CORROSION SENSING MICROSENSORS

Abstract: A microsensor for detecting corrosive media acting on a bulk metallic material when mounted in situ adjacent a location in the bulk metallic material. The microsensor includes a plurality of corrosive tracks (16; 132; 21613) exposed to the corrosive media, each said corrosive track being formed as a patterned conductive thin film track. The tracks follow serpentine paths which include a plurality of bends, at least two of which are of opposite curvature, to provide a high degree of miniaturisation coupled with accurate and reliable corrosion sensing characteristics. The corrosive tracks may be formed from an alloy material, such as an aluminium alloy, to mimic the corrosive characteristics of a bulk metallic alloy and to provide improved corrosion detection for components made from such materials at high degrees of miniaturisation.

Published:
— with international search report

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

Date of publication of the international search report: 26 August 2004

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.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC 7   G01N17/04   G01N17/00   G01N17/02

   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)
   IPC 7   G01N

   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, PAJ, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>US 5 446 369 A (BYRNE MARK T ET AL) 29 August 1995 (1995-08-29) abstract; figure 1</td>
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   Further documents are listed in the continuation of box C.

   Patent family members are listed in 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 of disclosure prior to the international filing date
   *P* document published prior to the international filing date but later than the priority date claimed

   "F" 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 without the disclosure of the document
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   "Z" 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
   "A" document member of the same patent family

   Date of the actual completion of the international search
   26 February 2004

   Date of mailing of the international search report
   25.06.2004

   Name and mailing address of the ISA
   European Patent Office, P.B. 8818 Patentlaan 2
   NL-2280 HV Rijswijk
   Tel: (+31-70) 340-0040, Tx: 31 651 epo nl,
   Fax: (+31-70) 340-3016

   Authorized officer
   Strohmayer, B
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<td>PATENT ABSTRACTS OF JAPAN vol. 009, no. 009 (P-327), 16 January 1985 (1985-01-16) &amp; JP 59 159961 A (MATSUSHITA DENKO KK), 8 September 1984 (1984-09-08) abstract; figure 1</td>
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INTERNATIONAL SEARCH REPORT

Box I  Observations where certain claims were found unsearchable (Continuation of Item 1 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 II  Observations where unity of invention is lacking (Continuation of item 2 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.:
   1-23

Remark on Protest  

□ The additional search fees were accompanied by the applicant's protest.

□ No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16 and not novel claims 17-23
   The sensor includes a plurality of meandering tracks
   Problem solved: further miniaturisation (application p.3,1.3-6)
   ---

2. claims: 24,25
   the track is annealed after deposition
   problem: to improve the degree to which the corrosive characteristics of the thin film tracks mimic the bulk alloy (application, p.11,1.2-6)
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