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- (71) **Applicant (for all designated States except US):** NOVEL-LUS SYSTEMS, INC. [US/US]; 4000 North First Street, San Jose, California 95134 (US).
- (72) **Inventor; and**
- (71) **Applicant (for US only):** MAYER, Steven, T. [US/US]; 17867 Sundown Court, Lake Oswego, California 97034 (US).
- (74) **Agents:** WEAVER, Jeffrey, K. et al.; Weaver Austin Villeneuve & Sampson LLP, P. O. Box 70250, Oakland, California 94612-0250 (US).
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(54) **Title:** MONITORING LEVELER CONCENTRATIONS IN ELECTROPLATING SOLUTIONS

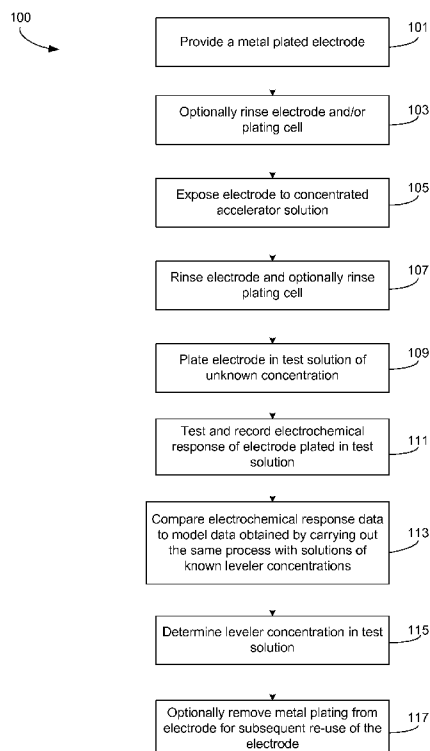


FIGURE 1

(57) **Abstract:** Provided herein are methods and apparatus for determining leveler concentration in an electroplating solution. The approach allows the concentration of leveler to be detected and measured, even at very low leveler concentrations. According to the various embodiments, the methods involve providing an electrode with a metal surface, exposing the electrode to a pre-acceleration solution with at least one accelerator, allowing the surface of the electrode to become saturated with accelerator, measuring an electrochemical response while plating the electrode in a solution, and determining the concentration of leveler in the solution by comparing the measured electrochemical response to a model relating leveler concentration to known electrochemical responses. According to other embodiments, the apparatus includes an electrode, a measuring apparatus or an electrochemical cell configured to measure an electrochemical response, and a controller designed to carry out the method outlined above.



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