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BO2005A000481 19 July 2005 (19.07.2005) IT
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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, BR, BW, BY, BZ, CA, CH, CN,

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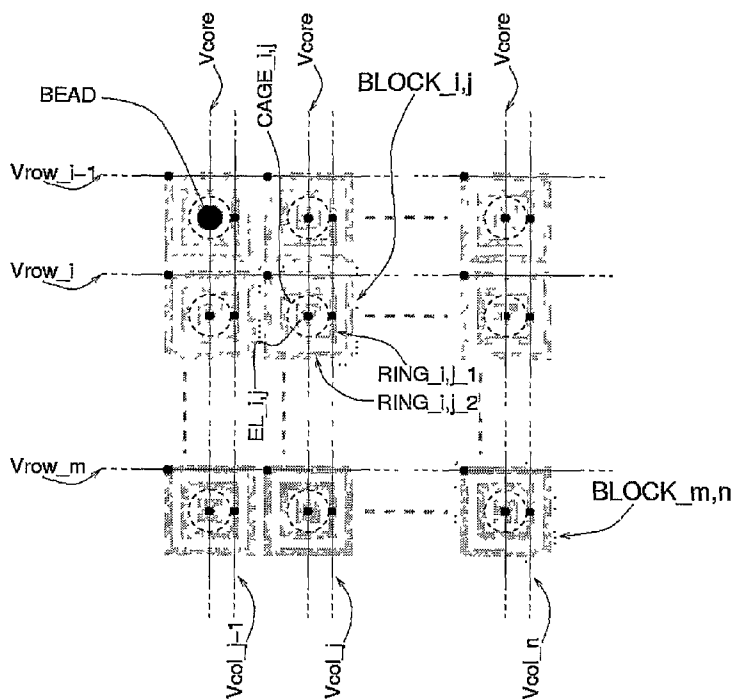
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** METHOD AND APPARATUS FOR THE MANIPULATION AND/OR THE DETECTION OF PARTICLES



(57) **Abstract:** Method and apparatus for the manipulation and/or control of the position of particles by means of time-variable fields of force. The fields of force can be of dielectrophoresis (positive or negative), electrophoresis, electrohydrodynamic or electroretroting on dielectric, characterized by a set of stable points of equilibrium for the particles.

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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2006/001984

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. B03C5/02

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)  
B03C BOIL GOIN

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with Indication, where appropriate, of the relevant passages  | Relevant to claim No     |
|-----------|---|--------------------------|
| X         | US 2004/055891 A1 (PAMULA VAMSEE K [US] ET AL) 25 March 2004 (2004-03-25)   | 1-14,<br>17-34,<br>41-45 |
| Y         | paragraphs [0087], [0097], [0101]   | 16, 36-39                |
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|           | -----<br>-/--   |                          |

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

"E" earlier document but published on or after the international filing date

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"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

"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

"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

\*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

\*&1 document member of the same patent family

Date of the actual completion of the International search

19 February 2007

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27/02/2007

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Demol, Stefan

## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/001984

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
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| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
| X  | WO 00/47322 A2 (UNIV TEXAS [US]; BECKER<br>FREDERICK F [US]; GASCOYNE PETER [US];<br>WANG XI) 17 August 2000 (2000-08-17)  | 15,35                 |
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|  | paragraphs [0109], [0110]<br>-----   |                       |

**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  
A-1 000 rncghaahblle 01aimmQs.
  
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: 1-14, 17-34, 41-45 when dependent on claim 17, 21 or 23

A method and apparatus for manipulation of particles using a field of force to attract the particle towards a stable equilibrium.

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2. claims: 15-16, 35-39

A method and apparatus for detecting particles using an impedance measurement.

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3. claims: 40, 41-45 when dependent on claim 40

An apparatus for manipulation of particles using a special shape of electrodes.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2006/001984

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date            |   |            |                           |
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