

What is claimed is:

1. A dressing device comprising:

a disk that has an opening on an inside,
a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface, through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway for a suction of the process liquid from the polishing surface by the suction source.

2. A dressing device comprising:

a disk that has an opening on an inside,

a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface, through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway for a suction of the process liquid from the polishing surface by the suction source,

wherein the housing includes a projecting portion that forms the opening of the second flow passage and that projects downward, and

a groove is formed on an upper surface side of the holder, the groove forming a part of the first flow passage and surrounding at least a part of a periphery of the projecting portion.

3. A dressing device comprising:

a disk that has an opening on an inside,
a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk;
and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface, through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway for a suction of the process liquid from the polishing surface by the suction source, further comprising a switching unit that switches a communication point of the second flow passage of the housing between the supply source and the suction source.

4. The dressing device according to claim 3, further comprising a control unit that controls the switching unit such that the second flow passage of the housing communicates with either the supply source or the suction source.

5. A dressing device comprising:

a disk that has an opening on an inside,

a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface, through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway for a suction of the process liquid from the polishing surface by the suction source,

wherein the housing includes a chamber that is provided on the second flow passage of the housing, the chamber being capable of temporarily storing the process liquid.

6. The dressing device according to claim 5,

Wherein the housing further includes a plurality of holes that are formed on a lower surface side of the housing and being arranged substantially radially at intervals from each other, the plurality of holes communicating with the chamber, and

a plurality of the second flow passages are provided, each of the plurality of the second flow passages being formed by one of the holes and the chamber.

7. The dressing device according to claim 5,

wherein the chamber surrounds a rotation shaft for the holder, and has a substantially annular shape.

8. The dressing device according to claim 2,

wherein

a plurality of holes are formed on the holder, the plurality of holes being arranged substantially radially at intervals from each other,

the groove communicates with the plurality of holes and has an annular shape,

a plurality of the first flow passages are provided, each of the plurality of the first flow passages being formed by one of the holes and the groove, and

a distance between an end of the projecting portion and a bottom of the groove is longer than a distance between a portion of a lower surface of the housing and the upper surface of the holder, the portion of the lower surface of the housing being a portion where the projecting portion is not provided.

9. A dressing device comprising:

a disk that has an opening on an inside,

a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface,

through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway for a suction of the process liquid from the polishing surface by the suction source,

wherein the first flow passage is inclined so as to be closer to a rotation shaft of the holder as it goes to the lower surface side.

10. A dressing device comprising:

a disk that has an opening on an inside,

a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that an opening of the second flow passage faces the upper surface of the holder, the second flow passage being connected with a supply source and a suction source of process liquid,

wherein the second flow passage and the first flow passage provide a pathway for process liquid to be supplied from the supply source to the polishing surface, through pathway, and wherein the first flow passage and the second flow passage also provide a reverse pathway

for a suction of the process liquid from the polishing surface by the suction source,

wherein the holder includes a straightening plate that is provided on the lower surface side of the holder, the straightening plate being provided with a plurality of holes and covering the opening of the first flow passage.

11. The dressing device according to claim 1, further comprising a rotatable rotation shaft,

wherein the holder is coupled to the rotation shaft in a detachable manner.

12. The dressing device according to claim 1, further comprising a turnable arm,

wherein the housing is coupled to the arm in a detachable manner.

13. A polishing apparatus comprising the dressing device according to claim 1.

14. A holder that is a component to be used together with a housing fixed in a dressing device, the holder comprising:

a connect portion capable of connecting with a disk, the connect portion being located on a lower surface side of the holder,

wherein a flow passage that passes from the lower surface to an upper surface is provided in the holder, one end of the flow passage on the lower surface is located inside an outer edge of an opening of the disk when the disk is connected with the holder and,

wherein a hole is formed in the holder,

the size of the hole on a first side facing the housing is larger than the size of the hole on a second side facing the disk.

15. A housing that is a component to be used together with a holder that is rotatable in a dressing device,

wherein the housing is provided with a distance from an upper surface of the holder,

the housing is provided with a flow passage in an interior,

the housing is fixed such that one end of a flow passage faces the upper surface of the holder, and the flow passage is connected with a supply source and a suction source of process liquid,

a protruding projecting portion in which an opening of the flow passage is formed is provided in the housing.

16. A dressing method that is executed by a dressing device,

the dressing device comprising:

a disk that has an opening on an inside, the disk dressing a polishing surface for polishing a substrate;

a rotatable holder, the disk being coupled to a lower surface side of the holder, the holder being provided with a first flow passage that passes from a lower surface to an upper surface, the lower surface being inside an outer edge of the opening of the disk; and

a housing that is provided with a distance from the upper surface of the holder, the housing being provided with a second flow passage in an interior, the housing being fixed such that one end of the second flow passage faces the upper surface of the holder,

the dressing method comprising:

a first supplying pure water to the polishing surface, through the second flow passage and the first flow passage in order, during dressing; and

a first sucking process liquid on the polishing surface, through the first flow passage and the second flow passage in order, during the dressing.

17. The dressing method according to claim 16, further comprising:

a second supplying polishing liquid to the polishing surface, through the second flow passage and the first flow passage in order, during polishing by a polishing head; and

a second sucking the process liquid on the polishing surface, through the first flow passage and the second

flow passage in order, during supply of washing water by an atomizer.