

What is claimed is:

1. A polishing apparatus for polishing a substrate by pressing the substrate against a polishing surface on a polishing table with a polishing head while the polishing
5 head holding the substrate is rotated and the polishing table is rotated, comprising:

a non-contact transmission connector provided on at least one of the polishing table and the polishing head and configured to transfer electric power or signals or to perform communication between a stationary unit and a rotating unit which face each other in a non-contact manner;

10 wherein the electric power or the signals are transmitted or communication is performed between equipment provided in at least one of the polishing table and the polishing head, and the outside of the polishing table or the polishing head through the non-contact transmission connector; and

wherein the non-contact transmission connector comprises a light emitting unit
15 provided in one of the stationary unit and the rotating unit and a light receiving unit
provided in the other of the stationary unit and the rotating unit; the light emitting unit and
the light receiving unit being configured to face each other.

2. The polishing apparatus according to claim 1, wherein the equipment provided in the polishing table comprises a measuring instrument including a sensor configured to
20 monitor a condition of a surface, being polished, of the substrate during polishing.

3. The polishing apparatus according to claim 1, wherein the equipment provided in the polishing head comprises a measuring instrument including a sensor configured to monitor a condition of the substrate during polishing.

4. The polishing apparatus according to claim 1, wherein the non-contact
25 transmission connector comprises at least one pot core, to which winding is applied, provided in the stationary unit and at least one pot core, to which winding is applied, provided in the rotating unit; the at least one pot core of the stationary unit and the at least one pot core of the rotating unit being configured to face each other.

~~5. The polishing apparatus according to claim 1, wherein the non-contact transmission connector comprises a light emitting unit provided in one of the stationary unit and the rotating unit and a light receiving unit provided in the other of the stationary unit and the rotating unit; the light emitting unit and the light receiving unit being configured to face each other.~~

65. The polishing apparatus according to claim 51, wherein the light emitting unit and the light receiving unit are disposed at the centers of the stationary unit and the rotating unit.

76. The polishing apparatus according to claim 51, wherein a plurality of objects configured to reflect light and refract light are provided between the light emitting unit and the light receiving unit, and the light emitted from the light emitting unit is directed to the light receiving unit through the objects configured to reflect light and refract light.

87. The polishing apparatus according to claim 1, wherein the stationary unit and the rotating unit of the non-contact transmission connector have surfaces which face each other and are coated with a waterproof material.

98. The polishing apparatus according to claim 1, wherein a rotary joint is provided adjacent to the rotating unit of the non-contact transmission connector, and a fluid is supplied from the outside of the polishing table or the polishing head into the polishing table or the polishing head through the rotary joint.

109. The polishing apparatus according to claim 51, wherein each of the light emitting unit and the light receiving unit comprises a light emitting and receiving unit which is capable of performing unidirectional communication and two-way communication.

5 ~~11~~10. The polishing apparatus according to claim 1, wherein a controller configured to transfer electric power or signals or to perform communication with equipment provided in the rotating unit through the non-contact transmission connector is provided.

10 11. A polishing apparatus for polishing a substrate by pressing the substrate against a polishing surface on a polishing table with a polishing head while the polishing head holding the substrate is rotated and the polishing table is rotated, comprising:

15 a non-contact transmission connector provided on at least one of the polishing table and the polishing head and configured to transfer electric power or signals or to perform communication between a stationary unit and a rotating unit which face each other in a non-contact manner;

20 wherein the electric power or the signals are transmitted or communication is performed between equipment provided in at least one of the polishing table and the polishing head, and the outside of the polishing table or the polishing head through the non-contact transmission connector; and

25 wherein the equipment provided in the polishing head comprises a measuring instrument including a sensor configured to monitor a condition of the substrate during polishing.

30 12. The polishing apparatus according to claim 11, wherein the equipment provided in the polishing table comprises a measuring instrument including a sensor configured to monitor a condition of a surface, being polished, of the substrate during polishing.

35 13. The polishing apparatus according to claim 11, wherein the non-contact transmission connector comprises at least one pot core, to which winding is applied, provided in the stationary unit and at least one pot core, to which winding is applied, provided in the rotating unit; the at least one pot core of the stationary unit and the at least one pot core of the rotating unit being configured to face each other.

14. The polishing apparatus according to claim 11, wherein the stationary unit and the rotating unit of the non-contact transmission connector have surfaces which face each other and are coated with a waterproof material.

15. The polishing apparatus according to claim 11, wherein a rotary joint is provided adjacent to the rotating unit of the non-contact transmission connector, and a fluid is supplied from the outside of the polishing table or the polishing head into the polishing table or the polishing head through the rotary joint.

16. The polishing apparatus according to claim 11, wherein a controller configured to transfer electric power or signals or to perform communication with equipment provided in the rotating unit through the non-contact transmission connector is provided.

17. A polishing apparatus for polishing a substrate by pressing the substrate against a polishing surface on a polishing table with a polishing head while the polishing head holding the substrate is rotated and the polishing table is rotated, comprising:

a non-contact transmission connector provided on at least one of the polishing table and the polishing head and configured to transfer electric power or signals or to perform communication between a stationary unit and a rotating unit which face each other in a non-contact manner;

wherein the electric power or the signals are transmitted or communication is performed between equipment provided in at least one of the polishing table and the polishing head, and the outside of the polishing table or the polishing head through the non-contact transmission connector; and

wherein a rotary joint is provided adjacent to the rotating unit of the non-contact transmission connector, and a fluid is supplied from the outside of the polishing table or the polishing head into the polishing table or the polishing head through the rotary joint.

18. The polishing apparatus according to claim 17, wherein the equipment provided in the polishing table comprises a measuring instrument including a sensor configured to monitor a condition of a surface, being polished, of the substrate during

polishing.

19. The polishing apparatus according to claim 17, wherein the non-contact transmission connector comprises at least one pot core, to which winding is applied, provided in the stationary unit and at least one pot core, to which winding is applied, provided in the rotating unit; the at least one pot core of the stationary unit and the at least one pot core of the rotating unit being configured to face each other.

20. The polishing apparatus according to claim 17, wherein the stationary unit and the rotating unit of the non-contact transmission connector have surfaces which face each other and are coated with a waterproof material.

21. The polishing apparatus according to claim 17, wherein a controller configured to transfer electric power or signals or to perform communication with equipment provided in the rotating unit through the non-contact transmission connector is provided.