

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number  
**WO 2004/113874 A3**

(51) International Patent Classification<sup>7</sup>: **B01L 3/14**, 3/00

(21) International Application Number:  
PCT/US2004/019049

(22) International Filing Date: 15 June 2004 (15.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/479,710 19 June 2003 (19.06.2003) US

(71) Applicant (for all designated States except US): **ABBOTT LABORATORIES** [US/US]; Dept. 377 Bldg. AP6A-1, 100 Abbott Park Road, Abbott Park, IL 60064-6008 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LOWREY, Michael** [US/US]; 33720 Royal Oak Lane, Wildwood, IL 60030 (US). **SAFAR, Scott** [US/US]; 248 Karyl Street, Burlington, WI 53105 (US). **DUNN, Chadwick, M.** [US/US]; 77 Shoreline Road, Barrington, IL 60010 (US). **GALITZ, Charles, M.** [US/US]; 7540 18th Avenue, Kenosha, WI

53143 (US). **TOTH, Julius, J.** [US/US]; 801 Castleton Court, Mundelein, IL 60060 (US). **KUKLA, Ronald, E.** [US/US]; 40 Cherbourg Court, Wheeling, IL 60090 (US). **HERCHENBACH, Stephen** [US/US]; 676 Birch Hollow Drive, Antioch, IL 60002 (US). **SHAIN, Eric, B.** [US/US]; 459 Grove Street, Glencoe, IL 60022 (US).

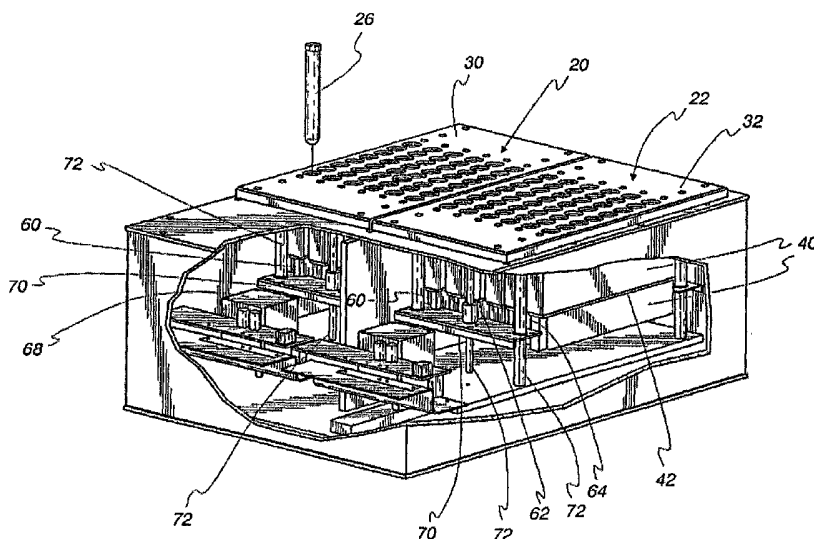
(74) Agents: **MURRAY, William, E.** et al.; Abbott Laboratories, Dept. 377 Bldg. AP6A-1, 100 Abbott Park Road, Abbott Park, IL 60064-6008 (US).

(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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, 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,

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR HANDLING FLUIDS FOR ANALYSIS



(57) Abstract: A reaction vessel with a bottom drain opening supporting a selected unpressured head of fluid by the surface tension of the fluid. A device processing zone includes a support for spaced rows of reaction vessels, passages communicating with their drain openings of supported vessels, and a pressure source for selectively draining fluid through the drain openings. Generally horizontal bar magnets are supported for selected vertical movement between the vessel rows. A dispensing head has X discharge openings selectively positionable over X selected reaction vessels. A metering pump mechanism selectively meters X a selected quantity of fluid a bulk supply (where X is at least four), and selectively pumps the metered selected quantities through the drain openings to the selected reaction vessels. Methods of drawing fluid from the vessels using the pressure source, and moving the magnets to form a pellet of analyte are also included.



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, IT, LU, 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).

**(88) Date of publication of the international search report:**  
4 August 2005

*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.*

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/019049

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01L3/14 B01L3/00

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)

IPC 7 B01L

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 practical, search terms used)

EP0-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 041 995 A (COLUMBUS RICHARD L) 16 August 1977 (1977-08-16) column 5, lines 20-22 column 5, lines 39-68 column 6, lines 60-65; figures 1-4 -----	1,2,4,6
X	US 6 063 282 A (MOULTON THOMAS) 16 May 2000 (2000-05-16) column 2, lines 26-43 column 3, line 62 column 4, lines 21-34 column 5, lines 23-34; figures 1-6 -----	1-6
A	EP 0 508 530 A (EASTMAN KODAK CO) 14 October 1992 (1992-10-14) column 6, lines 13-24 ----- -/--	5

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"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

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

20 October 2004

Date of mailing of the international search report

09.05.2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Cantalapiedra, I

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/019049

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 091 793 A (WILSON PHARM & CHEM CORP) 14 January 1972 (1972-01-14) page 9, lines 26-32; figure 4 -----	1-6
X	WO 01/70402 A (DEWALCH TECHNOLOGIES INC) 27 September 2001 (2001-09-27) figures 12-14 -----	1,2,4,6
A	US 2003/017349 A1 (SCHNEIDER RICHARD A ET AL) 23 January 2003 (2003-01-23) page 1, paragraphs 6,37 -----	3,5

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/019049

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims 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. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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.:

1-6

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6

reaction vessel comprising an open top and a drain in its bottom further comprising an hydrophobic frit or a non wettable surface around the drain opening

---

2. claims: 7-27

processing zone for a specimen handling device comprising a plurality of reaction vessels

---

3. claims: 28-33

fluid handling mechanism including a deck, a bulk supply, a dispensing head and a metering pump

---

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/019049

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4041995	A	16-08-1977	CA 1048297 A1	13-02-1979
			CA 1056778 A2	19-06-1979
			CH 605309 A5	29-09-1978
			CH 614171 A5	15-11-1979
			CH 611226 A5	31-05-1979
			DE 2559090 A1	15-07-1976
			FR 2299625 A1	27-08-1976
			FR 2299626 A1	27-08-1976
			GB 1541912 A	14-03-1979
			GB 1541915 A	14-03-1979
			JP 51099066 A	01-09-1976
			SE 7600103 A	09-07-1976
			SE 450053 B	01-06-1987
			SE 8105790 A	01-10-1981
US 6063282	A	16-05-2000	NONE	
EP 0508530	A	14-10-1992	US 5230864 A	27-07-1993
			CA 2054456 A1	11-10-1992
			EP 0508530 A1	14-10-1992
			IE 921149 A1	21-10-1992
			JP 5133854 A	28-05-1993
FR 2091793	A	14-01-1972	DE 2125027 A1	02-12-1971
			FR 2091793 A5	14-01-1972
			NL 7106918 A	23-11-1971
WO 0170402	A	27-09-2001	AU 4932501 A	03-10-2001
			CA 2404075 A1	27-09-2001
			EP 1265710 A2	18-12-2002
			JP 2003527953 T	24-09-2003
			WO 0170402 A2	27-09-2001
			US 2004033170 A1	19-02-2004
US 2003017349	A1	23-01-2003	US 6447919 B1	10-09-2002
			US 6156389 A	05-12-2000
			US 5853894 A	29-12-1998
			US 2004131789 A1	08-07-2004
			US 2004082699 A1	29-04-2004
			US 6495624 B1	17-12-2002
			US 2005003203 A1	06-01-2005