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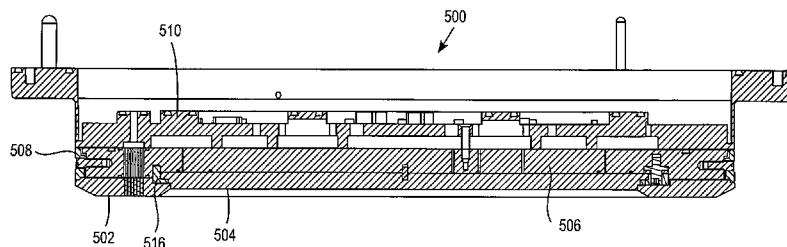


FIG. 5B

(57) Abstract: An electrode assembly for a plasma reaction chamber used in semiconductor substrate processing. The assembly includes an upper showerhead electrode which includes an inner electrode mechanically attached to a backing plate by a clamp ring and an outer electrode attached to the backing plate by a series of spaced apart cam locks. A guard ring surrounds the backing plate and is movable to positions at which openings in the guard ring align with openings in the backing plate so that the cam locks can be rotated with a tool to release cam pins extending upward from the upper face of the outer electrode. To compensate for differential thermal expansion, the clamp ring can include expansion joints at spaced locations which allow the clamp ring to absorb thermal stresses.