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(54) Title: APPARATUSES FOR ATOMIC LAYER DEPOSITION

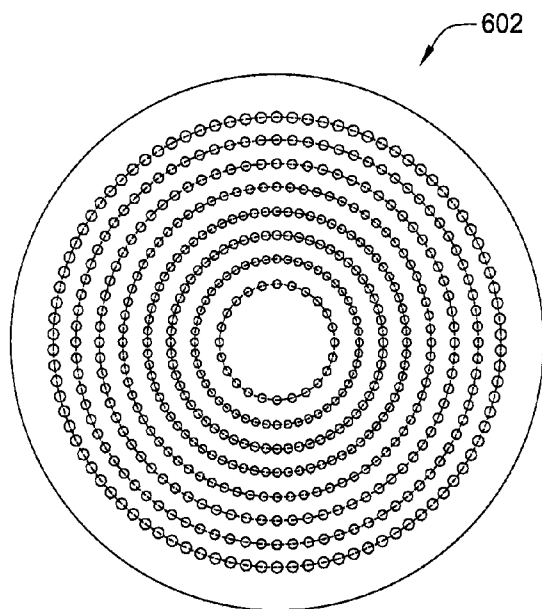


FIG. 7E

(57) Abstract: Embodiments of the invention provide apparatuses for atomic layer deposition (ALD), such as plasma-enhanced ALD (PE-ALD). In one embodiment, a showerhead assembly is provided which includes a showerhead plate having top and bottom surfaces, and a radius extending from the center to the outer edge of the showerhead plate, a first plurality of holes in fluid communication with the top and bottom surfaces, positioned within a first zone extending from the center of the showerhead plate to about 25% of the radius of the showerhead plate, and each hole has a diameter of less than 0.1 inches, and a second plurality of holes in fluid communication with the top and bottom surfaces, positioned within a second zone extending from about 25% of the radius of the showerhead plate to about the outer edge of the showerhead plate, and each hole has a diameter of greater than 0.1 inches.



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