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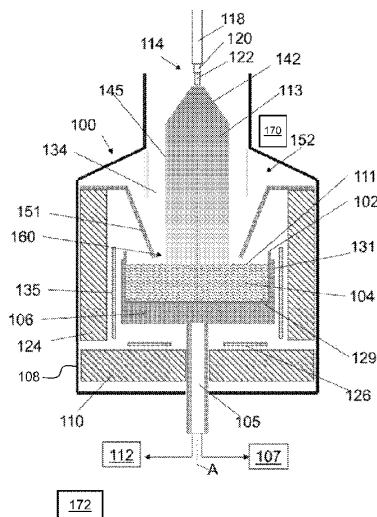


FIG. 1

(57) Abstract: A measurement system includes a reflector defining a central passage and an opening, a measurement assembly, and a controller. The measurement assembly includes a run pin having a head that is visible through the opening, a camera to capture images through the opening in the reflector, and a laser to transmit coherent light through the opening to the head of the run pin to produce a reflection of the run pin on the surface of the silicon melt. The controller is programmed to control the laser to direct coherent light from the laser to the run pin, control the camera capture images through the opening while the coherent light is directed at the run pin, and determine a distance between the surface of the silicon melt and a bottom surface of the reflector based on a location of the reflection of the run pin in the captured images.

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