

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 February 2008 (28.02.2008)

PCT

(10) International Publication Number
WO 2008/024319 A3

(51) **International Patent Classification:**
BOIJ 19/00 (2006.01) C12Q 1/68 (2006.01)
BOIL 3/00 (2006.01)

(US). **EMIG, Christopher, J.** [US/US]; 146 Berkshire Street, Cambridge, MA 02141 (US).

(21) **International Application Number:**
PCT/US2007/018437

(74) **Agent: WALLER, Patrick, R., H.;** Wolf, Greenfield & Sacks, P.C., Federal Reserve Plaza, 600 Atlantic Avenue, Boston, MA 02210-2206 (US).

(22) **International Filing Date:** 20 August 2007 (20.08.2007)

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
60/838,960 20 August 2006 (20.08.2006) US
60/878,332 31 December 2006 (31.12.2006) US
60/878,330 31 December 2006 (31.12.2006) US

(71) **Applicant** (for all designated States except US): **CODON DEVICES, INC.** [US/US]; One Kendall Square, Building 300, Cambridge, MA 02139 (US).

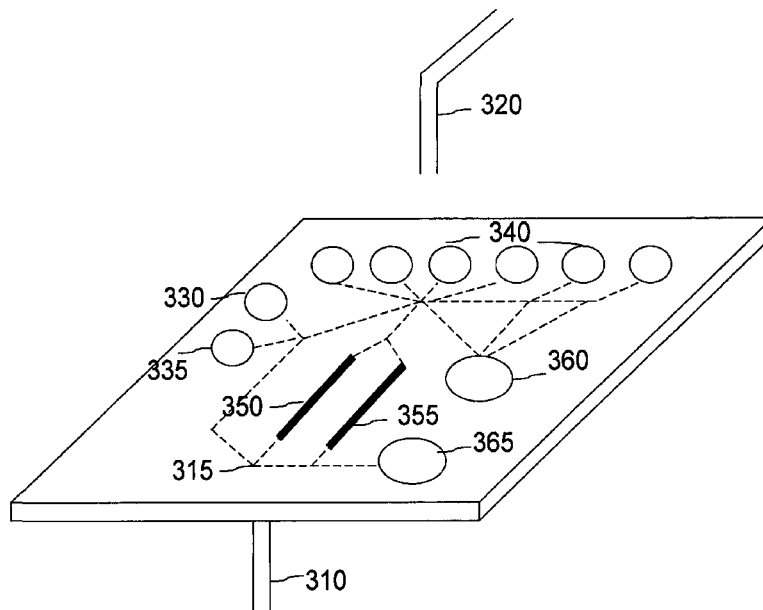
(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,

(72) **Inventors; and**

(75) **Inventors/Applicants** (for US only): **MUIR, Craig, Douglas** [US/US]; 30 Vose Hill Road, Westford, MA 01886

[Continued on next page]

(54) **Title:** MICROFLUIDIC DEVICES FOR NUCLEIC ACID ASSEMBLY



(57) **Abstract:** Certain aspects of the present invention provide devices and methods for assembling nucleic acid molecules on micro fluidic devices, e.g. via extension and/or ligation reactions. The invention also provides systems comprising one or more acoustic liquid handlers, one or more microfluidic devices, and/or one or more robotic liquid handlers for automating a nucleic acid assembly procedure. The microdevice may comprise the following components: a sipper, or means for transferring reagents (310); a main channel (315); a spitter, or means for transferring reagents (320), sample wells for storage of reagents or buffers (330, 335, 340), separation or concentration channels (350, 355) and sample or reaction wells (360, 365) e.g. a thermocycler.

WO 2008/024319 A3



PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(48) **Date of publication of this corrected version:**

29 May 2008

Published:

— *with international search report*

(88) **Date of publication of the international search report:**
10 April 2008

(15) **Information about Correction:**
see Notice of 29 May 2008