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(54) **X-RAY/INTRAVASCULAR IMAGING COLOCATION METHOD AND SYSTEM**

(57) A method and associated system 10 is provided that produces a new sequence of combined X-ray/fluoro images obtained in synchrony with intravascular dataset/images. This synchronization is based on the time tags recorded at the acquisition of one dataset of the X-ray/fluoroscopic images 24, 28 and the intravascular images/datasets and the cardiac cycle correspondence between the combined X-ray/fluoro datasets/images 24.

The combined X-ray/fluoro and intravascular sensor images provided in the method for each position of intravascular measurement/slice along the blood vessel allows the physician the ability to determine the planned position of the treatment, e.g., a stent, in the X-ray/fluoro images based on the intravascular images, and allows an accurate assessment of the target/lesion location in the X-ray/fluoro images during treatment.

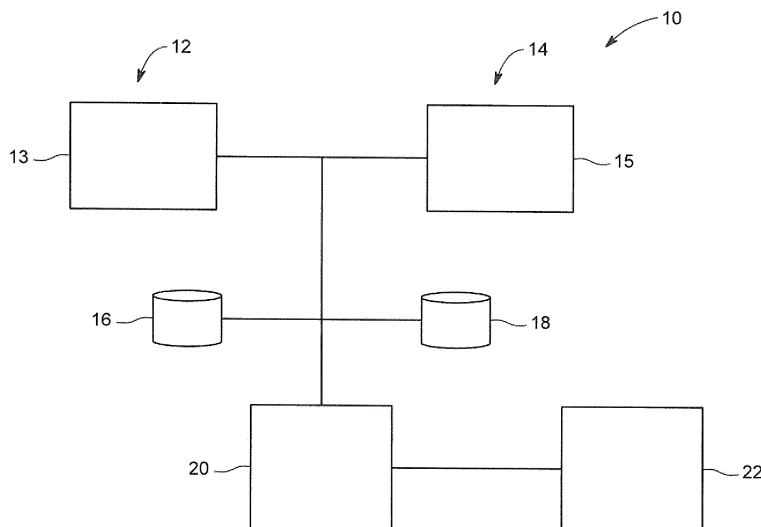


FIG. 1

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DECLARATION

Application Number

which under Rule 63 of the European Patent Convention EP 16 20 4699 shall be considered, for the purposes of subsequent proceedings, as the European search report

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<p>The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims</p> <p>Reason:</p> <p>An invitation to indicate the subject-matter to be searched under R. 63(1) EPC dated 06-07-2017 was sent to the applicant. The applicant replied to this invitation with a reply dated 07-09-2017. Claims 1-15 as originally filed are directed to a method for treatment of the human or animal body by surgery, and thus represent an exception to patentability (Art. 53(c)), for the reasons provided below.</p> <p>Claim 1 is directed to a method comprising the step "obtaining a set of intravascular images of the blood vessel/myocardium concurrently with obtaining the second set of X-ray images". The description makes clear repeatedly that this refers to acquiring IVUS or OCT images with an intravascular imaging probe which is displaced along the vessels, often with an automatic pullback of the intravascular imaging probe (p. 4, l. 18-19; p. 10, l. 12-15; p. 14, l. 14-15). The step of displacing an imaging probe along the vessels, implicit in the acquisition of said intravascular images, entails a substantial health risk for the patient even when carried out with the required medical professional care and expertise and is therefore considered to be a step of surgical nature (see GL G-II, 4.2.1.1 and EBoA G1/07, reasons 3.4.2.3). A method which comprises or encompasses a step of surgical nature is considered to be a method of treatment of the human or animal body by surgery (see EBoA G1/07, reasons 3.2.5). As a consequence, the method defined in claim 1 falls under the provisions of Art. 53(c) EPC and is</p> <p style="text-align: right;">-/--</p>	<p>CLASSIFICATION OF THE APPLICATION (IPC)</p> <p>INV. A61B6/00 A61B6/12 A61B8/12 A61B5/00</p>	
<p>Place of search Munich</p>	<p>Date 26 September 2017</p>	<p>Examiner Martinez Möller, A</p>

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EPO FORM 1504 (P/04F37)



DECLARATION

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<p>The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims</p> <p>Reason:</p> <p>therefore not patentable. All other claims depend on claim 1 and implicitly comprise said step. Therefore, all claims are likewise excluded from patentability according to Art. 53(c) EPC. It is furthermore noted that claim 2 additionally specifies that the method comprises the step of "injecting a contrast agent into the blood vessel/myocardium", step which is likewise of surgical nature. The applicant's reply dated 07-09-2017 did not provide any arguments against the lack of compliance of all claims with Art. 53(c) EPC. However, the applicant filed a set of claims where the method claims had been re-worded as system claims, and provided fig. 1 and p. 8, l. 19 - p. 9, l. 31 as basis therefor; said claims are not considered as amended claims (R. 137(1) EPC) but merely as an indication of the subject-matter to be searched in respect of the claims as originally filed. There is no basis in the application as filed (Art. 123(2) EPC) for claims directed to a system "operable to" carry out the steps as recited in claim 1 indicated by the applicant. The passages referred by the applicant merely describe a general multimodal imaging system, without structural features adapted to perform the steps described in claim 1. The functional features of the system defined by claim 1 indicated by the applicant represent unclear and vague restrictions (Art. 84 EPC) and the resulting subject-matter covers many different systems not disclosed in the application as filed and which could be</p> <p style="text-align: center;">-/--</p>	<p>CLASSIFICATION OF THE APPLICATION (IPC)</p>	
<p>Place of search Munich</p>	<p>Date 26 September 2017</p>	<p>Examiner Martinez Möller, A</p>

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EPO FORM 1504 (P/04F37)



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Application Number

which under Rule 63 of the European Patent Convention EP 16 20 4699 shall be considered, for the purposes of subsequent proceedings, as the European search report

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<p>The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims</p> <p>Reason:</p> <p>regarded as being "operable to" carry out the steps defined by claim 1. Thus, said claims indicated by the applicant contain subject-matter which extends beyond the content of the application as filed. Regarding the original method claims as potential basis for the claims indicated by the applicant, it is noted that a change in claim category from a method to an apparatus is generally not allowable (GL H-V, 7.3), and no particular conditions apply in the present case to make such a change allowable. For the reasons presented above, the Search Division considers that no meaningful search is possible (GL B-VIII, 3).</p> <p>The applicant's attention is drawn to the fact that a search may be carried out during examination following a declaration of no search under Rule 63 EPC, should the problems which led to the declaration being issued be overcome (see EPC Guideline C-IV, 7.2).</p>	<p>CLASSIFICATION OF THE APPLICATION (IPC)</p>	
<p>Place of search Munich</p>	<p>Date 26 September 2017</p>	<p>Examiner Martinez Möller, A</p>

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EPO FORM 1504 (P/04E37)

专利名称(译)	X射线/血管内成像共置方法和系统		
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申请号	EP2016204699	申请日	2016-12-16
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当前申请(专利权)人(译)	通用电气公司		
[标]发明人	VAILLANT REGIS SUREDA FRANCISCO		
发明人	VAILLANT, REGIS SUREDA, FRANCISCO		
IPC分类号	A61B6/00 A61B6/12 A61B8/12 A61B5/00		
CPC分类号	A61B6/485 A61B6/504 A61B6/5247 A61B5/0071 A61B5/0084 A61B5/0432 A61B5/7289 A61B6/12 A61B6/4441 A61B6/463 A61B6/481 A61B6/487 A61B6/503 A61B6/5211 A61B6/5235 A61B6/5288 A61B8/0883 A61B8/0891 A61B8/12 A61B8/5261 G16H50/20 A61B6/461 G06T7/0012 G06T2207 /10121 G06T2207/30101		
优先权	15/056566 2016-02-29 US		
其他公开文献	EP3210536A2		
外部链接	Espacenet		

摘要(译)

提供了一种方法和相关系统10，其产生与血管内数据集/图像同步获得的新的组合X射线/荧光图像序列。该同步基于在获取X射线/荧光透视图像24,28的一个数据集和血管内图像/数据集以及组合的X射线/荧光数据集/图像24之间的心动周期对应性时记录的时间标记。在该方法中为血管内测量/切片沿血管的每个位置提供的组合的X射线/荧光和血管内传感器图像允许医生在X-中确定治疗的计划位置，例如支架。基于血管内图像的射线/荧光图像，并且允许在治疗期间准确评估X射线/荧光图像中的目标/病变位置。

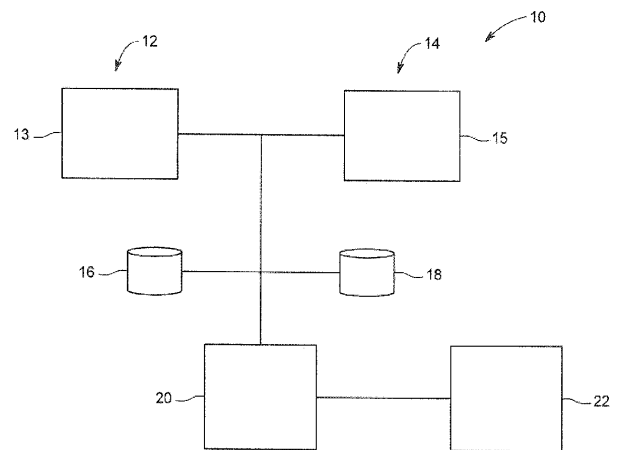


FIG. 1