

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 April 2003 (03.04.2003)

PCT

(10) International Publication Number  
WO 03/026720 A3

(51) International Patent Classification<sup>7</sup>: A61M 5/00, 5/13

(21) International Application Number: PCT/US02/23049

(22) International Filing Date: 19 July 2002 (19.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/324,434 24 September 2001 (24.09.2001) US

(71) Applicant: **BECTON, DICKINSON AND COMPANY**  
[US/US]; 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

(72) Inventors: **LAU, Steven, Choon, Meng**; 1A Ontario Avenue #03-02, Singapore 576190 (SG). **CHUA, Chui, Khim**; 425 Choa Chu Kang Avenue 3, #09-154, Singapore 680425 (SG). **MOH, Yaohan**; 678 Chao Chu Kang Crescent #05-626, Singapore 680678 (SG).

(74) Agent: **VOELLMICKE, John, L.**; Becton, Dickinson and Company, 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, 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, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

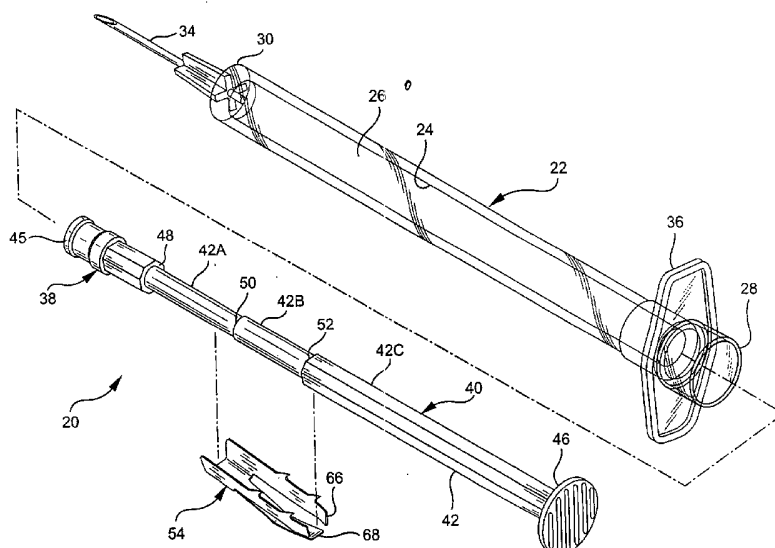
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:  
— with international search report

(88) Date of publication of the international search report:  
13 November 2003

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.

(54) Title: SINGLE USE SYRINGE AND PLUNGER ROD LOCKING DEVICE THEREFOR



(57) Abstract: A single use syringe assembly (20) is provided as well as a locking element (54) for such an assembly. The single use syringe (20) assembly includes a barrel (22), a plunger rod assembly (40) and a locking element (54) positioned within the barrel (22). The locking element (54) includes one or more barbs (70, 72) for engaging the inside surface of the barrel (22). The barbs (70, 72) prevent the locking element (54) from moving proximally within the barrel (22), but allow its distal movement therein with the plunger rod assembly (40). A spring member (68) may be provided for urging the barbs (70, 72) towards the inside surface (24) of the barrel (22). The barbs (70, 72) are preferably positioned on the edge portions of opposing legs (64, 66) that form part of the locking element (54).



WO 03/026720 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/23049

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A61M 5/00, 5/13

US CL : 604/110,220

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. : 604/110,220,311,187,218; 128/919; D24/130

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,973,310 A (KOSINSKI) 27 November 1990 (27.11.1990), columns 2-3, figures 8,9,11,12	1-8,12-15,20-23
Y	US 5,205,825 A (ALLISON et al) 27 April 1993 (27.04.1993), columns 2-4; Figure 1A	1-8,12-15,20-23
A	US 5,215,536 A, (LAMPROPOULOS et al) 01 June 1993 (01.06.1993),	
A	US 5,501,670 A (SAK) 26 March 1996 (26.03.1996)	

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

Date of the actual completion of the international search

24 March 2003 (24.03.2003)

Date of mailing of the international search report

05 JUN 2003

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Lina Kontos

Telephone No. (703) 306-4207



# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/23049

## 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.: 5 and 6  
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:  
Claim 5 was not supported in the specification
  
3.  Claim Nos.:  
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.