

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
19 January 2017 (19.01.2017)



(10) International Publication Number
WO 2017/009375 A8

(51) International Patent Classification:

G01F 11/08 (2006.01) **F04B 17/00** (2006.01)
G01F 11/02 (2006.01) **F04B 43/04** (2006.01)
G01F 11/06 (2006.01) **F04B 43/09** (2006.01)

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(21) International Application Number:

PCT/EP2016/066631

(22) International Filing Date:

13 July 2016 (13.07.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1551015-9 10 July 2015 (10.07.2015) SE
14/796,286 10 July 2015 (10.07.2015) 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, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
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, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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,

[Continued on next page]

(54) Title: POSITIVE DISPLACEMENT PUMP SYSTEM AND METHODS FOR THE DISPENSING OF DROPLETS

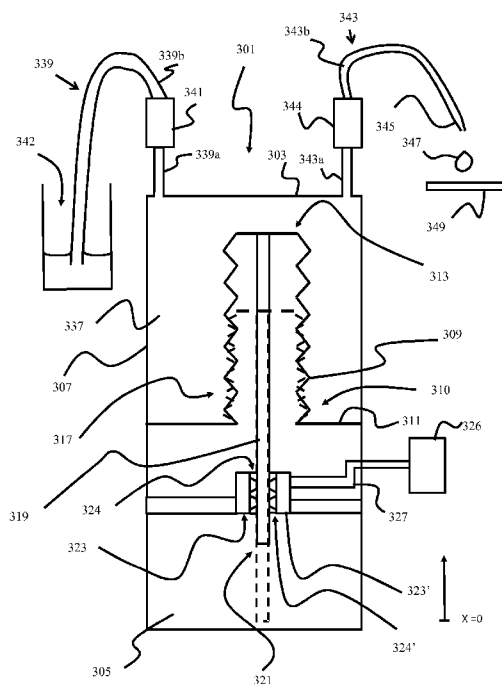


Fig. 2

(57) **Abstract:** Positive displacement pump system for the dispensing of droplets of liquid comprises a pump with a liquid-containing chamber (337) with a movable portion (313), an actuator (321) adapted to move said movable portion of said chamber for changing the volume of said chamber, a liquid outlet (343) in fluid communication with said chamber. A dispensing valve (344) for controlling flow through said liquid outlet and control means (326) for controlling said actuator and said valve are included. The system is characterized in that said actuator is a self-locking piezo-linear actuator in which the force required to produce a unit change in linear displacement of said movable portion of said chamber is substantially independent of the position of the actuator. Preferably the linear actuator is a walking piezo-motor. The pump may preferably be a bellows pump or a syringe pump. In a method to use the device the system pressure is stabilized before dispensing a plurality of droplets.



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).

— with information concerning request for restoration of
the right of priority in respect of one or more priority
claims (Rules 26bis.3 and 48.2(b)(vii))

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

(48) Date of publication of this corrected version:

13 April 2017

Published:

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

— with amended claims (Art. 19(1))

(15) Information about Correction:

see Notice of 13 April 2017