



(51) International Patent Classification:
A61M 16/06 (2006.01)

(21) International Application Number:
PCT/US2012/035713

(22) International Filing Date:
29 April 2012 (29.04.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/518,110 29 April 2011 (29.04.2011) US

(72) Inventor; and

(71) Applicant : TERO, Robert [US/US]; 128 W. 35th Street,
Bayonne, NJ 07002 (US).

(74) Agent: MAENNER, Joseph E.; Maenner & Associates,
LLC, 388 Main Street, Harleysville, PA 19438 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,

MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD,
SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, 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).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

— 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))

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

27 December 2012

(54) Title: NASAL INTERFACE DEVICE

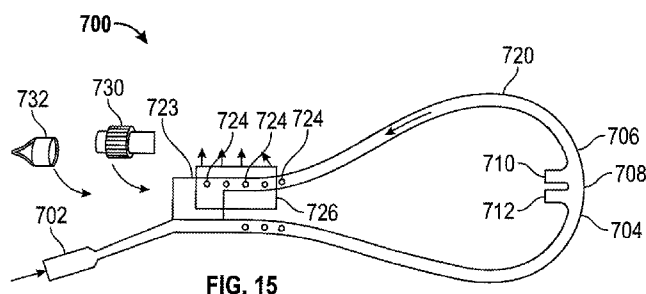


FIG. 15

(57) Abstract: A nasal interface device (10) delivers a high flow rate of a gas having a pressure that is adjustable to a patient. The device includes a nasal insert (100) that is adapted to deliver pressurized breathing gas to a nasal cavity of the patient, and to receive expired air. The nasal insert has a pressurized breathing gas delivery port (116) and an expired gas port. The expired gas port has a plurality of openings extending therethrough.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/035713

A. CLASSIFICATION OF SUBJECT MATTER INV. A61M16/06 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		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/266361 A1 (HERNANDEZ SHARA [US]) 30 November 2006 (2006-11-30)	1-3,7-9
Y	The whole document, especially Fig. 7-13 and paragraphs [0062]-[0071] -----	4-10
X	WO 2005/014080 A2 (INNOMED TECHNOLOGIES INC [US]; WOOD THOMAS J [US]) 17 February 2005 (2005-02-17)	1-6,10
Y	paragraphs [0034], [0035]; figures 3,4 -----	7-9
X	US 1 125 542 A (HUMPHRIES AUBREY [NZ]) 19 January 1915 (1915-01-19) the whole document ----- -/--	1,2,7-9
☒ 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 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 10 July 2012	Date of mailing of the international search report 24/10/2012	
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 Borowski, Aleksander	

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/035713

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/023590 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; HO PETER CHI FAI [US]; MATULA JER) 4 March 2010 (2010-03-04) paragraphs [0067], [0078]; figures 20A-21B,40 -----	1,2,6-9
Y	WO 2010/091157 A2 (TERO ROBERT [US]) 12 August 2010 (2010-08-12) the whole document -----	4-6,10
Y	US 4 989 599 A (CARTER WILLIAM [US]) 5 February 1991 (1991-02-05) the whole document -----	4-6
Y	US 2010/113956 A1 (CURTI JAMES N [US] ET AL) 6 May 2010 (2010-05-06) paragraphs [0080] - [0106]; figures 16-19D -----	4-6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/035713

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.:

1-10

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.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ US2012/ 035713

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-10

claims 1-10 essentially define a nasal interface device comprising a nasal insert, the nasal insert having a breathing gas delivery port and an expired gas port, wherein the expired gas port has a plurality of openings;

2. claims: 11-17

claims 11-17 essentially define a nasal interface device comprising a breathing gas inlet tube, a first and a second nasal prongs, a first and a second expiratory tubes communicating with the first and second prongs respectively, and an expiratory gas regulating member;

3. claims: 18-23

claims 18-23 essentially define a nasal interface device comprising a breathing gas supply tube and a nasal prong assembly comprising a first and a second nasal prongs, a first and a second breathing gas supply tubes communicating with the first and second prongs respectively, and an expiratory gas opening.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/035713

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006266361	A1	30-11-2006	NONE
WO 2005014080	A2	17-02-2005	US 2005121037 A1 09-06-2005 WO 2005014080 A2 17-02-2005
US 1125542	A	19-01-1915	NONE
WO 2010023590	A2	04-03-2010	AU 2009286376 A1 04-03-2010 CN 102159273 A 17-08-2011 EP 2344224 A2 20-07-2011 US 2011155140 A1 30-06-2011 WO 2010023590 A2 04-03-2010
WO 2010091157	A2	12-08-2010	CA 2751485 A1 12-08-2010 EP 2393539 A2 14-12-2011 US 2011284001 A1 24-11-2011 WO 2010091157 A2 12-08-2010
US 4989599	A	05-02-1991	CA 2072869 A1 30-07-1992 EP 0521874 A1 13-01-1993 US 4989599 A 05-02-1991 WO 9212751 A1 06-08-1992
US 2010113956	A1	06-05-2010	NONE