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(71) Applicant: **Nihon Kohden Corporation**
Shinjuku-ku
Tokyo (JP)

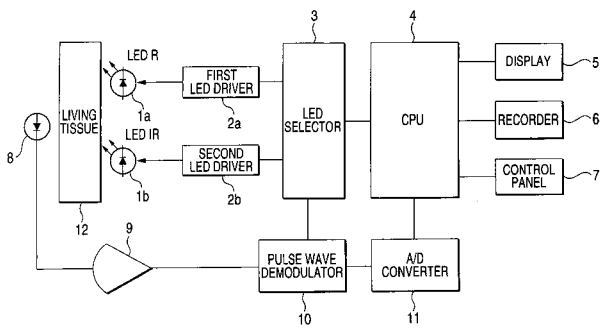
(72) Inventors:
- **Kobayashi, Naoki**
  Shinjuku-ku
  Tokyo (JP)
- **Miyata, Kenji**
  Shinjuku-ku
  Tokyo (JP)
- **Yarita, Masaru**
  Shinjuku-ku
  Tokyo (JP)
- **Ito, Kazumasa**
  Shinjuku-ku
  Tokyo (JP)

(74) Representative: **Grünecker, Kinkeldey,**
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
80538 München (DE)

(54) Apparatus and method for measuring oxygen saturation in blood

(57) In an apparatus for measuring an oxygen saturation in blood, a plurality of light emitters are adapted to irradiate a living tissue with a plurality of light beams having different wavelengths. A light receiver is adapted to receive the light beams reflected from or transmitted through the living tissue to generate pulse wave signals in accordance with pulsations of the blood in the living tissue. A separator is operable to separate each of the pulse wave signals into a plurality of amplitude signals each of which is associated with one frequency, thereby generating pairs of amplitude signals each of which is associated with one of a plurality of frequencies. A first processor is operable to calculate a ratio between the amplitude signals in each of the pairs of the amplitude signals. A selector is operable to select one of the pairs of the amplitude signals. A second processor is operable to calculate the oxygen saturation based on the ratio of the selected one of the pairs of the amplitude signals.

FIG. 1



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EUROPEAN SEARCH REPORT

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EP 06 01 7637

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 4 934 372 A (CORENMAN JAMES E [US] ET AL) 19 June 1990 (1990-06-19)	1-3, 11-16, 24,25	INV. A61B5/00
Y	* abstract * * column 4, line 18 - column 6, line 19 * * column 11, line 20 - column 13, line 22 *	4,17	
A	* column 15, line 18 - column 16, line 21 * * column 23, line 8 - column 24, line 45 * * figures 1a,10,10a-e * * claims 1-3,13-15,17,20-22,33-35,37 *	5-10, 18-23	

X	US 2004/059209 A1 (AL-ALI AMMAR [US] ET AL) 25 March 2004 (2004-03-25)	1-3, 11-16, 24,25	
Y	* abstract * * paragraph [0006] - paragraph [0087] *	4,17	
A	* figures 2-4,6-14 * * claims 1-11 *	5-10, 18-23	
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X	US 2005/033129 A1 (EDGAR REUBEN W [US] ET AL EDGAR JR REUBEN W [US] ET AL) 10 February 2005 (2005-02-10)	1-3, 11-16, 24,25	A61B
A	* abstract * * paragraph [0042] - paragraph [0095] * * figures 1-9 * * claims 1-6,18,19,25-28 *	4-10, 17-23	

X	US 2004/267140 A1 (ITO KAZUMASA [JP] ET AL) 30 December 2004 (2004-12-30) * abstract *	1,2, 13-15	
A	* paragraph [0043] - paragraph [0071] * * paragraph [0088] - paragraph [0147] * * figures 1-11 * * claims 1-14 *	4-10, 17-23	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 February 2008	Doyle, Aidan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 01 7637

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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25-02-2008

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US 2004267140 A1	30-12-2004	NONE	

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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)	用于测量血液中氧饱和度的装置和方法		
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[标]申请(专利权)人(译)	日本光电工业株式会社		
申请(专利权)人(译)	日本光电公司		
当前申请(专利权)人(译)	日本光电公司		
[标]发明人	KOBAYASHI NAOKI MIYATA KENJI YARITA MASARU ITO KAZUMASA		
发明人	KOBAYASHI, NAOKI MIYATA, KENJI YARITA, MASARU ITO, KAZUMASA		
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其他公开文献	EP1757224A2 EP1757224B1		
外部链接	Espacenet		

摘要(译)

在用于测量血液中的氧饱和度的装置中，多个光发射器适于用具有不同波长的多个光束照射活组织。光接收器适于接收从活组织反射或透过活组织的光束，以根据活组织中血液的脉动产生脉冲波信号。分离器可操作以将每个脉冲波信号分离成多个幅度信号，每个幅度信号与一个频率相关联，从而产生幅度信号对，每个幅度信号与多个频率之一相关联。第一处理器可操作用于计算每对振幅信号中的振幅信号之间的比率。选择器可操作以选择幅度信号对中的一对。第二处理器可操作以基于所选择的一对振幅信号的比率来计算氧饱和度。

FIG. 1