METHOD AND APPARATUS FOR MANUFACTURING PARTIAL SPHERICAL SHAPES

The present assembly provides a method and apparatus for forming partial geometric spheres. The method and apparatus involves rotating a workpiece (26) around a first axis (32) and bringing a machining tool (28) towards the workpiece along a second axis (34) to form a geometric spherical shape on the workpiece, wherein the first and second axes (32,34) form an angle (A) between approximatively zero and ninety degrees. The machining tool (28) may be rotated around the second axis (34). The machining tool may be a hollow mill including cutting tools (36) for milling or a grit surface (38) for grinding. The method and apparatus forms geometric spherical shapes throughout a production run despite cutting tool wear.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC: B24B 31/00( 2006.01)
USPC: 82/1.11,12,117,130,131:451/42
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.: 82/1.11,12,117,130,131:451/42

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 practicable, search terms used)

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>X</td>
<td>JP 2003-103444 A (Canon Inc.) 08 April 2003 (08.04.2003), figure 2 and paragraph 27</td>
<td>1-4, 7-12, 15, 16</td>
</tr>
<tr>
<td>A</td>
<td>US 5,105,062 A (Jones et al.) 14 April 1992 (14.04.1992), column 2, lines 3-8</td>
<td>5, 6, 13, 14</td>
</tr>
<tr>
<td>A</td>
<td>JP 2006-312214 A (Yamauchi) 16 November 2006 (16.11.2006), figures 4-6 and abstract</td>
<td>1-4, 7-12, 15, 16</td>
</tr>
<tr>
<td>A</td>
<td>JP 11-114791 A (Canon Inc.) 27 April 1999 (27.04.1999), figure 2 and abstract</td>
<td>1-4, 7-12, 15, 16</td>
</tr>
<tr>
<td>A</td>
<td>US 5,983,756 A (Orloff.) 16 November 1999 (16.11.1999), column 2, lines 45-56</td>
<td>5, 6, 13, 14</td>
</tr>
</tbody>
</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 June 2008 (22.06.2008)
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