CLAIMS

1. An apparatus for pulling a single crystal of semiconductor material by the Czochralski (CZ) method from a melt, the apparatus comprising:

a crucible configured to accommodate the melt;

a resistance heater arranged around the crucible;

a camera system for observing a phase boundary between the melt and a growing single crystal, where the camera system has an optical axis;

a heat shield in frustoconical form with a narrowing diameter in a region of a lower end of the heat shield and arranged above the crucible and surrounding the growing single crystal; and

an annular element, which is configured to capture particles, that projects inward from an inner side face of the heat shield and has an arrestor edge directed upward at an inner end of the annular element,

wherein the optical axis of the camera system runs between the arrestor edge and the growing single crystal, and

wherein the annular element is releasably connected to the heat shield and consists of a same material as the inner side face of the heat shield.

2. The apparatus as claimed in claim 1, wherein the annular element is at a distance from the lower end of the heat shield.

3. The apparatus as claimed in claim 2, wherein the distance is 10 mm to 100 mm.

4. The apparatus as claimed in claim 1, wherein the arrestor edge is in an inclined arrangement relative to the heat shield.

5. A method of pulling a single crystal of semiconductor material in the apparatus as claimed in claim 1, the method comprising:

charging the crucible with solid semiconductor material;

melting a portion or an entire mass of the solid semiconductor material;

further charging the crucible with further solid semiconductor material;

heating the crucible contents until the crucible contents have melted completely; and

pulling the single crystal by the CZ method.

6. The apparatus of claim 1, wherein the annular element is the only element that is configured to capture particles, projects inward from the inner side face of the heat shield, and has the arrestor edge directed upward.

7. The apparatus of claim 1,

wherein the heatshield is uniform in shape around a central axis,

wherein the annular element has a projecting element that projects inward from the inner side face of the heat shield orthogonal to the central axis, and

wherein the arrestor edge is formed by a second projecting element that projects upward from an inner end of the projecting element and outward toward the inner side face of the heat shield.

8. The apparatus of claim 7, wherein a space for collecting the particles is defined on three sides by an inner face of the second projecting element, an upper face of the first projecting element, and the inner side face of the heat shield.