

**Search query (5):** [SP]: 1. an ionic electric power station characterised in that it comprises cells that generate electricity using sea water or salt water as an electrolyte, a deposit outside the cell for the electrolyte, a deposit of sodium chloride (nad) sea salt, an electrolyte measuring and dosing device, a water inlet in the cell and the tank, a discharge pipe for the water outlet in the cell and the tank, a filter for the electrolyte, a pump to drive the electrolyte from the tank to the generating cells, a container cabinet for the cells and other elements, removable trays in the cabinet containing the cells connected in series and interconnected in parallel, accumulator batteries for the surplus electricity produced, an electronic module battery charge and current transfer to the mains), a direct current to alternating current converter module, a general panel for differential electrical protection and a thermal magnet, an output connection for the power supply.2. the ionic electric power station, according to claim 1, characterised in that it has a plurality of generating cells connected in series and parallel, each of which consists of an input and output of the electrolyte, connection terminals to the anode and cathode, the anode being interchangeable via opening the cover.3. the ionic electric power station, according to claim 2 characterised by use in the cells as a cathode in the form of a tube, smooth plate, rods or stainless-steel mesh.4. the ionic electric power plant, according to claim 2 characterised by use in the cells as a cathode in the form of a tube, smooth plate, rods or gold or nickel mesh.5. the ionic electric power station, according to claim 2 characterised by using in the cells as a cathode in the form of a tube, smooth plate, rods or platinum or copper mesh.6. the ionic electric power station, according to claim 2 characterised by using in the cells as a cathode in the form of a tube, smooth plate, rods or graphite or brass mesh.7. the ionic electric power station, according to claim 2 characterised by using in the cells as a tube anode in the form of a tube, smooth plate, rods or zinc mesh.8. the ionic electric power station, according to claim 2 characterised by use in the cells as an anode in the form of a tube, smooth plate, rods or magnesium mesh.9. the ionic electric power station, according to claim 1 characterised by use in the cells as an anode in the form of a tube, smooth plate, rods or beryllium mesh.10. the ionic electric power station, according to claim 2 characterised by use in the cells as an anode in the form of a tube, smooth plate, rods or aluminium alloy mesh.11. the ionic electric power station, according to claim 2 characterised by use in the cells as an anode in the form of a tube, smooth plate, rods or cadmium mesh.12. the ionic electric power station, according to claim 1 characterised by using percentages of sulfuric acid (h2so4) in the electrolyte.13. the ionic electric power station, according to claim 1, characterised by using sodium hydroxide (naoh) in the electrolyte.14. the ionic electric power station, according to claim 1 characterised by using perhydrole peroxide (h2o2) in the electrolyte.15. the ionic electric power station, according to claim 1 characterised by using potassium chloride (kcl) in the electrolyte.16. the ionic electric power station, according to claim 1, characterised by using nitric acid (hno) in the electrolyte.17. the ionic electric power station, according to claim 1, characterised by using hydrochloric acid (hcl) in the electrolyte.18. the ionic electric power station, according to claim 1 characterised in that it is used in the grafeno electrolyte.19. the ionic electric power station, according to claim 1 characterised by using a general electrical protection box, which is automatically or remotely resettable, a differential protection module and thermal magnet and oscilloscope that include relay outputs na/nc, programmable in all its functions, with a consumption meter and all these elements connected to the network by cable or wi-fi for remote monitoring.

Results: 13

**1) Family number: 29817159** (US4695935A)

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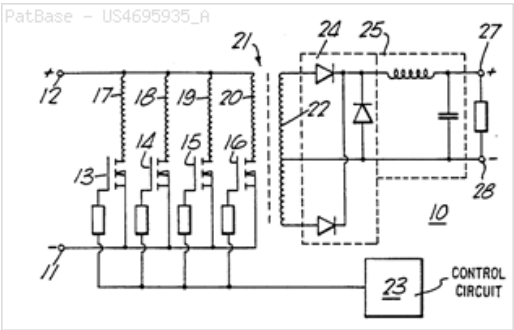
**Title:** POWER SUPPLY**Priority:** NO19850002598 19851219**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| GB2177556 A1       | 19870121         | GB19860015284      | 19860623         |
| GB2177556 B2       | 19891025         | GB19860015284      | 19860623         |
| GB8615284 A0       | 19860730         | GB19860015284      | 19860623         |
| JP62037065 A2      | 19870218         | JP19860149858      | 19860627         |
| NO159898 B         | 19881107         | NO19850002598      | 19850628         |
| NO159898 B         | 19881107         | NO19850002598      | 19851219         |
| NO852598 A         | 19870622         | NO19850002598      | 19851219         |
| NO852598 A         | 19870622         | NO19850002598      | 19850628         |
| NO852598 L         | 19870622         | NO19850002598      | 19851219         |
| US4695935 A        | 19870922         | US19860879686      | 19860627         |

**Probable Assignee:** ALCATEL STK AS**Assignee(s):(std):** ALCATEL NV ; ALCATEL STK AS ; INT STANDARD ELECTRIC CORP ; STANDARD TEL KABELFAB AS**Assignee(s):** INT STANDARD ELECTRIC A CORP OF DE CORP ; INTERNATL STANDARD ELECTRIC CORP ; ALCATEL STK A S ; ALCATEL DE LAIRESSESTRAAT 153 1075 HK AMSTERDAM NE ; ALCATEL DE LAIRESSESTRAAT 153 1075 HK AMSTERDAM NETHERLANDS A CORP OF NETHERLANDS NV ; ALCATEL N V**Inventor(s):(std):** TRONSLI SVERRE NORMAN ; OEN SVERRE ; POPPE DAG ; TRONSLI SVERRE N**Inventor(s):** SVERRE NORMAN TRONSLI ; DAG POPPE ; SVERRE OEN ; SUBETSURE NORUMAN TORONSURI ; DAGU POTSUPE ; SUBETSURE OEN ; OEN SVERRE ; TRONSLI SVERRE NORMANN**International class (IPC 8-9):** H02M3/28 H02M3/335 (Advanced/Invention);  
H02M3/24 (Core/Invention);  
H02M (Subclass/Invention)**International class (IPC 1-7):** H02M3/28 H02M3/335**CPC:** H02M3/33569 Y10S136/293 Y10S323/906**European class:** H02M3/335S**US class:** 136/293 323/272 323/906 363/16 363/21 363/21.1 363/26 363/56.1 363/71**JP class F-Term:** 5H730 5H730/AA14 5H730/AA15 5H730/AS00 5H730/AS01 5H730/AS02 5H730/AS11 5H730/BB25 5H730/BB57 5H730/DD02 5H730/DD04 5H730/DD13 5H730/EE03 5H730/EE08 5H730/EE10 5H730/FD03 5H730/FG05 5H730/XC04 5H730/XC16 5H730/XC20**JP class F-Index:** H02M3/28/S[Classification Explorer](#)**Cited documents:** US4134057 A, US3974437 A, US3566143 A, US3348120 A, JPS541819, JPS49416 B1, JP54001819 A2, JP49000416 B4, DE2722339 A1,**Forward Citations:** WO9326072, WO9207404, WO17174836, WO09050716, WO09050716, WO08131007, USRE35643, US9479070, US9467064, US9143042, US8493751, US8159238, US8023290, US7796409, US7564702, US7558083, US7225018, US7206209, US7120492, US7120492, US7057906, US7009853, US6563293, US6469914, US6344980, US6329589, US6184650, US6184650, US6166455, US6137697, US6091233, US5956241, US5942884, US5793624, US5771165, US5684663, US5640318, US5525892, US5373201, US5276393, US5215599, US5063341, US5019954, US5006972, US4899113, US4871959, US4816978, US2014218993, US2010212212, US2007201249, US2006284717, US2005258925, US2005122746, US2004252528, US2004179377, US10199950, KR101108735, JP5038489, JP2010525576, GB2448328, GB2448328, GB2301239, GB2301239, GB2259610, FR2889357, ES2156681, EP0443155,

Abstract:

A power supply for converting a low DC voltage, in particular a DC voltage delivered from a sea water galvanic cell (or solar cell), into a DC voltage useful for normal electronic equipment includes a number of MOS-FET transistors connected in parallel to an output transformer. The transformer has a number of primary windings distributed on a toroidal ferrite core so as to interact with the secondary winding of the transformer.



2) Family number: 4533275 (US5006972A)

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**Title:** Sea water battery power converter  
**Priority:** US19890353585 19890518 US19900579201 19900904  
**Family:**

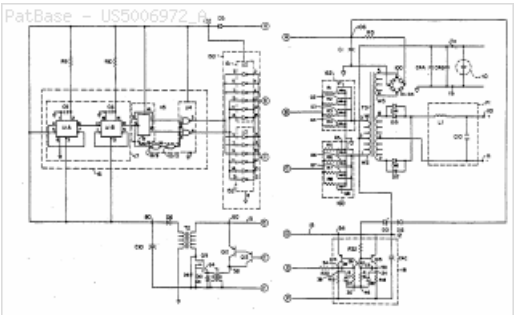
| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US5006972 A        | 19910409         | US19900579201      | 19900904         |

**Probable Assignee:** US NAVY  
**Assignee(s):(std):** US NAVY  
**Assignee(s):** THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE NAVY  
**Inventor(s):(std):** HAMMOND RUSSELL E ; HENRY JOHN L  
**International class (IPC 8-9):** H02M3/337 (Advanced/Invention); H02M3/24 (Core/Invention)  
**International class (IPC 1-7):** H02M3/337  
**CPC:** H02M3/337  
**European class:** H02M3/337  
**US class:** 363/24 363/49

[Classification Explorer](#)

**Cited documents:** US4695935 A, US4685039 A, US4519024 A, US4241395 A, US3470032 A, JP55147980 A2, JP44013041 B4,  
**Forward Citations:** WO17174836, FR2889357, FR2889357,

**Abstract:**  
The invention converts the voltage output of a DC source to a higher voltage. A germanium transistor start-up circuit receives a DC supply voltage input and includes an astable multivibrator which produces a square wave voltage output that is transformed to a substantially DC steady-state voltage output by a transformer and a capacitor. This elevated voltage is provided to an oscillator circuit which provides two square wave outputs. Each output is provided to an array of invertors operably coupled to an array of field effect transistors. The transistors are operably coupled to a power transformer. The square wave outputs of the power transformer are full wave rectified to provide a DC output having a higher voltage than the system input voltage. The power transformer also provides another full wave rectified voltage which disables the start-up circuit to eliminate parasitic energy losses attributable to its continued oscillation.



3) Family number: 5449285 (US4710438A)

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**Title:** ACTIVATABLE BATTERY  
**Priority:** FR19860014712 19861023  
**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE3771668 D1       | 19910829         | DE19873771668      | 19871021         |

|               |          |               |          |
|---------------|----------|---------------|----------|
| EP0268828 A1  | 19880601 | EP19870115422 | 19871021 |
| EP0268828 B1  | 19910724 | EP19870115422 | 19871021 |
| FR2605804 A1  | 19880429 | FR19860014712 | 19861023 |
| FR2605804 B1  | 19890505 | FR19860014712 | 19861023 |
| JP1809038 C3  | 19931210 | JP19870265200 | 19871020 |
| JP5017663 B4  | 19930309 | JP19870265200 | 19871020 |
| JP63110554 A2 | 19880516 | JP19870265200 | 19871020 |
| US4710438 A   | 19871201 | US19870002985 | 19870113 |

**Probable Assignee:** SAFT

**Assignee(s):(std):** ACCUMULATEURS FIXES ; SAFT SA

**Assignee(s):** SAFT ; SAFT S A ; SOCIETE ANONYME DITE SAFT ; SAFT ROMAINVILLE FR ; SAFT SOC ACCUMULATEURS FIXES TRACTION SA ; SAFT 156 AVENUE DE METZ 93230 ROMAINVILLE FRANCE ; ACCUMULATEURS FIXES ET TRACTION ; AKYUMYURATSUURU FUIKUSU E DO TORAKUSHION SOC ; ANONYME SAFT SOC

**Inventor(s):(std):** LEBEN YANNICK ; D USSEL LOUIS ; YANITSUKU RUBAN ; RUI DEYUSERU ; USSEL LOUIS D

**Inventor(s):** YANNICK LEBEN ; LOUIS D USSEL ; D USSEL LOUIS F 75017 PARIS FR ; LEBEN YANNICK F 93000 BOBIGNY FR

**Designated states:** DE FR GB IT

**International class (IPC 8-9):** H01M2/40 H01M6/34 (Advanced/Invention); H01M2/00 H01M6/30 (Core/Invention)

**International class (IPC 1-7):** H01M2/40 H01M6/34 H01M6/50

**CPC:** H01M2/40 H01M6/34

**European class:** H01M2/40 H01M6/34 Y02E60/12

**US class:** 429/119 429/120

**JP class F-Term:** 5H025 5H025/AA14 5H025/CC02 5H025/CC19 5H025/CC29 5H025/CC38 5H025/CC39 5H025/CC40 5H025/KK01

**JP class F-Index:** H01M6/34/A

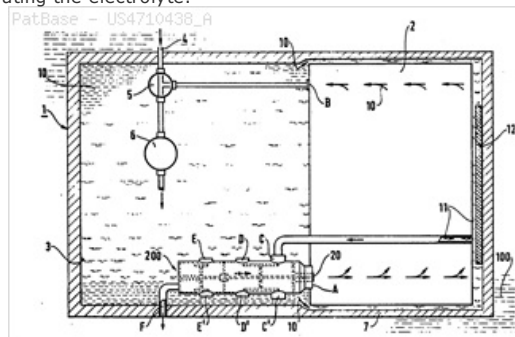
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**Cited documents:** US4198474 A, US3953239 A, US3941616 A, US3542598 A, US3463671 A, US3154040 A, JP59219862 A2, JP59219862, JP57147875, JP57078772 A2, FR2161040 A1,

**Forward Citations:** WO17174836, WO05053068, US9727062, US8137834, US5532079, US5506065, US4752542, US2013015376, US2007105460, FR2862433, FR2716750, EP1685613, EP0669666, EP0669665, EP0476916, EP0307292,

#### Abstract:

A battery which is activatable by seawater and which uses electrochemical AgO/Al couples includes means (200, 12) for eliminating the aluminates which form in the electrolyte during discharge, and for regenerating the electrolyte.



#### 4) Family number: 55200291 (US2013316196A)

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**Title:** ENERGY GENERATION SYSTEM AND RELATED USES THEREOF

**Priority:** US20120650190P 20120522 US20130841760 20130315 US20140209084 20140313  
US20150616419 20150206

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | US2013316196 AA    | 20131128         | US20130841760      | 20130315         |
|         | US2014193731 AA    | 20140710         | US20140209084      | 20140313         |
|         | US2015151983 AA    | 20150604         | US20150616419      | 20150206         |
|         | US8968948 BB       | 20150303         | US20130841760      | 20130315         |
|         | US9156714 BB       | 20151013         | US20150616419      | 20150206         |
|         | US9520608 BB       | 20161213         | US20140209084      | 20140313         |
|         | WO13177272 A2      | 20131128         | WO2013US42208      | 20130522         |
|         | WO13177272 A3      | 20140206         | WO2013US42208      | 20130522         |

**Probable Assignee:** CONCURRENT TECHNOLOGIES CORP

**Assignee(s):(std):** CONCURRENT TECH CORP ; CONCURRENT TECHNOLOGIES CORP ; CONCURRENT TECHNOLOGIES CORP CTC

**Assignee(s):** CONCURRENT TECHNOLOGIES CTC CORP

**Inventor(s):(std):** MARKIEWICZ DANIEL R ; POLLOCK MICHAEL ; MCCLUSKEY MICHEL J ; BECKER MARK

**Agent(s):** OBLON MCCLELLAND MAIER AND NEUSTADT LLP; BUCHANAN INGERSOLL AND ROONEY PC; HAMILTON

JAMES D ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LR LK LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B01D61/02 B01D61/06 B01D61/12 C02F1/00 C02F1/32 C02F1/44 C02F1/46 H01M16/00 H01M6/32 H01M8/04 H01M8/06 H02N3/00 (Advanced/Invention); C02F1/32 C02F103/08 H01M8/10 (Advanced/Non-invention)

**CPC:** C02F1/00 H01M6/32 H01M16/00 C02F2303/10 H01M8/065 B01D61/025 B01D61/06 B01D61/12 B01D2311/04 B01D2313/365 C02F2303/04 Y02W10/30 C02F1/32 C02F1/441 C02F2103/08 C02F2201/009 H01M8/0656 H01M16/003 H01M16/006 H01M2008/1095 H01M2250/407 H02N3/00 Y02E60/50 Y02E60/563 Y02A20/212 Y02A20/141

**US class:** 1/1 210/241 210/321.6 210/321.66 210/652 429/417 429/418 429/421 429/422 429/448 429/72 429/9

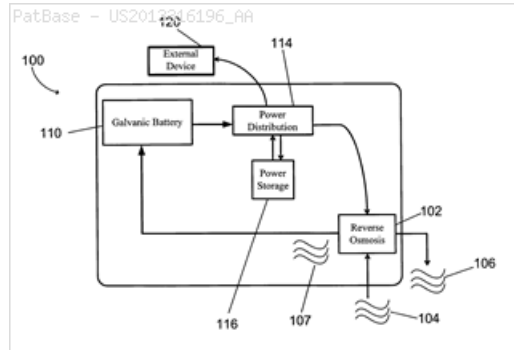
[Classification Explorer](#)

**Cited documents:** WO8911165 A1, US8502507 BA, US8502181 BB, US8421047 BB, US6962053 BB, US6100600 A, US4836929 A, US4752363 A, US4025697 A, US2014193731 AA, US2013015257 AA, US2013008315 AA, US2012111800 AA, US2011011802 AA, US2009324997 AA, US2009218910 AA, US2008230376 AA, US2005183964 AA, US2003138675 AA, US2003132097 AA, US2002090868 AA, US2002017463 AA, JP2003092133 A2,

**Forward Citations:** WO16141085, US9499418, US9156714, US2015274552, EP3442090,

#### Abstract:

A self contained energy generating system that comprises a galvanic battery and a power distribution system. The energy generating system is used to purify water by using a reverse osmosis device that draws in a source of water and transfers electrolytes to the galvanic battery. Upon contact with the electrolyte, the galvanic battery produces energy by an oxidation-reduction reaction of the cathode and anode and transfers energy to the power distribution system, which in turn provides power to the osmosis device. Additionally, the system includes a hydrogen fuel cell to increase the amount of energy generated and a power storage device for storing excess energy generated. The system also includes a controller which is configured to regulate the overall operation of the system.



#### 5) Family number: 930333 (US3542598A)

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**Title:** SEA WATER BATTERY EMPLOYING ELECTROLYTE RECIRCULATION CIRCUIT

**Priority:** US19690796670 19690205

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | US3542598 A        | 19701124         | US19690796670      | 19690205         |

**Probable Assignee:** US NAVY

**Assignee(s):(std):** US NAVY

**Assignee(s):** NAVY USA

**Inventor(s):(std):** WHITE WILLIAM D ; RUNGE CARL D ; GREEN JAMES H

**Inventor(s):** CARL D RUNGE ; JAMES H GREEN ; WILLIAM D WHITE

**International class (IPC 8-9):** H01M2/40 H01M6/34 (Advanced/Invention); H01M2/00 H01M6/30 (Core/Invention)

**International class (IPC 1-7):** H01M11/00 H01M17/00 H01M7/02

**CPC:** H01M6/34 H01M2/40

**European class:** H01M2/40 H01M6/34 Y02E60/12

**US class:** 136/100 429/119 429/64

[Classification Explorer](#)

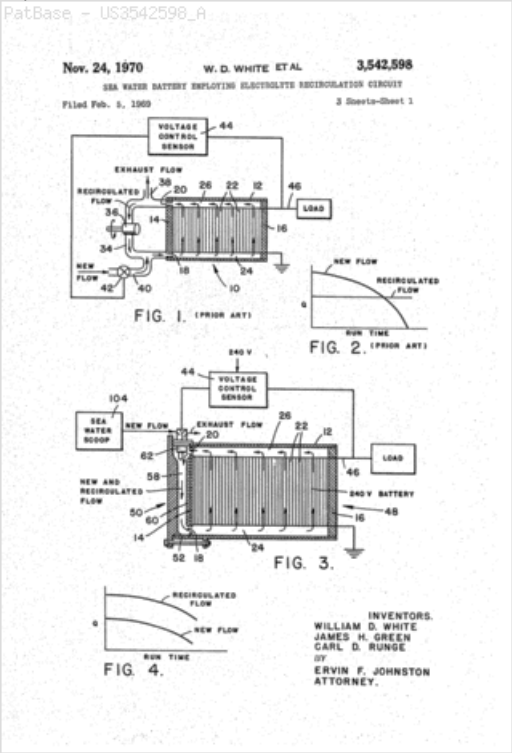
**Cited documents:** US3472699 A, US3470032 A, US3463671 A, US3388003 A, US3154040 A, US3012087 A, US2781413 A,

**Forward Citations:** WO9010957, WO8402428, WO17174836, US6786226, US6718996, US6622744, US5162168, US5158838, US4710438, US4119766, US3982961, US3941616, US3892653, US2003102029, US2002088488, JP6100412, JP2016149355,

#### Abstract:

(Claim 1) 1. A sea water battery comprising: a battery casing having a pair of spaced apart ends, a bottom portion of one end having an inlet port and a top portion of the same end having an outlet port; a series of plates mounted within said casing and spaced from the bottom and top thereof to form inlet and outlet manifolds which communicate with said inlet and outlet ports respectively; passageway means mounted at said one end of the battery casing for communicating said outlet and inlet ports; a jet nozzle having an inlet port for receiving new electrolyte flow from the ocean; said jet nozzle being mounted within said passageway for causing venturi action between the new flow and a portion of electrolyte battery outlet flow from said outlet port; an electrically operated valve means for controlling new electrolyte flow to said jet nozzle; and means connected between an output lead of the battery and said

valve means for closing said valve means when the battery voltage falls below a predetermined level.



6) Family number: 44073384 (WO09143670A1)

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Title:

Priority:

Family:

Probable Assignee:

Assignee(s):(std):

Assignee(s):

Inventor(s):(std):

Agent(s):

Designated states:

International class (IPC 8-9):

CPC:

European class:

[Classification Explorer](#)

Cited documents:

Forward Citations:

BATTERY OF SEA WATER ELECTROLYTE

WO2008CN71100 20080527

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| WO09143670 A1      | 20091203         | WO2008CN71100      | 20080527         |

MASS TECHNOLOGY HK LTD

CHEW HWEE HONG ; MASS TECHNOLOGY HK LTD

MASS TECHNOLOGY H K LIMITED

CHEW HWEE HONG

SHANGHAI PATENT AND TRADEMARK LAW OFFICE LLC

AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

H01M8/00 H01M8/18 (Advanced/Invention);  
H01M8/00 H01M8/18 (Core/Invention)

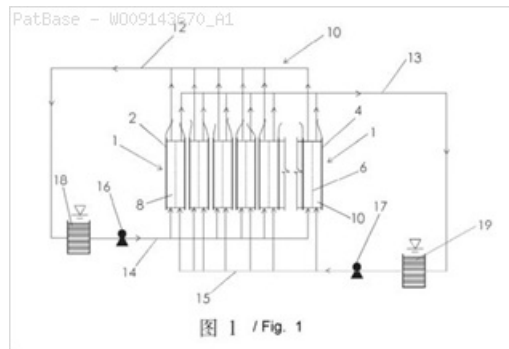
H01M8/188 Y02E60/528

H01M8/18C4 Y02E60/52J

JP2006351248 A2, JP2006004797 A2, CN1765027 A, CN1643722 A,

WO17174836, EP3442090,

**Abstract:**  
A battery of sea water electrolyte, the battery is composed of many battery cells, every battery cell includes an anode plate coated with protecting layer, a cathode plate coated with protecting layer, an ion exchange membrane between the anode plate and cathode plate, and cathode electrolyte and anode electrolyte respectively filled there between, the anode electrolyte is electrolyzed sea water having NaClO and is acid, the cathode electrolyte is alkali electrolyte having NaOH; therein the anode electrolyte and cathode electrolyte of every battery cell are collected and supplied by channels and cycled by a pump, electrolyte cans are respectively arranged in the above cycle channels; the ion exchange membrane only permits cation or anion passing, so that current and voltage can be generated when the cathode electrolyte and anode electrolyte react.



## 7) Family number: 75124417 (DE102018100765A1)

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**Title:** UNTERWASSERVORRICHTUNG ZUM EINSATZ UNTER WASSER MIT EINER ENERGIEERZEUGUNGSEINRICHTUNG Underwater DEVICE FOR USE UNDER WATER WITH AN ENERGY GENERATING DEVICE (Machine translation)

**Priority:** DE201810100765 20180115

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | DE102018100765 A1  | 20190718         | DE201810100765     | 20180115         |

**Probable Assignee:** ATLAS ELEKTRONIK GMBH

**Assignee(s):(std):** ATLAS ELEKTRONIK GMBH

**Inventor(s):(std):** ABILDGAARD MAX

**International class (IPC 8-9):** B63G8/00 H01M6/34 (Advanced/Invention)

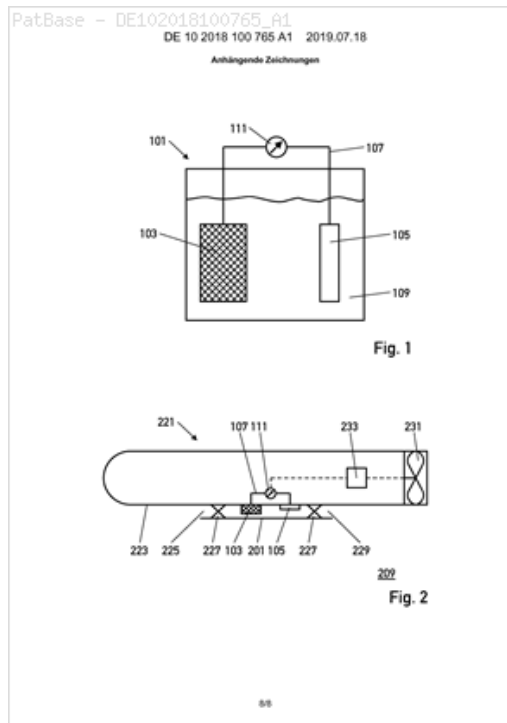
**CPC:** B63G2008/004 B63H2021/003 H01M6/34

[Classification Explorer](#)

**Cited documents:** WO17174836 A1, WO14205553 A1, WO13132228 A1, US8916299 BA, US2013022834 AA, DE60007299 T2, CN101533935 A,

### Abstract:

Source: DE102018100765A1 [DE] Die Erfindung betrifft eine Unterwasservorrichtung zum Einsatz unter Wasser, wobei die Unterwasservorrichtung einen Verbraucher und eine Energieerzeugungseinrichtung zum Versorgen des Verbrauchers aufweist und beim Einsatz von Wasser umgeben ist, wobei die Energieerzeugungseinrichtung eine Anode und eine mit der Anode elektrisch verbundene Kathode aufweist, wobei die Kathode edler als die Anode ist, und Kathode und Anode voneinander beabstandet vom Wasser umgeben sind, und die Anode einen Metallschaum aufweist und eine Dichte des Metallschaums derart ausgestaltet ist, dass bei einer Energieerzeugung durch die Energieerzeugungseinrichtung eine Dichte der Unterwasservorrichtung mittels des Metallschaums gezielt einstellbar und/oder aufrechterhaltbar ist. **Machine translation:** The invention relates to a device for underwater use under water, wherein the underwater device a consumer and an energy generating device for supplying the consumer, and in the case of use of water, and wherein the energy generating device comprising an anode and a cathode electrically connected to the anode, wherein the cathode is more noble than the anode and the cathode and anode are surrounded by water, spaced apart from one another and the anode comprises a metal foam and a density of the metal foam is configured in such a way that at an energy produced by the energy generating device has a density of the underwater device by means of the metal foam and/or targetedly is maintainable.



# 8) Family number: 62681504 (US2019131631A)

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**Title:** IONIC ELECTRIC POWER STATION

**Priority:** ES20160000237U 20160405 WO2017ES00038 20170327

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | CN109417297 A      | 20190301         | CN201780028529     | 20170327         |
|         | CO20180011973 A2   | 20181113         | CO20180011973      | 20181102         |
|         | EP3442090 A1       | 20190213         | EP20170778712      | 20170327         |
|         | EP3442090 A4       | 20191030         | EP20170778712      | 20170327         |
|         | ES1158584 U8       | 20170522         | ES20160000237U     | 20160405         |
|         | ES1158584 UA       | 20160613         | ES20160000237U     | 20160405         |
|         | ES1158584 Y1       | 20160909         | ES20160000237U     | 20160405         |
|         | IN201817039296 A   | 20190125         | IN201817039296     | 20181017         |
|         | US2019131631 AA    | 20190502         | US20170091684      | 20170327         |
|         | WO17174836 A1      | 20171012         | WO2017ES00038      | 20170327         |

**Probable Assignee:** SANTANA RAMIREZ ALBERTO ANDRES

**Assignee(s):** SANTANA RAMIREZ ALBERTO ANDRES

**Assignee(s):** ALBERTO ANDRES SANTANA RAMIREZ

**Inventor(s):** SANTANA RAMIREZ ALBERTO ANDRES

**Inventor(s):** ALBERTO ANDRES SANTANA RAMIREZ

**Agent(s):** PONS ARINO ANGEL

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

**International class (IPC 8-9):** C25B5/00 H01M16/00 H01M2/10 H01M6/34 H01M6/50 H02J7/00 (Advanced/Invention)

**CPC:** H01M6/34 H02J7/00 Y02P20/133 H01M2/1077 H01M6/5011 H01M6/5038 H01M16/00 H01M2220/10 H02J7/0068

**US class:** 1/1

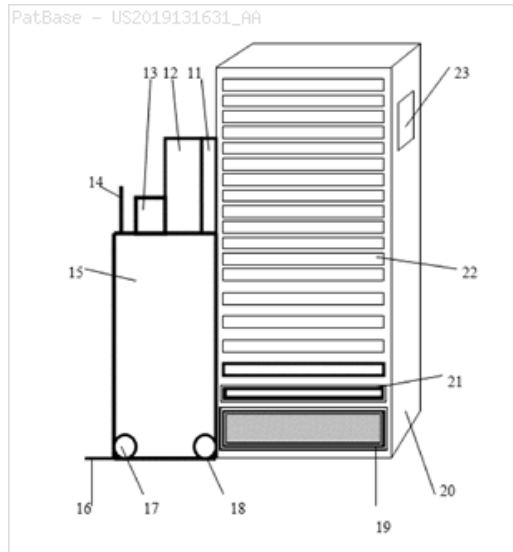
[Classification Explorer](#)

**Cited documents:** WO15098011 A1, WO09143670 A1, US5006972 A, US4710438 A, US3959023 A, US3941616 A, US3907596 A, US3542598 A, US3470032 A, US2013316196 AA, GB2177556 A1,

**Forward Citations:** DE102018100765,

## Abstract:

The operation of the ionic electric power station is based on the stable corrosion of a plurality of sacrificial anodes immersed in sea water or water with common salt inside a cell, without membranes to separate the cathodic zone from the anodic zone, kinetic conditions being generated inside the cell by the circulation of water moved by a pump in a closed circuit between the cells and a reservoir.

**9) Family number: 883513** (US3470032A)

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**Title:** SEA WATER BATTERY VOLTAGE CONTROL CIRCUIT**Priority:** US19670671890 19670929

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | US3470032 A        | 19690930         | US19670001890      | 19670929         |

**Probable Assignee:** US NAVY**Assignee(s):(std):** US NAVY**Assignee(s):** NAVY USA**Inventor(s):(std):** EGAN WILLIAM E**Inventor(s):** WILLIAM E EGAN

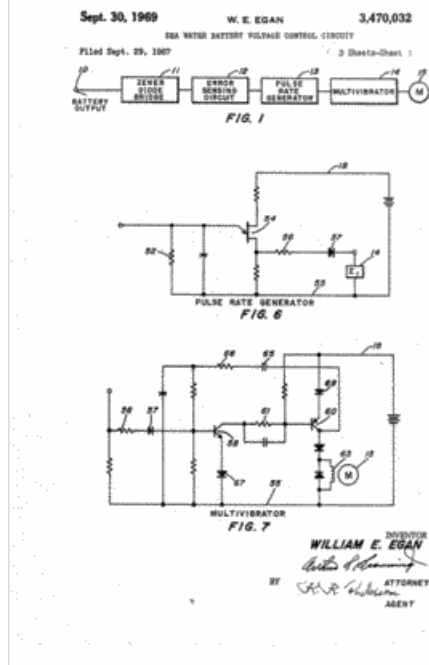
**International class (IPC 8-9):** G05F1/46 H01M6/34 H01M6/50 (Advanced/Invention);  
H01M2/40 (Advanced/Non-invention);  
G05F1/10 H01M6/00 H01M6/30 (Core/Invention);  
H01M2/00 (Core/Non-invention)

**International class (IPC 1-7):** H01M11/00 H01M21/10

**CPC:** H01M6/50 G05F1/46 H01M2/40 H01M6/34**European class:** G05F1/46 H01M6/34 H01M6/50 T01M2/40 Y02E60/12**US class:** 136/160 429/119[Classification Explorer](#)**Cited documents:** US3012087 A,**Forward Citations:** WO9010957, WO17174836, US5162168, US5158838, US5006972, US3959023, US3941616, US3542598,**Abstract:****ABSTRACT OF THE DISCLOSURE**

An electronic voltage control circuit which operates to maintain the output voltage of a sea water battery at its maximum value. An error voltage either positive or negative is generated indicating whether the battery output is above or below a reference voltage. This error voltage is converted into pulses which are fed to an electric motor, the motor in turn operating a valve which increases or decreases the flow of sea water through the battery compartment. B



**10) Family number: 1245536** (US3941616A)

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**Title:** SEA WATER BATTERY  
**Priority:** FI19710003380 19711125 US19720309132 19721124 US19740511195 19741002

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | DE2257326 A1       | 19730620         | DE19722257326      | 19721122         |
|         | FR2161040 A1       | 19730706         | FR19720041802      | 19721124         |
|         | GB1371539 A        | 19741023         | GB19720053666      | 19721121         |
|         | JP48063239 A2      | 19730903         | JP19720117712      | 19721125         |
|         | US3941616 A        | 19760302         | US19740511195      | 19741002         |

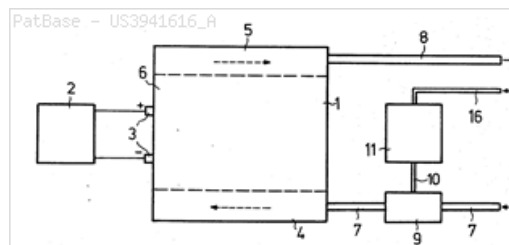
**Probable Assignee:** PUOLUSTUSMINISTERIO  
**Assignee(s):(std):** FINLAND MINISTRY OF DEFENCE ; PUOLUSTUSMINISTERIO ; PUOLUSTUSMINISTERIOE  
**Assignee(s):** PUOLUSTUSMINISTERIOE HELSINKI  
**Inventor(s):(std):** HUHTA KOWISTO ESKO ENSIO ; HUHTA KOIVISTO ESKO ENSIO DIPL  
**Inventor(s):** HUHTA KOIVISTO ESKO ENSIO DIPL ING  
**International class (IPC 8-9):** H01M2/36 H01M6/34 H01M6/50 (Advanced/Invention); H01M2/38 (Advanced/Non-invention); H01M2/00 H01M6/00 H01M6/30 (Core/Invention); H01M2/00 (Core/Non-invention)  
**International class (IPC 1-7):** F42B19/00 G05F1/46 H01M11/00 H01M2/40 H01M21/10 H01M27/00 H01M6/00 H01M7/02  
**CPC:** H01M6/34 H01M2/38 H01M6/50  
**European class:** H01M6/34 H01M6/50 T01M2/38 Y02E60/12  
**US class:** 136/100M 429/119 429/219  
**JP class F-Term:** 5H023 5H023/AA07 5H023/CC01 5H023/CC23  
**JP class F-Index:** H01M2/36/101/N

[Classification Explorer](#)

**Cited documents:** US3713413 A, US3607428 A, US3542598 A, US3470032 A, US3463671 A, US3012087 A,  
**Forward Citations:** WO8402428, WO17174836, US8889281, US6656628, US4710438, JP6387609, JP2015115098, FR2620273, FR2605804, ES2692145, EP3442090, EP1280216, EP0476916, EP0307292, EP0268828, DE102013105113,

**Abstract:**

A so-called sea water battery is disclosed which has a battery cell system with electrode plates, preferably magnesium and silver chloride plates, and using as electrolyte a solution of chemicals introduced from the outside into its cell system. According to a particular characteristic of the invention, the pipe or duct by which water is supplied into the cells contains an ejector mechanism drawing from a particular tank a solution of chemicals and admixing this solution with the feed water. The chemicals thus introduced into the battery serve one or several of the following purposes: to increase the conductivity of the electrolyte; to counteract excessively vigorous dissolution of the electrode materials; and to improve the efficiency of the electrolyte.



# **11) Family number: 1174725 (US3907596A)**

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**Title:** SEA WATER BATTERY  
**Priority:** US19700060428 19700803 US19720248772 19720428 US19740484805 19740701  
**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA988153 A1        | 19760427         | CA19710118566      | 19710719         |
| US3907596 A        | 19750923         | US19740484805      | 19740701         |

**Probable Assignee:** OCEAN ENERGY INC  
**Assignee(s):(std):** ATLANTIC RICHFIELD CO ; OCEAN ENERGY INC  
**Assignee(s):** ATLANTIC RICHFIELD COMPANY ; KETLER ALBERT E  
**Inventor(s):(std):** KETLER JR ALBERT E ; KETLER ALBERT E JR  
**Inventor(s):** KETLER ALBERT E

**International class (IPC 8-9):** H01M6/34 (Advanced/Invention);  
H01M6/30 (Core/Invention)

**International class (IPC 1-7):** H01M17/02

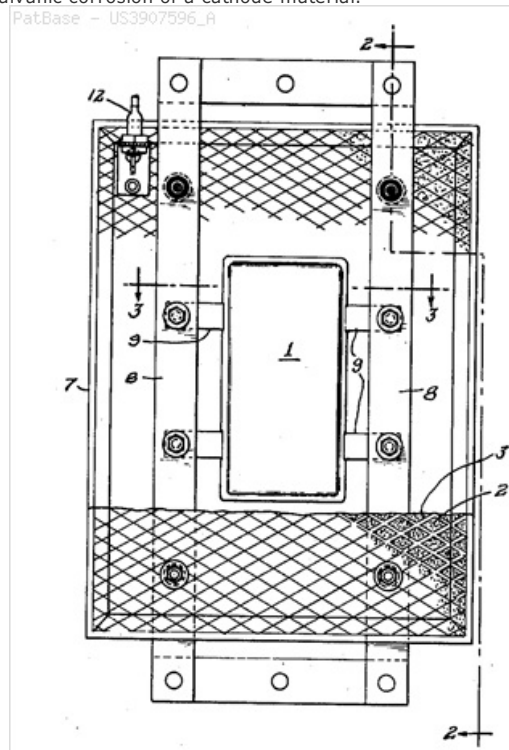
**CPC:** Y02B60/50 H01M6/34  
**European class:** H01M6/34 Y02E60/12  
**US class:** 136/100R 429/119 429/221

[Classification Explorer](#)

**Cited documents:** US3674564 A, US3497393 A, US3466193 A, US3451855 A, US3427201 A, US3401063 A, US3281271 A, US3266936 A, US3156586 A,

**Forward Citations:** WO9214272, WO9205596, WO17174836, US5427871, US5405717, EP3442090,

**Abstract:**  
A novel battery using sea water as an electrolyte generates power from the galvanic corrosion of a cathode material.



| <b>Title:</b>                           | POWER CONVERSION SYSTEM, CONVERTER DEVICE, INVERTER DEVICE, AND POWER CONVERSION SYSTEM MANUFACTURING METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|--|--------------------|------------------|--------------------|------------------|-----------------|----------|---------------|----------|-----------------|----------|---------------|----------|-----------------|----------|---------------|----------|--------------|----------|---------------|----------|--------------|----------|---------------|----------|--------------|----------|---------------|----------|-----------------|----------|---------------|----------|--------------|----------|---------------|----------|------------|----------|---------------|----------|---------------|----------|---------------|----------|
| <b>Priority:</b>                        | JP20130265588 20131224<br>AU20180202081 20180323                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | AU20140372025 20141209 | WO2014JP06148 20141209 |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
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| Publication number                      | Publication date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Application number     | Application date       |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| AU2014372025 AA                         | 20160707                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AU20140372025          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| AU2018202081 AA                         | 20180419                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AU20180202081          | 20180323               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| AU2018202081 BB                         | 20190523                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AU20180202081          | 20180323               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| EP3089310 A1                            | 20161102                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EP20140873412          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| EP3089310 A4                            | 20161228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EP20140873412          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| EP3089310 B1                            | 20190925                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EP20140873412          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| JP2015122885 A2                         | 20150702                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | JP20130265588          | 20131224               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| JP6414658 B2                            | 20181031                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | JP20130265588          | 20131224               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| NZ721418 A                              | 20180223                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | NZ20140721418          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| WO15098011 A1                           | 20150702                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | WO2014JP06148          | 20141209               |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Probable Assignee:</b>               | PANASONIC IP MAN CO LTD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Assignee(s):(std):</b>               | PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO LTD ; PANASONIC IP MAN CO LTD ; PANASONIC IP MAN CORP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Assignee(s):</b>                     | PANASONIC IP MANAGEMENT CO LTD ; PANASONIC IP MANAGEMENT CORP ; PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Inventor(s):(std):</b>               | MURATA YUKIHIRO ; TERASAWA AKIRA ; KAWAGUCHI KEI ; NISHIKAWA KEIZO ; IHIRA YASUHISA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Agent(s):</b>                        | FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; APPELT CHRISTIAN W; ONDA HIRONORI; ONDA MAKOTO; ONDA MAKOTO ET AL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Designated states:</b>               | AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>International class (IPC 8-9):</b>   | H02J3/32 H02J3/38 H02J3/46 H02J7/10 H02J7/34 H02J7/35 H02M7/12 H02M7/48 H02M7/797 (Advanced/Invention)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>CPC:</b>                             | H02J1/102 H02J3/32 H02J7/34 Y02B10/14 Y02E10/563 Y02E10/566 Y02E10/766 Y02E60/721 Y04S10/126 H02J2300/30 H02J3/383 H02J3/387                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>JP class F-Term:</b>                 | 5G066 5G066/HA15 5G066/HB06 5G066/HB07 5G066/HB08 5G066/HB09 5G066/JA07 5G066/JB03 5G503 5G503/AA01 5G503/AA04 5G503/AA05 5G503/AA06 5G503/AA07 5G503/BB01 5G503/CA11 5G503/GB03 5G503/GB06 5G503/GD03 5H006 5H006/CC04 5H006/DA04 5H006/DB01 5H006/DC05 5H007 5H007/BB07 5H007/CA01 5H007/CC05 5H007/CC12 5H007/DA06 5H007/DB02 5H007/DC05 5H770 5H770/AA13 5H770/BA11 5H770/CA01 5H770/CA04 5H770/CA05 5H770/CA06 5H770/FA06 5H770/HA03 5H770/HA04 5H770/JA17 5H770/LA03 5H770/LA10 5H770/LB05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>JP class F-Index:</b>                | H02J3/14/130 H02J3/14/160 H02J3/32 H02J3/38/G H02J3/38/130 H02J3/38/150 H02J3/38/170 H02J3/38/180 H02J3/46/E H02J7/10/B H02J7/34/J H02J7/35/B H02M7/12/A H02M7/48/E H02M7/797                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <a href="#">Classification Explorer</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Cited documents:</b>                 | WO13121618 A1, WO13121618 A1, WO13018507 A1, WO13018507 A1, WO13012831 A2, WO13012831, WO12132949 A1, WO12132949 A1, US2015001932 AA, JP2013169083 A2, JP2013169083, JP2012213284 A2, JP2012213284 A2, JP2012205322 A2, JP2012205322 A2, JP2012165615 A2, JP2012165615, JP2012161189 A2, JP2012161189, JP2012100504 A2, JP2012100504 A2, JP2011109783 A2, JP2011109783, JP2011078237 A2, JP2011078237, JP2011010505 A2, JP2011010505, JP2010220411 A2, JP2010220411, JP2004088900 A2, JP2004088900 A2, JP2000116010 A2, JP2000116010 A2, EP2738927 A1, EP2738927 A1, EP2693289 A1, EP2693289 A1,                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |
| <b>Forward Citations:</b>               | WO17163960. JP2017175888. EP3442090. CN107834843.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                        |  |                    |                  |                    |                  |                 |          |               |          |                 |          |               |          |                 |          |               |          |              |          |               |          |              |          |               |          |              |          |               |          |                 |          |               |          |              |          |               |          |            |          |               |          |               |          |               |          |

**Abstract:**

A power conversion system (20) comprises: a DC conversion unit (21) for converting each of the outputs of a plurality of distributed power supplies (10) to DC power and outputting the DC power to a bus line; a single inverter unit (22) having an authentication for connecting to a commercial power grid (70) and converting the DC power on the bus line to AC power and supplying the AC power to a load and the commercial power grid (70); and a control unit (23) for stabilizing the voltage on the bus line.

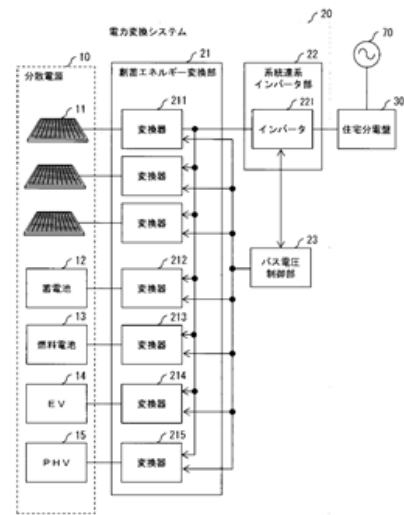


FIG. 1:  
 10 Distributed power supply  
 12 Storage battery  
 13 Fuel cell  
 20 Power conversion system  
 21 Created/stored energy conversion unit  
 22 Utility interconnection inverter unit  
 23 Bus voltage control unit  
 30 Home distribution board  
 211, 212, 213, 214, 215 Converter  
 221 Inverter

### 13) Family number: 1286785 (US3959023A)

© PatBase

**Title:** FLUSHING PUMP FOR SEA WATER BATTERIES

**Priority:** US19750589500 19750623

| Family: | Publication number | Publication date | Application number | Application date |
|---------|--------------------|------------------|--------------------|------------------|
|         | US3959023 A        | 19760525         | US19750589500      | 19750623         |

**Probable Assignee:** SANDERS ASSOCIATES INC

**Assignee(s):(std):** SANDERS ASSOCIATES INC

**Inventor(s):(std):** LA GARDE IVAN

**International class (IPC 8-9):** H01M2/38 H01M6/34 (Advanced/Invention);  
 H01M2/00 H01M6/30 (Core/Invention)

**International class (IPC 1-7):** H01M2/38

**CPC:** H01M2/38 H01M6/34

**European class:** H01M2/38 H01M6/34 Y02E60/12

**US class:** 136/160 429/120

[Classification Explorer](#)

**Cited documents:** US3470032 A, US3463671 A, US3012087 A,

**Forward Citations:** WO17174836, WO13010980, US9359050, US5158838, FR2995144, FR2978302, EP2704234,

#### Abstract:

A power supply system including a sea water battery for supplying a light load and/or a heavy load. A pump is actuated concurrently with the energization of the heavy load and is hydraulically connected to pump sea water electrolyte through the battery.

