

ABSTRACT OF THE DISCLOSURE

COUPLING MECHANISM WITH SPHERICAL BEARING, METHOD OF DETERMINING BEARING RADIUS OF SPHERICAL BEARING, AND SUBSTRATE POLISHING APPARATUS

A coupling mechanism capable of preventing vibration of a rotating body from occurring due to a lower-bearing friction torque is disclosed. The coupling mechanism includes an upper spherical bearing and a lower spherical bearing disposed between a drive shaft and a rotating body. The upper spherical bearing has a first concave contact surface and a second convex contact surface, and the lower spherical bearing has a third concave contact surface and a fourth convex contact surface. The first concave contact surface, the second convex contact surface, the third concave contact surface, and the fourth convex contact surface are arranged concentrically. A lower-bearing radius of the lower spherical bearing is determined so that a lower-restoring torque is equal to or less than 0, the lower-restoring torque being the sum of a rotating-body friction torque generated in the rotating body due to a rotating-body frictional force between a polishing pad and the rotating body, and a lower-bearing friction torque generated in the rotating body due to a frictional force between the third concave contact surface and the fourth convex contact surface.

FIG. 1