

the thickness measuring means 19 measures the thickness of the resin film J after the grinding on the holding table 30 whose rotation is stopped. The thickness measuring means 19 sends information about the thickness of the workpiece W (first workpiece W) to the memory of the control means 9. The control means 9 stores the information.

The holding table 30 sucking and holding the workpiece W after the thickness is measured by the thickness measuring means 19 is moved in the -Y direction, and positioned within the movable region of the third transfer robot 83. The third transfer robot 83 then sucks the workpiece W and carries the workpiece W out of the holding table 30. Then, the third transfer robot 83 sucking and holding the resin film J of the workpiece W performs a turning movement, and carries the workpiece W into the cleaning apparatus 15.

After the ground surface of the resin film J of the workpiece W is cleaned in the cleaning apparatus 15, the first transfer robot 81 carries the workpiece W out of the cleaning apparatus 15, and carries the workpiece W onto a shelf ~~of a lowermost layer, for example,~~ in the second cassette 52. The control means 9 then stores the previously stored thickness of the resin film J of the

first workpiece W and the ~~layer~~ number ~~(lowermost layer)~~ of the shelf within the second cassette 52 in which the first workpiece W is housed in association with each other.

Thus, the processing apparatus 1 according to the present invention includes: the first cassette mounting means 53 mounted with the first cassette 51 housing a plurality of workpieces W and the second cassette mounting means 54 mounted with the second cassette 52 housing a plurality of workpieces W; the resin coating means 2 coating the front surface Wa of a workpiece W with a resin; the resin curing means 4 curing the resin by applying an external stimulus (irradiation of UV in the present embodiment) to the coated resin; the resin grinding means 6 flattening the cured resin by grinding the cured resin by the grinding stones 641 that are rotating; and the first transfer robot 81, the second transfer robot 82, the third transfer robot 83, and the fourth transfer mechanism 84 that convey the workpiece between the means. It is therefore possible to make the thickness of the coated resin film J a desired thickness and flatten the exposed surface (ground surface) of the resin film J with high precision only within the processing apparatus 1 according to the present invention.

Thereafter, as in the formation of the resin film J whose thickness is controlled on the above-described first workpiece W, the first transfer robot 81 carries the workpieces W housed in the first cassette 51 in order out of a lower shelf to perform resin coating, the curing of the coated resin film, the grinding of the resin film, and the cleaning of the resin film. The workpieces W coated with the resin film are housed into the second cassette 52 in order from a lower shelf, for example. In addition, the ~~layer~~-number of the respective shelves within the second cassette 52 and the measured thickness value of the resin films of the workpieces W housed in the shelves ~~of the layer numbers~~ are associated with each other and stored in order by the control means 9.

When the resin coating, the curing of the coated resin film, the grinding of the resin film, and the cleaning of the resin film are thus performed for, for example, all of the workpieces W within the first cassette 51, and the workpieces W coated with the resin are housed into all of the shelves of the second cassette 52, the second cassette 52 is conveyed to a grinding apparatus in a next process by conveying means not illustrated or the like.

The grinding apparatus sucks and holds the resin

film side of a workpiece W in the next process by a holding table, and thins the workpiece W to a predetermined thickness by grinding a back surface Wb of the workpiece W held by the holding table by a rotating grinding wheel. As an example, the control means 9 of the processing apparatus 1 is electrically connected to the grinding apparatus in the next process via wiring. The control means 9 transmits, to control means of the grinding apparatus, information about the previously stored ~~layer~~-numbers of the respective shelves within the second cassette 52 and the previously stored measured thickness values of the resin films of the respective workpieces W housed in the shelves ~~of the respective layer numbers~~. Therefore, in the grinding apparatus in the next process, an appropriate setting of a grinding feed position of grinding means or the like can be made by using the transmitted information about the measured thicknesses of the resin films of the workpieces W ~~or the like~~. It is therefore possible to improve precision of a finished thickness after grinding of the workpiece W.

It is to be noted that the processing apparatus 1 according to the present invention is not limited to the foregoing embodiment, and that the shape or the like of each configuration of the apparatus illustrated in the