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Title: INGOT GROWING APPARATUS AND METHOD OF MANUFACTURING INGOT

Abstract: Provided is an ingot growing apparatus, which includes a crucible containing a silicon melt, a pulling device pulling a silicon single crystal ingot grown from the silicon melt, and a dopant supply unit disposed adjacent to the pulling device and for supplying a dopant during growing of the ingot. The neck portion may be doped at a concentration higher than that of the ingot through the dopant supply unit. Therefore, dislocation propagation velocity may be decreased and a propagation length may be shortened.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

C30B 15/04(2006.01)i, C30B 15/32(2006.01)i, C30B 29/06(2006.01)i, HOIL 21/02(2006.01)i

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)

C30B 15/04; C30B 17/00; C30B 29/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords:ingot growing apparatus, dopant supply unit, seed chuck

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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<tbody>
<tr>
<td>X</td>
<td>KR 10-2011-0086976 A (LG SILTRON INC.) 02 August 2011 See the abstract, fig. 1, paragraph [31] - paragraph [34] and claim 1</td>
<td>1, 9, 10</td>
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<td>A</td>
<td>KR 10-2011-0086976 A (LG SILTRON INC.) 02 August 2011 See the abstract, fig. 1, paragraph [31] - paragraph [34] and claim 1</td>
<td>2-8, 11-13</td>
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<td>X</td>
<td>JP 2002-255684 A (TOSHIBA CERAMICS CO LTD) 11 September 2002 See the abstract, paragraph [23] - paragraph [24], claim 1 and fig. 1, 2</td>
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<td>A</td>
<td>JP 2002-255684 A (TOSHIBA CERAMICS CO LTD) 11 September 2002 See the abstract, paragraph [23] - paragraph [24], claim 1 and fig. 1, 2</td>
<td>1-10, 12, 13</td>
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<td>A</td>
<td>KR 10-0777336 B1 (KOREA INSTITUTE OF CERAMIC ENGINEERING &amp; TECHNOLOGY et al.) See the abstract, fig. 1 and claim 1</td>
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Date of the actual completion of the international search

27 FEBRUARY 2013 (27.02.2013)

Date of mailing of the international search report

28 FEBRUARY 2013 (28.02.2013)

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<td>KR 10-2011-0086976 A</td>
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