

Converting $\langle 100 \rangle$ and $\langle 111 \rangle$ Ingots to $\langle 110 \rangle$ Ingots

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A Overview

This paper contains a copy of the United States Patent for Converting $\langle 100 \rangle$ and $\langle 111 \rangle$ Ingots to $\langle 110 \rangle$ Ingots. A new ingot of a desired orientation formed from an original ingot of a different orientation by cutting the new ingot from within the original ingot. In one aspect, to form a $\langle 110 \rangle$ ingot from a $\langle 100 \rangle$ ingot, a $\{110\}$ flat is formed on the $\langle 100 \rangle$ ingot. The flat is used as a reference for cutting the $\langle 100 \rangle$ ingot. The $\langle 100 \rangle$ ingot is cut into sections by cutting in a plane perpendicular to the $\langle 100 \rangle$ ingot's longitudinal axis and to the flat. A $\langle 110 \rangle$ ingot can be formed by grinding a section of the $\langle 100 \rangle$ ingot to form a new cylinder. The new cylinder has a longitudinal axis which is perpendicular to the $\langle 100 \rangle$ ingot's longitudinal axis and to the flat. The resulting cylinder is a $\langle 110 \rangle$ ingot.[1]

B The Patent

United States Patent [19]

[11] **Patent Number:** **6,159,285**

Toombs et al.

[45] **Date of Patent:** **Dec. 12, 2000**

[54] **CONVERTING <100> AND <111> INGOTS TO <110> INGOTS**

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5,851,928 12/1998 Cripe et al. 438/748

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[57] **ABSTRACT**

[21] **Appl. No.:** 09/306,669

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A new ingot of a desired orientation formed from an original ingot of a different orientation by cutting the new ingot from within the original ingot. In one aspect, to form a <110> ingot from a <100> ingot, a {110} flat is formed on the <100> ingot. The flat is used as a reference for cutting the <100> ingot. The <100> ingot is cut into sections by cutting in a plane perpendicular to the <100> ingot's longitudinal axis and to the flat. A <110> ingot can be formed by grinding a section of the <100> ingot to form a new cylinder. The new cylinder has a longitudinal axis which is perpendicular to the <100> ingot's longitudinal axis and to the flat. The resulting cylinder is a <110> ingot.

Related U.S. Application Data

[60] Provisional application No. 60/084,521, May 7, 1998.

[51] **Int. Cl.⁷** **B24B 5/00**

[52] **U.S. Cl.** 117/35; 117/41; 117/902

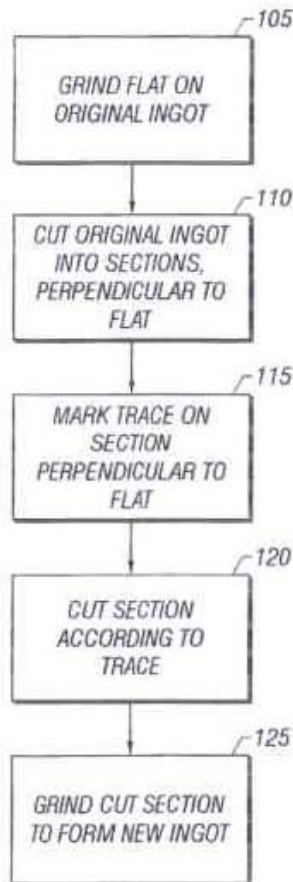
[58] **Field of Search** 117/35, 41, 902

References Cited

U.S. PATENT DOCUMENTS

3,929,528 12/1975 Davidson et al. 148/175

25 Claims, 3 Drawing Sheets



C References

- [1] The United States Patent Office, Patent Number: 6,159,285, Dec. 12, 2000.