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(54) Title: METHOD AND APPARATUS FOR REFINING METALLURGICAL GRADE SILICON TO PRODUCE SOLAR GRADE SILICON

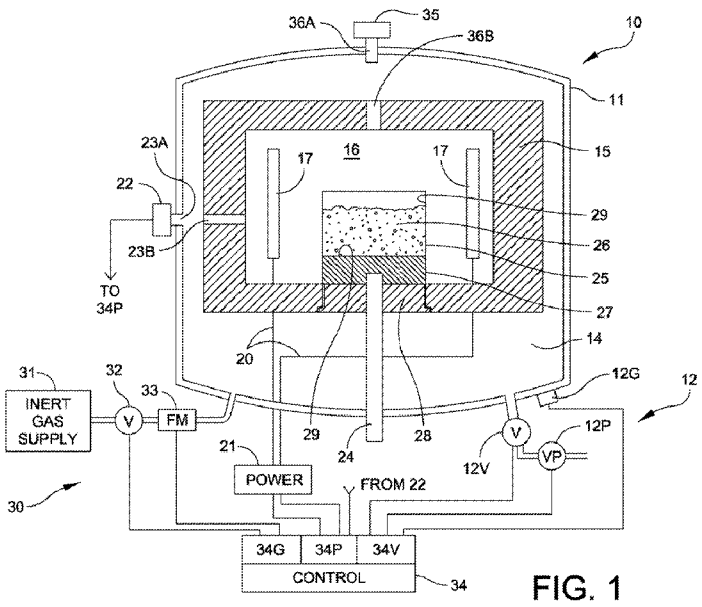

FIG. 1

(57) Abstract: A method and apparatus for refining metallurgical silicon to produce solar grade silicon for use in photovoltaic cells. A crucible in a vacuum furnace receives a mixture of metallurgical silicon and a reducing agent such as calcium disilicide. The mix is melted in non-oxidizing conditions within the furnace under an argon partial pressure. After melting, the argon partial pressure is decreased to produce boiling and the process ends with directional solidification. The process reduces impurities, such as phosphorus, to a level compatible with solar-grade silicon and reduces other impurities significantly.

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