(19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 17 February 2005 (17.02.2005)

PCT

(10) International Publication Number WO 2005/013808 A3

(51) International Patent Classification⁷: A61M 29/00

(21) International Application Number:

PCT/US2004/025682

(22) International Filing Date: 9 August 2004 (09.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/493,402

7 August 2003 (07.08.2003) US

(71) Applicant (for all designated States except US): ALVEO-LUS INC. [US/US]; 401 North Tryon Street, 10th Floor, Charlotte, NC 28202 (US).

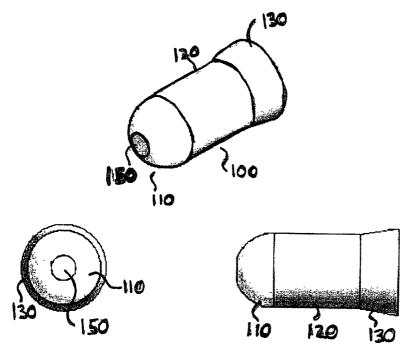
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): REYNOLDS, Jason, M. [US/US]; 148 Ivey Drive, Charlotte, NC 28205 (US). ALEXANDER, Tony, D. [US/US]; 140 Deep Gap Court, Charlotte, NC 28217 (US). YOU, Ji Hwan

[US/US]; 1010 Yorkmont Ridge Lane #628, Charlotte, NC 28217 (US).

- (74) Agent: ALSTON & BIRD LLP; Jason P. Cooper, Bank of America Plaza, 101 South Tryon Street, Suite 4000, Charlotte, NC 28280-4000 (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, 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,

[Continued on next page]

(54) Title: THERAPEUTIC MEDICAL APPLIANCE, DELIVERY AND METHOD OF USE



present invention, in an exemplary embodiment, provides a therapeutic medical appliance, delivery device and method of use. particular, plug therapeutic medical appliances are provided that allow for the interventional treatment of pulmonary disorders such as defects characterized by pulmonary blebs and/or diffused destructive The plug parenchymal disease. therapeutic medical appliances themselves combine many of the excellent characteristics of both silicone and metal therapeutic medical appliances while eliminating the undesirable ones. In particular, these therapeutic medical appliances are preferably self-expanding in nature and allow the predetermined differential selection of relative hardness/softness of regions of the therapeutic medical appliance to provide additional patient comfort.

An exemplary embodiment also provides a family of delivery devices that facilitate flexibility, durability and/or proper installation of one or more medical appliances in a single procedure. Moreover, the preferred embodiment of the delivery device provides for the reloading of the delivery device with additional medical appliances for additional inferventional procedures.



WO 2005/013808 A3



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations 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, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, 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, HU, IE,

- IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- of inventorship (Rule 4.17(iv)) for US only

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: 18 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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/25682

A. CLASSIFICATION OF SUBJECT MATTER IPC(7): A61M 29/00 US CL: 606/108, 623/1.12 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.: 606/108, 623/1.12	
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 a	ppropriate, of the relevant passages Relevant to claim No. LINE 66 TO COL. 5. LINE 65. 1-32, 61-83
X US 6,599,314 A (MATHIS) 29 JULY 2003, COL. 4	
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 "B" earlier application or patent published on or after the international filing date	"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
"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)	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
"O" document referring to an oral disclosure, use, exhibition or other means	to a person skilled in the art
"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	Date of mailing of the international search report 06 JUL 2005
10 June 2005 (10.06.2005) Name and mailing address of the ISA/US	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Michael Thaler Telephone No. (703) 308-0858