

WHAT IS CLAIMED IS:

1. A system for forming an ingot from a melt, the system comprising:

a crucible defining a cavity for receiving the melt;

a first barrier disposed in the cavity to inhibit movement of the melt, the crucible and the first barrier forming an outer zone, the first barrier including a first passageway; and

a second barrier disposed in the cavity to inhibit movement of the melt from outward of the second barrier to inward of the second barrier, the first barrier and the second barrier defining a transition zone therebetween, the second barrier forming an inner zone and including a second passageway, wherein the first passageway and the second passageway are arranged to allow the melt located within the outer zone to move into and through the transition zone and into the inner zone; and

conditioning members positioned in the transition zone between the first barrier and the second barrier, the conditioning members being arranged to contact the melt in the transition zone and reduce the number of micro-voids in the melt.

2. The system of claim 1, wherein the conditioning members include bodies constructed of quartz.

3. The system of claim 1, further comprising spacers positioned in the transition zone and arranged to support the conditioning members within the transition zone.

4. The system of claim 1, wherein the first passageway and the second passageway are positioned adjacent a base of the crucible.

5. The system of claim 1, wherein at least one of the first passageway and the second passageway is positioned adjacent a surface of the melt.

6. A system for forming an ingot from a melt, the system comprising:

a crucible assembly defining a cavity for receiving the melt, wherein the cavity is separated into an inner zone, an outer zone, and a transition zone, wherein the inner zone defines a growth area for the ingot;

a feeder system to deliver solid feedstock material into the cavity, wherein the solid feedstock material is arranged to form the melt; and

bodies positioned in the outer zone of the cavity, wherein the bodies are arranged to contact the melt and the solid feedstock material and reduce the number of micro-voids in the melt.

7. The system of claim 6, wherein the crucible assembly includes a first crucible and a second crucible forming the outer zone, the second crucible including a passageway therethrough to allow the melt located within the outer zone to move toward the inner zone.

8. The system of claim 7, wherein the bodies are positioned throughout the outer zone from the first crucible to the second crucible at a melt line defined by a surface of the melt such that the melt contacts the bodies as the solid feedstock material melts.

9. The system of claim 8, wherein the bodies are further arranged to extend above the melt line.

10. The system of claim 8, wherein the bodies are further arranged to extend below the melt line.

11. The system of claim 7, wherein the crucible assembly includes a third crucible forming the inner zone, the transition zone being formed by the third crucible and the second crucible.

12. The system of claim 6, wherein the crucible assembly includes weirs separating the outer zone, the transition zone, and the inner zone, the weirs including passageways therethrough to allow the melt located within the outer zone to move into the inner zone, wherein the inner zone defines a growth area for the ingot, the bodies being positioned in the outer zone.

13. The system of claim 6, wherein the bodies include quartz to prevent contamination of the melt.

14. The system of claim 6, further comprising spacers positioned in the outer zone and arranged to support the bodies within the outer zone.

15. The system of claim 6, wherein the bodies include at least one of the following shapes: cuboid, conical, cylindrical, spherical, prismatic, and pyramidal.

16. The system of claim 6, wherein the bodies have non-uniform shapes.

17. A method for pulling a crystal ingot from a melt in a crystal pulling system, the system including a crucible defining a cavity, the method comprising:

placing quartz bodies within the cavity;

placing feedstock material into the cavity; and

melting the feedstock material to form the melt, a melt line being defined by a surface of the melt, wherein the bodies are arranged at the melt line to contact the melt and reduce the number of micro-voids in the melt.

18. The method of claim 17, wherein placing the bodies within the cavity comprises placing bodies within the cavity, and further comprising placing the bodies into the cavity while melting the feedstock material.

19. The method of claim 17, wherein placing the bodies within the cavity comprises placing the bodies within the cavity throughout an outer zone defined between a first barrier and the crucible.

20. The method of claim 17, further comprising arranging the bodies such that the bodies extend beyond the melt line of the melt.