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(71) Applicant: **Biosense Webster, Inc.**  
**Diamond Bar, CA 91765 (US)**

(72) Inventors:  
• **Govari, Assaf**  
**34400 Haifa (IL)**  
• **Altmann, Andres Claudio**  
**34614 Haifa (IL)**  
• **Levin, Alexander**  
**35590 Haifa (IL)**

(74) Representative: **Small, Gary James et al**  
**Carpmaels & Ransford**  
**43-45 Bloomsbury Square**  
**London WC1A 2RA (GB)**

(54) **Cardiac mechanical assessment using ultrasound**

(57) A method for diagnosis includes capturing a sequence of two-dimensional ultrasound images of a moving organ within a body of a patient. At least one contour

of the organ is identified in a succession of the images in the sequence and is processed to generate an output indicative of motion of the organ over time.

**FIG. 5**

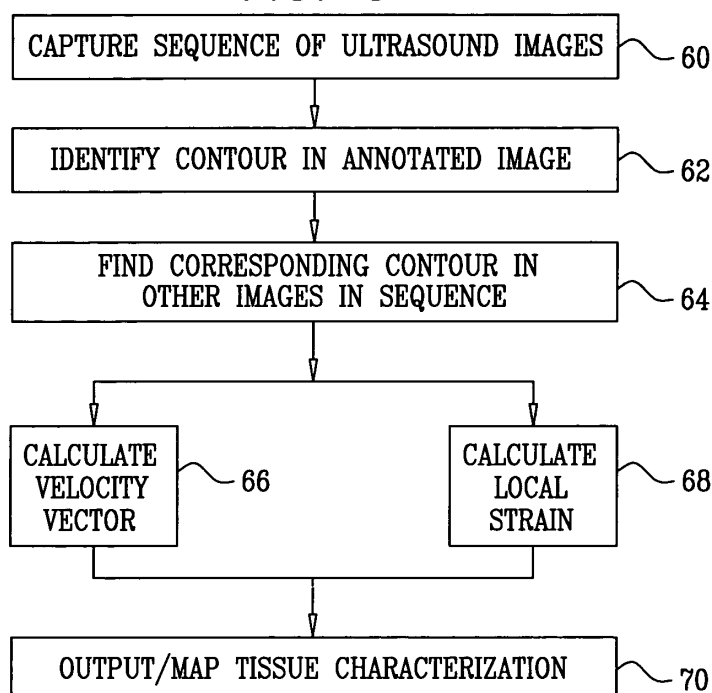
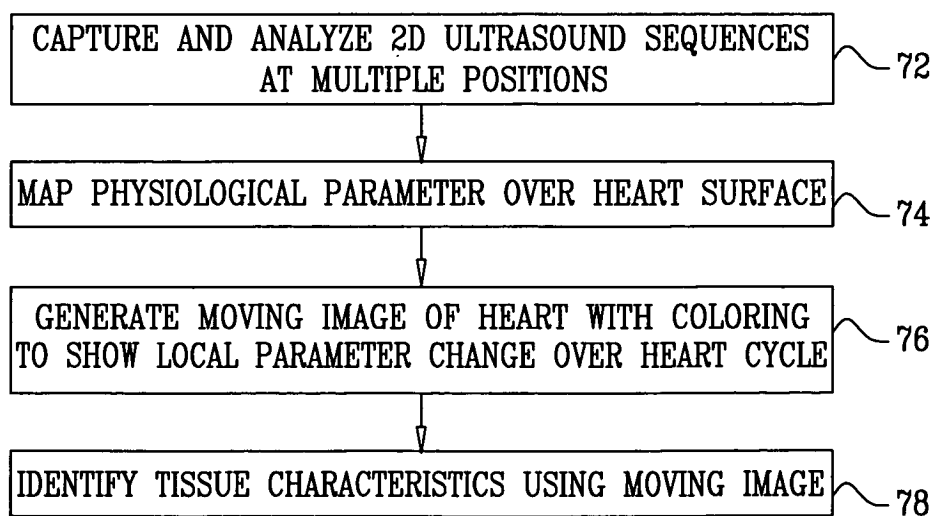


FIG. 6





## PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 63 of the European Patent Convention EP 08 25 1923 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2004/015081 A1 (KRAMER ANDREW P [US] ET AL) 22 January 2004 (2004-01-22)	16-18, 20,21, 19,22	INV. A61B8/12 A61B8/08 A61B5/04 G06T7/00 A61B5/044 A61B5/042 G06T5/00 G01S7/52
Y	* abstract * * paragraphs [0032] - [0034], [0037] - [0042] * * figures 1,2 *		
X	WO 01/20552 A (MAYO FOUNDATION [US]) 22 March 2001 (2001-03-22)	23,28,29	
Y	* the whole document *	24-27	ADD. A61B19/00 A61B5/06
Y	EP 0 961 135 A (TOMTEC IMAGING SYST GMBH [DE]) 1 December 1999 (1999-12-01) * abstract * * paragraphs [0024], [0026] - [0041] *	22,24,25	
Y	EP 1 720 039 A (BIOSENSE WEBSTER INC [US]) 8 November 2006 (2006-11-08) * abstract * * paragraphs [0065], [0070], [0078] - [0081] * * figures 1-3 *	19,24-27	
			TECHNICAL FIELDS SEARCHED (IPC) A61B G01S G06T
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search: see sheet C</p>			
Place of search Munich		Date of completion of the search 9 December 2008	Examiner Willig, Hendrik
CATEGORY OF CITED DOCUMENTS		<p>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 &amp; : member of the same patent family, corresponding document</p>	
<p>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</p>			

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EPO FORM 1503 03.82 (P04E07)



## PARTIAL EUROPEAN SEARCH REPORT

Application Number  
EP 08 25 1923

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 2001/024516 A1 (YOSHIOKA HIDEKI [JP] ET AL) 27 September 2001 (2001-09-27) * figures 2,4 * * abstract * * paragraphs [0015] - [0017], [0128], [0129], [0134], [0135] * -----	16-18	
A	WO 2007/021511 A (GEN ELECTRIC [US]; DONALDSON BRENDA [US]; RAZ ISRAEL [US]; VADODARIA S) 22 February 2007 (2007-02-22) * abstract * -----	23-29	
			TECHNICAL FIELDS SEARCHED (IPC)



**INCOMPLETE SEARCH  
SHEET C**

Application Number

EP 08 25 1923

Claim(s) not searched:  
1-15

Reason for the limitation of the search (non-patentable invention(s)):

As it can be seen from claims 6 and 13, the methods for diagnosis according to claims 1-15 encompass the step of inserting a catheter into the heart of a human body. This step is, however, a surgical intervention, by means of which the claimed methods as a whole are considered to be methods for treatment of the human body by surgery in the sense of Art. 53(c) EPC.



Application Number

EP 08 25 1923

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due 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 those claims for which no payment was due.

**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 present supplementary 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 (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
EP 08 25 1923

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: 16-22

Diagnostic ultrasound apparatus with means to identify a contour of an organ and to provide an output indicative of motion of an organ based on the identified contour.

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2. claims: 23-29

Diagnostic ultrasound apparatus with means to generate a sequence of three-dimensional ultrasound images with superimposed indication of a physiological parameter.

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

EP 08 25 1923

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.

09-12-2008

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专利名称(译)	使用超声波进行心脏机械评估		
公开(公告)号	<a href="#">EP2000098A3</a>	公开(公告)日	2009-01-28
申请号	EP2008251923	申请日	2008-06-03
[标]申请(专利权)人(译)	韦伯斯特生物官能公司		
申请(专利权)人(译)	生物传感韦伯斯特, INC.		
当前申请(专利权)人(译)	生物传感韦伯斯特, INC.		
[标]发明人	GOVARI ASSAF ALTMANN ANDRES CLAUDIO LEVIN ALEXANDER		
发明人	GOVARI, ASSAF ALTMANN, ANDRES CLAUDIO LEVIN, ALEXANDER		
IPC分类号	A61B8/12 A61B8/08 A61B5/04 G06T7/00 A61B5/044 A61B5/042 G06T5/00 G01S7/52 A61B19/00 A61B5/06		
CPC分类号	A61B8/4488 A61B5/06 A61B5/061 A61B6/503 A61B8/08 A61B8/0883 A61B8/12 A61B8/4254 A61B8/463 A61B8/483 A61B8/485 A61B8/543 A61B34/20 A61B2034/2051 A61B2090/364 A61B2090/367 A61B2090/378 G01S7/52038 G01S7/52071 G01S15/8918 G01S15/8979 G06T7/0016 G06T7/12 G06T7/246 G06T2207/10076 G06T2207/30048		
优先权	12/126032 2008-05-23 US 60/941778 2007-06-04 US		
其他公开文献	EP2000098A2		
外部链接	<a href="#">Espacenet</a>		

#### 摘要(译)

一种用于诊断的方法包括捕获患者体内的运动器官的一系列二维超声图像。在序列中的一系列图像中识别器官的至少一个轮廓，并且对其进行处理以产生指示器官随时间的运动的输出。

