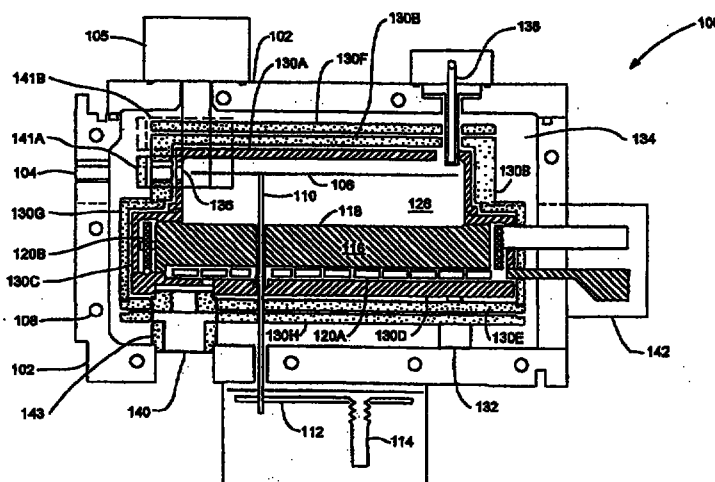




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(54) Title: APPARATUS AND METHOD FOR THERMAL PROCESSING OF SEMICONDUCTOR SUBSTRATES

**(57) Abstract**

A dual resistive heater system includes a base or primary heater (120A), surrounded by a peripheral or edge heater (120B). Both resistive heaters deliver heat to a heated block, and the heaters and heated block are substantially enclosed within an insulated cavity (130A-H). The walls of the insulated cavity may include multiple layers of insulation, and these layers may be substantially concentrically arranged. The innermost layers (130A-D) may be silicon carbide coated graphite; the outer layers (130G-H) may be opaque quartz. A vacuum spool (143) has a large conduction pathway (1010) for exhausting gases from the region of the chamber containing the resistive heaters, and a small conduction pathway (1020) for removing gases from other regions of the chamber. Temperature measurement sensors include thermocouples (610) and optical pyrometers (630), wherein the thermocouple may be used to calibrate an optical pyrometer in situ.