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(71) Applicant (for all designated States except US): **TBW INDUSTRIES, INC.** [US/US]; PO Box 336, Furlong, PA 18925 (US).

(71) Applicants and

(72) Inventors: **BENNER, Stephen, J.** [US/US]; 880 Troxel Road, Lansdale, PA 19446 (US). **LI, Yuzhuo** [US/US]; 1101 River Road, Norwood, NY 13668 (US).

(74) Agent: **KOBA, Wendy, W.**; PO Box 556, Springtown, PA 18081 (US).

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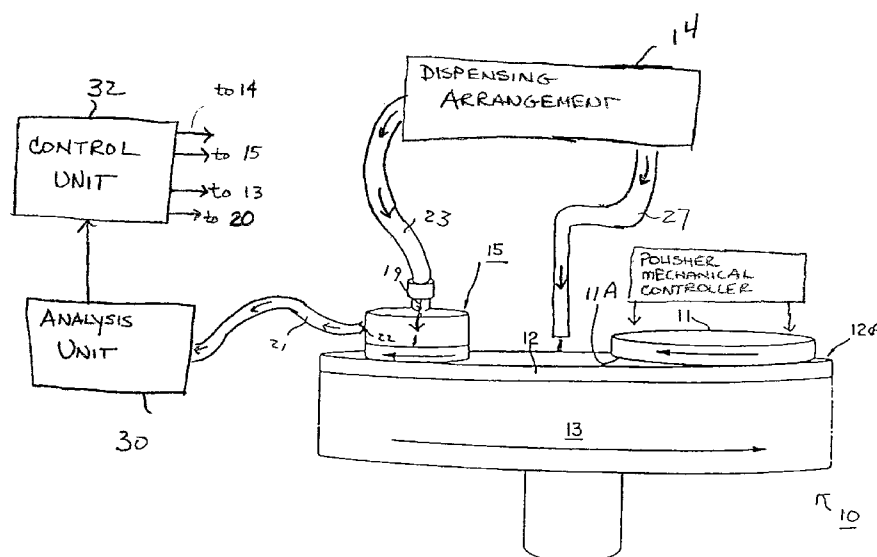
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(54) Title: **CHEMICAL MECHANICAL PLANARIZATION PROCESS CONTROL UTILIZING IN-SITU CONDITIONING PROCESS**



(57) Abstract: A system and method for providing process control in a CMP system utilizes a vacuum-assisted arrangement (15) for conditioning a wafer polishing pad so that the effluent (i.e., wafer debris, polishing slurry, chemical or other by-products) from the conditioning process is diverted from the waste stream and instead introduced into an analysis module (30) for further processing. The analysis module functions to determine at least one parameter within the effluent and generate a process control signal based upon the analysis. The process control signal is then fed back to the planarization process to allow for the control of various parameters such as polishing slurry composition, temperature, flow rate, etc. The process control signal can also be used to control the conditioning process and/or determining the endpoint of the planarization process itself.

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