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Goodman et al.

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[54] **PERINATAL PULSE OXIMETRY SENSOR**

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Related U.S. Application Data

[60] Division of Ser. No. 264,196, Oct. 28, 1988, Pat. No. 4,938,218, which is a continuation-in-part of Ser. No. 217,080, Jul. 7, 1988, abandoned, and a continuation-in-part of Ser. No. 206,918, Jun. 13, 1988, abandoned, said Ser. No. 217,080, is a continuation of Ser. No. 935,060, Nov. 21, 1986, abandoned, which is a continuation of Ser. No. 644,051, Aug. 24, 1984, abandoned, which is a continuation-in-part of Ser. No. 527,726, Aug. 30, 1983, abandoned, said Ser. No. 206,918, is a continuation of Ser. No. 105,509, Oct. 5, 1987, which is a continuation of Ser. No. 941,540, Dec. 11, 1986, abandoned, which is a continuation of Ser. No. 789,580, Oct. 21, 1985, abandoned, which is a division of Ser. No. 644,051.

[51] Int. Cl.⁵ **A61B 5/0444**

[52] U.S. Cl. **128/633; 128/670; 128/698; 128/700; 128/736**

[58] Field of Search **128/633-635, 128/664-666, 643, 670, 698, 700, 736**

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[57] ABSTRACT

An apparatus for use in measuring fetal blood flow characteristics. The apparatus includes a non-invasive pulse oximetry probe that is inserted into the uterus between the fetus and the uterine wall. The probe is deformable and is positively attached to the fetal tissue surface using a vacuum pump which causes the probe to deform from a pre-set curvature to the curvature of the fetal tissue surface and to form a gasket-type seal with the fetal tissue surface. The probe is manually inserted into the uterus using a curved insertion tool, and is shaped to fit through a slightly dilated cervix. In a preferred embodiment, the probe includes fetal and maternal ECG sensors and additional sensing devices, and is provided with apparatus for improving the efficiency of the pulse oximetry optics.

18 Claims, 9 Drawing Sheets

