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2015/07885 26 June 2015 (26.06.2015) TR
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- (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.
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- Published:**
— with international search report (Art. 21(3))

[Continued on next page]

(54) **Title:** IMPROVED ENDOTRACHEAL TUBE AND TRACHEOSTOMY TUBE

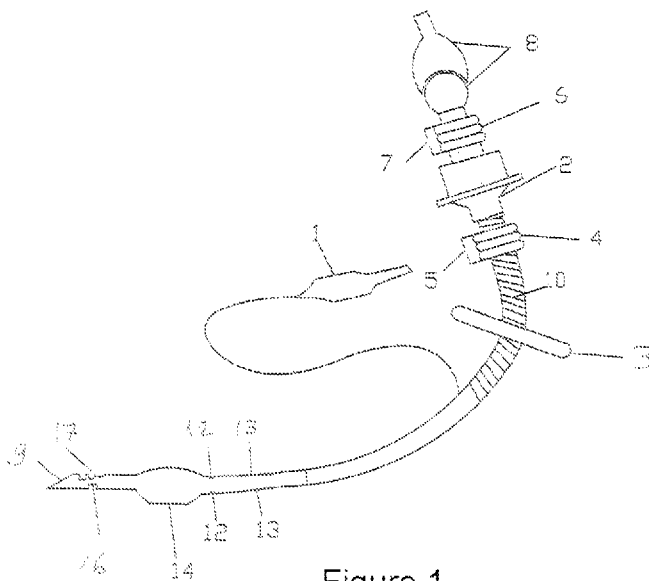


Figure 1

(57) **Abstract:** Endotracheal tubes and tracheostomy tubes are medical devices with crucial significance frequently used in various medical and surgical cases on both humans and animals. Their main function is to ensure safe and controlled transportation of oxygen and other gases to the patient. In this patent application, various novelties and modifications are provided in order to reduce some side effects encountered during use of these tubes, make operations easier, and achieve some advantages. Some of these novelties and modifications are obtained with arrangements in the anatomy-shape of the tubes, some with additions and changes in the production method, and some via coating techniques. These novelties and modifications are made by considering various factors such as the age, disease, medical condition, and equipment, facilities, and preferences of the intervening staff. Various characteristics required by these factors are provided. While each one of these novelties and modifications can be used alone for some clinical cases, some of their characteristics can be combined with each other to provide more significant and synergistic advantages. In rare clinical situations, all of the novelties and modi-

fications disclosed in this application may be required to be collected and used in one single tube. In most cases, use of only some of these would be sufficient.



— *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:
26 January 2017

INTERNATIONAL SEARCH REPORT

International application No PCT/TR2016/050198

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61M16/04 G01L7/02 A61M16/08
 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 G01L

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	EP 1 062 964 A2 (KOKEN COMPANY LTD [JP]) 27 December 2000 (2000-12-27) paragraph [0001] - paragraph [0007] paragraph [0010] - paragraph [0021] figures 1-6	1-8,100, 101
X	-----	
X	WO 2010/070291 A2 (ARC PRODUCT DESIGN LTD [GB]; GREATER GLASGOW HEALTH BOARD [GB]; PULLEN) 24 June 2010 (2010-06-24) page 1, line 3 - page 7, line 15 page 11, line 13 - page 14, line 10 figures 1-8	1-8,100, 101
Y		1-8,100, 101
X	-----	
X	US 6 705 320 B1 (ANDERSON SCOTT M [US]) 16 March 2004 (2004-03-16)	5-8,101
Y	column 1, line 5 - column 3, line 64 column 5, line 14 - column 7, line 5 figures 5-19B	1-8,100, 101

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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 13 October 2016	Date of mailing of the international search report 04/01/2017
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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 Aguado, Miguel
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INTERNATIONAL SEARCH REPORT

International application No PCT/TR2016/050198

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 4 266 550 A (BRUNER JAMES D) 12 May 1981 (1981-05-12)	5-8,101
Y	column 1, line 9 - line 28 column 1, line 46 - column 3, line 17 figures 1-5 -----	1-8,100, 101
X	DE 100 39 045 C1 (VBM MEDIZINTECHNIK GMBH [DE]) 20 September 2001 (2001-09-20)	1-8,100, 101
Y	column 1, line 3 - column 2, line 25 column 2, line 44 - column 3, line 29 figures 1a-2 -----	1-8,100, 101
Y	US 2012/101515 A1 (BARBOD LEONARD [US]) 26 April 2012 (2012-04-26) paragraph [0001] - paragraph [0009] paragraph [0022] - paragraph [0024] paragraph [0029] - paragraph [0031] paragraph [0035] - paragraph [0042] figures 1, 4-5b, 9a-12b -----	1-8,100, 101

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TR2016/050198

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.:

1-8(completely); 100, 101(partially)

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: 1-8(completely); 100, 101(partially)

Cuffed endotracheal or tracheostomy tube assembly with pilot balloon and means for providing information on the pressure values of the cuff

2. claims: 9-15, 80-82(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with indicators made visible in absence of light or via radiography or ultrasound

3. claims: 16-19, 83-99(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with structure to prevent trauma and/or prevent introduction of the tube in the left or right bronchus

4. claims: 20, 21(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with a gripping structure in the proximal part of the tube

5. claims: 22-28(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with a connector with a distal tip structure to accommodate a proximal tip of the tube body

6. claims: 29-37(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with a bendable structure

7. claims: 38-43(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with an adapter or connector having a holding or fixing structure for inflation and/or aspiration devices

8. claims: 44-59(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with an adapter or connector having a structure providing visibility of the fixing function of the tube following intubation

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

9. claims: 60-69(completely); 100, 101(partially)

Endotracheal tube assembly with a screw system for fixing
following intubation

10. claims: 70-79(completely); 100, 101(partially)

Endotracheal or tracheostomy tube assembly with a
gas-permeable structure

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/TR2016/050198

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1062964	A2	27-12-2000	EP 1062964 A2 27-12-2000
			JP 2001061965 A 13-03-2001
			US 2002157665 A1 31-10-2002

WO 2010070291	A2	24-06-2010	GB 2480166 A 09-11-2011
			WO 2010070291 A2 24-06-2010

US 6705320	B1	16-03-2004	NONE

US 4266550	A	12-05-1981	NONE

DE 10039045	C1	20-09-2001	NONE

US 2012101515	A1	26-04-2012	US 2012101515 A1 26-04-2012
			WO 2012054140 A1 26-04-2012
