



(43) International Publication Date
28 December 2006 (28.12.2006)

(10) International Publication Number
WO 2006/138578 A3

(51) International Patent Classification:
A61M 16/00 (2006.01) *A61M 15/08* (2006.01)

(74) **Agents:** BUJOLD, Michael J. et al.; Davis & Bujold, P.L.L.C., 112 Pleasant Street, Concord, New Hampshire 03301 (US).

(21) International Application Number:
PCT/US2006/023511

(22) International Filing Date: 16 June 2006 (16.06.2006)

(25) Filing Language: English

(26) **Publication Language:** English

(30) Priority Data:
11/155,902 17 June 2005 (17.06.2005) US

(71) **Applicant** (for all designated States except US): **SALTER LABS** [US/US]; 100 West Sycamore Road, Arvin, California 93203 (US).

(72) Inventors; and

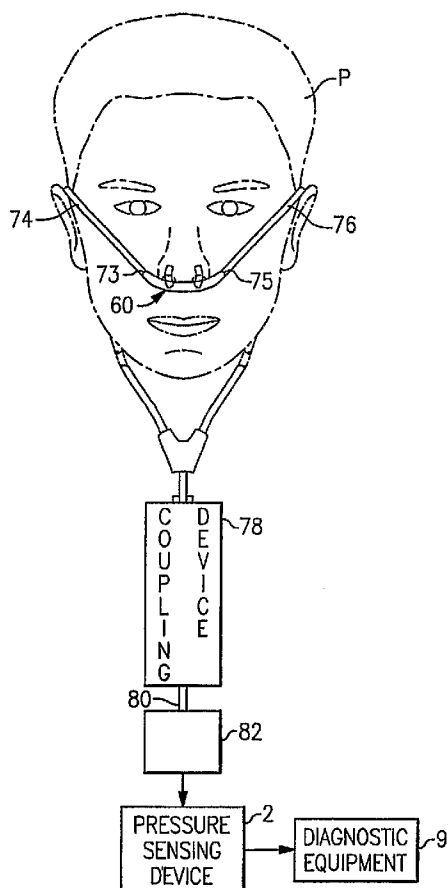
(75) **Inventors/Applicants (for US only): CHUA, James** [US/US]; 805 Sandcreek Drive, Bakersfield, California 93312 (US). **ADRIANCE, Kyle** [US/US]; 1400 Ironstone Drive, Bakersfield, California 93312 (US). **VO, Phuoc H.** [US/US]; 10343 Enloe Street, El Monte, California 91733 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,

[Continued on next page]

(54) Title: PRESSURE SENSING DEVICE WITH TEST CIRCUIT



(57) Abstract: A pressure sensing device for coupling to a cannula and receiving respiratory breathing information from a patient to be monitored. The pressure sensing device comprising an exterior housing accommodating a snore detection circuit which processes information and outputs a signal indicative; an airflow detection circuit which processes information and outputs a signal indicative thereof; and an internal test circuit for testing an integrity of the airflow and snore detection circuits prior to use of the pressure sensing device to ensure that both circuits are operational. An input port for pressure sensing device extends from the housing of the pressure sensing device so as to space a connector, for the cannula, a sufficient distance away from the bottom surface whereby the bottom surface will always remain flush with and in constant and continuous intimate contact with a support surface for the pressure sensing device.



RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

(88) Date of publication of the international search report:
6 December 2007

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/23511

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): A61M 16/00; A61M 15/08 (2007.01)

USPC: 128/200.26; 128/206.11, 128/207.18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC: 128/200.26; 128/206.11, 128/207.18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: 600/529, 531-533, 537, 538

128/200.24, 204.18, 204.21, 204.22, 204.29, 205.24, 205.25, 206.21

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWest

nasal cannula, pressure, sensor, airflow, snore, nares, nostril, nasal, nose, rhinomanograph, electrical lead, detector, test circuit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/065560 A1 (LEE et al.) 24 March 2005 (24.03.2005) para [0036], [0119], [0120], [0123]	1-20
Y	US 5,494,028 A (DEVRIES et al.) 27 February 1996 (27.02.1996) Col.17, ln 5-10	1-20
Y	US 5,048,515 A (SANSO) 17 September 1991 (17.09.1991), Col. 6, ln 37-43	2
Y	US 2002/0007124 A1 (WOODWARD) 17 January 2002 (17.01.2002), para [0038]	8, 9 and 10
Y	US 2003/0236010 A1 (GORMAN) 23 December 2003 (23.12.2003), para [0089]	10
Y	US 2004/0151639 A1 (JONES et al.) 5 August 2004 (05.08.2004), para [0021]	14, 15 and 19
Y	US 3,350,635 A (MESCH) 31 October 1967 (31.10.1967), Col.1, ln 65-71, Col.2, ln 1-5	16
Y	US 2,340,837 A (MEEKER) 19 February 1944 (19.02.1944) Col.2, ln 22-27	17
Y	US 4,684,884 A (SODERLUND) 4 August 1987 (04.08.1987) Col. 3, ln 63	18



Further documents are listed in the continuation of Box C.



* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

30 July 2007 (30.07.2007)

Date of mailing of the international search report

04 OCT 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774