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(54) Title: INGOT PULLER APPARATUS INCLUDING COOLING JACKET WITH VARYING SURFACE EMISSIVITY FOR CONTROLLED INGOT COOLING PROFILES

(57) Abstract: An ingot puller apparatus for producing a single crystal ingot includes a housing defining a growth chamber and a growth chamber outlet, a crucible positioned in the growth chamber for containing a melt of semiconductor material, a cooling jacket positioned in the growth chamber between the crucible and the growth chamber outlet and including an inner surface defining a cooling passage having an inlet proximate the crucible and an outlet proximate the growth chamber outlet, and a puller positioned to pull the single crystal ingot from the melt and through the cooling passage. The inner surface of the cooling jacket includes a first surface region having a first emissivity coefficient and a second surface region having a second emissivity coefficient larger than the first emissivity coefficient to control a cooling profile of the single crystal ingot.

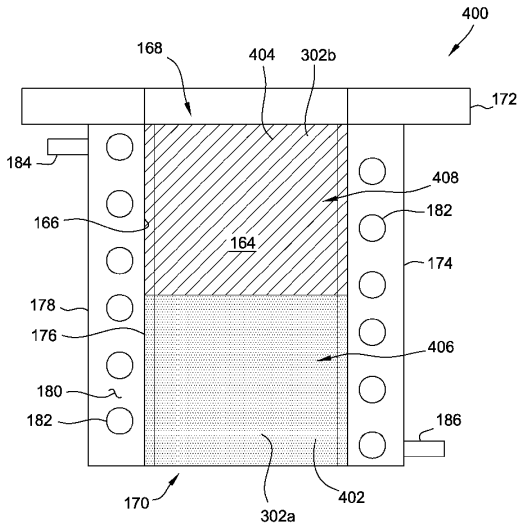

FIG. 4

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