

What is claimed is:

1. A polishing apparatus for polishing a substrate by pressing the substrate against a polishing surface on a polishing table by a top ring while rotating the top ring which holds the substrate and rotating the polishing table, the polishing apparatus comprising:

a rotary joint comprising an inner rotary ring and an outer stationary ring, the inner rotary ring being fixed to a rotating part of the polishing table or a rotating part of the top ring to supply a fluid into the polishing table or the top ring and discharge the fluid from the polishing table or the top ring; and

a rotation-prevention mechanism which connects the outer stationary ring of the rotary joint with an apparatus frame to prevent the outer stationary ring of the rotary joint from being rotated;

wherein the rotation-prevention mechanism comprises a link mechanism having at least one spherical plain bearing.

2. The polishing apparatus according to claim 1, wherein the link mechanism comprises two spherical plain bearings which are connected to each other.

3. The polishing apparatus according to claim 2, wherein one of the two spherical plain bearings comprises a spherical plain bearing with male thread, and the other of the two spherical plain bearings comprises a spherical plain bearing with female thread, and the two spherical plain bearings are integrated by screw fastening.

4. The polishing apparatus according to claim 1, wherein the rotation-prevention mechanism comprises the link mechanism, a rotation-prevention plate configured to connect the link mechanism with the outer stationary ring of the rotary joint, and a stopper plate configured to connect the link mechanism with the

apparatus frame.

5. The polishing apparatus according to claim 1, wherein the link mechanism is connected with the outer stationary ring of the rotary joint to increase a natural frequency of the rotary joint, whereby the natural frequency of the rotary joint is different from a natural frequency of a rotating member of the polishing table or a rotating member of the top ring.

6. The polishing apparatus according to claim 5, wherein the rotating member of the polishing table comprises a cooling water pipe provided in a table shaft to be connected to the inner rotary ring of the rotary joint and configured to supply cooling water into the polishing table or to discharge the cooling water from the polishing table.