



- (51) **International Patent Classification:**
A61B 1/267 (2006.01) *A61B 1/273* (2006.01)
A61B 5/00 (2006.01)
- (21) **International Application Number:** PCT/IB2015/001323
- (22) **International Filing Date:** 28 April 2015 (28.04.2015)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
PCT/IB2014/061063 28 April 2014 (28.04.2014) IB
14/537,288 10 November 2014 (10.11.2014) US
- (71) **Applicant:** ARBULÚ SAAVEDRA, Mario [CO/CO]; Universidad de La Sabana, Campus Puente del Común, Autonorte de Bogotá, Km 7, La Caro, Chía, Cundinamarca 25001 (CO).
- (72) **Inventors; and**
- (71) **Applicants :** GIRALDO CADAVID, Luis Fernando [CO/CO]; Universidad de La Sabana, Campus Puente del Común, Autonorte de Bogotá, Km 7, La Caro, Chía, Cundinamarca 25001 (CO). AGUDELO OTÁLORA, Luis Mauricio [CO/CO]; Universidad de La Sabana, Campus Puente del Común, Autonorte de Bogotá, Km 7, La Caro, Chía, Cundinamarca 25001 (CO). BURGUETE, Javier [ES/ES]; Edificio los Castaños, Irunlarrea s/n, E- 31080 Pamplona Navarra (ES). FERNANDEZ GONZÁLEZ, Secundino [ES/ES]; Edificio los Castaños, Irunlarrea s/n, E- 31080 Pamplona Navarra (ES).
- (74) **Agent:** OLARTE, Carlos R.; Carrera 5 N° 34-03, Bogotá, 110311 (CO).
- (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, BN, 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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, 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, KM, ML, MR, NE, SN, TD, TG).
- 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:** 23 June 2016



(54) **Title:** SYSTEM AND METHOD FOR MEASURING SENSORY RESPONSE OF TISSUE

(57) **Abstract:** A system for measuring sensation or sensory responses of a tissue of a subject (or patient) by delivering air pulses of controlled pressure, duration, and frequency to the tissue surface. The system can include an endoscope having a range finder component to determine the distance between the distal end of the endoscope and a target tissue surface. When it is determined that the endoscope has been positioned at a predetermined distance from the tissue surface, the air pulses can be administered to the tissue surface.

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2015/001323

A. CLASSIFICATION OF SUBJECT MATTER INV. A61B1/267 A61B5/00 A61B1/273 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) A61B 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 5 970 978 A (AVIV JONATHAN E [US] ET AL) 26 October 1999 (1999-10-26) cited in the application the whole document -----	1-16		
Y	US 2007/203396 A1 (MCCUTCHEON JOHN G [US] ET AL) 30 August 2007 (2007-08-30) the whole document -----	1-16		
Y	DE 10 2006 014857 A1 (SIEMENS AG [DE]) 19 July 2007 (2007-07-19) the whole document -----	1-16		
X,P	WO 2014/184695 A2 (UNIV DE LA SABANA [CO]) 20 November 2014 (2014-11-20) the whole document -----	1-16		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"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
"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	Date of mailing of the international search report			
8 January 2016	04/05/2016			
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 Schindler, Martin			

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2015/001323

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.: 17-27
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
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.:

1-16

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: 1-16

How to control the air stimuli.

2. claims: 28-34

How to improve the image of the laser spot.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 17-27

Claims 17-27 refer to a method for treatment of the human or animal body by surgery, because the method comprises the step of "positioning the distal end of the endoscope at a distance from a target location" and "deliver air pulses at varying controlled pressures, durations and frequencies" . The movement of the interventional device within the human body and the step of delivering air pulses is an invasive method step generally carried out by a medical doctor and always involving the risk of damaging the bodily structure, like the lung wall. Consequently the claimed method qualifies as surgery according to Rule 39.1 (iv) PCT. No written opinion will be drafted in respect to these claims (see Art. 17(2)(a) PCT, Rule 66.1(e) PCT).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2015/001323

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5970978	A	26-10-1999	AT 271828 T 15-08-2004
			AU 3829995 A 06-05-1996
			DE 69533319 D1 02-09-2004
			DE 69533319 T2 17-02-2005
			EP 0827382 A1 11-03-1998
			HK 1009669 A1 08-02-2005
			JP 3657005 B2 08-06-2005
			JP H10509344 A 14-09-1998
			US 5515860 A 14-05-1996
			US 5970978 A 26-10-1999
			WO 9611627 A1 25-04-1996
US 2007203396	A1	30-08-2007	US 2007203396 A1 30-08-2007
			WO 2007100846 A2 07-09-2007
DE 102006014857	A1	19-07-2007	NONE
WO 2014184695	A2	20-11-2014	NONE