

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 November 2004 (04.11.2004)

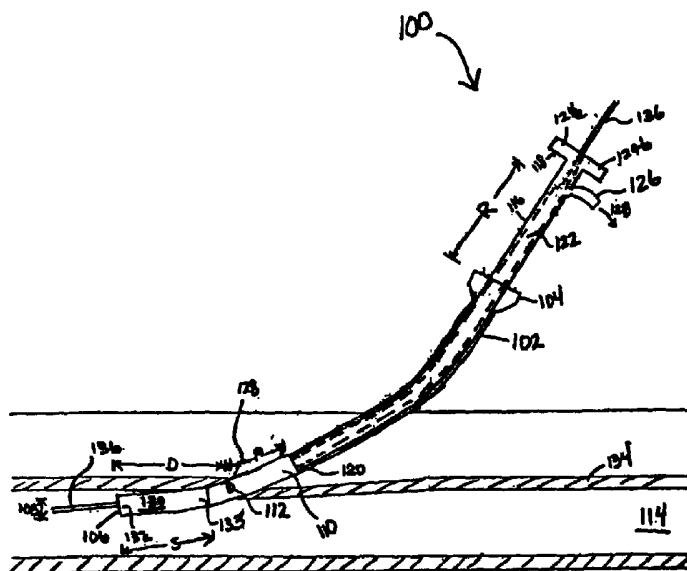
PCT

(10) International Publication Number
WO 2004/093649 A3

- (51) International Patent Classification⁷: **A61B 17/08**
- (21) International Application Number:
PCT/US2004/012065
- (22) International Filing Date: 19 April 2004 (19.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10/421,680 22 April 2003 (22.04.2003) US
- (71) Applicant (for all designated States except US): **SUB-Q, INC.** [US/US]; 1062-D Calle Negocio, San Clemente, CA 92673 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **ASHBY, Mark** [US/US]; 23962 Frigate Drive, Laguna Niguel, CA 92677 (US). **SING, Eduardo, Chi** [US/US]; 5 Terraze Del Mar, Dana Point, CA 92629 (US).
- (74) Agents: **KREBS, Robert, E.** et al.; Thelen Reid & Priest LLP, P.O. Box 640640, San Jose, CA 95164-0640 (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, 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, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: PUNCTURE CLOSURE SYSTEME WITH PIN AND PULL TECHNIQUE



(57) Abstract: The present invention provides for a method and apparatus (100) to facilitate hemostasis at a blood vessel puncture site having a cannula (102) with a distal end (106), a proximal end (104), an inner diameter, and a lumen (110) extending between said distal end (106) and said proximal end (104); a bleed back port (112) located near the distal end (106); a pusher (116) having a top (118), a bottom (120), and a lumen (122) extending between the top (118) and bottom (120), the bottom (120) is slidably received into the cannula lumen (102); a bleed back exit port (126) located near the top (118); and a pledget (130) having a first end (132) and a second end (133), the first end (132) positioned at the distal end (106) within the cannula lumen (102), and the second end (133) positioned below the bleed back port (112).



WO 2004/093649 A3



Published:

— with international search report

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

17 March 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/US04/12065

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : A61B 17/08 US CL : 606/213 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. : 606/213-215; 604/21, 48, 93.01, 164.02, 164.11, 500, 506-508, 522 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.
A	US 5,507,279 A (Fortune et al.) 16 April 1996 (16.04.1996), figures 1 and 9-12.	1-81
A	US 5,830,130 A (Janzen et al.) 03 November 1998 (03.11.1998), figures 16-23.	1-81
&	US 6,071,300 A (Brenneman et al.) 06 June 2000 (06.06.2000), figure 1.	1-81
A	US 6,197,042 B1 (Ginn et al.) 06 March 2001 (06.03.2001), abstract, figure 5E.	1-81
&	US 2001/0056254 A1 (Cragg et al.) 27 December 2001 (27.12.2001), figures 6 and 27.	1-81
A	US 2002/0072767 A1 (Zhu) 13 June 2002 (13.06.2002), figure 1.	1-81
A	WO 91/12847 A1 (Simpson et al.) 05 September 1991 (05.09.1991), figures 1 and 2.	1-81
A	WO 96/24290 A1 (Hannam et al.) 15 August 1996 (15.08.1996), abstract.	1-81
A	EP 0 399 769 A1 (Fischer) 28 November 1990 (28.11.1990), abstract, figure 6.	1-81
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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 10 November 2004 (10.11.2004)		Date of mailing of the international search report 29 NOV 2004
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. (703) 305-3230		Authorized officer Larry Schwartz <i>L. Hurley</i> Telephone No. 703-306-0858

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/12065

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 032 826 A2 (Bonchek et al.) 29 July 1981 (29.07.1981), figure 1.	1-81