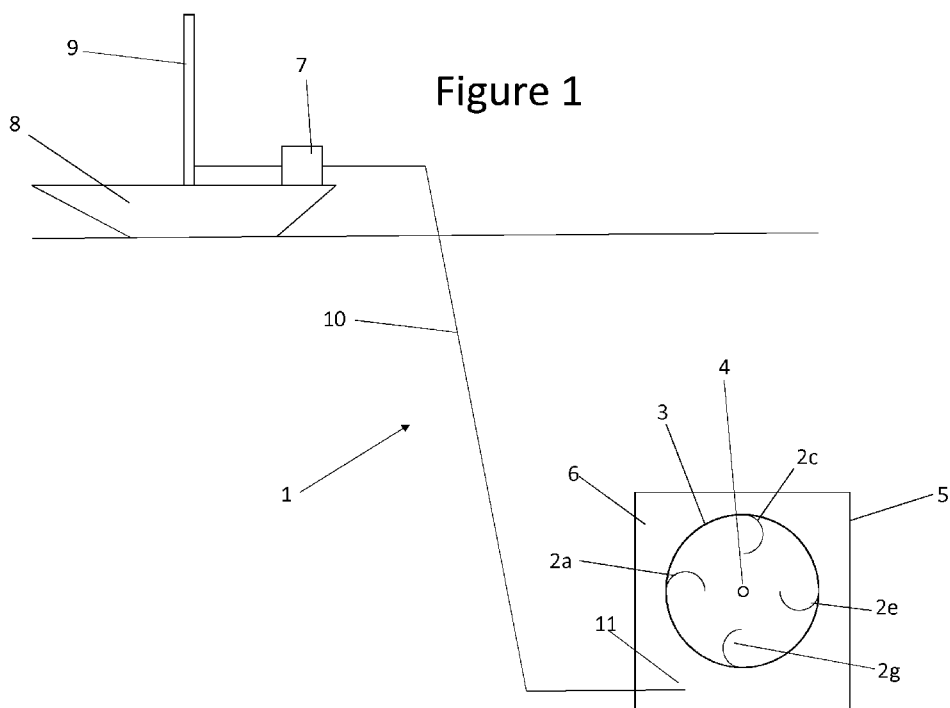




- (51) **International Patent Classification:**
B01D 53/14 (2006.01) *F03B 17/02* (2006.01)
B01D 53/18 (2006.01)
- (21) **International Application Number:** PCT/GB2019/053696
- (22) **International Filing Date:** 23 December 2019 (23.12.2019)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:** 1821258.9 28 December 2018 (28.12.2018) GB
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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, 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, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, 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,

(54) **Title:** APPARATUSES AND METHODS FOR GENERATING POWER USING BUOYANCY AND FOR REMOVING GREENHOUSE GASES FROM A GAS STREAM



(57) **Abstract:** An apparatus (1) for generating power is provided. The apparatus comprises: at least one pocket (2a-h) for collecting inlet gas which rises through a liquid in which the at least one pocket may be located; an output rotor (4); and a greenhouse gas scavenger (6) for removing greenhouse gas from an inlet gas; the apparatus being configured so that collection of inlet gas causes movement of the pocket, the pocket being coupled to the output rotor so that movement of the pocket causes rotation of the output rotor. A method is also provided.



MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

20 August 2020 (20.08.2020)

INTERNATIONAL SEARCH REPORT

International application No PCT/GB2019/053696

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B01D53/14 B01D53/18 F03B17/02
 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)
 B01D F03B

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 A	US 2003/145589 A1 (TILLYER JOSEPH P [US]) 7 August 2003 (2003-08-07) figure 1 paragraphs [0002], [0029] - [0042] -----	1-7,9, 10, 13-18,21 12,20
X A	JP 2012 117401 A (CHOSHON YASUHISA) 21 June 2012 (2012-06-21) figures 2-6 0051 of the machine translation -----	1-3,5, 7-11,13, 17,19,21 12,20
X A	US 2013/011257 A1 (LIM ROBERT [GB]) 10 January 2013 (2013-01-10) figure 9 paragraphs [0104], [0090] -----	1-7,9, 10, 13-18,21 12,20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "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

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "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
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search

20 May 2020

Date of mailing of the international search report

20/07/2020

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Authorized officer

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2019/053696

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-21

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-21

Apparatus and method for generating power

2. claims: 22-31

Apparatuses and methods for removing greenhouse gases from a gas stream

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2019/053696

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003145589	A1	07-08-2003	NONE

JP 2012117401	A	21-06-2012	NONE

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