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

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See application file for complete search history.

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Related U.S. Application Data

(57) **ABSTRACT**

(63) Continuation of application No. 14/184,364, filed on Feb. 19, 2014, now Pat. No. 8,886,269, which is a continuation of application No. 12/691,388, filed on Jan. 21, 2010, now Pat. No. 8,700,111.

A monitoring device configured to be attached to the body of a subject includes an outer layer and an inner layer secured together. The inner layer includes light transmissive material and has inner and outer surfaces. A base is secured to at least one of the outer and inner layers and includes an optical emitter and optical detector. A layer of cladding material is positioned near the outer surface of the inner layer, and at least one window is formed in the layer of cladding material that serves as a light-guiding interface to the body of the subject. The light transmissive material delivers light from the optical emitter to the body of the subject along a first direction and collects light from the body of the subject and delivers the collected light in a second direction to the optical detector. The first and second directions are substantially parallel.

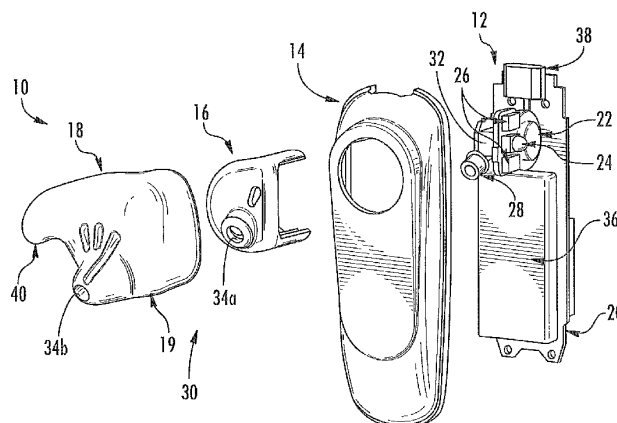
(Continued)

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(58) **Field of Classification Search**
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20 Claims, 21 Drawing Sheets



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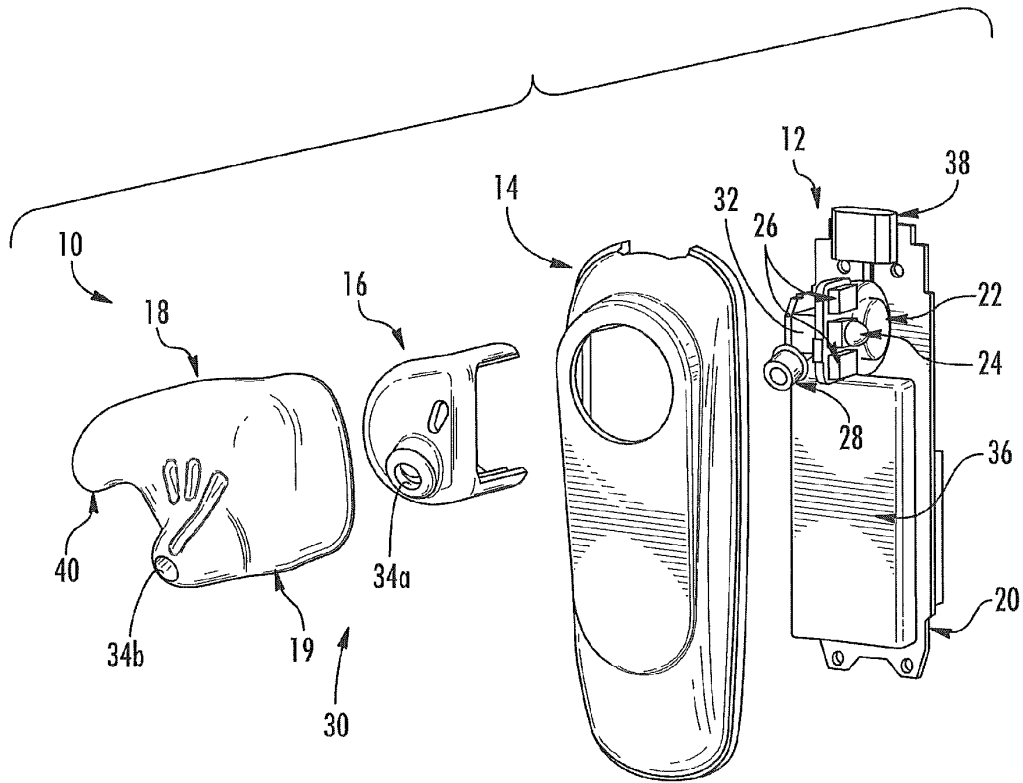


FIG. 1

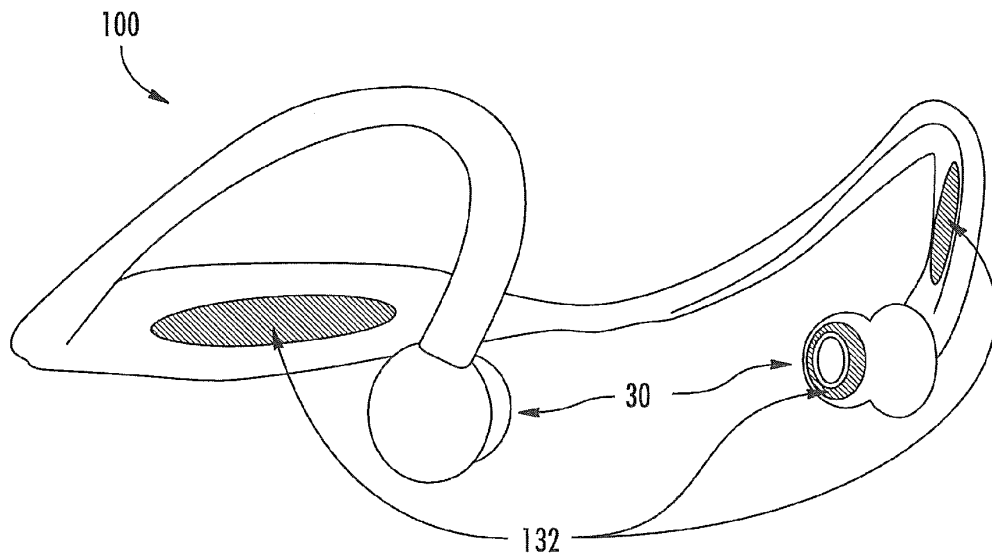


FIG. 2

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