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**United States Patent** [19]  
**Mannheimer**

[11] **Patent Number:** **5,746,206**  
[45] **Date of Patent:** **\*May 5, 1998**

[54] **ISOLATED LAYER PULSE OXIMETRY**  
[75] Inventor: **Paul D. Mannheimer**, Belmont, Calif.  
[73] Assignee: **Nellcor Incorporated**, Pleasanton, Calif.  
[\*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,524,617

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[21] Appl. No.: **662,439**  
[22] Filed: **Jun. 10, 1996**

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**Related U.S. Application Data**

[63] Continuation of Ser. No. 403,642, Mar. 14, 1995, Pat. No. 5,524,617.  
[51] **Int. Cl.<sup>6</sup>** ..... **A61B 5/00**  
[52] **U.S. Cl.** ..... **125/633; 356/39**  
[58] **Field of Search** ..... **128/633, 664, 128/665; 356/41**

*Primary Examiner*—Jennifer Bahr  
*Assistant Examiner*—Eric F. Winakur  
*Attorney, Agent, or Firm*—Nawrocki, Rooney & Sivertson

[57] **ABSTRACT**

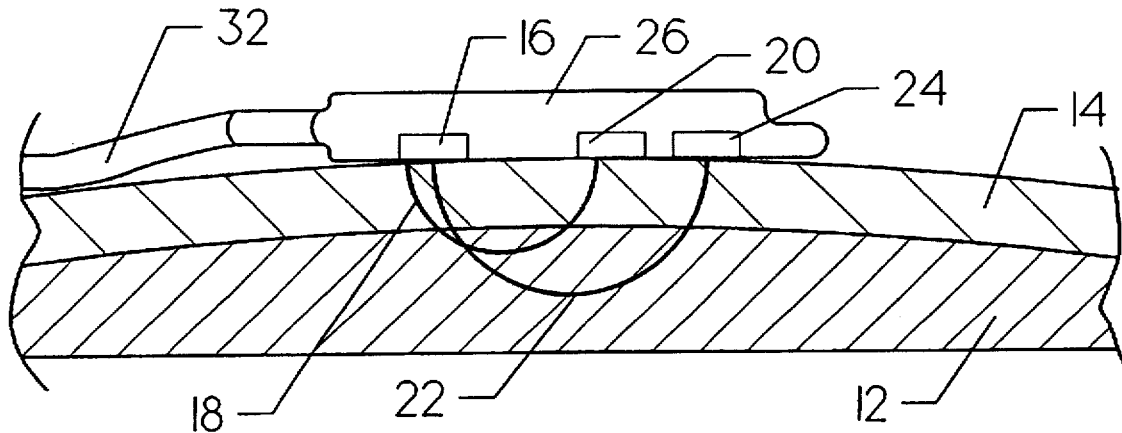
An apparatus of and method for measuring arterial blood oxygen saturation at a particular tissue level of interest. Visible and near infrared radiation is emitted into a patient at the measurement site using two different wavelengths. Detection at two different detection sites permits rejection of oxygen saturation at undesired tissue levels.

[56] **References Cited**

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**6 Claims, 8 Drawing Sheets**



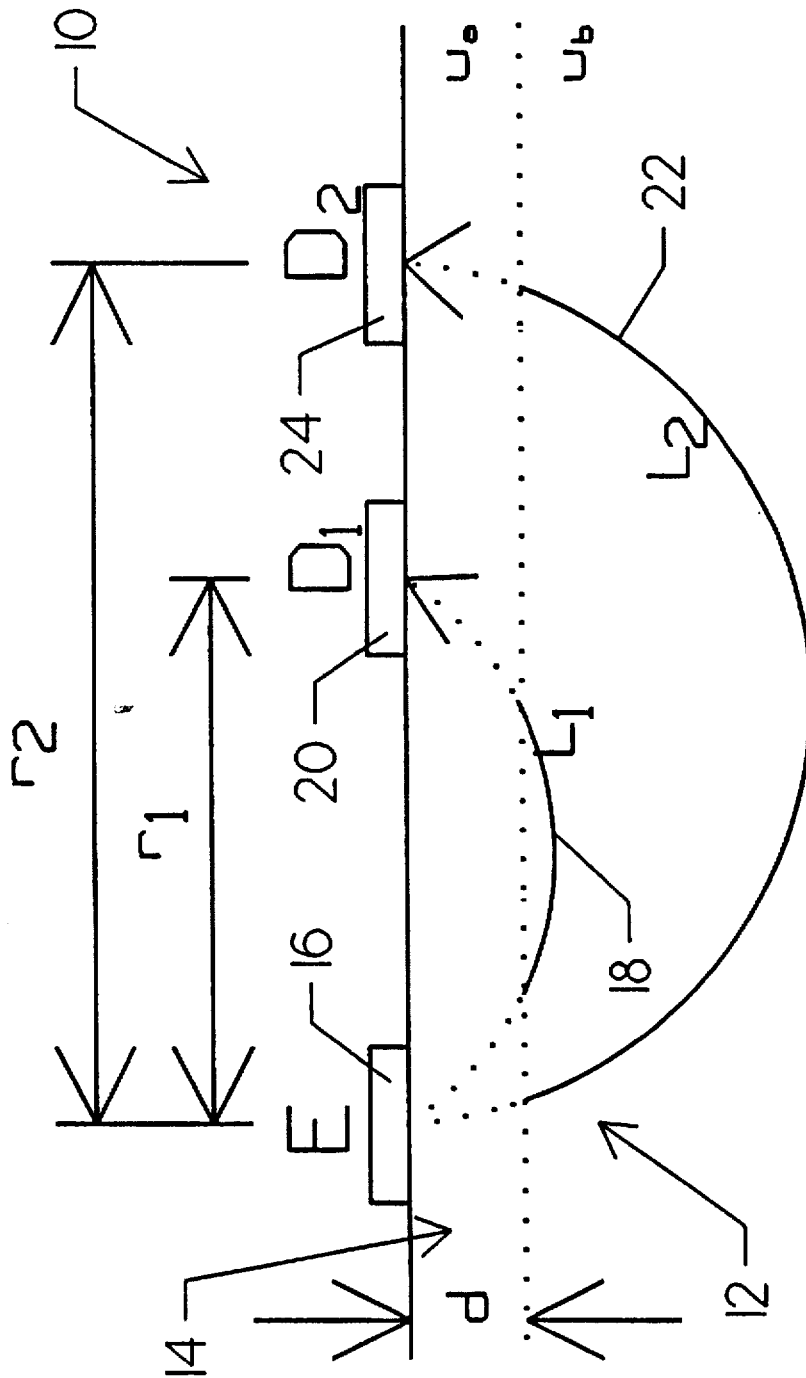


FIG. 1 A

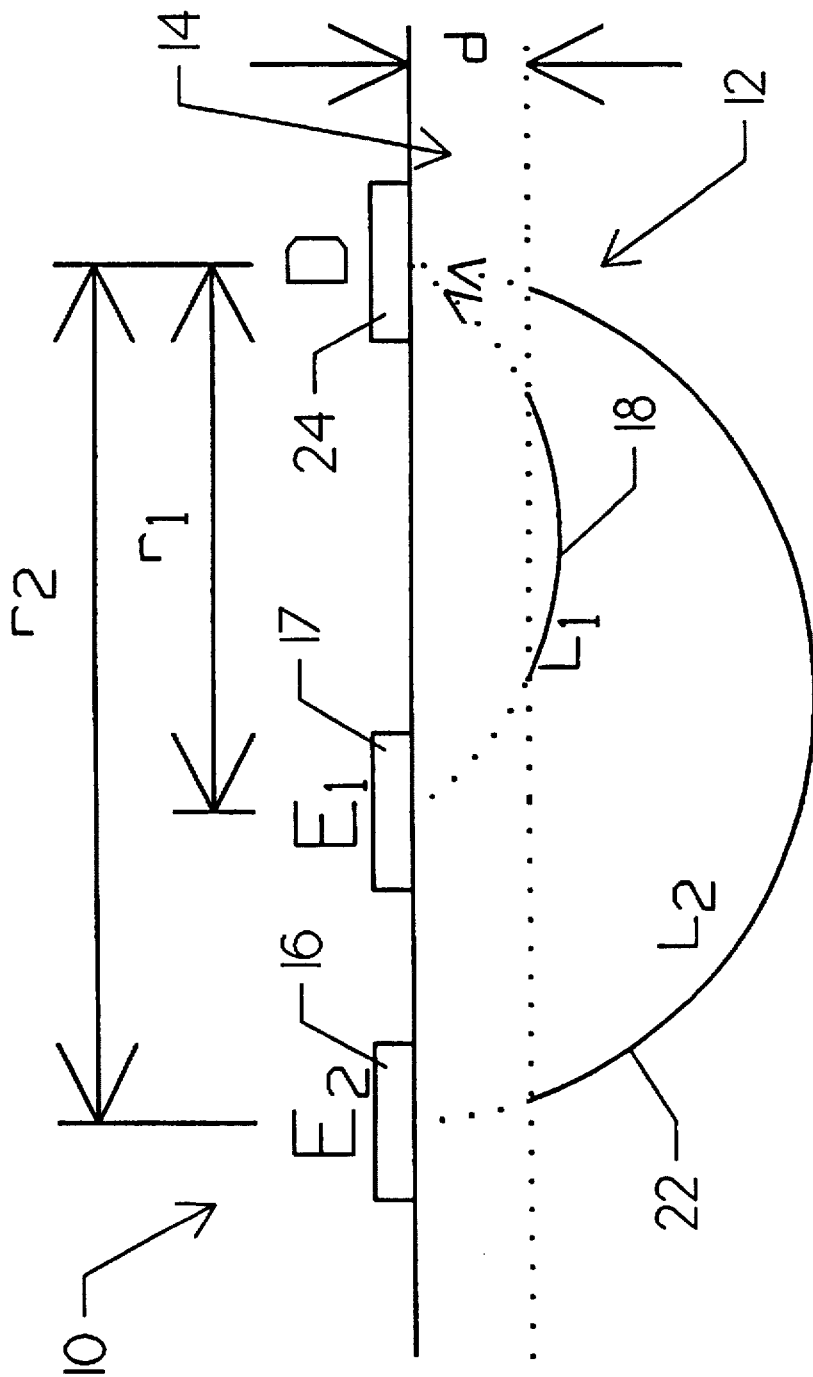


FIG. 1B

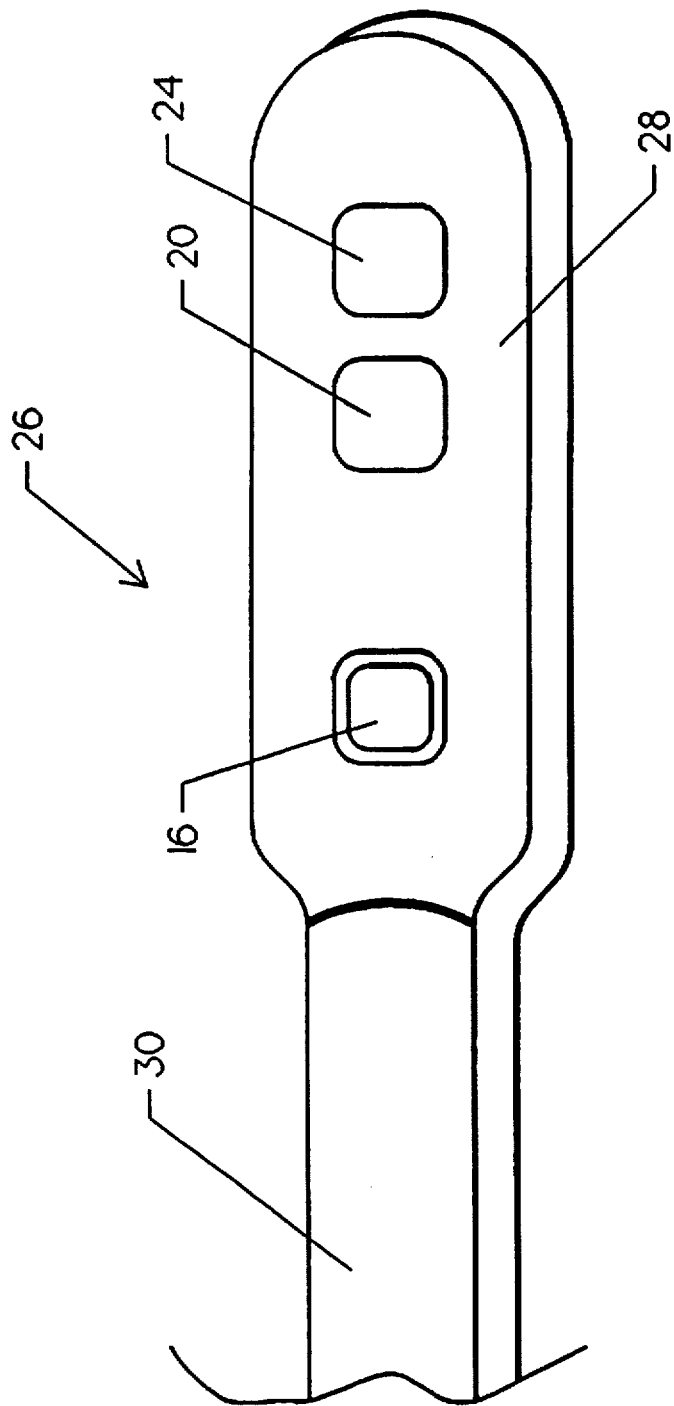


FIG. 2

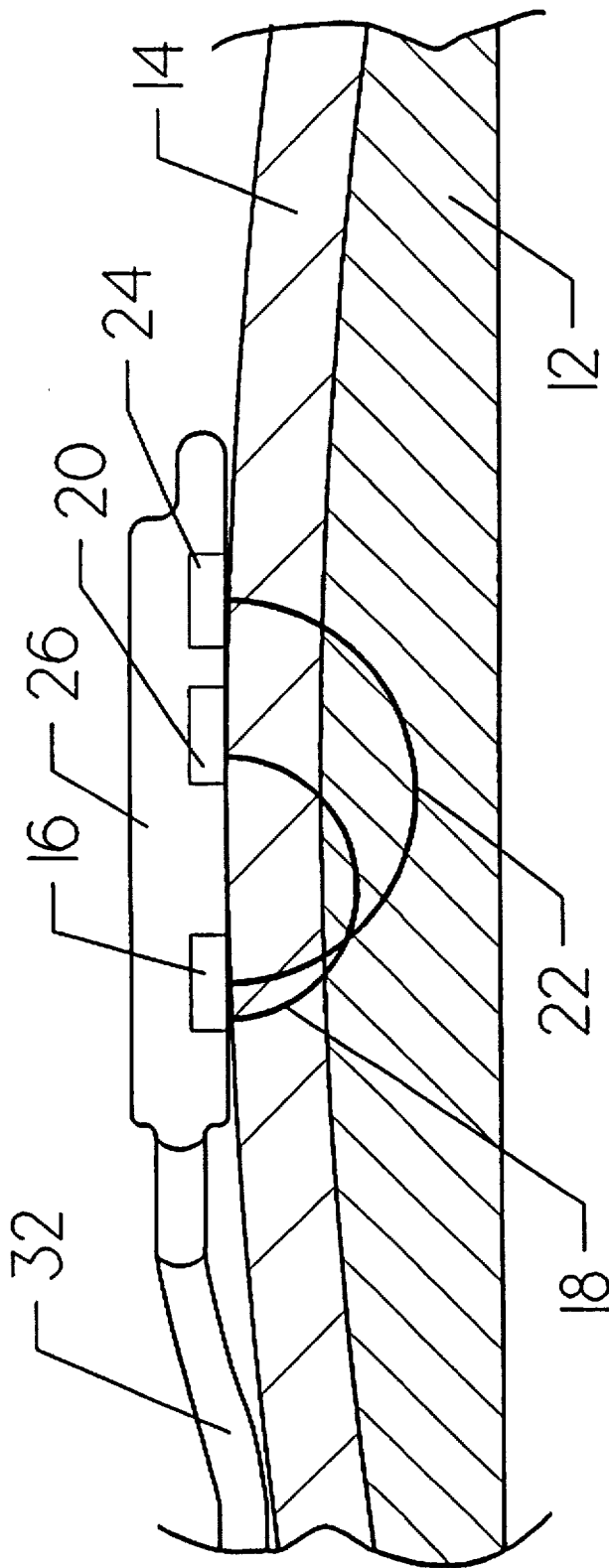


FIG. 3

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