



(51) International Patent Classification:
A61F 5/56 (2006.01)

(21) International Application Number:

PCT/US2009/052110

(22) International Filing Date:

29 July 2009 (29.07.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/182,402 30 July 2008 (30.07.2008) US

(71) Applicant (for all designated States except US):
ETHICON, INC. [US/US]; U.S. Route #22, Somerville,
NJ 08876 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ROUSSEAU,
Robert, A [US/US]; 736 Geigel Hill Road, Ottsville, PA
18942 (US). WEADOCK, Kevin [US/US]; 16 Strawberry
Lane, Hillsborough, NJ 08844 (US).

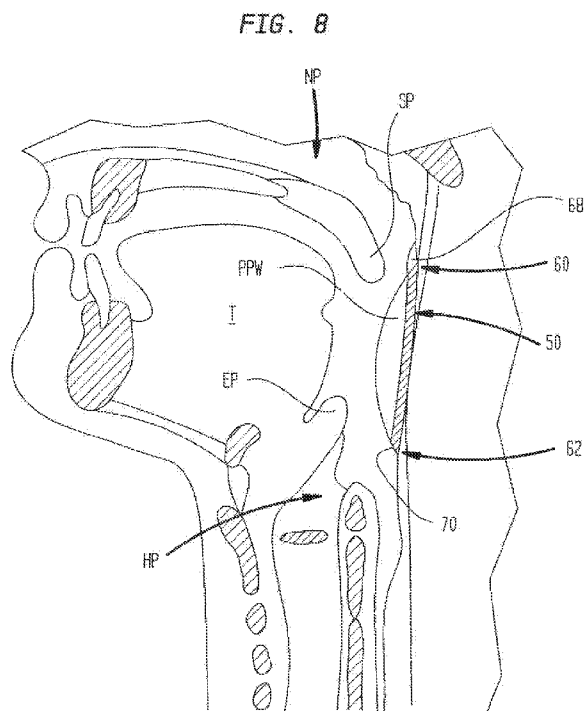
(74) Agents: JOHNSON, Philip, S. et al.; Johnson & John-
son, One Johnson & Johnson Plaza, New Brunswick, NJ
08933 (US).

(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, RO, RS, RU, SC, SD,
SE, SG, SK, SL, SM, ST, SV, 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, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHODS AND DEVICES FOR FORMING AN AUXILIARY AIRWAY FOR TREATING OBSTRUCTIVE
SLEEP APNEA



(57) Abstract: An auxiliary airway for treating obstructive sleep apnea is formed by implanting an elongated conduit (50) beneath a pharyngeal wall of a pharynx. The elongated conduit has a proximal end (64) in communication with a first region of the pharynx, a distal end (62) in communication with a second region of the pharynx, and a section extending beneath the pharyngeal wall for bypassing an oropharynx region of the pharynx. The system includes a first opening (68) in the pharyngeal wall in communication with a first opening in the elongated conduit, and a second opening (70) in the pharyngeal wall in communication with a second opening in the elongated conduit. The system has a first anastomotic connector (500) for coupling the first opening in the pharyngeal wall with the first opening in the conduit, and a second anastomotic connector for coupling the second opening in the pharyngeal wall with the second opening in the conduit.

**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))*
- *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:

25 March 2010

Published:

- *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/052110

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61F5/56

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)

A61F

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/266369 A1 (ATKINSON ROBERT E [US] ET AL) 30 November 2006 (2006-11-30) paragraph [0064] - paragraph [0065]; figures 13a,b -----	1-3, 6, 7

☐ 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

27 October 2009

Date of mailing of the international search report

21/01/2010

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

Lickel, Andreas

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/052110

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.: 18-25
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 and by surgery
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.:

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: 1-7

A system for treating obstructive sleep apnea comprising: an elongated conduit implanted beneath a pharyngeal wall of a pharynx, wherein said conduit extend beneath the pharyngeal wall for bypassing an oropharynx region of the pharynx; and a method of treating obstructive sleep apnea.

2. claims: 8-17

An auxiliary airway for treating obstructive sleep apnea comprising: an elongated conduit having a first opening in communication with a first region of a pharynx and a second opening in communication with a second region of the pharynx.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/052110

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006266369 A1	30-11-2006	NONE	