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(54) **Title:** METHODS AND APPARATUS FOR PROCESSING A SUBSTRATE

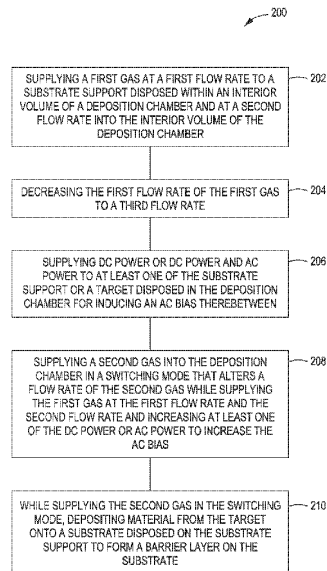


FIG. 2

(57) **Abstract:** Methods and apparatus for processing a substrate are provided herein. For example, a method includes supplying a first gas at a first flow rate to a substrate support disposed within an interior volume of a deposition chamber and at a second flow rate into the interior volume of the deposition chamber; decreasing the first flow rate of the first gas to a third flow rate; supplying DC power or DC power and an AC power for inducing an AC bias therebetween; supplying a second gas into the deposition chamber in a switching mode while supplying the first gas at the second flow rate and the third flow rate and increasing at least one of the DC power or AC power to increase the AC bias; and while supplying the second gas in the switching mode, depositing material from the target onto a substrate to form a barrier layer.

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