into 2 or more cascading gas pockets (20, 20') one above the other and sepd. from one another. The pressure in each gas pocket (20, 20') is in equilibrium with the pressure of the electrolyte liq. column in the corresp. part of the electrode space (14) in front of the gas diffusion electrode (5). Gas can pass through the openings (11, 12) to electrolyte (22).

Inventors

GESTERMANN FRITZ DR

PINTER HANS-DIETER

Latest standardized assignees - inventors removed

BAYER

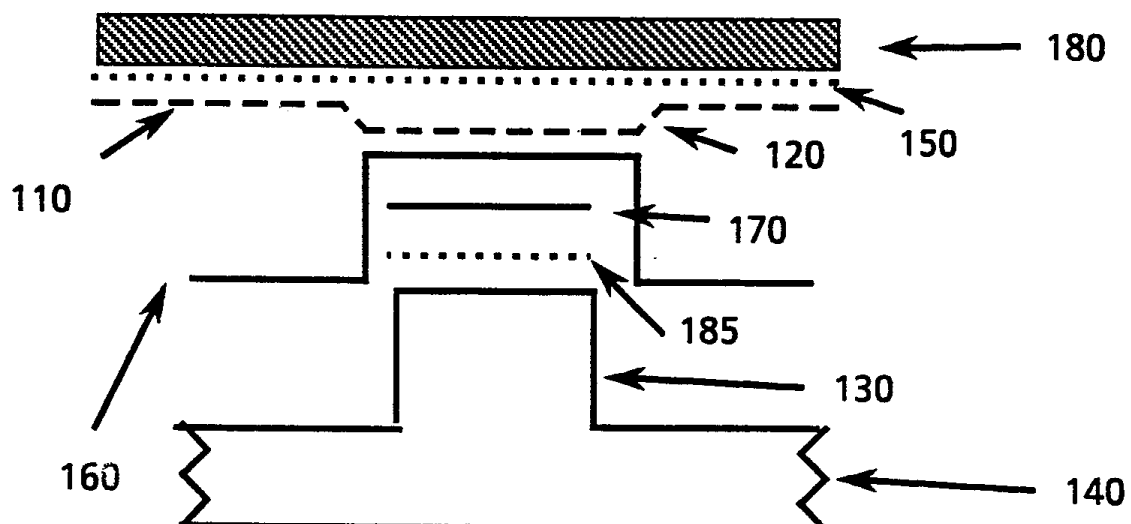
Family 25/27 - FAMPAT - ©Questel

Title

(EP-469062)

Electrode structure for an electrolytic cell.

Images



Publication data including kind & date

CA2053278	A1	1990-10-20	CA2053278				
WO9012903	A1	1990-11-01	WO9012903				
BRPI9007317	A1	1990-11-01	BRPI9007317				
AU5655090	A	1990-11-16	AU9056550				
CN1047893	A	1990-12-19	CN1047893				
US5013414	A	1991-05-07	US5013414				
EP0469062	A1	1992-02-05	EP-469062				
BR9007317	A	1992-04-28	BR9007317				
EP0469062	A4	1992-05-06	EP-469062				
KR19927001525	A	1992-08-11	KR19927001525				
AU642143	B2	1993-10-14	AU-642143				
JPH05507315	A	1993-10-21	JP05507315				
EP0469062	B1	1995-07-26	EP-469062				
AT125579	T	1995-08-15	ATE125579				
DE69021208	D1	1995-08-31	DE69021208				
DE69021208	T2	1996-05-02	DE69021208				
KR0123557	D1	1997-09-18	KR-123557				
SU2092615	C1	1997-10-10	SU2092615				
RU2092615	C1	1997-10-10	RU2092615				
KR100123557	B1	1997-11-26	KR100123557				
KR0123557	B1	1997-11-26	KR100123557				
BRPI9007317	B1	1999-08-24	BR199007317				
CN1045638	C	1999-10-13	CN1045638C				
CA2053278	C	2001-06-26	CA2053278				
JP3299960	B2	2002-07-08	JP3299960				

Abstract

(EP-469062)

The invention is an electrode at least having a primary hydraulically permeable electrode member (110) with a multiplicity of spaced apart depressions (120) projecting a predetermined distance from the plane of the electrode. The invention also includes an electrolytic cell using the electrode and a method for electrolyzing an electrolyte using the cell.

Inventors

MORRIS GREGORY JEAN ELDON

BORRIONE PIERLUIGI ATTILIO VIT

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Latest standardized assignees - inventors removed

DE NORA PERMELEC

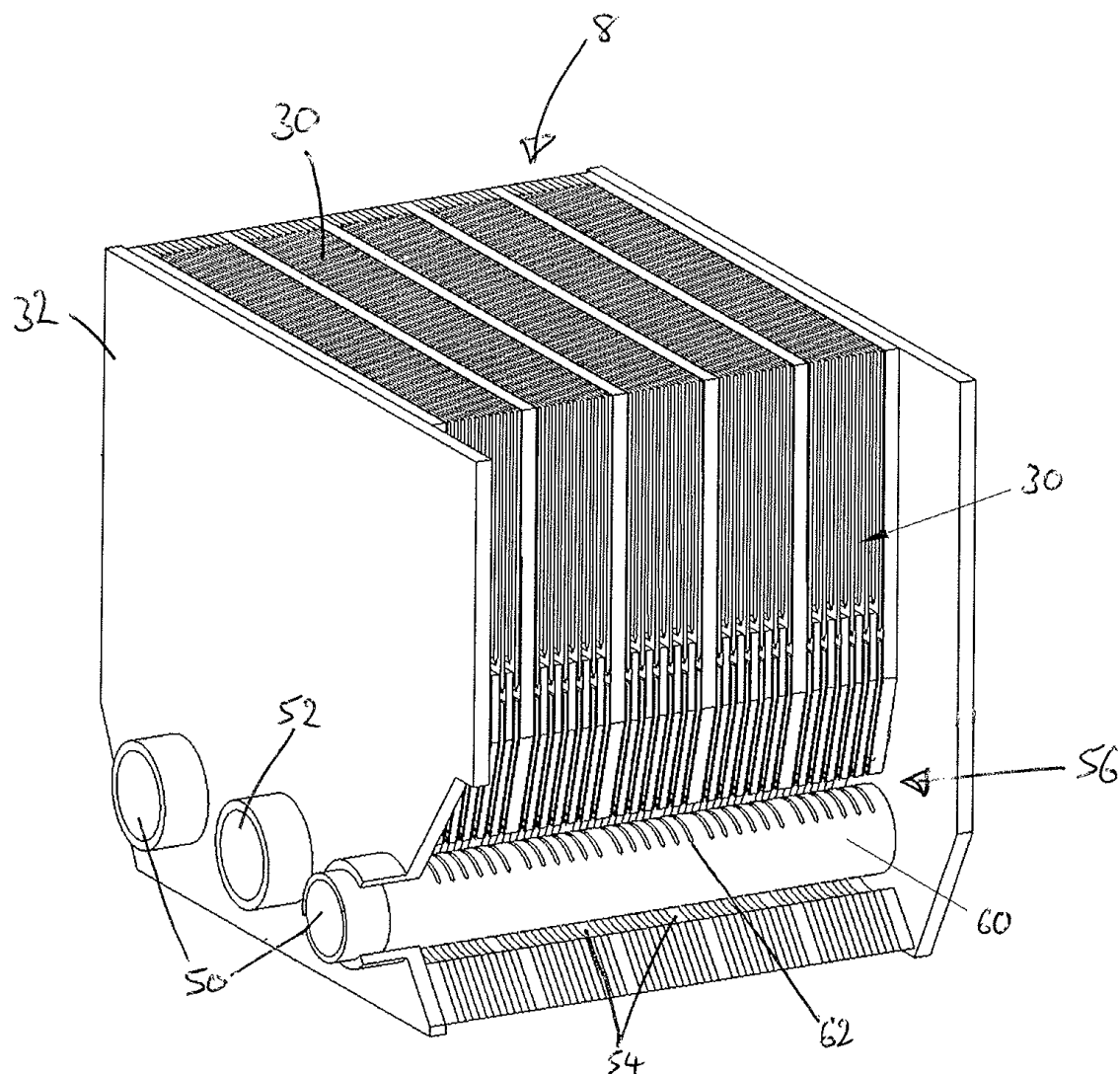
Family 26/27 - FAMPAT - ©Questel

Title

(EP3239106)

Electrodialysis unit for water treatment

Images



Publication data including kind & date

GB201100769	D0	2011-03-02	GB201100769
GB2487247	A	2012-07-18	GB2487247
WO2012098059	A1	2012-07-26	WO201298059
AU2012208719	A1	2013-08-01	AU2012208719
SG191999	A1	2013-08-30	SG-191999
EP2665685	A1	2013-11-27	EP2665685
CN103443034	A	2013-12-11	CN103443034
US20140021052	A1	2014-01-23	US20140021052
VN36477	A	2014-01-27	VN--36477
EA201391039	A1	2014-01-30	EA201391039
KR20140016890	A	2014-02-10	KR20140016890
JP2014503355	A	2014-02-13	JP2014503355
IN6336/DELNP/2013	A	2014-12-12	IN2013DN06336
SG10201504966S	A	2015-07-30	SG10201504966S
SG10201504969V	A	2015-07-30	SG10201504969V
SG10201504970V	A	2015-07-30	SG10201504970V
CN103443034	B	2016-04-27	CN103443034B
AU2016204946	A1	2016-07-28	AU2016204946
AU2016204945	A1	2016-08-04	AU2016204945
AU2012208719	B2	2016-08-25	AU2012208719



JP6033790	B2	2016-11-30	JP6033790				
US9561971	B2	2017-02-07	US9561971				
GB2487247	B	2017-04-12	GB2487247				
AU2017204247	A1	2017-07-13	AU2017204247				
EA027702	B1	2017-08-31	EA--27702				
EP2665685	B1	2017-10-11	EP2665685				
EP3239106	A1	2017-11-01	EP3239106				
EA201790573	A1	2017-12-29	EA201790573				

Abstract

(EP3239106)

An electrodialysis unit 8 comprises a plurality of cathodes 68, a plurality of anodes 70 and a plurality of membranes 71; wherein the cathodes 68 and anodes 70 are arranged alternately in an electrode stack, with membranes 71 in between each cathode 68 and anode 70; and wherein the cathode 68 and the anode 70 are each formed of a single conductive **plate** such that both surfaces of the cathode **plates** and anode **plates** enclosed within the electrode stack are, in use, in conductive contact with the water being treated.

Inventors

ANDERSEN AAGE BJØRN

Latest standardized assignees - inventors removed

OCEANSAVER

Family 27/27 - FAMPAT - ©Questel

Title

(EP-760805)

Method and apparatus for capacitive deionization and electrochemical purification and regeneration of electrodes

Images

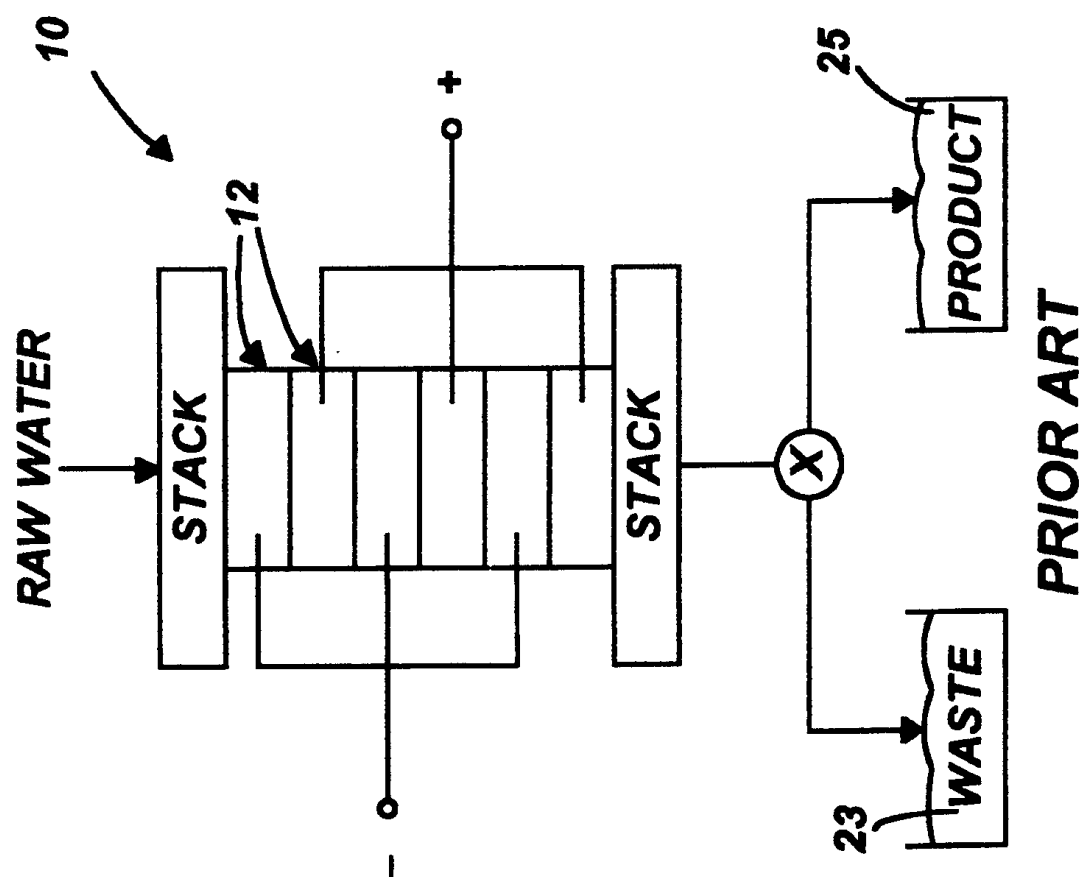


FIGURE 1

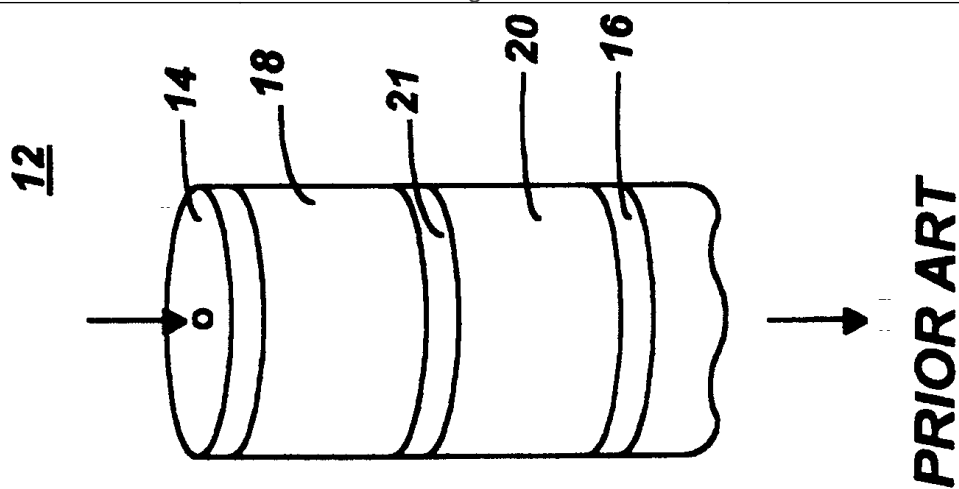


FIGURE 2

Publication data including kind & date

US5425858	A	1995-06-20	US5425858
IL113798	A	1995-08-31	IL-113798
WO9532803	A2	1995-12-07	WO9532803
CA2190829	A1	1995-12-07	CA2190829



AU3194495	A	1995-12-21	AU9531944				
WO9532803	A3	1996-01-04	WO9532803				
ZA9504133	B	1996-01-19	ZA9504133				
EP0760805	A1	1997-03-12	EP-760805				
MX9605686	A	1998-02-28	MX9605686				
EP0760805	A4	1998-12-02	EP-760805				
JPH11505463	A	1999-05-21	JP11505463				
IL113798	B	1999-07-14	IL-113798				
US5954937	A	1999-09-21	US5954937				
US6309532	B1	2001-10-30	US6309532				
SA490	B1	2005-11-30	SA----490				
EP0760805	B1	2008-01-02	EP-760805				
AT382583	T	2008-01-15	ATE382583				
DE69535677	D1	2008-02-14	DE69535677				
JP2008178875	A	2008-08-07	JP2008178875				
JP4162709	B2	2008-10-08	JP4162709				

Abstract

(EP-760805)

An electrically regeneratable electrochemical **cell** (30) for capacitive deionization and electrochemical purification and regeneration of electrodes includes two end **plates** (31, 32), one at each end of the **cell** (30). Two end electrodes (35, 36) are arranged one at each end of the **cell** (30), adjacent to the end **plates** (31, 32). An insulator layer (33) is interposed between each end **plate** (31, 32) and the adjacent end electrode (35, 36). Each end electrode (35, 36) includes a single sheet (44) of conductive material having a high specific surface area and sorption capacity. In one embodiment, the sheet (44) of conductive material is formed of carbon aerogel composite. The **cell** (30) further includes a plurality of generally identical double-sided intermediate electrodes (37-43) that are equidistally separated from each other, between the two end electrodes (35, 36). As the **electrolyte** enters the **cell**, it flows through a continuous open serpentine channel (65-71) defined by the electrodes, substantially parallel to the surfaces of the electrodes. By polarizing the **cell** (30), ions are removed from the **electrolyte** and are held in the electric double layers formed at the carbon aerogel surfaces of the electrodes. As the **cell** (30) is saturated with the removed ions, the **cell** (30) is regenerated electrically, thus significantly minimizing secondary wastes.

Inventors

FARMER JOSEPH C

Latest standardized assignees - inventors removed

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