

# Patent Owner Masimo Co Demonstratives For Trial

*January 19, 2022*

*Apple Inc. v. Masimo Corporation*

*IPR2020-01521 (Patent 10,292,628)*

*IPR2020-01714 (Patent 10,631,765)*

*IPR2020-01715 (Patent 10,631,765)*

# Patents-At-Issue

(12) **United States Patent**  
Poeze et al.

(10) Patent No.: **US 10,631,765 B1**  
(45) Date of Patent: **\*Apr. 28, 2020**

(54) **MULTI-STREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS**

(58) Field of Classification Search  
CPC ..... A61B 5/1455; A61B 5/14551; A61B 5/14552; A61B 5/14553; A61B 5/14546; (Continued)

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

(56) **References Cited**

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(73) Assignee: **Masimo Corporation**, Irvine, CA (US)

(\* ) Notice: Subject to any disclaimer patent is extended or ad U.S.C. 154(b) by 0 days This patent is subject to claimer

(21) Appl. No.: **16725478**

(22) Filed: **Dec. 23, 2019**

**Related U.S. Application Data**

(63) Continuation of application No. 16,5 Aug. 7, 2019, which is a continuation (Continued)

(51) **Int. Cl.**  
*A61B 5/1455* (2006.01)  
*A61B 5/00* (2006.01)  
*A61B 5/145* (2006.01)

(52) **U.S. Cl.**  
CPC ..... *A61B 5/1455* (2013.01); *A61B 5/14552* (2013.01); *A61B 5/14553* (2013.01); *A61B 5/14546* (2013.01); (Continued)

(12) **United States Patent**  
Poeze et al.

(10) Patent No.: **US 10,292,628 B1**  
(45) Date of Patent: **\*May 21, 2019**

(54) **MULTI-STREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS**

(58) Field of Classification Search  
CPC : A61B 5/0205; A61B 5/1455; A61B 5/14551; A61B 5/14552; A61B 5/14553; (Continued)

(71) Applicant: **MASIMO CORPORATION**, Irvine, CA (US)

(56) **References Cited**

(72) Inventors: **Jerome Poeze**, Rancho Santa Margarita, CA (US); **Marcelo Lamego**, Cupertino, CA (US); **Sean Merritt**, Lake Forest, CA (US); **Cristiano Dab**, Lake Forest, CA (US); **Hung Vo**, Fountain Valley, CA (US); **Johannes Irwinoma**, Oppeinde (NL); **Ferdyan Lesmana**, Irvine, CA (US); **Masi Joe F. Kiani**, Laguna Niguel, CA (US); **Greg Olson**, 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.: **16281326**

(22) Filed: **Jan. 29, 2019**

**Related U.S. Application Data**

(63) Continuation of application No. 16/212,537, filed on Dec. 6, 2018, which is a continuation of application (Continued)

(51) **Int. Cl.**  
*A61B 5/1455* (2006.01)  
*A61B 5/00* (2006.01)  
*A61B 5/145* (2006.01)

(52) **U.S. Cl.**  
CPC ..... *A61B 5/1455* (2013.01); *A61B 5/14552* (2013.01); *A61B 5/14553* (2013.01); *A61B 5/14546* (2013.01); (Continued)

**30 Claims, 65 Drawing Sheets**

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## '765 Patent Claim 1

1. A physiological measurement system comprising:  
a physiological sensor device comprising:  
one or more emitters configured to emit light into tissue of a user;  
at least four detectors, wherein each of the at least four detectors has a corresponding window that allows light to pass through to the detector;  
a wall that surrounds at least the at least four detectors;  
and  
a cover comprising a protruding convex surface, wherein the protruding convex surface is above all of the at least four detectors, wherein at least a portion of the protruding convex surface is rigid, and wherein the cover operably connects to the wall; and  
a handheld computing device in wireless communication with the physiological sensor device, wherein the handheld computing device comprises:

one or more pr  
one or mor  
device, the c  
a physiolog  
a touch-scre  
interface, w  
the user int  
responsiv  
parameter  
an orientati  
responsiv  
a storage devic  
at least th  
parameter.

## '765 Patent Claims 12, 18, 29

**12.** The physiological measurement system of claim 1, wherein the protruding convex surface has a diameter between 1 millimeter and 3 millimeters.

**18.** The physiological measurement system of claim 1, wherein the protruding convex surface has a diameter greater than 2 millimeters and less than 3 millimeters.

**29.** The physiological measurement system of claim 1, wherein the protruding convex surface has a diameter greater than 2 millimeters and less than 3 millimeters.

## '628 Patent Claim 1

1. A noninvasive optical physiological sensor comprising:  
a plurality of emitters configured to emit light into the skin 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 light permeable cover 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 cover comprises an 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, and wherein the plurality of detectors are configured to receive light passed through the outwardly protruding convex surface after attenuation by tissue of the user.

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