

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
20 March 2003 (20.03.2003)

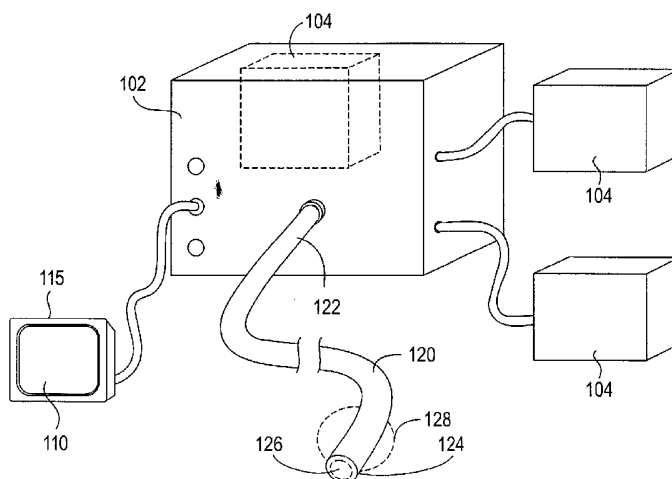
PCT

(10) International Publication Number  
**WO 03/022221 A3**

- (51) International Patent Classification<sup>7</sup>: **A61B 05/00**
- (21) International Application Number: PCT/US02/28863
- (22) International Filing Date:  
10 September 2002 (10.09.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/318,539 10 September 2001 (10.09.2001) US
- (71) Applicant: **PULMONX** [US/US]; 1049 Elwell Court, Palo Alto, CA 94303 (US).
- (72) Inventors: **KOTMEL, Robert**; 116 Bloomfield Road, Burlingame, CA 94010 (US). **SOLTESZ, Peter**; 4972 Miramar Avenue, San Jose, CA 95129 (US). **WONDKA, Anthony**; 2700 Del Medio Court, #115, Mountain View, CA 94040 (US). **PERKINS, Rodney**; 235 Mountain Wood Lane, Woodside, CA 94062 (US).
- (74) Agents: **THOMPSON, Lynn, M.** et al.; TOWNSEND AND TOWNSEND AND CREW LLP, Two Embarcadero Center, 8th Floor, San Francisco, CA 94111-3834 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR ENDOBRONCHIAL DIAGNOSIS



(57) **Abstract:** The present invention provides systems, methods, devices and kits for assessing the level of pulmonary disease in individual lung compartments. A lung compartment comprises a subportion of a lung, such as a lobe, a segment or a subsegment, for example. By measuring individual lung compartments, the level of disease of the pulmonary system may be more precisely defined by determining values of disease parameters reflective of individual subportions or compartments of a lung. Likewise, compartments may be separately imaged to provide further measurement information. Once individual compartments are characterized, they may be compared and ranked based on a number of variables reflecting, for example, level of disease or need for treatment. Such comparison may be aided by simultaneous display of such variables or images on a visual display. Further, the same tests may be performed on the lung as a whole or on both lungs and to determine the affect of the diseased lung compartments on the overall lung performance. In addition, the diseased lung compartments may be temporarily isolated and the measurement tests performed to determine the affect of the isolation on overall lung performance. As a result, the most beneficial treatment options may be selected.



WO 03/022221 A3



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

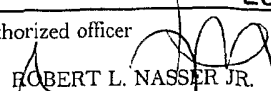
*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

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

3 July 2003

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/28863

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(7) :A61B 05/00 US CL :Please See Extra Sheet. According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 600/533, 529, 532, 538;		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NONE		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4796,639 A (SNOW et al.) 10 January 1989, see entire document.	1-68.N
A	US 5,447,165 A (GUSTAFSSON) 05 September 1995, see entire document.	1-68
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:	"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	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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	
"E" earlier document published on or after the international filing date	"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	
"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)	"g" document member of the same patent family	
"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		
Date of the actual completion of the international search 06 NOVEMBER 2002	Date of mailing of the international search report <b>16 MAY 2003</b>	
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer  ROBERT L. NASSER JR. Telephone No. (703) 308-3251	

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/28863

A. CLASSIFICATION OF SUBJECT MATTER:  
US CL :

600/533