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(54) **HEART RATE SENSOR WITH HIGH-ASPECT-RATIO PHOTODETECTOR ELEMENT**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **14/724,750**

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**A61B 5/024** (2006.01)  
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CPC ..... **A61B 5/02427** (2013.01); **A61B 5/02438** (2013.01); **A61B 5/681** (2013.01)

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(58) **Field of Classification Search**  
CPC . A61B 5/02427; A61B 5/02438; A61B 5/681  
See application file for complete search history.

*Primary Examiner* — Bo J Peng  
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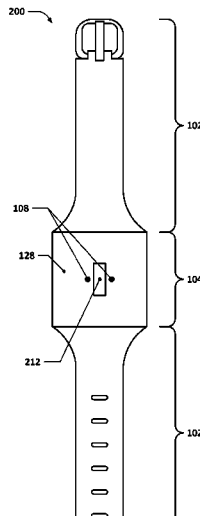
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(57) **ABSTRACT**

Heart rate sensors including high-aspect-ratio photodetector elements are discussed herein. Such high-aspect-ratio photodetector elements may provide improved signal-strength-to-power-consumption performance for heart rate sensors incorporating such photodetector elements as compared with heart rate sensors incorporating, for example, square photodetector elements.

**30 Claims, 14 Drawing Sheets**



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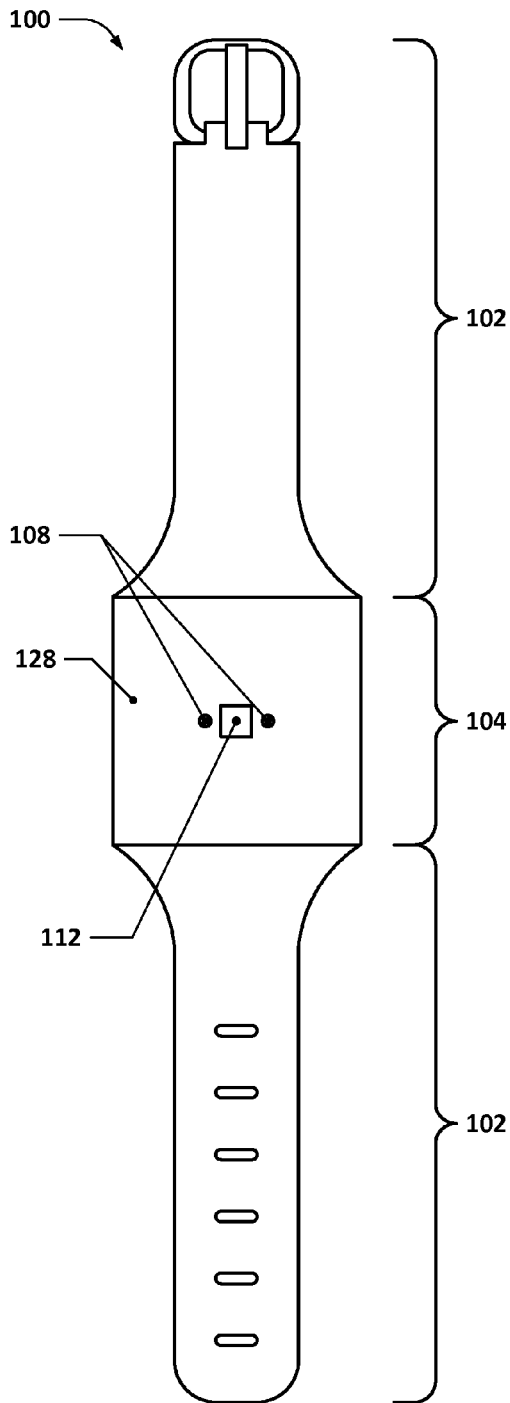


FIG. 1  
(Prior Art)

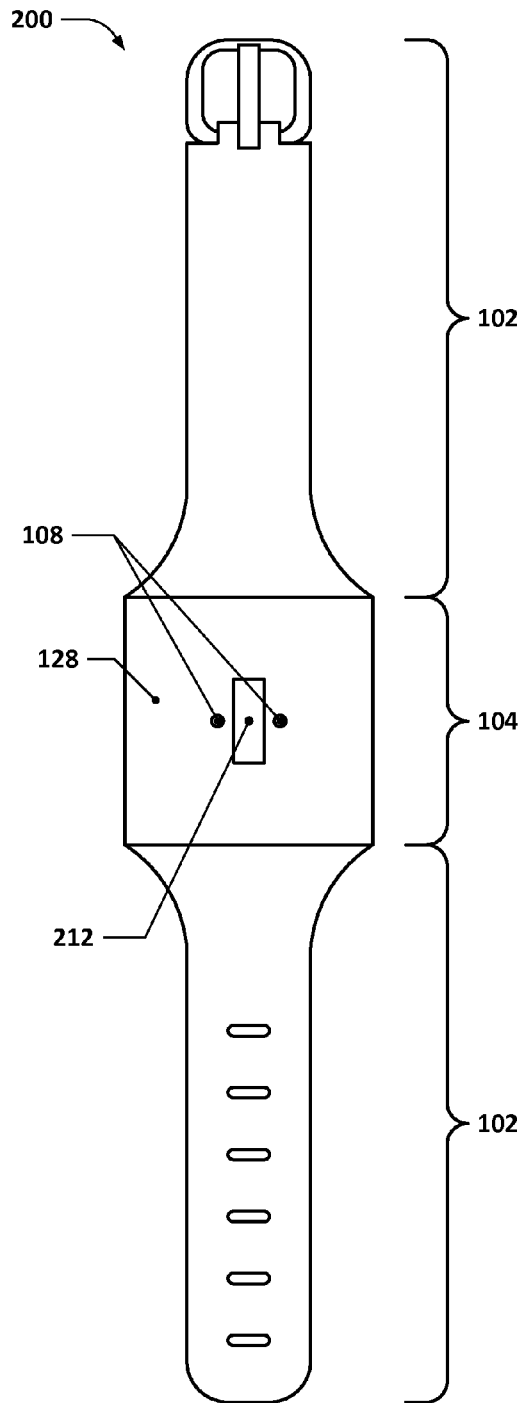


FIG. 2

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