



(11) **EP 1 813 193 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
26.09.2007 Bulletin 2007/39

(51) Int Cl.:
A61B 8/08 (2006.01) G01S 15/89 (2006.01)

(43) Date of publication A2:
01.08.2007 Bulletin 2007/31

(21) Application number: **07001368.5**

(22) Date of filing: **23.01.2007**

(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 NL PL PT RO SE SI SK TR

Designated Extension States:
AL BA HR MK RS

(30) Priority: **26.01.2006 KR 20060008122**

(71) Applicant: **MEDISON CO., LTD.**
Kangwon-do 250-870 (KR)

(72) Inventor: **Hyun, Dong Gyu**
Discusser & Medison Building
Seoul 135-280 (KR)

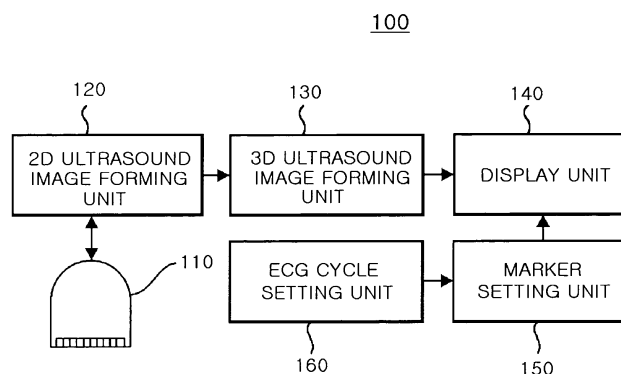
(74) Representative: **Schmid, Wolfgang**
Lorenz & Kollegen
Patent- und Rechtsanwaltskanzlei
Alte Ulmer Strasse 2
D-89522 Heidenheim (DE)

(54) **Apparatus and method for displaying an ultrasound image**

(57) The method of displaying an ultrasound image, comprises: a) setting a probe on a predetermined portion of a target object including a moving object to transmit ultrasound signals to a specific slice of the moving object; b) forming and storing a plurality of sequential 2-dimensional ultrasound images based on ultrasound echo signals reflected from the specific slice, each of said sequential 2-dimensional ultrasound images having information of forming time; c) selecting n numbers of 2-dimensional ultrasound images in an order of forming time;

d) superposing the n number of 2-dimensional ultrasound images in a time axis to thereby form a 3-dimensional ultrasound image; e) setting a moving cycle of the moving object and a plurality of markers representing a moving cycle interval on the 3-dimensional ultrasound image; f) displaying the 3-dimensional ultrasound image with the moving cycle markers; g) removing a first 2-dimensional ultrasound image from the n numbers of 2-dimensional ultrasound images; h) selecting and superposing a $(n+1)^{\text{th}}$ 2-dimensional ultrasound image; and i) repeating the steps e) to h).

FIG. 1



EP 1 813 193 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 00 1368

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 0 881 506 A (ADVANCED TECH LAB [US]) 2 December 1998 (1998-12-02) * column 2, lines 18-34,40-50 * * column 4, lines 46-48 * * column 5, lines 5-32 * * column 7, lines 10-44 * * figure 3 *	1-13	INV. A61B8/08 G01S15/89
Y	PP DENDY, B HEATON ET AL: "Physics for Diagnostic Radiology" 15 April 1999 (1999-04-15), INSTITUTE OF PHYSICS PUBLISHING, ISBN 075030591 , BRISTOL , XP002446931 * page 344 - page 345 *	1-13	
Y	US 2004/176689 A1 (YAMAUCHI MASAKI [JP]) 9 September 2004 (2004-09-09) * paragraphs [0089], [0090] * * figures 5a-c *	7	
Y	US 2001/024516 A1 (YOSHIOKA HIDEKI [JP] ET AL) 27 September 2001 (2001-09-27) * paragraphs [0149] - [0151], [0291] - [0294]; figure 12 *	8	TECHNICAL FIELDS SEARCHED (IPC) G01S A61B
A	US 2001/048440 A1 (WIESAUER FRANZ [AT]) 6 December 2001 (2001-12-06) * the whole document *	1,4,9,10	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 August 2007	Examiner Bengtsson, Johan
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	

1

EPO FORM 1503 03.82 (P04C01)

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

EP 07 00 1368

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.

15-08-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0881506	A	02-12-1998	AU 6810098 A	03-12-1998
			CA 2235998 A1	29-11-1998
			JP 11047132 A	23-02-1999
			NO 982446 A	30-11-1998
			US 5916168 A	29-06-1999

US 2004176689	A1	09-09-2004	US 2004215078 A1	28-10-2004

US 2001024516	A1	27-09-2001	NONE	

US 2001048440	A1	06-12-2001	EP 1162477 A1	12-12-2001
			JP 2002102228 A	09-04-2002

专利名称(译)	用于显示超声图像的设备和方法		
公开(公告)号	EP1813193A3	公开(公告)日	2007-09-26
申请号	EP2007001368	申请日	2007-01-23
申请(专利权)人(译)	MEDISON CO. , LTD.		
当前申请(专利权)人(译)	MEDISON CO. , LTD.		
发明人	HYUN, DONG GYU DISCUSSEER & MEDISON BUILDING		
IPC分类号	A61B8/08 G01S15/89		
CPC分类号	A61B8/08 A61B8/0883 A61B8/0891 A61B8/483 G01S7/52073 G01S7/52087 G01S15/8993 A45B3/00 A45B9/02 A45B9/04 A45B2200/1018 A45B2200/1054 F21V23/04 F21V33/0004 Y10S135/91		
代理机构(译)	SCHMID , WOLFGANG		
优先权	1020060008122 2006-01-26 KR		
其他公开文献	EP1813193A2		
外部链接	Espacenet		

摘要(译)

显示超声图像的方法包括：a) 在包括移动物体的目标物体的预定部分上设置探针，以将超声信号发送到移动物体的特定切片；b) 基于从特定切片反射的超声回波信号形成和存储多个连续的二维超声图像，每个所述连续的二维超声图像具有形成时间的信息；c) 按照形成时间的顺序选择n个二维超声图像；d) 在时间轴上叠加n个二维超声图像，从而形成三维超声图像；e) 在三维超声图像上设定移动物体的移动周期和表示移动周期间隔的多个标记；f) 用移动循环标记显示三维超声图像；g) 从n个二维超声图像中去除第一个二维超声图像；h) 选择并叠加第 (n + 1) 个二维超声图像；和i) 重复步骤e) 至h)。

FIG. 1

