



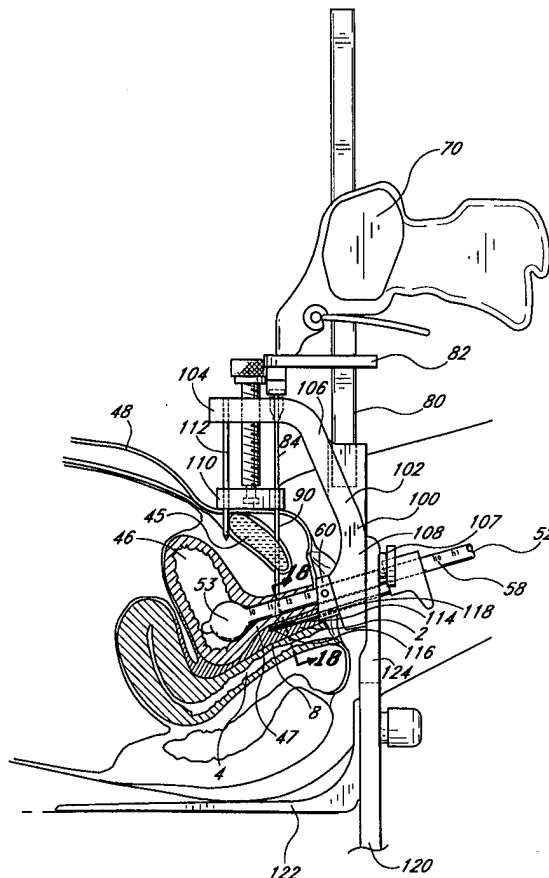
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US98/03069 (22) International Filing Date: 13 February 1998 (13.02.98) (30) Priority Data: 60/038,380 13 February 1997 (13.02.97) US (71) Applicant (for all designated States except US): BOSTON SCIENTIFIC IRELAND LIMITED, BARBADOS HEAD OFFICE [IE/BB]; The Corporate Center, Bush Hill, Bay Street, St. Michael, Barbados, W.I. (BB). (72) Inventors; and (75) Inventors/Applicants (for US only): GELLMAN, Barry, N. [US/US]; 19 Pebble Brook Road, North Easton, MA 02356 (US). SAUVAGEAU, David [US/US]; 147 Old Ferry Road, Methuen, MA 01884 (US). BRENNEMAN, Rodney [US/US]; 34002 Las Palmas Del Mar, San Juan Capistrano, CA 92675 (US). MORIN, Armand, A. [US/US]; 24 Locust Street, Berkeley, MA 02779 (US). PINTAURO, William [US/US]; Apartment 19055, 3400 Galt Ocean Drive, Ft. Lauderdale, FL 33308 (US). APPELL, Rodney [US/US]; 3157 Kingsley Road, Shaker Heights, OH 44122 (US).		(74) Agent: ALTMAN, Daniel, E.; Knobbe, Martens, Olson and Bear, LLP, 16th floor, 620 Newport Center Drive, Newport Beach, CA 92660 (US). (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, GW, 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, US, 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, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 10 December 1998 (10.12.98)

(54) Title: METHOD AND APPARATUS FOR MINIMALLY INVASIVE PELVIC SURGERY

(57) Abstract

The invention provides a driver (70) and methods for advancing needles, cannulas (90), and other medical devices through the pubic bone (45). The driver (70) may be used in connection with a driver frame assembly (100) for proper positioning and stabilization of the driver (70), and with other devices for creating a cavity in the urethral floor and for positioning medical devices therein. The invention also provides simple connections (126) for attaching a suture (88) to a device within the cavity in the urethral floor or in the vagina (4), and also for attaching sutures (88) to the pubic bone (45).



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/03069

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A61B 17/04

US CL :128/898; 600/29, 30, 222; 606/72, 139, 190, 198

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. : 128/898; 600/29, 30, 222; 606/72, 139, 190, 198

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 5,569,300 A (REDMON) 29 October 1996, col. 4 lines 7-62.	1
X	SU 610,512 A ((LENSKII) 15 June 1978, Abstract.	1
A	US 5,562,679 A (VALTCHEV) 08 October 1996, col. 1 lines 35-66, and col. 2 lines 1-4.	22-38
A	US A 3,580,313 A (McKNIGHT) 25 May 1971, entire document.	22-38

☐ 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)	*Z* 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

13 JULY 1998

Date of mailing of the international search report

13 AUG 1998

Name and mailing address of the ISA/US
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/03069

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
1-3, 22-38
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-3, drawn to a dilator.

Group II, claims 4-9, drawn to a method of creating a cavity in tissue.

Group III, claims 10-13, drawn to a system for inserting a device into tissue (card), and a method for advancing a card into tissue.

Group IV, claims 14-19 and 20, drawn to an incision guide for creating a cavity, and a method of creating a cavity in a vaginal hiatus.

Group V, claim 21, drawn to a method of advancing a sling, into a cavity into a tissue cavity.

Group VI, claims 22-38, drawn to a driver for driving a guide into a pubic bone, and method of using the same.

Group VII, claims 39 and 40, drawn to a method of pelvic surgery.

Group VIII, claim 41, drawn to a method of stabilizing a urethral sling to a pubic bone.

Group IX, claims 42 and 43, drawn to a driver frame assembly.

Group X, claim 44, drawn to a system for attaching a urethral sling to a suture.

Group XI, claim 45, drawn to a bone eyelet.

Group XII, claim 46, drawn to a quick connect bone suture fastener.

Groups II-XII, the inventions listed as these groups do not relate to a single inventive concept under PCT Rule 13.1 because under PCT Rule 13.2 they lack the same, or corresponding special technical features.