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(54) **Title:** ELECTROCATALYSTS AND ADDITIVES FOR THE OXIDATION OF SOLID FUELS

(57) **Abstract:** A continuous coal electrolytic cell for the production of pure hydrogen without the need of separated purification units. Electrodes comprising electrocatalysts comprising noble metals electrodeposited on carbon substrates are also provided. Also provided are methods of using the electrocatalysts provided herein for the electrolysis of coal in acidic medium, as well as electrolytic cells for the production of hydrogen from coal slurries in acidic media employing the electrodes described herein. Further provided are catalytic additives for the electro-oxidation of coal. Additionally provided is an electrochemical treatment process where iron-contaminated effluents are purified in the presence of coal slurries using the developed catalyst.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/17641

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **H01M 8/04(2006.01),8/18(2006.01),4/00(2006.01)**

 USPC: 429/17,19,27,40,42
 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. : 429/17, 19, 27, 40, 42

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02/44081 A1 (Gomez et al.) 06 June 2002 (06.06.2002), Pages 4, 11 and 12	1-35
Y	US 2004/0151896 A1 (Houda et al.) 05 August 2004 (05.08.2004) Paragraph 0024, 0057	1-12
Y	US 2003/0070910 A1 (Otsuka et al.) 17 April 2003 (17.04.2003), Paragraph 0142	1-3

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

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"P" document published prior to the international filing date but later than the priority date claimed		

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