

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
23 September 2021 (23.09.2021)



(10) International Publication Number
WO 2021/184065 A1

- (51) **International Patent Classification:**
B82Y 10/00 (2011.01) *G06N 10/00* (2019.01)
- (21) **International Application Number:**
PCT/AU2021/050232
- (22) **International Filing Date:**
16 March 2021 (16.03.2021)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
2020900803 16 March 2020 (16.03.2020) AU
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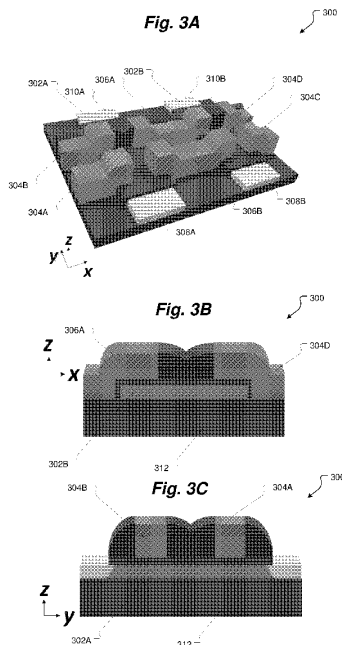
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(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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,

(54) **Title:** A QUANTUM PROCESSING ELEMENT AND SYSTEM



(57) **Abstract:** The present disclosure provides a quantum processing device comprising: one or more functional nanowires, each functional nanowire connected to at least one of a source and a drain; a sensing nanowire spaced from the one or more functional nanowires and connected to at least one of a source and a drain; one or more gate electrodes capacitively coupled with each of the one or more functional nanowires; one or more electrodes capacitively coupled with the sensing nanowire; and a floating coupler positioned between and electrostatically coupling the one or more functional nanowires and the sensing nanowire; and a controller connected to the one or more gates of the sensing nanowire and the one or more gates of the one or more functional nanowires.

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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))*