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(54) Title: ALIGNMENT SYSTEM FOR VARIOUS MATERIALS AND MATERIAL FLOWS

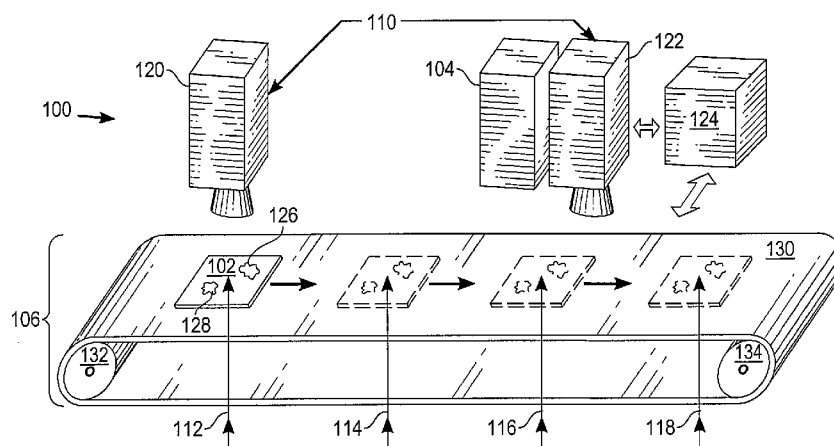


Fig. 1

(57) Abstract: A method and system for alignment of a tool to a workpiece in a continuous or discontinuous material flow are disclosed. The workpiece may be a portion of a web of material. An imaging system captures first and second images of the workpiece at first and second occasions respectively. Microscopic native features of the workpiece are selected, detected, tracked and/or compared in the first and second images. Based on the correspondence between, tracking or relative displacement of features as captured in the first and second images, an alignment to the workpiece is controlled. In embodiments, the workpiece and a tool, a projected image or a pattern to be imparted to the workpiece by a lithography or photolithography apparatus are aligned based upon positioning information determined from an analysis of correlated features or texture in the images. Positioning information may include a positioning error or a distortion indication.



INTERNATIONAL SEARCH REPORT

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<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G03B 27/58 (2012.01) USPC - 355/72 According to International Patent Classification (IPC) or to both national classification and IPC</p>																										
<p>B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8) - G03B 27/58, 72, G03F 7/20 (2012.01) USPC - 355/72, 356/399, 400</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patent, Google Scholar</p>																										
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <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 -- Y</td> <td>US 7,847,938 B2 (DOHSE) 07 December 2010 (07.12.2010) entire document</td> <td>1, 3-6, 9-12, 14-16, 19, 21, 24-29, 33, 35-37 ----- 2, 7, 8, 13, 17, 18, 20, 22, 23, 30-32, 34</td> </tr> <tr> <td>Y</td> <td>US 7,650,839 B2 (BROST et al) 26 January 2010 (26.01.2010) entire document</td> <td>2, 7, 8, 31, 32</td> </tr> <tr> <td>Y</td> <td>US 6,753,947 B2 (MEISBURGER et al) 22 June 2004 (22.06.2004) entire document</td> <td>13, 17, 18</td> </tr> <tr> <td>Y</td> <td>US 6,509,201 B1 (WRIGHT) 21 January 2003 (21.01.2003) entire document</td> <td>20</td> </tr> <tr> <td>Y</td> <td>US 6,002,487 A (SHIRATA) 14 December 1999 (14.12.1999) entire document</td> <td>22, 23</td> </tr> <tr> <td>Y</td> <td>US 7,375,793 B2 (DUESMAN et al) 20 May 2008 (20.05.2008) entire document</td> <td>30</td> </tr> <tr> <td>Y</td> <td>US 5,754,897 A (SUZUKI et al) 19 May 1998 (19.05.1998) entire document</td> <td>34</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X -- Y	US 7,847,938 B2 (DOHSE) 07 December 2010 (07.12.2010) entire document	1, 3-6, 9-12, 14-16, 19, 21, 24-29, 33, 35-37 ----- 2, 7, 8, 13, 17, 18, 20, 22, 23, 30-32, 34	Y	US 7,650,839 B2 (BROST et al) 26 January 2010 (26.01.2010) entire document	2, 7, 8, 31, 32	Y	US 6,753,947 B2 (MEISBURGER et al) 22 June 2004 (22.06.2004) entire document	13, 17, 18	Y	US 6,509,201 B1 (WRIGHT) 21 January 2003 (21.01.2003) entire document	20	Y	US 6,002,487 A (SHIRATA) 14 December 1999 (14.12.1999) entire document	22, 23	Y	US 7,375,793 B2 (DUESMAN et al) 20 May 2008 (20.05.2008) entire document	30	Y	US 5,754,897 A (SUZUKI et al) 19 May 1998 (19.05.1998) entire document	34
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