

(51) International Patent Classification:
H01M 2/16 (2006.01)(21) International Application Number:
PCT/US2013/047029(22) International Filing Date:
21 June 2013 (21.06.2013)

(25) Filing Language: English

(26) Publication Language: English

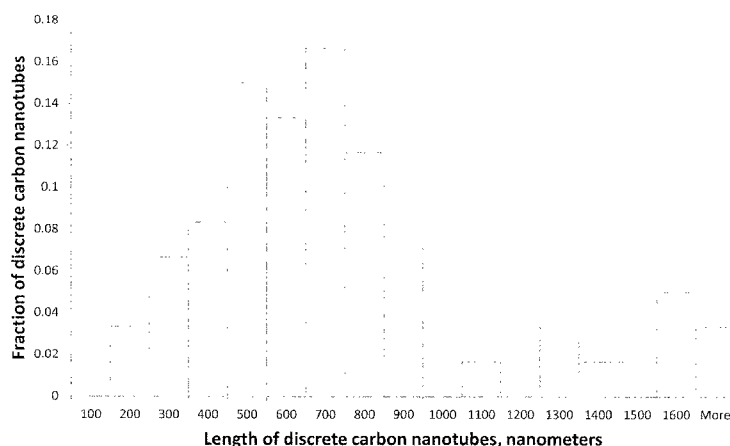
(30) Priority Data:
61/662,393 21 June 2012 (21.06.2012) US
61/663,513 22 June 2012 (22.06.2012) US(71) Applicant: **MOLECULAR REBAR DESIGN, LLC**
[US/US]; 13477 Fitzhugh Road, Austin, TX 78736 (US).(72) Inventors: **SWOGGER, Kurt, W.**; 4211 Waters Edge
Cove, Austin, TX 78731 (US). **BOSNYAK, Clive, P.**;
12001 Settlers Trail, Dripping Springs, TX 78620 (US).
MARINKOVIC, Milos; 4700 East Riverside Drive, Apt.
1121, San Antonio, TX 78741 (US).(74) Agent: **DUNSTAN, Amy, Ulfers**; Jackson Walker L.L.P.,
901 Main Street, Suite 6000, Dallas, TX 75202 (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, IS, JP, KE, KG, 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, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, 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: BINDERS, ELECTROLYTES AND SEPARATOR FILMS FOR ENERGY STORAGE AND COLLECTION DEVICES
USING DISCRETE CARBON NANOTUBES

Figure 1

(57) Abstract: In various embodiments an improved binder composition, electrolyte composition and a separator film composition using discrete carbon nanotubes. Their methods of production and utility for energy storage and collection devices, like batteries, capacitors and photovoltaics, is described. The binder, electrolyte, or separator composition can further comprise polymers. The discrete carbon nanotubes further comprise at least a portion of the tubes being open ended and/or functionalized. The utility of the binder, electrolyte or separator film composition includes improved capacity, power or durability in energy storage and collection devices. The utility of the electrolyte and or separator film compositions includes improved ion transport in energy storage and collection devices.

