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United States Patent [19]

[11] **Patent Number:** 5,797,841

Delonzor et al.

[45] **Date of Patent:** Aug. 25, 1998

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| [54] SHUNT BARRIER IN PULSE OXIMETER SENSOR | 5,090,410 2/1992 Saper et al. 128/633
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|--|--|

[75] **Inventors:** Russ Delonzor, Union City; Paul D. Mannheimer, Danville; Michael E. Fein, Mountain View; Don Hannula, San Luis Obispo, all of Calif.

FOREIGN PATENT DOCUMENTS

0127947 12/1984 European Pat. Off. 128/633

[73] **Assignee:** Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.

Primary Examiner—Jennifer Bahr

Assistant Examiner—Bryan K. Yarnell

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[22] **Filed:** Mar. 5, 1996

[57] ABSTRACT

[51] **Int. Cl.⁶** A61B 5/00

[52] **U.S. Cl.** 600/323; 600/322; 600/344; 600/310; 250/221

[58] **Field of Search** 128/633, 664-7; 356/39-41; 250/227.11, 200, 221; 600/310, 322, 323, 326, 344

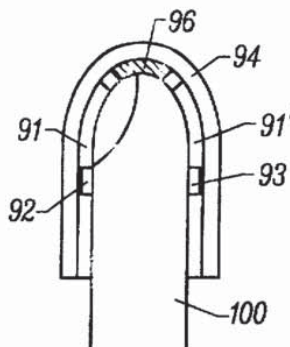
A pulse oximeter sensor having an emitter(s) and a detector, with a layer having a first portion over the emitter and a second portion of layer over the detector is provided. A barrier is included between the first and second portions of the overlying layer to substantially block radiation of the wavelengths emitted by the emitter(s). Preferably, the barrier reduces the radiation shunted to less than 10% of the radiation detected, and more preferably to less than 1% of the radiation detected.

[56] References Cited

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9 Claims, 6 Drawing Sheets



Apple Inc.
APL1010

U.S. Patent No. 8 989 830

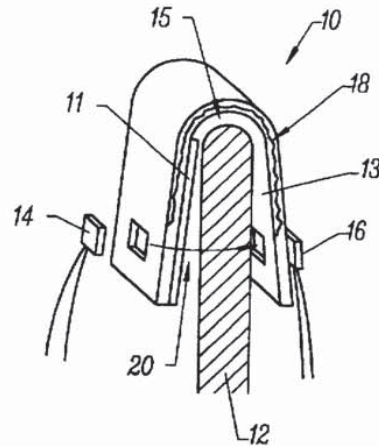


FIG. 1
PRIOR ART

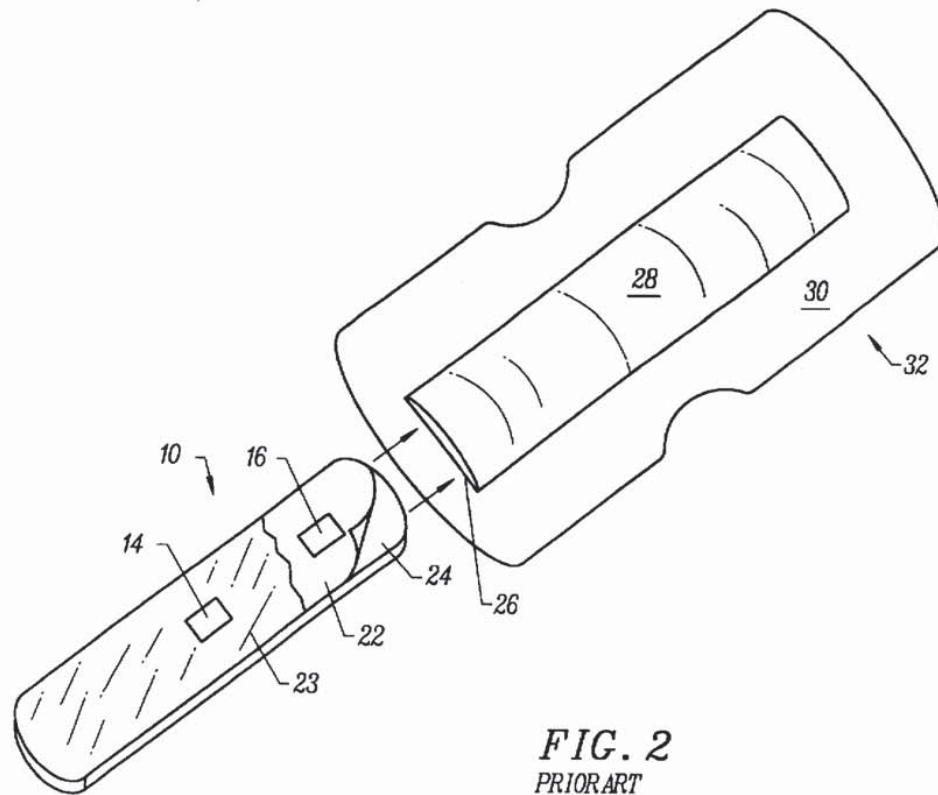


FIG. 2
PRIOR ART

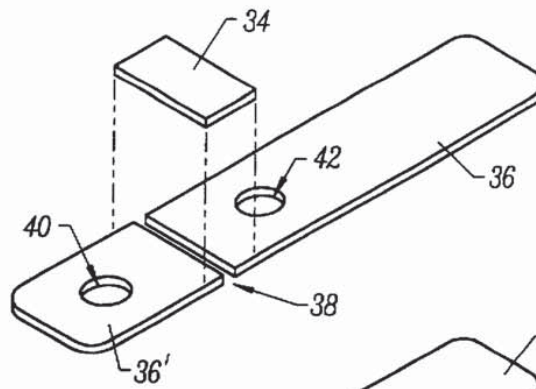


FIG. 3A

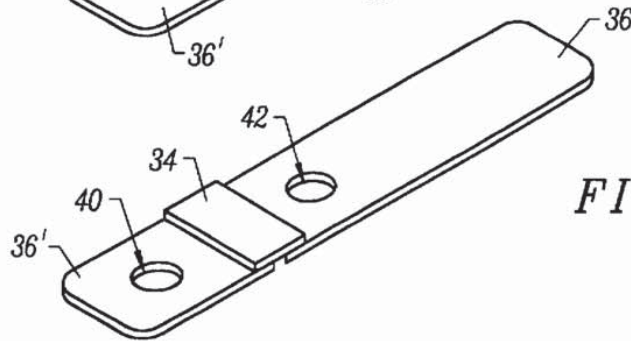


FIG. 3B

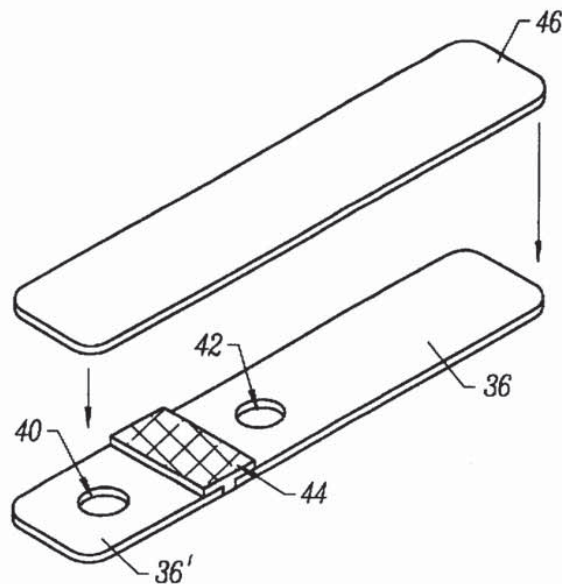


FIG. 4

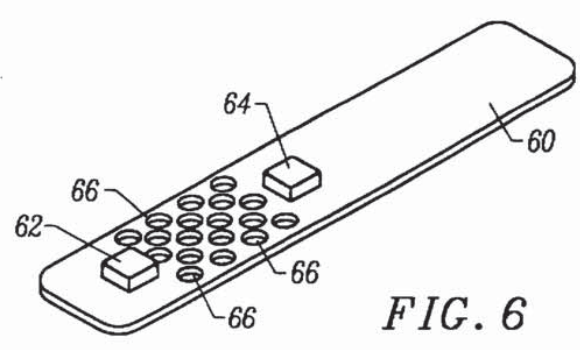
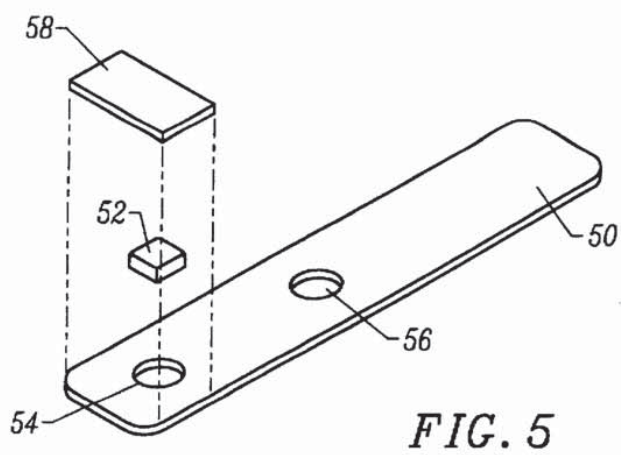


FIG. 7

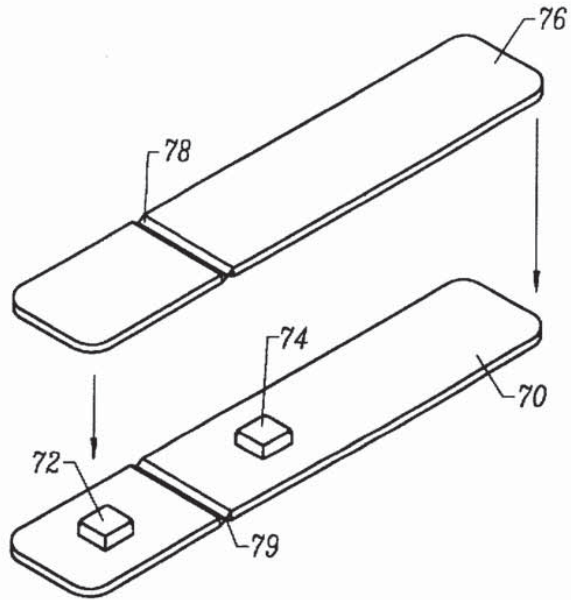
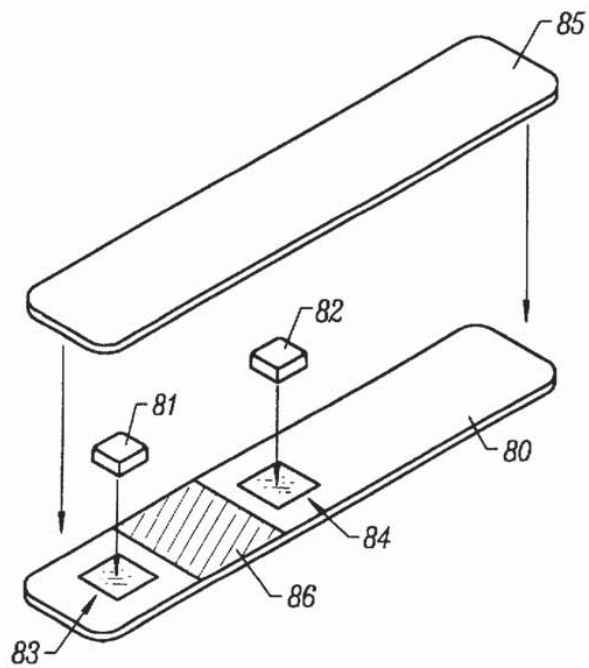


FIG. 8



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