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Ness et al.

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(54) **REFLECTIVE SURFACE TREATMENTS FOR OPTICAL SENSORS**

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A61B 5/08 (2006.01)
A61B 5/145 (2006.01)

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

(52) **U.S. Cl.**
CPC **G01N 21/55** (2013.01); **A61B 5/00** (2013.01); **A61B 5/0059** (2013.01); **G01N 21/4738** (2013.01); **A61B 5/0002** (2013.01); **A61B 5/021** (2013.01); **A61B 5/024** (2013.01); **A61B 5/0816** (2013.01); **A61B 5/14532** (2013.01); **A61B 5/14542** (2013.01); **A61B 5/681** (2013.01); **A61B 5/7203** (2013.01); **G01N 2201/0221** (2013.01); **G01N 2201/0625** (2013.01)

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(58) **Field of Classification Search**
USPC 600/476
See application file for complete search history.

(*) 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.

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(21) Appl. No.: **16/114,003**

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Related U.S. Application Data

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(60) Provisional application No. 62/043,294, filed on Aug. 28, 2014.

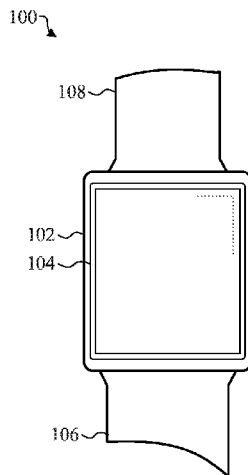
(51) **Int. Cl.**
A61B 5/04 (2006.01)
G01N 21/55 (2014.01)
G01N 21/47 (2006.01)
A61B 5/00 (2006.01)
A61B 5/021 (2006.01)

Primary Examiner — Nicole F Lavert
(74) *Attorney, Agent, or Firm* — Joseph F. Guihan

(57) **ABSTRACT**

An electronic device includes one or more light emitters for emitting light toward an object and one or more light detectors for collecting light exiting the object. A reflective coating, surface, or surface finish can be applied adjacent to the area to which light is emitted and/or through which light exits in order to increase the light collected by the light detector. The reflective coating can be oriented so as to reflect light back into the object.

20 Claims, 6 Drawing Sheets



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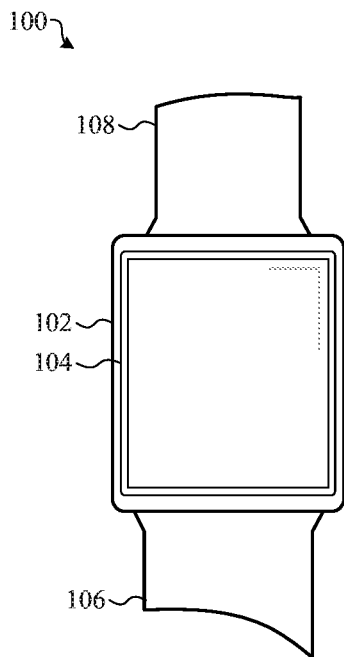


FIG. 1A

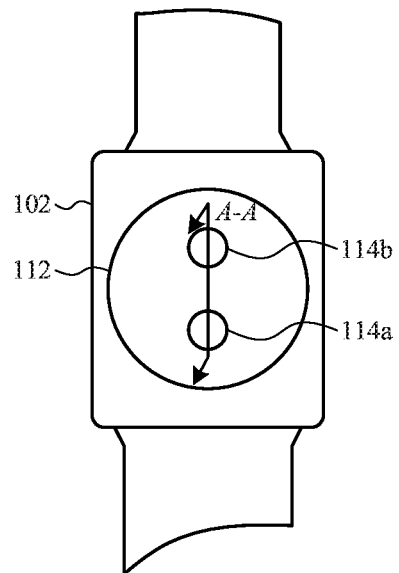


FIG. 1B

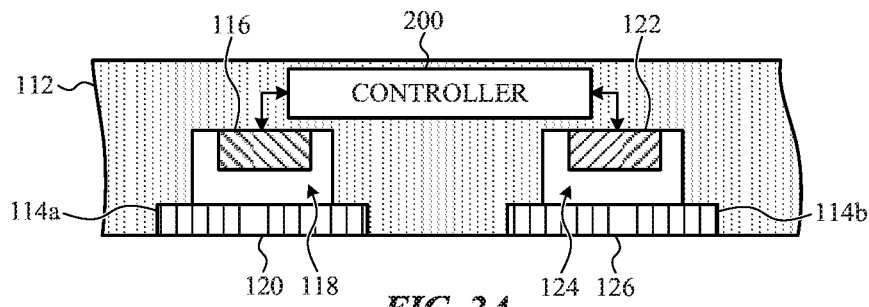


FIG. 2A

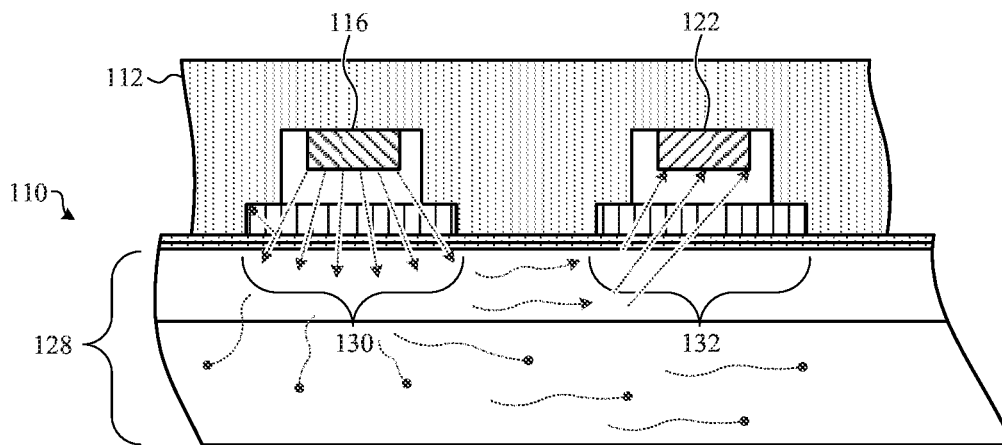


FIG. 2B

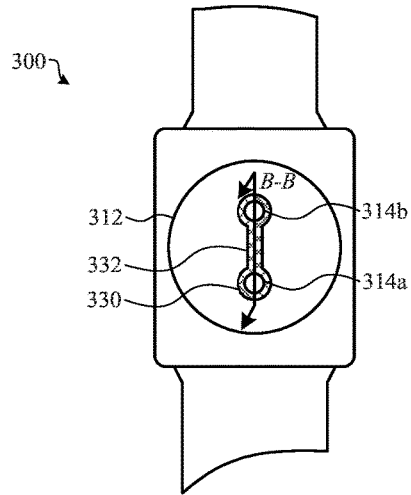


FIG. 3A

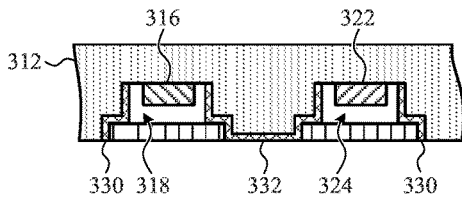


FIG. 3B

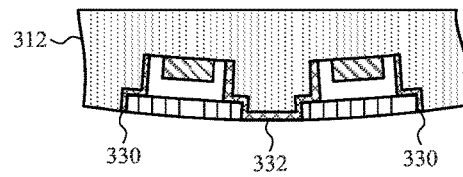


FIG. 3C

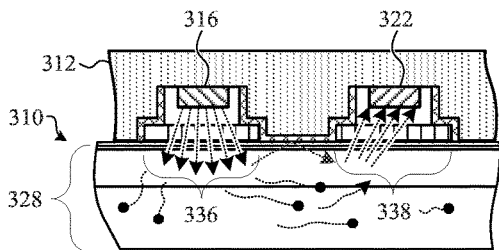


FIG. 3D

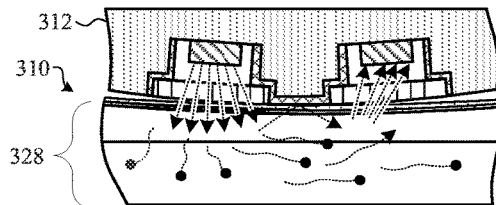


FIG. 3E

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