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(12) **United States Patent**  
**Hicks et al.**(10) **Patent No.:** **US 6,745,061 B1**  
(45) **Date of Patent:** **Jun. 1, 2004**(54) **DISPOSABLE OXIMETRY SENSOR**(75) Inventors: **Christopher Hicks**, Boulder, CO (US);  
**Norma M. Prince**, Lyons, CO (US)(73) Assignee: **Datex-Ohmeda, Inc.**, Madison, WI  
(US)(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.(21) Appl. No.: **10/225,940**(22) Filed: **Aug. 21, 2002**(51) **Int. Cl.**<sup>7</sup> ..... **A61B 5/00**(52) **U.S. Cl.** ..... **600/344; 600/323**(58) **Field of Search** ..... 600/310, 322,  
600/323, 340, 344(56) **References Cited****U.S. PATENT DOCUMENTS**

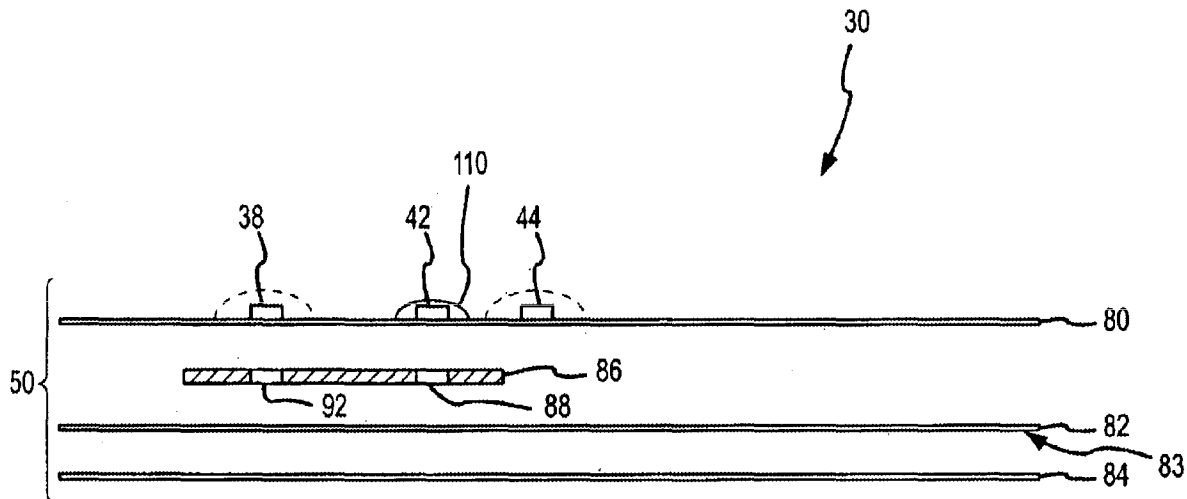
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Breyfogle LLP(57) **ABSTRACT**

The invention is directed to a disposable oximetry sensor having an integrally formed connector. In one aspect, the sensor includes a clear flexible substrate on which a light emitter and/or light detector (collectively active component (s)) are mounted to allow those components to emit/detect light though the clear substrate and a second patient-side surface of that substrate. The clear substrate will generally contain one or more electrically conductive traces, preferably formed through a printing process, for interconnection to the active components. In this regard, the clear substrate acts as the electrical connector and lens structure for the active components reducing the overall part count for the sensor's assembly. Additional materials/layers may be added to the sensor including an adhesive layer, a compressible material layer, a light blocking layer, and/or a heat sink for thermal management. Generally, any additional layers/materials applied the patient-side of the clear substrate will be substantially transparent to allow light curing of adhesives utilized to connect components to the sensor though the patient-side surface of the sensor during production.

**34 Claims, 13 Drawing Sheets**

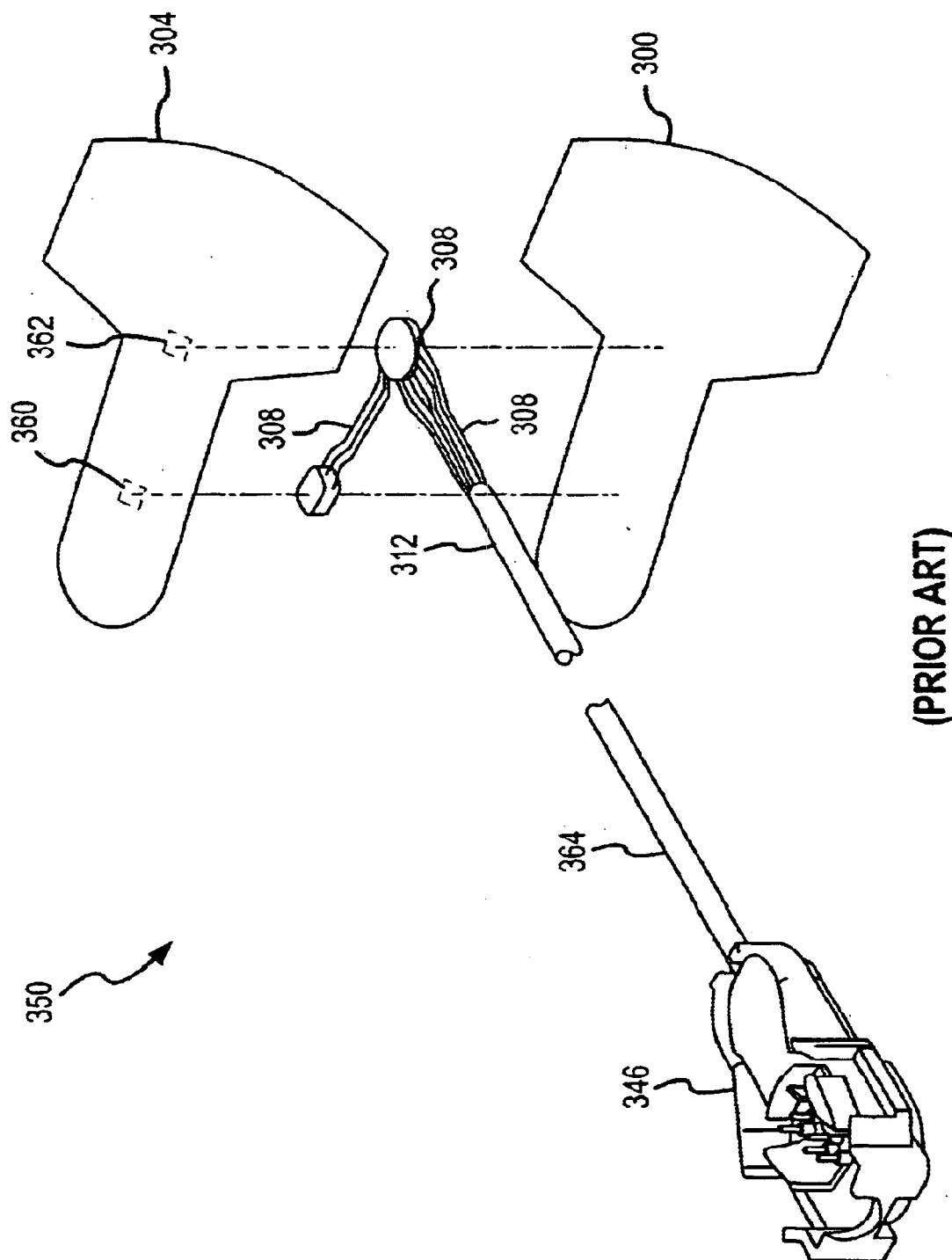
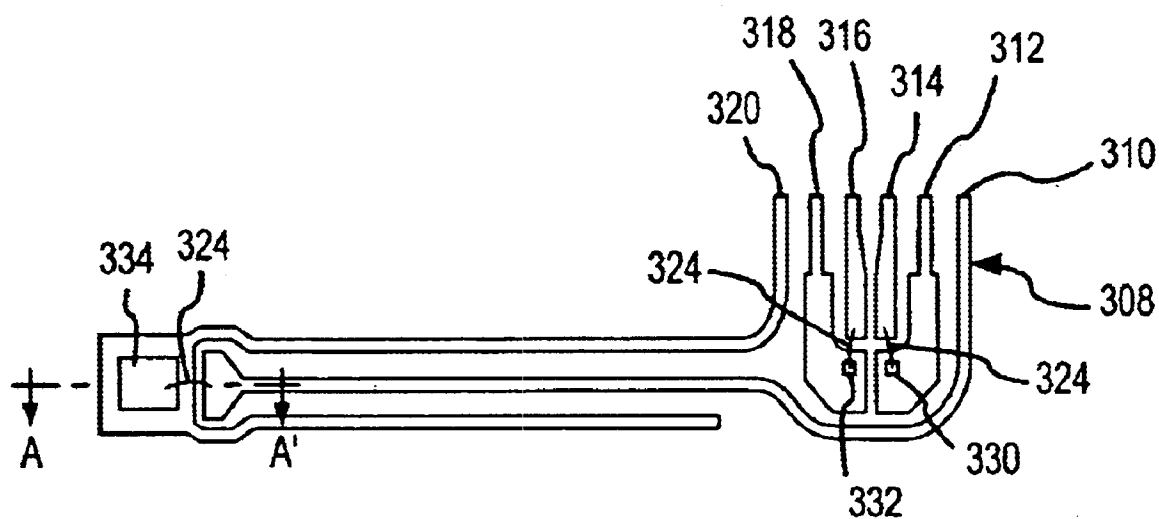
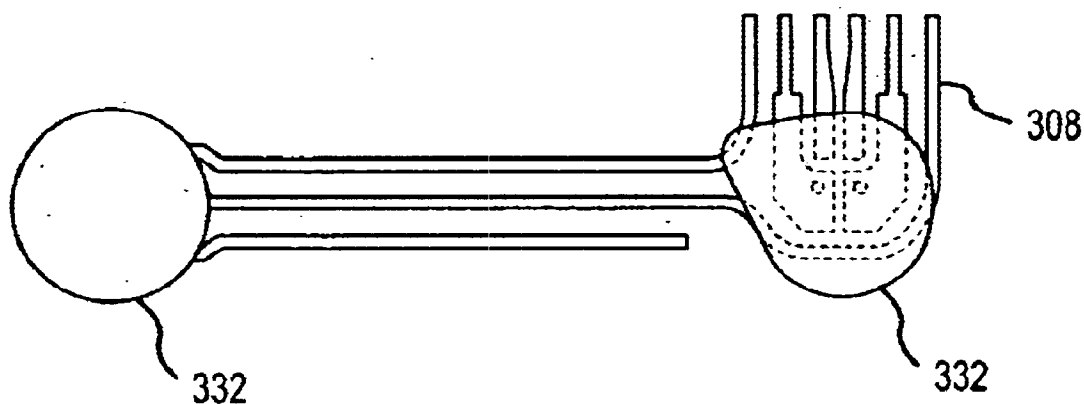


FIG. 1



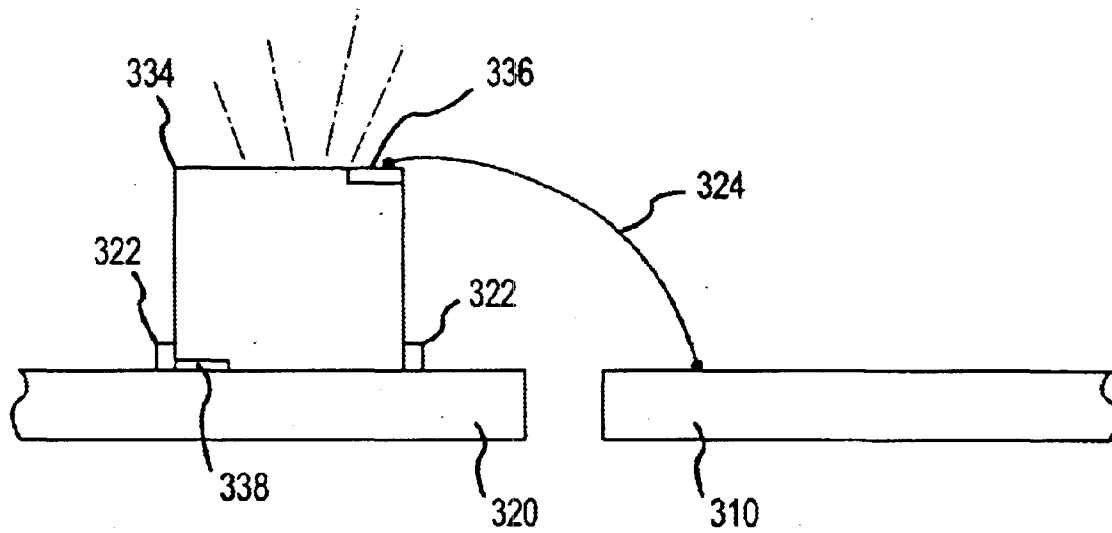
(PRIOR ART)

FIG. 2



(PRIOR ART)

FIG. 4



(PRIOR ART)

FIG.3

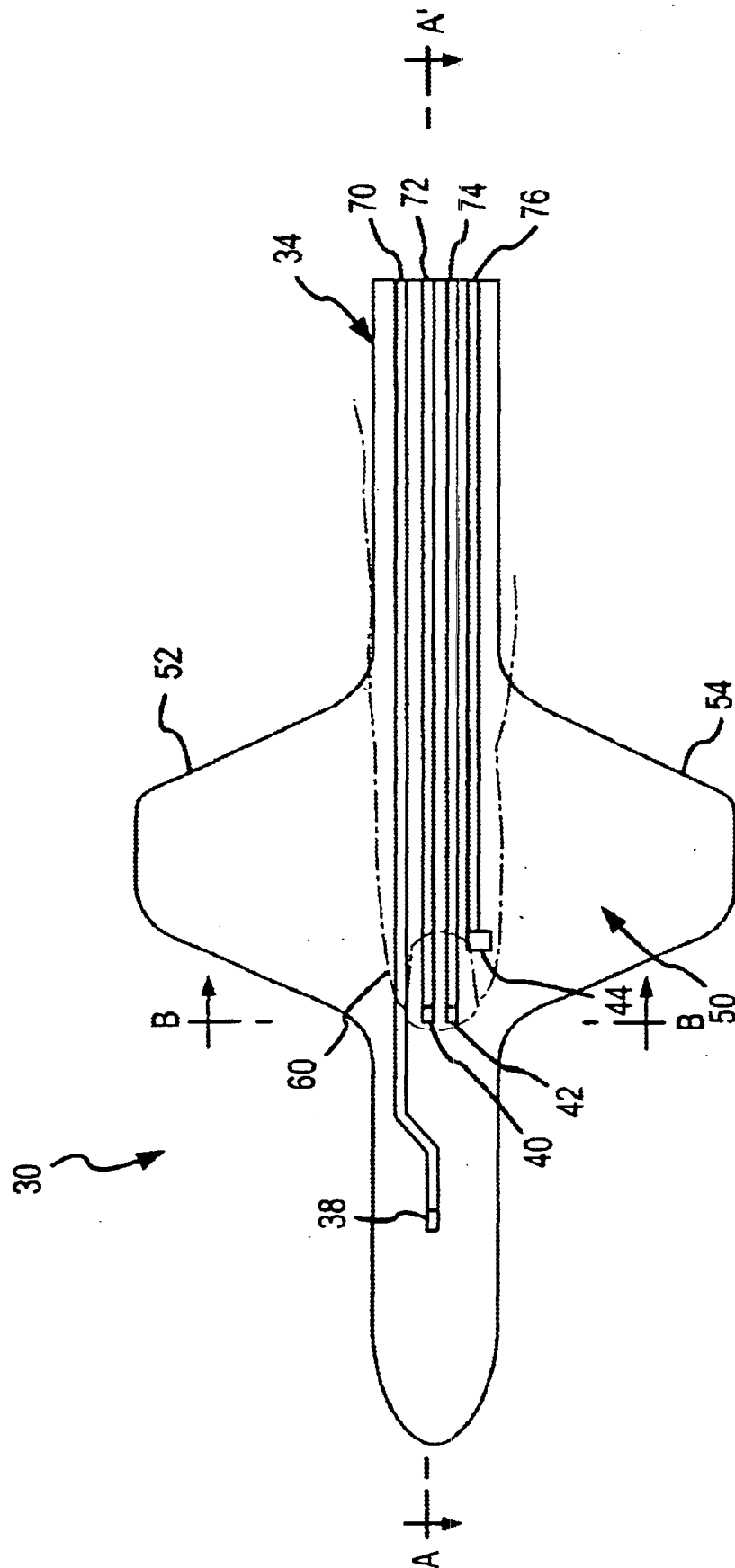


FIG. 5

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