Title: AN OPTICAL SENSOR AND METHOD FOR DETECTING PROJECTILE IMPACT LOCATION AND VELOCITY VECTOR

Abstract: An optical sensor (P) and method for detecting a projectile velocity vector includes optically detecting the arrival of a projectile. The sensor (P) includes a sandwich of a transparent layer (20) within two reflective layers (15), which in turn are within two opaque layers. An optical sensor structure includes a set of sensors positioned in respective planes, wherein at least two non-parallel optical sensors (P) are used for each trajectory dimension of interest that differs from the primary direction of motion of the projectile and one additional optical sensor (P) may be used for independent measurement of velocity attenuation. An optical sensor structure includes a set of sensors positioned in respective planes, wherein at least two of the optical sensors (P) are oriented in respective planes that are parallel and potentially offset from each other. A tilting of the optical sensors or optical structures is also possible.
(88) Date of publication of the international search report: 21 August 2003

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) : G02B 6/26, 42
US CL : 385/15

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. : 385/15

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPAT, USPG-PUB, EPO, JPO, DERWENT

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

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>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 5,157,262 A (MASONER et al.) 20 October 1992, column 1, line 11-column 12, line 34.</td>
<td>1-28</td>
</tr>
<tr>
<td>Y</td>
<td>US 6,045,888 A (CHEN et al.) 04 April 2000, column 1, line 9-column 21, line 36.</td>
<td>1-28</td>
</tr>
<tr>
<td>Y</td>
<td>US 6,198,694 B1 (KROLING et al.), 06 March 2001, column 1, line 6-column 9, line 25.</td>
<td>1-28</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,258,962 A (KARLESEN) 02 November 1993, column 1, line 1, column 8, line 62.</td>
<td>1-28</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,988,645 A (DOWNING) 23 November 1999, column 1, line 15-column 38, line 34.</td>
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</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search: 22 April 2003 (22.04.2003)

Date of mailing of the international search report: 27 May 2003

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