

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 September 2000 (14.09.2000)

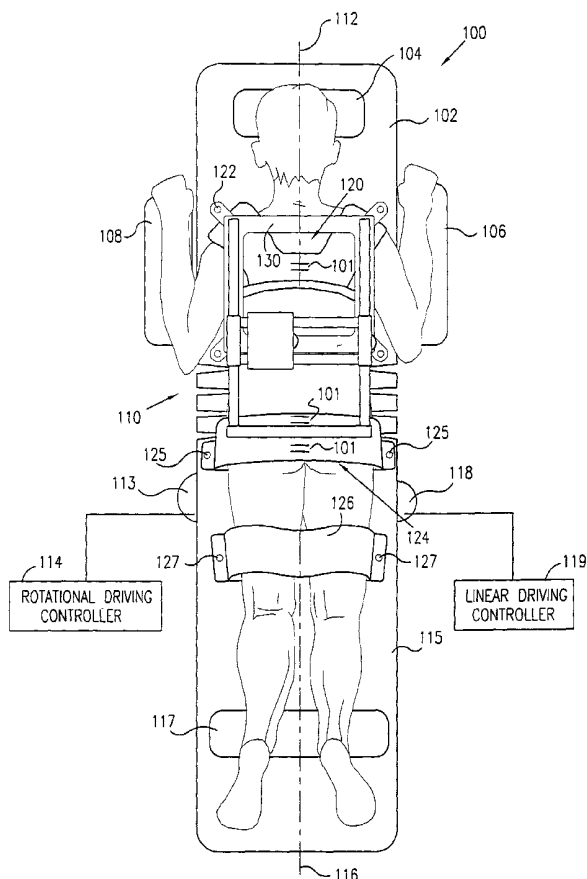
PCT

(10) International Publication Number
WO 00/053077 A3

- (51) International Patent Classification⁷: **A61B 6/02**, 17/14, 17/56, G06F 159/00, A61F 2/44
- (72) Inventor; and
(75) Inventor/Applicant (for US only): **STEINBERG, Ami-ram** [IL/IL]; Lochamei Galipoli Street 11, 42910 Moshav Avichail (IL).
- (21) International Application Number: PCT/IL00/00137
- (74) Agents: **COLB, Sanford, T.** et al.; Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot (IL).
- (22) International Filing Date: 7 March 2000 (07.03.2000)
- (25) Filing Language: English
- (81) Designated States (national): AE, AL, AM, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ (utility model), DE (utility model), DK (utility model), DM, EE (utility model), ES, FI (utility model), 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (26) Publication Language: English
- (30) Priority Data:
128861 7 March 1999 (07.03.1999) IL
128981 14 March 1999 (14.03.1999) IL
- (71) Applicant (for all designated States except US): **DISCURE LTD.** [IL/IL]; Lochamei Galipoli Street 11, 42910 Moshav Avichail (IL).
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR COMPUTERIZED SURGERY



(57) Abstract: An implant (2480) for use in spinal surgery comprises a resilient element having an inflatable cavity. It is formed of a biologically compatible material and is arranged for placement between end plates of adjacent vertebra. The implant (2480) may also include a wound disc replacement element (2490). A method of performing spinal surgery on a patient comprises securely mounting a patient onto a patient support table (100); imaging a spinal region of the patient; building up a three-dimensional image file of the spinal region of the patient; storing the image file; and utilizing the image file for planning and carrying out computer controlled spinal surgery on the patient utilizing the implant. A computer controlled surgical implant system (160) comprises a steerable endosurgical implanting assembly (170) operative to install the implant at a desired location in a patient; and a computerized controller (180), which operates the steerable endosurgical implanting assembly (170).

WO 00/053077 A3



(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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

6 September 2002

Published:

— with international search report

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/IL00/00137

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 6/02, 17/14, 17/56; G06F 159/00; A61F 2/44

US CL : 623/17.12; 128/898; 382/128; 378/42; 606/61,180

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. : 623/17.12; 128/898; 382/128; 378/42

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.
X --- Y	US 5,571,189 A (KUSLICH) 05 NOVEMBER 1996, ENTIRE DOCUMENT	1-3 ----- 4
A	US 4,904,260 A (RAY ET AL) 27 FEBRUARY 1990, ENTIRE PUBLICATION	1-129
Y,E	US 6,069,932 A (PESHKIN ET AL) 30 MAY 2000, ENTIRE PUBLICATION	129-135,331-317
A	US 5,748,767 A (RAAB) 05 MAY 1998, ENTIRE PUBLICATION	1-513

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

23 JANUARY 2001

Date of mailing of the international search report

05 JUN 2002

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

DAVID J ISABELLA

Telephone No. (703) 308-3060

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL00/00137

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,171,280 A (BAUMGARTNER) 15 DECEMBER 1992, ENTIRE DOCUMENT	6,7 ----- 14,15,53,54 ,101- 112,22 1- 223,241,442,453,4 54,512,513
Y,E	US 6,080,155 A (MICHELSON) 27 JUNE 2000, ENTIRE DOCUMENT	204-209,30 8,309,444,450,451 ,474
A	US 5,968,062 A (THOMAS ET AL) 19 OCTOBER 1999, SEE ENTIRE DOCUMENT	434