

WHAT IS CLAIMED IS:

1. A top ring for holding a substrate, comprising:
 - a base member coupled to a rotary shaft;
 - an elastic film that is mounted to the base member and forms a pressurization chamber for pressurizing the substrate between the base member and the elastic film;
 - a substrate suction member that includes a porous member having a substrate suction surface for suctioning the substrate and a pressure reducing portion communicating with a pressure reducing unit, the substrate suction member being held to the elastic film, and
 - a plurality of stopper members that are coupled to the substrate suction member with the elastic film sandwiched at an end portion of the substrate suction member and have flange portions that project outward with respect to the substrate suction member, wherein
 - the base member includes a lower portion guiding member disposed so as to surround a periphery of the substrate suction member and an upper portion guiding member disposed on an upper portion of the lower portion guiding member, and
 - the upper portion guiding member and the lower portion guiding member have regulating surfaces that regulate movement of the flange portions of the stopper members in a vertical direction.
2. The top ring according to claim 1, wherein
 - the substrate suction member includes the porous member and a shielding member configured to shield a surface of the porous member on an opposite side of the substrate suction surface and a side surface of the porous member.
3. The top ring according to claim 2, wherein
 - the shielding member includes a hole formed so as to expose the porous member, and
 - the pressure reducing portion is disposed at a position where the hole is formed.
4. The top ring according to claim 1, wherein
 - the substrate suction member includes a plurality of the porous members and a

shielding member configured to shield respective surfaces of the plurality of the porous members on an opposite side of the substrate suction surfaces,

the shielding member includes a plurality of holes formed to expose the respective plurality of the porous members, and

the respective pressure reducing portions are disposed at positions where the plurality of holes are formed.

5. The top ring according to any one of claims 1 to 4, wherein

the elastic film includes a center portion covering a surface of the substrate suction member on an opposite side of the substrate suction surface and an end portion sandwiched between the upper portion guiding member and the lower portion guiding member.

6. The top ring according to any one of claims 1 to 5, wherein

the elastic film includes a plurality of pieces of elastic films,

the plurality of pieces of elastic films include center portions connected to a surface of the substrate suction member on an opposite side of the substrate suction surface and end portions secured to different positions on the base member, and

the plurality of pieces of elastic films are configured to form a plurality of pressurization chambers for pressurizing the substrate between the base member and the plurality of pieces of elastic films.

7. A top ring for holding a substrate, comprising:

a base member coupled to a rotary shaft;

a substrate suction member that includes a porous member that includes a substrate suction surface for suctioning the substrate and a pressure reducing portion communicating with a pressure reducing unit, a shielding member that is configured to shield a surface of the porous member on an opposite side of the substrate suction surface and a side surface, and a framing member that is disposed on the shielding member so as to surround at least a part of a periphery of the base member; and

an elastic member that connects the at least a part of the base member surrounded by the framing member to the framing member,

wherein the framing member includes a lower portion framing member disposed on a peripheral edge portion of an upper surface of the shielding member and an upper portion framing member disposed above the lower portion framing member,

the base member includes a flange coupled to the rotary shaft, an upper portion guiding member disposed on a lower portion of the flange and having a smaller plane size than a plane size of the flange, and a frame-shaped lower portion guiding member disposed on a lower portion of the upper portion guiding member, and

the elastic member is a plate-shaped member that includes an inner end portion sandwiched between the upper portion guiding member and the lower portion guiding member and an outer end portion sandwiched between the lower portion framing member and the upper portion framing member.

8. The top ring according to claim 7, wherein

the shielding member includes a vacuum hole formed so as to communicate with the porous member, and

the pressure reducing portion is disposed at a position where the vacuum hole is formed.

9. The top ring according to claim 8, wherein

the vacuum hole is formed in the shielding member so as to communicate with a peripheral edge portion of an upper surface of the porous member or the side surface of the porous member.

10. The top ring according to claim 7, wherein

the upper portion framing member or the lower portion framing member includes a framing member protrusion projecting in a direction toward the base member, and

the upper portion guiding member or the lower portion guiding member includes a guiding member protrusion that projects in a direction toward the upper portion framing member or the lower portion framing member at a height position different from a height position of the framing member protrusion and overlaps the framing member protrusion.

11. The top ring according to claim 7, wherein

the upper portion framing member or the lower portion framing member includes a stopper connecting different positions of the upper portion framing member or the lower portion framing member over an inside of the frame in an arch shape, and

the upper portion guiding member or the lower portion guiding member includes a pad overlapping the stopper at a height position different from a height position of the stopper.

12. The top ring according to any one of claims 7 to 11, further comprising
a plurality of pieces of elastic films configured to form a plurality of pressurization chambers for pressurizing the substrate between the base member and the substrate suction member.
13. The top ring according to any one of claims 7 to 12, further comprising
a band connecting an outer side surface of a portion of the base member that is not surrounded by the framing member and an outer side surface of the framing member.
14. A substrate processing apparatus comprising:
the top ring according to any one of claims 7 to 13; and
a polishing table configured to hold a polishing pad.