Title: IMPROVED IGNITION-SOURCE DETECTING SYSTEM AND ASSOCIATED METHODS

Abstract: A system of ignition-source detection and prevention in containers and open materials handling systems. The system includes an electronic processor located in close proximity to a detector, a spray nozzle, and a valve. The electronic processor may be configured to be placed in a dust-hazard environment. The detector may be configured to detect radiation and/or a flame. Associate methods are also disclosed, including: a method of responding to an ignition source, a method of installing an ignition-source detection system, and a method of testing an ignition-source detection system.
### Classification of Subject Matter

**INV. GO8B17/00 GO8B17/12**

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):

- GO8B

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

### C. Documents Considered to Be Relevant

<table>
<thead>
<tr>
<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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<tr>
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<td>abstract</td>
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<td><strong>X</strong> Further documents are listed in the continuation of Box C.</td>
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* 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
- **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)
- **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

**&** document member of the same patent family

Date of the actual completion of the international search: 15 October 2008

Date of mailing of the international search report: 16/01/2009

Name and mailing address of the ISA/Authorized officer:

European Patent Office, P.B. 5818 Patentlaan 2
NL – 2280 HV Rijswijk
Tel: (+31-70) 340-2040
Fax: (+31-70) 340-3016

Russo, Michela
<table>
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<td>Y</td>
<td>WO 2005/091238 A (DU PLESSIS JACOBUS PETRUS FRAN [ZA]) 29 September 2005 (2005-09-29) page 9, line 31 - page 10, line 2; figure 1</td>
<td>2, 13, 46, 53</td>
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INTERNATIONAL SEARCH REPORT

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:

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 fees, this Authority did not invite payment of 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.:

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.:

see annex

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.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 2, 13; 45, 46, 47 and 53
   relating to detection and extinction of an ignition-source.

1.1. claims: 1, 20-21; and 45, 46, 48 and 52
   relating to characteristics of the environment wherein an ignition-source detecting system or method are suited to operate.

1.2. claims: 1, 38-39, 55
   directed to an ignition-source detecting system comprising components for testing its functionality and a method for testing the detecting system.

2. claims: 1, 3-6 and 45, 46, 49
   defining the electronic processor controlling an ignition-source detecting system.

3. claims: 1, 7-12; 45, 46, 51 and 53,54
   characterising the communication between an electronic processor and other components of an ignition-source detecting system.

4. claims: 1, 14-17
   directed to an ignition-source detecting system comprising a keypad for entering user inputs.

5. claims: 1, 16-19, 22-33, 40 and 45, 46, 50
   relating to specific characteristics of detector(s) in an ignition-source detecting system, such as which parameter is detected and how.

6. claims: 1, 34-35
   directed to an ignition-source detecting system comprising a heat tracing circuit to prevent the extinguishing liquid to freeze.

7. claims: 1,36-37
dealing with supply of power to an ignition-source detecting system.

8. claims: 1, 41-44

relating to response time characteristics of an ignition-source detecting system.
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<th>Publication date</th>
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<tr>
<td>WO 2005091238 A</td>
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