What is claimed is:

1. A method for releasing a substrate adsorbed to a first surface of an elastic film included in a substrate holding apparatus of a substrate polishing apparatus,

a plurality of concentric pressure chambers being formed between a top ring body included in the substrate holding apparatus and a second surface of the elastic film, the method comprising:

a first step of supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers to pressurize the elastic film; and

a second step of sequentially depressurizing the plurality of pressure chambers from outer pressure chambers.

2. The method according to claim 1, wherein none of the two or more pressure chambers is an outermost pressure chamber.

3. The method according to claim 2, wherein the outmost pressure chamber is depressurized in the second step while the fixed-amount gas is supplied to the two or more pressure chambers in the first step.

4. The method according to claim 1, wherein in the first step, the fixed-amount gas is supplied from a single fixed-amount gas supply apparatus to the two or more pressure chambers.

5. The method according to claim 1, wherein

the first step includes opening a first valve provided between each of the two or more pressure chambers and a fixed-amount gas supply apparatus,

the second step includes opening a second valve provided between each of the plurality of pressure chambers and a pressure adjustment apparatus, and

in the second step, in a case where each of the two or more pressure chambers is depressurized, first, the first valve is closed and then the second valve is opened.

6. The method according to claim 1, wherein

in the first step, the fixed-amount gas is supplied from a chamber to the two or more pressure chambers, and

the method comprising a step of generating a negative pressure in the chamber is provided between the first step and the second step, and

in the second step, the two or more pressure chambers are depressurized by the chamber being connected to the two or more pressure chambers.

7. The method according to claim 1, further comprising a third step of supplying the fixed-amount gas to one or more pressure chambers among the two or more pressure chambers in a case where the substrate is not released even if a certain pressure chamber is depressurized in the second step.

8. A method for polishing a substrate using a substrate holding apparatus including a top ring body and an elastic film,

a first surface of the elastic film being capable of adsorbing the substrate,

a plurality of concentric pressure chambers being formed between the top ring body and a second surface of the elastic film, the method comprising:

a first step of adsorbing the substrate to the first surface of the elastic film by depressurizing at least one of the plurality of pressure chambers in a state where a surface to be adsorbed of the substrate is in contact with the first surface of the elastic film;

a second step of polishing a surface to be polished of the substrate while bringing the surface to be polished of the substrate into contact with a polishing member and pressurizing at least one of the plurality of pressure chambers;

a third step of releasing the surface to be polished of the substrate from the polishing member and supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers to pressurize the elastic film; and

a fourth step of sequentially depressurizing the plurality of pressure chambers from outer pressure chambers to release the substrate from the first surface of the elastic film.

9. The method according to claim 8, wherein

in the second step, a pressure adjustment apparatus pressurizes at least one of the plurality of pressure

chambers with a first pressure, and

in the third step, pressurizes the elastic film with a second pressure lower than the first pressure.

10. The method according to claim 8, wherein

in the first step, the pressure adjustment apparatus depressurizes at least one of the plurality of pressure chambers,

in the third step, the fixed-amount gas is supplied from a chamber to the two or more pressure chambers,

the method comprises a step of generating a negative pressure in the chamber is provided between the third step and the fourth step,

in the fourth step, the two or more pressure chambers are depressurized by the chamber being connected to the two or more pressure chambers, and

a stress to be applied to the substrate by the depressurization in the fourth step is smaller than a stress to be applied to the substrate by the depressurization in the first step.

11. A substrate polishing apparatus comprising:

a top ring body;

an elastic film having a first surface capable of adsorbing a substrate, and a second surface forming a plurality of concentric pressure chambers between the second surface and the top ring body;

a polishing member that polishes the adsorbed substrate;

a fixed-amount gas supply apparatus capable of supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers;

first switching means for switching whether or not to allow the fixed-amount gas supply apparatus to communicate with each of the two or more pressure chambers;

a pressure adjustment apparatus capable of individually controlling pressures of the plurality of pressure chambers;

second switching means for switching whether or not to allow the pressure adjustment apparatus to communicate with each of the plurality of pressure chambers; and

a control apparatus that controls the fixed-amount gas supply apparatus, the first switching means, the pressure adjustment apparatus and the second switching means so that the fixed-amount gas supply apparatus supplies the fixed-amount gas to the two or more pressure chambers and then the pressure adjustment apparatus sequentially depressurizes the plurality of pressure chambers from outer pressure chambers in order to release the substrate adsorbed to the first surface of the elastic film.

12. The substrate polishing apparatus according to claim 11, wherein

the fixed-amount gas supply apparatus includes:

a cylinder, and

a piston that divides the cylinder into an

upper space and a lower space, and

a fixed-amount gas in the lower space of the cylinder is supplied by the piston moving downward.

13. The substrate polishing apparatus according to claim 11, wherein the fixed-amount gas supply apparatus has a constant volume chamber to be pressurized by the pressure adjustment apparatus.

14. A substrate processing apparatus comprising:

the substrate polishing apparatus according to claim 11;

a substrate cleaning apparatus that cleans the substrate polished by the substrate polishing apparatus; and

a substrate drying apparatus that dries the substrate cleaned by the substrate cleaning apparatus.

15. A control apparatus that controls a substrate polishing apparatus including:

a top ring body;

an elastic film having a first surface capable of adsorbing a substrate, and a second surface forming a plurality of concentric pressure chambers between the second surface and the top ring body;

a polishing member that polishes the adsorbed substrate;

a fixed-amount gas supply apparatus capable of supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers;

first switching means for switching whether or not to allow the fixed-amount gas supply apparatus to communicate with each of the two or more pressure chambers;

a pressure adjustment apparatus capable of individually controlling pressures of the plurality of pressure chambers; and

second switching means for switching whether or not to allow the pressure adjustment apparatus to communicate with each of the plurality of pressure chambers,

the control apparatus controlling the fixed-amount gas supply apparatus, the first switching means, the pressure adjustment apparatus and the second switching means so that the fixed-amount gas supply apparatus supplies the fixed-amount gas to the two or more pressure chambers and then the pressure adjustment apparatus sequentially depressurizes the plurality of pressure chambers from outer pressure chambers in order to release a substrate adsorbed to the first surface of the elastic film.

16. A control program for controlling a substrate polishing apparatus including:

a top ring body;

an elastic film having a first surface capable of adsorbing a substrate, and a second surface forming a plurality of concentric pressure chambers between the second surface and the top ring body;

a polishing member that polishes the adsorbed

substrate;

a fixed-amount gas supply apparatus capable of supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers;

first switching means for switching whether or not to allow the fixed-amount gas supply apparatus to communicate with each of the two or more pressure chambers;

a pressure adjustment apparatus capable of individually controlling pressures of the plurality of pressure chambers; and

second switching means for switching whether or not to allow the pressure adjustment apparatus to communicate with each of the plurality of pressure chambers, the control program causing a computer to function as

means for controlling the fixed-amount gas supply apparatus, the first switching means, the pressure adjustment apparatus and the second switching means so that the fixed-amount gas supply apparatus supplies the fixed-amount gas to the two or more pressure chambers and then the pressure adjustment apparatus sequentially depressurizes the plurality of pressure chambers from outer pressure chambers in order to release a substrate adsorbed to the first surface of the elastic film.

17. A control method for controlling a substrate polishing apparatus including: a top ring body;

an elastic film having a first surface capable of adsorbing a substrate, and a second surface forming a

plurality of concentric pressure chambers between the second surface and the top ring body;

a polishing member that polishes the adsorbed substrate;

a fixed-amount gas supply apparatus capable of supplying fixed-amount gas to two or more pressure chambers among the plurality of pressure chambers;

first switching means for switching whether or not to allow the fixed-amount gas supply apparatus to communicate with each of the two or more pressure chambers;

a pressure adjustment apparatus capable of individually controlling pressures of the plurality of pressure chambers; and

second switching means for switching whether or not to allow the pressure adjustment apparatus to communicate with each of the plurality of pressure chambers,

the control method controlling the fixed-amount gas supply apparatus, the first switching means, the pressure adjustment apparatus and the second switching means so that the fixed-amount gas supply apparatus supplies the fixed-amount gas to the two or more pressure chambers and then the pressure adjustment apparatus sequentially depressurizes the plurality of pressure chambers from outer pressure chambers in order to release a substrate adsorbed to the first surface of the elastic film.