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[Continued on next page]

(54) Title: HEATER UNIT HUMIDIFICATION CHAMBER MONITOR

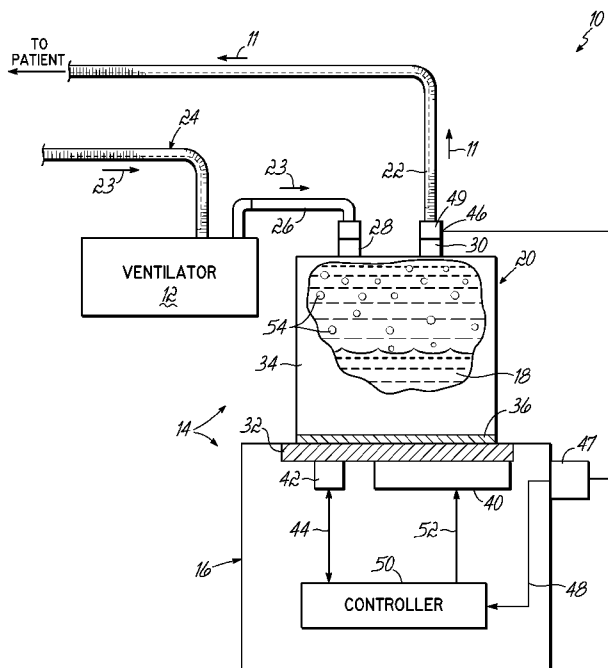


FIG. 1

(57) Abstract: A heater unit (16) is adapted to determine if a humidification chamber (20) thermally coupled to a hot plate (32) of the heater unit (16) is effectively dry based on determining a thermal response of a hot plate (32) of the heater unit (16). Also, the activation period during which the hot plate (32) is being heated may be adjusted toward an optimum period by adjusting the energization or power level to the heater element (40) thereof in relation to the duration of a prior activation period. Further, the air flow rate of gas through the humidification chamber (20) may be estimated based on a temperature of the hot plate (32) determined in predetermined relationship to the beginning of an activation period.

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LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, 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 (Rule 48.2(h))

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61M16/10 A61M16/16
ADD.

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)
A61M

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2008/190427 A1 (PAYTON MATTHEW JON [NZ] ET AL) 14 August 2008 (2008-08-14) paragraphs [0019] - [0058], [0063] - [0075], [0082] - [0094]; figures 1,2 -----	1,8,9, 14,18, 24,30
A	US 2008/310994 A1 (O'DONNELL KEVIN PETER [NZ] ET AL) 18 December 2008 (2008-12-18) paragraphs [0019] - [0057], [0068] - [0109]; figures 1-6 -----	1,4-9, 13-15, 18-30
A	US 2010/242963 A1 (BRIEGER KAI [DE] ET AL) 30 September 2010 (2010-09-30) paragraphs [0010], [0031]; figure 1 ----- -/--	1,4-9, 13-15, 18-30

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search 2 October 2012	Date of mailing of the international search report 10/10/2012
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Loughman, John
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/024055

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008/142019 A1 (LEWIS CHARLES A [US] ET AL) 19 June 2008 (2008-06-19) paragraphs [0009] - [0016], [0054] - [0059], [0080] - [0169]; figures 15-18,29 -----	1,4-9, 13-15, 18-30
A	EP 2 098 260 A1 (RESMED LTD [AU]) 9 September 2009 (2009-09-09) paragraphs [0138] - [0148]; figures 3,6,7-18 -----	1,4-9, 13-15, 18-30
Y	US 4 955 372 A (BLACKMER RICHARD H [US] ET AL) 11 September 1990 (1990-09-11) columns 3-5; figures 4,5 -----	1,8,9, 14,18, 24,30
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Y		1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/024055

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.:
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:

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:

see additional sheet

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 fees, this Authority did not invite payment of additional fees.

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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 4-9, 13-15, 18-30

Determination if plate is dry

2. claims: 2, 11-13, 15, 18, 31-36

Optimisation of activation period

3. claims: 3, 16-18, 37-39

Determination of Airflow rate

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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