

Patent Owner Masimo Co Demonstratives For Trial

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Apple Inc. v. Masimo Corporation
IPR2021-00193 (Patent No. 10,299,700)
IPR2021-00195 (Patent No. 10,376,190)
IPR2021-00208 (Patent No. 10,258,260)
IPR2021-00209 (Patent No. 10,376,190)

Patents-At-Issue

United States Patent
Poeze et al. (10) Patent No.: **US 10,376,191 B1**
 (45) Date of Patent: *Aug. 13, 2019

(54) MULTISTREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS
 (71) Applicant: Masimo Corporation, Irvine, CA (US)
 (72) Inventors: Jeron Poeze, Rancho Santa Margarita, CA (US); Marcelo Lamego, Cupertino, CA (US); Sean Merritt, Lake Forest, CA (US); Cristian Opende, Irvine, CA (US); Hung Vo, Fountain Valley, CA (US); Johannes Brainsma, Opende, NJ (US); Ferdyan Leonardus, Irvine, CA (US); Mawi Joe E. Kiani, Laguna Niguel, CA (US); Greg Ohlen, Trabuco Canyon, CA (US)
 (73) Assignee: Masimo Corporation, Irvine, CA (US)
 (*) Notice: Subject to any disclaimer, this patent is intended to cover all articles and methods for which rights in a copyright, mask work, design patent, or design patent may be available under 35 U.S.C. 154(b) by 0 days after the date of this patent.
 (21) Appl. No.: 16409,304
 (22) Filed: May 10, 2019
 (51) Int. Cl. A61B 5/1455 (2006.01); A61B 5/00 (2006.01); A61B 5/145 (2006.01)
 (52) U.S. Cl. CPC 606/0200 (2013.01); A61B 5/1455 (2013.01); A61B 5/1456 (2013.01)

United States Patent
Poeze et al. (10) Patent No.: **US 10,299,708 B1**
 (45) Date of Patent: *May 28, 2019

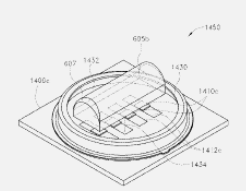
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United States Patent
Poeze et al. (10) Patent No.: **US 10,376,190 B1**
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(54) MULTISTREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS
 (71) Applicant: Masimo Corporation, Irvine, CA (US)
 (72) Inventors: Jeron Poeze, Rancho Santa Margarita, CA (US); Marcelo Lamego, Cupertino, CA (US); Sean Merritt, Lake Forest, CA (US); Cristian Opende, Irvine, CA (US); Hung Vo, Fountain Valley, CA (US); Johannes Brainsma, Opende, NJ (US); Ferdyan Leonardus, Irvine, CA (US); Mawi Joe E. Kiani, Laguna Niguel, CA (US); Greg Ohlen, Trabuco Canyon, CA (US)
 (73) Assignee: Masimo Corporation, Irvine, CA (US)
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 (21) Appl. No.: 16212,537
 (22) Filed: Dec. 6, 2018
 (51) Int. Cl. A61B 5/1455 (2006.01); A61B 5/00 (2006.01); A61B 5/145 (2006.01)
 (52) U.S. Cl. CPC 606/0200 (2013.01); A61B 5/1455 (2013.01); A61B 5/1456 (2013.01)

United States Patent
Poeze et al. (10) Patent No.: **US 10,258,266 B1**
 (45) Date of Patent: *Apr. 16, 2019

(54) MULTISTREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS
 (71) Applicant: MASIMO CORPORATION, Irvine, CA (US)
 (72) Inventors: Jeron Poeze, Rancho Santa Margarita, CA (US); Marcelo Lamego, Cupertino, CA (US); Sean Merritt, Lake Forest, CA (US); Cristian Opende, Irvine, CA (US); Hung Vo, Fountain Valley, CA (US); Johannes Brainsma, Opende, NJ (US); Ferdyan Leonardus, Irvine, CA (US); Mawi Joe E. Kiani, Laguna Niguel, CA (US); Greg Ohlen, Trabuco Canyon, CA (US)
 (73) Assignee: MASIMO CORPORATION, Irvine, CA (US)
 (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.
 (21) Appl. No.: 16212,537
 (22) Filed: Dec. 6, 2018
 (51) Int. Cl. A61B 5/1455 (2013.01); A61B 5/1456 (2013.01)
 (58) Field of Classification Search CPC - A61B 5/0026; A61B 5/1455; A61B 5/1456; A61B 5/14552; A61B 5/14552
 (56) References Cited U.S. PATENT DOCUMENTS 3,916,701 A 10/1975 Henderson et al. 4,114,094 A 9/1978 Shaw et al.
 FOREIGN PATENT DOCUMENTS EP 449223 3/1991 EP 1 518 494 3/2005
 OTHER PUBLICATIONS US 8245,543 B2, 09/2014, Diab et al. (withdrawn)
 (57) ABSTRACT The present disclosure relates to noninvasive methods, devices, and systems for measuring various blood constituents or analytes, such as glucose. In an embodiment, a light source comprises LEDs and super-luminescent LEDs. The light source emits light at least wavelengths of about 1610 nm, about 1640 nm, and about 1665 nm. In an embodiment, the detector comprises a plurality of photodetectors arranged in a special geometry comprising one of a substantially



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'191 Patent Claim 1

1. A noninvasive optical physiological sensor comprising:
a plurality of emitters configured to emit light in a direction towards a portion of a user;
a plurality of detectors configured to detect light that has been attenuated by tissue of the user, wherein the plurality of detectors comprise at least four detectors;
a housing configured to house at least the plurality of detectors in a circular portion of the housing;
a lens configured to be located between tissue of the user and the plurality of detectors when the noninvasive optical physiological sensor is worn by the user, wherein the lens comprises a single outwardly protruding convex surface configured to cause tissue of the user to conform to at least a portion of the outwardly protruding convex surface when the noninvasive optical physiological sensor is worn by the user, and during operation of the noninvasive optical physiological sensor.

'266 Patent Claim 1

1. A noninvasive optical physiological sensor comprising:
a plurality of emitters configured to emit light in a direction towards a portion of a user;
a plurality of detectors configured to detect light that has been attenuated by tissue of the user, wherein the plurality of detectors comprise at least four detectors;
a housing configured to house at least the plurality of detectors; and
a lens configured to be located between the tissue of the user and the plurality of detectors when the noninvasive optical physiological sensor is worn by the user, wherein the lens comprises a single outwardly protruding convex surface configured to cause tissue of the user to conform to at least a portion of the outwardly protruding convex surface when the noninvasive optical physiological sensor is worn by the user, and during operation of the noninvasive optical physiological sensor.

'190 Patent Claim 1

1. A noninvasive optical physiological measurement device adapted to be worn by a wearer, the noninvasive optical physiological measurement device providing a measurement and communication of a physiological parameter of the wearer, comprising:

one or more light emitters;

a housing having a surface and a circular ring extending from the surface;

at least four detectors arranged on the surface and spaced apart from each other, the at least four detectors being configured to output one or more signals responsive to light received from the one or more light emitters attenuated through the tissue, the one or more signals indicative of the physiological parameter of the wearer; and

a light permeable cover arranged above at least a portion of the housing, the light permeable cover comprising a protrusion arranged to cover the at least four detectors.

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