processed substrate was a wafer W, and the chuck plate 2 was made of silicon rubber. After having attracted the wafer W at a predetermined voltage (4 kV), processing utilizing plasma was attempted to be performed inside the vacuum chamber. A wafer W in a state which is free from cracking, chipping, positional deviation, and a foreign matter such as cracked pieces and the like of the wafer W is not interposed between the chuck plate 2 and the wafer W, is defined to be a Sample 1, and one in a state in which a foreign matter is interposed between the wafer W which is free from cracking and chipping and the chuck plate 2 is defined to be a Sample 2. According to the above-mentioned substrate control method, the changes in AC voltage were measured relating to the Samples 1 and 2, and the results are shown in FIG. 2. In FIG. 2 a solid line is the result of Sample 1, and a dotted line is the result of Sample 2.

[0025] According to these results, after having placed in position the Samples 1 and 2 respectively on the upper surface of the chuck plate 2, and the AC voltages were measured respectively before plasma processing. Then, it can be seen that, accompanied by the difference in the electrostatic capacitance, the AC voltage values measured with respect to Sample 1 and Sample 2 can be seen to be different from each other. In addition, similarly during plasma processing and after plasma processing, the AC voltage values measured with respect to Sample 1 and Sample 2 are different from each other accompanied by the difference in the electrostatic capacitance. According to the above-mentioned experiments, it was confirmed that the state of the wafer W could be constantly ascertained during a series of operations of having placed in position the wafer W on the chuck plate 2, of subsequently attracting the wafer W and performing processing thereon and, after the processing, of releasing the attraction of the wafer W for further transferring it.

[0026] Descriptions have so far been made of the embodiment of this invention, but this invention shall not be limited to the above. Within a range not deviating from the technical philosophy of this invention, modifications can appropriately be made. In the above-mentioned embodiment, a description was made on condition that the circuit that connects both the electrodes 3a, 3b to the ground potential for charge clearing of the wafer W after processing be defined as

the second circuit C2. It shall, however, be not limited to the above, but may be arranged such that the second circuit C2 is constituted so as to connect both the electrodes 3a, 3b so that the pair of the electrodes 3a, 3b can be of the same potential. In addition, in the above-mentioned embodiment, a description was made of an example having a single AC power source unit 7, but it shall not be limited to the above. FIG. 3 shows a power supply apparatus PS_2 relating to a modified example. A description will be made by using the same reference marks regarding the same members and elements as the above-mentioned embodiment. A power supply apparatus PS_2 is provided with two AC power source units 70a, 70b of the same configuration. Both the AC power source units 70a, 70b are disposed in the second circuit C2 in series between the negative output 62 of one 6a of the DC power source unit and the positive output 63 of the other 6b of the DC power source unit. Then, between each of the AC power source units 70a, 70b there are connected in series two resistors R2, R2. While these resistors R2, R2 are connected to the ground potential (0V), a voltmeter 9 is connected in parallel with these resistors R2, R2. According to this arrangement, when AC current is caused to flow through the electrostatic capacitance to measure the AC voltage with the voltmeter 9, it is advantageously possible to make it hardly subject to the influence of the noises.

[0027] Further, in the above-mentioned embodiment, a description was made of an example in which this invention was applied to a so-called bipolar type of electrostatic chuck, but this invention shall not be limited thereto but can be applied also to a single-pole type. FIG. 4 shows a power supply apparatus PS_3 relating to a further modified example in which power can be supplied to a single electrode 30 that is disposed in the chuck plate 2. The same reference marks are used, in the following explanations, with reference to the same material and element as in the above-mentioned embodiment. The power supply apparatus PS_3 is provided with a single DC power source unit 6, and the positive (high-voltage side) output of the DC power source unit 6 is connected to the electrode 30 through the switching means 80. A negative (low-voltage side) output 620 of the DC power source unit is also connected to the electrode 30 through the switching means 80, and has connected thereto an AC power source