

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
7 December 2006 (07.12.2006)

PCT

(10) International Publication Number  
**WO 2006/130681 A3**

(51) International Patent Classification:  
A61M 5/44 (2006.01)

(21) International Application Number:  
PCT/US2006/021108

(22) International Filing Date: 31 May 2006 (31.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
11/141,230 31 May 2005 (31.05.2005) US

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

(88) Date of publication of the international search report:  
26 April 2007

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.



WO 2006/130681 A3

(54) Title: HEAT RETENTION DEVICES FOR SYRINGES AND USES THEREOF

(57) Abstract: The present invention relates to heat-retaining syringe jackets for reducing the cooling rate of medical fluids held inside syringes and methods of using such syringe jackets. An exemplary syringe jacket of the invention may include a material that experiences a phase transition at a phase transition temperature. Additionally or alternatively, the exemplary syringe jacket may include a material exhibiting a high specific heat.

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/021108A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61M5/44

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)  
A61M

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)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 98/22168 A (LIEBEL FLARSHEIM CO [US]) 28 May 1998 (1998-05-28) abstract figures 1,2,8 page 16, line 19 - page 26, line 8 page 41, line 18 - page 43, line 9 -----	1-10, 23-29
Y	WO 00/48646 A2 (UNIV FLORIDA [US] UNIV FLORIDA RES FOUNDATION [US]) 24 August 2000 (2000-08-24) abstract page 6, line 27 - page 9, line 3 -----	1-10, 23-29
A	EP 0 556 878 A2 (BECTON DICKINSON CO [US]) 25 August 1993 (1993-08-25) abstract ----- -/--	1,23

 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

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"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

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Date of the actual completion of the international search

23 October 2006

Date of mailing of the international search report

09.03.2007

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2006/021108

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 248 106 A (DENLEY INSTR LTD [GB]) 25 March 1992 (1992-03-25) abstract -----	1,23
A	DE 101 04 344 A1 (STRAUS FRANK-ULRICH [DE]) 14 August 2002 (2002-08-14) abstract -----	1,23
A	US 1 960 417 A (PAIN JR CHARLES E) 29 May 1934 (1934-05-29) the whole document -----	1,23

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2006/021108

## 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.: 17-22  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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.:

see annex

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: 1-10,23-29

A medical fluid injection assembly comprising a syringe and a syringe jacket having a cavity which contains a phase transition temperature material.

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2. claims: 11-16

A medical fluid injection assembly comprising a syringe and a syringe jacket having a material exhibiting a specific heat greater than 0.5 BTU/(lb-°F) and a flange, and an electronic, medical fluid injector.

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/021108

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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