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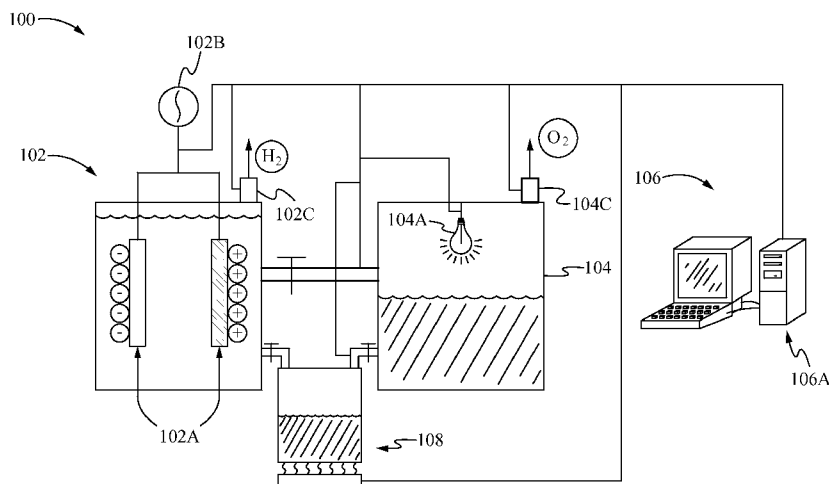


Fig. 1

(57) **Abstract:** A method of and apparatus for optimizing a hydrogen producing system is provided. The method of optimizing the hydrogen producing system comprises producing hydrogen gas using a hydrogen producing formulation and removing a chemical substance that reduces the hydrogen gas producing efficiency. Further, the hydrogen producing system comprises a hydrogen producing catalyst, a hydrogen generating voltage applied to the hydrogen producing catalyst to generate hydrogen gas, and a catalyst regenerating device to regenerate the hydrogen producing catalyst to a chemical state capable of generating the hydrogen gas when a hydrogen generating voltage is applied.



A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C01B 3/06 (2013.01)

USPC - 422/186.04

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)

IPC(8) - B01J 23/00, 23/89; C01B 3/00, 3/02, 3/06, 3/08; C25B 1/04 (2013.01)

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

CPC - B01J 23/00, 23/89, 23/8926; C01B 3/00, 3/02, 3/04, 3/042, 3/06, 3/08; C25B 1/04 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/0224502 A1 (CAREY) 09 September 2010 (09.09.2010) entire document	22-29
Y		1-21
Y	US 2009/0110976 A1 (YOSHIDA et al) 30 April 2009 (30.04.2009) entire document	1-13
Y	WO 89/10981 A1 (WHEELWRIGHT et al) 16 November 1989 (16.11.1989) entire document	2, 10
Y	WO 2010/084358 A2 (O'NEILL et al) 29 July 2010 (29.07.2010) entire document	4, 14-21
Y	US 2011/0114075 A1 (MILLS) 19 May 2011 (19.05.2011) entire document	9
Y	EP 1 249 052 B1 (PELED et al) 16 October 2002 (16.10.2002) entire document	15
Y	US 2004/0265678 A1 (HOMMURA et al) 30 December 2004 (30.12.2004) entire document	16
Y	US 2002/0048548 A1 (CHAKLADER) 25 April 2002 (25.04.2002) entire document	19, 21
Y	CURRAO et al. Water splitting with silver chloride photoanodes and amorphous silicon solar cells. Photochemical and Photobiological Sciences. Vol. 3. 2004. [retrieved on 19 November 2013]. Retrieved from the Internet. <URL: http://www.gioncalzaferri.ch/publikationen/Photochem_Photobiol_Sci_2004_3_1017%20Watersplitting.pdf >. entire document	20

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