



(51) International Patent Classification:
G16H 40/40 (2018.01) *B65B 3/00* (2006.01)

(21) International Application Number:
PCT/US2024/029274

(22) International Filing Date:
14 May 2024 (14.05.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/466,440 15 May 2023 (15.05.2023) US

(71) Applicant: **AMGEN INC.** [US/US]; One Amgen Center Drive, Thousand Oaks, CA 91320-1799 (US).

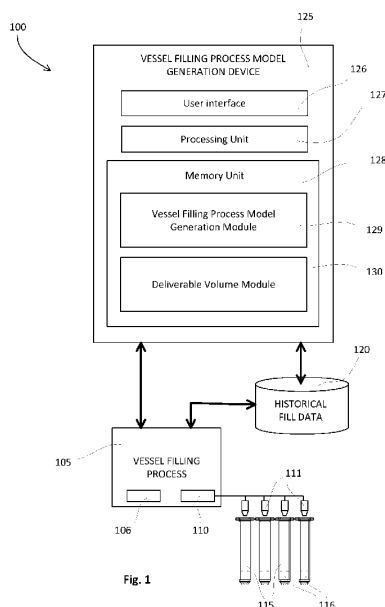
(72) Inventors: **CROWTHER, Richard**; C/o Amgen Inc., One Amgen Center Drive, Mail Stop 28-5-A, Thousand Oaks, CA 91320-1799 (US). **JAZAYERI, Julian**; C/o Amgen Inc., One Amgen Center Drive, Mail Stop 28-5-A, Thousand Oaks, CA 91320-1799 (US). **MOGHADDAM, Peyvand**; C/o Amgen Inc., One Amgen Center Drive, Mail Stop 28-5-A, Thousand Oaks, CA 91320-1799 (US). **VEGA, William, Vega**; C/o Amgen Inc., One Amgen Center Drive, Mail Stop 28-5-A, Thousand Oaks, CA 91320-1799 (US).

(74) Agent: **JACOBSON, Robert, S.**; 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, 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, 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).

(54) Title: FILLING PROCESS FOR PHARMACEUTICAL COMPOSITIONS



(57) Abstract: A method for reducing material usage in vessels is provided. The method includes obtaining historical fill weight data indicating actual, per-unit fill weight volumes for a plurality of vessels. The method also includes generating, based on analysis of the historical fill weight data, a distribution of simulated fill weights. The method further includes randomly sampling the distribution of simulated fill weights to select a subset of the simulated fill weights, and performing a quality check on the subset of the simulated fill weights. The method yet further includes generating a modified distribution of simulated fill weights at least by removing, from the distribution of simulated fill weights, samples of the subset that failed the quality check. The method also includes converting the modified distribution of simulated fill weights to a distribution of fill volumes, and calculating a distribution of deliverable volumes based on the distribution of fill volumes.

Published:

— with international search report (Art. 21(3))