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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
5 March 2009 (05.03.2009)

PCT

(10) International Publication Number
WO 2009/029044 A1

(51) International Patent Classification:
A61B 5/15 (2006.01) *A61M 5/00* (2006.01)
A61B 5/053 (2006.01)

(21) International Application Number:
PCT/SG2007/000279

(22) International Filing Date: 24 August 2007 (24.08.2007)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant *(for all designated States except US)*: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 20 Biopolis Way, #07-01 Centros, Singapore 138668 (SG).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LIM, Chee Yen** [MY/SG]; c/o Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 (SG). **LAI, Szu Cheng** [SG/SG]; c/o Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 (SG).

(74) Agent: **ELLA CHEONG SPRUSON & FERGUSON (SINGAPORE) PTE LTD**; P.O. Box 1531, Robinson Road Post Office, Singapore 903031 (SG).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

(54) **Title:** A SYSTEM AND METHOD FOR DETECTING SKIN PENETRATION

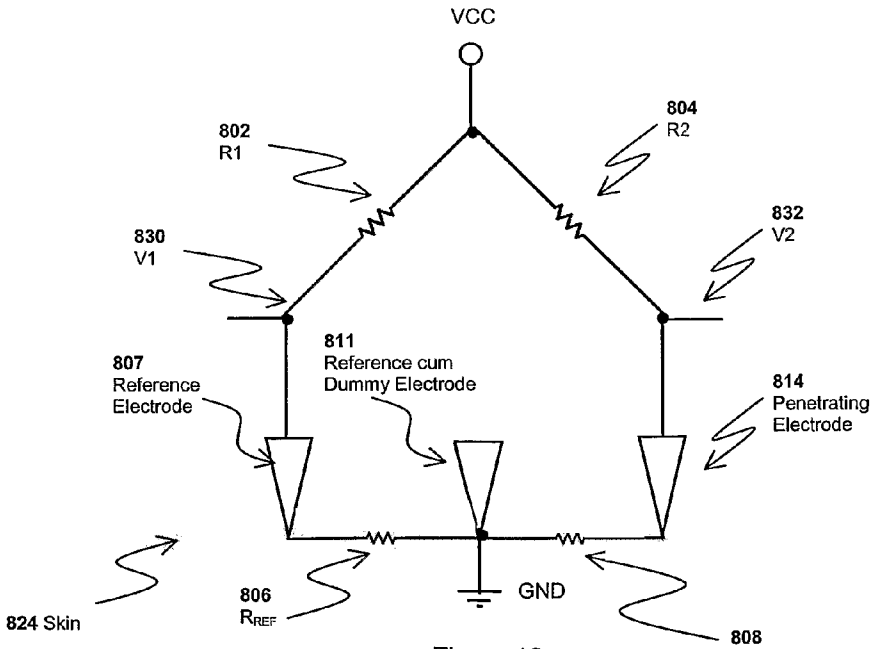


Figure 10

(57) **Abstract:** A system and method for detecting skin penetration. The system comprises an invasive component for penetrating the skin; a dummy electrode for making contact with the surface of the skin; at least one penetrating electrode disposed in the invasive component; and a Wheatstone bridge circuit; wherein a resistance across the dummy electrode and the penetrating electrode constitutes one of the resistive legs of the Wheatstone bridge circuit and skin penetration of the invasive component is detected based on a differential output voltage from the Wheatstone bridge circuit.

WO 2009/029044 A1