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(54) Title: CRYSTAL PULLER FOR GROWING LOW DEFECT DENSITY, SELF-INTERSTITIAL DOMINATED SILICON

(57) Abstract

A crystal puller for growing monocrystalline silicon ingots according to the Czochralski method which are devoid of agglomerated intrinsic point defects over a substantial portion of the radius of the ingot comprises a housing defining an interior having a lower growth chamber and an upper pull chamber. The pull chamber has a smaller transverse dimension than the growth chamber. A crucible is disposed in the growth chamber of the housing for containing molten silicon. A pulling mechanism is provided for pulling a growing ingot upward from the molten silicon through the growth chamber and pull chamber. An electrical resistance heater has a heating element sized and shaped for being disposed at least partially within the upper pull chamber of the housing in radially spaced relationship with the outer surface of the growing ingot for radiating heat to the ingot as it is pulled upward in the pull chamber relative to the molten silicon. The heating element has an upper end and a lower end. The lower end of the heating element is disposed substantially closer to the molten silicon than the upper end when the heating element is placed in the housing.

