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Declarations under Rule 4.17:

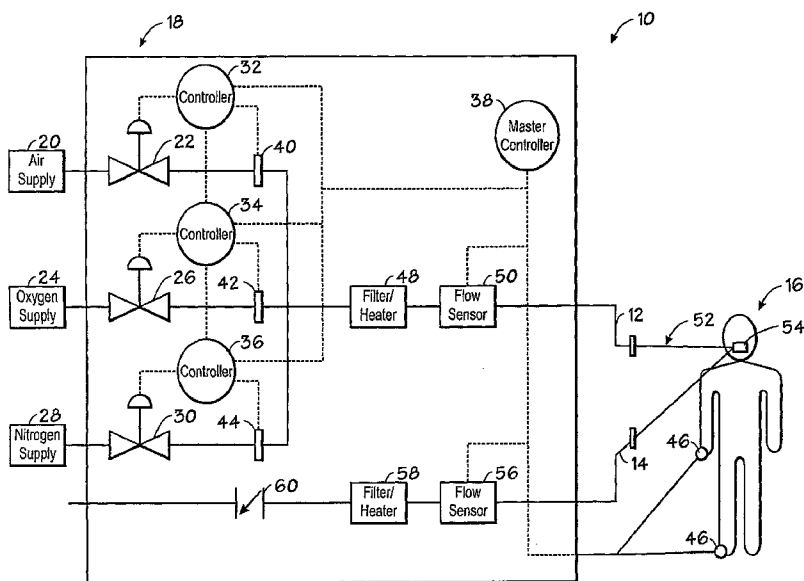
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR CIRCULATORY DELAY COMPENSATION IN CLOSED-LOOP CONTROL OF A MEDICAL DEVICE



(57) Abstract: Embodiments of the present invention relate to a system and method for automatically controlling a physiologic parameter of a patient. Specifically, embodiments of the present invention include delivering a gas mixture to the patient and monitoring at least one physiologic parameter of the patient, detecting whether a physiologic delay exists between delivering the gas mixture and detection of a corresponding response to delivering the gas mixture, and automatically controlling the delivery of the gas mixture based on whether the delay is detected and based on a value of the physiologic parameter.

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

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/020077

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61M16/00 A61M16/12

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 practical, search terms used)

EPO-Internal, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 103 814 A (MAHER TIMOTHY [US]) 14 April 1992 (1992-04-14) column 4, lines 11-23 column 7, line 11 - column 8, line 2 -----	8-18
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X	WO 02/074166 A (NTC TECHNOLOGY INC [US]) 26 September 2002 (2002-09-26) page 2, lines 16-18 page 25, line 19 - page 27, line 4 claims 7-12 ----- -/--	8,9, 12-17

☒ 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

E earlier document 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.

G document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 682 877 A (MONDRY ADOLPH J [US]) 4 November 1997 (1997-11-04) column 8, line 41 - column 16, line 22; claim 1 -----	8-18
X	US 7 008 380 B1 (REES STEPHEN EDWARD [DK] ET AL) 7 March 2006 (2006-03-07) the whole document -----	8-18
X	EP 0 504 725 A (RAEMER DANIEL B [US] BRIGHAM & WOMENS HOSPITAL [IT]) 23 September 1992 (1992-09-23) page 3, lines 9-16 page 4, lines 1-39 page 8, lines 47-57 figure 1 -----	8-18
X	WO 2006/004626 A (INOGEN INC [US]; HOWES LAWRENCE [US]; DEANE GEOFFREY FRANK [US]; TAYLO) 12 January 2006 (2006-01-12) paragraph [0011]; claims 1-26 -----	8,9, 12-17
A	US 2001/039951 A1 (STRICKLAND JAMES H [US] STRICKLAND JR JAMES H [US]) 15 November 2001 (2001-11-15) paragraph [0026] -----	8
A	WO 00/67820 A (ANEO AB [SE]; STROEMBERG STEFAN [SE]) 16 November 2000 (2000-11-16) the whole document -----	8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/020077

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.: 1-7
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy: a method for controlling blood oxygen in a patient, comprising a step of delivering a gas mixture to the opatient.
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 allsearchable 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 reportcovers 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.:

see additional sheet(s)

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: 8-18

claims 8-18 essentially define a ventilation system;

2. claims: 19-23

claims 19-23 essentially define a controller.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/020077

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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