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[Continued on next page]

(54) Title: **REFLECTION-SAFE RECEIVER FOR POWER BEAMING**

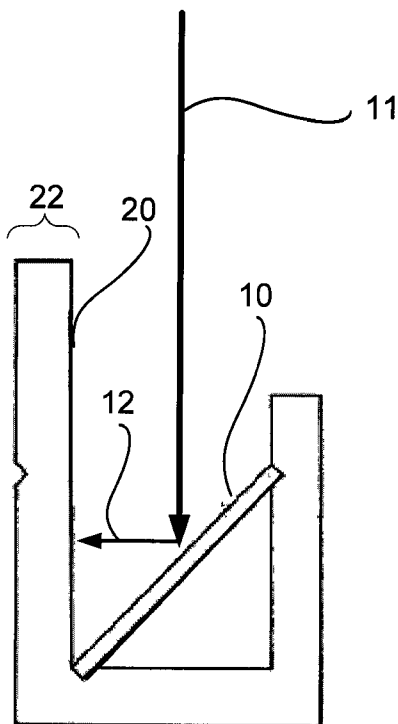


FIG. 2A

(57) Abstract: Embodiments of the invention include a power beam receiver that will not reflect light beyond the regulatory limits for human exposure, except along paths known to be without people. In one embodiment, a baffle is used to trap reflections from surfaces of the receiver. In a second embodiment, the power beam receiver is arranged so that reflections are reflected to another surface of the receiver. These surfaces may be designed as a retroreflector. In a third embodiment, an intentional scattering medium is added to the powerbeam receiver so that parallel light rays incident on the front surface of the power beam receiver are scattered through a series of angles. As a result, any light escaping the system is diffused.



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| A CLASSIFICATION OF SUBJECT MATTER IPC(8) - G05D 1/02 (2008.04) USPC - 318/16 According to International Patent Classification (IPC) or to both national classification and IPC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| B FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) USPC - 318/16, 359/225, 398/1 15 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC - 318/16, 359/225, 398/1 15 (search terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST (USPT, PGPB, EPAB, JPAB), DialogPRO (Engineering), Google Scholar Search term power beam receiver, power conversion, incident light, beam, baffle, photodiode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <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>X ---</td> <td>US 2003/0059178 A1 (KOBAYASHI et al) 27 March 2003 (27 03 2003), fig 1, para [0033]</td> <td>1-2, 4-10, 21-22, 24</td> </tr> <tr> <td>Y</td> <td></td> <td>3, 11-16, 18, 23</td> </tr> <tr> <td>X ---</td> <td>US 6,758,568 B2 (VALENTI) 06 July 2004 (06 07 2004), fig 1</td> <td>17, 20</td> </tr> <tr> <td>Y</td> <td></td> <td>18-19</td> </tr> <tr> <td>Y</td> <td>US 2005/0007586 A1 (BASTUE et al) 13 January 2005 (13 01 2005), para [0048]</td> <td>3, 16</td> </tr> <tr> <td>Y</td> <td>US 4,167,336 A (LJUNG) 11 September 1979 (11 09 1979), col 4 ln 44-46</td> <td>11-16</td> </tr> <tr> <td>Y</td> <td>US 4,148,584 A (ROELANTS) 10 April 1979 (10 04 1979), col 3 ln 19-22</td> <td>19</td> </tr> <tr> <td>Y</td> <td>US 5,946,549 A (ITOIGAWA et al) 31 August 1999 (31 08 1999), fig 9, col 8, ln 50-65</td> <td>23</td> </tr> <tr> <td>Y</td> <td>US 2006/0001888 A1 (HILL) 05 January 2006 (05 01 2006), para [0023], [0030]</td> <td>14-16</td> </tr> <tr> <td>A</td> <td>US 5,818,188 A (HIRAI et al) 06 October 1998 (06 10 1998), entire document</td> <td>1-24</td> </tr> </tbody> </table> | | | Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No | X --- | US 2003/0059178 A1 (KOBAYASHI et al) 27 March 2003 (27 03 2003), fig 1, para [0033] | 1-2, 4-10, 21-22, 24 | Y | | 3, 11-16, 18, 23 | X --- | US 6,758,568 B2 (VALENTI) 06 July 2004 (06 07 2004), fig 1 | 17, 20 | Y | | 18-19 | Y | US 2005/0007586 A1 (BASTUE et al) 13 January 2005 (13 01 2005), para [0048] | 3, 16 | Y | US 4,167,336 A (LJUNG) 11 September 1979 (11 09 1979), col 4 ln 44-46 | 11-16 | Y | US 4,148,584 A (ROELANTS) 10 April 1979 (10 04 1979), col 3 ln 19-22 | 19 | Y | US 5,946,549 A (ITOIGAWA et al) 31 August 1999 (31 08 1999), fig 9, col 8, ln 50-65 | 23 | Y | US 2006/0001888 A1 (HILL) 05 January 2006 (05 01 2006), para [0023], [0030] | 14-16 | A | US 5,818,188 A (HIRAI et al) 06 October 1998 (06 10 1998), entire document | 1-24 |
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| <input type="checkbox"/> Further documents are listed in the continuation of Box C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Date of the actual completion of the international search 03 June 2008 (03 06 2008) | | Date of mailing of the international search report 17 JUN 2008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name and mailing address of the ISA/US Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201 | | Authorized officer Lee W Young PCT Helpdesk 571 272-4300 PCTOSP 571 272 7774 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |