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(71) Applicant: **Masimo Corporation**
Irvine, CA 92618 (US)

(72) Inventors:
• **Kiani, Massi, E.**
Laguna Niguel, CA 92677 (US)
• **Ali, Ammar, Al**
Tustin, CA 92782 (US)
• **Diab, Mohamed, K.**
Mission Viejo, CA 92692 (US)
• **Vaden, Val, E.**
Hillsborough, CA 94010 (US)

(74) Representative: **Vossius & Partner**
Siebertstrasse 4
81675 München (DE)

(54) **Universal/upgrading pulse oximeter**

(57) A universal/upgrading pulse oximeter (UPO) (210) comprises a portable unit (610) and a docking station (660, 910) together providing three-instruments-in-one functionality for measuring oxygen saturation and related physiological parameters. The portable unit functions as a handheld pulse oximeter. The combination of the docked portable and the docking station functions as a stand-alone, high-performance pulse oximeter. The portable-docking station combination is also connectable to, and universally compatible with, pulse oximeters from various manufacturers through use of a waveform generator (320, 930). The UPO provides a universal sensor to pulse oximeter interface and a pulse oximeter measurement capability that upgrades the performance of conventional instruments by increasing low perfusion performance and motion artifact immunity, for example. Universal compatibility combined with portability allows the UPO to be transported along with patients transferred between an ambulance and a hospital ER, or between various hospital sites, providing continuous patient monitoring in addition to plug-compatibility and functional upgrading for multiparameter patient monitoring systems. The image on the portable display (264, 740) is rotatable, either manually when undocked or as a function of orientation (950). In one embodiment, the docking station

(660) has a web server and network interface (1410) that allows UPO data to be downloaded and viewed as web pages over a local area network (1420) or the Internet.

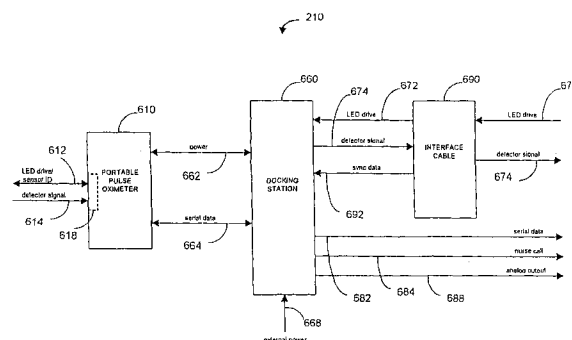


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 07 02 1807

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 687 717 A (HALPERN ARIEH S [US] ET AL) 18 November 1997 (1997-11-18) * figures 1-3 *	1,2,5-11	INV. A61B5/00
X	US 5 343 869 A (PROSS GERHARD [DE] ET AL) 6 September 1994 (1994-09-06) * figures 1-4 *	1,2	
X	WO 96/16591 A (AIHONEN JUKKA [FI]; PENTTILAE HEIKKI [FI]; SIRKIAE JOUNI [FI]; TUOMINE) 6 June 1996 (1996-06-06) * figures 1,3 * * page 3, line 21 - page 4, line 7 *	1,2	
P,X	US 5 931 791 A (W.E. SALTZSTEIN ET AL.) 3 August 1999 (1999-08-03) * column 2, line 58 - column 3, line 3 * * column 3, line 41 - line 65 *	1,2	
X	US 5 375 604 A (KELLY CLIFFORD M [US] ET AL) 27 December 1994 (1994-12-27) * figures 1A,1B,6 * * page 15, lines 12-58 *	1,2,5-11	TECHNICAL FIELDS SEARCHED (IPC) A61B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 October 2009	Examiner Schießl, Werner
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			

6

EPO FORM 1503 03/82 (P04/C01)



Application Number

EP 07 02 1807

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:
- ☐ 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).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 07 02 1807

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: 1-4

A measurement system comprising a pulse oximeter and a processor

2. claims: 5-11

A measurement method comprising: receiving an input from a physiological monitor; processing said input to cause an indication of the physiological measurements to be displayed; and outputting said indication to a multiparameter patient monitor

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

EP 07 02 1807

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.

21-10-2009

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专利名称(译)	通用/升级脉搏血氧仪		
公开(公告)号	EP1889569A3	公开(公告)日	2009-12-09
申请号	EP2007021807	申请日	2000-01-25
[标]申请(专利权)人(译)	梅西莫股份有限公司		
申请(专利权)人(译)	Masimo公司		
当前申请(专利权)人(译)	Masimo公司		
[标]发明人	KIANI MASSI E ALI AMMAR AL DIAB MOHAMED K VADEN VAL E		
发明人	KIANI, MASSI, E. ALI, AMMAR, AL DIAB, MOHAMED, K. VADEN, VAL, E.		
IPC分类号	A61B5/00 G01N21/27 A61B5/0205 A61B5/145 A61B5/1455 G01N21/35		
CPC分类号	A61B5/14551 A61B5/0022 A61B5/1495 A61B5/742 A61B5/7445 A61B2560/0271 A61B2560/0456 A61B2562/085 G16H40/67		
代理机构(译)	法思博事务所		
优先权	60/117097 1999-01-25 US 60/161565 1999-10-26 US		
其他公开文献	EP1889569B1 EP1889569A2		
外部链接	Espacenet		

摘要(译)

通用/升级脉冲血氧计 (UPO) (210) 包括便携式单元 (610) 和对接站 (660,910)，它们一起提供用于测量氧饱和度和相关生理参数的三仪器一体机功能。便携式装置用作手持式脉搏血氧仪。对接便携式和对接站的组合可用作独立的高性能脉搏血氧仪。便携式对接站组合还可通过使用波形发生器 (320,930) 连接到各种制造商的脉冲血氧计并且通用地与之兼容。UPO提供通用传感器，用于脉搏血氧仪接口和脉搏血氧仪测量功能，可提升性能例如，通过增加低灌注性能和运动伪影免疫力的常规仪器。通用兼容性与便携性相结合，允许UPO与在救护车和医院ER之间或在各医院站点之间转移的患者一起运输，除了插件兼容性和多参数患者监测系统的功能升级之外，还提供连续的患者监测。便携式显示器 (264,740) 上的图像可以是旋转的，可以在未对接时手动或者作为方向的函数 (950)。在一个实施例中，对接站 (660) 具有允许UPO数据的网络服务器和网络接口 (1410)。通过局域网 (1420) 下载和查看为网页互联网。

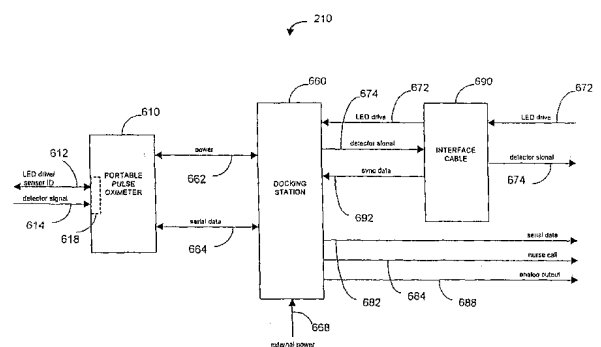


FIG. 6