

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 April 2006 (06.04.2006)

PCT

(10) International Publication Number
WO 2006/035256 A3

- (51) International Patent Classification:
F01K 19/04 (2006.01) *F01K 7/16* (2006.01)
- (21) International Application Number:
PCT/IB2004/003165
- (22) International Filing Date:
29 September 2004 (29.09.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (71) Applicant (for all designated States except US):
ELTHOM ENTERPRISES LIMITED [CY/CY];
Mitsis Building 1, 1st Floor, Office 4 Eleftherias Square,
P.O.Box 21294, Nicosia 1505 (CY).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **GORBAN, Alexander** [UA/UA]; App.9, 26-b str Yaroslavov Val, Kiev 01034 (UA).
- (74) Agents: **INTES, Didier** et al.; Cabinet Beau de Lomenie,
158 Rue de l'Université, F-75340 Paris Cedex 07 (FR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

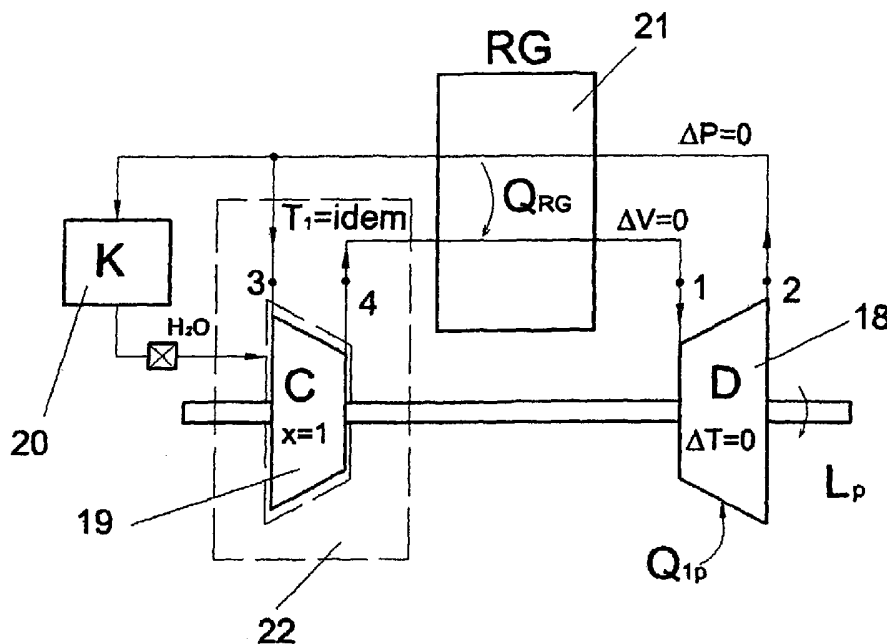
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

(88) Date of publication of the international search report:
24 August 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS OF GENERATING EXERGY



(57) Abstract: The invention relates to a process for transforming energy into exergy by supplying heat to a vaporous working substance subjected to an expansion and compression cycle and by obtaining the exergy in the expansion stage of the cycle. The cycle is performed in a single phase area of the vaporous working substance and working substance in liquid state is supplied to the cycle during the compression stage.

WO 2006/035256 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB2004/003165

A. CLASSIFICATION OF SUBJECT MATTER
F01K19/04 F01K7/16

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)
F01K F02C

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 342 124 A (BURKE J A COX E COX III E; DAVOUD J G COX ASSOCIATES EDWIN) 25 December 1973 (1973-12-25) page 1, line 67 - line 92 page 2, line 29 - line 46; claims 1,14; figures	1,3
X	EP 0 158 629 A (JERICHA, HERBERT DIPL.-ING. DR. UNIV. PROF; JERICHA HERBERT DIPL ING D) 16 October 1985 (1985-10-16) page 9, last paragraph - page 12, last line claims; figures abstract	1,3,8,11

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document 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 December 2005

Date of mailing of the international search report

07/06/2006

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Zerf, G

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/003165

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 034 012 A (THERMO ELECTRON CORP) 29 May 1980 (1980-05-29) page 2, line 24 - page 4, line 17; figures abstract	1,3
A	----- GB 1 222 712 A (ENNEMOND MAILLET) 17 February 1971 (1971-02-17) page 2, line 106 - page 4, line 2; figures	1-14
A	----- KAUSHIK S C ET AL: "STEAM RANKINE CYCLE COOLING SYSTEM: ANALYSIS AND POSSIBLE REFINEMENTS" ENERGY CONVERSION AND MANAGEMENT, ELSEVIER SCIENCE PUBLISHERS, OXFORD, GB, vol. 35, no. 10, 1 October 1994 (1994-10-01), pages 871-886, XP000469762 ISSN: 0196-8904 the whole document -----	1-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IB2004/003165

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
GB 1342124	A	25-12-1973	BE 770393 A1	
			CA 956470 A1	22-10-1974
			DE 2136992 A1	27-01-1972
			FR 2112903 A5	23-06-1972
			JP 49039098 B	23-10-1974
			LU 63586 A1	14-12-1971
			NL 7110239 A	26-01-1972
			SE 372056 B	09-12-1974
EP 0158629	A	16-10-1985	DE 3579183 D1	20-09-1990
GB 2034012	A	29-05-1980	DE 2943204 A1	08-05-1980
			FR 2439870 A1	23-05-1980
			JP 55085802 A	28-06-1980
GB 1222712	A	17-02-1971	BE 713557 A	16-08-1968
			CH 490604 A	15-05-1970
			DE 1751198 A1	27-05-1971
			ES 352910 A1	16-01-1972
			FR 92193 E	04-10-1968
			LU 55888 A1	09-07-1968