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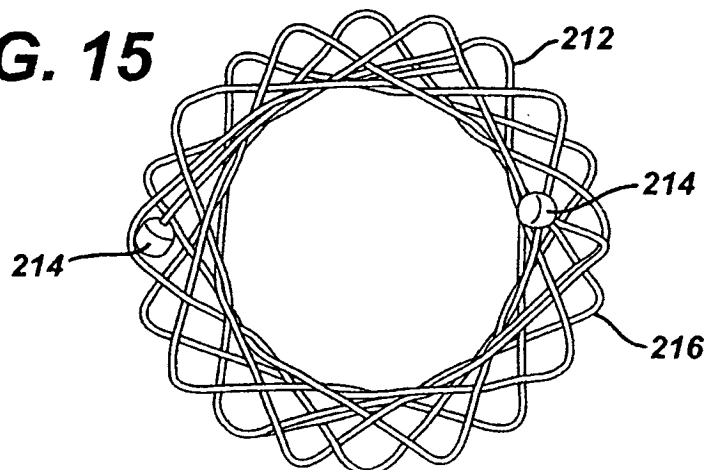
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(54) **Anastomosis wire ring device**

(57) An anastomotic ring device (12,212,312, 412,512,712,812) for forming a hollow rivet (ring) attachment between tissue lumens facilitates laparoscopic or endoscopic implantation by including features that facilitate actuation from a stressed, generally cylindrical shape. Economical manufacture is achieved by weaving open ended strands into a generally cylindrical stent shape that is imparted with a Shape Memory Effect (SME) to actuate to a hollow rivet (ring) shape. Alterna-

tively or in addition to SME inherent in the woven strands, an actuating force may be received from a helical spring element (530) incorporated into the ring. Self-actuating ring devices are enhanced by forming woven strands into petals that diverge from opposing petals such that the strands encounter less friction when actuating. Each of these features alone or in combination enhance clinical use of anastomotic ring devices, such as a bariatric gastric bypass procedure.

FIG. 15





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 6019

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* the whole document *	2,5-9	
Y	US 6 007 544 A (KIM DUCKS00) 28 December 1999 (1999-12-28)	1,3,4	
A	* abstract * * column 27, lines 20-50; figures 37A-37C *	2,5-10	
Y	US 5 720 776 A (CHUTER ET AL) 24 February 1998 (1998-02-24)	10	
A	* figures 5B,21,53,54,57 *		
A	US 6 537 299 B1 (HOGENDIJK MICHAEL ET AL) 25 March 2003 (2003-03-25)	5-9	TECHNICAL FIELDS SEARCHED (IPC) A61B
	* column 17, line 33 - column 18, line 8; figures 10A-11 *		
A	US 2002/142119 A1 (SEWARD KIRK P ET AL) 3 October 2002 (2002-10-03)	5-9	
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A	US 5 725 552 A (AMPLATZ CURTIS ET AL) 10 March 1998 (1998-03-10)	1-10	
	* abstract; figures 9A,9B * * column 2, line 49 - column 3, line 24 * * column 4, line 30 - column 6, line 34 * * column 12, line 47 - column 13, line 3 * * column 14, line 60 - column 16, line 20 *		
A	US 2003/120292 A1 (PARK ADRIAN EDWARD ET AL) 26 June 2003 (2003-06-26)	1-10	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 June 2006	Examiner Lager, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2
EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4

An anastomotic device where each of the at least one wire strand includes unattached ends.

2. claims: 5-9

An anastomotic device where a helical spring coupled to the woven tube for imparting an actuating force thereto to urge the woven tube from the unactuated to the actuated position is provided.

3. claim: 10

An anastomotic device where an underlying portion of each petal presenting a monotonic slope to an overlying portion of an adjacent petal for mitigating resistance to actuation.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 25 6019

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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30-06-2006

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专利名称(译)	吻合线环装置		
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优先权	10/674371 2003-09-30 US		
其他公开文献	EP1520528B1 EP1520528A2		
外部链接	Espacenet		

摘要(译)

用于在组织管腔之间形成空心铆钉(环)连接的吻合环装置(12,212,312,412,512,712,812)通过包括便于从受应力的大致圆柱形状致动的特征而有利于腹腔镜或内窥镜植入。经济的制造商是通过将开口的股线编织成大致圆柱形的支架形状来实现的,该支架形状被赋予形状记忆效应(SME)以致动到空心铆钉(环)形状。作为编织股线中固有的SME的替代或补充,可以从结合到环中的螺旋弹簧元件(530)接收致动力。通过将编织股线形成为从相对的花瓣分叉的花瓣中来增强自动环装置,使得股线在致动时遇到较小的摩擦。这些特征中的每一个单独或组合增强了吻合环装置的临床使用,例如减肥胃旁路手术。

