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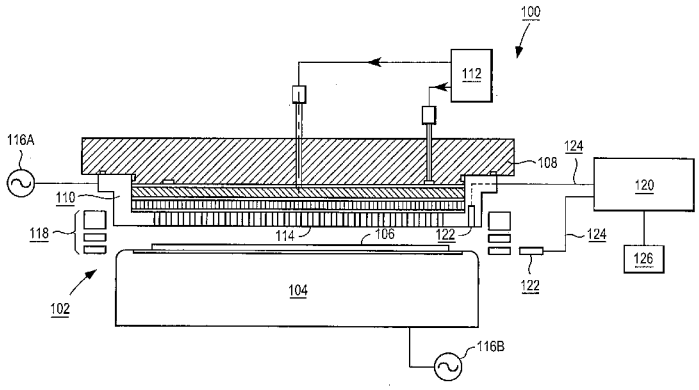


FIG. 1A

(57) Abstract: A method of detecting substrate arcing in a semiconductor plasma processing apparatus is provided. A substrate is placed on a substrate support in a reaction chamber of a plasma processing apparatus. Process gas is introduced into the reaction chamber. A plasma is generated from the process gas and the substrate is processed with the plasma. Intensities of real-time spectrometry signals of selected gas species produced in the reaction chamber during plasma processing are monitored. The selected gas species are generated by a substrate arcing event. The arcing event is detected when the intensities are above a threshold value.

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