

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor	:	Ammar Al-Ali
App. No.	:	15/499619
Filed	:	April 27, 2017
For	:	BODY WORN MOBILE MEDICAL PATIENT MONITOR
Examiner	:	Unknown
Art Unit	:	2685
Conf. No.	:	3723

PRELIMINARY AMENDMENT**Mail Stop Amendment**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

Prior to examination on the merits, please consider the following:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

1. **(Canceled)**
2. **(Previously Presented)** A body worn mobile medical monitoring device configured to minimize cable wiring from a sensor by placement of one or more sensor communication ports, the mobile medical monitoring device comprising:
 - a housing configured to be secured on a lower arm of a patient being monitored via a strap extending around the lower arm of the patient;
 - a display positioned on a face of the housing, opposite the strap, so as to be visible to a user;
 - a first sensor communication port positioned on a side of the housing and configured to face a hand of the lower arm of the patient when the mobile medical monitoring device is mounted to the lower arm of the patient, wherein:
 - the first sensor communication port is configured to provide wired communication with a pulse oximetry sensor attached to a digit of the hand of the patient, and
 - the first sensor communication port is positioned on the side of the housing such that a path from the first sensor communication port on the side of the housing to the digit of the patient is shorter than any other path from any other side of the housing to the digit of the patient.
3. **(Previously Presented)** The mobile medical monitoring device of Claim 2, wherein the wired communication with the pulse oximetry sensor is provided via a tail extending from the pulse oximetry sensor.
4. **(Previously Presented)** The mobile medical monitoring device of Claim 3, wherein the tail comprises a cable that is configured to be removably attachable to the first sensor communication port.
5. **(Previously Presented)** The mobile medical monitoring device of Claim 4, wherein a length of the cable corresponds to the path from the sensor communication port on the side of the housing to the digit of the patient.

6. **(Previously Presented)** The mobile medical monitoring device of Claim 4, wherein the cable is appropriately sized based on the path from the sensor communication port on the side of the housing to the digit of the patient.

7. **(Previously Presented)** The mobile medical monitoring device of Claim 4, wherein the path from the sensor communication port on the side of the housing to the digit of the patient runs at least partly along a backside of the hand of the patient.

8. **(Previously Presented)** The mobile medical monitoring device of Claim 2, wherein the face of the housing comprises a single user interface.

9. **(Previously Presented)** The mobile medical monitoring device of Claim 8, wherein the single user interface comprises the display.

10. **(Previously Presented)** The mobile medical monitoring device of Claim 9, wherein:

the housing comprises a back side that is opposite the face of the housing,

the strap is mountable to the back side of the housing, and

the face of the housing is raised from the strap and the lower arm of the patient to enable positioning of the first sensor communication port on the side of the housing between the lower arm of the patient and the face of the housing.

11. **(Previously Presented)** The mobile medical monitoring device of Claim 10, wherein:

the front side of the housing comprises a bezel and the display, and

a top of the first sensor communication port is located below the face of the housing.

12. **(Previously Presented)** The mobile medical monitoring device of Claim 11, wherein the display is positioned centrally on the face of the housing.

13. **(Currently Amended)** The mobile medical monitoring device of Claim 12, wherein the display positioned on the face of the housing is sized such that the display covers most of a length of a shortest dimension of the face of the housing, and wherein the mobile medical monitoring device further comprises:

second and third sensor communication ports positioned on the housing and configured to provide wired communication with one or more additional physiological sensors.

14. **(Canceled)**

15. **(Previously Presented)** A body worn, battery-powered medical monitoring device configured to provide on-patient and remote monitoring of patient physiological parameters, the medical monitoring device comprising:

a battery configured to provide power to the medical monitoring device such that the medical monitoring device may operate without a wired power connection;

a case configured to house the battery;

a strap configured to attach the case to an arm of a patient and be mountable to the case;

a first communications port positioned on a side of the case configured to be nearest to a hand of the arm of the patient when the case is mounted to the arm of the patient, the first communications port configured to removably couple with a cable of a finger- or thumb-type pulse oximetry sensor and positioned on the case to provide a path from the first communications port to a digit of the hand of the patient that avoids tangling of the cable;

a second communications port configured to provide communications with a second physiological sensor arrangement;

a third communications port configured to provide communications with a third physiological sensor arrangement;

a display configured to provide real time measurements of patient physiological parameters based at least in part on data obtained from at least the pulse oximetry sensor via the first communications port; and

a transmitter configured to wirelessly transmit information indicative of real time measurements of patient physiological parameters based at least in part on data obtained from the pulse oximetry sensor via the first communications port.

16. **(Previously Presented)** The medical monitoring device of Claim 15, wherein the path from the first communications port to a digit of the hand is shorter than any path from any communications port located on any other side of the case to the digit of the hand.

17. **(Previously Presented)** The medical monitoring device of Claim 15 further comprising:

one or more hardware processors configured to:

process the data obtained from the pulse oximetry sensor; and

determine, based at least in part on the data, the real time measurements of patient physiological parameters.

18. **(Previously Presented)** The medical monitoring device of Claim 17, wherein:

the one or more hardware processors are further configured to:

receive additional data from at least the second physiological sensor arrangement and the third physiological sensor arrangement;

determine, based at least in part on the additional data, real time measurements of additional patient physiological parameters; and

cause to be displayed, on the display, the real time measurements of additional patient physiological parameters; and

the transmitter is further configured to:

wirelessly transmit information indicative of real time measurements of additional patient physiological parameters based at least in part on the additional data.

19. **(Previously Presented)** The medical monitoring device of Claim 18, wherein the display is positioned on a front, user-facing side of the case to enable a user to view the real time measurements of patient physiological parameters and the real time measurements of additional patient physiological parameters.

20. **(Previously Presented)** The medical monitoring device of Claim 19, wherein the second physiological sensor arrangement comprises an EKG sensor arrangement and the third physiological sensor arrangement comprises a blood pressure sensor arrangement.

21. **(Previously Presented)** The medical monitoring device of Claim 20, wherein:

the first, second, and third communication ports are communicatively coupled to respective first, second, and third sensor interfaces; and

the first, second, and third sensor interfaces are uniquely configured to receive signals from the respective pulse oximetry sensor, EKG sensor arrangement, and blood pressure sensor arrangement.

22. (New) An body worn portable patient monitoring device configured to provide on-patient and remote monitoring of patient physiological parameters, the portable patient monitoring device comprising:

a pulse oximetry sensor configured to be wrapped around a digit of a patient, the pulse oximetry sensor including at least:

a light emitter configured to emit light into a tissue site of the digit of the patient;

a light detector configured output a first signal responsive to at least a portion of the emitted light after attenuation by tissue of the tissue site; and

a cable extending from the pulse oximetry sensor and configured to electrically convey the first signal;

a blood pressure sensor configured to output a second signal responsive to at least a blood pressure parameter of the patient;

an additional sensor arrangement configured to output a third signal responsive to at least one additional physiological parameter of the patient other than blood pressure or oxygen saturation, the at least one additional physiological parameter including at least one of: temperature or respiration rate;

a housing configured to be secured to a lower arm of the patient, the housing having a size and shape configured to be secured to the lower arm of the patient;

a strap mountable to the back side of the housing, the strap configured to secure the housing to the lower arm of the patient;

a display positioned on a front side of the housing that is opposite a back side of the housing, the display configured to show a status of the portable patient monitoring device and one or more parameter measurements so as to be viewable by a user, wherein

the display is positioned centrally on the front side of the display and is sized such that the display spans most of a length of a shortest dimension of the front side of the housing, and wherein the front side of the housing comprises a single user interface and a bezel;

one or more user input mechanisms configured to control an operational mode of the portable patient monitoring device in response to inputs from a user;

a first sensor port positioned on a first side of the housing, wherein:

the first side of the housing is configured to face toward a hand having the digit of the patient under measurement when the housing is secured to the lower arm of the patient,

the first sensor port is configured to removably physically couple with the pulse oximetry sensor via the cable and to electrically receive the first signal from the pulse oximetry sensor,

the cable is configured to run from the first sensor port, at least part way along a path down the arm of the patient, and to the digit of the patient to which the pulse oximetry sensor is configured to be wrapped around,

the front side of the housing is raised from the strap and the lower arm of the patient to enable positioning of the first sensor port on the first side of the housing between the lower arm of the patient and the front side of the housing, and

a top of the first sensor port is located below the front of the housing;

a second sensor port positioned on the housing and configured to provide electrical communication with the blood pressure sensor arrangement and to electrically receive second signal from the blood pressure sensor arrangement;

a third sensor port positioned on the housing and configured to provide electrical communication with the additional sensor arrangement and to electrically receive the third signal from the additional sensor arrangement;

a rechargeable battery positioned within the housing and configured to power the portable patient monitoring device such that the portable patient monitoring device is portable and wearable by the patient;

one or more signal processing arrangements positioned within the housing and configured to:

- receive the first signal from the pulse oximetry sensor via one or more sensor interfaces;

- process the first signal from the pulse oximetry sensor to determine measurements of oxygen saturation and pulse rate;

- receive the second signal from the blood pressure sensor arrangement via the one or more sensor interfaces, the second signal responsive to at least a blood pressure parameter of the patient;

- receive the third signal from the additional sensor arrangement via the one or more sensor interfaces, the third signal responsive to the at least one additional physiological parameter of the patient including at least one of: temperature or respiration rate; and

- cause the measurements of oxygen saturation, pulse rate, blood pressure, and the at least one additional physiological parameter to all be displayed on the display of the portable patient monitoring device; and

a transmitter positioned within the housing and configured to:

- wirelessly transmit a transmit signal including the information indicating the measurements of oxygen saturation, pulse rate, blood pressure, and the at least one additional physiological parameter to a separate computing device configured to display, on a remote display, the measurements of oxygen saturation, pulse rate, blood pressure, and the at least one additional physiological parameter.

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REMARKS

By way of summary, Claims 2-21 were pending in this application. In the present amendment, the Applicant has amended Claim 13, and canceled Claim 14, without prejudice or disclaimer of subject matter. Applicant has further added new Claim 22. Applicant reserves the right to pursue previously pending claims in this or another application. Accordingly, Claims 2-13 and 15-22 are pending for consideration.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child, or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Co-Pending Applications of Assignee

Applicant wishes to draw the Examiner's attention to the following co-pending applications of the present application's assignee.

Docket No.	Serial No.	Title	Filed
MASIMO.317C7	15/448989	ARM MOUNTABLE PORTABLE PATIENT MONITOR	3/3/2017
MASIMO.317C8	15/494967	ARM MOUNTABLE PORTABLE PATIENT MONITOR	4/24/2017
MASIMO.317C10	15/499716	WEARABLE PORTABLE PATIENT MONITOR	4/27/2017
MASIMO.584C1	14/464560	MODULAR PATIENT MONITOR	08/20/2014
MASIMO.785C2	14/733781	MODULAR PATIENT MONITOR	06/08/2015
MASIMO.899A	13/762270	WIRELESS PATIENT MONITORING DEVICE	02/07/2013

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Docket No.	Serial No.	Title	Filed
MASIMO.899P1	14/511974	PATIENT POSITION DETECTION SYSTEM	10/10/2014
MASIMO.899D1	14/834169	WIRELESS PATIENT MONITORING DEVICE	08/24/2015
MASIMO.899DA	29/537221	WIRELESS PATIENT MONITORING DEVICE	08/24/2015
MASIMO.930D1	15/214156	MEDICAL MONITORING HUB	07/19/2016
MASIMO.930D2	15/214276	MEDICAL MONITORING HUB	07/19/2016
MASIMO.930D3	15/214186	MEDICAL MONITORING HUB	07/19/2016
MASIMO.930P1	14/512237	SYSTEM FOR DISPLAYING MEDICAL MONITORING DATA	10/10/2014
MASIMO.963A	14/511972	ALARM NOTIFICATION SYSTEM	10/10/2014
MASIMO.1000A1	15/253567	WIRELESS PATIENT MONITORING SYSTEMS AND METHODS	08/31/2016
MASIMO.1000A2	15/253482	SYSTEMS AND METHODS TO MONITOR REPOSITIONING OF A PATIENT	08/31/2016
MASIMO.1000A3	15/253355	SYSTEMS AND METHODS FOR PATIENT FALL DETECTION	08/31/2016
MASIMO.1000A4	15/253536	PATIENT-WORN WIRELESS PHYSIOLOGICAL SENSOR	08/31/2016

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: May 22, 2017

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