WHAT IS CLAIMED IS:

1. An apparatus for polishing, comprising:

a table configured to support a polishing pad;

a polishing head configured to hold an object; and

a polishing solution supply device configured to supply a polishing solution between the polishing pad and the object,

the polishing apparatus causing the polishing pad and the object to be in contact with each other and to be rotated relative to each other in presence of the polishing solution and thereby polishes the object, wherein

the polishing solution supply device comprises a plurality of polishing solution supply ports arrayed in a direction intersecting with a rotating direction of the polishing pad in a state that the polishing solution supply device is placed on an upstream side in rotation of the polishing pad relative to the object, and

the polishing solution supply device supplies the polishing solution, such that the polishing solution supplied from the plurality of polishing solution supply ports has a predetermined flow rate distribution,

wherein the polishing solution supply device further comprises:

a polishing solution supply member configured to supply the polishing solution; and

an arm configured to hold the polishing solution supply member, and

the polishing solution supply member comprises a supply surface on which the plurality of polishing solution supply ports are provided, and the polishing solution supply member comprises a configuration that (a) the supply surface is provided with a slope in a tapered shape on a short side direction side of the supply surface, (b) the supply surface is provided with a convex in an outer circumferential part of the plurality of polishing solution supply ports, or (c) the supply surface is provided with a protrusion where the plurality of polishing solution supply ports are formed.

2. The apparatus according to claim 1,

wherein the polishing solution supply device further comprises a flow rate regulating mechanism configured to regulate a flow rate of the polishing solution supplied from the polishing solution supply member, wherein

the arm is configured to be turnable about a pivot placed outside of the polishing pad, and

the polishing solution supply member comprises a buffer portion that is connected with the flow rate regulating mechanism and with the plurality of polishing solution supply ports.

3. The apparatus according to either claim 1 or claim 2,

wherein the plurality of polishing solution supply ports have opening diameters of 0.3 to 2 mm.

4. The apparatus according to any one of claims 1 to 3,

wherein the polishing solution supply device has the plurality of polishing solution supply ports formed in a range corresponding to a diameter of the object and configured to supply the polishing solution such as to have a uniform flow rate distribution of the polishing solution in the range.

5. The apparatus according to any one of claims 1 to 3,

wherein the polishing solution supply device has the plurality of polishing solution supply ports formed in a range corresponding to a radius of the object on a side nearer to a center of rotation of the polishing pad and configured to supply the polishing solution such as to have a uniform flow rate distribution of the polishing solution in the range.

6. The apparatus according to either claim 4 or claim 5,

wherein the plurality of polishing solution supply ports have an identical opening diameter and are arranged at equal intervals in the range corresponding to the diameter of the object or in the range corresponding to the radius of the object on the side nearer to the center of rotation of the polishing pad.

7. The apparatus according to any one of claims 1 to 3,

wherein the polishing solution supply device has the plurality of polishing solution supply ports formed in an equal distance range from a corresponding position on a trajectory of rotation of the polishing pad corresponding to a center of rotation of the object toward positions corresponding to respective outer circumferences of the object and configured to supply the polishing solution such as to increase a flow rate of the polishing solution in the range from the corresponding position on the trajectory of rotation of the polishing pad corresponding to the center of rotation of the object toward the positions corresponding to the respective outer circumferences of the object.

8. The apparatus according to any one of claims 1 to 3,

wherein the polishing solution supply device has the plurality of polishing solution supply ports formed in a range corresponding to a radius of the object on a side nearer to a center of rotation of the polishing pad and configured to supply the polishing solution such as to increase a flow rate of the polishing solution in the range from a corresponding position on a trajectory of rotation of the polishing pad corresponding to a center of rotation of the object toward a position corresponding to an outer circumference of the object on the side nearer to the center of rotation of the polishing pad.

9. The apparatus according to either claim 7 or claim 8,

wherein the plurality of polishing solution supply ports have opening centers thereof arranged at equal intervals and have opening diameters increasing continuously or by every fixed number, from the corresponding position on the trajectory of rotation of the polishing

pad corresponding to the center of rotation of the object toward the positions corresponding to the respective outer circumferences of the object or from the corresponding position on the trajectory of rotation of the polishing pad corresponding to the center of rotation of the object toward the position corresponding to the outer circumference of the object on the side nearer to the center of rotation of the polishing pad.

10. The apparatus according to either claim 7 or claim 8,

wherein the plurality of polishing solution supply ports have an identical opening diameter and have intervals of the respective polishing solution supply ports decreasing continuously or by every fixed number, from the corresponding position on the trajectory of rotation of the polishing pad corresponding to the center of rotation of the object toward the positions corresponding to the respective outer circumferences of the object or from the corresponding position on the trajectory of rotation of the polishing pad corresponding to the center of rotation of the object toward the position corresponding to the outer circumference of the object on the side nearer to the center of rotation of the polishing pad.

11. The apparatus according to any one of claims 1 to 3,

wherein the polishing solution supply device has the plurality of polishing solution supply ports formed in a range corresponding to a diameter of the object and configured to supply the polishing solution such as to increase a flow rate of the polishing solution in the range from a position corresponding to an outer circumference of the object on a side nearer to a center of rotation of the polishing pad toward a position corresponding to an outer circumference of the object on a side farther from the center of rotation of the polishing pad.

12. The apparatus according to claim 11,

wherein the plurality of polishing solution supply ports have opening centers thereof arranged at equal intervals and have opening diameters increasing continuously or by every fixed number, from the position corresponding to the outer circumference of the object on the

side nearer to the center of rotation of the polishing pad toward the position corresponding to the outer circumference of the object on the side farther from the center of rotation of the polishing pad.

13. The apparatus according to claim 11,

wherein the plurality of polishing solution supply ports have an identical opening diameter and have intervals of the respective polishing solution supply ports decreasing continuously or by every fixed number, from the position corresponding to the outer circumference of the object on the side nearer to the center of rotation of the polishing pad toward the position corresponding to the outer circumference of the object on the side farther from the center of rotation of the polishing pad.

14. The apparatus according to any one of claims 1 to 13,

wherein the polishing solution supply member is configured to be swingable on the polishing pad by a turning motion of the arm.

15. The apparatus according to any one of claims 1 to 14,

wherein the polishing solution supply member is configured to be slidingly movable in a first direction where the plurality of polishing solution supply ports are arrayed, in a second direction perpendicular to a polishing surface of the polishing pad, and in a third direction orthogonal to both the first direction and the second direction.

16. The apparatus according to any one of claims 1 to 15,

wherein the polishing solution supply member is configured to be rotatable about respective virtual axes in a first direction where the plurality of polishing solution supply ports are arrayed, in a second direction perpendicular to a polishing surface of the polishing pad, and in a third direction orthogonal to both the first direction and the second direction.

17. The apparatus according to any one of claims 1 to 16, further comprising:

a cleaning mechanism configured to supply a cleaning solution to the polishing solution supply device turned to outside of the polishing pad by a turning motion of the arm.

18. A system for processing configured to process an object, the processing system comprising:

the polishing apparatus according to any one of claims 1 to 17;

a cleaning device configured to clean the object polished by the polishing apparatus;

a dryer device configured to dry the object cleaned by the cleaning device; and

a transport device configured to transport the object between the polishing apparatus, the cleaning device and the dryer device.