profile in the step 2 can also be less than the total number of pressure chambers C1 to C4 of the polishing head 7.

[0067] The arithmetic system 10 multiplies the pressing-pressure responsiveness profile by a candidate for the polishing-rate coefficient F(n) and a predetermined pressure AP(n) and further adds a candidate for the polishing-rate offset Offset(r) to thereby calculate a virtual polishing-rate profile and then determines the polishing-rate coefficient F(n) and the polishing-rate offset Offset(r) that minimize a difference (absolute value) between the actual polishing-rate profile and the virtual polishing-rate profile which is represented by the above formula (1'). A known algorithm, such as an optimization method, can be applied to determine the polishing-rate coefficient F(n) and the polishing-rate offset Offset(r) that minimize the above formula (1').

[0068] The polishing-rate coefficient F(n) is a polishing-rate coefficient for the n-th pressure chamber. In one embodiment, the same polishing-rate coefficient F(n) may be used for all the pressure chambers C1 to C4. Alternatively, a plurality of polishing-rate coefficients F(n) corresponding to the plurality of pressure chambers C1 to C4, respectively, may be used. Compared to the former, the latter can more minimize the difference between the actual polishing-rate profile and the virtual polishing-rate profile represented by the above formula (1').

[0069] The arithmetic system 10 further adds the determined polishing-rate offset Offset(r) to a value which is determined by multiplying the pressing-pressure responsiveness profile by the determined polishing-rate coefficient F(n) to thereby calculate (create) the polishing-rate responsiveness profile represented by the formula (2').

[0070] The following formula (1") may be used instead of the formula (1').

$$\sum_{m=1}^{mw}\left(\sum_{r=0}^{ra}\left|Rate(r)-\left(\sum_{n=1}^{nt}[AP(n)*F(n)*P(n,r)]+Offset(r)\right)\right|^{2}\right) \quad (1")$$

Using the above formula (1") allows a well-known optimization algorithm, such as the least squares method or the quadratic programming method, to be used for determining F(n) and Offset(r). In the case of using this formula (1"), the number of