

EXHIBIT 2111

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

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(54) **WEARABLE LIGHT-GUIDING BANDS FOR
PHYSIOLOGICAL MONITORING**

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Related U.S. Application Data

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25, 2009, provisional application No. 61/208,574,
filed on Feb. 25, 2009, provisional application No.
61/212,444, filed on Apr. 13, 2009, provisional
application No. 61/274,191, filed on Aug. 14, 2009.

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A61B 5/00 (2006.01)

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(52) **U.S. Cl.**
CPC **A61B 5/4812** (2013.01); **A61B 5/00**
(2013.01); **A61B 5/6815** (2013.01);

(Continued)

(58) **Field of Classification Search**

USPC 600/310
See application file for complete search history.

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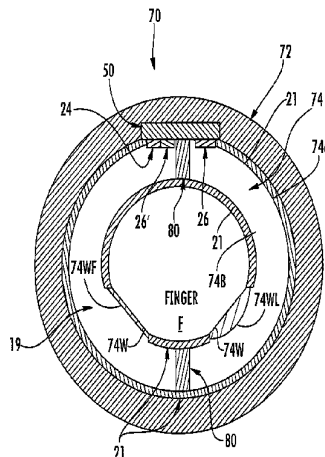
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Sajovec

(57) **ABSTRACT**

A monitoring device includes a band capable of encircling a
portion of the body of a subject, and an optical emitter and
detector attached to the band. The band includes comprises
light transmissive material in optical communication with the
optical emitter and optical detector and is configured to
deliver light from the optical emitter to one or more locations
of the body of the subject and to collect light from one or more
locations of the body of the subject and deliver the collected
light to the optical detector. The monitoring device may
include a signal processor configured to receive and process
signals produced by the optical detector, a transmitter config-
ured to transmit signals processed by the signal processor to
a remote device, and/or an optical filter.

11 Claims, 21 Drawing Sheets



- (51) **Int. Cl.**
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A61B 5/0476 (2006.01)
A61B 5/16 (2006.01)
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 USPC **600/310**

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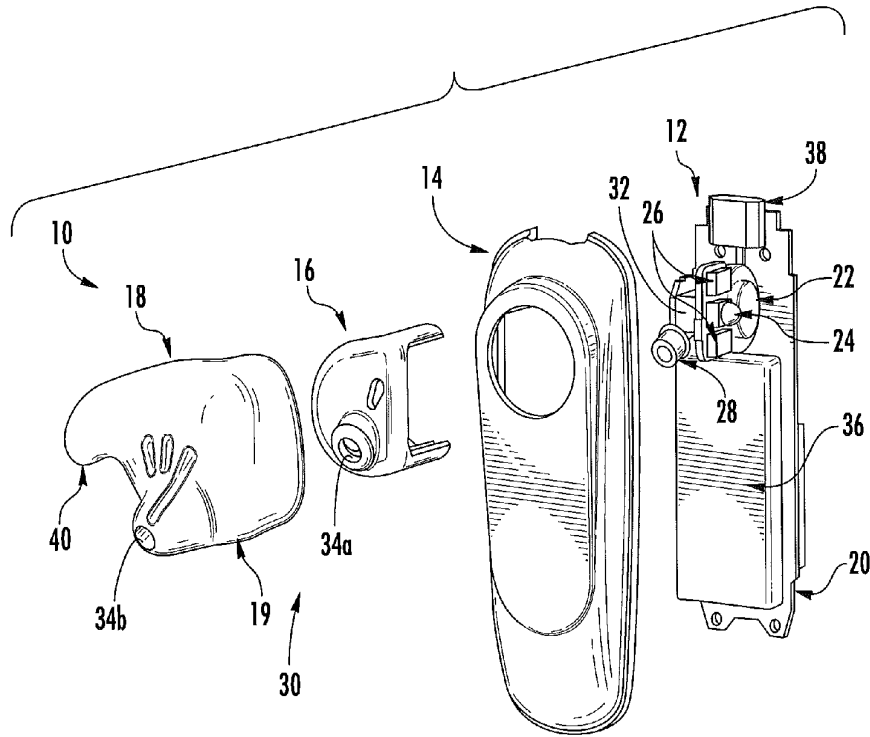


FIG. 1

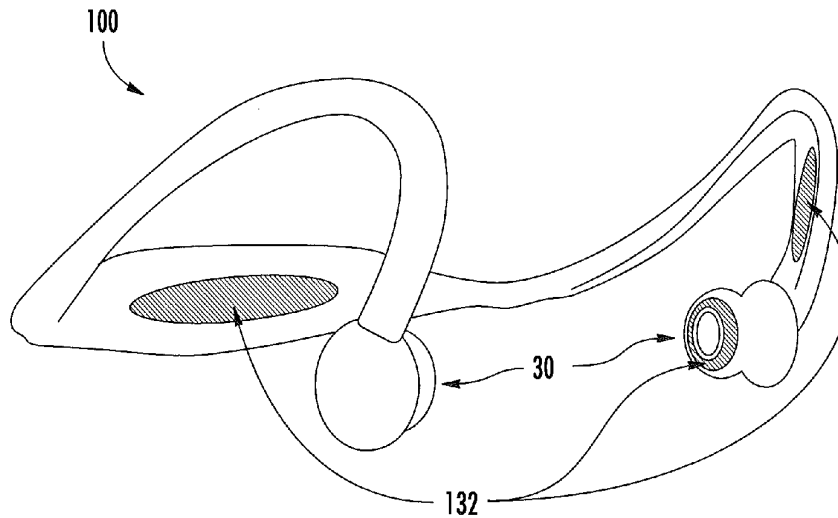


FIG. 2

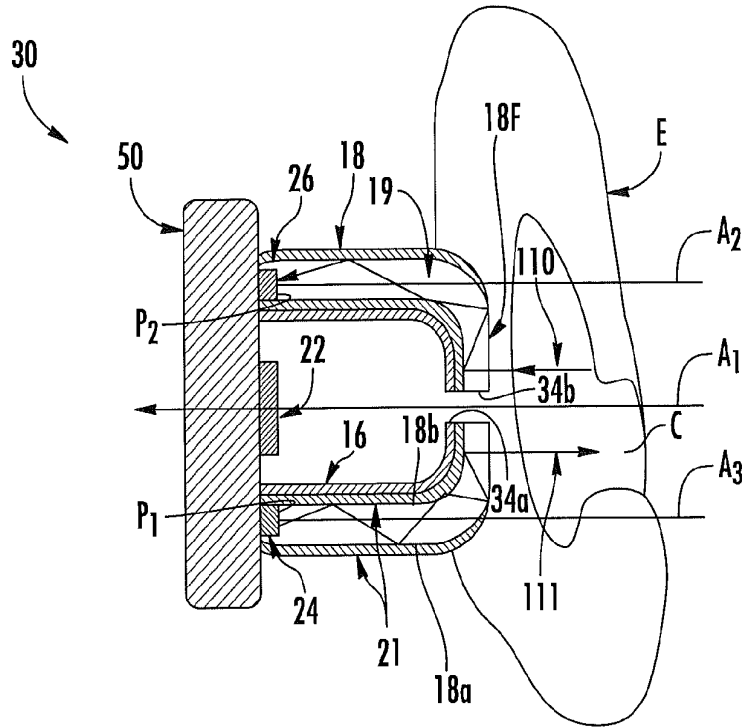


FIG. 3

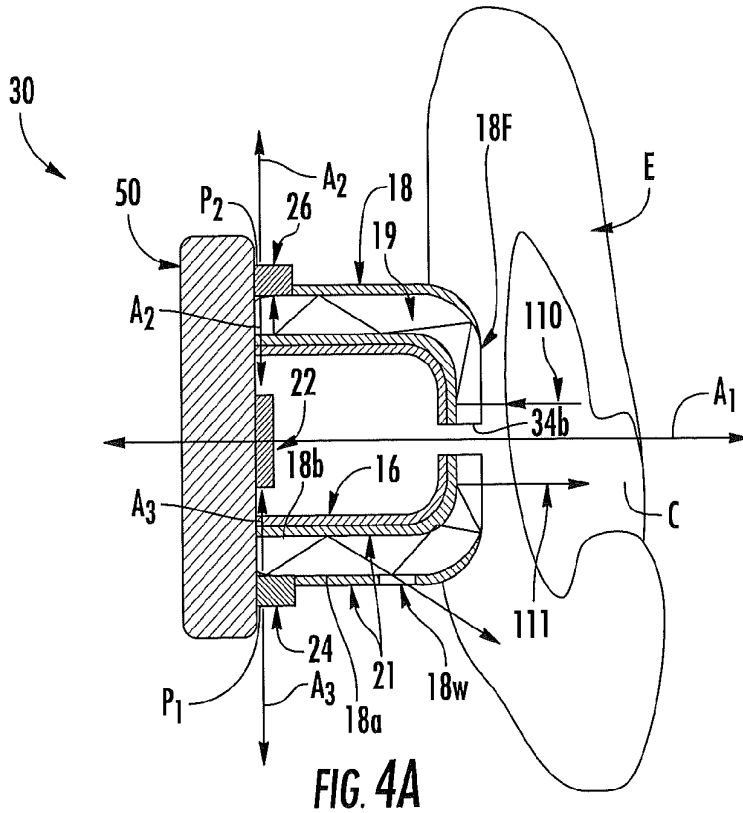


FIG. 4A

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