

What is claimed is:

1. A substrate holder for pressing a substrate against a polishing pad, comprising:
a top ring body configured to hold the substrate; and
a single retaining ring having an outer circumferential surface which provides a lowest part of an outermost exposed surface of the substrate holder, the single retaining ring including a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad, the pad pressing structure having an inner circumferential surface which provides a substrate holding surface, and the pad pressing structure having a width in a range of 3 mm to 7.5 mm.
2. The substrate holder according to claim 1, wherein the pad pressing structure has a width in a range of 3 mm to 5 mm.
3. The substrate holder according to claim 1, wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,
wherein the pad pressing structure has a pad contact surface to be brought into contact with the polishing pad,
wherein the pad contact surface has a cross section projecting downwardly, and
wherein a lowest point of the pad contact surface is located within a range of 3 mm to 5 mm from the inner circumferential surface of the pad pressing structure.
4. The substrate holder according to claim 1, wherein the pad pressing structure has a height which is not less than the width.
5. The substrate holder according to claim 1, further comprising:
a drive ring; and

reinforcement pins fixed to the drive ring and inserted into holes formed in the retaining ring.

6. A substrate holder for pressing a substrate against a polishing pad, comprising:
a top ring body configured to hold the substrate; and
a single retaining ring having an outer circumferential surface which provides a lowest part of an outermost exposed surface of the substrate holder, the single retaining ring including a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad,
wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,
wherein the pad pressing structure has a pad contact surface to be brought into contact with the polishing pad,
wherein the pad contact surface has a cross section projecting downwardly, and
wherein a ratio of a distance between an inner circumferential surface of the pad pressing structure and a lowest point of the pad contact surface to the width of the pad pressing structure is in a range of $\frac{3}{5}$ to $\frac{2}{3}$.

7. The substrate holder according to claim 1, wherein a plurality of radial grooves extending in a radial direction of the retaining ring are formed in a lower surface of the pad pressing structure.

8. The substrate holder according to claim 6, further comprising:
a drive ring; and
reinforcement pins fixed to the drive ring and inserted into holes formed in the single retaining ring.

9. A polishing apparatus comprising:

a polishing table for supporting a polishing pad;
a substrate holder configured to hold a substrate and to press the substrate against the polishing pad; and
a polishing liquid supply nozzle configured to supply a polishing liquid onto the polishing pad,

the substrate holder including a top ring body configured to hold the substrate, and a single retaining ring having an outer circumferential surface which provides a lowest part of an outermost exposed surface of the substrate holder, the single retaining ring including a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad, the pad pressing structure having an inner circumferential surface which provides a substrate holding surface, and the pad pressing structure having a width in a range of 3 mm to 7.5 mm.

10. The polishing apparatus according to claim 9, wherein the pad pressing structure has a width in a range of 3 mm to 5 mm.

11. The polishing apparatus according to claim 9, wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,

wherein the pad pressing structure has a pad contact surface to be brought into contact with the polishing pad,

wherein the pad contact surface has a cross section projecting downwardly, and

wherein a lowest point of the pad contact surface is located within a range of 3 mm to 5 mm from the inner circumferential surface of the pad pressing structure.

12. The polishing apparatus according to claim 9, wherein the pad pressing structure has a height which is not less than the width.

13. The polishing apparatus according to claim 9, wherein the substrate holder further includes:

a drive ring; and

reinforcement pins fixed to the drive ring and inserted into holes formed in the single retaining ring.

14. A polishing apparatus comprising:

a polishing table for supporting a polishing pad;

a substrate holder configured to hold a substrate and to press the substrate against the polishing pad; and

a polishing liquid supply nozzle configured to supply a polishing liquid onto the polishing pad,

the substrate holder including a top ring body configured to hold the substrate, and a single retaining ring having an outer circumferential surface which provides a lowest part of an outermost exposed surface of the substrate holder, the single retaining ring including a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad,

wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,

wherein the pad pressing structure has a pad contact surface to be brought into contact with the polishing pad,

wherein the pad contact surface has a cross section projecting downwardly, and

wherein a ratio of a distance between an inner circumferential surface of the pad pressing structure and a lowest point of the pad contact surface to the width of the pad pressing structure is in a range of $3/5$ to $2/3$.

15. The polishing apparatus according to claim 9, wherein a plurality of radial grooves extending in a radial direction of the retaining ring are formed in a lower surface of the pad pressing structure.

16. The polishing apparatus according to claim 14, wherein the substrate holder further includes:

a drive ring; and

reinforcement pins fixed to the drive ring and inserted into holes formed in the single retaining ring.

17. A polishing method comprising:

rotating a polishing table and a polishing pad;

supplying a polishing liquid onto the polishing pad; and

pressing a substrate against the polishing pad while only a pad pressing structure is surrounding the substrate and pressing the polishing pad, the pad pressing structure having an inner circumferential surface which provides a substrate holding surface, the pad pressing structure being in an annular shape having a width in a range of 3 mm to 7.5 mm.

18. The polishing method according to claim 17, wherein the pad pressing structure has a width in a range of 3 mm to 5 mm.

19. The polishing method according to claim 17, wherein the pad pressing structure has a height which is not less than the width.

20. A retaining ring for use in a substrate holder for pressing a substrate against a polishing pad, comprising:

a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad, the pad pressing structure having an inner circumferential surface which provides a substrate holding surface, the pad pressing structure having a width in a range of 3 mm to 7.5 mm, the retaining ring having holes for receiving reinforcement pins therein.

21. The retaining ring according to claim 20, wherein the pad pressing structure has a width in a range of 3 mm to 5 mm.

22. The retaining ring according to claim 20, wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,

wherein the pad pressing structure has a pad contact surface to be brought into contact with the polishing pad,

wherein the pad contact surface has a cross section projecting downwardly, and

wherein a lowest point of the pad contact surface is located within a range of 3 mm to 5 mm from the inner circumferential surface of the pad pressing structure.

23. The retaining ring according to claim 20, wherein a plurality of radial grooves extending in a radial direction of the retaining ring are formed in a lower surface of the pad pressing structure.

24. The retaining ring according to claim 20, wherein the pad pressing structure has a height which is not less than the width.

25. The polishing apparatus according to claim 20, wherein the pad pressing structure has a height equal to the width.

26. A retaining ring for use in a substrate holder for pressing a substrate against a polishing pad, comprising:

a pad pressing structure in an annular shape which is to be brought into contact with the polishing pad,

wherein the retaining ring has holes for receiving reinforcement pins therein,

wherein the pad pressing structure has a width in a range of 5 mm to 7.5 mm,
wherein the pad pressing structure has a pad contact surface to be brought into
contact with the polishing pad,
wherein the pad contact surface has a cross section projecting downwardly, and
wherein a ratio of a distance between an inner circumferential surface of the pad
pressing structure and a lowest point of the pad contact surface to the width of the pad pressing
structure is in a range of $3/5$ to $2/3$.

27. The polishing apparatus according to claim 26, wherein the pad pressing structure
has a height equal to the width.