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(54) **CORROSION RESISTANT COATING FOR SEMICONDUCTOR PROCESSING CHAMBER**

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(57) **ABSTRACT**

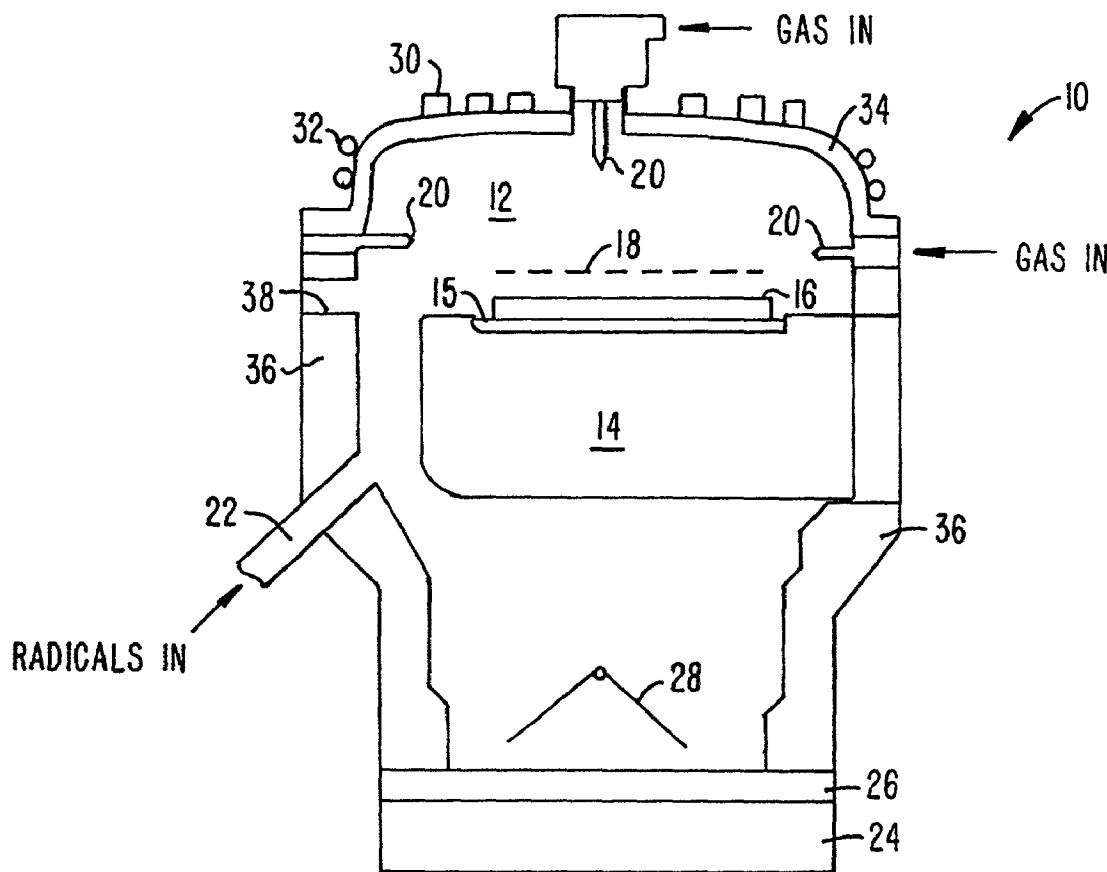
Resistance to corrosion in a plasma environment is imparted to components of a semiconductor processing tool by forming a rare earth-containing coating over component surfaces. The plasma-resistant coating may be formed by sputtering rare earth-containing material onto a parent material surface. Subsequent reaction between these deposited materials and the plasma environment creates a plasma-resistant coating. The coating may adhere to the parent material through an intervening adhesion layer, such as a graded subsurface rare earth layer resulting from acceleration of rare earth ions toward the parent material at changed energies prior to formation of the coating.

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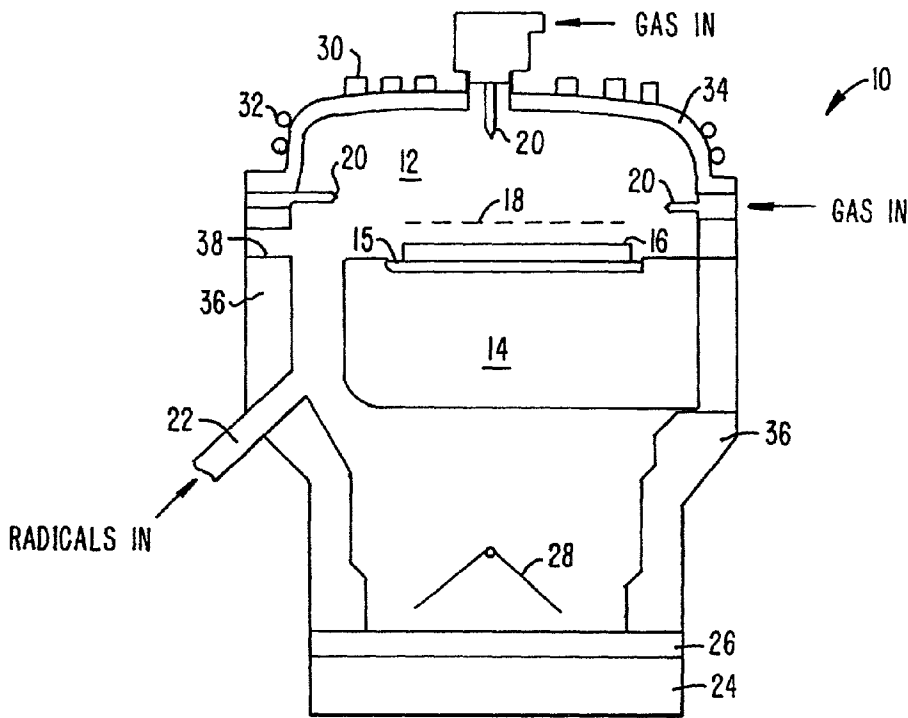


FIG. 1A

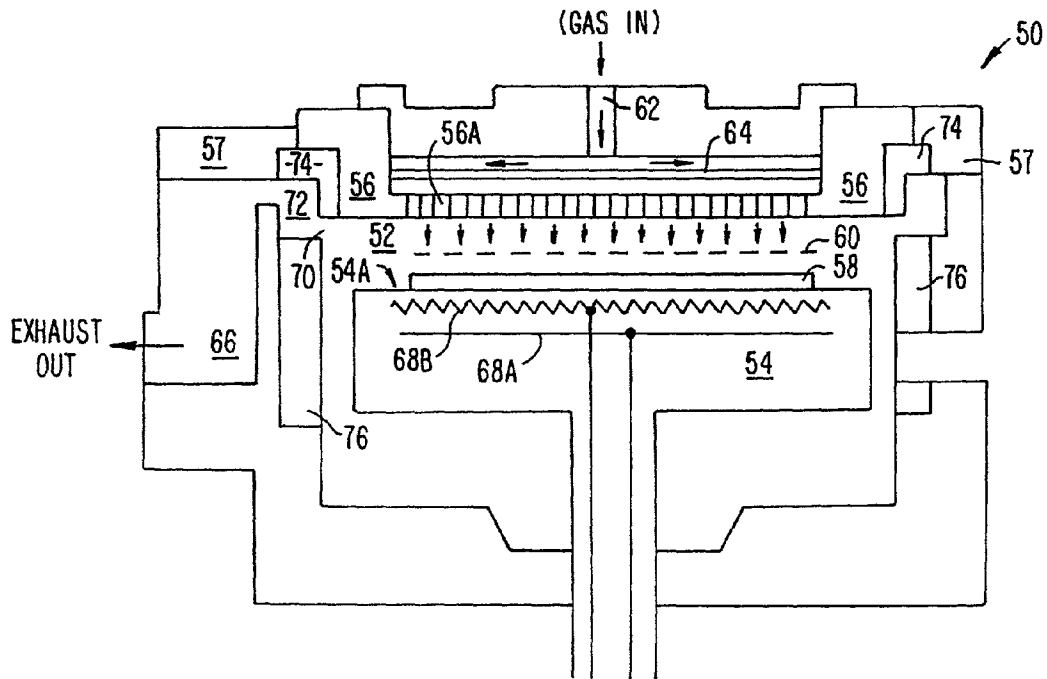


FIG. 1B

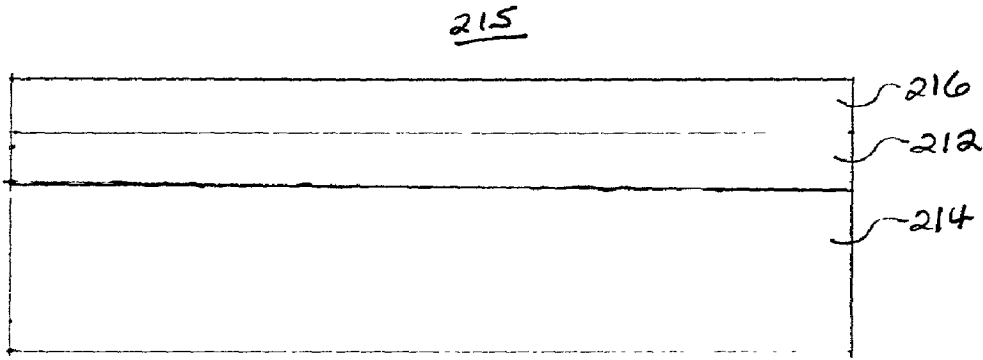


FIG. 2A

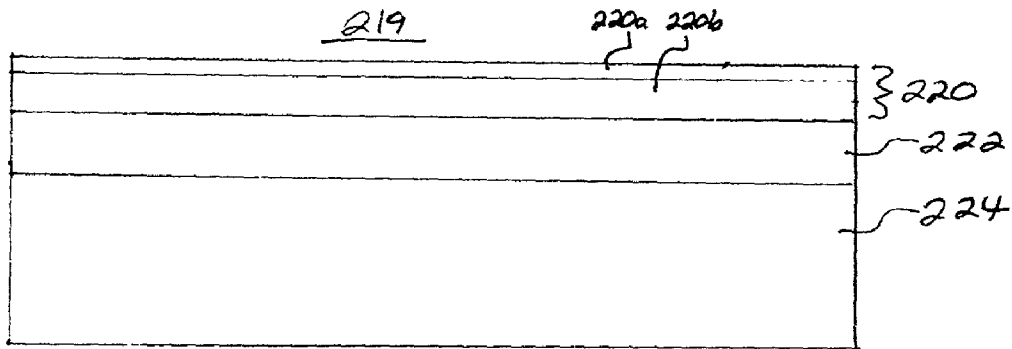


FIG. 2B

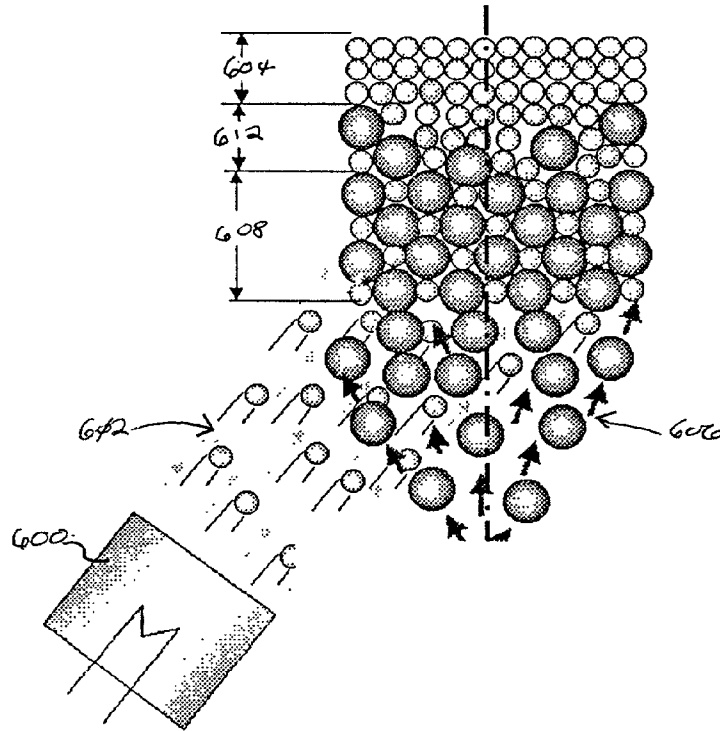
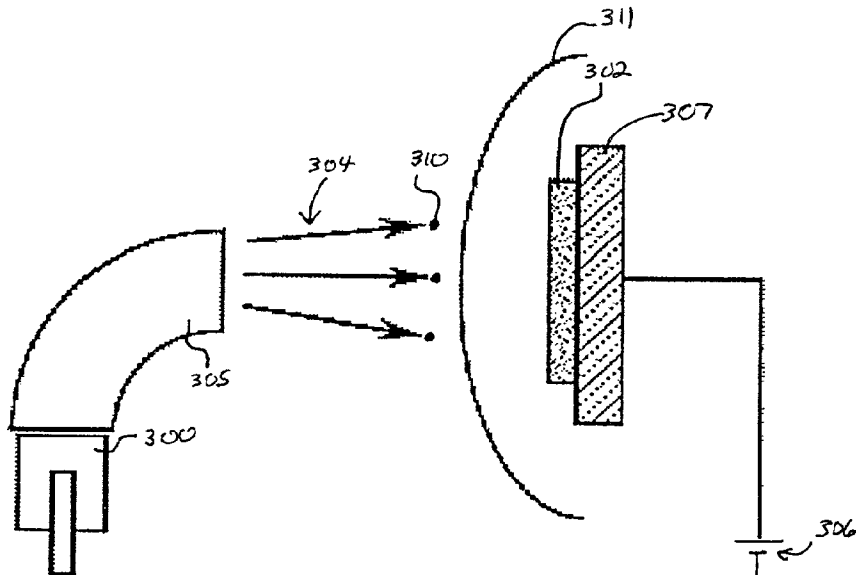


FIG. 6

FIG. 3



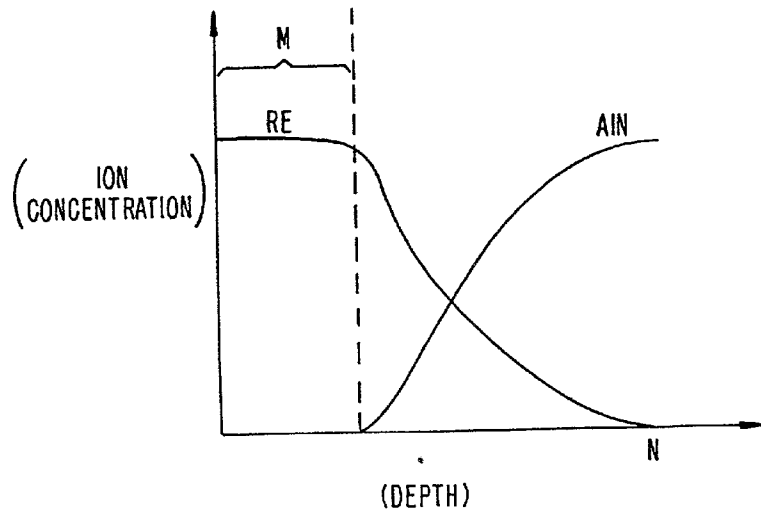


FIG. 4

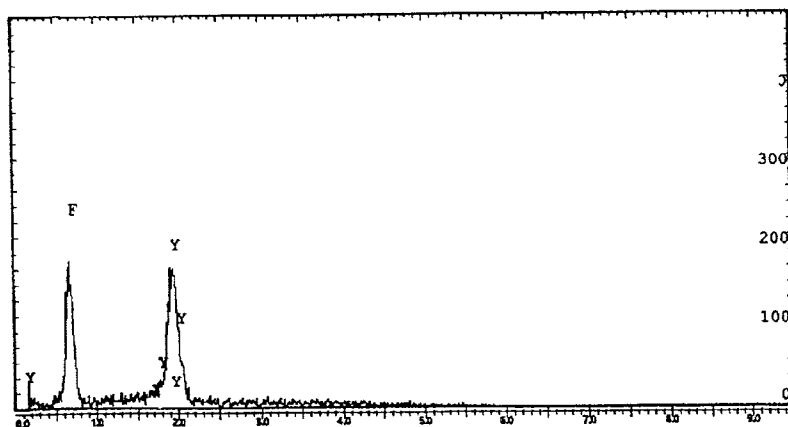


FIG. 11

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