

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 September 2006 (28.09.2006)

PCT

(10) International Publication Number  
WO 2006/101833 A3

- (51) International Patent Classification:  
B01L 3/02 (2006.01) G01N 35/10 (2006.01)
- (21) International Application Number:  
PCT/US2006/009106
- (22) International Filing Date: 16 March 2006 (16.03.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
11/088,157 23 March 2005 (23.03.2005) US
- (71) Applicant (for all designated States except US): BECKMAN COULTER, INC. [US/US]; 4300 N. Harbor Blvd., Mail Code A-42-C, Fullerton, California 92834 (US).
- (72) Inventors: LI, William, W.; 9120 S.W. 171 Terrace, Miami, Florida 33157 (US). VEINER, Craig, R.; 13281 S.W. 100 Terrace, Miami, FL 33186 (US). CABRERA, Sergio; 10430 S.W. 19 Street, Miami, FL 33165 (US).
- (74) Agent: ALTER, Mitchell, E.; BECKMAN COULTER, INC., P.O. BOX 169015, Mail Code 32-A02, Miami, Florida 33116-9015 (US).

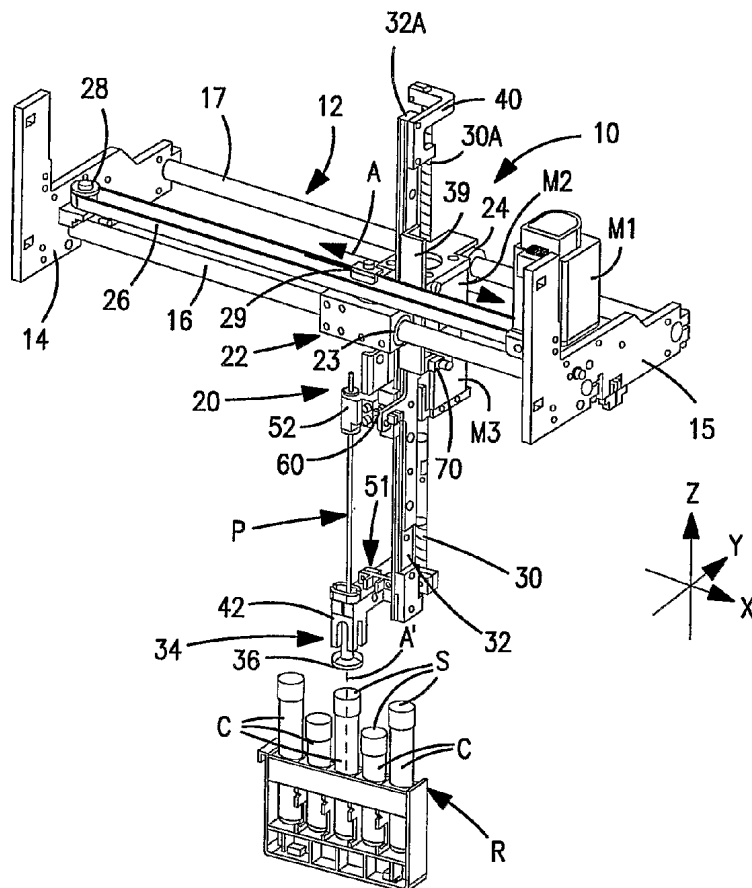
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, 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: APPARATUS FOR ASPIRATING LIQUIDS FROM SEALED CONTAINERS



(57) Abstract: Apparatus for aspirating liquid from a container (C), e.g., a test tube, having a puncturable stopper (S) includes a pair of stepper motors (M2, M3) that share a common linear actuate or drive member (30). One motor operates to axially advance the linear drive member (preferably a lead screw) to a position in which it serves to position a rigidly connected tube-detector/stripper member (36) in engagement with the top of a stopper on a tube. Thereafter, the second motor operates to move along the surface of the same drive member to advance an aspiration probe through the engaged stopper and into a liquid aspirating position within the tube. Preferably, a linear guide rail (32), slidably-mounted on frame (12) that supports the liquid-aspirating apparatus, serves to guide both the movement of the aspiration probe and the linear drive member. As a result of the shared components, the apparatus is highly precise and reliable.

WO 2006/101833 A3



---

(88) Date of publication of the international search report:

16 April 2009

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/09106

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: **B01L 3/02(2006.01);G01N 35/10(2006.01)**

USPC: 422/100,63,65;73/863.85,864.74,864.74,864.24

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. : 422/100, 63, 65; 73/863.85, 864.74, 864.74, 864.24

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)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,935,523 A (MCCANDELESS et al.) 10 August 1999, see entire document	1-4, 7-8, 10-11
A,E	US 2006/0088443 A1 (MATTILA et al.) 27 April 2006, entire document	1, 7, 10
A	US 6,350,412 B1 (WILLIAMS et al.) 26 February 2002, entire document	1, 7, 10
A	US 5,483,843 A (MILLER et al.) 16 January 1996, entire document	1, 7, 10
Y	US 5,900,557 A (TANIHATA et al.) 04 May 1999, entire document	1, 7, 10
Y	US 4,927,545 A (ROGINSKI) 22 May 1990, entire document	1, 7, 10

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

"E" earlier application or patent 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

04 March 2008 (04.03.2008)

Date of mailing of the international search report

21 MAR 2008

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. (571) 273-3201

Authorized officer

/Brian R. Gordon/

Telephone No. 571-273-8300

DEBORAH THOMAS  
PARALEGAL SPECIALIST

*DUT*