What is claimed is:

1. A dressing apparatus, comprising:

a dresser configured to rub against a polishing surface to dress the polishing surface that is used for polishing a substrate;

a dresser shaft that applies a load to the dresser;

at least one load-applying device configured to apply a downward load to a part of a peripheral portion of the dresser; and

an operation controller configured to control operation of the load-applying device.

2. The dressing apparatus according to claim 1, wherein the operation controller is configured to control the operation of the load-applying device so as to change the downward load in accordance with a position of the dresser on the polishing surface.

3. The dressing apparatus according to claim 1, further comprising:

a relatively moving mechanism configured to move the load-applying device relative to the dresser.

4. The dressing apparatus according to claim 3, wherein the operation controller is configured to control operation of the relatively moving mechanism so as to change a position of the load-applying device relative to the dresser in accordance with a position of the dresser on the polishing surface.

5. The dressing apparatus according to claim 3, wherein the relatively moving mechanism comprises a rotating mechanism configured to rotate the load-applying device around the dresser shaft.

6. The dressing apparatus according to claim 1, further comprising:

at least one position sensor configured to measure a height of the dresser,

wherein the operation controller is configured to control operation of the load-applying device such that a measured value of the height of the dresser is maintained at a predetermined target value.

~~7. A polishing apparatus for polishing a substrate by bringing the substrate into sliding contact with a polishing surface, the polishing apparatus comprising:~~

~~a top ring configured to press the substrate against the polishing surface; and~~

~~a dressing apparatus according to claim 1.~~

~~8~~ 7. A polishing method, comprising:

rubbing a dresser against a polishing surface while causing the dresser to oscillate on the polishing surface to dress the polishing surface;

during dressing of the polishing surface, changing a downward load applied to a part of a peripheral portion of the dresser and changing a position of the downward load in accordance with a position of the dresser on the polishing surface, thereby regulating an angle at which a dressing surface of the dresser is tilted with respect to the polishing surface; and

after dressing of the polishing surface is terminated, pressing a substrate against the polishing surface to provide sliding contact between the substrate and the polishing surface, thereby polishing the substrate.

~~9~~ 8. The polishing method according to claim ~~8~~ 7, wherein dressing of the polishing surface is performed while keeping the dressing surface parallel to the polishing surface.

~~10~~ 9. The polishing method according to claim ~~8~~ 7, wherein dressing of the polishing surface is performed while measuring a height of the dresser and changing the

downward load and the position of the downward load such that a measured value of the height of the dresser is maintained at a predetermined target value.

10. A polishing apparatus for polishing a substrate by bringing the substrate into sliding contact with a polishing surface, the polishing apparatus comprising:

a top ring configured to press the substrate against the polishing surface; and

a dressing apparatus configured to dress the polishing surface,

the dressing apparatus including

(i) a dresser configured to rub against the polishing surface to dress the polishing surface,

(ii) a dresser shaft that applies a load to the dresser,

(iii) at least one load-applying device configured to apply a downward load to a part of a peripheral portion of the dresser, and

(iv) an operation controller configured to control operation of the load-applying device.

11. The polishing apparatus according to claim 10, wherein the operation controller is configured to control the operation of the load-applying device so as to change the downward load in accordance with a position of the dresser on the polishing surface.

12. The polishing apparatus according to claim 10, further comprising:

a relatively moving mechanism configured to move the load-applying device relative to the dresser.

13. The polishing apparatus according to claim 12, wherein the operation controller is configured to control operation of the relatively moving mechanism so as to change a position of the load-applying device relative to the dresser in accordance with a position of the dresser on the polishing surface.

14. The polishing apparatus according to claim 12, wherein the relatively moving mechanism comprises a rotating mechanism configured to rotate the load-applying device around the dresser shaft.

15. The polishing apparatus according to claim 10, further comprising:

at least one position sensor configured to measure a height of the dresser,

wherein the operation controller is configured to control operation of the load-applying device such that a measured value of the height of the dresser is maintained at a predetermined target value.