



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
05.09.2012 Bulletin 2012/36

(51) Int Cl.:
A61B 17/072 (2006.01) **A61B 17/00** (2006.01)
A61B 17/32 (2006.01) **A61B 19/00** (2006.01)

(43) Date of publication A2:
21.03.2012 Bulletin 2012/12

(21) Application number: **11191999.9**

(22) Date of filing: **10.05.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

(30) Priority: **29.09.2006 US 540735**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
07794715.8 / 2 083 711

(71) Applicant: **Ethicon Endo-Surgery, Inc.**
Cincinnati, OH 45242 (US)

(72) Inventors:
• **Shelton, Frederick, E. IV**
New Vienna, OH Ohio 45159 (US)
• **Morgan, Jerome, R.**
Cincinnati, OH Ohio 45236 (US)

- **Murray, Michael, A.**
Bellevue, KY Kentucky 41073 (US)
- **Timm, Richard, W.**
Cincinnati, OH Ohio 45208 (US)
- **Spivey, James, T.**
Loveland, OH Ohio 45140 (US)
- **Voegelé, James, W.**
Cincinnati, OH Ohio 45249 (US)
- **Fugikawa, Leslie, M.**
Cincinnati, OH Ohio 45218 (US)
- **Timperman, Eugene, L.**
Cincinnati, OH Ohio 45240 (US)

(74) Representative: **Carpmaels & Ransford**
One Southampton Row
London
WC1B 5HA (GB)

(54) **Surgical stapling instruments having flexible channel and anvil features for adjustable staple heights**

(57) A surgical instrument for being endoscopically or laparoscopically inserted into a surgical site for simultaneous stapling and severing of tissue includes force adjusted spacing between an upper jaw (anvil) and a lower jaw (staple cartridge engaged to an elongate staple channel) so that the height of staple formation corresponds to the thickness of the tissue, yet does not exceed the height range that may be accommodated by the length of the staples (83). In particular, resilient structures (350,412) may be formed into one or more of the elongate channel that supports the staple cartridge, the anvil that is pivotally attached to the elongate channel, and/or a firing member that includes a cutting surface (knife) that severs tissue between a top pin that engages the anvil and a lower foot that engage the elongate channel. The resilience responds to the force exerted by clamped tissue to vary the spacing between the anvil and the staple cartridge supported within the elongate channel.

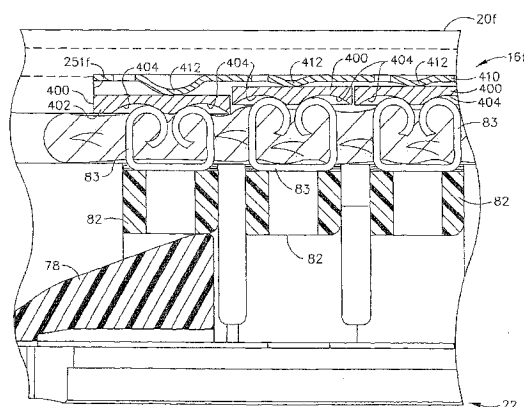


FIG. 27



EUROPEAN SEARCH REPORT

Application Number
EP 11 19 1999

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 479 347 A (ETHICON ENDO SURGERY INC [US]) 24 November 2004 (2004-11-24) * the whole document *	1-6	INV. A61B17/072
A	US 4 415 112 A (GREEN DAVID T [US]) 15 November 1983 (1983-11-15) * abstract; figures 2-4 * * column 2, lines 62-67 * * column 4, line 29 - column 5, line 10 * * column 6, lines 17-52 *	1-6	ADD. A61B17/00 A61B17/32 A61B19/00
A	EP 0 878 169 A (ETHICON ENDO SURGERY INC [US]) 18 November 1998 (1998-11-18) * figures 3-6 * * column 3, lines 36-40 * * column 3, line 53 - column 4, line 19 *	1-6	
A	US 4 475 679 A (FLEURY JR GEORGE J [US]) 9 October 1984 (1984-10-09) * abstract; figures 9A-C * * column 1, line 66 - column 2, line 38 *	1-6	TECHNICAL FIELDS SEARCHED (IPC)
A	US 5 219 111 A (BILOTTI FEDERICO [US] ET AL) 15 June 1993 (1993-06-15) * abstract; figures 4,6 * * column 4, line 52 - column 5, line 8 * * column 5, line 48 - column 6, line 31 *	1-6	A61B
A	US 2004/002726 A1 (NUNEZ GEORGE [US] ET AL) 1 January 2004 (2004-01-01) * abstract; figures 4,5 * * paragraphs [0022] - [0026] *	1-6	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 July 2012	Examiner Dennler, Samuel
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	

 3
EPO FORM 1503 03.82 (P04C01)

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

EP 11 19 1999

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1479347 A	24-11-2004	AT 449570 T	15-12-2009
		AU 2004202166 A1	09-12-2004
		AU 2010241284 A1	25-11-2010
		CA 2468130 A1	20-11-2004
		EP 1479347 A1	24-11-2004
		ES 2334914 T3	17-03-2010
		JP 4703978 B2	15-06-2011
		JP 2004344661 A	09-12-2004
		MX PA04004888 A	11-04-2005
		US 2004232199 A1	25-11-2004
US 4415112 A	15-11-1983	AU 546705 B2	12-09-1985
		AU 8514482 A	05-05-1983
		US 4415112 A	15-11-1983
EP 0878169 A	18-11-1998	AU 729567 B2	01-02-2001
		AU 6486998 A	19-11-1998
		CA 2237423 A1	14-11-1998
		EP 0878169 A1	18-11-1998
		JP 11070124 A	16-03-1999
		US H2037 H1	02-07-2002
US 4475679 A	09-10-1984	NONE	
US 5219111 A	15-06-1993	NONE	
US 2004002726 A1	01-01-2004	AU 2003232007 A1	19-01-2004
		CA 2457566 A1	08-01-2004
		EP 1517641 A1	30-03-2005
		JP 4441402 B2	31-03-2010
		JP 2005531360 A	20-10-2005
		US 2004002726 A1	01-01-2004
		WO 2004002327 A1	08-01-2004

专利名称(译)	具有柔性通道和铁砧特征的外科缝合器械具有可调节的钉高度		
公开(公告)号	EP2430987A3	公开(公告)日	2012-09-05
申请号	EP2011191999	申请日	2007-05-10
[标]申请(专利权)人(译)	伊西康内外科公司		
申请(专利权)人(译)	爱惜康内镜手术，INC.		
当前申请(专利权)人(译)	爱惜康内镜手术，INC.		
[标]发明人	SHELTON FREDERICK E IV MORGAN JEROME R MURRAY MICHAEL A TIMM RICHARD W SPIVEY JAMES T VOEGELE JAMES W FUGIKAWA LESLIE M TIMPERMAN EUGENE L		
发明人	SHELTON, FREDERICK, E. IV MORGAN, JEROME, R. MURRAY, MICHAEL, A. TIMM, RICHARD, W. SPIVEY, JAMES, T. VOEGELE, JAMES, W. FUGIKAWA, LESLIE, M. TIMPERMAN, EUGENE, L.		
IPC分类号	A61B17/072 A61B17/00 A61B17/32 A61B19/00		
CPC分类号	A61B17/07207 A61B90/03 A61B2017/00535 A61B2017/00557 A61B2017/07242 A61B2017/0725 A61B2017/07278 A61B2017/320052 A61B2017/32113 A61B2090/032 A61B2090/08021		
代理机构(译)	CARPMAELS和兰斯福德		
优先权	11/540735 2006-09-29 US 11/540734 2006-09-29 US		
其他公开文献	EP2430987A2 EP2430987B1		
外部链接	Espacenet		

摘要(译)

用于内窥镜或腹腔镜插入手术部位以同时缝合和切断组织的手术器械包括上颌（砧）和下颌（钉仓接合到细长钉通道）之间的力调节间隔，使得高度为钉的形成对应于组织的厚度，但是不超过钉（83）的长度可以适应的高度范围。特别地，弹性结构（350,412）可以形成为支撑钉仓的细长通道中的一个或多个，可枢转地附接到细长通道的砧座，和/或包括切割表面（刀）的击发构件在与砧座接合的顶销和与细长通道接合的下脚之间切断组织。弹性响应于被夹紧的组织施加的力，以改变砧座和支撑在细长通道内的钉仓之间的间隔。

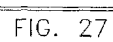


FIG. 27