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(71) Applicant *(for all designated States except US)*: **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/—]; 1111 Franklin Street, 11th Floor, Oakland, CA 94607 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **MANOUSIOUTHAKIS, Vasilios** [GR/US]; 2878 Nicada Drive, Los Angeles, CA 90077 (US). **MANOUSIOUTHAKIS, Ioannis** [US/US]; 2878 Nicada Drive, Los Angeles, California 90077 (US).

(74) Agent: **O'BANION, John, P.**; O'Banion & Ritchey LLP, 400 Capitol Mall, Suite 1550, Sacramento, CA 95814 (US).

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(54) Title: HYDROGEN PRODUCTION BY A THERMOCHEMICAL WATER SPLITTING CYCLE

(57) Abstract: A novel thermochemical cycle for the decomposition of water is presented. Along with water, hydrogen, and oxygen, the cycle involves an alkali or alkali earth metal based catalyst and a variety of intermediates. The cycle is driven by renewable energy sources, and can have a maximum operating temperature below 1173 K (900°). The kinetics of the cycle are based on the reactant behavior as well as the separability characteristics of the chemicals involved.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/45824

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **C01B 3/02**(2006.01)

USPC: 422/189;423/648.1
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)
U.S. : 422/189; 423/648.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
none

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
none

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 3,929,979 A (BAMBERGER et al) 30 December 1975 30-12-1975), see the Drawing.	1-3, 7-17 --- 4-6
X --- A	US 3,927,192 A (BAMBERGER et al) 16 December 1975 (16-12-1975), see the Drawing.	1-3, 7-17 --- 4-6
X --- A	US 4,169,884 (BAMBERGER et al) 02 October 1979 (02-10-1979), see the Drawing.	1-3, 7-17 --- 4-6

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer
Wayne Langel
Telephone No. 703-872-9206

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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 4,276, 279 (ROBINSON et al) 30 June 1981 (30-06-1981), see the Drawing.	1-3, 7-17
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A		4-6
X	US 2004/0202593 A1 (PHILLIPS et al) 14 October 2004 (14010-2004), see Fig.1 and Fig. 2.	7-17
X	US 2004/0063567 A1 (GINOSAR et al) 01 April 2004 (01-04-2004), see Fig. 1A and Fig. 1B.	7-17
A	US 497,700 A (BLACKMORE) 16 May 1893 (16-05-1893).	1-17
A	US 3,996,342 A (ISHIKAWA et al) 07 December 1976 (07-12-1976).	1-17
A	US 3,929,980 A (ABRAHAM et al) 30 December 1975 (30-12-1975).	1-17