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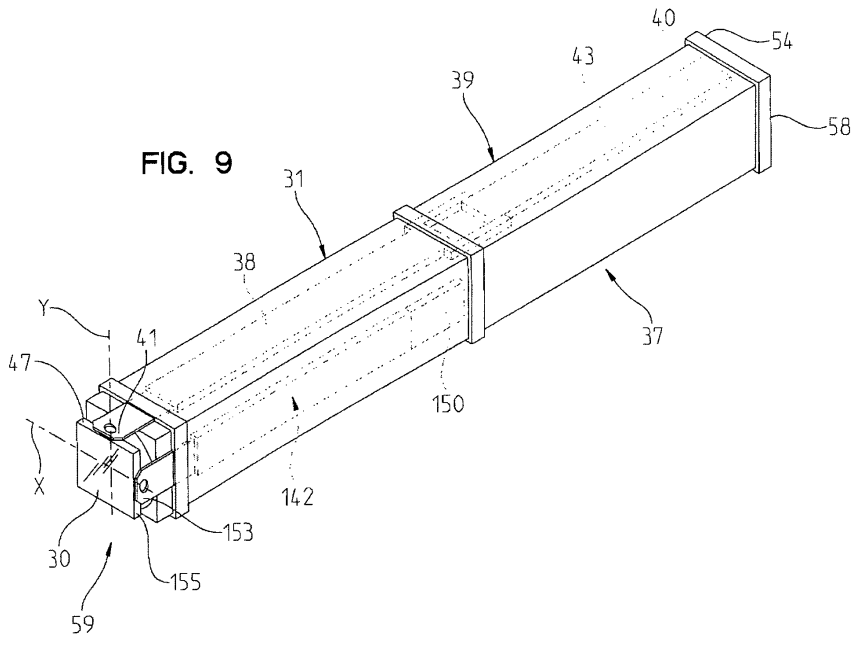
(54) Moveable ultrasound element for use in medical diagnostic equipment

(57) An ultrasound device is provided for diagnosing pathologies in a tissue of interest. The ultrasound device includes a platform member and an array of ultrasonic elements coupled to the platform member. Each of the elements includes a body portion (39) and a piezoelectric crystal member (30). The piezoelectric crystal member (30) has a first axis (X) and a second axis (Y). A first mover (31) is provided that is capable of moving the piezoelectric crystal member (30) about a first axis (X) of the crystal (30). A second mover (142) is provided that is capable of moving the piezoelectric crystal (30) about a second axis (Y) of the crystal (30). A controller is provided for causing the first mover (39) and second mover (142) to move the piezoelectric crystal (30) about the respective first (X) and second (Y) axes for enabling the ultrasound device to capture a plurality of images at different positions of rotation about the first (X) and second (Y) axes.

FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 09 15 7872

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	WO 01/45550 A2 (THERUS CORP [US]) 28 June 2001 (2001-06-28) * page 16, line 31 - page 17, line 20 * * page 20, line 34 - page 23, line 8 * * figures 13D,17A-17D,18A-18B * -----	1-10	INV. A61B8/08 G10K11/00 G10K11/35 A61B8/12 G01S15/89
A	US 4 231 373 A (WAXMAN ALBERT S ET AL) 4 November 1980 (1980-11-04) * abstract * * column 3, line 59 - column 4, line 15 * * figures 3A,3B * -----	1-10	
A	US 2005/228283 A1 (GIFFORD HANSON S [US] ET AL) 13 October 2005 (2005-10-13) * paragraphs [0043] - [0045] * * figure 4 * -----	1-10	
A	US 4 957 099 A (HASSLER DIETRICH [DE]) 18 September 1990 (1990-09-18) * abstract * * figures 1-3 * -----	1-10	

TECHNICAL FIELDS SEARCHED (IPC)

A61B
G10K
G01S

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	20 October 2009	Willig, Hendrik

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

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EPO FORM 1503 03.82 (P04C01)

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Application Number
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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:

1-10

☐ 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).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 09 15 7872

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: 1-10

   Ultrasound device with a transducer array of which each element is moveable about two axes.

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2. claims: 11-14

   Ultrasound device with a moveable transducer array.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 15 7872

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.

20-10-2009

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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)	可移动的超声元件，用于医疗诊断设备		
公开(公告)号	EP2113201A3	公开(公告)日	2009-12-16
申请号	EP2009157872	申请日	2009-04-14
[标]申请(专利权)人(译)	静脉尿路造影成像公司		
申请(专利权)人(译)	静脉尿路造影影像公司		
当前申请(专利权)人(译)	静脉尿路造影影像公司		
[标]发明人	STRIBLING MARK L		
发明人	STRIBLING, MARK L.		
IPC分类号	A61B8/08 G10K11/00 G10K11/35 A61B8/12 G01S15/89		
CPC分类号	A61B8/0825 A61B8/12 A61B8/406 A61B8/445 A61B8/4461 A61B8/4483 A61B8/483 A61B8/523 G01S7/5208 G01S15/8936 G01S15/8993 G10K11/352		
优先权	61/124064 2008-04-14 US 12/422766 2009-04-13 US		
其他公开文献	EP2113201A2 EP2113201B1		
外部链接	Espacenet		

摘要(译)

提供了一种超声设备，用于诊断感兴趣组织中的病变。超声装置包括平台构件和耦合到平台构件的超声元件阵列。每个元件包括主体部分（39）和压电晶体元件（30）。压电晶体构件（30）具有第一轴（X）和第二轴（Y）。提供能够使压电晶体构件（30）绕晶体（30）的第一轴（X）移动的第一移动器（31）。提供第二移动器（142），其能够使压电晶体（30）绕晶体（30）的第二轴（Y）移动。提供控制器，用于使第一移动器（39）和第二移动器（142）围绕相应的第一（X）和第二（Y）轴移动压电晶体（30），以使超声装置能够捕获多个图像在围绕第一（X）和第二（Y）轴的不同旋转位置处。