

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0059236 A1 Margulies et al.

(43) Pub. Date: Mar. 25, 2004

(54) METHOD AND APPARATUS FOR MONITORING THE AUTONOMIC NERVOUS

(76) Inventors: Lyle Aaron Margulies, Seattle, WA (US); David B. Harrell, Mukilteo, WA (US); Michael Allen Riggins, Seattle, WA (US)

> Correspondence Address: GARRISON ASSOCIATES 2001 SIXTH AVENUE **SUITE 3300** SEATTLE, WA 981212522

(21) Appl. No.:

10/666,121

(22) Filed:

Sep. 19, 2003

Related U.S. Application Data

(60) Provisional application No. 60/412,310, filed on Sep. 20, 2002.

Publication Classification

(57)ABSTRACT

An apparatus and method for detection and monitoring of autonomic nervous system (ANS) activity in humans, primarily in the field of sleep research. The present invention discloses a portable, simple, and cost-effective electronic device containing hardware and software that permits realtime monitoring of a pulsatile blood volume waveform obtained through use of a photoplethysmographic (optical volume detecting) probe, thereby allowing signal conditioning, waveform slope analysis, display, recording, and output of pulse transitional slope data representative of activity in

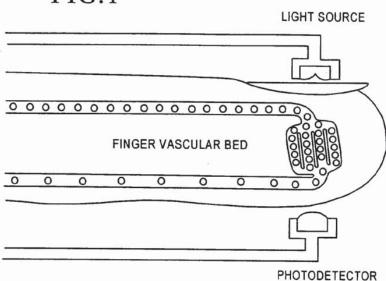
PHOTODETECTOR

LIGHT SOURCE 000000000000000000 FINGER VASCULAR BED 0 0 O 0 O 0





FIG.1



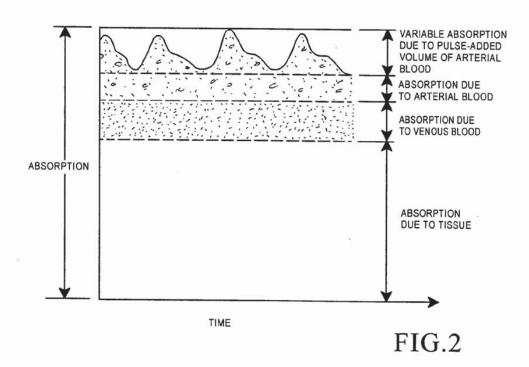
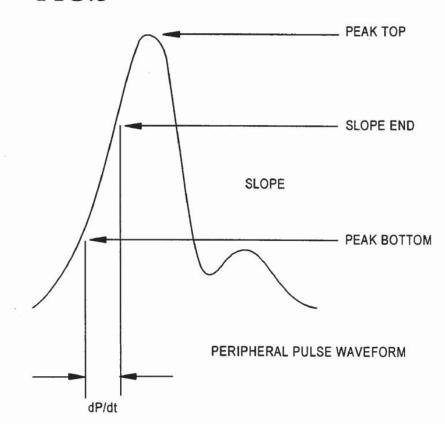
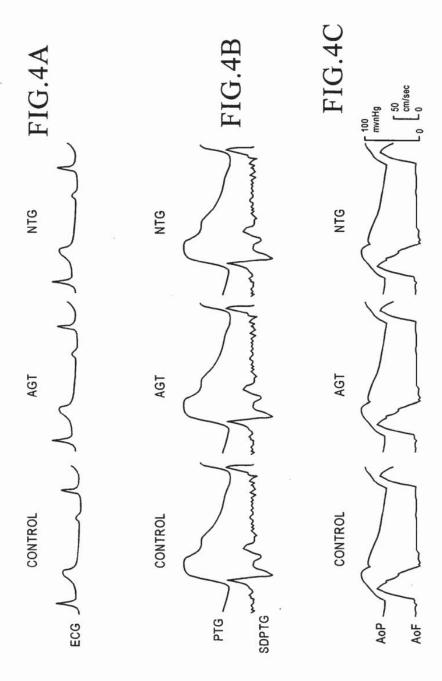
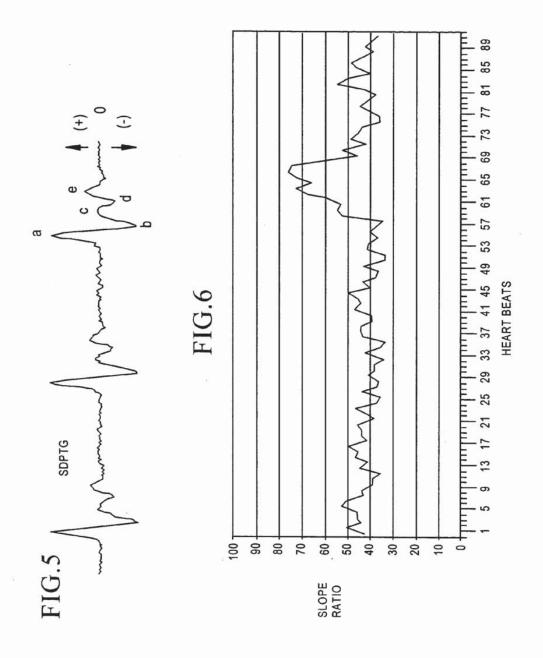


FIG.3







DOCKET A L A R M

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

