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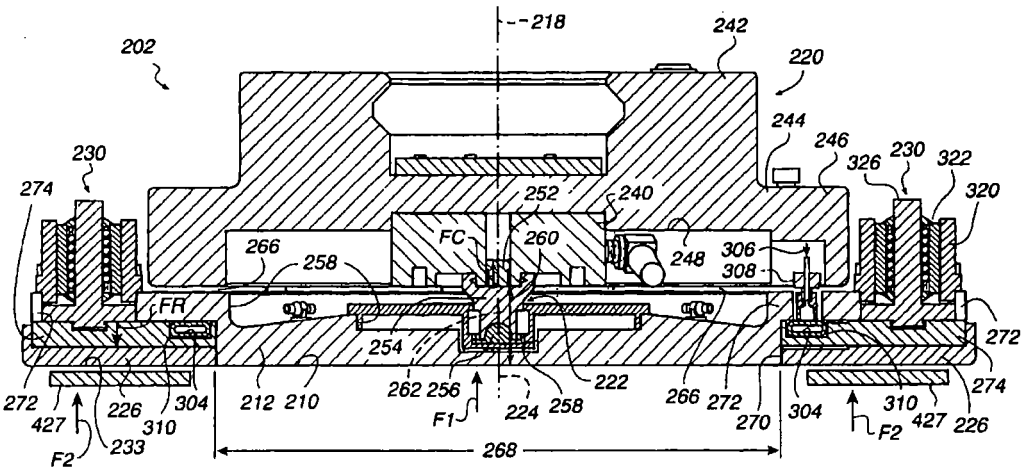
(54) Title: APPARATUS AND METHODS FOR ALIGNING A SURFACE OF AN ACTIVE RETAINER RING WITH A WAFER SURFACE FOR CHEMICAL MECHANICAL POLISHING



(57) Abstract: A CMP system and methods reduce a cause of differences between an edge profile of a chemical mechanical polished edge of a wafer and a center profile of a chemical mechanical polished central portion of the wafer within the edge. The wafer is mounted on a carrier surface (210) of a wafer carrier (212) so that a wafer axis (224) of rotation is gimballed for universal movement relative to a spindle axis (218) of rotation of a wafer spindle (220) . A retainer ring (226) limits wafer movement on the carrier surface (210) perpendicular to the wafer axis. The retainer ring (226) is mounted on and movable relative to the wafer carrier (212) . A linear bearing (230) is configured with a housing (320) and a shaft (326) so that a direction of permitted movement between the wafer carrier (212) and the retainer ring (226) is only movement parallel to the wafer axis (224), so that a wafer plane and a retainer ring (226) may be co-planar.

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ACTION

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