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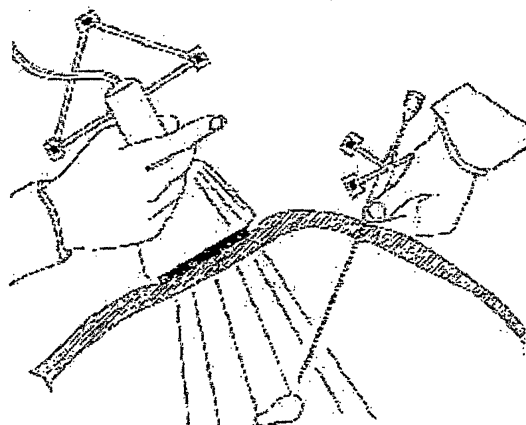
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(54) **Method and apparatus for ultrasound imaging of a biopsy needle**

(57) A method and apparatus for enabling a biopsy needle to be observed in a three-dimensional ultrasound diagnostic system using an interventional ultrasound system. The apparatus comprises an ultrasound transducer, a three-dimensional image-forming section, a section for extracting a target object, a location-calculating section, a display section, and a controller. The method comprises the steps of acquiring a two-dimensional ultrasound image of a subject; generating a three-dimensional volume image based on the two-dimensional ultrasound image; segmenting a target image, which corresponds to a target object within the subject, from the three-dimensional volume image; displaying a guide line of the biopsy guide on the segmented target image; extracting the segmented target image; acquiring information on a location of the biopsy needle by reference to the segmented target image; calculating an error based on the information; and displaying a guiding status of the biopsy needle based on the calculated error.

Fig. 1

PRIOR ART





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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 99 16352 A (NADLER SIMA ;AIGER DROR (IL); COHEN OR DANIEL (IL); FRIEDMAN MARK) 8 April 1999 (1999-04-08) * page 11, line 10 - page 17, line 21; figures 1,4,7A-B,8A-B *	1-11	A61B8/08 G01S15/89 A61B19/00
Y	US 6 216 029 B1 (PALTIELI YOAV) 10 April 2001 (2001-04-10) * column 6, line 12 - column 9, line 63; figures 1,4,7-10 *	1,2,4-10	
Y	US 5 638 819 A (MANWARING KIM H ET AL) 17 June 1997 (1997-06-17) * column 3, line 24 - column 8, line 55; figures 1-3 *	1,2,4-10	
A	US 6 241 670 B1 (NAMBU KYOJIRO) 5 June 2001 (2001-06-05) * column 2, line 66 - column 4, line 28 * * column 8, line 8 - column 9, line 26; figure 8 *	1,2,5-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A61B G01S G06T A61N
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 3 July 2003	Examiner Artikis, T
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 02 02 9059

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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专利名称(译)	用于活检针的超声成像的方法和设备		
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其他公开文献	EP1323380B1 EP1323380A2		
外部链接	Espacenet		

摘要(译)

一种使用介入超声系统在三维超声诊断系统中观察活检针的方法和设
备。该装置包括超声换能器，三维图像形成部分，用于提取目标对象的
部分，位置计算部分，显示部分和控制器。该方法包括获取对象的二维
超声图像的步骤；基于二维超声图像生成三维体图像；从三维体图像中分割
对应于对象内的目标对象的目标图像；在分割的目标图像上显示活组织检
查指南的引导线；提取分割的目标图像；通过参考分割的目标图像获取关于
活检针的位置的信息；根据信息计算错误；并根据计算出的误差显示活检针
的引导状态。

Fig. 1

PRIOR ART

