



- (51) **International Patent Classification:**
G06F 7/58 (2006.01) *H03K 19/0175* (2006.01)
H03K 17/78 (2006.01)
- (21) **International Application Number:**
PCT/IB2024/057269
- (22) **International Filing Date:**
26 July 2024 (26.07.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/517,045 01 August 2023 (01.08.2023) US
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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, 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, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,

(54) **Title:** COMPACT QUANTUM RANDOM NUMBER GENERATOR BASED ON BALANCED DETECTION OF SHOT NOISE IN AN OPTOCOUPLER

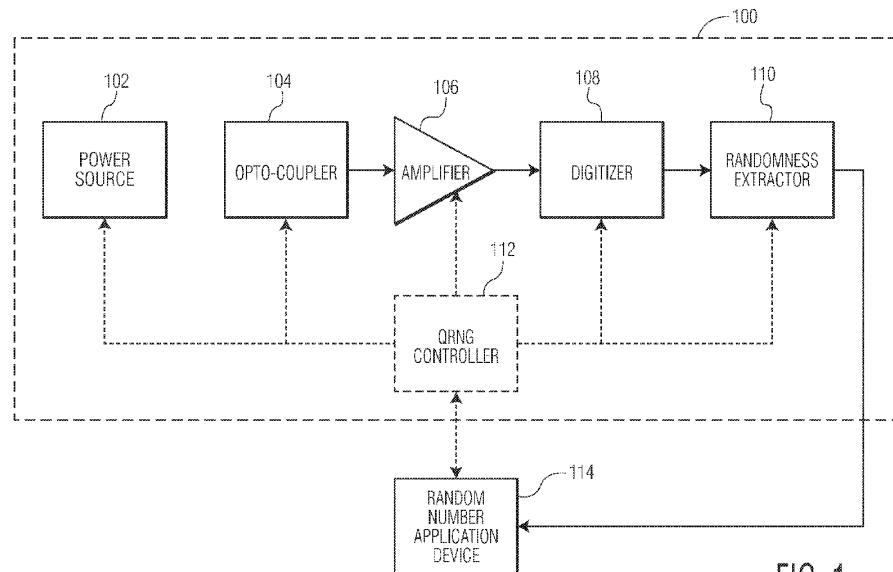


FIG. 1

(57) **Abstract:** A quantum random number generator (QRNG) system including optocoupler including at least one light emitter and at least two light receivers that are electrically coupled to each other in a configuration that rejects common mode noise. The system also includes a controller configured to control the at least one light emitter to emit photons randomly towards the at least two light receivers, measure a shot noise signal generated by the at least two light receivers in response to receiving the photons, and extract a random number from the shot noise signal.

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))*