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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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[Continued on next page]

(54) **Title:** SYSTEM AND METHOD FOR DETECTING VASCULAR CONTAMINATION BY SURGICAL ANESTHETIC USING NON-INVASIVE IR SPECTROPHOTOMETRY

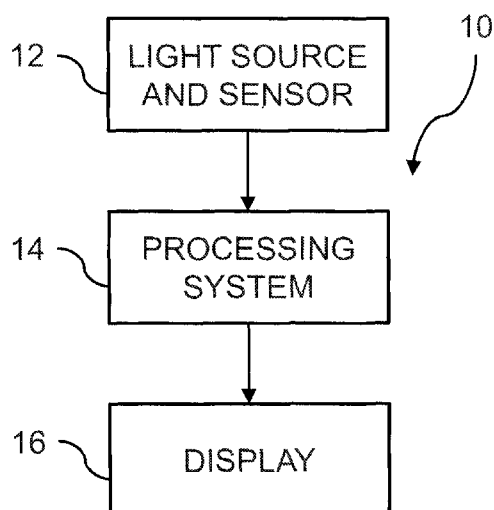


Fig. 1

(57) **Abstract:** A system and method for detecting vascular contamination by surgical anesthetic using non-invasive IR spectrophotometry. One embodiment is a method for operating an instrument such as an enhanced pulse oximeter to monitor a patient receiving local anesthetic marked with dye that absorbs infrared light. Light is applied to and detected from tissue of the patient. A signal representative of the detected light is processed to derive patient oxygenation information. The detected light is also processed to derive information representative of the presence of the dye-marked anesthetic. The oxygenation information and the information representative of the presence of anesthetic are displayed. The oxygenation monitoring and display and the anesthetic monitoring and display can occur separately or concurrently. Fluorescing dyes and fluorescence detection approaches are used for anesthetic detection in some embodiments. Other embodiments apply a sequence of light pulses and correlate the applied light pulse sequence to the detected signal to identify the presence of the dye-marked anesthetic.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/043820**A. CLASSIFICATION OF SUBJECT MATTER*****A61B 5/1455(2006.01)i, A61N 1/34(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61B 5/1455; G01N 21/00; A61B 5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords:light, anesthesia, dye, fluorescence, oxygenation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05402779 A (CHEN; WILLIAM X. et al.) 04 April 1995 See abstract, column 4, lines 31-46, line 66 - column 5. line 33, lines 41-47 , claims 1-3,8,13, and figures 3-4.	1-32,32(1)
A	US 05176882 A (GRAY; DAMIEN F. et al.) 05 January 1993 See abstract, column 2. line 58 - column 3. line 19, lines 42-52, column 4, lines 13 - 23, 55 - 62, claims 1-5, and figures 1-2.	1-32,32(1)
A	US 2008-0076992 A1 (BERNARD F HETE et al.) 27 March 2008 See abstract, paragraphs [0041]-[0042],[0052],[0058]-[0061], claim 1, and figures 2,12-14.	1-32,32(1)
A	US 2010-0081903 A1 (IZZETOGLU KURTULUS) 01 April 2010 See abstract, paragraphs [0018]-[0020],[0029],[0034],[0040]-[0054], claims 1-4,10-14, and figures 1,3A-B,6. Note:For the claim 32(1), the claim was renumbered by this authority because the claim 32 was twice.	1-32,32(1)

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		US 05176882 A	05.01.1993
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