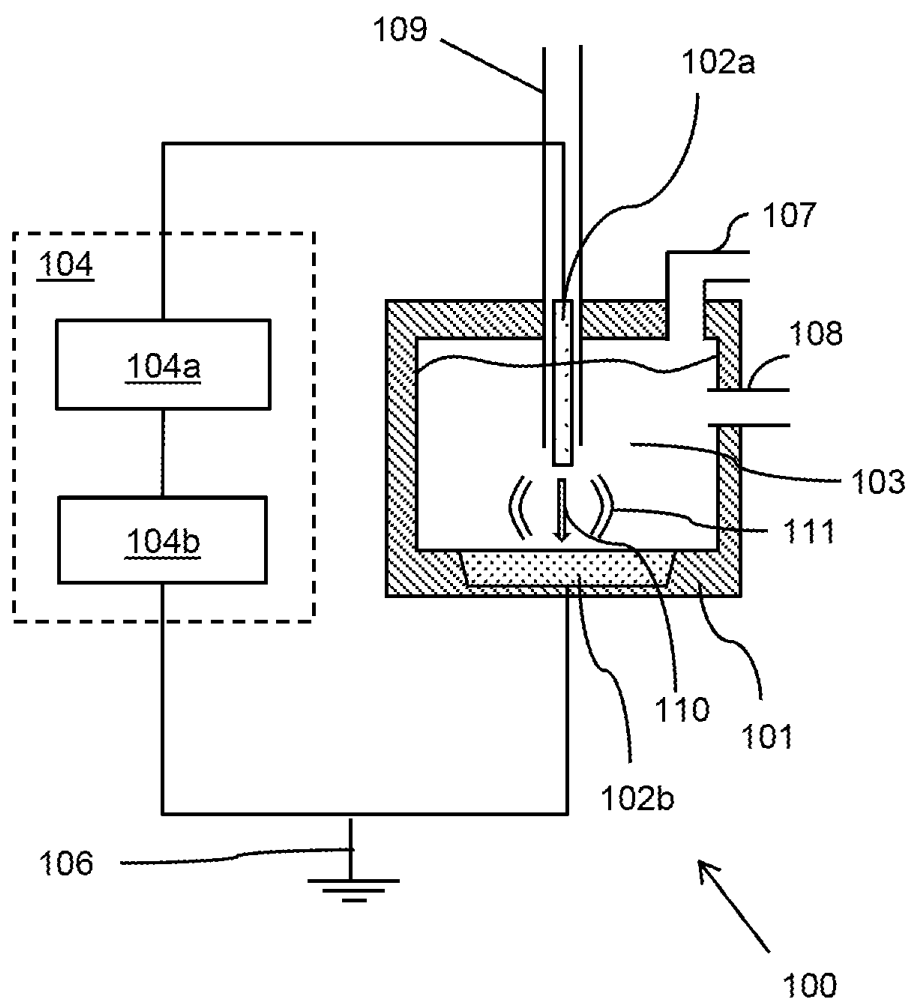


20 Documents

Publication numbers	Title	Current assignees
WO2017165963 A1	Apparatus and methods for separating hydrocarbons from particulates using a shockwave generator	SP TECHNOLOGY
EP2396116 A1	Method and device for material and/or products size reduction with pulsed energy	XCRUSHER
DE3527898 C1	Facility for Extracting Minerals from that it surrounding Material	DORNIER 7990 FRIEDRICHSHAFEN
EP2470305 A1	Method and system for reusing materials and/or products by pulsed power	XCRUSHER
US20030079982 A1	Vapor purification with self-cleaning filter	BATTELLE MEMORIAL INSTITUTE
EP1153149 A1	Method for processing ashes of incineration plants by desalination and artificial ageing by means of underwater high-voltage discharge	KARLSRUHER INSTITUTE FUER TECHNOLOGIE
EP1852891 A2	Bi-directional filtered arc plasma source	VAPOR TECHNOLOGIES
EP1667798 A1	Assembly of an electrodynamic fractionating unit	KARLSRUHER INSTITUTE FUER TECHNOLOGIE
EP-850107 A1	Method of comminuting and crushing conglomerated solids into non-metallic or partially metallic components and for comminuting homogeneous non-metallic solids	KARLSRUHER INSTITUTE FUER TECHNOLOGIE
EP2711342 A1	Plasma generating apparatus and plasma generating method	PANASONIC INTELLECTUAL PROPERTY MANAGEMENT
WO2019234109 A1	Method and device for comminuting and breaking down a product	IMPULSTEC
US20100024639 A1	Methods for operating a filtration system	BHA ALTAIR
EP2771120 A1	Method and device for the disintegration of a recyclable item	IMPULSTEC
US20020027107 A1	Method for purifying and neutralizing polluted liquids and apparatus for implementing the method	EET
US20050189278 A1	Apparatus for decomposing organic matter with radical treatment method using electric discharge	TOSHIBA
WO2009114708 A2	Desalination system and process	DREXEL UNIVERSITY
US6328898 B1	Method of and apparatus for forming highly oxidative water	KOBE STEEL
EP1663498 A1	Method for operating a fragmentation system and system therefor	KARLSRUHER INSTITUTE FUER TECHNOLOGIE
EP2888053 A1	Method and device for fragmenting and/or weakening material by means of high-voltage pulses	SELFRAG
US3352503 A	Apparatus for electro-hydraulic crushing	UK ATOMIC ENERGY AUTHORITY

Family 1/20 - FAMPAT - ©Questel

Title
(WO2017165963)
Apparatus and methods for separating hydrocarbons from particulates using a shockwave generator

Images**Publication numbers with kind code & date**

CO2018011447	A2	2018-11-30	CO2018011447
CA3019420	A1	2017-10-05	CA3019420
US20170283705	A1	2017-10-05	US20170283705
WO2017/165963	A1	2017-10-05	WO2017165963

**Abstract**

(WO2017/165963)

The invention relates to an apparatus and method for separating hydrocarbons from solid particles in a hydrocarbon-particulate-aqueous mixture. The apparatus comprises: a container for the mixture; a shockwave generator comprising two electrical terminals; and a pulsed power supply. The pulsed power supply is configured to apply a series of one or more voltage pulses to the terminals, such that, when each voltage pulse is applied to the terminals, a shockwave is applied to the mixture to promote separation of the components of the mixture. This may mitigate the need to heat the mixture and/or add chemicals to facilitate separation of hydrocarbons from solid particles such as sand or soil, mineral or carbonate particles.

Inventors

HUNTER TRENT

Latest standardized assignees - inventors removed

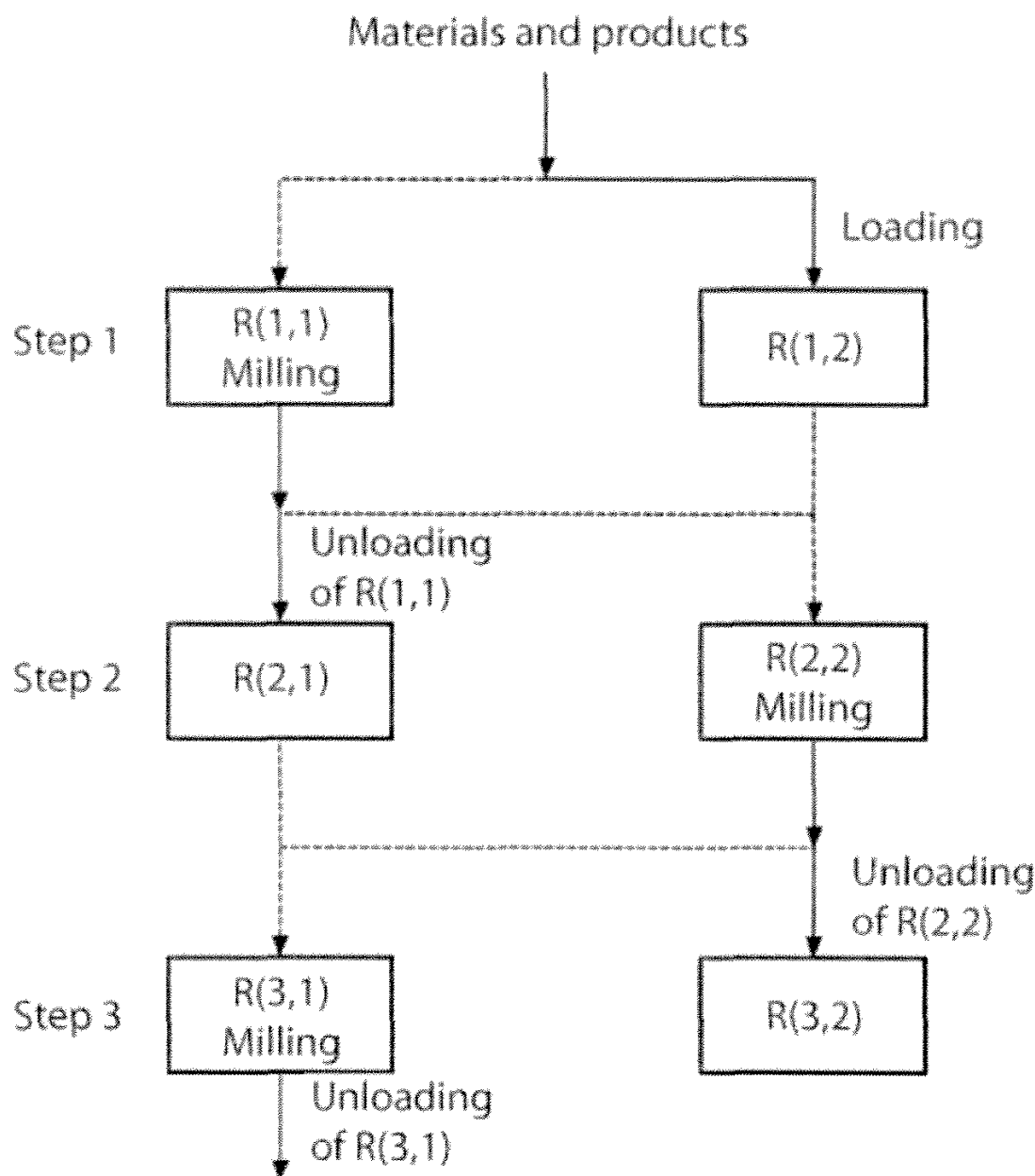
SP TECHNOLOGY

Family 2/20 - FAMPAT - ©Questel

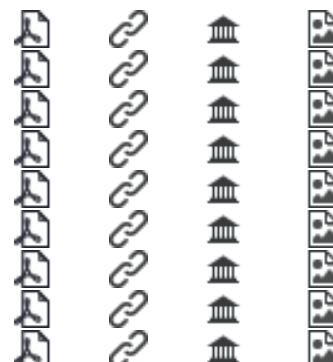
Title

(EP2396116)

Method and device for material and/or products size reduction with pulsed energy

Images**Publication numbers with kind code & date**

ES2680902	T3	2018-09-11	ES2680902
EP2396117	B8	2018-06-06	EP2396117
CA2752217	C	2018-05-08	CA2752217
EP2396117	B1	2018-04-25	EP2396117
CA2752216	C	2017-10-24	CA2752216
ES2546056	T3	2015-09-18	ES2546056
US9120101	B2	2015-09-01	US9120101
AU2010212878	B2	2015-05-28	AU2010212878
EP2396116	B1	2015-05-27	EP2396116



AU2010212876	B2	2015-04-30	AU2010212876				
JP5734875	B2	2015-04-24	JP5734875				
US8746598	B2	2014-06-10	US8746598				
JP2012517891	A	2012-08-09	JP2012517891				
JP2012517892	A	2012-08-09	JP2012517892				
FR2942149	B1	2012-07-06	FR2942149				
US20120132731	A1	2012-05-31	US20120132731				
US20120132732	A1	2012-05-31	US20120132732				
ZA201105909	B	2012-03-28	ZA201105909				
EP2396116	A1	2011-12-21	EP2396116				
EP2396117	A1	2011-12-21	EP2396117				
AU2010212876	A1	2011-09-01	AU2010212876				
AU2010212878	A1	2011-09-01	AU2010212878				
WO2010/092136	A8	2010-10-21	WO201092136				
FR2942149	A1	2010-08-20	FR2942149				
CA2752216	A1	2010-08-19	CA2752216				
CA2752217	A1	2010-08-19	CA2752217				
WO2010/092134	A1	2010-08-19	WO201092134				
WO2010/092136	A1	2010-08-19	WO201092136				

Abstract

(EP2396116)

The invention relates to a method for reusing materials and/or products according to which, in a first step, a series of electrical discharges are generated between at least two electrodes in a reactor containing an ambient liquid as well as the materials and/or products to be reused, in which the series of said electric discharges produces, due to the energy, the frequency of the electric discharges as well as the voltage between the electrodes and the switching time, a mechanical shock wave which propagates across the materials and/or products to be treated in the reactor, characterised in that after a first step of embrittlement by the mechanical shock wave thus produced, the products and/or materials are exposed to a series of electric discharges in which the energy, the voltage between the electrodes that generate said discharges, the switching time and the frequency of the discharges are selected so that said discharges perform selective fragmentation of the material by the effect of an electromagnetic field. The invention also relates to a device for implementing said method.

Inventors

BENTAJ ABDELAZIZ

OUAYAHYA NADIR

CLEMENT JEAN LOUIS

TUTUSAUS JEAN PIERRE

Latest standardized assignees - inventors removed

XCRUSHER

Family 3/20 - FAMPAT - ©Questel

Title

(DE3527898)

Facility for Extracting Minerals from that it surrounding Material

Images

Veröffentlichungstag: 12. März 198

Fig.1

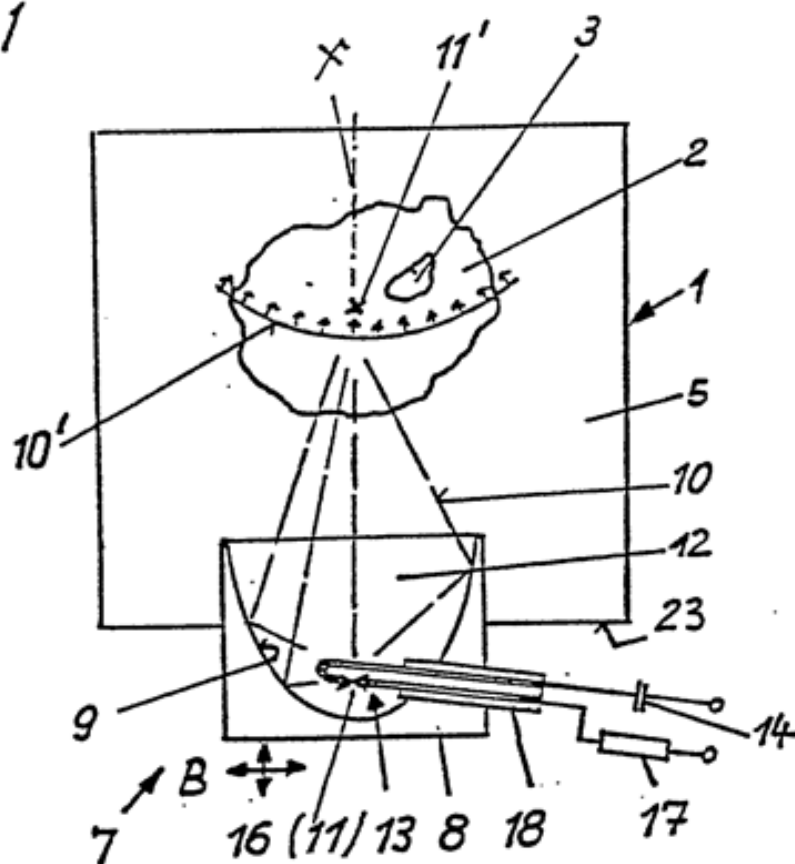
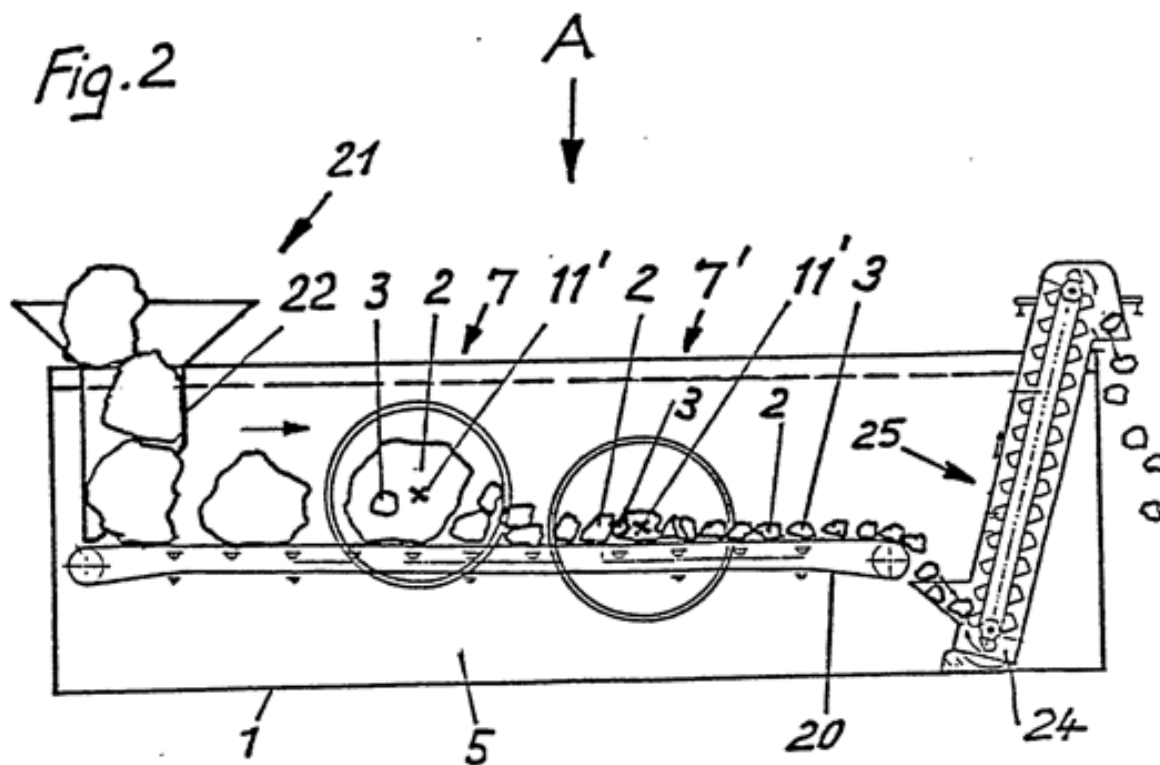


Fig.2



Publication numbers with kind code & date

GB2178337

B 1989-07-26

GB2178337

JPS6279857

A 1987-04-13

JP62079857

ZA8605634

B 1987-03-25

ZA8605634



ZA8605634	B	1987-03-25	ZA8605634
DE3527898	C1	1987-03-12	DE3527898
GB2178337	A	1987-02-11	GB2178337
GB8618753	D0	1986-09-10	GB8618753

**Abstract**

(DE3527898)

Apparatus for the extraction of a mineral from surrounding material, in particular for the extraction of precious stones, semi-precious stones or noble metals from pieces of material in which they are embedded in their naturally occurring state, comprises a liquid filled container (1), at least one shock wave generator (7) and at least one shock wave reflector (8) associated therewith. The reflector (8) is so formed that it focusses shock waves from the generator (7) on a point (11'), or a region, eg to form wave front 10', in the container via the liquid, and a conveyor belt is provided to carry the pieces of material into or through the focussing region where they are reduced in size by the action of the shock waves. <IMAGE> (From GB2178337 A)

Inventors

BRENDL WALTER PROF DR DR H C

Latest standardized assignees - inventors removed

DORNIER 7990 FRIEDRICHSHAFEN

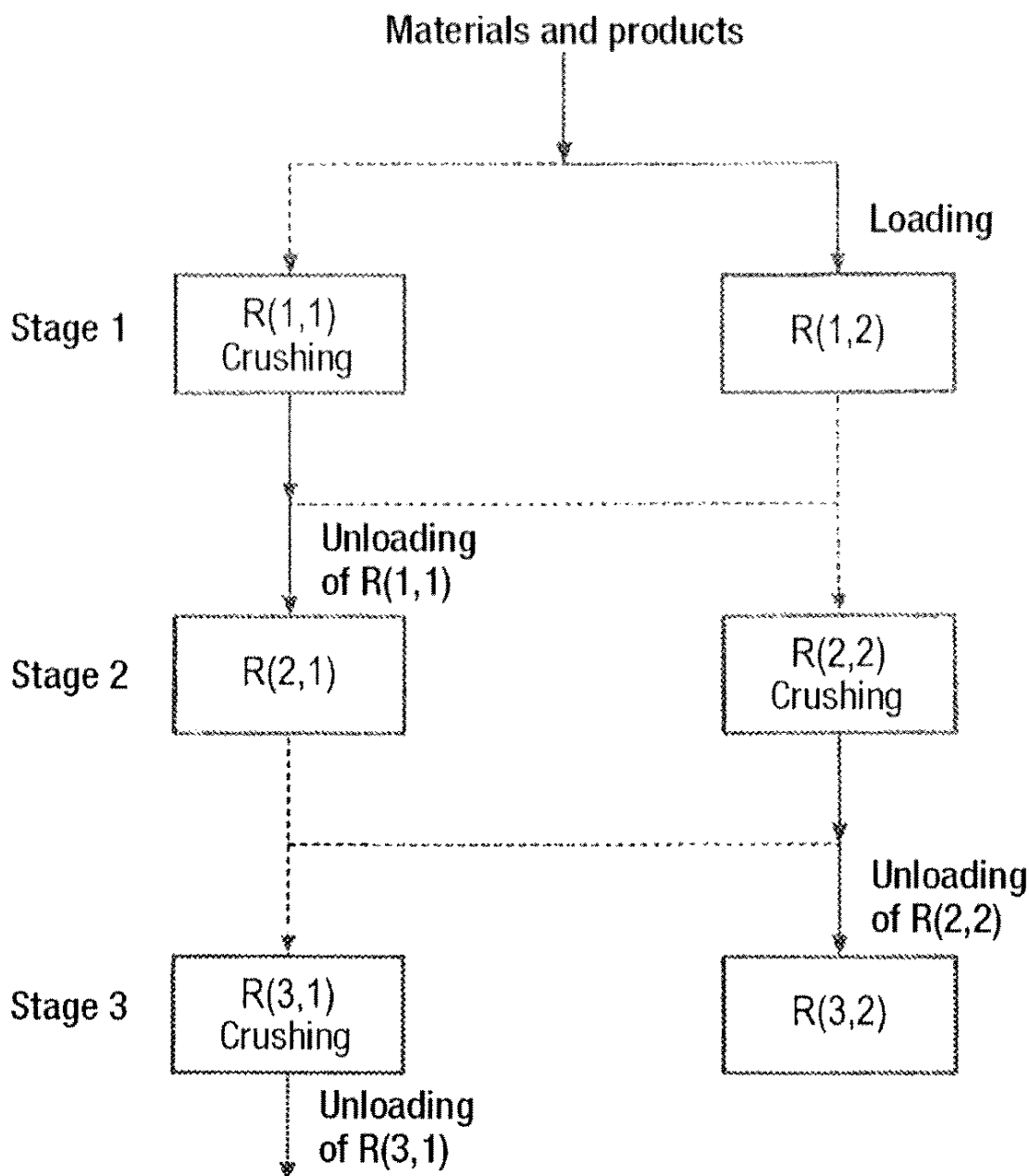
Family 4/20 - FAMPAT - ©Questel

Title

(EP2470305)

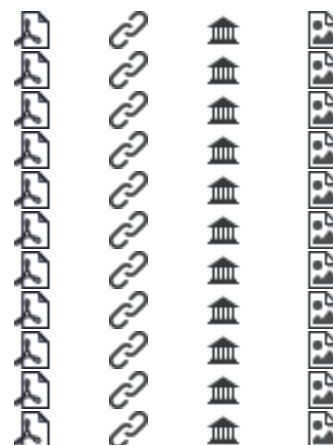
Method and system for reusing materials and/or products by pulsed power

Images



Publication numbers with kind code & date

EP2470305	B1	2019-09-25	EP2470305
US9120102	B2	2015-09-01	US9120102
AU2010288839	B2	2015-05-07	AU2010288839
JP5675812	B2	2015-01-09	JP5675812
JP2013503096	A	2013-01-31	JP2013503096
US20120205472	A1	2012-08-16	US20120205472
EP2470305	A1	2012-07-04	EP2470305
AU2010288839	A1	2012-03-22	AU2010288839
FR2949356	B1	2011-11-11	FR2949356
FR2949356	A1	2011-03-04	FR2949356
WO2011/023443	A1	2011-03-03	WO201123443



Abstract

(EP2470305)

The invention relates to a method for reusing material by pulsed power, according to which a series of electrical discharges are generated between at least two electrodes in a reactor receiving an ambient liquid as well as the materials to be reused, characterized in that the series of said electrical discharges produce, as a result of the energy, the frequency of the

electrical discharges, as well as, as a result of the voltage between the electrodes and the switching time, a mechanical shockwave which propagates over the materials to be processed in the reactor, and in that, during the implementation of said method, said ambient liquid is cooled by a continuous or carousel cooling system, said method enabling the production of nanoparticles.

Inventors

BENTAJ ABDELAZIZ

OUAYAHYA NADIR

CLEMENT JEAN-LOUIS

BUREY MARC

Latest standardized assignees - inventors removed

XCRUSHER

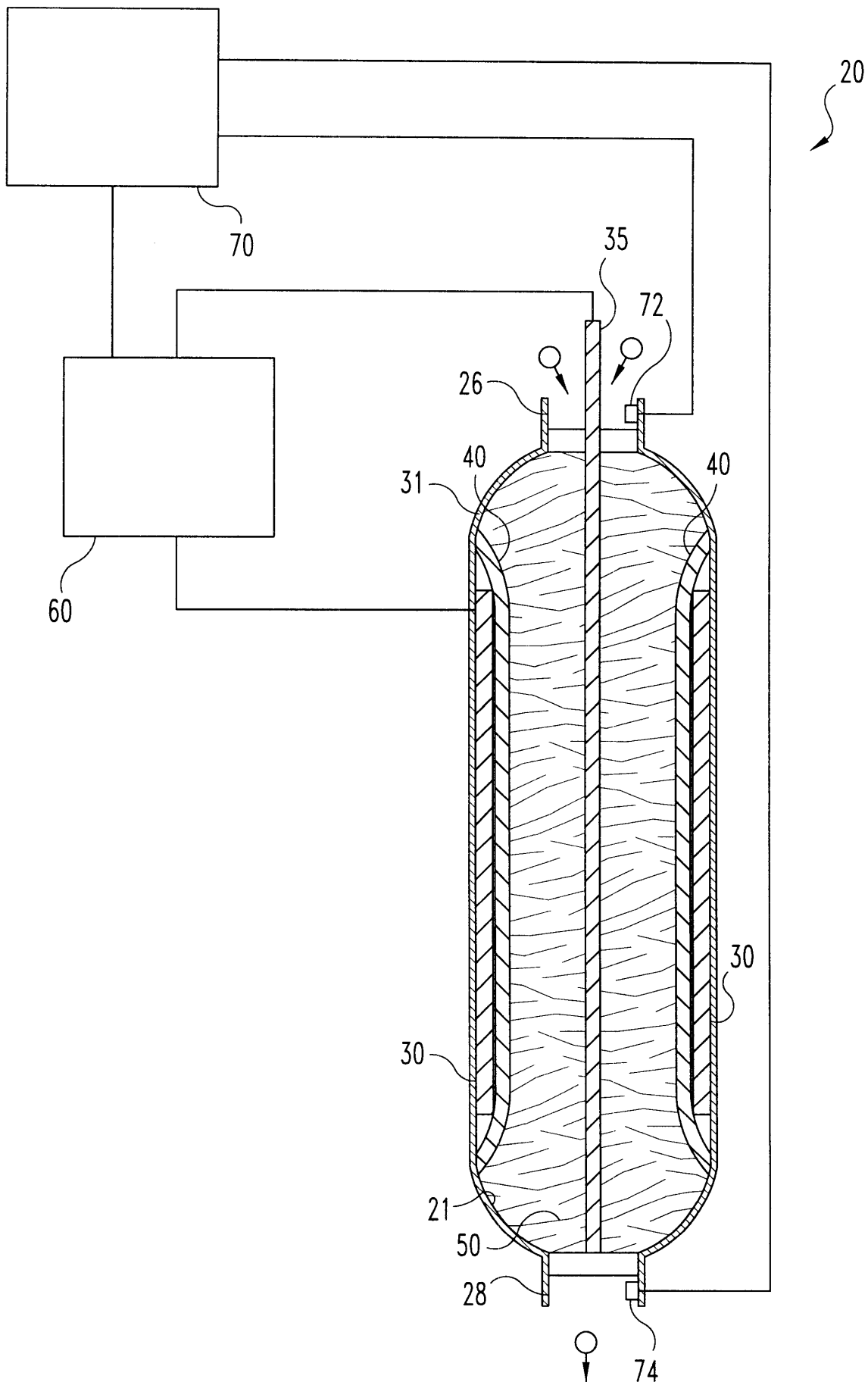
Family 5/20 - FAMPAT - ©Questel

Title

(US6660061)

Vapor purification with self-cleaning filter

Images



Publication numbers with kind code & date

US6660061

B2 2003-12-09

US6660061

US20030079982

A1 2003-05-01

US20030079982



Abstract

(US20030079982)

A vapor filtration device including a first electrode, a second electrode, and a filter between the first and second electrodes is disclosed. The filter is formed of dielectric material and the device is operated by applying a first electric potential between the electrodes to polarize the dielectric material such that upon passing a vapor stream through the filter, particles from the vapor stream are deposited onto the filter. After depositing the particles a second higher voltage is applied between the electrodes to form a nonthermal plasma around the filter to vaporize the collected particles thereby cleaning the filter. The filter can be a packed bed or serpentine filter mat, and an optional upstream corona wire can be utilized to charge airborne particles prior to their deposition on the filter.

Inventors

JOSEPHSON GARY B

HEATH WILLIAM O

AARDAHL CHRISTOPHER L

Latest standardized assignees - inventors removed

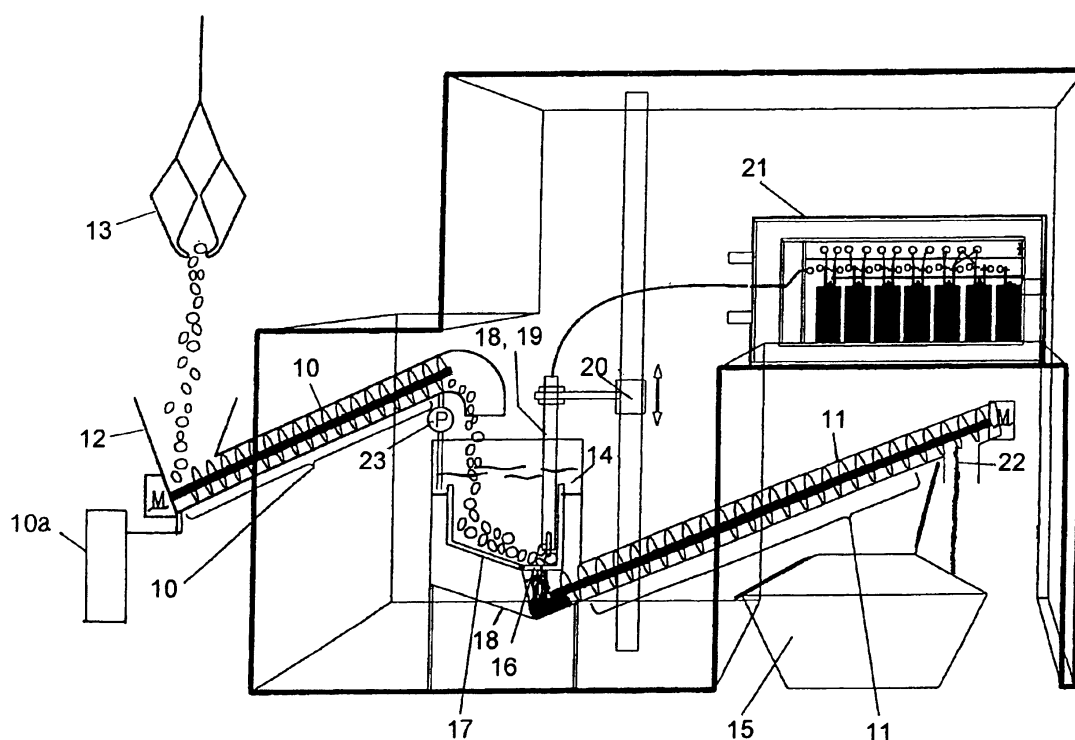
BATTELLE MEMORIAL INSTITUTE

Family 6/20 - FAMPAT - ©Questel

Title

(EP1153149)

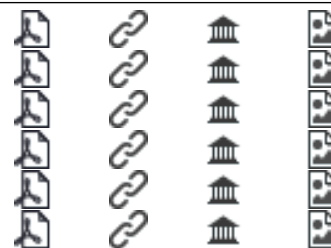
Method for processing ashes of incineration plants by desalination and artificial ageing by means of underwater high-voltage discharge

Images**Publication numbers with kind code & date**

JP3811355	B2	2006-06-02	JP3811355
US6761858	B2	2004-07-13	US6761858
ES2197074	T3	2004-01-01	ES2197074
US20030206850	A1	2003-11-06	US20030206850
DK1153149	T3	2003-08-18	DK1153149T
DE50002723	D1	2003-08-07	DE50002723
AT244315	T	2003-07-15	ATE244315



EP1153149	B1	2003-07-02	EP1153149
JP2002535123	A	2002-10-22	JP2002535123
EP1153149	A1	2001-11-14	EP1153149
DE19902010	C2	2001-02-08	DE19902010
DE19902010	A1	2000-08-10	DE19902010
WO00/43557	A1	2000-07-27	WO200043557

**Abstract**

(EP1153149)

The invention relates to a method by means of which ashes of incineration plants and mineral residues are conditioned in a short time, using washout and electrodynamic processes and shock waves resulting therefrom as well as pulsed high-voltage discharge, in such a way that the processed material is chemically inert and can be used instantly without harming the environment. A plant is described by means of which the method can be carried out by using little energy. The method is thus cost-effective and important components are subject to little wear.

Inventors

SCHULTHEISS CHRISTOPH

ADELHELM CHRISTEL

BERGFELDT BRITTA

STRAESSNER RALF

NEUBERT VOLKER

DENNIG HELMUT

KOTTE BERNARD

Latest standardized assignees - inventors removed

KARLSRUHER INSTITUTE FUER TECHNOLOGIE

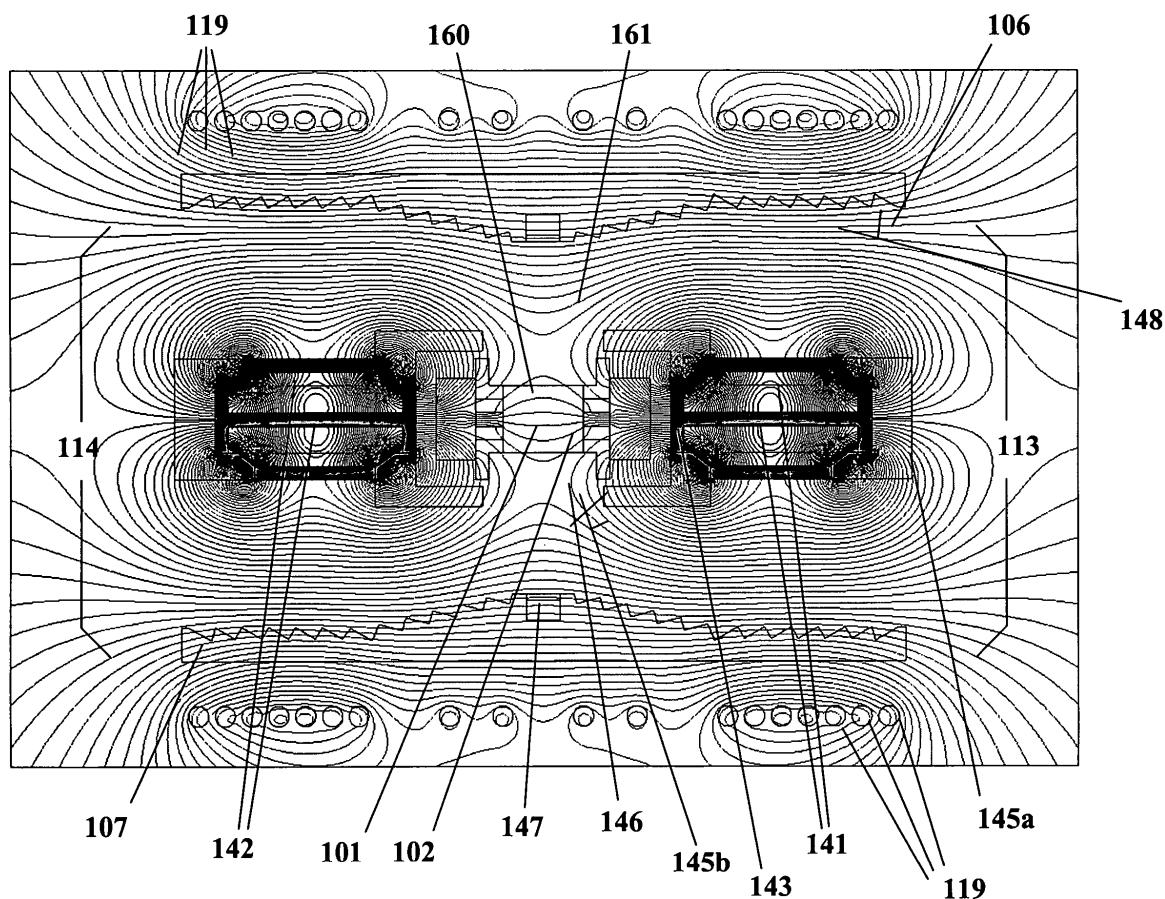
Family 7/20 - FAMPAT - ©Questel

Title

(EP1852891)

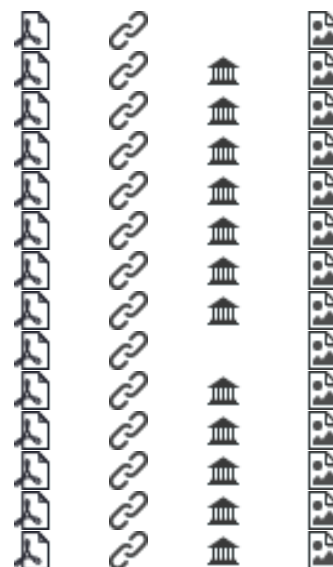
Bi-directional filtered arc plasma source

Images



Publication numbers with kind code & date

PL1852891	T3	2012-06-29	PL1852891
ES2379825	T3	2012-05-04	ES2379825
EP1852891	B1	2012-02-01	EP1852891
JP4856571	B2	2011-11-04	JP4856571
CN101068449	B	2011-04-27	CN101068449B
CA2581409	C	2010-09-07	CA2581409
EP1852891	A3	2010-09-01	EP1852891
US7498587	B2	2009-03-03	US7498587
MX2007005041	A	2009-02-16	MX2007005041
JP2007299733	A	2007-11-15	JP2007299733
CN101068449	A	2007-11-07	CN101068449
EP1852891	A2	2007-11-07	EP1852891
CA2581409	A1	2007-11-01	CA2581409
US20070251816	A1	2007-11-01	US20070251816



Abstract

(EP1852891)

An apparatus for generating plasma comprising a cathode (101) having an evaporable surface (102) configured to emit a material comprising plasma and macroparticles; output apertures (13, 14) to direct the plasma; and a filter comprising at least one deflection electrode (106, 107) and configured to transmit at least some of the plasma to the output apertures (13, 14) while preventing transmission of at least some of the macroparticles, the apparatus characterized by: a first element (119) for generating a first magnetic field component having a first polarity between the cathode (101) and the at least one deflection electrode (106, 107); and a second element (141, 142) for generating a second magnetic field component having a second polarity at the evaporable surface (102) of the cathode (101) that is opposite that of the first polarity such that a low-field region is created between the evaporable surface (102) and the at least one deflection electrode (106, 107).

Inventors

WELTY RICHARD P

Latest standardized assignees - inventors removed

VAPOR TECHNOLOGIES

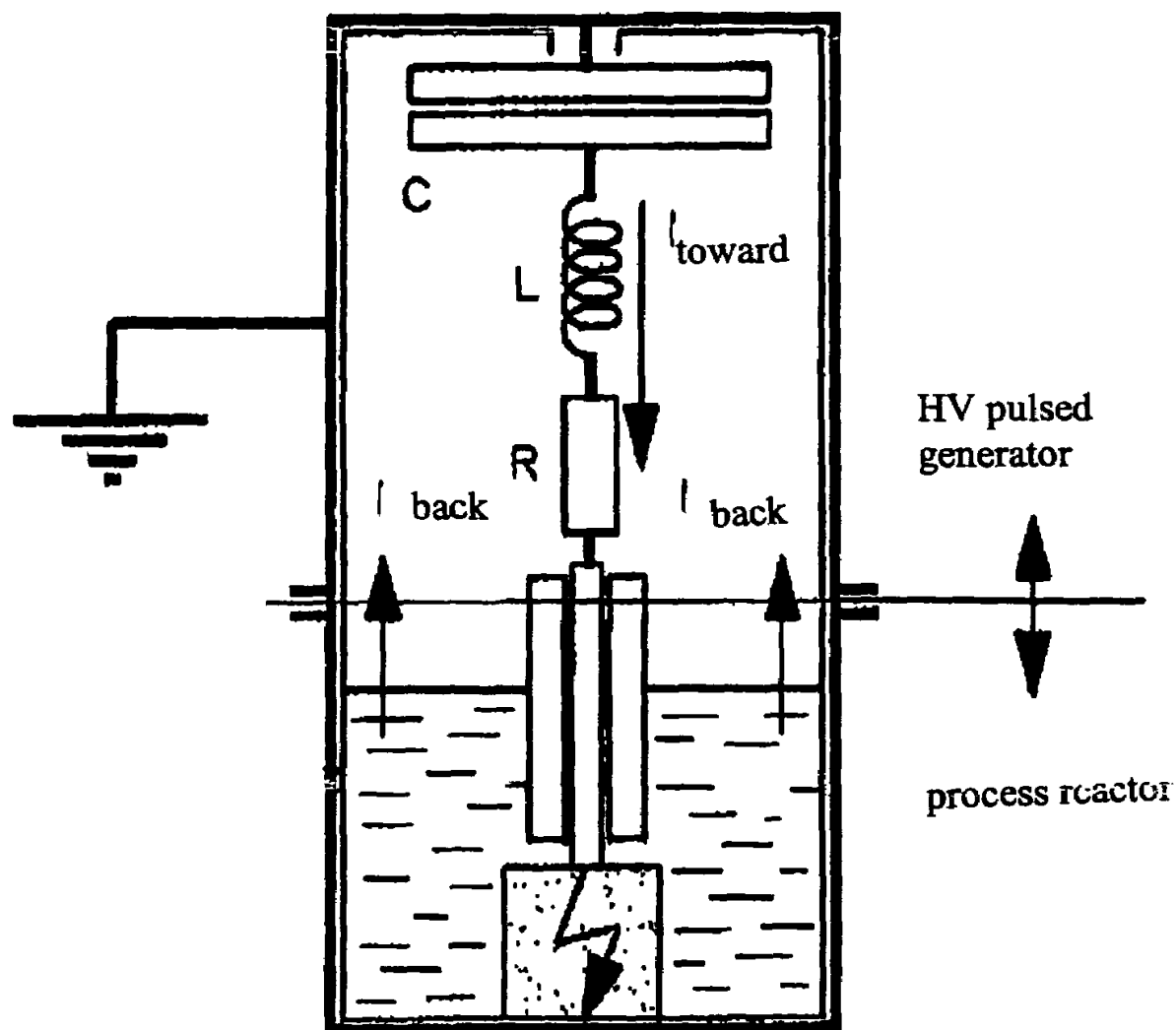
Family 8/20 - FAMPAT - ©Questel

Title

(EP1667798)

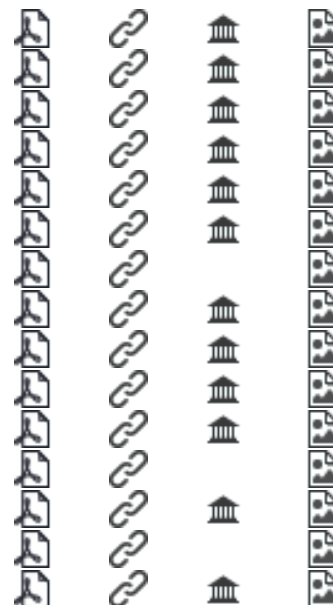
Assembly of an electrodynamic fractionating unit

Images



Publication numbers with kind code & date

CN1863601	B	2013-02-06	CN1863601B
NO330975	B1	2011-08-29	NO-330975
ES2358741	T3	2011-05-13	ES2358741
CA2540939	C	2011-05-03	CA2540939
DK1667798	T3	2011-03-21	DK1667798T
DE502004012070	D1	2011-02-10	DE502004012070
AT493204	T	2011-01-15	ATE493204
EP1667798	B1	2010-12-29	EP1667798
US7677486	B2	2010-03-16	US7677486
JP4388959	B2	2009-10-09	JP4388959
AU2004277317	B2	2009-10-08	AU2004277317
RU2311961	C1	2007-12-10	RU2311961
US20070187539	A1	2007-08-16	US20070187539
ZA200602737	B	2007-06-27	ZA200602737
JP2007507332	A	2007-03-29	JP2007507332



CN1863601	A	2006-11-15	CN1863601				
NO20061991	A	2006-06-27	NO200601991				
NO20061991	L	2006-06-27	NO20061991				
EP1667798	A1	2006-06-14	EP1667798				
AU2004277317	A1	2005-04-14	AU2004277317				
CA2540939	A1	2005-04-14	CA2540939				
DE10346055	B8	2005-04-14	DE10346055				
WO2005/032722	A1	2005-04-14	WO200532722				
DE10346055	B3	2005-01-05	DE10346055				

Abstract

(EP1667798)

The assembly of an electrodynamic fractionating unit, for the fragmentation, milling or suspension of a brittle, mineral process material is disclosed. The energy store (1) including the output switch/ spark gap (2) thereof, the electrodes (5) including the supply line and the reaction vessel (3) are each arranged at least within the protection of the electrically necessary insulating separation of regions of differing electrical potential, completely enclosed in a volume of the encapsulation (6), having electrically-conducting walls. The wall thickness of the encapsulation is at least equivalent to the penetration depth, corresponding to the lowest components of the Fourier spectrum of the pulsed electromagnetic field. The electrode at reference potential is connected to the ground side of the energy store through the encapsulation wall. The electrode at high voltage is connected by the shortest path to the output switch on the energy store.

Inventors

HOPPE PETER

GIESE HARALD

Latest standardized assignees - inventors removed

KARLSRUHER INSTITUTE FUER TECHNOLOGIE

Family 9/20 - FAMPAT - ©Questel

Title

(EP-850107)

Method of comminuting and crushing conglomerated solids into non-metallic or partially metallic components and for comminuting homogeneous non-metallic solids

Images

Fig. 1a

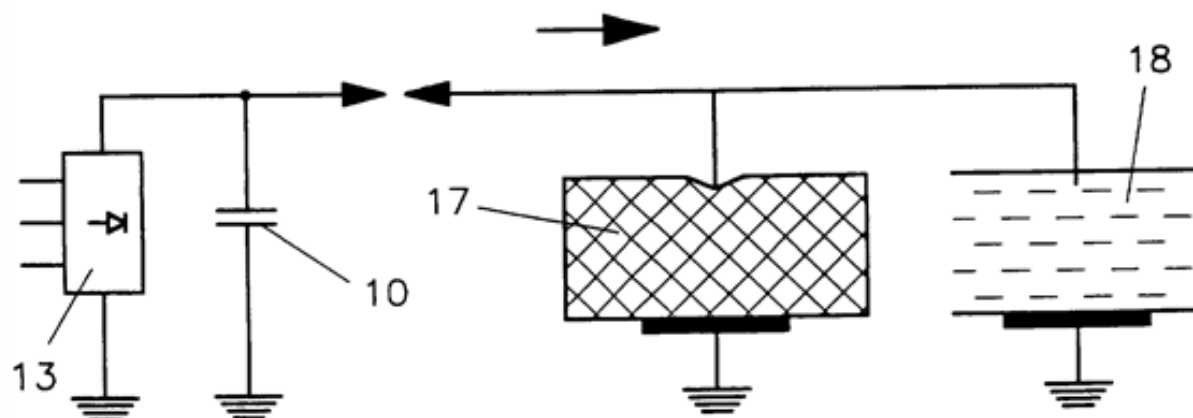
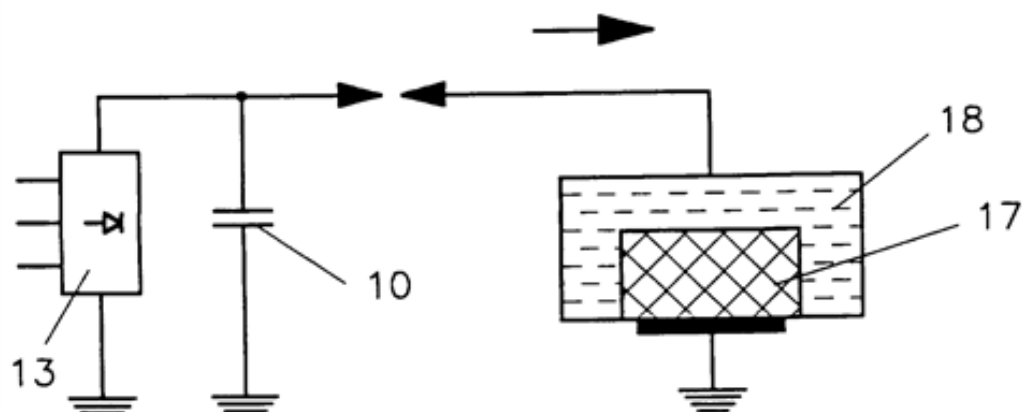
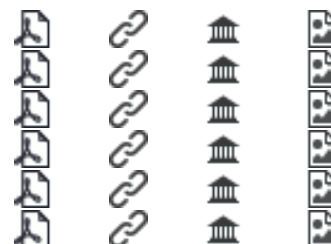


Fig. 1b

**Publication numbers with kind code & date**

EP0850107	A1	1998-07-01	EP-850107
DE19534232	C2	1998-01-29	DE19534232
AU6924496	A	1997-04-01	AU9669244
JP09075769	A	1997-03-25	JP09075769
DE19534232	A1	1997-03-20	DE19534232
WO97/10058	A1	1997-03-20	WO9710058

**Abstract**

(EP0850107)

The invention concerns a method of comminuting and crushing solids which may be partially metallic such as, for example, blocks of reinforced concrete. In contrast to the known electrohydraulic method, in which comminution is brought about by

the effect of shock waves applied to the solids from the exterior, with the novel method the solid is exploded as a result of shock waves being produced therein. This occurs by observing various sets of parameters with respect to breakdown voltage amplitude, a minimum time for reaching this amplitude and the greatest possible input of energy into the solid. With minimum expenditure of energy, this method achieves the same result as the purely electrohydraulic method which consumes far greater amounts of energy.

Inventors

SCHULTHEISS CHRISTOPH

MUELLER GEORG

NEUBERT VOLKER

KURETZ VALERI ISAAKOVICH

TARAKANOVSKI EDUARD

Latest standardized assignees - inventors removed

KARLSRUHER INSTITUTE FUER TECHNOLOGIE

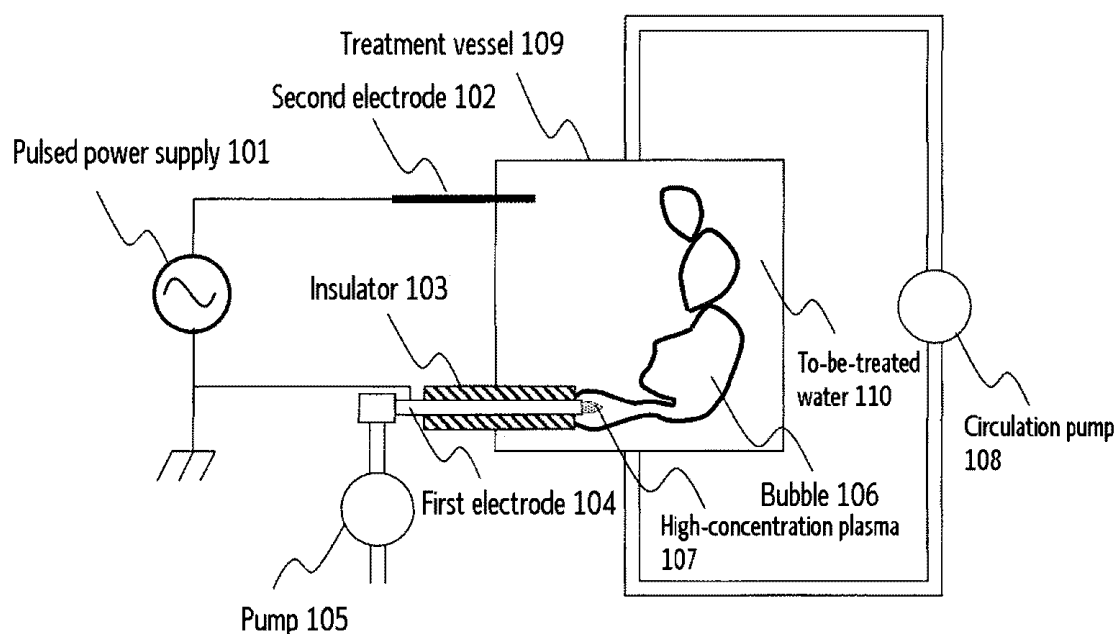
Family 10/20 - FAMPAT - ©Questel

Title

(EP2711342)

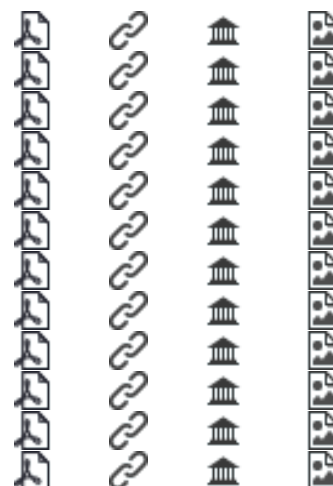
Plasma generating apparatus and plasma generating method

Images



Publication numbers with kind code & date

JP6112457	B2	2017-04-12	JP6112457
US9540262	B2	2017-01-10	US9540262
CN103429539	B	2016-03-02	CN103429539B
IN10052/CHENP/2013	A	2015-02-27	IN2013CN10052
JPWO2012157248	A1	2014-07-31	JP2012157248W
EP2711342	A4	2014-04-09	EP2711342
EP2711342	A1	2014-03-26	EP2711342
US20140054242	A1	2014-02-27	US20140054242
US20140014516	A1	2014-01-16	US20140014516
JP2013258159	A	2013-12-26	JP2013258159
CN103429539	A	2013-12-04	CN103429539
JP5362934	B2	2013-09-13	JP5362934



[WO2012/157034](#)

A1

2012-11-22

WO2012157034

[WO2012/157248](#)

A1

2012-11-22

WO2012157248

Abstract

(EP2711342)

The plasma-generating apparatus includes a treatment vessel 509 containing to-be-treated water 510, a first electrode 504 and a second electrode 502 within the treatment vessel, a bubble-generating part which generate a bubble 506 such that a surface where conductor of the first electrode 504 is exposed to the to-be-treated water is positioned within the bubble 506, a gas-supplying apparatus 505 which supplies gas to the bubble-generating part, a pulsed power supply 501 connected to the first and the second electrodes 502 and 504, a control apparatus 520 which controls one or both of the gas-supplying apparatus and the power supply such that the voltage is applied between the first and the second electrodes 502 and 504 when at least surface where the conductor of the first electrode 504 is exposed is positioned within the bubble.

Inventors

KUMAGAI HIRONORI

IMAI SHIN-ICHI

Latest standardized assignees - inventors removed

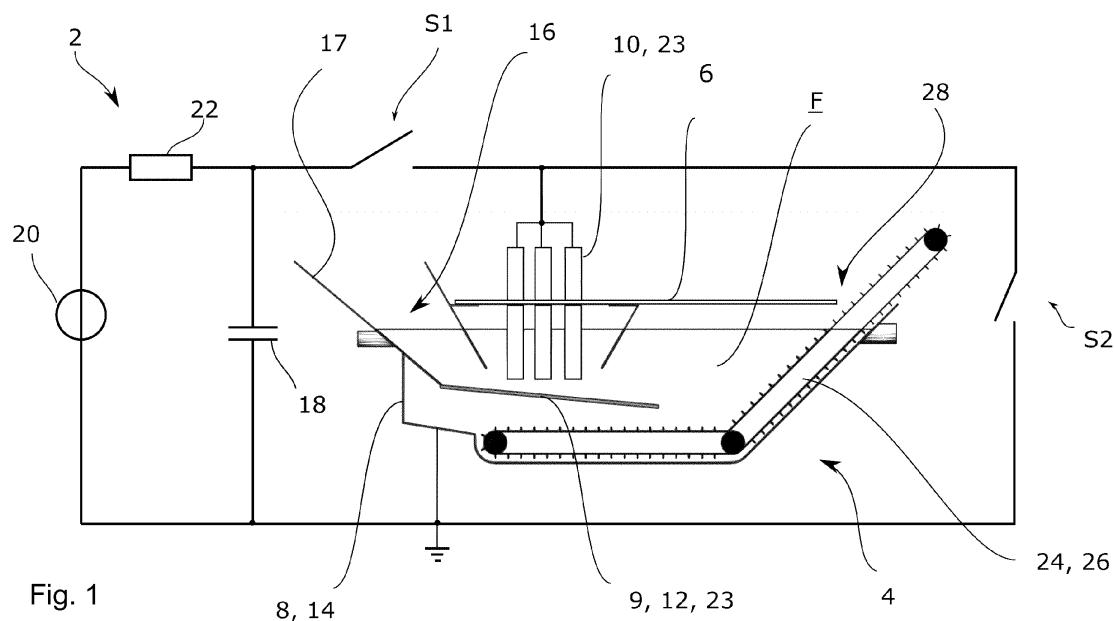
PANASONIC INTELLECTUAL PROPERTY MANAGEMENT

Family 11/20 - FAMPAT - ©Questel

Title

(WO2019234109)

Method and device for comminuting and breaking down a product

Images**Publication numbers with kind code & date**[WO2019/234109](#)

A1

2019-12-12

WO2019234109

**Abstract**

(WO2019/234109)

The invention relates to a method for breaking down and comminuting a product by means of the electrohydraulic effect, in which, in a container (4) filled with a liquid, a discharge with a pulse energy or discharge energy less than 100 J, preferably between 1 J and 50 J, particularly preferably between J and 20 J, is generated substantially in the liquid by means of a pulse current source (SQ) within an underwater spark gap between at least one first electrode (9), in particular mass electrode, and a second electrode (10), in particular high-voltage electrode, the product to be comminuted lying in the spark gap in the continuous or discontinuous container (4). The invention also relates to a device (2) for breaking down and

comminuting a product.

Inventors

EISERT STEFAN

GELFOND LEONID

SCHÖTZ MARTIN

Latest standardized assignees - inventors removed

IMPULSTEC

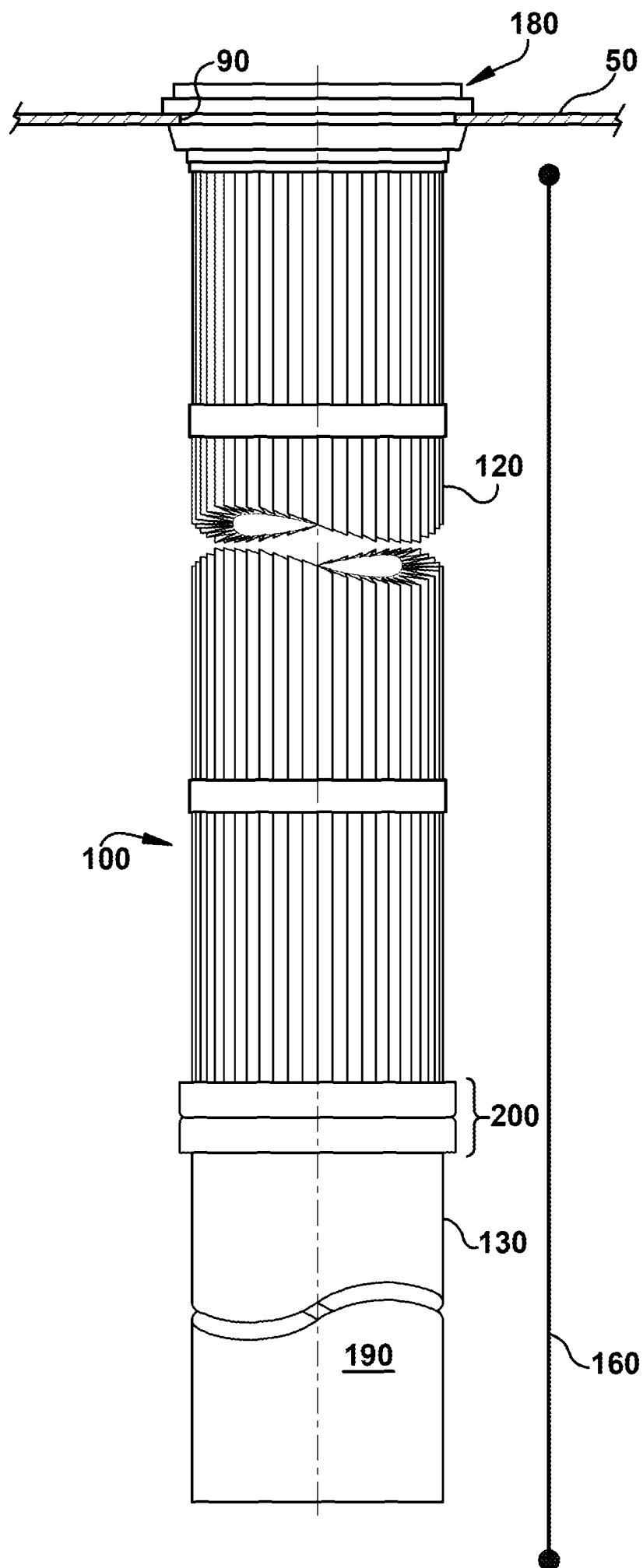
Family 12/20 - FAMPAT - ©Questel

Title

(US7947110)

Methods for operating a filtration system

Images



Publication numbers with kind code & date

CN101637684	B	2014-12-03	CN101637684B				
GB2462516	B	2012-08-22	GB2462516				
US7947110	B2	2011-05-24	US7947110				
GB2462516	A	2010-02-17	GB2462516				
KR20100014159	A	2010-02-10	KR20100014159				
DE102009026303	A1	2010-02-04	DE102009026303				
US20100024639	A1	2010-02-04	US20100024639				
CN101637684	A	2010-02-03	CN101637684				
GB0912636	D0	2009-08-26	GB200912636				

Abstract

(US20100024639)

A method of operating a filtration system that filters flue gas, which includes particulate matter and a gaseous pollutant. The filtration system may include a fabric filter, which is cleaned with periodic pulse cleanings, a discharge electrode upstream of the fabric filter, which imparts an electric charge to at least some of the particulate matter before the particulate matter collects on the fabric filter, a sorbent, which is injected into the flue gas upstream of the fabric filter and absorbs at least some of the gaseous pollutant, and a fan, which draws the flue gas through the fabric filter. The filtration system may have a pulse cleaning interval setting that may be manipulated by an operator of the filtration system. The pulse cleaning interval setting may be the time between the pulse cleanings. The method may include the steps of: determining a cost of operating the filtration system at a first pulse cleaning interval setting; determining a cost of operating the filtration system at a second pulse cleaning interval setting; and comparing the cost of operating the filtration system at the first pulse cleaning interval setting with the cost of operating the filtration system at the second pulse cleaning interval.

Inventors

TAYLOR ROBERT W

Latest standardized assignees - inventors removed

BHA ALTAIR

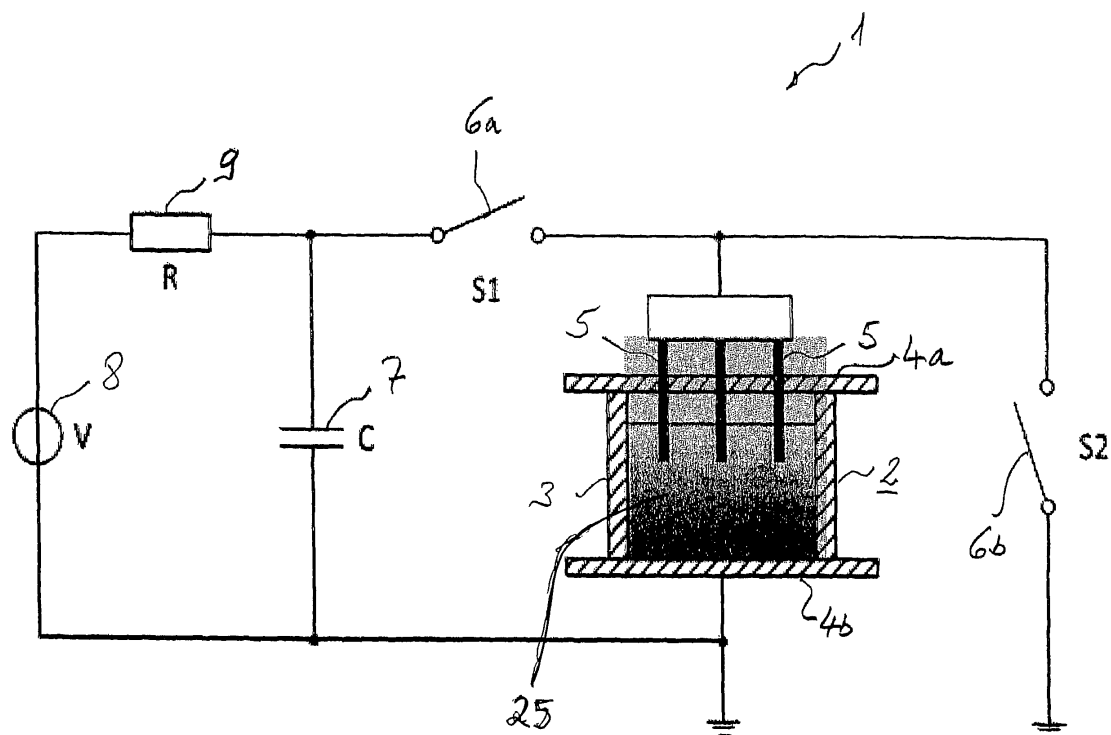
Family 13/20 - FAMPAT - ©Questel

Title

(EP2771120)

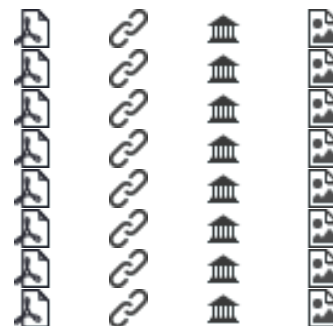
Method and device for the disintegration of a recyclable item

Images



Publication numbers with kind code & date

US10399085	B2	2019-09-03	US10399085
JP6563652	B2	2019-08-21	JP6563652
EP2771120	B1	2017-07-05	EP2771120
JP2014532548	A	2014-12-08	JP2014532548
US20140326809	A1	2014-11-06	US20140326809
EP2771120	A1	2014-09-03	EP2771120
CA2853361	A1	2013-05-02	CA2853361
WO2013/060403	A1	2013-05-02	WO201360403



Abstract

(EP2771120)

The invention relates to a method and a device (1) for disintegrating a recyclable item in a material-selective manner and using the electrohydraulic effect, an electric discharge being generated, in a container (2) filled with a liquid, using a pulsed current source (7) and within an underwater spark gap between a container base-side electrode (4b) and at least one container cover-side electrode (5) that points towards the first electrode, said electric discharge having an average field strength of less than or equal to 5kV/mm and a pulse or discharge energy of greater than 10J, and being generated at least substantially in the liquid. In the container (2), the recyclable item lies partially in the underwater spark gap on the container base-side.

Inventors

MÜLLER TIM
GELFOND LEONID
EISERT STEFAN

Latest standardized assignees - inventors removed

IMPULSTEC

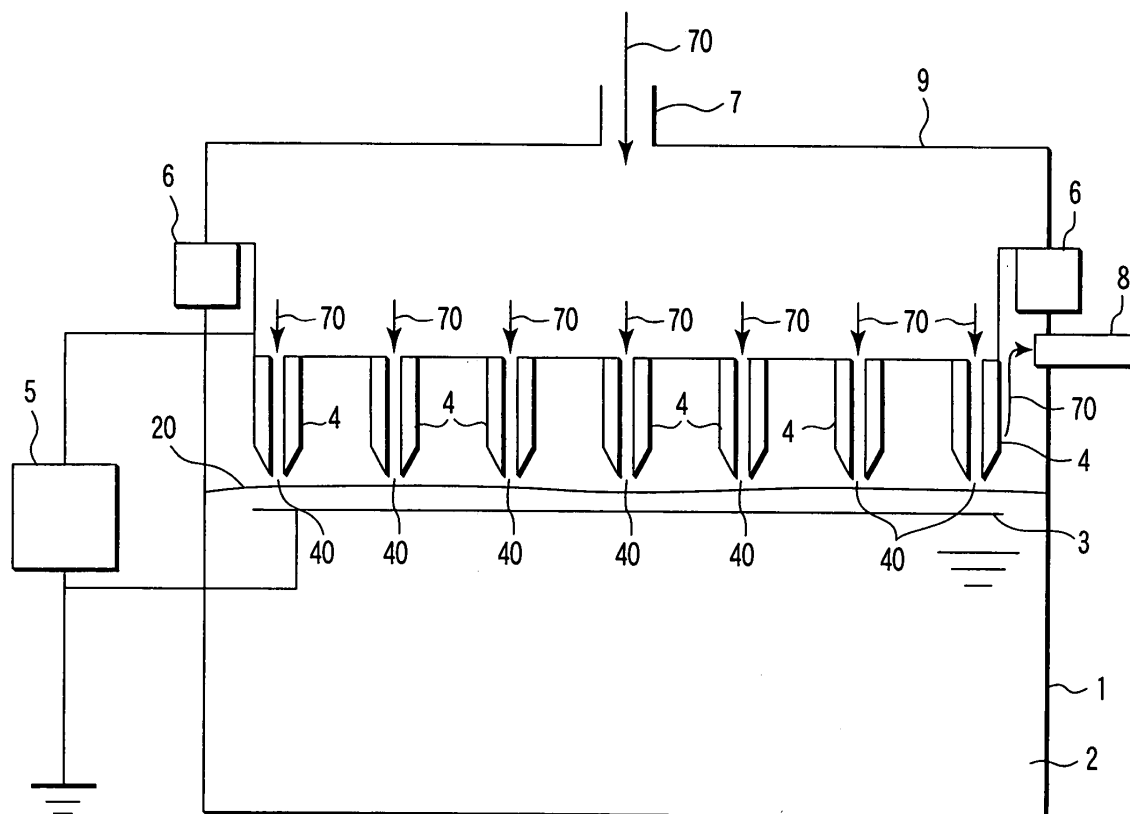
Family 14/20 - FAMPAT - ©Questel

Title

(US20020027107)

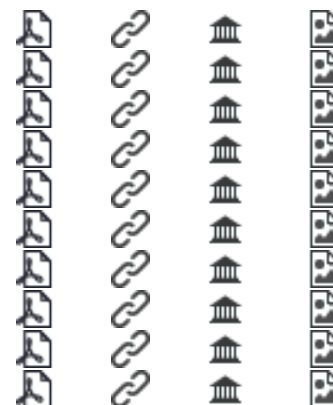
Method for purifying and neutralizing polluted liquids and apparatus for implementing the method

Images



Publication numbers with kind code & date

US20100239473	A1	2010-09-23	US20100239473
JP4322728	B2	2009-06-12	JP4322728
FR2866327	B1	2008-04-18	FR2866327
CN1330586	C	2007-08-08	CN1330586C
JP2006187743	A	2006-07-20	JP2006187743
JP2005296909	A	2005-10-27	JP2005296909
US20050189278	A1	2005-09-01	US20050189278
FR2866327	A1	2005-08-19	FR2866327
JP2005218890	A	2005-08-18	JP2005218890
CN1654343	A	2005-08-17	CN1654343



Abstract

(US20050189278)

An apparatus performs radical treatment by electric discharge. The radical treatment apparatus includes an electrode unit having a gas flow path that blows gas onto treatment water and an electrode member that generates the electric discharge at a leading edge in order to generate a radical from the gas.

Inventors

IIJIMA TAKANORI
MURATA TAKAAKI
KUBO KIE
OKITA YUJI
KOBAYASHI SHINJI
EBATA TORU

Latest standardized assignees - inventors removed

TOSHIBA

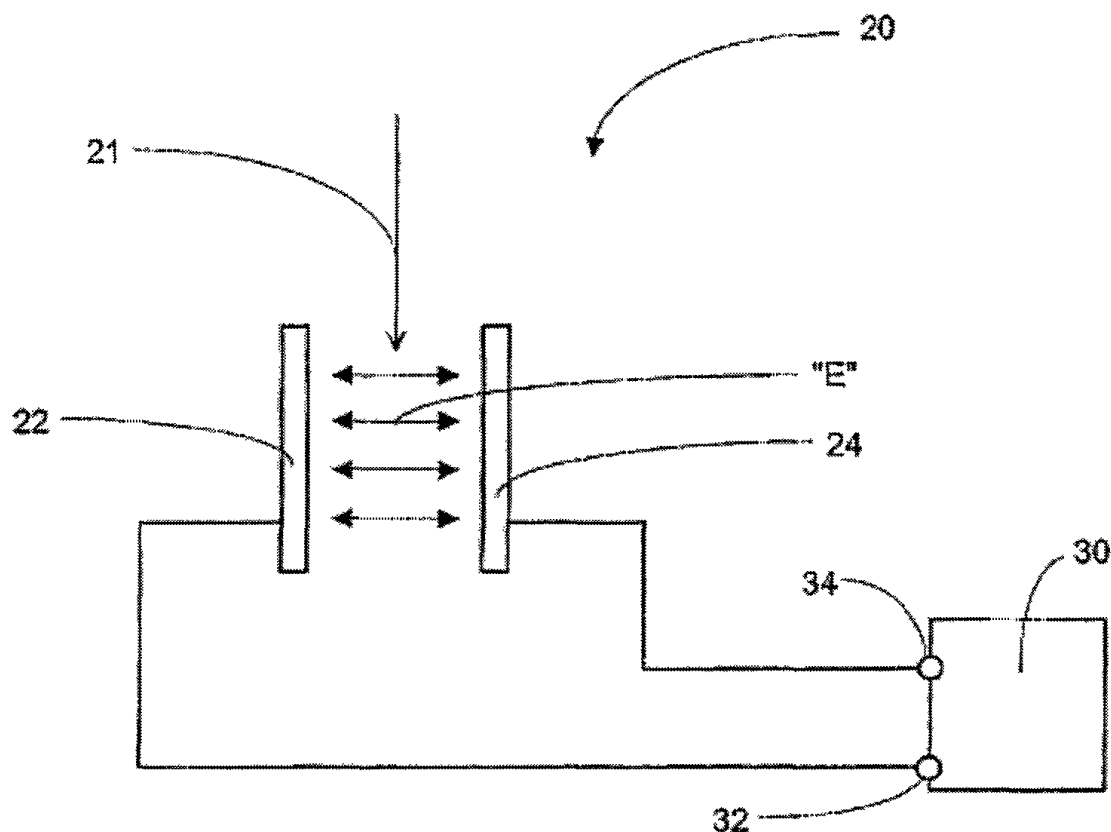
Family 16/20 - FAMPAT - ©Questel

Title

(WO2009114708)

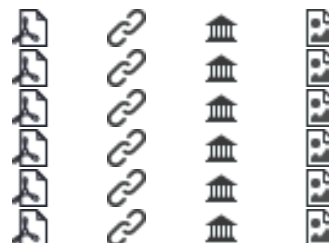
Desalination system and process

Images



Publication numbers with kind code & date

US9371244	B2	2016-06-21	US9371244
US20140014563	A1	2014-01-16	US20140014563
US8562839	B2	2013-10-22	US8562839
US20110011801	A1	2011-01-20	US20110011801
WO2009/114708	A3	2009-12-10	WO2009114708
WO2009/114708	A2	2009-09-17	WO2009114708



Abstract

(WO2009/114708)

The present invention pertains to an effective system and method for reducing or eliminating the formation of scale in desalination systems. The system utilizes at least one pair of electrodes in direct contact with a liquid to induce an oscillating electric field directly in a portion of the liquid or a liquid stream of the desalination system. The electric field is capable of inducing bulk precipitation of ions, minerals, salts, particulates, contaminants or a combination thereof from the liquid stream.

Inventors

CHO YOUNG I

Latest standardized assignees - inventors removed

DREXEL UNIVERSITY

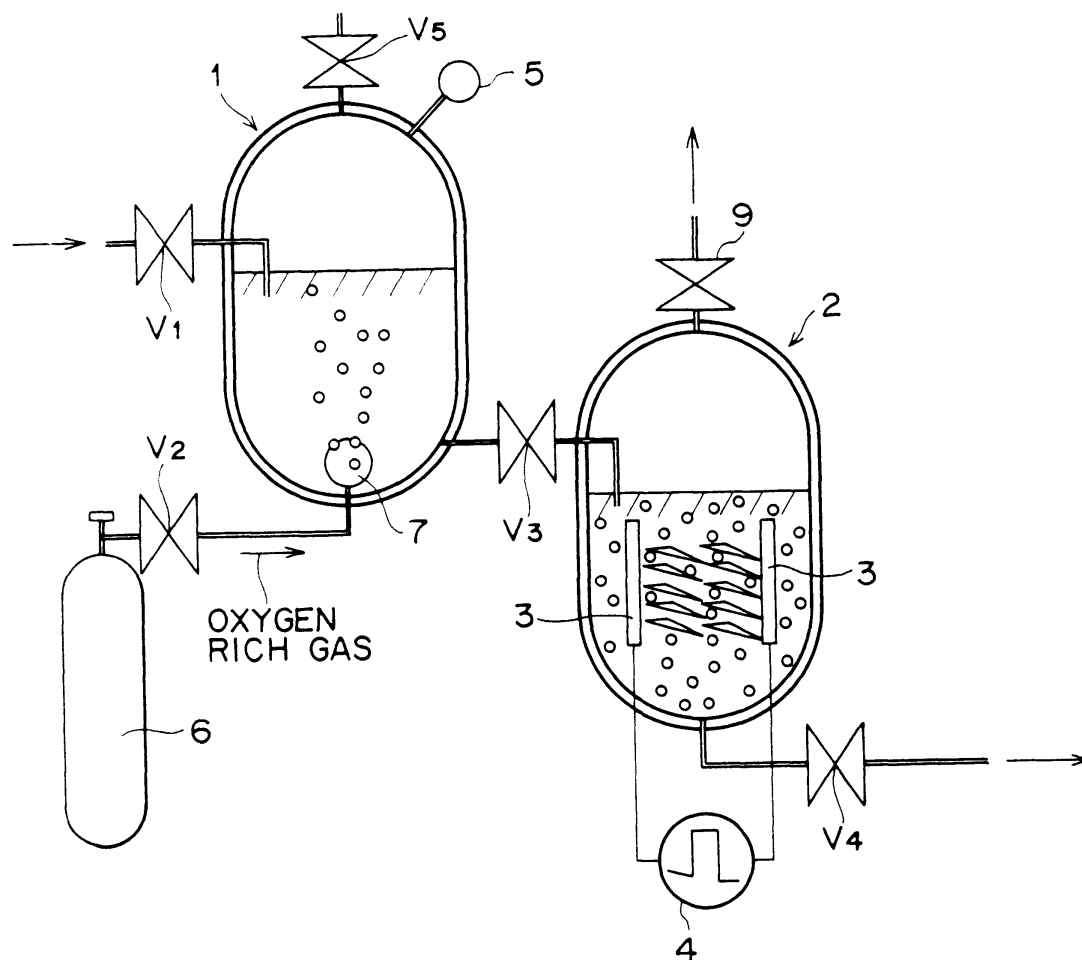
Family 17/20 - FAMPAT - ©Questel

Title

(US6328898)

Method of and apparatus for forming highly oxidative water

Images



Publication numbers with kind code & date

JP4101979	B2	2008-03-28	JP4101979
KR100358574	B1	2002-10-25	KR100358574
US6328898	B1	2001-12-11	US6328898
KR20010039667	A	2001-05-15	KR20010039667
DE10030735	A1	2001-03-01	DE10030735
JP2001009463	A	2001-01-16	JP2001009463
JP2001010808	A	2001-01-16	JP2001010808



Abstract

(US6328898)

Highly oxidative water containing ozone and/or OH radicals dissolved in a large amount is prepared by dissolving an oxygen rich gas at high pressure in water and then the pressure is lowered to form fine bubbles in water from the dissolved oxygen rich gas and the fine bubbles are exposed to pulse discharge. Method of and apparatus capable of forming highly oxidative water containing ozone or OH radicals at high concentration exhibiting an oxidizing performance at a level sufficient to practical use with excellent power efficiency and productivity by discharge in water.

Inventors

AKIYAMA HIDENORI
INOUE KENICHI
KOBAYASHI AKIRA
YOKOTA YOSHIHIRO
ADACHI SHIGETO
ASAHARA KAZUHIKO

Latest standardized assignees - inventors removed

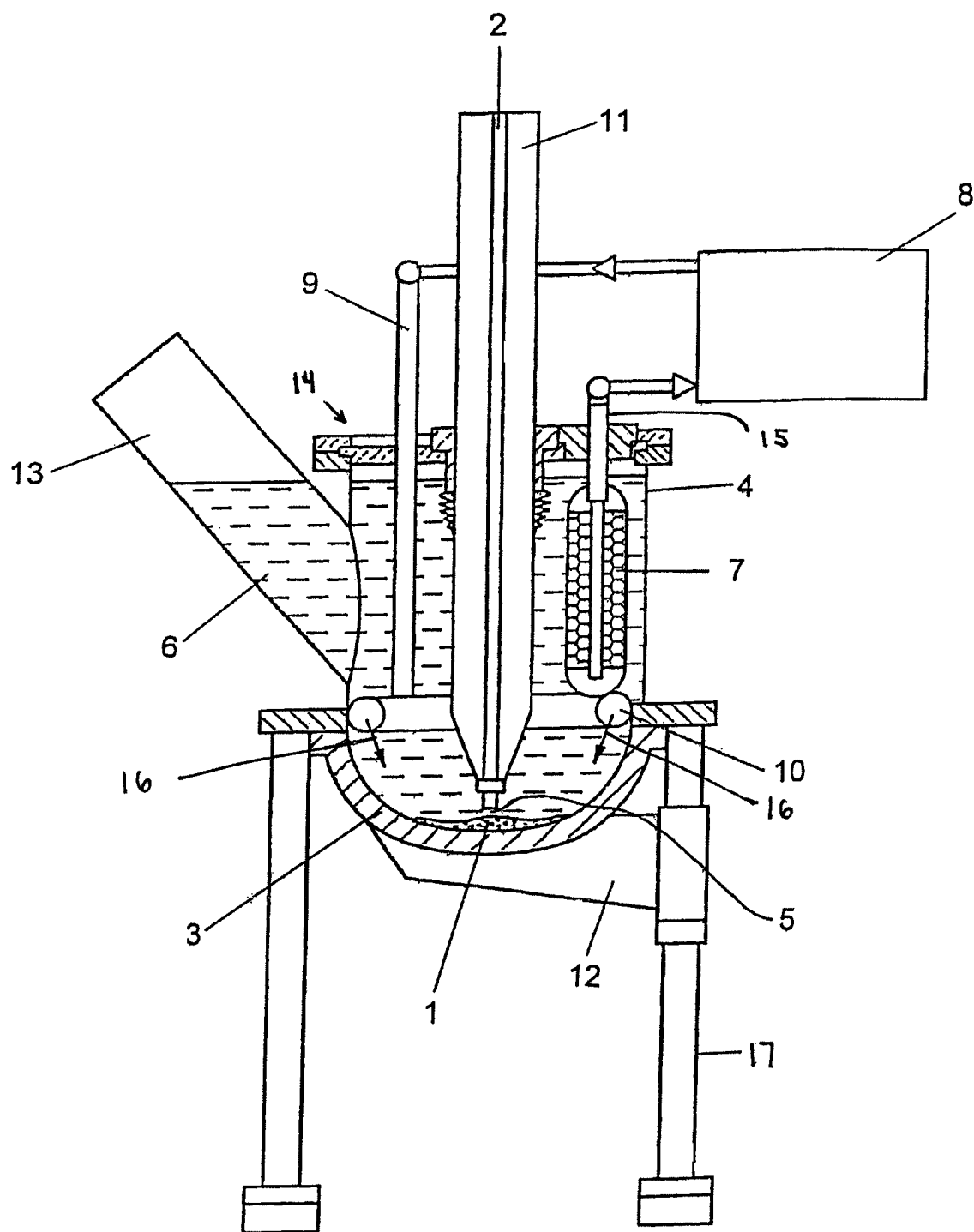
KOBE STEEL

Family 18/20 - FAMPAT - ©Questel

Title

(EP1663498)

Method for operating a fragmentation system and system therefor

Images**Publication numbers with kind code & date**

CN1849172	B	2012-05-30	CN1849172B
US8002209	B2	2011-08-23	US8002209
NO330936	B1	2011-08-22	NO-330936
ES2356314	T3	2011-04-06	ES2356314
DE502004011912	D1	2010-12-30	DE502004011912



DK1663498	T3	2010-12-20	DK1663498T				
AT488298	T	2010-12-15	ATE488298				
EP1663498	B1	2010-11-17	EP1663498				
CA2555476	C	2010-05-18	CA2555476				
US20080283639	A1	2008-11-20	US20080283639				
AU2004274091	B2	2008-07-17	AU2004274091				
RU2326736	C2	2008-06-20	RU2326736				
ZA200602074	B	2007-04-25	ZA200602074				
JP2007504937	A	2007-03-08	JP2007504937				
CN1849172	A	2006-10-18	CN1849172				
RU2006112208	A	2006-08-27	RU2006112208				
EP1663498	A1	2006-06-07	EP1663498				
NO20061448	A	2006-03-30	NO200601448				
NO20061448	L	2006-03-30	NO20061448				
DE10342376	B3	2005-07-07	DE10342376				
AU2004274091	A1	2005-03-31	AU2004274091				
CA2555476	A1	2005-03-31	CA2555476				
WO2005/028116	A1	2005-03-31	WO200528116				

Abstract

(EP1663498)

The invention relates to a method for operating an electrodynamic fragmentation system. The fragmentation product arranged in the process fluid is permanently suspended and forms a suspension with the process fluid. The portion of the processed fragmentation product which attains the target particle size or smaller is discharged from the reaction vessel and the fragmentation product exceeding the target particle size is supplied to the reaction area. The fragmentation system comprises a chargeable electric energy store, a pair of electrodes connected thereto, and both ends thereof are arranged at a distance from each other in the process fluid contained in the reaction vessel. The fragmented product is separated in a solid and liquid manner in a separator in the electrode intermediate chamber until it reaches the target particle size and is smaller than the target particle size and the prepared process fluid is guided back into the reaction vessel.

Inventors

FREY WOLFGANG

STRAESSNER RALF

SCHORMANN ANDREAS

GIRON KURT

GIESE HARALD

Latest standardized assignees - inventors removed

KARLSRUHER INSTITUTE FUER TECHNOLOGIE

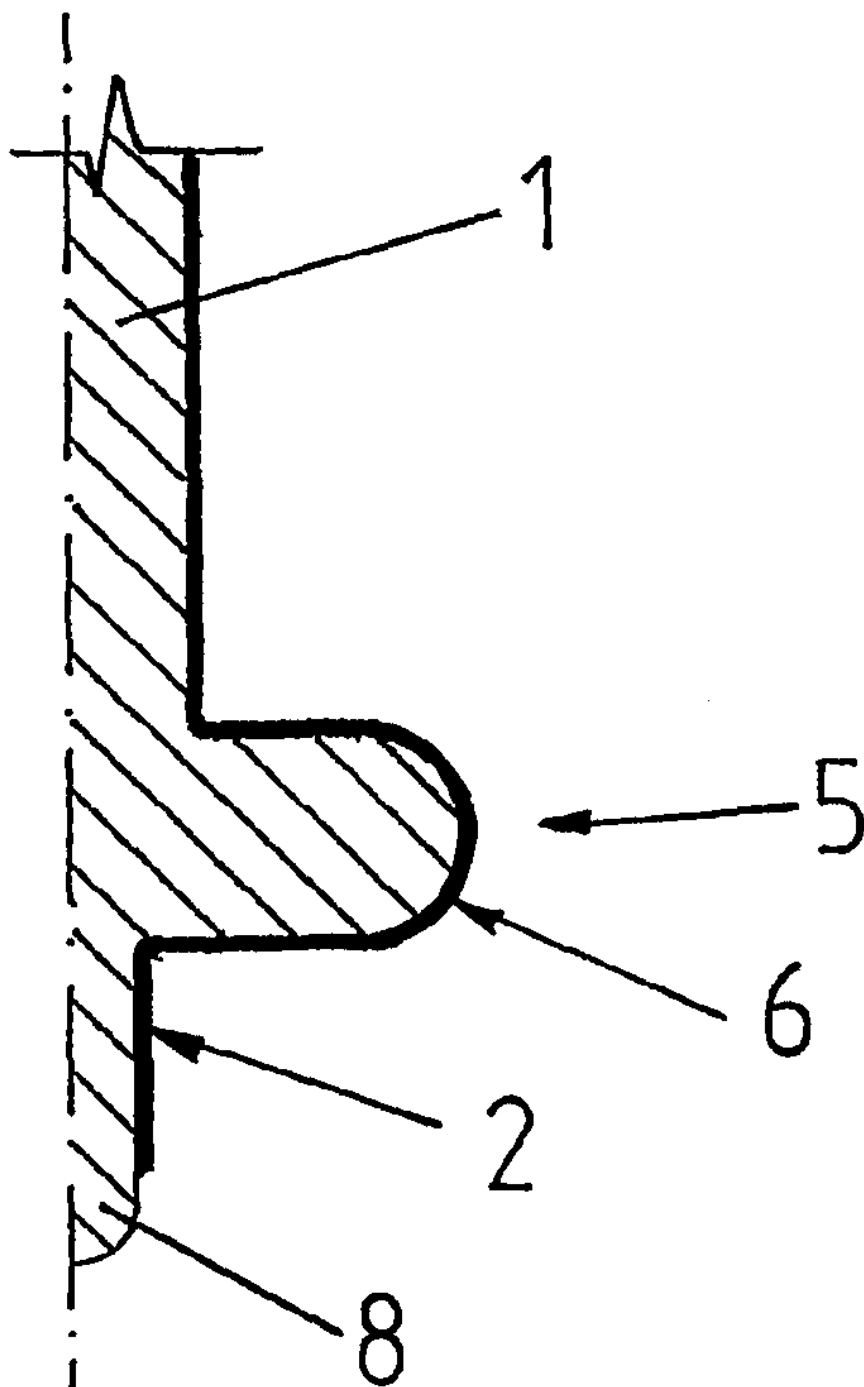
Family 19/20 - FAMPAT - ©Questel

Title

(EP2888053)

Method and device for fragmenting and/or weakening material by means of high-voltage pulses

Images


Publication numbers with kind code & date

CA2882458	C	2019-09-03	CA2882458
US10046331	B2	2018-08-14	US10046331
JP6231103	B2	2017-11-15	JP6231103
AU2012388189	B2	2017-07-06	AU2012388189
ES2600410	T3	2017-02-08	ES2600410
PL2888053	T3	2017-01-31	PL2888053
DK2888053	T3	2016-11-28	DK2888053T
ZA201501213	B	2016-10-26	ZA201501213
RU2596987	C1	2016-09-10	RU2596987
EP2888053	B1	2016-07-27	EP2888053
JP2015531679	A	2015-11-05	JP2015531679
US20150238972	A1	2015-08-27	US20150238972
EP2888053	A1	2015-07-01	EP2888053



EP2888053	A1	2015-07-01	EP2888053				
AU2012388189	A1	2015-02-26	AU2012388189				
CA2882458	A1	2014-02-27	CA2882458				
WO2014/029034	A1	2014-02-27	WO201429034				

Abstract

(EP2888053)

The invention relates to a method for fragmenting and/or weakening material by means of high-voltage pulses, the material and a processing fluid being arranged in a processing zone formed between two electrodes such that the entire processing zone is flooded with processing fluid, and high-voltage pulses being applied to the electrodes such that high-voltage breakdowns occur between the two electrodes and/or such that predischARGE channels are formed without breakdowns. An electrode with a metallic conductor (1) is chosen for at least one of the two electrodes, the conductor being provided partially or completely with an insulator or insulating coating (2) at the working end of the electrode that is in contact with the processing fluid, the permittivity of the insulator/insulating coating being at least 75% of the permittivity of the processing fluid. The use of such an electrode allows the energy efficiency of methods for fragmenting and/or weakening material by means of high-voltage pulses to be significantly improved and further allows greater tolerance to be achieved with respect to an increase in the conductivity of the processing fluid.

Inventors

MÜLLER-SIEBERT REINHARD

MONTI DI SOPRA FABRICE

GIESE HARALD

FRIEDLI URS

Latest standardized assignees - inventors removed

SELF FRAG

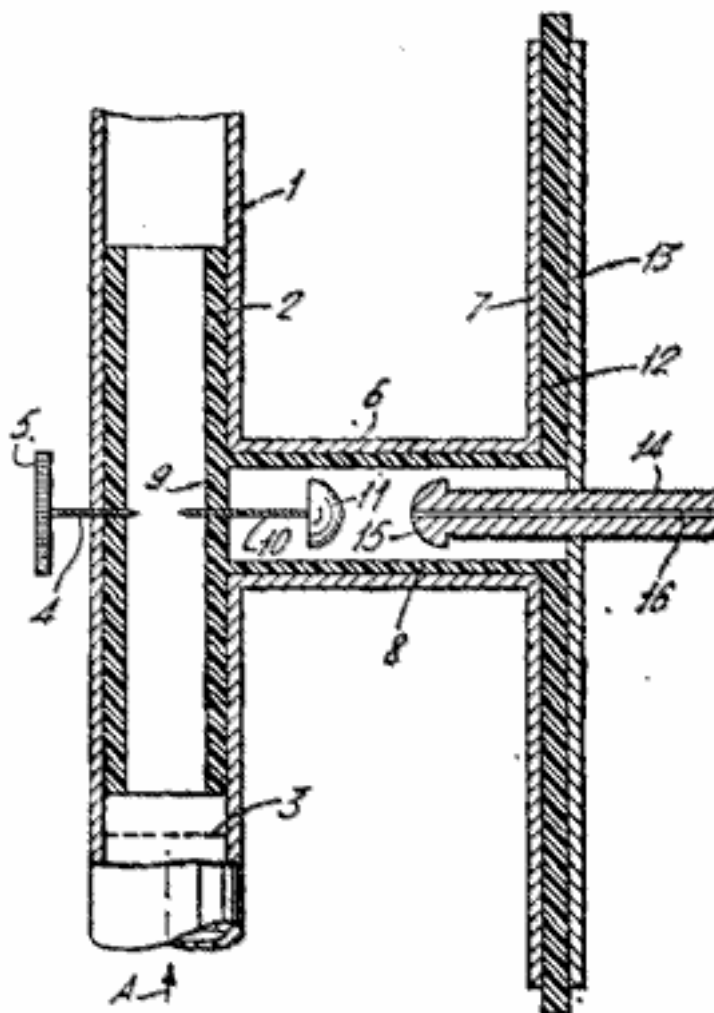
Family 20/20 - FAMPAT - ©Questel

Title

(US3352503)

Apparatus for electro-hydraulic crushing

Images



Publication numbers with kind code & date

DE1299209	B	1969-07-10	DE1299209
US3352503	A	1967-11-14	US3352503
FR1423592	A	1966-03-21	FR1423592
GB1021786	A	1966-03-09	GB1021786
NL6501438	A	1965-08-09	NL6501438
BE659375	A	0	BE-659375



Abstract

(US3352503)

1,021,786. Crushing. UNITED KINGDOM ATOMIC ENERGY AUTHORITY. Jan. 27, 1965 [Feb. 6, 1964], No. 5070/64. Heading B2A. A method of crushing comprises discharging all the energy stored in a capacitor through a spark discharge gap in a liquid medium in a time of not more than about one microsecond. Preferably, at least 85% of the energy is discharged in a time of 0.5 microsecond. Apparatus for carrying out the method comprises a spark discharge gap defined by electrodes 4, 10 immersed in a liquid medium contained in a vessel 1 provided with an insulating lining 2, the electrodes being connected by a gas spark gap, defined by electrodes 11, 15, to opposite plates 7, 13 of at least one capacitor, the plate 13 being connected to a source of high potential and the circuit comprising the spark gaps and the capacitor having an inductance of not more than 0.1 microhenries. The electrodes 11, 15 are surrounded by a metal tube 6, having an insulating lining 8, formed integrally with the tube 1 and with the plate 7 of the capacitor so that the parts 1, 6 and 7 are electrically connected together and to earth, the electrode 4 being the earthed electrode. The crushing vessel may be in the form of an annulus. More than one crushing vessel may be provided.

(From GB1021786 A)

Inventors

GEORGE MAROUDAS NICHOLAS

Latest standardized assignees - inventors removed

