



- (51) **International Patent Classification:**
A61N 1/05 (2006.01) **A61B 18/14** (2006.01)
A61N 1/04 (2006.01)
- (21) **International Application Number:**
PCT/US2014/068774
- (22) **International Filing Date:**
5 December 2014 (05.12.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/912,172 5 December 2013 (05.12.2013) US
14/451,333 4 August 2014 (04.08.2014) US
- (71) **Applicant:** RFEMB HOLDINGS, LLC [US/US]; Attn: James Miessau, P.O. Box 66, North Branford, CT 06471 (US).
- (72) **Inventors:** ONIK, Gary, M.; 1 East Las Olas Blvd., Suite 130-407, Ft. Lauderdale, FL 33301 (US). MIESSAU, James, A.; 43 Second Avenue, Branford, CT 06405 (US).
- (74) **Agent:** LONEGRO, Christopher, F.; Ober, Kaler, Grimes & Shriver, P.C., 100 Light Baltimore Street, Baltimore, MD 21202 (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).

[Continued on next page]

- (54)
- Title:**
- CANCER IMMUNOTHERAPY BY RADIOFREQUENCY ELECTRICAL MEMBRANE BREAKDOWN (RF-EMB)

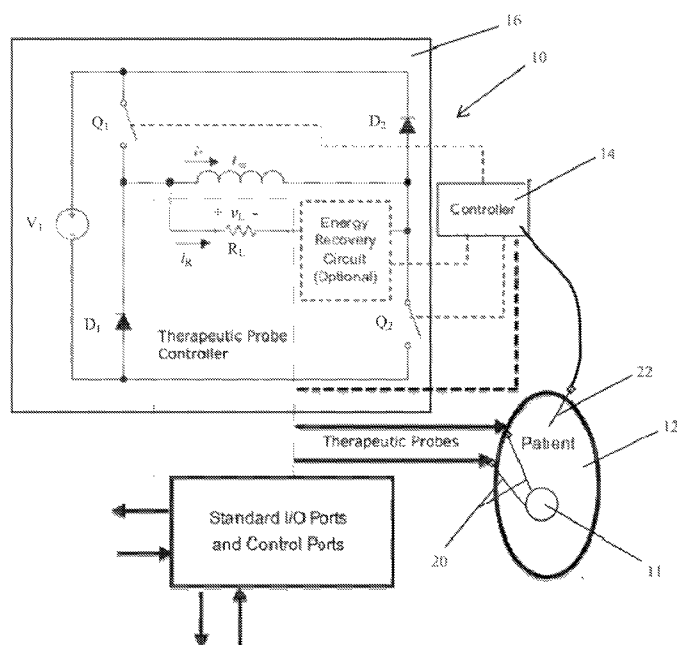


Fig. 9

(57) **Abstract:** A method of non-thermally ablating undesirable tissue in the body by application of pulsed, bipolar, instant charge reversal electrical fields of sufficient energy to cause complete and immediate cell membrane rupture and destruction. Energy is delivered through radio frequency pulses of particular frequencies, wave characteristics, pulse widths and pulse numbers, such that enhanced physical stresses are placed on the cell membrane to cause its immediate and complete destruction thereby spilling the entire cell content and membrane constituents into, the extracellular space without denaturing proteins so as to enable an immunological response to destroy and remove the target tissue and similarly marked tissue elsewhere in the subject.



Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

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

— *with amended claims and statement (Art. 19(1))*