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

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(45) **Date of Patent:** **\*Jan. 19, 2010**

(54) **PHYSIOLOGICAL STRESS DETECTOR  
DEVICE AND SYSTEM**

(58) **Field of Classification Search** ..... 600/322,  
600/323, 330, 336, 324, 502  
See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

(73) Assignee: **SPO Medical Equipment Ltd.**, Kfar  
Saba (IL)

4,086,915 A *	5/1978	Kofsky et al. ....	600/330
4,266,554 A *	5/1981	Hamaguri .....	600/323
4,824,242 A *	4/1989	Frick et al. ....	600/330
5,351,685 A *	10/1994	Potratz .....	600/330
5,431,170 A *	7/1995	Mathews .....	600/323
6,553,242 B1 *	4/2003	Sarussi .....	600/330

(\* ) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 449 days.

\* cited by examiner

This patent is subject to a terminal dis-  
claimer.

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(21) Appl. No.: **11/612,641**

(57) **ABSTRACT**

(22) Filed: **Dec. 19, 2006**

(65) **Prior Publication Data**

A non-invasive device and a system for monitoring and mea-  
suring blood saturation and heart pulse rate of a baby or infant  
is provided. The device includes a housing unit configured to  
be integrated within apparatus, which is attachable proximate  
to a limb being measured. The housing unit includes at least  
one light source, providing light directed toward the surface  
of the limb, a light detector spaced apart from the light source  
and sensitive to intensity levels of the light reflected from the  
limb and a processing unit for processing the intensity signals  
received from the light detector for producing output signals.  
The device may determine the level of the blood constituent  
and may also use this level for monitoring and/or to activate  
an alarm when the level falls outside a predetermined range.

US 2009/0018421 A1 Jan. 15, 2009

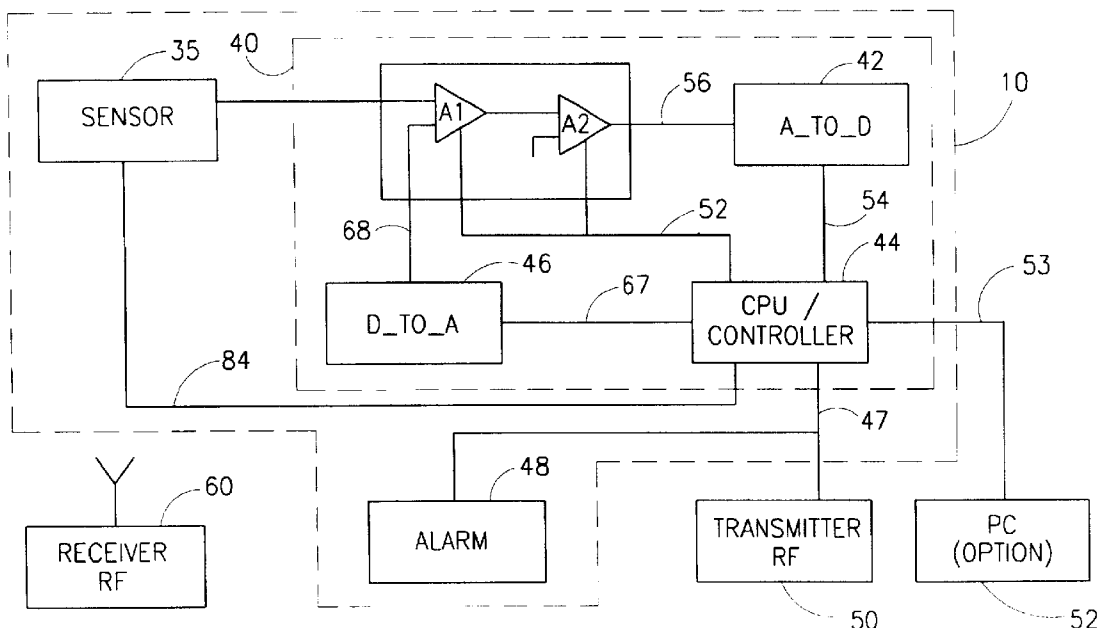
**Related U.S. Application Data**

(63) Continuation of application No. 10/390,169, filed on  
Mar. 18, 2003, now Pat. No. 7,171,251, which is a  
continuation-in-part of application No. 09/147,683,  
filed on Feb. 1, 2000, now Pat. No. 6,553,242.

(51) **Int. Cl.**  
**A61B 5/1455** (2006.01)  
**A61B 5/02** (2006.01)

(52) **U.S. Cl.** ..... **600/324; 600/330; 600/502**

**14 Claims, 17 Drawing Sheets**



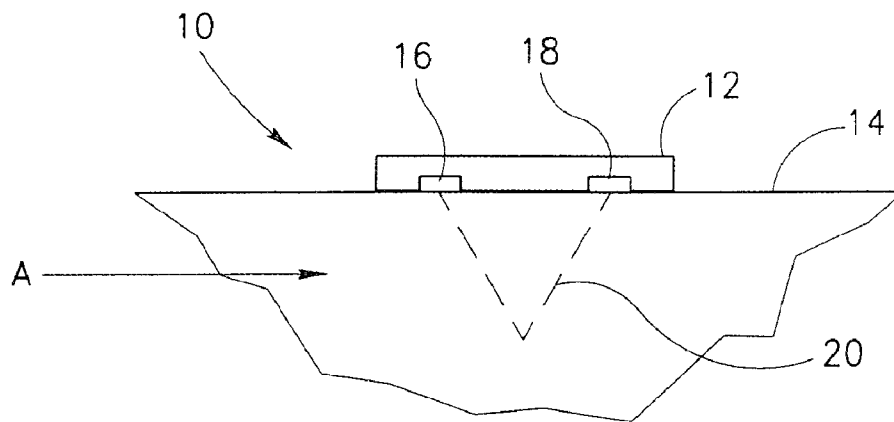


FIG. 1

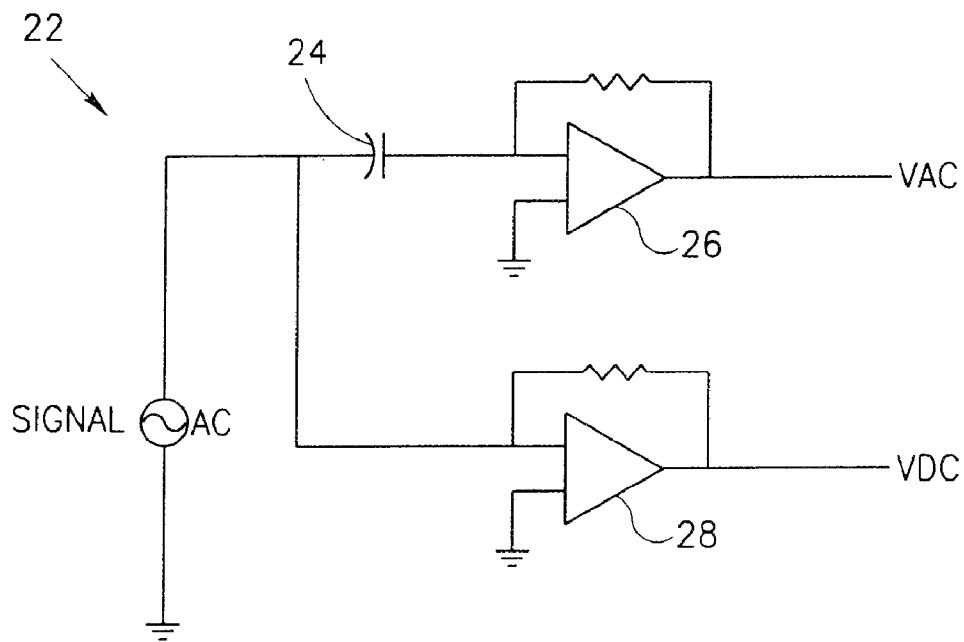


FIG. 2  
PRIOR ART

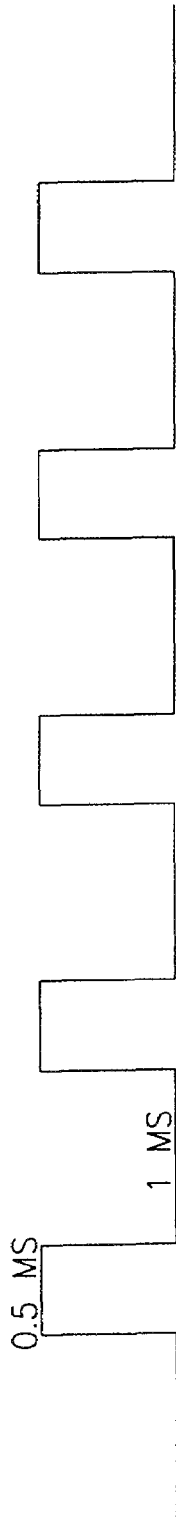


FIG. 3A

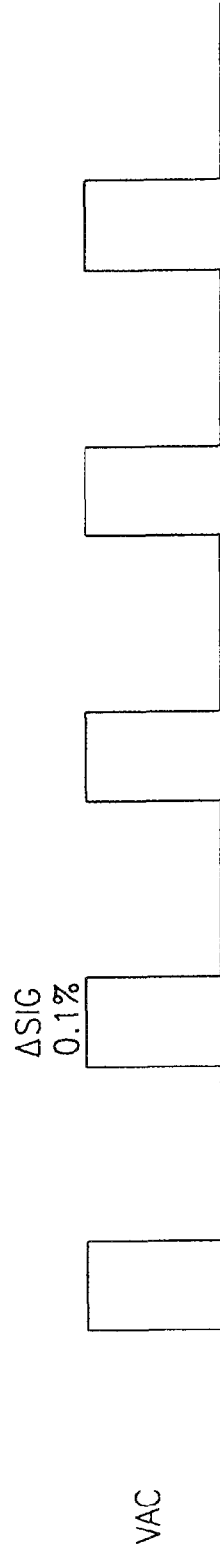


FIG. 3B  
PRIOR ART

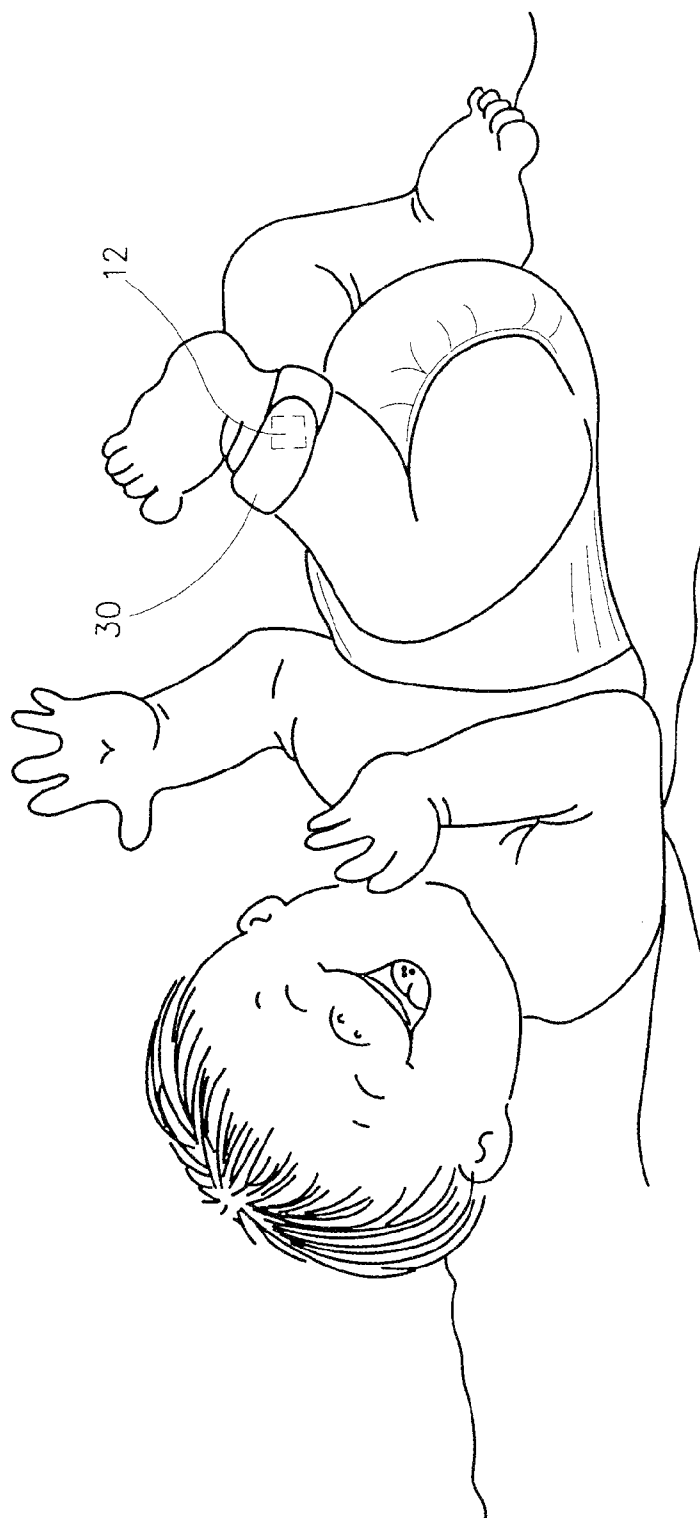


FIG.4

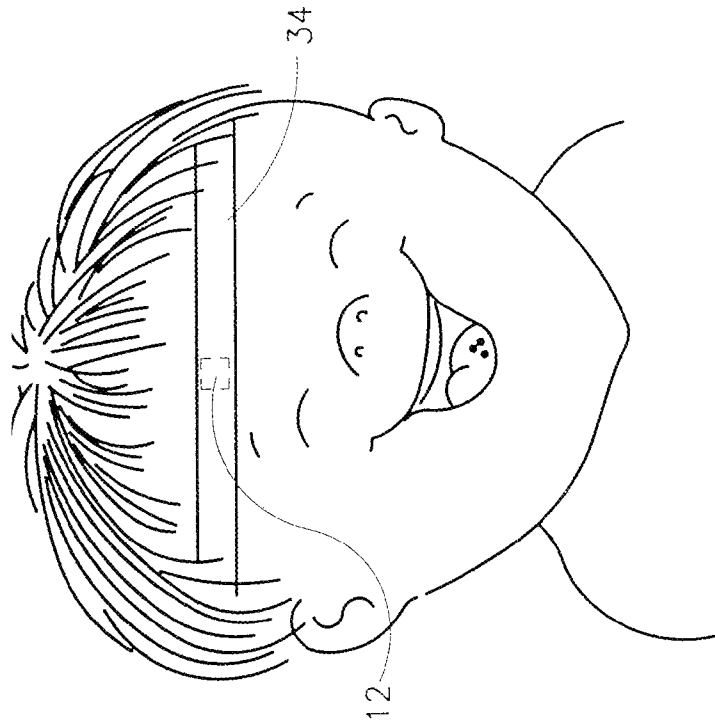


FIG. 5B

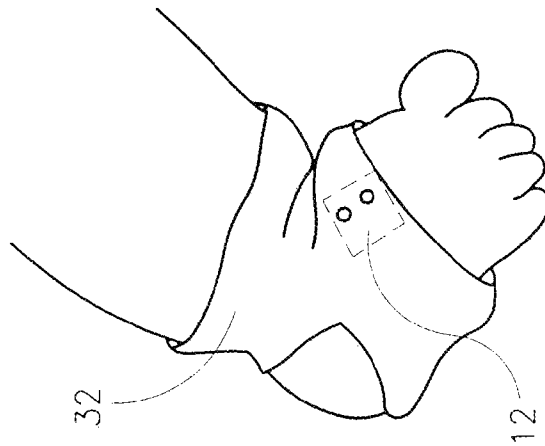


FIG. 5A

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