(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 June 2016 (23.06.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/100262 A8

(51) International Patent Classification:
H02J 3/32 (2006.01) *H01G 4/06* (2006.01)
H02J 7/34 (2006.01) *H01G 4/232* (2006.01)
H01G 4/18 (2006.01)

(21) International Application Number:
PCT/US2015/065679

(22) International Filing Date:
15 December 2015 (15.12.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
14/574,175 17 December 2014 (17.12.2014) US
14/729,851 3 June 2015 (03.06.2015) US

(71) Applicant: **CARVER SCIENTIFIC, INC.** [US/US]; Louisiana Business & Technology Center, 8000 Innovation Park Drive, Building 3000, Baton Rouge, LA 70820 (US).

(72) Inventors: **CARVER, David, Reginald**; Louisiana Business & Technology Center, 8000 Innovation Park Drive, Building 3000, Baton Rouge, LA 70820 (US). **HALL, Sean, Claudius**; Louisiana Business & Technology Center, 8000 Innovation Park Drive, Building 3000, Baton Rouge, LA 70820 (US). **REYNOLDS, Sean, William**; Louisiana Business & Technology Center, 8000 Innovation Park Drive, Building 3000, Baton Rouge, LA 70820 (US).

(74) Agent: **GARDNER, Gillian**; Klarquist Sparkman, LLP, One World Trade Center, Suite 1600, 121 SW Salmon Street, Portland, OR 97204 (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,

[Continued on next page]

(54) Title: ENTROPIC ENERGY TRANSFER METHODS AND CIRCUITS

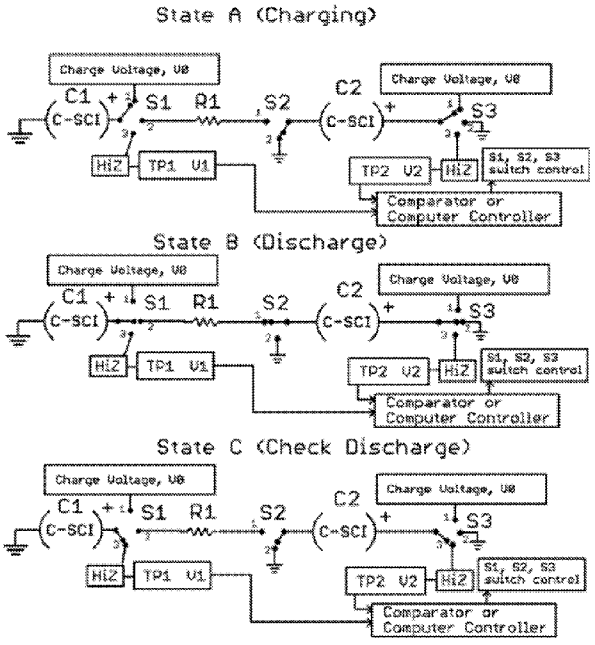

FIG. 7

(57) Abstract: Embodiments of methods for discharging an entropic energy storage device (EESD) that stores and releases entropic energy are disclosed. Embodiments of circuits including the EESD also are disclosed. The method includes providing a circuit including an EESD charged to a first voltage level, the EESD including first and second electrodes with a dielectric film positioned there between, the dielectric film comprising an entropic material, and the first electrode charged positively or negatively with respect to the second electrode; and applying a reversed polarization electric potential to the first electrode of the EESD in a first mode of operation of the circuit for a discharge period of time, thereby supplying power from the EESD to a load. In some embodiments, the method includes a pulsed discharge of the EESD with alternating discharge and recovery periods of time.

WO 2016/100262 A8

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).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

(48) **Date of publication of this corrected version**:
28 July 2016

(15) **Information about Correction**:
see Notice of 28 July 2016