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(54) Title: ACOUSTIC CARRIER HEAD MONITORING

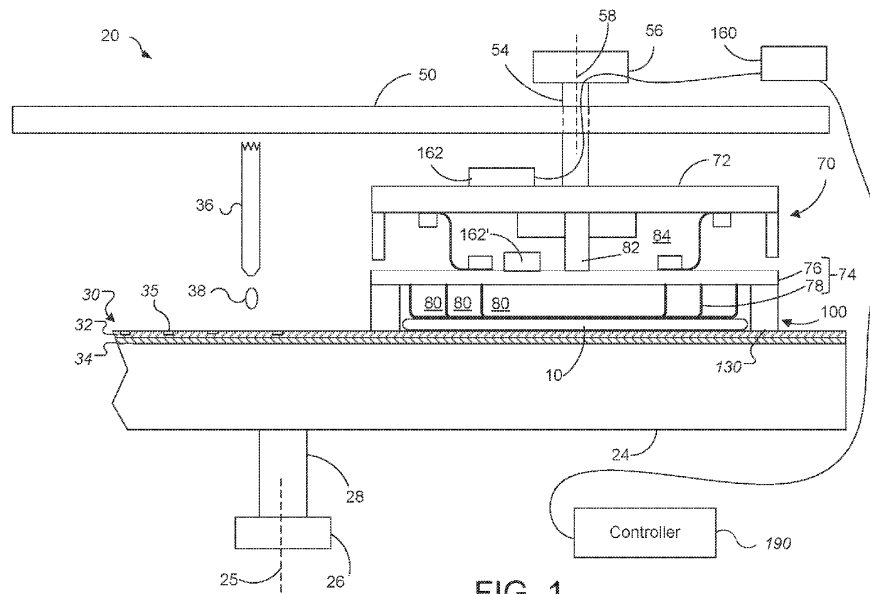


FIG. 1

(57) Abstract: A chemical mechanical polishing apparatus has a platen to support a polishing pad, a carrier head comprising a rigid housing and configured to hold a surface of a substrate against the polishing pad, a motor to generate relative motion between the platen and the carrier head so as to polish the substrate, an in-situ carrier head monitoring system including a sensor positioned to interact with the housing and to detect vibrational motion of the housing and generate signals based on the detected vibrational motion, and a controller. The controller is configured to generate a value for a carrier head status parameter based on received signals from the in-situ carrier head monitoring system, and change a polishing parameter or generate an alert based on the carrier head status parameter.

[Continued on next page]

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