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(54) Title: CRYSTAL PULLING SYSTEMS HAVING FLUID-FILLED EXHAUST TUBES THAT EXTEND THROUGH THE HOUSING

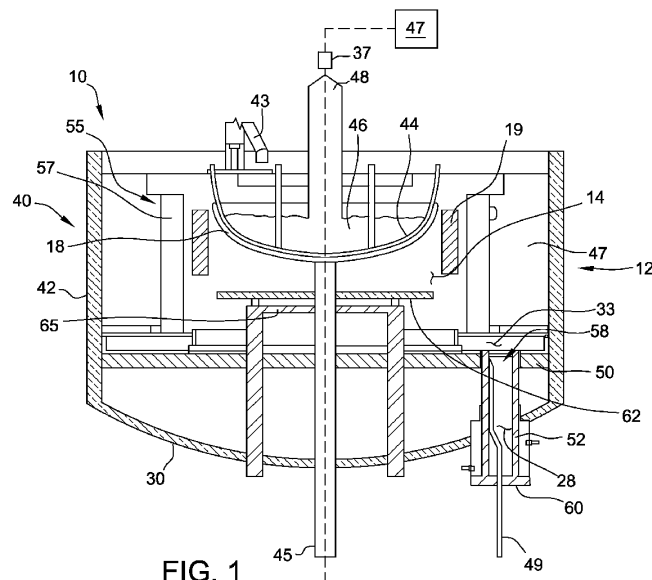


FIG. 1

(57) Abstract: Crystal pulling systems having a fluid-cooled exhaust tube are disclosed. The fluid-cooled exhaust tube extends through the reactor housing and into the reaction chamber. In some embodiments, the exhaust tube extends through the bottom of the crystal puller housing and through a bottom heat shield within the ingot puller housing.

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