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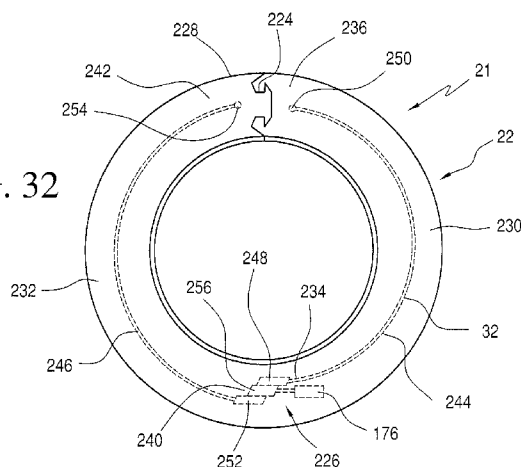
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[Continued on next page]

(54) Title: A SYMMETRICAL DRIVE SYSTEM FOR AN IMPLANTABLE RESTRICTION DEVICE

FIG. 32



(57) Abstract: An apparatus for regulating the functioning of a patient's organ or duct includes an elongated member having a first end and a second end. A fastener is disposed on the first end of the elongated member. The fastener is configured to engage the second end of the elongated member so that the elongated member forms a loop around the organ or duct. A tension element is disposed for movement within the elongated member. A symmetrical drive system including a drive element associated with and engaging the tension element for causing the tension element to control the tension applied by the elongated member against a patient's body organ or duct is further provided. In accordance with an alternate embodiment an apparatus for regulating the functioning of a patient's organ or duct including an elongated member having a first end and a second end. A fastener is disposed on the first end of the elongated member. The fastener is configured to engage the second end of the elongated member so that the elongated member forms a loop around the organ or duct. A tension element is disposed for movement within the elongated member. The tension element is composed of a flexible first member and a flexible second member, wherein the flexible first member is movable relative to the flexible second member. A drive element is associated with and engages the tension element for causing the tension element to control the tension applied by the elongated member against a patient's body organ or duct.



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, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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**Declarations under Rule 4.17:**

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2010/049094

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61F5/00 A61F2/00  
ADD.

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)  
A61F

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 practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/143765 A1 (BACHMANN MICHEL [CH] ET AL) 30 June 2005 (2005-06-30)	7,11,12
Y	the whole document	2-6,17
A	-----	1
X	US 6 470 892 B1 (FORSELL PETER [CH]) 29 October 2002 (2002-10-29)	1,7, 14-16, 18,19
Y	column 14, line 10 - column 15, line 9; figures 1-6,9-27 column 15, line 27 - column 17, line 12	2-6,17
A	----- EP 0 592 346 A1 (FARRER VELAZQUEZ FRANCISCO [ES]) 13 April 1994 (1994-04-13) abstract; figures 1-2,4-5 ----- -/-	1



Further documents are listed in the continuation of Box C.



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 document 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

8 April 2011

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19/04/2011

Name and mailing address of the ISA/

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2010/049094

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 518 504 A (POLYAK MARK [US]) 21 May 1996 (1996-05-21) figures 1-3 -----	1-5
A	US 2007/265646 A1 (MCCOY JAY R [US] ET AL) 15 November 2007 (2007-11-15) paragraphs [0141] - [0142], [0150]; figures 5-7,19-20 -----	7-13
X,P	WO 2009/120764 A2 (ELLIPSE TECHNOLOGIES INC [US]; SHAOLIAN SAMUEL M [US]; POOL SCOTT L [U] 1 October 2009 (2009-10-01) paragraphs [0063] - [0069], [0076], [0094]; figures 7-9,13A-B,24 -----	1-12

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2010/049094

### Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional 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 fees, this Authority did not invite payment of additional fees.
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.:
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 and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6

An apparatus for regulating the functioning of a patient's organ or duct, comprising an elongated member adapted to form a loop around the organ or duct, a tension element disposed for movement within the elongated member, and a symmetrical drive system for causing the tension element to control the tension applied by the elongated member;

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2. claims: 7-20

An apparatus for regulating the functioning of a patient's organ or duct, comprising an elongated member adapted to form a loop around the organ or duct, a tension element disposed for movement within the elongated member, said tension element being composed of a flexible first member and a flexible second member, and a drive element for causing the tension element to control the tension applied by the elongated member.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/049094

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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