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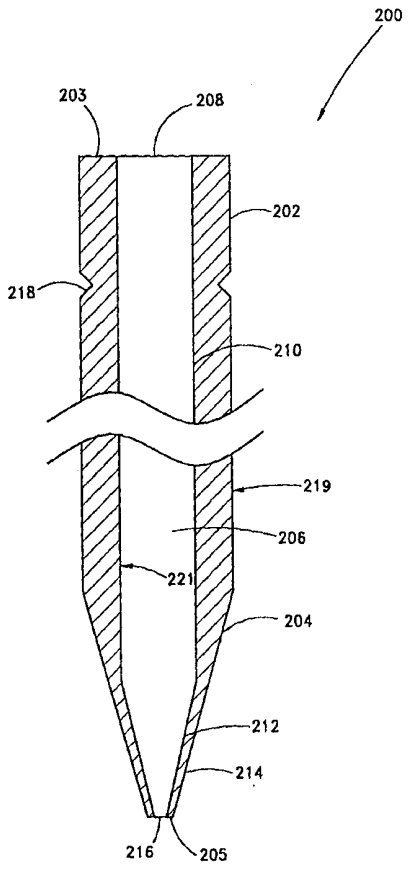
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(54) Title: TIP DESIGN AND RANDOM ACCESS ARRAY FOR MICROFLUIDIC TRANSFER

(57) Abstract

The present invention relates to a ceramic tip (200) and a random access print head (230) for the transfer of microfluidic quantities of fluid. The print head (230) can randomly collect and deposit fluid samples to transfer the samples from a source plate (29) to a target (30). The print head (230) can also be programmed to create a direct map of the fluid samples from the source plate (29) on the target (30) or to create any desired pattern or print on the target (30). The tip (200) and print head (230) can be used for a wide variety of applications such as DNA microarraying and compound reformatting. In one preferred embodiment, the tip (200) is used as a capillary or "gravity" pin to draw or collect source fluid and "spot" or deposit the fluid onto the target (30) via physical contact (touch–off). In another preferred embodiment, the tip (200) is used in conjunction with an aspirate–dispense system (10) to actively aspirate source fluid and deposit the fluid via a contact or non–contact approach. The tip (200) provides improved, accurate and repeatable microfluidic transfer.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/15214

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : B65B 1/04
US CL : 141/31

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)

U.S. : 141/31, 1, 94, 130, 250, 279, 284; 73/864.01, 864.11, 864.13, 864.21; 422/63, 68.1, 100; 436/46, 54, 180

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS
search terms: lumen, tip, substrate, micro, pipette, solenoid

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,944,922 A (HAYASHI) 31 July 1990, see entire reference	1-4, 6-9, 13-15
A	US 3,164,304 A (JAGER et al.) 05 January 1965, see column 2, lines 47-54.	5 and 17
A, P	US 5,807,522 A (BROWN et al.) 15 September 1998, see entire document	1-22

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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