

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 December 2022 (08.12.2022)



(10) International Publication Number
WO 2022/256532 A1

(51) International Patent Classification:

F04D 29/40 (2006.01) *F04B 39/10* (2006.01)
B08B 9/08 (2006.01) *F04B 39/12* (2006.01)
F04B 1/18 (2020.01) *F04B 43/00* (2006.01)

(21) International Application Number:

PCT/US2022/031966

(22) International Filing Date:

02 June 2022 (02.06.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/197,250 04 June 2021 (04.06.2021) US

(71) Applicant: **ALPHINITY USA, INC.** [US/US]; 1771 S. SUTRO TERRACE, CARSON CITY, Nevada 89706 (US).

(72) Inventor: **GAGNE, Michael C.**; 1771 S. Sutro Terrace, Carson City, Nevada 89706 (US).

(74) Agent: **DAVIDSON, Michael S.**; VISTA IP LAW GROUP LLP, 100 Spectrum Center Drive, Suite 900, Irvine, California 92618 (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, IQ, IR, IS, IT, JM, 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, 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))

(54) Title: VESSELS WITH INTEGRATED PUMP HAVING MULTIPLE OUTLETS AND RETURN LINES WITH AGITATION OR MIXING PROPERTIES

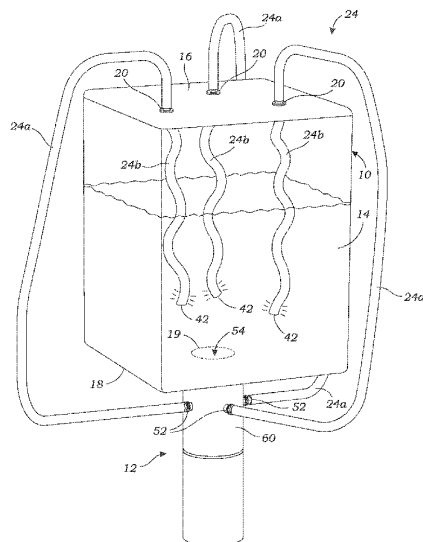


FIG. 1

(57) Abstract: A bioprocess or pharmaceutical vessel which may include a flexible bag or substantially rigid container defines an interior volume and having a bottom surface, the bottom surface being open or containing an aperture therein for the passage of fluid. A pump is secured to the bottom surface of the vessel. The pump has an inlet that is in fluidic communication with the interior of the vessel and a plurality of outlets, whereby fluid passes from the interior volume of the vessel and into the inlet of the pump and out the plurality of outlets. The vessel may also include one or more return lines that return fluid to the interior volume of the vessel. When fluid is pumped through the return lines, the return lines undulate, flail about, or otherwise move to impart agitation and/or mixing of the fluid contained in the vessel.

WO 2022/256532 A1