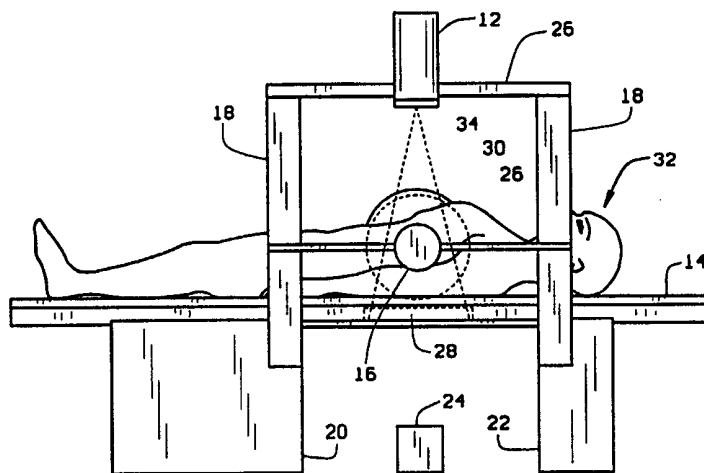




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<p>(21) International Application Number: PCT/US98/23983</p> <p>(22) International Filing Date: 10 November 1998 (10.11.98)</p> <p>(30) Priority Data: 60/065,105 12 November 1997 (12.11.97) US</p> <p>(71) Applicant: STEREOTAXIS, INC. [US/US]; 4041 Forest Park Avenue, St. Louis, MO 63108 (US).</p> <p>(72) Inventors: CREIGHTON, Francis, M.; 5631 Pershing Avenue #12, St. Louis, MO 63112 (US). WERP, Peter, R.; 4400 Lindell Boulevard #23B, St. Louis, MO 63108 (US). RITTER, Rogers, C.; 117 Chestnut Ridge Road, Charlottesville, VA 22911 (US).</p> <p>(74) Agent: WHEELLOCK, Bryan, K.; Howell & Haferkamp, L.C., Suite 1400, 7733 Forsyth Boulevard, St. Louis, MO 63105 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (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).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 12 August 1999 (12.08.99)</p>	

(54) Title: ARTICULATED MAGNETIC GUIDANCE SYSTEMS AND DEVICES AND METHODS FOR MAGNETICALLY-ASSISTED SURGERY



(57) Abstract

An articulated magnet assembly optionally includes one or two additional fixed magnets (18) to guide or move such as by pulling or pushing a magnetic structure in the body. The magnetic structure may be a magnetic tip of a catheter or a magnetic seed, or other such magnetic assembly, implant or device. The device is arranged to facilitate biplanar, real-time, X-ray imaging of the patient. The moved magnet can be a large, strong permanent magnet or a cored solenoid. The added, fixed electromagnets may have either normally conducting or superconducting coils. Magnetically assisted surgery can be performed, in some instances, by pivoting the magnet on one or two axes without withdrawing it from the vicinity of the patient to control the direction and/or orientation of a temporarily or permanently implanted magnetic surgical device.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/23983

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61B 05/00
US CL : 600/407

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. : 128/899; 600/407, 424, 431, 585; 606/130

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	US 5,353,807 A (DeMARCO) 11 October 1994, Abstract, Figs. 1-3, 5 and 7, col. 4, lines 2-17, col. 7, lines 38-50, col. 8, lines 37-51, col. 9, lines 38-67, col. 11, lines 54-60, and col. 14, lines 9-50.	1-3, 5, 6, 9, 10, 13, 15, 16, 21, 22-25
X	US 5,681,260 A (UEDA et al.) 28 October 1997, Abstract, Figs. 1, 4-6, 10, 32, 35, 40, 69-71, col. 7, lines 30-44, col. 9, lines 15-60, and claims 1-20.	1-30
A	US 4,809,713 A (GRAYZEL) 07 March 1989, Abstract, Fig. 1, and claim 1.	1-30
A	US 4,244,362 A (ANDERSON) 13 January 1981, Abstract, Figs. 2, 5-8, 10, and claim 1.	1-30

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

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/23983

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,758,667 A (SLETTENMARK) 02 June 1998, Abstract, Figs. 2 and 6-9, and claims 1-14.	1-30