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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 October 2025 (30.10.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/226349 A3

(51) International Patent Classification:
G06N 10/40 (2022.01) *G06N 10/20* (2022.01)

(21) International Application Number:
PCT/US2025/017916

(22) International Filing Date:
28 February 2025 (28.02.2025)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/560,312 01 March 2024 (01.03.2024) US

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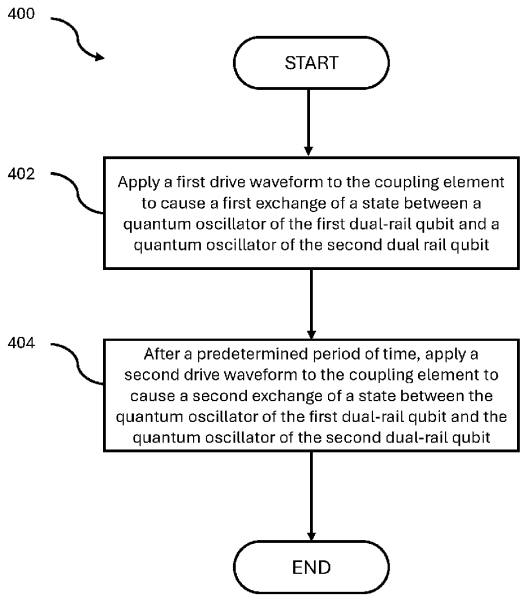
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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, UY, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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,

(54) Title: DUAL-RAIL ENTANGLING GATES VIA BEAMSPLITTER-ACTIVATED CROSS KERR INTERACTIONS

(57) Abstract: Systems and methods for performing an entangling gate between a first dual-rail qubit and a second dual-rail qubit are described herein. The techniques described herein may leverage static non-linear interactions (e.g., static cross Kerr interactions) to perform entangling gates using coupled dual-rail qubits. The entangling gates may be performed by applying one or more drive waveforms to exchange encoded states of quantum oscillators in the dual-rail qubits to turn the non-linear interactions "on" and "off."



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DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, 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:
27 November 2025 (27.11.2025)