

中華民國專利證書

新型第 M 511297 號

新型名稱：基礎體溫量測系統

專利權人：黃宗正

新型創作人：黃宗正

專利權期間：自 2015 年 11 月 1 日至 2025 年 2 月 12 日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局

局長

王美花

中華民國

104



月

1

日

注意：專利權人未依法繳納年費者，其專利權自原繳費期限屆滿後消滅。



中華民國專利證書

新型第 M520350 號

新型名稱：氣血循行監測裝置

專利權人：黃宗正

新型創作人：黃宗正、游朱義

專利權期間：自2016年4月21日至2025年11月11日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局 局長

王美花

中華民國 105 年 4 月 21 日





中華民國專利證書

發明第 I613612 號

發明名稱：氣血循行監測裝置

專利權人：黃宗正

發明人：黃宗正、游朱義

專利權期間：自2018年2月1日至2035年11月11日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局局長

洪淑敏

中華民國



107

年

2

月

1

日





中華民國專利證書

發明第 I 648029 號

發明名稱：睡眠品質監測系統

專利權人：黃宗正

發明人：黃宗正

專利權期間：自 2019 年 1 月 21 日至 2037 年 5 月 11 日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局 局長

洪淑敏

中華民國 108 年 1 月 21 日



RM201511X400>6



证书号第 4729453 号



实用新型专利证书

实用新型名称：基础体温测量系统

发 明 人：黄宗正

专 利 号：ZL 2015 2 0105375.4

专利申请日：2015 年 02 月 13 日

专 利 权 人：黄宗正

授权公告日：2015 年 11 月 11 日

本实用新型经过本局依照中华人民共和国专利法进行初步审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年 02 月 13 日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

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局长
申长雨

申长雨



证书号第 5212197 号



实用新型专利证书

实用新型名称：气血循行监测装置

发 明 人：黄宗正;游朱义

专 利 号：ZL 2015 2 0942806.2

专利申请日：2015 年 11 月 24 日

专 利 权 人：黄宗正

授权公告日：2016 年 05 月 18 日

本实用新型经过本局依照中华人民共和国专利法进行初步审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

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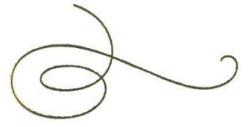


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United
States
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America



To Promote the Progress

of Science and Useful Arts

The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.


DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



US010368797B2

(12) **United States Patent**
Huang

(10) **Patent No.:** **US 10,368,797 B2**

(45) **Date of Patent:** **Aug. 6, 2019**

(54) **SYSTEM FOR MONITORING SLEEP EFFICIENCY**

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600/26
2017/0100076 A1 * 4/2017 Benson G16H 50/30

(71) Applicant: **Tsung-Cheng Huang**, Taichung (TW)

(72) Inventor: **Tsung-Cheng Huang**, Taichung (TW)

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

CN 105942777 A 9/2016

OTHER PUBLICATIONS

(21) Appl. No.: **15/972,299**

(22) Filed: **May 7, 2018**

(65) **Prior Publication Data**

US 2018/0325450 A1 Nov. 15, 2018

(30) **Foreign Application Priority Data**

May 12, 2017 (TW) 106115731 A

P. J. Murphy and S. S. Campbell, "Nighttime drop in body temperature: a physiological trigger for sleep onset?" Sleep, 20(7), pp. 505-511, 1997.

Search Report appended to an Office Action, which was issued to Taiwanese counterpart application No. 106115731 by the TIPO dated Feb. 22, 2018, with an English translation thereof.

Search Report appended to an Office Action, which was issued to Taiwanese counterpart application No. 106115731 by the TIPO dated Apr. 25, 2018, with an English translation thereof.

* cited by examiner

(51) **Int. Cl.**

A61B 5/00 (2006.01)

A61B 5/01 (2006.01)

A61B 5/0476 (2006.01)

Primary Examiner — Travis R Hunnings

(74) *Attorney, Agent, or Firm* — Trop, Pruner & Hu, P.C.

(52) **U.S. Cl.**

CPC **A61B 5/4812** (2013.01); **A61B 5/01** (2013.01); **A61B 5/4815** (2013.01); **A61B 5/0476** (2013.01); **A61B 5/4809** (2013.01)

(57) **ABSTRACT**

A system for monitoring sleep efficiency includes a measuring device and a data processing device. The measuring device is for measuring body temperature of a subject and for outputting temperature data associated with the body temperature. The data processing device receives the temperature data, and is programmed to process the temperature data so as to determine sleep efficiency. The processing of the temperature data includes constructing a curve of the body temperature over asleep episode, finding a saddle point of the curve occurring for a first time, treating a time instance at which the saddle point occurs as a sleep-onset time point at which the subject falls asleep, and determining the sleep efficiency according to the sleep-onset time point.

(58) **Field of Classification Search**

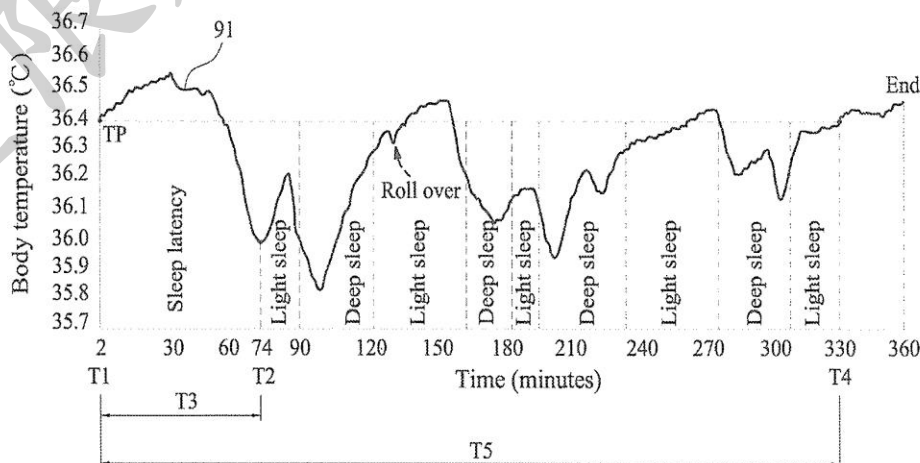
CPC combination set(s) only.
See application file for complete search history.

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6 Claims, 6 Drawing Sheets



Maintenance Fee Notice

If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

Patent Term Notice

If the application for this patent was filed on or after June 8, 1995, the term of this patent begins on the date on which this patent issues and ends twenty years from the filing date of the application or, if the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121, 365(c), or 386(c), twenty years from the filing date of the earliest such application ("the twenty-year term"), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b), and any extension as provided by 35 U.S.C. 154(b) or 156 or any disclaimer under 35 U.S.C. 253.

If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.