(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 322 106 A3

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
28.03.2012 Bulletin 2012/13

(43) Date of publication A2:
18.05.2011 Bulletin 2011/20

(21) Application number: **10178865.1**

(22) Date of filing: **08.09.2000**

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

(84) Designated Contracting States:
DE ES FR GB IT

(30) Priority: **05.10.1999 US 412257**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
07075628.3 / 1 839 598
00961666.5 / 1 223 870

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(54) **Blades with functional balance asymmetries for use with ultrasonic surgical instruments**

(57) Disclosed is an ultrasonic surgical instrument that combines end-effector geometry to best effect the multiple functions of a shears-type configuration. The shape of the blade is characterized by a radiused cut offset by some distance to form a curved geometry. The cut creates a curved surface with multiple asymmetries causing multiple imbalances within the blade. Imbalance due to the curve of the instrument is corrected by a non-functional asymmetry proximal to the functional asymmetry. Imbalance due to the asymmetric cross-section of the blade is corrected by the appropriate selection of the volume and location of material removed from a functional asymmetry. The shape of the blade in one embodiment of the present invention is characterized by two radiused cuts offset by some distance to form a curved and potentially tapered geometry. These two cuts create curved surfaces including a concave surface and a convex surface. The length of the radiused cuts affects, in part, the acoustic balancing of the transverse motion induced by the curved shape.

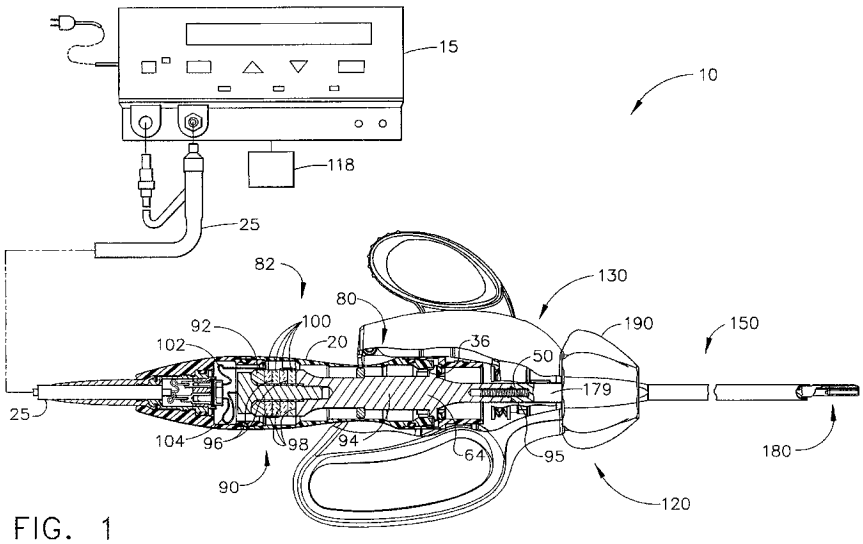

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 10 17 8865

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	US 5 322 055 A (DAVISON THOMAS W [US] ET AL) 21 June 1994 (1994-06-21) * figures *	1-10	
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TECHNICAL FIELDS SEARCHED (IPC)

A61B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	15 February 2012	Held, Günter

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
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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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 17 8865

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15-02-2012

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	具有功能平衡不对称的刀片用于超声外科手术器械		
公开(公告)号	EP2322106A3	公开(公告)日	2012-03-28
申请号	EP2010178865	申请日	2000-09-08
[标]申请(专利权)人(译)	伊西康内外科公司		
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IPC分类号	A61B17/32 A61B17/3201 A61B17/28 A61B18/00		
CPC分类号	A61B17/2816 A61B17/320092 A61B2017/2825 A61B2017/2929 A61B2017/320075 A61B2017/320093 A61B2017/320094 A61B2017/320095		
代理机构(译)	FISHER，ADRIAN JOHN		
优先权	09/412257 1999-10-05 US		
其他公开文献	EP2322106A2		
外部链接	Espacenet		

摘要(译)

公开了一种超声外科手术器械，其结合了末端执行器几何形状以最佳地实现剪切型构造的多种功能。刀片的形状的特征在于偏角切割偏移一定距离以形成弯曲几何形状。切口形成具有多个不对称的弯曲表面，导致刀片内的多个不平衡。由于仪器曲线引起的不平衡通过功能不对称附近的非功能性不对称来校正。通过适当选择从功能不对称中移除的材料的体积和位置来校正由于叶片的不对称横截面引起的不平衡。在本发明的一个实施例中，叶片的形状的特征在于两个圆角切口偏移一定距离以形成弯曲且可能锥形的几何形状。这两个切口形成曲面，包括凹面和凸面。圆角切口的长度部分地影响由弯曲形状引起的横向运动的声学平衡。

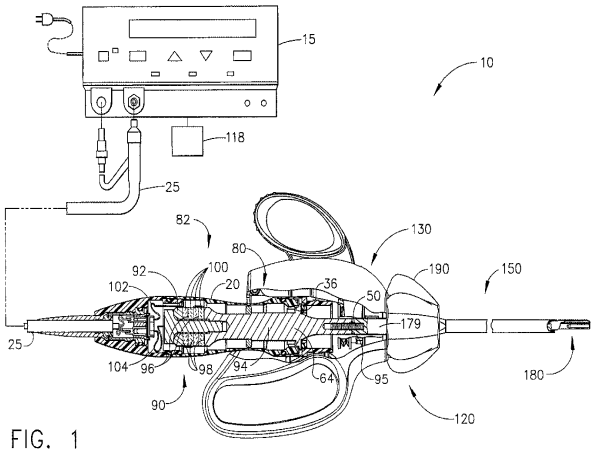

FIG. 1