

Title (en)
SYSTEM AND METHOD FOR RENEWABLE RESOURCE PRODUCTION, FOR EXAMPLE, HYDROGEN PRODUCTION BY MICROBIAL ELECTROLYSIS, FERMENTATION, AND/OR PHOTOSYNTHESIS

Title (de)
SYSTEM UND VERFAHREN ZUR HERSTELLUNG ERNEUERBARER RESSOURCEN, Z. B. VON WASSERSTOFF DURCH MIKROBIELLE ELEKTROLYSE, FERMENTIERUNG UND/ODER PHOTOSYNTHESE

Title (fr)
SYSTÈME ET PROCÉDÉ DE PRODUCTION DE RESSOURCES RENOUVELABLES, PAR EXEMPLE, PRODUCTION D'HYDROGÈNE PAR ÉLECTROLYSE MICROBIENNE, FERMENTATION, ET/OU PHOTOSYNTÈSE

Publication
EP 2534099 A4 20160622 (EN)

Application
EP 11742998 A 20110214

Priority

- US 80663310 A 20100816
- US 30440310 P 20100213
- US 34505310 P 20100514
- US 2011024816 W 20110214

Abstract (en)
[origin: WO2011100732A2] System and method of renewable and carbon neutral hydrogen production by microbial electrolysis, fermentation and photosynthesis with, for example, an electrode constructed from an architectural construct having graphene layers configured to isolate the produced hydrogen. The electrode constructed from the architectural construct facilitates transfer of hydrogenase and provides isolation of hydrogen to enable improved electrode efficiency, separation efficiency, and rate of hydrogen production. The architectural construct may also serve as a superior electron conductor and provide catalytic functions along with presenting various types of hydrogenase and/or other enzymes.

IPC 8 full level
C12P 3/00 (2006.01)

CPC (source: EP)
C01B 3/501 (2013.01); **C01B 13/0207** (2013.01); **C01B 32/05** (2017.07); **C01C 1/04** (2013.01); **C12P 3/00** (2013.01); **C25B 1/04** (2013.01); **C25B 9/00** (2013.01); **C25B 15/08** (2013.01); **C01B 2203/0405** (2013.01); **Y02E 60/36** (2013.01); **Y02P 20/133** (2015.11)

Citation (search report)

- [X] WO 2009003006 A1 20081231 - PENN STATE RES FOUND [US], et al
- [X] DOUGLAS CALL ET AL: "Hydrogen Production in a Single Chamber Microbial Electrolysis Cell Lacking a Membrane", ENVIRONMENTAL SCIENCE & TECHNOLOGY, vol. 42, no. 9, 1 May 2008 (2008-05-01), pages 3401 - 3406, XP055183091, ISSN: 0013-936X, DOI: 10.1021/es8001822
- [XP] WRANA N. ET AL.: "Hydrogen gas production in a microbial electrolysis cell by electrohydrogenesis", JOURNAL OF CLEANER PRODUCTION, vol. 18, 1 July 2010 (2010-07-01), pages S105 - S111, XP002757681, ISSN: 0959-6526, Retrieved from the Internet <URL:http://www.sciencedirect.com/science/article/pii/S0959652610002301> [retrieved on 20160512]
- [A] CALL DOUGLAS F ET AL: "Hydrogen Production by Geobacter Species and a Mixed Consortium in a Microbial Electrolysis Cell", APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 75, no. 24, December 2009 (2009-12-01), pages 7579 - 7587, XP002757602
- See references of WO 2011100732A2

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2011100732 A2 20110818; WO 2011100732 A3 20120412; CN 103003194 A 20130327; EP 2534099 A2 20121219; EP 2534099 A4 20160622

DOCDB simple family (application)
US 2011024816 W 20110214; CN 201180009284 A 20110214; EP 11742998 A 20110214