

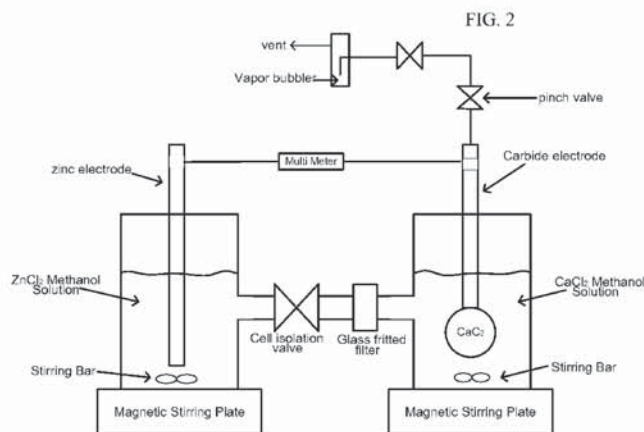
(51) International Patent Classification:
C01B 31/02 (2006.01)(21) International Application Number:
PCT/US2015/056175(22) International Filing Date:
19 October 2015 (19.10.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/066,456 21 October 2014 (21.10.2014) US
62/174,760 12 June 2015 (12.06.2015) US(71) Applicant: WEST VIRGINIA UNIVERSITY RE-
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ginia 20191 (US).(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG,
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,
TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,
TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,
DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished
upon receipt of that report (Rule 48.2(g))(54) Title: METHODS AND APPARATUSES FOR PRODUCTION OF CARBON, CARBIDE ELECTRODES, AND CARBON
COMPOSITIONS

(57) **Abstract:** Method comprising providing at least one solid carbide chemical compound and reducing a metal cation with use of the solid carbide chemical compound. A method comprising producing elemental carbon material from the oxidation of carbide in at least one carbide chemical compound (e.g., calcium carbide) in at least one anode of an electrochemical cell apparatus, such as a galvanic cell apparatus. The cathode can be a variety of metals such as zinc or tin. The reaction can be carried out at room temperature and normal pressure. An external voltage also can be applied, and different forms of carbon can be produced depending on the reactants used and voltage applied. For carrying out the method, an apparatus comprising at least one galvanic cell comprising: at least one anode comprising at least one carbide chemical compound, and at least one cathode. For carrying out the method and constructing the apparatus, an electrode structure comprising at least one carbide chemical compound, wherein the carbide chemical compound is a salt-like carbide; and at least one electronically conductive element different from the carbide. Carbon compositions of various forms are also prepared by the methods and apparatus and with use of the electrode structure. Large pieces of pure carbon can be produced. Post-reaction processing of the carbon can be carried out such as exfoliation.