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(54) Laparoscopic ultrasound robotic surgical system

(57) A LUS robotic surgical system is trainable by a surgeon to automatically move a LUS probe in a desired fashion upon command so that the surgeon does not have to do so manually during a minimally invasive surgical procedure. A sequence of 2D ultrasound image slices captured by the LUS probe according to stored instructions are processable into a 3D ultrasound computer model of an anatomic structure, which may be displayed as a 3D or 2D overlay to a camera view or in a PIP as selected by the surgeon or programmed to assist the surgeon in inspecting an anatomic structure for abnormalities. Virtual fixtures are definable so as to assist the surgeon in accurately guiding a tool to a target on the displayed ultrasound image.

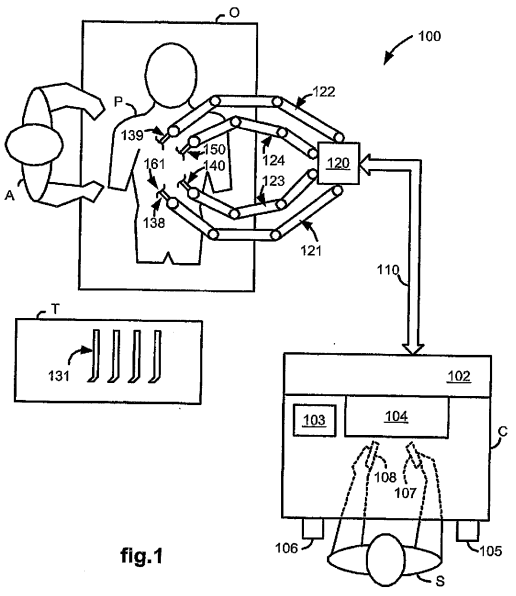

fig.1

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EUROPEAN SEARCH REPORT

Application Number
EP 11 15 0208

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 6 602 185 B1 (UCHIKUBO AKINOBU [JP]) 5 August 2003 (2003-08-05) * column 9, line 63 - line 65; figure 5 *	1,2	
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TECHNICAL FIELDS SEARCHED (IPC)

A61B
B25J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 February 2014	Mayer-Martenson, E

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

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 15 0208

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10-02-2014

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

专利名称(译)	腹腔镜超声机器人手术系统		
公开(公告)号	EP2289453A3	公开(公告)日	2014-03-19
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[标]申请(专利权)人(译)	直观外科手术操作公司		
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IPC分类号	A61B19/00 A61B8/00 A61B8/12		
CPC分类号	A61B8/00 A61B8/12 A61B8/4218 A61B8/4245 A61B34/25 A61B34/30 A61B34/37 A61B34/70 A61B34/76 A61B90/03 A61B90/361 A61B2017/00203 A61B2034/107 A61B2090/364 A61B2090/365 A61B2090/378 A61B1/3132 A61B8/461 A61B90/37 A61B2034/305		
优先权	60/688013 2005-06-06 US		
其他公开文献	EP2289453A2 EP2289453B1		
外部链接	Espacenet		

摘要(译)

LUS机器人手术系统可由外科医生训练，以在命令时以期望的方式自动移动LUS探针，使得外科医生在微创外科手术期间不必手动操作。由LUS探针根据存储的指令捕获的2D超声图像切片序列可处理成解剖结构的3D超声计算机模型，其可以显示为相机视图的3D或2D覆盖或者通过选择的PIP显示。外科医生或编程以协助外科医生检查解剖结构的异常情况。虚拟固定装置是可定义的，以便帮助外科医生将工具准确地引导到所显示的超声图像上的目标。

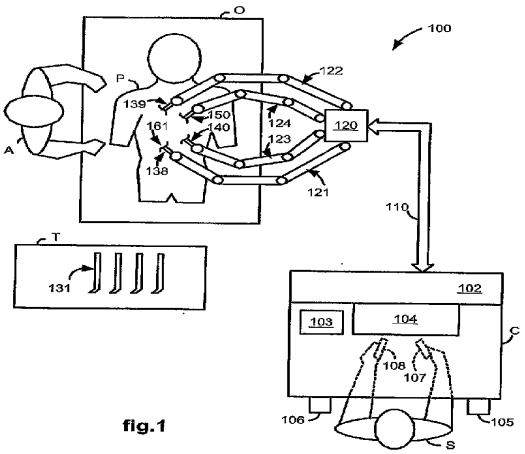

fig.1