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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,  
KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,  
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,  
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TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,  
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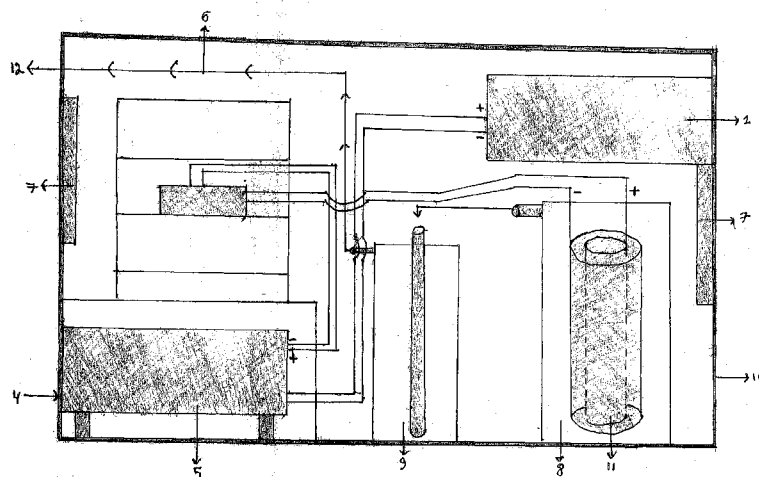
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TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,  
DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,  
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,  
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(54) Title: MOLECULAR HYDROGEN PORTABLE GENERATOR DESCRIPTION

Fig. 3



(57) Abstract: A molecular hydrogen portable generator coated by a protective cover (10), featuring in-built operation control monitor (1), ON/OFF switches (3) and a power input (4). The interior of the device comprising: a Central Power Unit (CPU) (5) which comprises an in-built current converter from AC to DC; a tube (6) which transfers the molecular hydrogen (H<sub>2</sub>) and atomic oxygen (O); fans (7); a unit (8) which generates molecular hydrogen (H<sub>2</sub>) and atomic oxygen (O) and which features two electrodes (11); a relief tank (9); and a tube (12) which is linked to the relief tank (9) and where the desired nozzles can be attached. Through moderate electrolysis, the device generates molecular hydrogen (H<sub>2</sub>) which can be diffused through the tube (12), which is linked to the alternative nozzles (13), (14) or (15), intended for various uses or embodiments.

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## MOLECULAR HYDROGEN PORTABLE GENERATOR DESCRIPTION

5 **Technical field:**

The said invention refers to a device which generates molecular hydrogen (H<sub>2</sub>); the apparatus is portable, cost-efficient in its function and is able to generate molecular hydrogen (H<sub>2</sub>) and atomic Oxygen (O) via moderate electrolysis.

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**Technological background:**

So far there has been no mention of a similar product that produces molecular hydrogen destined for everyday human use. There have been, however, numerous published surveys which verify that the usage of molecular hydrogen comes with many beneficial and therapeutic properties for human body, since the substance can be easily diffused into the sub-cellular departments and eliminate the cytotoxic free oxygen radicals, therefore shielding DNA, RNA and proteins against oxidating stress. It has also been proven that the usage of molecular hydrogen enables the upstream regulation of additional antioxidant enzymes and cytoprotective proteins of the body.

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Nevertheless, the only way to manufacture molecular hydrogen so far was by means of industrial chemical process, a fact which entails complicated procedures and massive production, storage and transportation costs.

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The aforementioned disadvantages urged me to find a solution to that problem. The attempt resulted to the subject of this invention. My invention eliminates the foregoing drawbacks, being a device simple in structure, mantling and function and quite cost-efficient in terms of operation and maintenance, hence turning the generation of molecular hydrogen quite easy. In addition, the invented device enables the production of both molecular hydrogen and oxygen without forcing these two elements to compress; instead they are generated via free flow while the device can also function in normal temperature.

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**Disclosure of the invention:**

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Those skilled in the art will be able to fully understand my invention as soon as they read the drawings hereby enclosed, depicting an indicative industrial embodiment application of the invention.

More specifically:

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Drawing 1 depicts the outer perspective of the device;

Drawing 2 depicts the lateral angle of the device;

Drawing 3 depicts the inner details of the device;

Drawing 4 depicts the device along with the nozzles that are used for water hydrogenation;

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Drawing 5 depicts the nozzles that are used to inhale hydrogen;

Drawing 6 depicts the device along with the nozzles that are used to enrich the saline solution with hydrogen.

I shall now lay down an indicative example of the invention's by numbering the device's main parts into the respective Drawings; parts are inserted in indicative climax-free illustration, but with size proportions applied among them.

- 5 Based on the chosen industrial embodiment of the invention, the device is coated by a protective cover (10) made by metal or any other appropriate material; the cover features an in-built operation control monitor (1), function lamps (2) ON/OFF switches (3) and a power input (4) for 110-240 volt EC voltage. The interior of the device includes: a Central Power Unit (CPU) (5) which comes with an in-built  
10 current converter from AC to DC; a tube (6) which transfers the molecular hydrogen (H<sub>2</sub>) and atomic oxygen (O); the fans (7); a unit (8) which generates molecular hydrogen (H<sub>2</sub>) and atomic oxygen (O) and which features two electrodes (11); a relief tank (9); and the tube (12) which is linked to the relief tank (9) and where the desired nozzles can be attached.
- 15 Once the CPU (5) receives 110-240V voltage via the power input (4), the device is activated. Once the device is activated from the ON/OFF switches (3) the CPU (5) converts the alternating current (AC) of 110-240V to direct current (DC) of 5-2.5V and then feeds the hydrogen/oxygen generation unit (8) which features two electrodes (11) and contains water. The gases (H<sub>2</sub> and O) which are generated  
20 inside the generation unit (8) via moderate electrolysis are transferred via the tube (6) into the relief tank (9); via the respective tube (12) the molecular hydrogen (H<sub>2</sub>) comes outside the device. The user may adjust various nozzles at the end of that tube, depending on the desired and intended usage or application, including, without limitation, nozzles (13) for water hydrogenation, nozzles (14) for hydrogen  
25 inhaling or nozzles (15) to enrich the saline solution with hydrogen.
- It should be noted that the scope of the function is not confined in the foregoing example. It is possible to use the device in other constructive ways and with various parts that are to be contemplated by our invention.

**CLAIMS**

- 5 1. A molecular hydrogen portable generator characterized in that it is coated  
by a protective cover (10) and its interior contains a Central Power Unit  
(CPU) (5) which comes with an in-built current converter from AC to DC; a  
tube (6) which transfers the molecular hydrogen (H<sub>2</sub>) and atomic oxygen  
(O); fans (7); a unit (8) which generates molecular hydrogen (H<sub>2</sub>) and  
10 atomic oxygen (O) featuring two electrodes (11); a relief tank (9); and a  
tube (12) which is linked to the relief tank (9) and where the desired nozzles  
can be attached.
- 15 2. A molecular hydrogen portable generator according to Claim 1,  
characterized in that it features an in-built operation control monitor (1), fun  
according to Claim 1, ction lamps (2) ON/OFF switches (3) and a power  
input (4) for 110-240 volt EC voltage.
- 20 3. A molecular hydrogen portable generator according to Claim 1  
characterized in that the one end of the tube (12) can be linked with various  
alternative nozzles (13) such as nozzles destined for water hydrogenation,  
nozzles (14) for hydrogen inhaling or nozzles (15) to enrich the saline  
solution with hydrogen.
- 25 4. A molecular hydrogen portable generator according to Claims 1-3,  
characterized in that in order for the device to be activated, the CPU (5)  
receives 110-240V voltage via the power input (4). Once the device is  
activated from the ON/OFF switches (3) the CPU (5) converts the  
(alternating) current (AC) of 110-240V to direct current (DC) of 5-2.5V and  
then feeds the hydrogen/oxygen generation unit (8) which contains water;  
the gases (H<sub>2</sub> and O) are generated via moderate electrolysis and then  
transferred via the tube (6) into the relief tank (9); the molecular hydrogen  
(H<sub>2</sub>) comes outside the device via the respective tube (12) for the desired  
30 and intended usage or application.

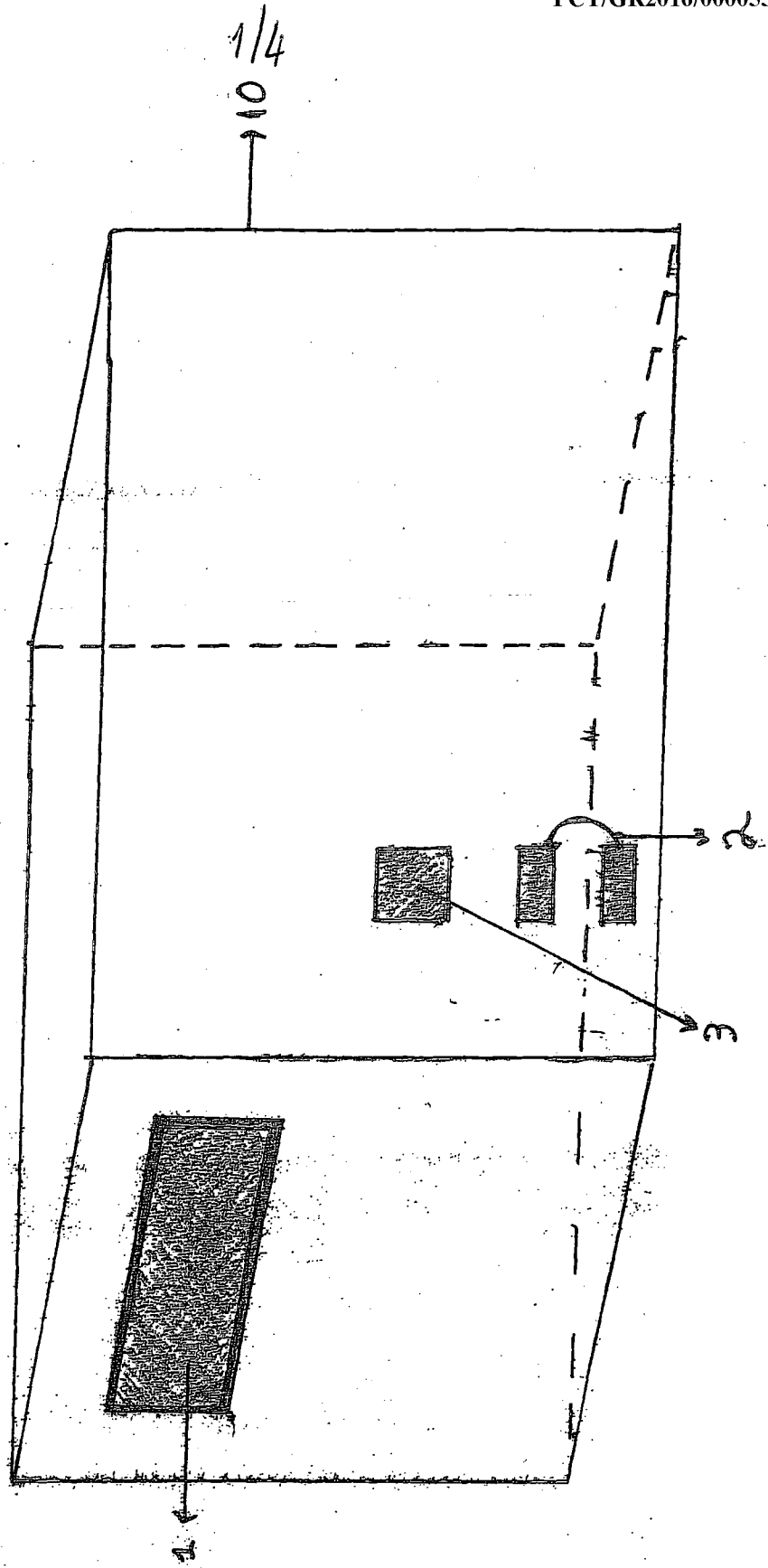


Fig. 1

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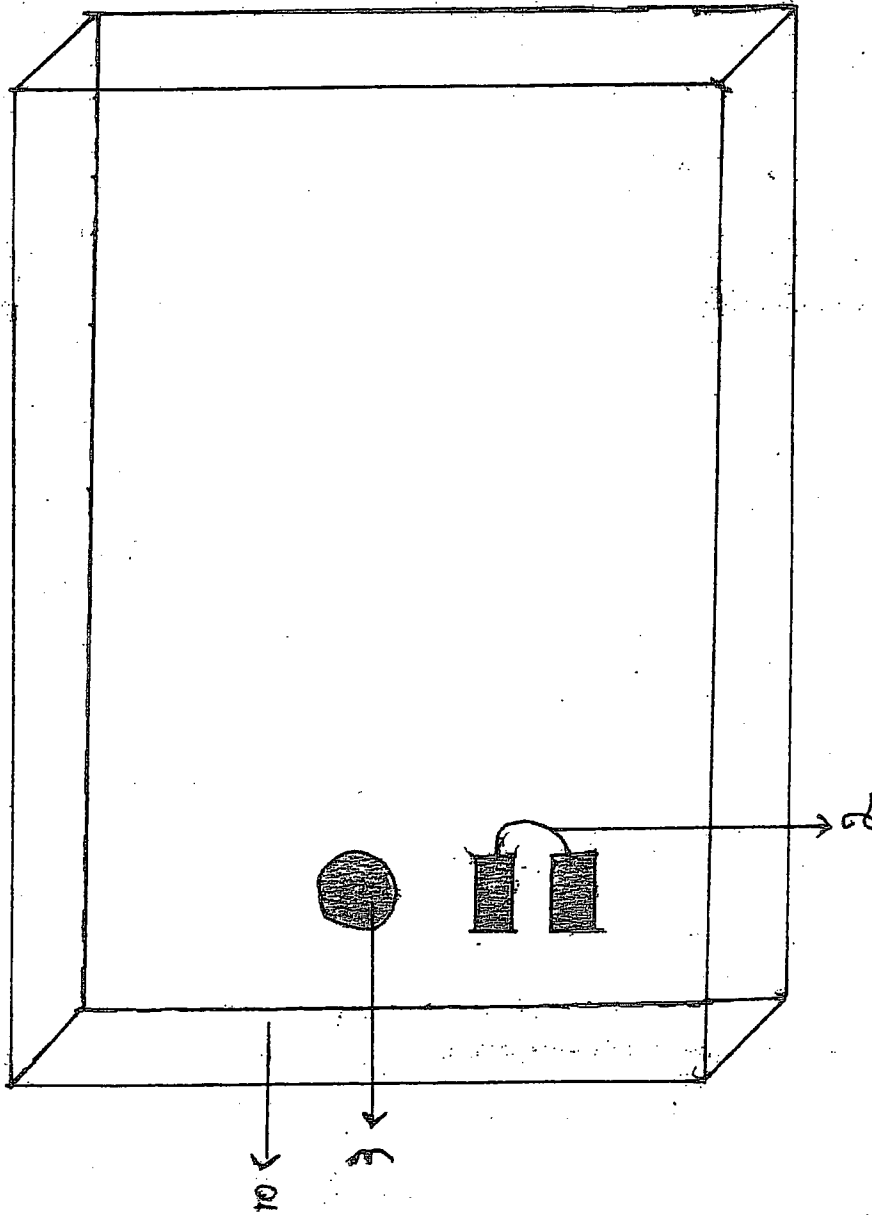


Fig. 2

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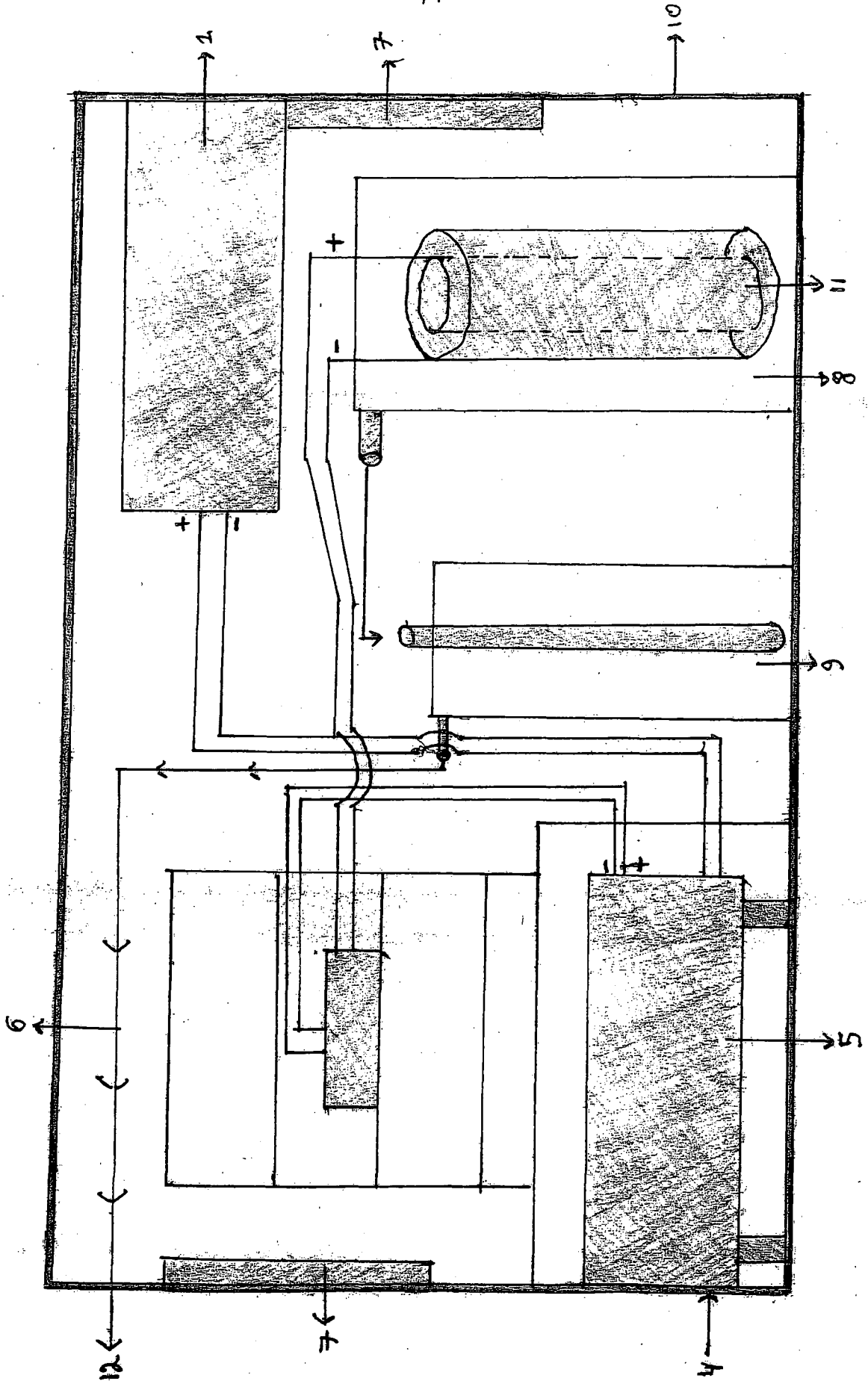


Fig. 3

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Fig. 4

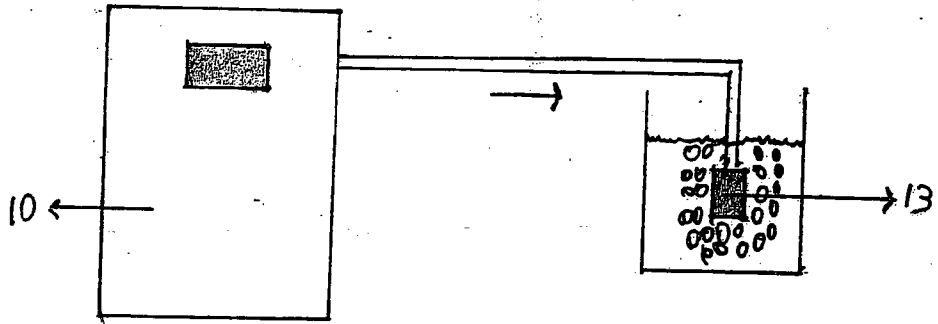


Fig. 5

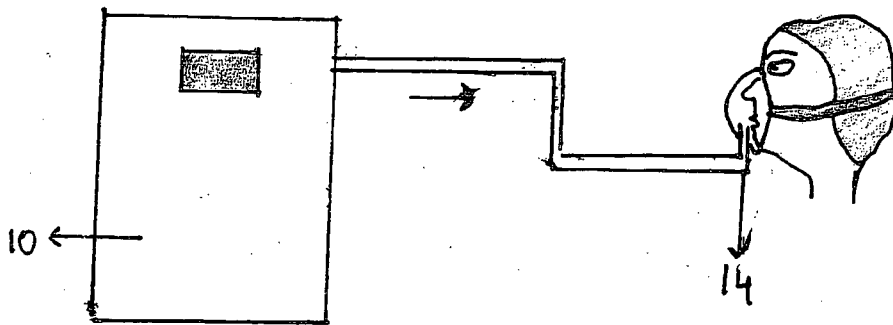
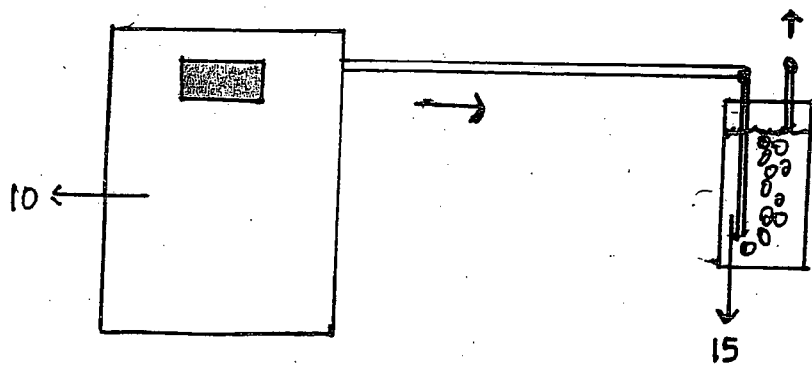


Fig. 6





INTERNATIONAL SEARCH REPORT

International application No  
PCT/GR2016/000055

A. CLASSIFICATION OF SUBJECT MATTER  
INV. C25B9/06  
ADD.  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
C25B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014/284209 A1 (GILMAN BRIAN DANIEL [US]) 25 September 2014 (2014-09-25) abstract paragraph [0003] - paragraph [0010] paragraph [0021] - paragraph [0022] paragraph [0053] - paragraph [0192]; figures 1-26	1-4
X	----- WO 2014/119762 A1 (CHUGOKU ELECTRIC MFG CO INC [JP]; CHUGOKU ELECTRIC POWER [JP]) 7 August 2014 (2014-08-07) the whole document -& US 2015/360976 A1 (IWAI KEISOU [JP] ET AL) 17 December 2015 (2015-12-17) abstract; figures 1-38 paragraph [0006] - paragraph [0015] paragraph [0120] - paragraph [0157] ----- -/--	1-4

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

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- "E" earlier application or patent but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- "&" document member of the same patent family

Date of the actual completion of the international search  31 January 2017	Date of mailing of the international search report  14/02/2017
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Cojuhovschi, Oana
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## INTERNATIONAL SEARCH REPORT

International application No  
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 8 709 221 B1 (SMITH ANDREW L [US]) 29 April 2014 (2014-04-29) abstract; figures 1-4 column 1, line 14 - column 2, line 61 column 3, line 20 - column 7, line 64; claim 1	1-4
A	----- KR 101 409 649 B1 (SUATTI CO LTD [KR]) 18 June 2014 (2014-06-18) the whole document	1-4
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Information on patent family members

International application No PCT/GR2016/000055
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