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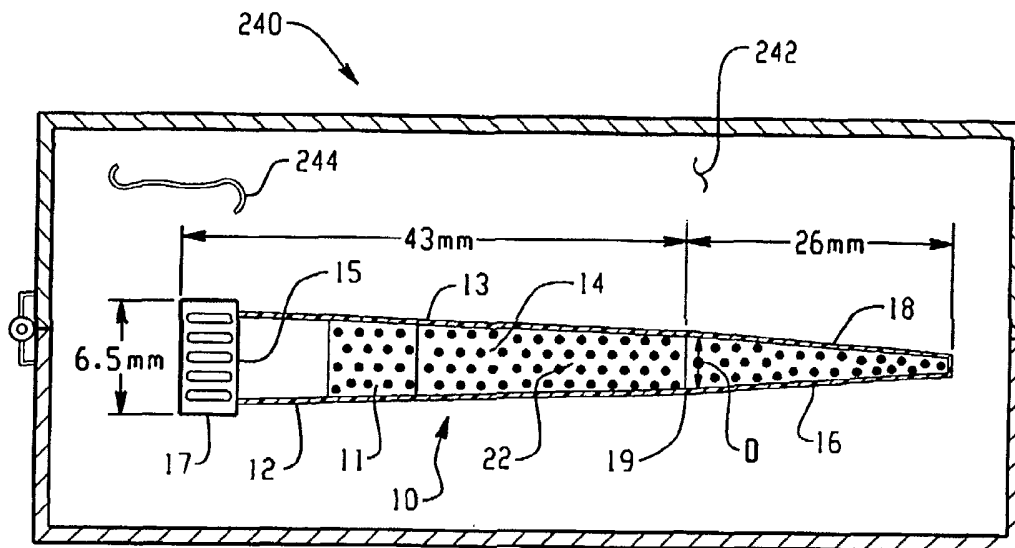
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[Continued on next page]

(54) Title: DEVICE FOR PRECISE CHEMICAL DELIVERY AND SOLUTION PREPARATION



(57) Abstract: A burette (10, 110, 200) suitable for delivery of a reagent into a target solution (50) employs diffusion for delivering the reagent. The reagent is in the form of a solution, which is combined with a matrix material (22), such as a gel or porous ceramic. A membrane (32) covers a delivery outlet (20) to the burette. In one embodiment, the delivery outlet comprises a plurality of fine bores (36), each one filled with or covered by a membrane (38). Stirring of the burette or target solution is achieved with a stirring means (104, 106). A heating or cooling means (80) heats a tip (16) of the burette.

WO 2004/033100 A3



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

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.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/31971

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : B01L 3/02
 US CL : 422/99, 100, 101, 102; 436/174, 179, 180
 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. : 422/99, 100, 101, 102; 436/174, 179, 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)
 EAST search terms: diffus\$, permeat\$, permeabl\$; matrix, gel, hydrogel: reagent; deliver\$

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,837,161 A (STEVENS et al) 06 June 1989 (06.06.1989), column 7, lines 10-15 and 55-65, Figures 1 and 2.	1, 31-34, 36, 42-44, 48-50, 57-58
X	US 6,050,150 A (UNDERHILL et al) 18 April 2000 (18.04.2000), column 4, lines 20-53, column 6, lines 31-35, Figures 1-2.	1-6, 48-50, 57-58
X, P	US 6,599,754 B2 (MILLER et al) 29 July 2003 (29.07.2003), column 4, lines 19-34, column 6, lines 44-47, column 7, lines 8-9 and Figure 3A.	1-6, 31-32, 34-36, 42-44, 48-50, 57-58

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

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Jan M. Ludlow Telephone No. (571) 272-1700 Jean Freese Paralegal

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/31971

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim Nos.: 7-30,37-41,45-47 and 51-56
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.