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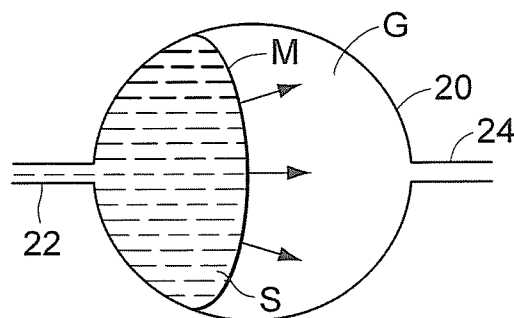
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(54) **Title:** DEVICES AND METHODS FOR CONTROLLING BUBBLE FORMATION IN MICROFLUIDIC DEVICES



tion with the at least some sample chambers.

(57) **Abstract:** A microfluidic device may include a sample distribution network including a plurality of sample chambers configured to be loaded with biological sample for biological testing of the biological sample while in the sample chambers. The sample distribution network may further include a plurality of inlet channels, each inlet channel being in flow communication with and configured to flow biological sample to a respective sample chamber, and a plurality of outlet channels, each outlet channel being in flow communication and configured to flow biological sample from a respective sample chamber. At least some of the sample chambers may include a physical modification configured to control the movement of the meniscus so as to control bubble formation or dried reagent positioned within the at least some sample chambers proximate the inlet channels in flow communi-

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/70197

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - F16K 31/44; C02F 1/40 (2007.10)
 USPC - 251/129.01; 204/601; 137/124
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 USPC: 251/129.01; 204/601; 137/124

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Google Internet and USPC class 137 - see keywords below
 IPC(8):F16K 31/44; C02F 1/40 (2007.10) - see keywords below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PubWEST(USPT,PGPB,EPAB,JPAB); Google
 Search Terms Used: meniscus, chamber, well, array, channel, groove, projection, protrusion, teeth, pillars, columns, depth, width, shape, sample, bubble


C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,637,463 B1 (Lei et al.) 28 October 2003 (28.10.2003); entire document, especially (col 1, ln 20-45); col 17, ln 1-16, col 18, ln 1-35; and Fig. 2, Items 158, 194, 196, 198);	1-7, 9-14, 16-21, 23-27 ----- 8, 15, 22, 28
Y	US 5,230,866 A (Shartle et al.) 27 July 1993 (27.07.1993); col 18, ln 5-25	8, 22
Y	US 2005/0136552 A1 (Buechler) 23 June 2005 (23.06.2005); entire document, especially para [0075] and Fig. 6	15, 28

Further documents are listed in the continuation of Box C.

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| * Special categories of cited documents: | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
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| "P" document published prior to the international filing date but later than the priority date claimed | |

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