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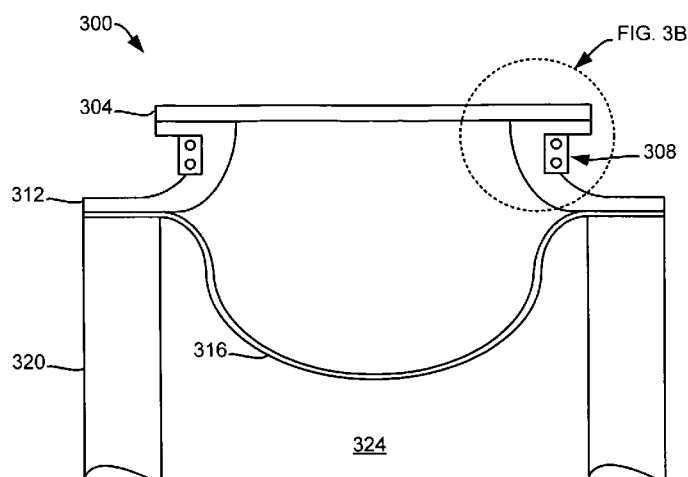
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(54) Title: METHODS AND APPARATUS FOR OPTIMAL TEMPERATURE CONTROL IN A PLASMA PROCESSING SYSTEM



(57) Abstract: A temperature control device (308) for controlling temperature of an upper chamber (312) of a plasma processing apparatus (300) is described. The temperature control device includes a thermally conductive body (334) having an inner surface and an outer surface removably connected with and in thermal communication with the upper chamber of the plasma processing apparatus. The temperature control device also includes a plurality of thermal interface layers (344, 348, 350, 352) in thermal communication with the thermally conductive body wherein at least one layer is a heating element (350); and a cooling element (326) connected with the banded thermally conductive body and thermally coupled with the upper chamber of the plasma processing apparatus wherein the cooling element is configured to conduct a fluidic medium. The temperature control device further includes at least one temperature sensor for sensing temperature of the upper chamber, a temperature control unit for controlling the heating element and the cooling element; and a latching mechanism for securing the temperature control device to the upper chamber.



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