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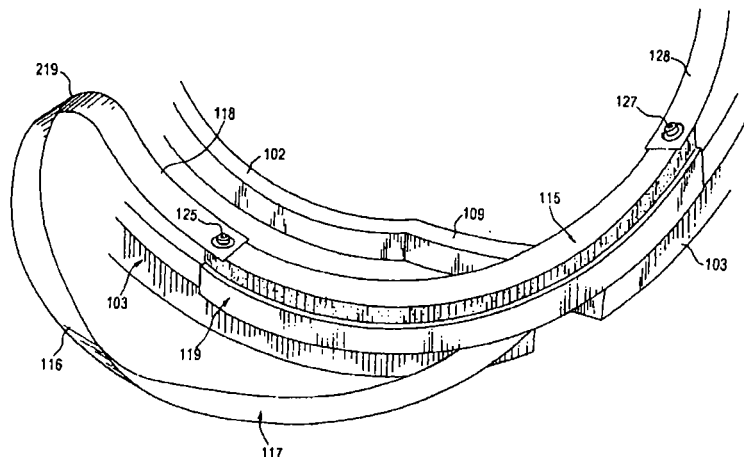
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(54) Title: STACKED RF EXCITATION COIL FOR INDUCTIVE PLASMA PROCESSOR



(57) Abstract: A radio frequency excitation coil of an inductive plasma processor includes a planar turn (103) connected in series with a segment (115) of the coil stacked above a portion of the planar turn. The stacked segment is placed around a region having weak radio frequency coupling to plasma due to azimuthal asymmetries in the chamber and/or the excitation coil. In a single winding embodiment, the stacked segment is close to an interconnection gap between two adjacent planar turns and extends in both directions from the gap to compensate low radio frequency coupling to plasma in the gap region. In an embodiment including two electrically parallel spatially concentric windings, the stacked segment extends beyond one side of an interconnection gap of two adjacent turns, and is aligned with the planar turn such that one end of the stacked segment is directly connected to an end of the planar turn via a straight, short stub. Terminal (111) of the coil is connected to RF excitation circuitry (28) terminals in a housing above the coil by leads (128) extending smoothly and gradually without sharp bends between the coil terminals and the excitation circuitry terminals. Ends of the planar turn (113) and the stacked segment are connected by a lead (116) extending smoothly and gradually without sharp bends between its ends.

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