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# United States Patent [19]

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Mannheimer et al.

[45] Date of Patent: **Mar. 31, 1992**

[54] **PERINATAL PULSE OXIMETRY PROBE**

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[75] Inventors: **Paul D. Mannheimer, Belmont; Carl Ritson, San Jose, both of Calif.**

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[73] Assignee: **Nellcor Incorporated, Hayward, Calif.**

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[21] Appl. No.: **504,235**

*Primary Examiner*—Ruth S. Smith  
*Attorney, Agent, or Firm*—Townsend and Townsend

[22] Filed: **Apr. 4, 1990**

### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 264,196, Oct. 28, 1988, Pat. No. 4,938,218.

[51] Int. Cl.<sup>5</sup> ..... **A61B 5/00**

[52] U.S. Cl. .... **128/633**

[58] Field of Search ..... 128/633-634,  
128/643, 664-666; 356/40, 41

### [57] ABSTRACT

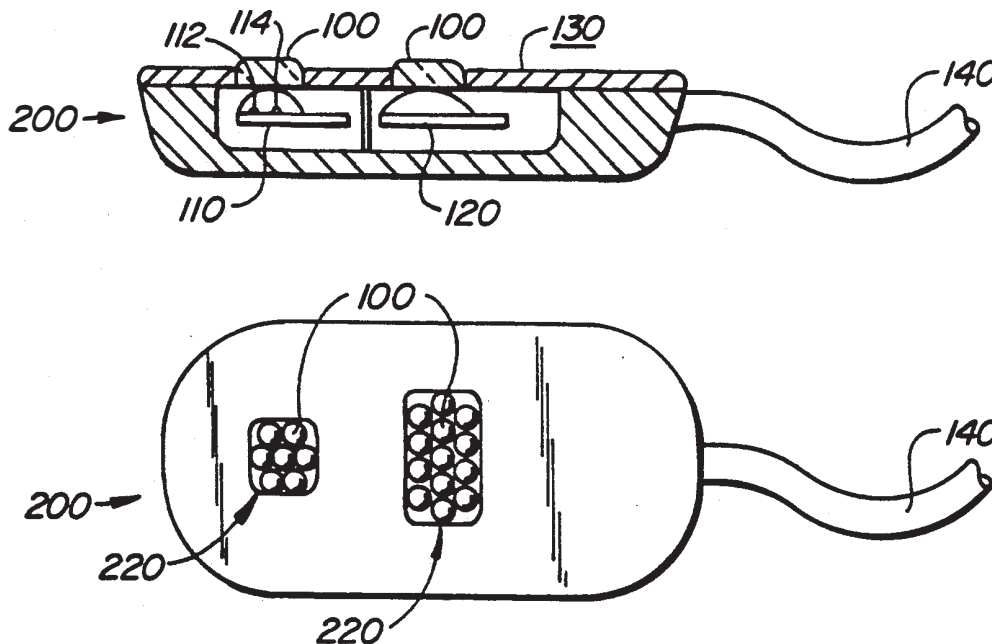
A fetal pulse oximetry probe has clusters of light-transmissive bumps over the light source and the light detector on the surface of the probe. The probe is usually attached to the fetus' head. The clusters part the fetal hair and penetrate other light-attenuating organic materials on the head. The clusters thus transmit a more intense light signal. To reduce the amount of signal shunting between them, the clusters also may be separated by additional opaque (light-shielding) bumps.

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**12 Claims, 4 Drawing Sheets**



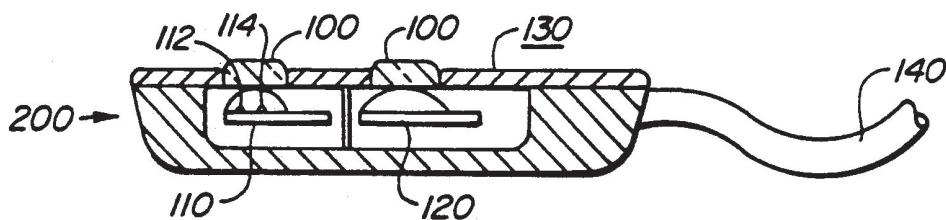


FIG. 1a.

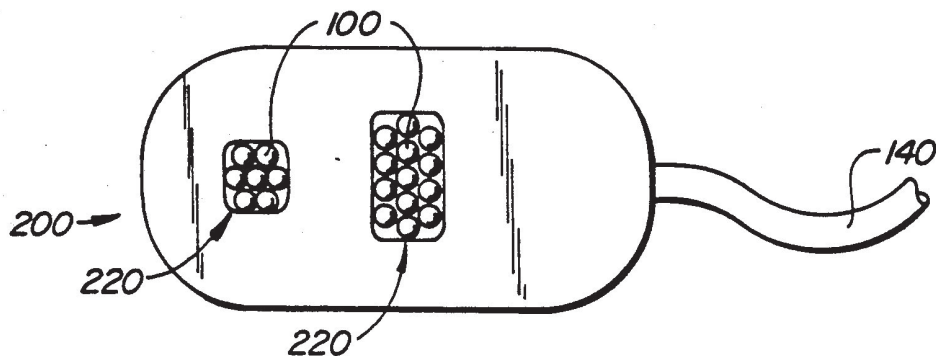


FIG. 1b.

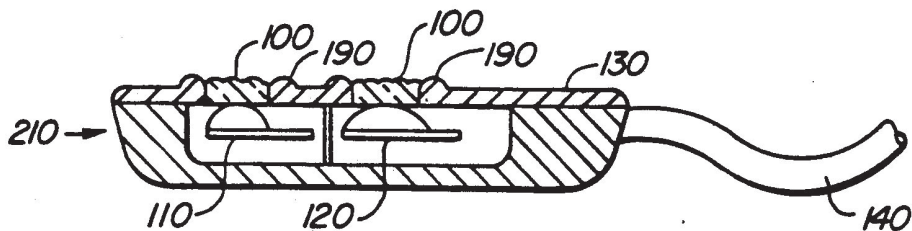


FIG. 3a.

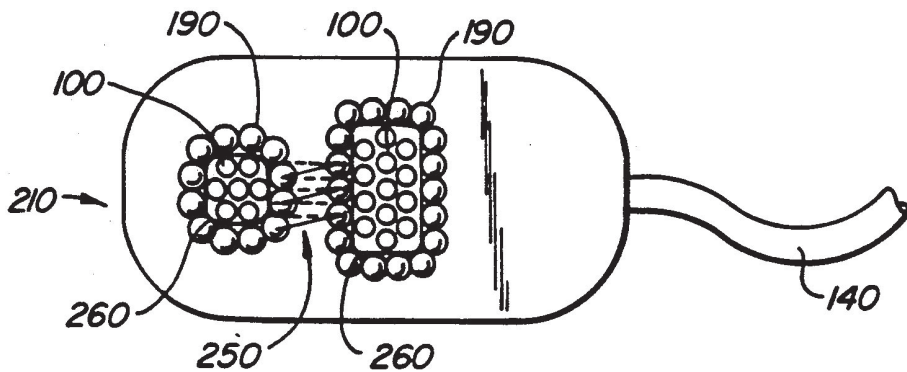


FIG. 3b.

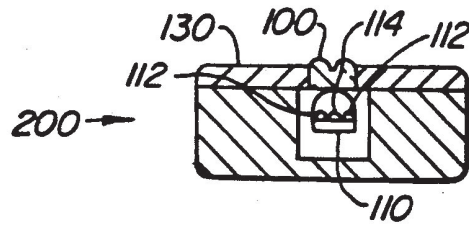


FIG. 1c.

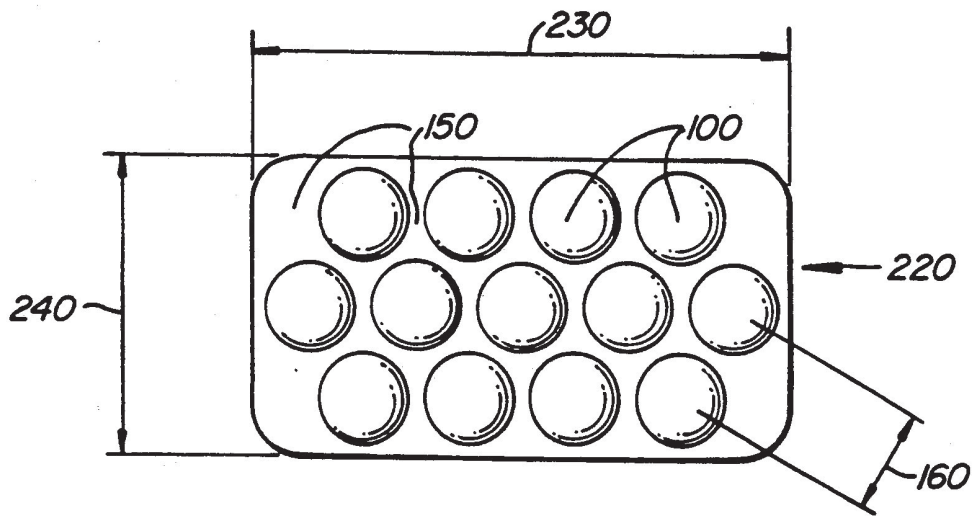


FIG. 2a.

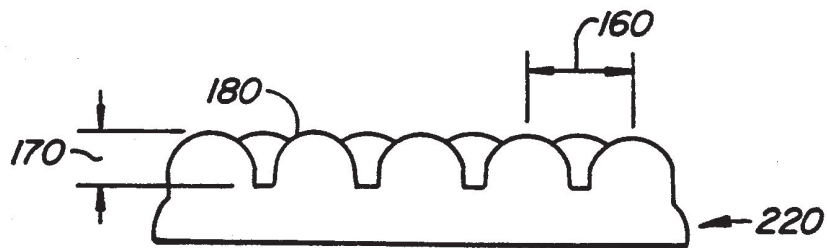


FIG. 2b.

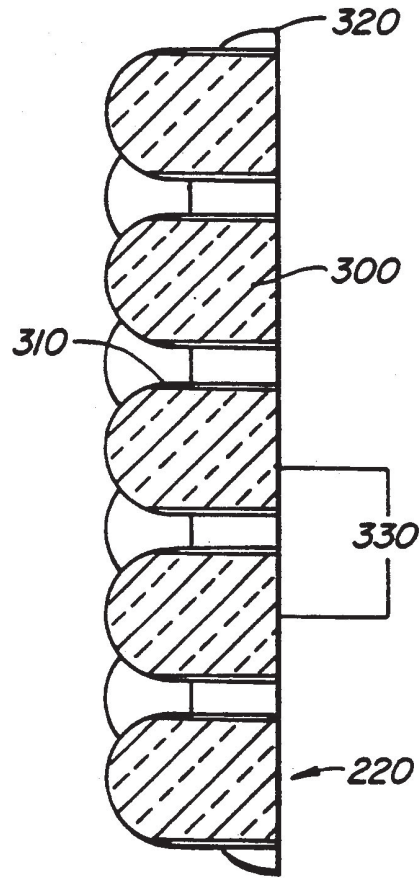


FIG. 4.

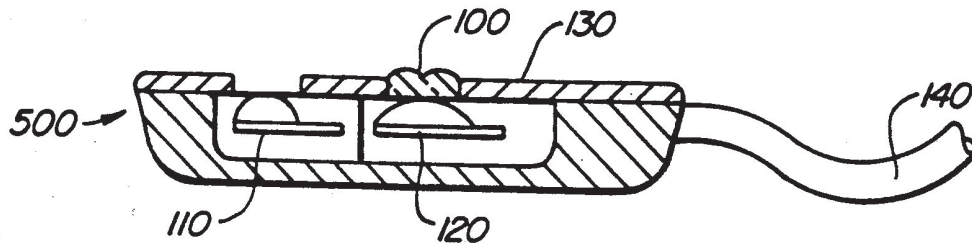


FIG. 5a.

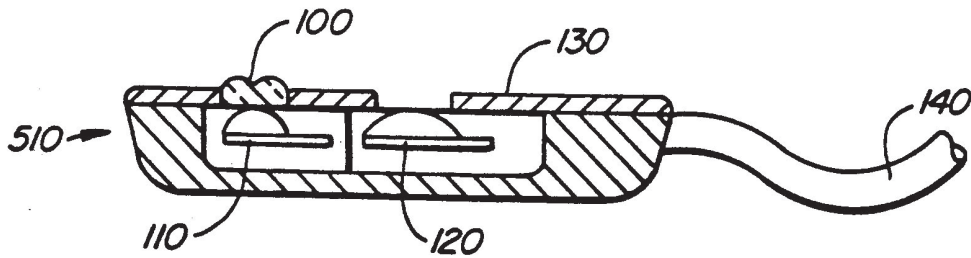


FIG. 5b.

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