



## (51) International Patent Classification:

*A61M 31/00* (2006.01) *B01L 3/00* (2006.01)  
*A61M 5/172* (2006.01) *A61K 9/00* (2006.01)  
*A61M 5/142* (2006.01)

## (21) International Application Number:

PCT/US2014/019058

## (22) International Filing Date:

27 February 2014 (27.02.2014)

## (25) Filing Language:

English

## (26) Publication Language:

English

## (30) Priority Data:

61/770,486 28 February 2013 (28.02.2013) US

(71) Applicant: MICROCHIPS, INC [US/US]; 128 Spring Street, Suite 310, Lexington, Massachusetts 02421 (US).

(72) Inventor: FARRA, Robert; 115 Canterbury Hill Road, Acton, Massachusetts 01720 (US).

(74) Agents: KING, Kevin W. et al.; Sutherland Asbill & Brennan LLP, 999 Peachtree Street, NE, Atlanta, Georgia 30309-3996 (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, IR, IS, JP, KE, KG, 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, 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, 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).

## Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

## Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: IMPLANTABLE MEDICAL DEVICE FOR MINIMALLY-INVASIVE INSERTION

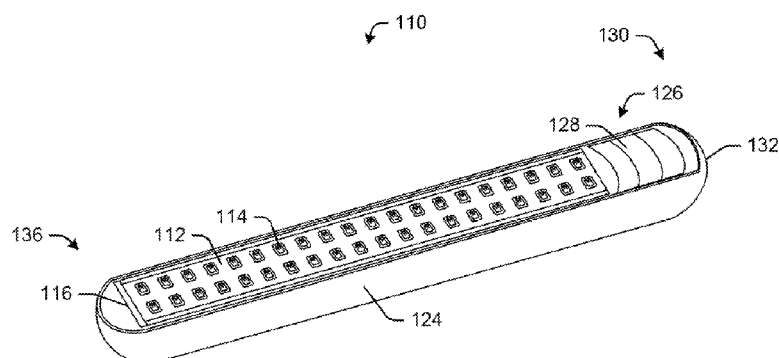


FIG. 3

(57) Abstract: In one aspect, containment devices are provided that include a microchip element having one or more containment reservoirs that are configured to be electrically activated to open; an electronic printed circuit board (PCB) or a silicon substrate positioned adjacent to the microchip element; one or more electronic components associated with the microchip element or the PCB/silicon substrate; and a first inductive coupling device associated with the microchip element or the PCB/silicon substrate, wherein the first inductive coupling device is in operable communication with the one or more electronic components. In another aspect, implantable drug delivery devices are provided that include a body housing at least one drug payload for actively controlled release, wherein the ratio of the volume of the at least one drug payload to the total volume of the implantable drug delivery device is from about 75  $\mu\text{L/cc}$  to about 150  $\mu\text{L/cc}$ .