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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 January 2007 (25.01.2007)

PCT

(10) International Publication Number
WO 2007/011310 A1

(51) International Patent Classification:
B81B 1/00 (2006.01) *G01N 31/00* (2006.01)
B01L 3/00 (2006.01)

(21) International Application Number:
PCT/SG2006/000130

(22) International Filing Date: 19 May 2006 (19.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/701,078 21 July 2005 (21.07.2005) US

(71) Applicant *(for all designated States except US)*: **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LAM, Yee Cheong** [AU/SG]; 64, Nanyang Terrace, Singapore 639741 (SG). **GAN, Hiong Yap** [MY/SG]; Block 475, Jurong West St. 41,, #11-374, Singapore 640475 (SG). **NGUYEN, Nam Trung** [VN/SG]; 98 Nanyang Crescent #01-01, Singapore 637665 (SG). **YANG, Chun** [CA/SG]; 103d, Nanyang Heights, #04-07 Nanyang View, Singapore 639671 (SG). **TAM, Kam Chiu** [MY/SG]; 2b, Hong San Walk, #08-03 Palm Gardens, Singapore 689048 (SG).

(74) Agent: **ALBAN TAY MAHTANI & DE SILVA**; 39 Robinson Road, #07-01 Robinson Point, Singapore 068911 (SG).

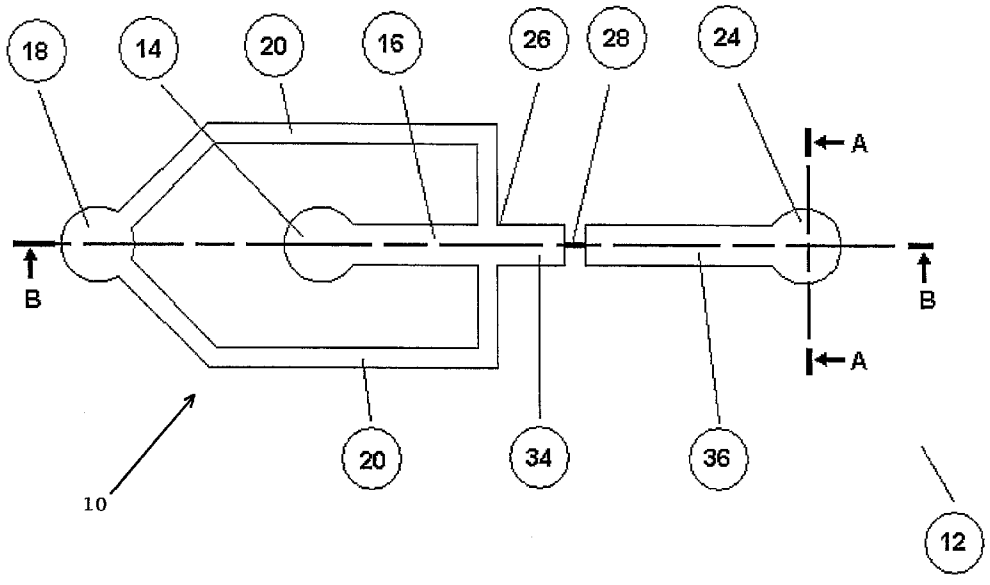
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, HU, IE, IS, IT, LT, LU, LV, MC, NL, 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:** METHODS AND APPARATUS FOR MICROFLUIDIC MIXING



(57) **Abstract:** An apparatus for microfluidic mixing having a first fluid inlet (14) for a first fluid operatively connected to a first fluid channel (16). A second fluid inlet (18) is provided for a second fluid operatively connected to a second fluid channel/s (20). The second fluid channel operatively intersects (26) the first fluid channel for introduction of the second fluid into the first fluid channel. The first fluid channel has an outlet end (24) remote from the first fluid inlet (14), and at least one contraction (28) in a location selected from: intermediate the intersection (26) of the first fluid channel (16) with the second fluid channel/s (20) and the at least one outlet end (24), and intermediate the first fluid inlet (14) and the intersection of the first fluid channel (16) with the second fluid channel/s (20). A corresponding method is also disclosed.

WO 2007/011310 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.