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For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: BIOLOGICAL ALARM

(57) Abstract: Airborne particles are impacted on a collection surface (220), analyzed, and then the collection surface (220) is regenerated. Thus, the same collection surface (220) can be used in numerous cycles. The analysis can be focused on one or more properties of interest, such as the concentration of airborne biologicals. Sensors based on regenerative collection surfaces may be incorporated in many networks for applications such as building automation.



WO 2006/001852 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/05977

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: **B32B 5/02**( 2006.01);**B32B 27/04**( 2006.01);**B32B 27/12**( 2006.01);**G01N 17/00**( 2006.01)

USPC: 422/91

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)

U.S. : 422/91

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)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,063,164 (GOLDSTEIN) 5 November 1991 (5.11.1991), abstract, column 2	1-2
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Y		3-16, 21-28
Y	US 5,039,490 (MARSONER et al.) 13 August 1991 (13.08.1991), column 2, lines 28-30	3
Y	US 5,553,795 (TSAI et al.) 10 September 1996 (10.09.1996), abstract	4
Y	US 6,707,539 (SELINFREUND et al.) 16 March 2004 (16.03.2004), abstract; column 1, lines 57-66; column 3, lines 40-65; column 4, lines 19-23; column 6, lines 32-34 and 42-50	5-16
Y	US 6,024,923 (MELENDEZ et al.) 15 February 2000 (15.02.2000), abstract; column 1, lines 20-33; column 2, lines 36-39; column 3, lines 37-42 and 53-57; column 4, lines 34-36; column 7, lines 56-61	21-24



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	"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 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	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

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**25 AUG 2006**

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# INTERNATIONAL SEARCH REPORT

International application No.  
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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,511,854 B1 (ASANOV et al.) 28 January 2003 (28.01.2003), abstract; column 3, lines 8-9; column 4, lines 47-52; column 7, lines 55-59;	25-28

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/05977

### 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:  
Please See Continuation 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 additional fees, this Authority did not invite payment of any 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.: 1-16 and 21-28
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.:

- 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.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US05/05977

### BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-7, drawn to a device with a collection surface and a detector.

Group II, claim(s) 8-16 and 21-28, drawn to a device with a regenerable collection surface and a fluorescence photosensor.

Group III, claim(s) 17-20, drawn to a detector coupled to a processor.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature appears to be a regenerative collection surface. However, this is known in the art, as can be seen in Asanov (USPN 6,511,854) or Goldstein (5,063,164).