



(51) International Patent Classification:

C02F 1/461 (2006.01) *C02F 103/08* (2006.01)
H01G 9/058 (2006.01)

(21) International Application Number:

PCT/US2010/038129

(22) International Filing Date:

10 June 2010 (10.06.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/511,193 29 July 2009 (29.07.2009) US

(71) Applicant (for all designated States except US): **GENERAL ELECTRONIC COMPANY** [US/US]; 1 River Road, Schenectady, NY 12345 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ZHENG, Liping** [CN/CN]; Room 1103, Building 9, Yuqiao Road, Shanghai, 201204 (CN). **YANG, Hai** [CN/CN]; Apartment 162-402, 2688 Hunan Road, Pudong, Shanghai, 201315 (CN). **CAI, Wei** [CN/CN]; 2688 Hunan Road, Apartment

160-402, Pudong, Shanghai, 201315 (CN). **LIU, Jianyun** [CN/CN]; 1389 Dongxiu Road, Room 1101, Building 5, Pudong, Shanghai, 200127 (CN). **DENG, Zhigang** [CN/CN]; Street 96, No. 123, South Hongmei Road, Xuhui District, Shanghai, 200237 (CN). **LIU, Hui** [CN/CN]; Wuxing Road 231 Lane, Number 64, Room 602, Beicai Town, Shanghai, 201203 (CN). **CHEN, Lin** [CN/CN]; Hongmei South Road, Apartment 102, No. 61, Lane 96, Shanghai, 200237 (CN). **YU, Xianguo** [CN/CN]; R13-701, 580 Kanghong Road, Kangqiao Town, Pudong, Shanghai, 200127 (CN).

(74) Agents: **WINTER, Catherine, J.** et al.; General Electronic Company, Global Patent Operation, 2 Corporation Drive, Suite 648, Shelton, CT 06484 (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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,

[Continued on next page]

(54) Title: BIPOLAR ELECTRODE AND SUPERCAPACITOR DESALINATION DEVICE, AND METHODS OF MANUFACTURE

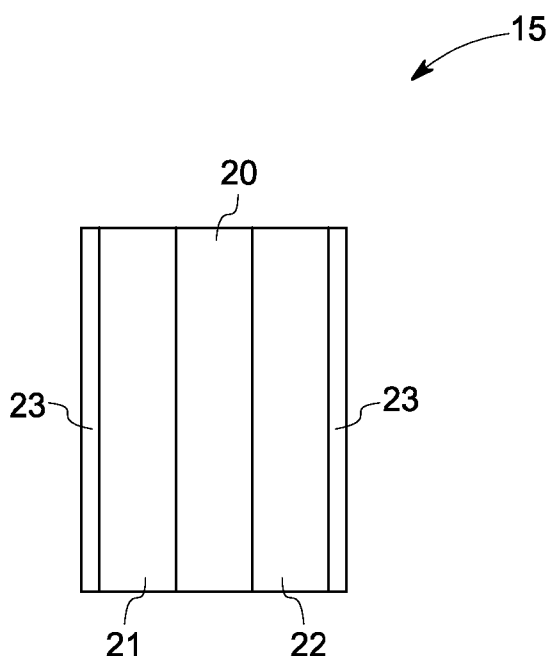


FIG. 2

(57) Abstract: A bipolar electrode comprises an intermediate layer comprising one or more carbon materials. The bipolar electrode further comprises first and second layers disposed on opposite surfaces of the intermediate layer and configured to act as an anode and a cathode. The first and second layers comprise at least one of one or more electrically conductive carbon materials and one or more conductive polymers. A supercapacitor desalination device and a method for making the bipolar electrode are also presented.



NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))