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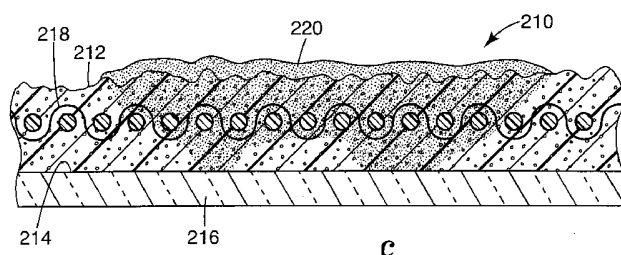
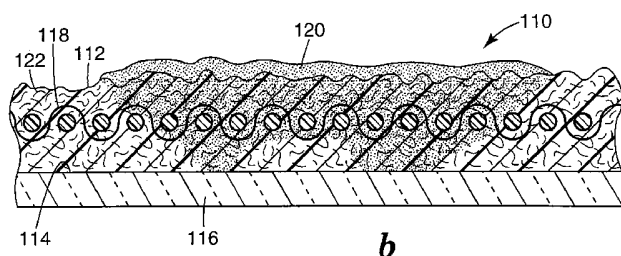
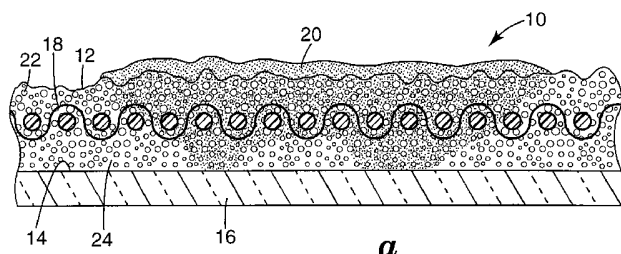
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(54) Title: BIOLOGICAL SOIL DETECTOR AND METHOD OF USING SAME



(57) Abstract: A biological soil detector is provided, comprising: a solid support member; a specific indicator immobilized on the solid support member; and a retaining member holding the solid support thereon, the retaining member and solid support configured to facilitate contact between the solid support a surface. A method for the use of the foregoing detector is also provided, the method comprising: contacting the foregoing biological soil detector with a surface wherein the contacting initiates the modification of the specific indicator in the presence of bio soil; withdrawing the biological soil detector from the surface; and inspecting the solid support member of the detector for a detectable response to thereby determine whether the specific indicator immobilized on the solid support has interacted with biological soil. In still another aspect, the invention provides biological soil detector and a method for using the detector wherein the detector comprises: a solid support member treated with at least one amine or quaternary functional coating; and a specific indicator immobilized on the coating.

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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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 practical, search terms used)
EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, INSPEC, FSTA, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/13109 A (GAEL, MICHAEL, R; GAEL, SIDNEY; GAEL, WILLIAM) 22 February 2001 (2001-02-22) page 2, line 28 - page 3, line 15 table 1 claims 1-33	1-37
X	WO 03/063693 A (EXPRESSIVE CONSTRUCTS, INC; SANDERS, MITCHELL, C; LOWE, ADRIAN, M; HAM) 7 August 2003 (2003-08-07) page 14, paragraph 2 - page 15, paragraph 1 page 15, paragraph 4 - page 19, paragraph 1 page 22, paragraph 3 page 24, paragraph 2 examples 8,15 claims 1-38	1-20, 22-37
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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International Application No
PCT/US2005/011851

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 884 115 A (ETHICON, INC) 16 December 1998 (1998-12-16) claims 5-12 page 4, line 9 - line 17	1-37
A	WO 01/54552 A (THE PROCTER & GAMBLE COMPANY) 2 August 2001 (2001-08-02) examples 1-13 page 14, paragraph 2 - page 18, paragraph 3	1-37
A	ISHINO Y ET AL: "Pitfalls in endoscope reprocessing: brushing of air and water channels is mandatory for high-level disinfection." GASTROINTESTINAL ENDOSCOPY. FEB 2001, vol. 53, no. 2, February 2001 (2001-02), pages 165-168, XP002344411 ISSN: 0016-5107 page 166, column 1, paragraph 4	1-37
A	EP 0 269 979 A (KONICA CORPORATION) 8 June 1988 (1988-06-08) claims 1-12 example 4	1-37
A	ALFA MICHELLE J ET AL: "Worst-case soiling levels for patient-used flexible endoscopes before and after cleaning" AMERICAN JOURNAL OF INFECTION CONTROL, vol. 27, no. 5, October 1999 (1999-10), pages 392-401, XP008052347 ISSN: 0196-6553 page 393, column 2, paragraph 2 - page 396, column 1, paragraph 1	1-37
X	KLUEH U ET AL: "Binding and orientation of fibronectin to silanated glass surfaces using immobilized bacterial adhesin-related peptides." BIOMATERIALS. OCT 2003, vol. 24, no. 22, October 2003 (2003-10), pages 3877-3884, XP002358814 ISSN: 0142-9612 abstract page 3878, column 2, paragraph 2 page 3879, column 1, paragraph 5 - column 2, paragraph 2 page 3880, column 1, paragraph 2 - column 2, paragraph 1	38,48, 52,54,56
	-/-	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2005/011851

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 213 583 A (INNOSENSE S.R.L) 12 June 2002 (2002-06-12) column 1, paragraph 3 column 1, paragraph 6 - column 2, paragraph 11 column 4, paragraph 25 column 5, paragraph 30 column 6, paragraph 39 examples 1,2,4 claims 1-3,6,10,11	38,48, 52,53
X	WO 01/70641 A (INCYTE PHARMACEUTICALS, INC) 27 September 2001 (2001-09-27) page 1, line 13 - line 16 page 5, line 28 - page 6, line 7 page 6, line 22 - line 25 page 7, line 7 - line 9 examples 1,3,4,7 claims 18,20,21,23,24,28-33	38, 42-44, 48,52-55
A	COSTA S A ET AL: "Immobilisation of catalase on the surface of biodegradable starch-based polymers as a way to change its surface characteristics." JOURNAL OF MATERIALS SCIENCE. MATERIALS IN MEDICINE. APR 2004, vol. 15, no. 4, April 2004 (2004-04), pages 335-342, XP002358815 ISSN: 0957-4530 abstract page 336, column 2, paragraph 3 - page 337, column 1, paragraph 1	38-64
A	BARER M R: "New possibilities for bacterial cytochemistry: light microscopical demonstration of beta-galactosidase in unfixed immobilized bacteria." THE HISTOCHEMICAL JOURNAL. 1991 NOV-DEC, vol. 23, no. 11-12, November 1991 (1991-11), pages 529-533, XP008057313 ISSN: 0018-2214 abstract page 530, column 1, paragraph 5 - column 2, paragraph 2	38-64

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/011851

Box 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 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 fee, this Authority did not invite payment of any additional fee.
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.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-37

A biological soil detector comprising a solid support, a specific indicator immobilized on the solid support and a retaining member holding the solid support thereon. A method to detect biological soil employing said detector.

2. claims: 38-64

A biological soil detector comprising a solid support member coated with at least one amine or quarternary functional coating and a specific indicator immobilized on the coating. A method for detecting biological soil employing said detector.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/011851

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0113109	A	22-02-2001	AU 6494100 A US 6203496 B1	13-03-2001 20-03-2001
WO 03063693	A	07-08-2003	CA 2474458 A1 EP 1576181 A2 JP 2005528887 T	07-08-2003 21-09-2005 29-09-2005
EP 0884115	A	16-12-1998	AU 750510 B2 AU 6995898 A JP 11128325 A SG 71121 A1 TW 410162 B US 6394111 B1 US 6494964 B1 US 2002179128 A1 US 6454874 B1 US 2001033805 A1	18-07-2002 17-12-1998 18-05-1999 21-03-2000 01-11-2000 28-05-2002 17-12-2002 05-12-2002 24-09-2002 25-10-2001
WO 0154552	A	02-08-2001	AU 3456201 A EP 1250078 A1 JP 2004500186 T	07-08-2001 23-10-2002 08-01-2004
EP 0269979	A	08-06-1988	JP 1810585 C JP 5022519 B JP 63137698 A	27-12-1993 29-03-1993 09-06-1988
EP 1213583	A	12-06-2002	NONE	
WO 0170641	A	27-09-2001	AU 4763201 A CA 2402263 A1 EP 1274661 A1 JP 2003528301 T US 2003165905 A1 US 6413722 B1 US 2002037509 A1	03-10-2001 27-09-2001 15-01-2003 24-09-2003 04-09-2003 02-07-2002 28-03-2002