

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
12 September 2024 (12.09.2024)



(10) International Publication Number
WO 2024/184867 A1

(51) International Patent Classification:
G01N 1/38 (2006.01) *B81B 1/00* (2006.01)
B01L 3/00 (2006.01)

(21) International Application Number:
PCT/IB2024/052279

(22) International Filing Date:
09 March 2024 (09.03.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/489,420 09 March 2023 (09.03.2023) US
63/489,667 10 March 2023 (10.03.2023) US

(71) Applicant: VITAL BIOSCIENCES INC. [CA/CA]; 3165
Unity Dr., Unit 2, Mississauga, Ontario L5L 4L4 (CA).

(72) Inventors: **BARREIROS, Miguel**; Parada Alto de Sao Joao 13 5Drt, 1900-052 Lisboa (PT). **SANTOS, David Pena de Sousa**; Rua Professor Bento Jesus Caraca n28, 7800-511 Beja (PT). **PEREZ, Paul Said Ehrlich**; 251 Manitoba St., Apartment 2301, Toronto, Ontario M8Y0C7 (CA). **MASUM, Fahim**; 44 St. Joseph St., Suite 1504, Toronto, Ontario M4Y 2W4 (CA). **BARBOSA, Luis Miguel Marques**; Rua do Outeiro n153 1o dto, 4420-237 Gondomar (PT). **KOUSSA, Mounir**; c/o Vital Biosciences, Inc., 199 - 151 Charles St. W, Kitchener, Ontario N2G 1H6 (CA).

(74) Agent: **GOWLING WLG (CANADA) LLP**; 1 Place Ville Marie, 37th Floor, Montreal, Quebec H3B 3P4 (CA).

(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,

(54) Title: PNEUMATIC SIPHON VALVES AND REACTION CHAMBERS FOR SAMPLE ANALYSIS

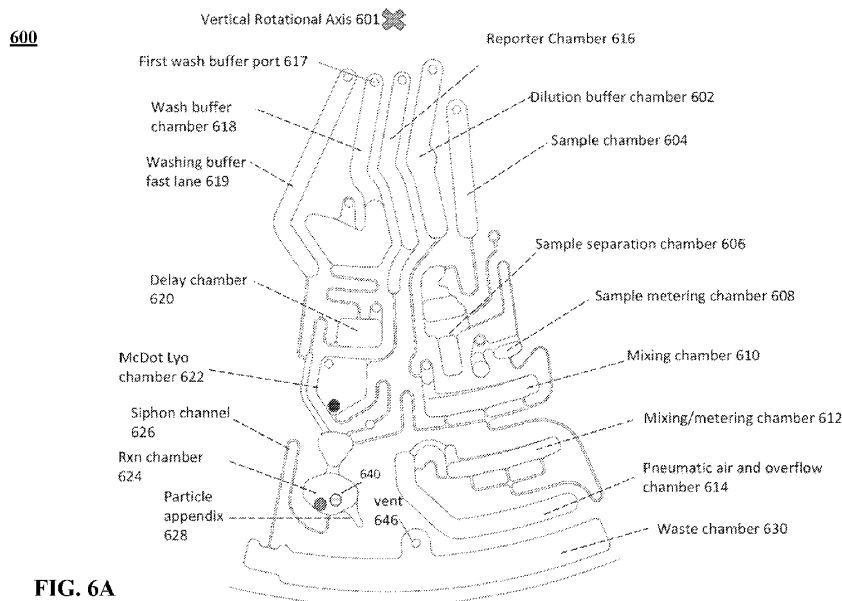


FIG. 6A

(57) Abstract: A rotatable device includes a vent port, a siphon and a ballast chamber. The siphon has a crest positioned radially outwards of the vent port with respect to the rotational axis. The ballast chamber has a first outlet connected to the vent port and a second outlet connected to an inlet of the siphon. The first outlet of the ballast chamber is positioned radially inwards of the second outlet of the ballast chamber and radially outwards of the crest of the siphon with respect to the rotational axis. As such, the first outlet of the ballast chamber divides the ballast chamber into an unvented ballast portion radially inwards of the first outlet and a vented ballast portion radially outwards of the first outlet, and thus decouples the pressure change inside the ballast chamber from the radial position of the siphon inlet at the ballast chamber.

[Continued on next page]

WO 2024/184867 A1

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, 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).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*