(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 July 2008 (31.07.2008)

PCT

(10) International Publication Number
WO 2008/091626 A1

(51) International Patent Classification:
C08F 2/01 (2006.01) *B01J 19/08* (2006.01)

(21) International Application Number:
PCT/US2008/000860

(22) International Filing Date: 22 January 2008 (22.01.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/886,067 22 January 2007 (22.01.2007) US
61/016,377 21 December 2007 (21.12.2007) US

(71) Applicant *(for all designated States except US)*: **WAFER-GEN, INC.** [US/US]; Bayside Technology Center, 46571 Fremont Boulevard, Fremont, CA 94538 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **JOSEPH, Victor** [US/US]; 35964 Killorglin Common, Fremont, CA 94536 (US). **HUDA, Amjad** [US/US]; 420 Panorama Court, Fremont, CA 94539 (US). **SHIVJI, Alnoor** [CA/US]; 622 Hillcrest Terrace, Fremont, CA 94539 (US).

(74) Agents: **BACSI, Steven, G.** et al.; Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304-1050 (US).

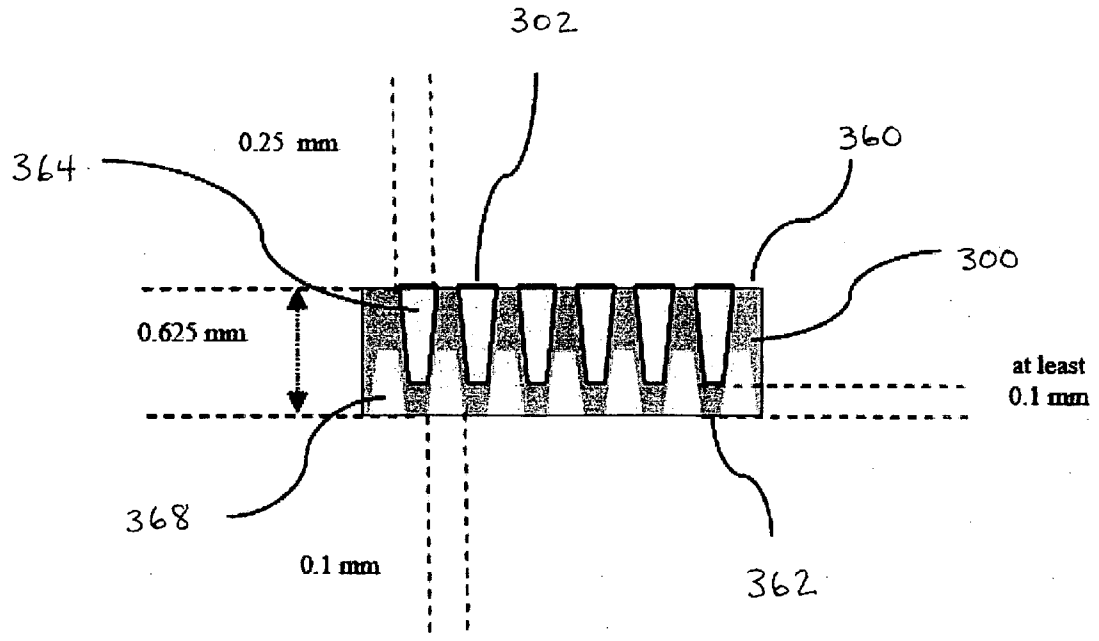
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, 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.

(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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: APPARATUS FOR HIGH THROUGHPUT CHEMICAL REACTIONS



(57) Abstract: Apparatus, systems, chips, and methods of performing a large number of simultaneous chemical reactions are provided herein. The chips of the invention comprise addressable units that can be addressed according to the temperature of the reaction to be run. The subject apparatus, systems, and chips are particularly suited for performing polymerase chain reactions on thousands of nucleic acid sequences, up to and including sequences of an entire genome of an organism of interest.

WO 2008/091626 A1

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*