



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

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(54) **DISPOSABLE OXIMETRY SENSOR**

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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.

5,671,529 A	9/1997	Nelson	29/825
5,678,544 A	10/1997	DeLonzor et al.	
5,782,757 A *	7/1998	Diab et al.	600/323
RE36,000 E	12/1998	Swedlow et al.	
5,913,819 A	6/1999	Taylor et al.	600/323
6,014,576 A	1/2000	Raley	600/344
6,073,038 A	6/2000	Wang et al.	600/323

* cited by examiner

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(21) Appl. No.: **10/225,940**

(22) Filed: **Aug. 21, 2002**

(51) **Int. Cl.**⁷ **A61B 5/00**

(52) **U.S. Cl.** **600/344; 600/323**

(58) **Field of Search** **600/310, 322, 600/323, 340, 344**

(57) **ABSTRACT**

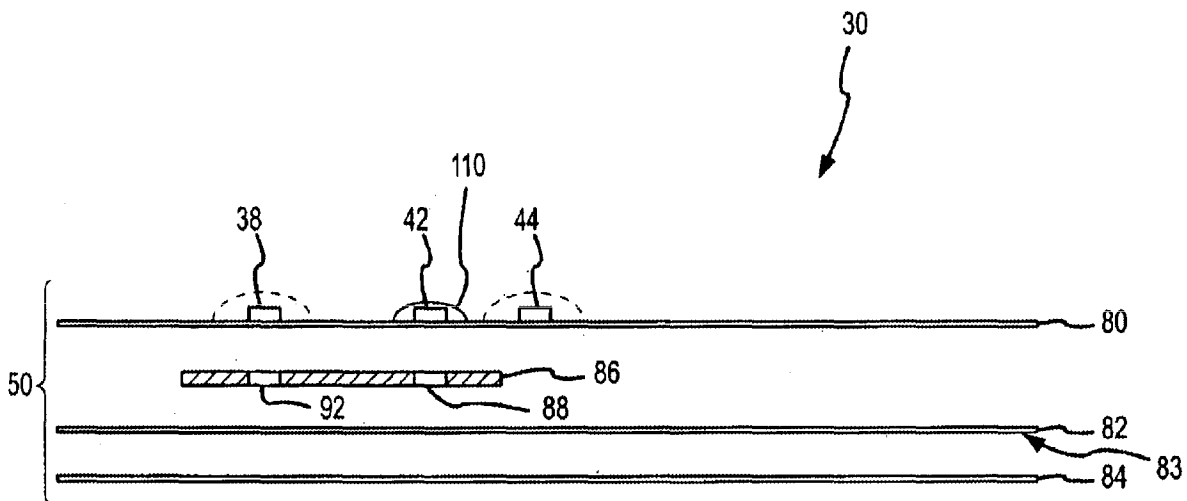
The invention is directed to a disposable oximetry sensor having an integrally formed connector. In one aspect, the sensor includes a clear flexible substrate on which a light emitter and/or light detector (collectively active component (s)) are mounted to allow those components to emit/detect light 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.

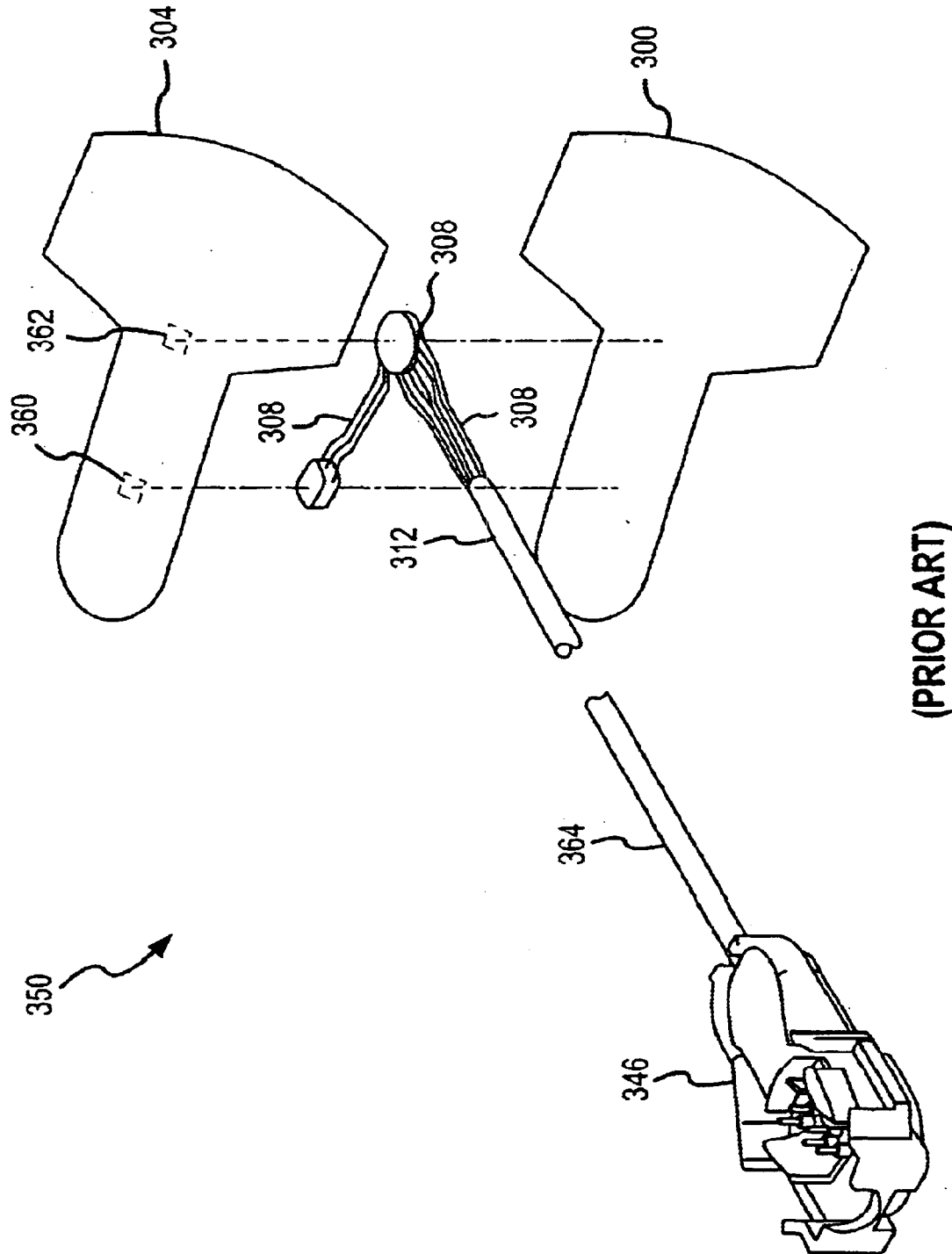
(56) **References Cited**

U.S. PATENT DOCUMENTS

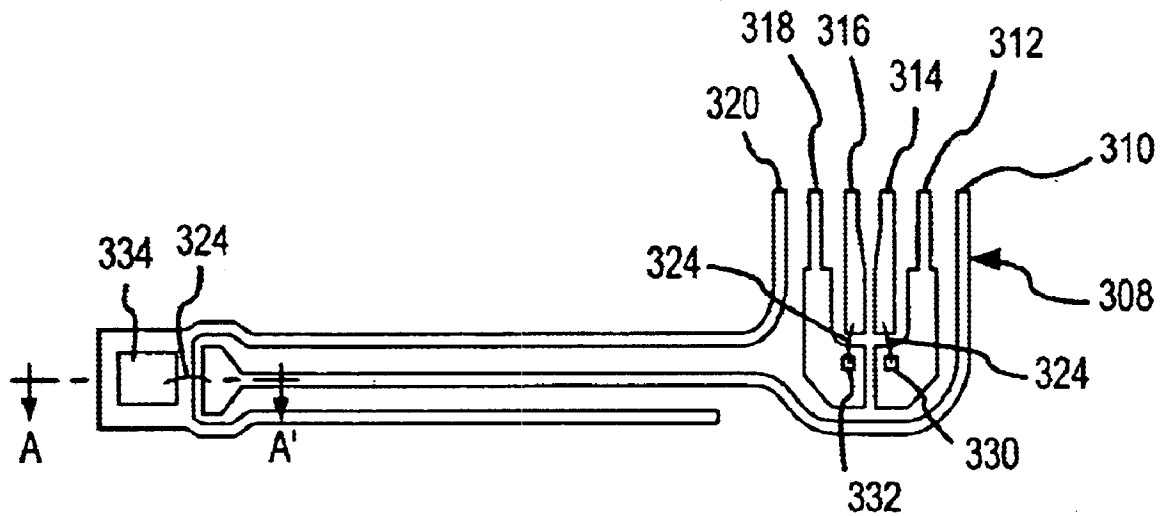
4,825,872 A	5/1989	Tan et al.	
4,830,014 A	5/1989	Goodman et al.	
4,865,038 A	9/1989	Rich et al.	
4,964,408 A	10/1990	Hink et al.	
5,041,187 A	8/1991	Hink et al.	
5,237,994 A	8/1993	Goldberger	
5,246,003 A	9/1993	DeLonzor	
5,249,576 A	10/1993	Goldberger et al.	
5,263,244 A	11/1993	Centa et al.	
5,425,360 A	6/1995	Nelson	
5,427,093 A *	6/1995	Ogawa et al.	600/323
5,452,717 A	9/1995	Branigan et al.	
5,469,845 A	11/1995	DeLonzor et al.	
5,520,177 A	5/1996	Ogawa et al.	

34 Claims, 13 Drawing Sheets



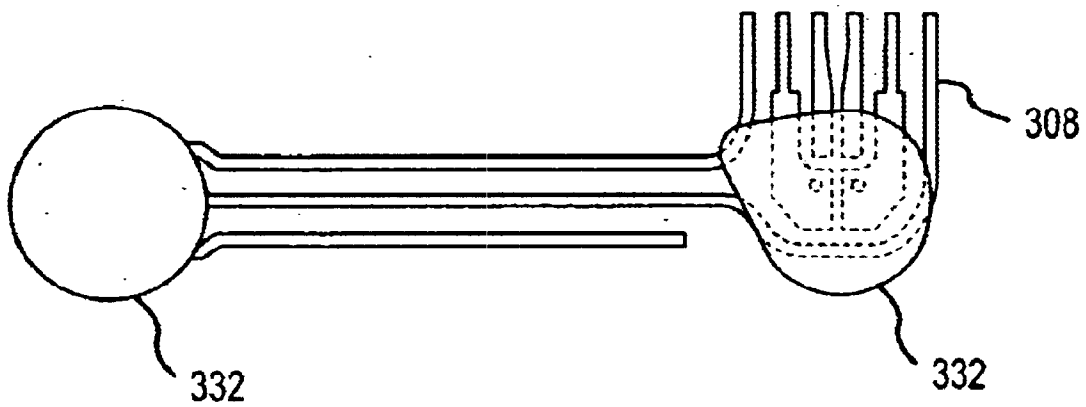


(PRIOR ART)
FIG. 1



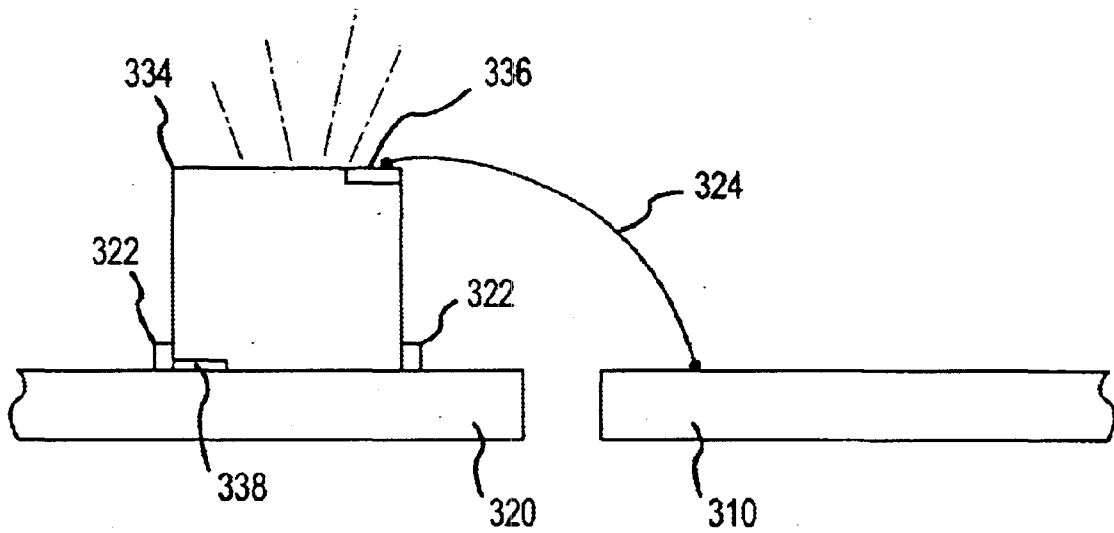
(PRIOR ART)

FIG. 2



(PRIOR ART)

FIG. 4



(PRIOR ART)

FIG.3

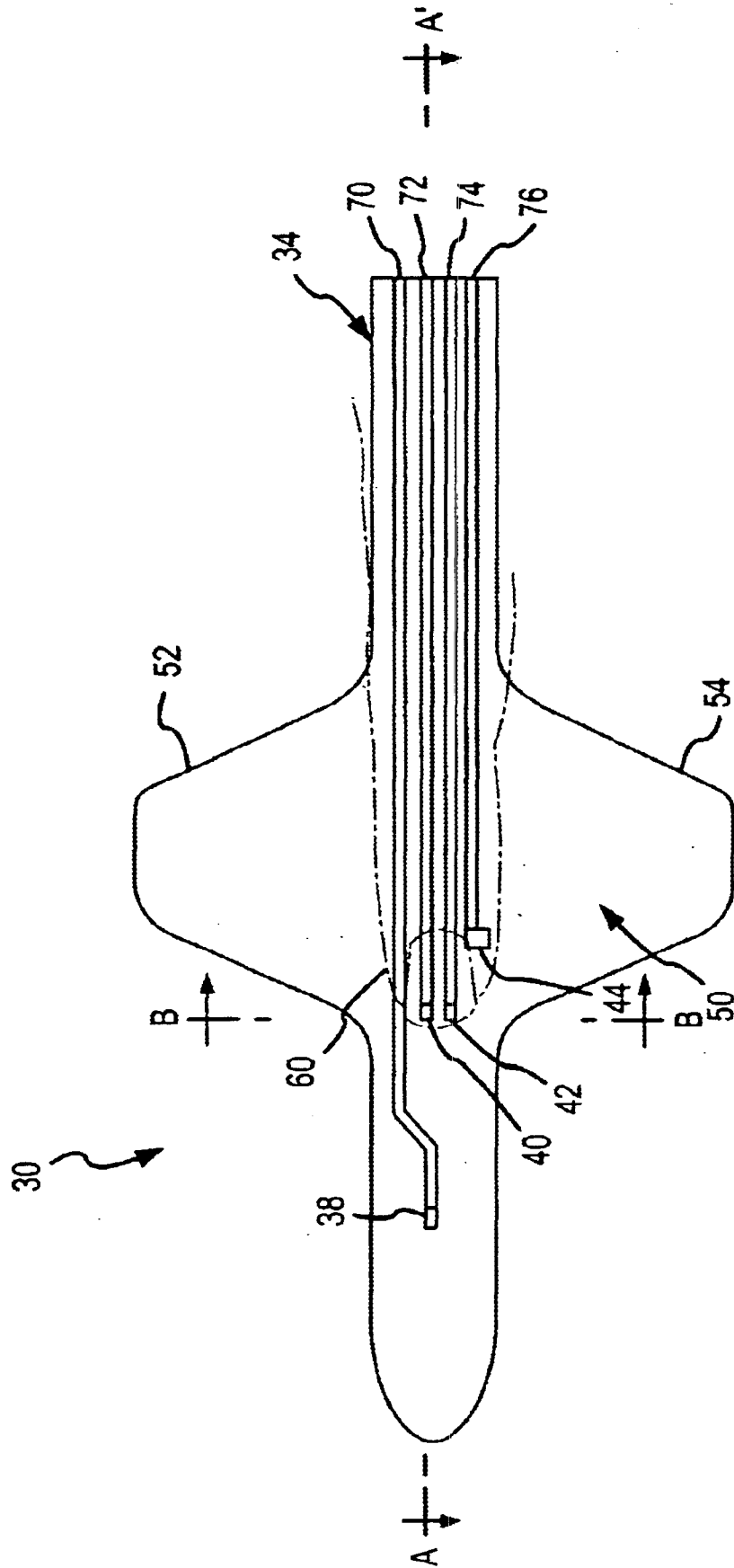


FIG. 5

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