



(43) International Publication Date
24 October 2013 (24.10.2013)

- (51) International Patent Classification:
B05B 17/06 (2006.01)
- (21) International Application Number:
PCT/US2013/037326
- (22) International Filing Date:
19 April 2013 (19.04.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
- | | | |
|------------|------------------------------|----|
| 61/636,559 | 20 April 2012 (20.04.2012) | US |
| 61/636,565 | 20 April 2012 (20.04.2012) | US |
| 61/643,150 | 4 May 2012 (04.05.2012) | US |
| 61/722,611 | 5 November 2012 (05.11.2012) | US |
| 61/722,616 | 5 November 2012 (05.11.2012) | US |
- (71) Applicant: **CORINTHIAN OPHTHALMIC, INC.**
[US/US]; 148 Hwy 105 Extension, Suite 103, Boone,
North Carolina 28607 (US).

- (72) Inventors; and
- (71) Applicants : **WILKERSON, Jonathan Ryan** [US/US];
148 Hwy 105 Extension, Suite 103, Boone, North Carolina
28607 (US). **LYNCH, Iyam** [US/US]; 148 Hwy 105 Ex-
tension, Suite 103, Boone, North Carolina 28607 (US).
BROWN, Joshua Richard [US/US]; 235 28th Avenue,
NW, Hickory, North Carolina 28601 (US). **LEATH,**
James Thornhill [US/US]; 5696 Sartin Road, Burlington,
North Carolina 27217 (US). **FAULKS, Nathan** [US/US];
134 Kimberly Drive, Apt. 3, Boone, North Carolina 28607
(US). **GRUBE, Kris** [US/US]; 148 Hwy 105 Extension,
Suite 103, Boone, North Carolina 28607 (US).
DITROLIO, Matthew [US/US]; 148 Hwy 105 Extension,
Suite 103, Boone, North Carolina 28607 (US).
- (72) Inventors: **HUNTER, Charles Eric**; 510 Cherry Drive,
Boone, North Carolina 28607 (US). **GERMINARIO,**
Louis Thomas; 148 Hwy 105 Extension, Suite 103,
Boone, North Carolina 28607 (US). **CLEMENTS, J. Sid**;
276 Glendale Drive, Boone, North Carolina 28607 (US).

[Continued on next page]

(54) Title: SPRAY EJECTOR DEVICE AND METHODS OF USE

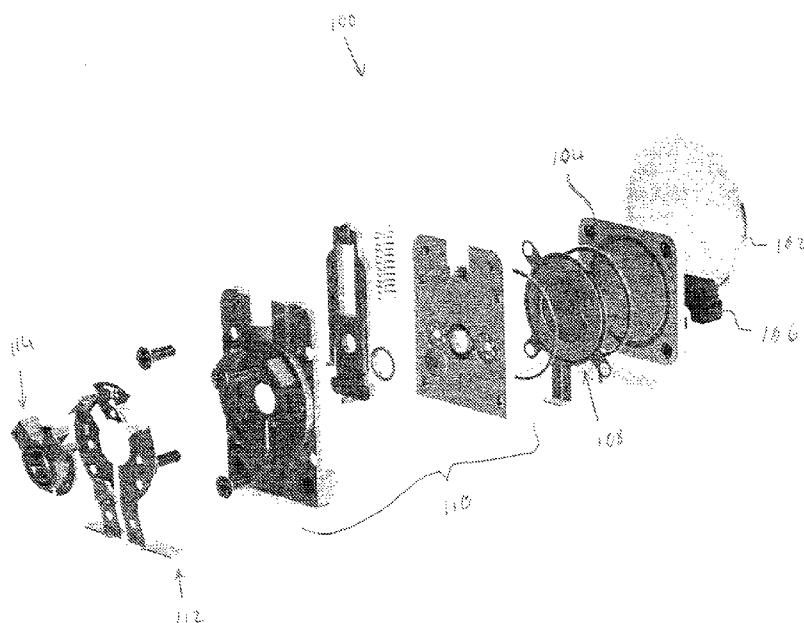


Fig. 1

(57) Abstract: An ejector device for ejecting droplets of fluid onto a surface includes an ejector mechanism attached to a fluid reservoir through a fluid loading plate that is configured to pierce the reservoir and channel the fluid to a rear surface of the ejector mechanism by capillary action. The ejector mechanism may have a centro-symmetric configuration with a lead free piezo actuator and may be covered by an auto-closing cover.



(74) **Agents:** VINNOLA, Milan M. et al.; Dorsey & Whitney LLP, 1400 Wewatta Street, Suite 400, Denver, Colorado 80202 (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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, 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, 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, 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, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to the identity of the inventor (Rule 4.17(i))

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))