



- (51) **International Patent Classification:**
B01L 9/06 (2006.01) *B01L 3/00* (2006.01)
- (21) **International Application Number:**
PCT/US2021/048359
- (22) **International Filing Date:**
31 August 2021 (31.08.2021)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/074,289 03 September 2020 (03.09.2020) US
- (71) **Applicant:** **ILLUMINA, INC.** [US/US]; 5200 Illumina Way, San Diego, CA 92122 (US).
- (72) **Inventors:** **BARNARD, Steven**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US). **CIESLA, Craig**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US). **CRIVELLI, Paul**; c/o Illumina, Inc., 5200 Il-

lumina Way, San Diego, CA 92122 (US). **DAVIDSON, Justin**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US). **SEGALE, Darren**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US).

- (74) **Agent:** **JORGE, Matthew, M.**; Marshall, Gerstein & Borun LLP, 233 S. Wacker Drive, 6300 Willis Tower, Chicago, IL 60606-6357 (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, 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.

- (54) **Title:** CARTRIDGES AND RELATED SYSTEMS AND METHODS

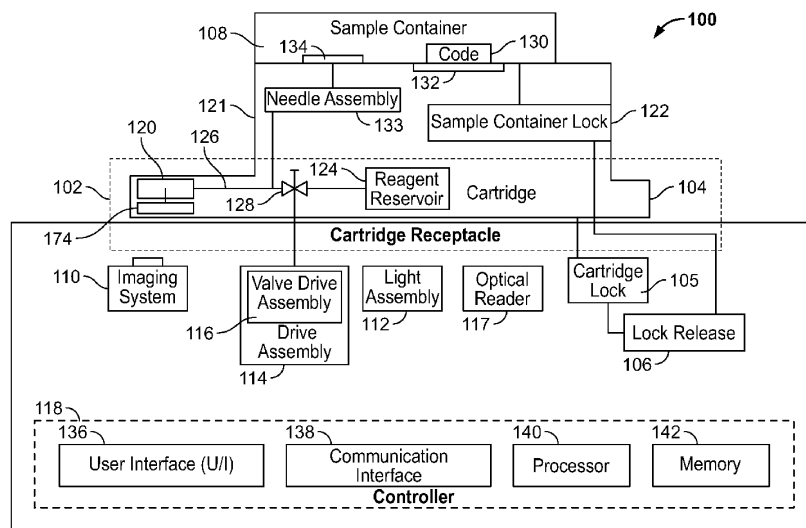


FIG. 1

- (57) **Abstract:** Cartridges and related systems and methods are disclosed. In accordance with an implementation, a method includes securing a sample container in a sample container receptacle of a cartridge using a sample container lock and coupling the cartridge to a cartridge receptacle of a system. The method also includes depositing a sample from the sample container within a sample well of the cartridge and determining a presence of a target molecule within the sample using the system. In response to the target molecule being present within the sample, the method includes releasing the sample container lock of the cartridge to allow the sample container to be removed from the sample container receptacle and for the cartridge to remain coupled to the system.

(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, 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))