

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 August 2007 (09.08.2007)

PCT

(10) International Publication Number
WO 2007/089948 A3

(51) International Patent Classification:
A61M 5/178 (2006.01)

(21) International Application Number:
PCT/US2007/003207

(22) International Filing Date: 1 February 2007 (01.02.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/764,020 1 February 2006 (01.02.2006) US
11/650,398 5 January 2007 (05.01.2007) US

(71) Applicant (for all designated States except US): **SPINAL RESTORATION, INC.** [US/US]; 4030 W. Braker Lane, Suite 360, Austin, Texas 78759 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RICHARDS, Mark** [US/US]; 1133 Pine Portage Loop, Leander, Texas 78641 (US). **BURKINSHAW, Brian, D.** [US/US]; 1014 Pecan

Creek Drive, Pflugerville, Texas 78660 (US). **PAUZA, Kevin** [US/US]; 6506 Hollytree Circle, Tyler, Texas 75703 (US). **ROGAN, James, B.** [US/US]; 10703 Winchelsea Drive, Austin, Texas 78750 (US). **WHEELER, John, L.** [US/US]; 404 Rio Grande, #110, Austin, Texas 78701 (US).

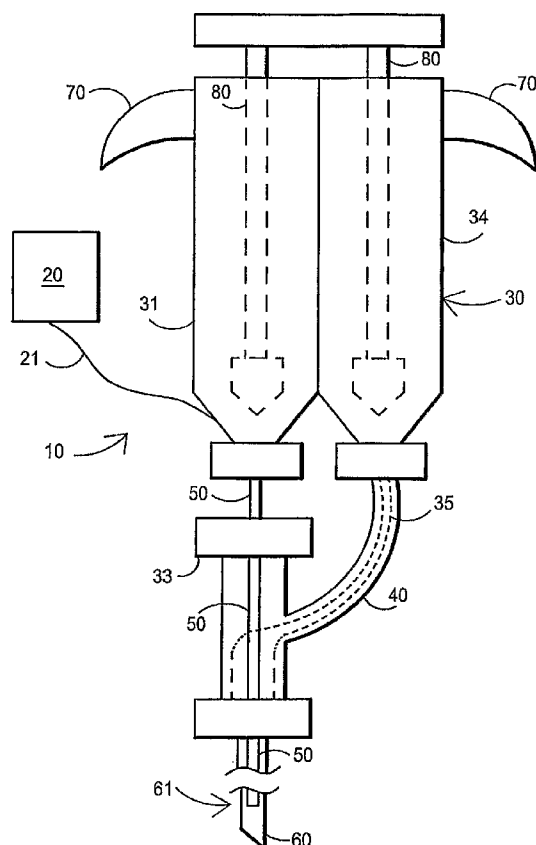
(74) Agent: **O'KEEFE, Robert, M.**; 1101 S. Capital of Texas Highway, Building C, Suite 200, Austin, Texas 78746 (US).

(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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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,

[Continued on next page]

(54) Title: IMPROVED APPARATUS AND METHOD FOR INJECTION OF FIBRIN SEALANT IN SPINAL APPLICATIONS



(57) Abstract: An apparatus for percutaneous delivery of a sealant comprising: at least two fluid reservoirs, an introducer needle having a distal tip that is in fluid communication with at least one reservoir, a fluid delivery tube that is in fluid communication with a second reservoir, wherein the fluid delivery tube has a tip and wherein the fluid delivery tube is configured so that the tip of the fluid delivery tube does not extend past the distal tip of the introducer needle during use.

WO 2007/089948 A3



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:
17 January 2008

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/US 07/03207

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61M 5/178 (2007.01)

USPC - 604/185, 604/181

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)

USPC: 604/185, 604/181

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: All classes (text search--see keywords)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB, USPT, EPAB, JPAB), Google Scholar, Google Patents

Keywords: Inject, deliver, spine, disc, fibrin, sealant, needle, gauge, concentric, tube, catheter, cannula, cartridge, pressure monitor, polymer, polyvinyl, polyethylene, fill

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,132,396 A (ANTANAVICH et al.) 17 October 2000 (17.10.2000) col 5, ln 41-57; col 7, ln 45-65; col 8, ln 41-57; Fig 2, 3b, 3c, 5	9, 14, 19-23, 27-42, 53, 81, 86
Y	US 6,007,515 A (EPSTEIN et al.) 28 December 1999 (28.12.1999) col 6, ln 26-35; col 6, ln 44-52; col 6, ln 59 to col 7, ln 18; col 10, ln 30-32; col 10, ln 38-42; col 18, ln 6-9; Fig 3, 4, 16	15, 19-23, 27, 87
Y	US 4,979,942 A (WOLF et al.) 25 December 1990 (25.12.1990) col 3, ln 15-21; col 4, ln 15-44 col 3, ln 15-21; col 4, ln 15-44; Fig 4	1-91
Y	US 6,620,125 B1 (REDL) 16 September 2003 (16.09.2003) col 5, ln 23-32; Fig 5	16, 17, 40, 41, 88
Y	US 2005/0152889 A1 (AUSTIN et al.) 14 July 2005 (14.07.2005) para [0008], [0012]-[0014], [0016], [0017], [0022], [0025], [0027], [0030]	1-91
Y	US 2005/0070913 A1 (MILBOCKER et al.) 31 March 2005 (31.03.2005) para [0075], [0085], [0086], [0148], [0151], [0153], [0255]	19-23, 25-27, 44, 48, 59-72, 90

☐ Further documents are listed in the continuation of Box C.

* 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 but 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

05 October 2007 (05.10.2007)

Date of mailing of the international search report

13 NOV 2007

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:

Lee W. Young

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774