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(54) Title: INGOT PULLER APPARATUS HAVING HEAT SHIELDS WITH VOIDS THEREIN

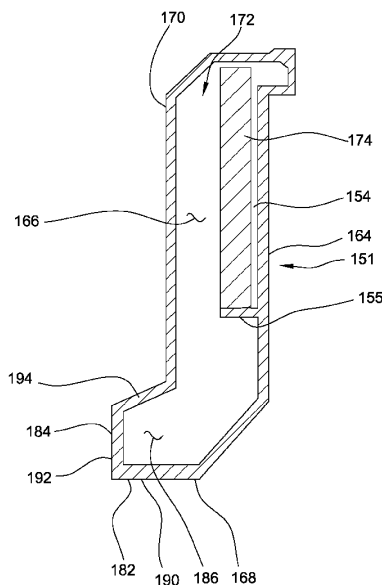


FIG. 2

(57) Abstract: Ingot puller apparatus for preparing a single crystal silicon ingot by the Czochralski method are disclosed. The ingot puller apparatus includes a heat shield. The heat shield has a leg segment that includes a void (i.e., an open space without insulation) disposed in the leg segment. The heat shield may also include insulation partially within the heat shield.



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