

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 November 2004 (25.11.2004)

PCT

(10) International Publication Number
WO 2004/100762 A3

(51) International Patent Classification⁷: A61B 5/08,
G01N 1/22, 31/00

Rainbird Road, Ramona, CA 92065 (US). ROUCHER, Leo [US/US]; 7301 Vista Rancho Court, Rancho Santa Fe, CA 92067 (US). WOLF, Erich [US/US]; 1250 Phillips Street, Vista, CA 92083 (US).

(21) International Application Number:
PCT/US2004/011548

(74) Agent: KLICPERA, Michael; P.O. Box 573, La Jolla, CA 92038 (US).

(22) International Filing Date: 15 April 2004 (15.04.2004)

(25) Filing Language: English

(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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(26) Publication Language: English

(30) Priority Data:
10/413,701 15 April 2003 (15.04.2003) US

(71) Applicant (for all designated States except US): SEIRRA MEDICAL TECHNOLOGY, INC. [US/US]; 13670 Danielson Street, Poway, CA 92064 (US).

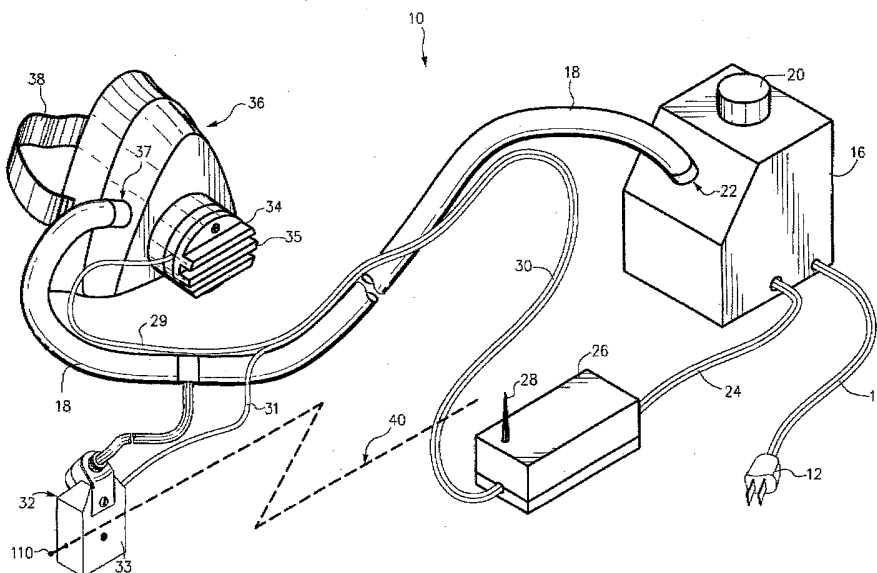
(72) Inventors; and

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, 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,

(75) Inventors/Applicants (for US only): TSUKASHIMA, Ross [US/US]; 11257 Willow Wood Drive, San Diego, CA 92127 (US). SCHIPPER, Jeffery [US/US]; 15589

[Continued on next page]

(54) Title: RESPIRATORY MONITORING, DIAGNOSTIC AND THERAPEUTIC SYSTEM



(57) Abstract: Disclosed is a system and method for monitoring diagnosing, and treating certain respiratory conditions, such as asthma. The system includes a mask apparatus fitted with a pH sensor and thermocouple, a continuous positive airway pressure (CPAP) device, a processing receiver, and a therapeutic nebulizer/atomizer/humidifier device. The mask apparatus, CPAP device and therapeutic nebulizer/atomizer/humidifier device are connected by a pneumatic means. The pH sensor and the thermocouple are in electrical communication with the processing receiver that controls, through an electronic means, the CPAP device and therapeutic nebulizer/atomizer/humidifier device. The electrical communications can be in the form of a plurality of wires or employ wireless means.

WO 2004/100762 A3



GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations 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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,

- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

28 July 2005

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/US04/11548

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : A61B 5/08; G01N 1/22, 31/00
 US CL : 600/532; 73/23.3; 422/84
 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)
 U.S. : 600/532; 73/23.3; 422/84

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 NEBULIZER; POSITIVE WITH PRESSURE; ASTHMA; PH WITH SENSOR; THERAPY; THERAPEUTIC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P --- Y, P	US 6,585,661 B1 (HUNT ET AL.) 01 July 2003, see col. 10, lines 49+ and col. 14, lines 31-33.	1-4,7-11,14-16,33,34,36-38 ----- 5,6,12,13,17-25,29-32,35
X --- Y	US 5,447,165 A (GUSTAFSSON) 05 September 1995, see entire document.	17-19 ----- 17-25, 27-30, 35
Y, P	US 2003/0208133 A1 (MAULT) 06 November 2003, see entire document.	6,13,21,23,31,32
Y	US 5,388,571 A (ROBERTS ET AL.) 14 February 1995, see entire document..	27, 28
Y	US 2002/0157663 A1 (BLACKER ET AL.) 31 October 2002, see entire document.	35
A, P	US 6,648,833 B2 (HAMPTON ET AL.) 18 November 2003, see entire document.	

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 04 May 2005 (04.05.2005)	Date of mailing of the international search report 25 MAY 2005
---	--

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. (703) 305-3230	Authorized officer <i>Linda Sholl</i> LINDA SHOLL Telephone No. (571) 272-4391
---	---

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11548

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 26
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Please See Continuation Sheet

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11548

Continuation of Box II Reason2:

The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's specification is directed to diagnosing and treating respiratory conditions. However, the only enumerated condition is asthma. It is unclear how administering sodium bicarbonate would be effective to treat asthma. The examiner has no art to apply to this claim right now, but notes that upon resolution of this issue, the art rejection will be revisited. Clarification is required.