



(51) International Patent Classification:

A61M 5/145 (2006.01) A61M 5/142 (2006.01)
A61M 5/14 (2006.01) F04B 9/04 (2006.01)

(21) International Application Number:

PCT/US2021/014103

(22) International Filing Date:

20 January 2021 (20.01.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/968,662 31 January 2020 (31.01.2020) 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, 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,

(54) Title: VALVE SHAFT PUMP WITH COORDINATED PUMPING AND VALVING OPERATIONS

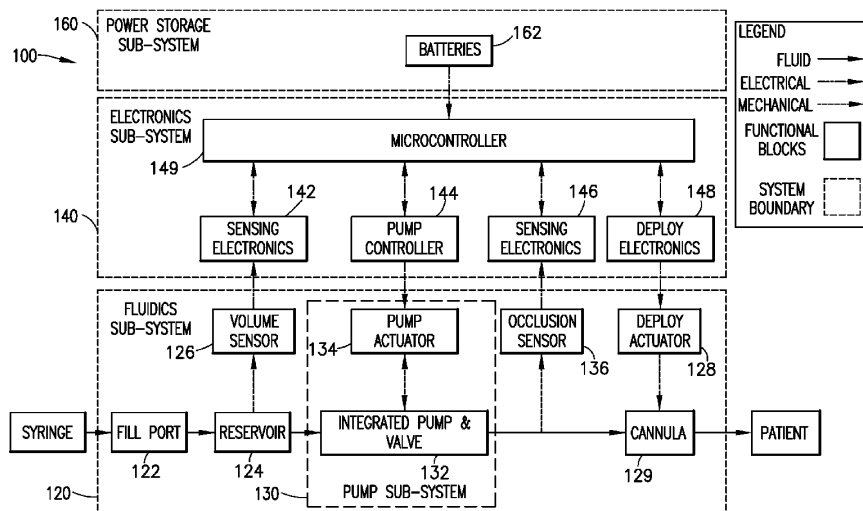


FIG. 1

(57) Abstract: Pump subsystem for fluid delivery (e.g., in a wearable patch pump) comprises a fluid chamber with pumping motion and a valve shaft assembly with valving motion, both being driven by the same drive mechanism. Fluid chamber has variable volume chamber provided by a piston driven by the drive mechanism and translated relative to a plug in the pump housing. Piston extends the fluid chamber during an intake stroke and retracts the fluid chamber during a discharge stroke. Valve assembly has at least one valve shaft controllably translated by the drive mechanism to selectively align a first throughway with an opening in the pump chamber and a fluid intake port for an intake stroke to draw fluid into the fluid chamber, and align a second throughway with the opening in the pump chamber and a fluid discharge port for an discharge stroke to discharge fluid from the fluid chamber.

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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))*