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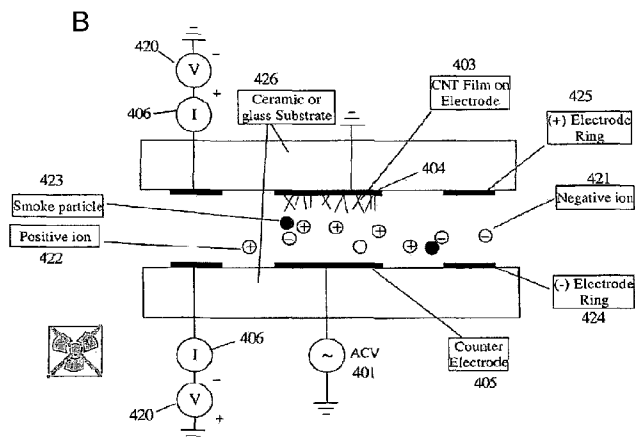
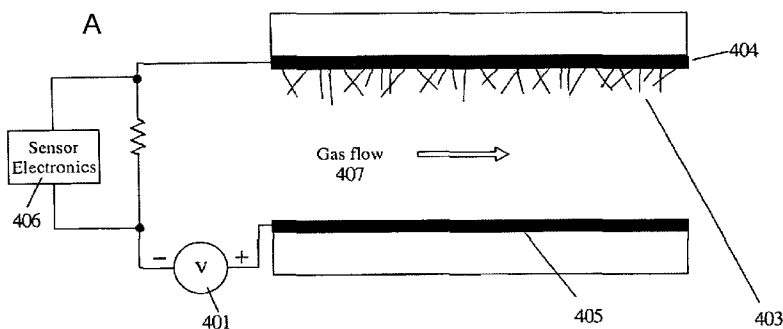
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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(54) Title: SMOKE DETECTOR



(57) Abstract: A smoke detector replaces the americium source of alpha particles with a field emission device using carbon nanotubes as the field emitters, or some other field emitter, in order to provide an ionization of the air potentially carrying smoke particles through the smoke detector.

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ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
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FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,  
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

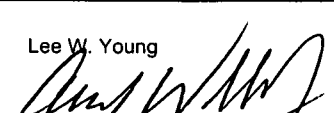
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<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G01N 7/00 (2008.01) USPC - 73/23.2 According to International Patent Classification (IPC) or to both national classification and IPC</p>												
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) USPC: 73/23.2</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: all classes/subclasses (search terms below)</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WEST and Google Scholar: detector, smoke, nanotube, electrode, wire, sensor, ion, electron</p>												
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 2006/0099715 A1 (MUNOZ et al.) 11 May 2006 (11.05.2006), para [0028], [0033], [0123], [0128], [0135], [0147].</td> <td>1-26</td> </tr> <tr> <td>Y</td> <td>US 2002/0142477 A1 (LEWIS et al.) 03 October 2002 (03.10.2002), para [0014], [0043], [0050], [0054], [0055], [0060], [0067], [0084], [0091], [0095], [0096], [0097], [0101], [0103], [0112], [0115], [0123], [0124], [0131], [0134], [0140], [0155], [0184], [0190], Fig. 3; Fig. 5A; Fig. 5B.</td> <td>1-26</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 2006/0099715 A1 (MUNOZ et al.) 11 May 2006 (11.05.2006), para [0028], [0033], [0123], [0128], [0135], [0147].	1-26	Y	US 2002/0142477 A1 (LEWIS et al.) 03 October 2002 (03.10.2002), para [0014], [0043], [0050], [0054], [0055], [0060], [0067], [0084], [0091], [0095], [0096], [0097], [0101], [0103], [0112], [0115], [0123], [0124], [0131], [0134], [0140], [0155], [0184], [0190], Fig. 3; Fig. 5A; Fig. 5B.	1-26	
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<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/></p>												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"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)</td> <td>"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</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent but published on or after the international filing date	"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	"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)	"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	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
<p>Date of the actual completion of the international search 07 February 2008 (07.02.2008)</p>		<p>Date of mailing of the international search report <b>13 MAR 2008</b></p>										
<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer: Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>										