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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 October 2014 (16.10.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/168665 A3

(51) International Patent Classification:
H01L 39/14 (2006.01) *H01L 27/18* (2006.01)

(21) International Application Number:
PCT/US2014/012080

(22) International Filing Date:
17 January 2014 (17.01.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/754,298 18 January 2013 (18.01.2013) US
61/871,061 28 August 2013 (28.08.2013) US

(71) Applicant: **YALE UNIVERSITY** [US/US]; Two Whitney Avenue, New Haven, Connecticut 06511 (US).

(72) Inventors: **SCHOELKOPF, Robert, John**; 44 Northwood Road, Madison, CT 06443 (US). **BRECHT, Teresa**; 90 Mechanic Street, No. 3, New Haven, CT 06511 (US). **FRUNZIO, Luigi**; 24, Mowry Street, New Haven, CT 06473 (US). **DEVORET, Michel**; 869 Orange Street, Unit 7W, New Haven, CT 06511 (US).

(74) Agent: **ACHILLES, Daryl, L.**; Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210-2206 (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, 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, 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, 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:

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

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
31 December 2014

(54) Title: METHODS FOR MAKING A SUPERCONDUCTING DEVICE WITH AT LEAST ONE ENCLOSURE

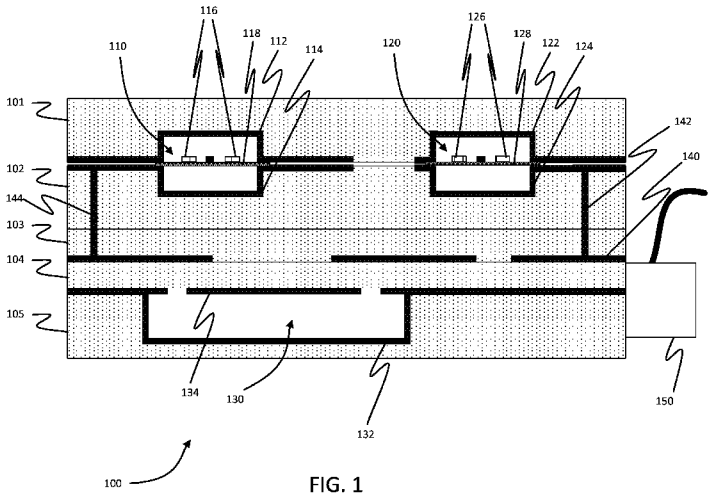


FIG. 1

(57) Abstract: Some embodiments are directed to a device including multiple substrates comprising one or more troughs. The substrates are disposed such that the one or more troughs form at least one enclosure. At least one superconducting layer covers at least a portion of the at least one enclosure. Other embodiments are directed to a method for manufacturing a superconducting device. The method includes acts of forming at least one trough in at least a first substrate; covering at least a portion of the first substrate with a superconducting material; covering at least a portion of a second substrate with the superconducting material; and bonding the first substrate and the second substrate to form at least one enclosure comprising the at least one trough and the superconducting material.

WO 2014/168665 A3