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(54) Title: METHODS AND APPARATUS FOR CLEANING SEMICONDUCTOR WAFERS

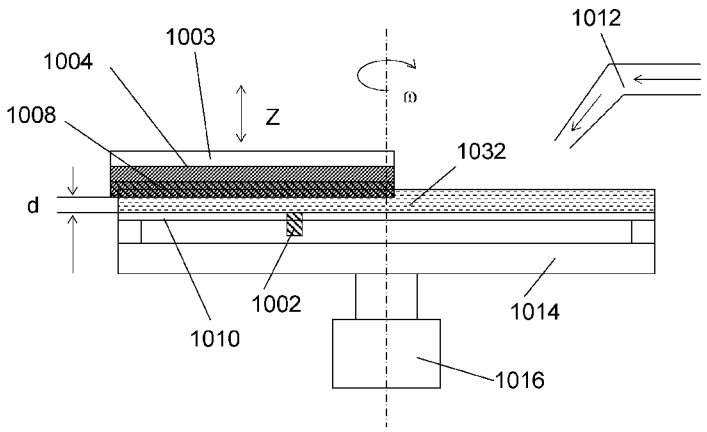


Fig. 1 A

(57) Abstract: A method for cleaning a semiconductor substrate (1010) using an ultra/mega sonic device (1003) is provided. The method comprises holding a semiconductor substrate (1010) by using a chuck (1014); positioning an ultra/mega sonic device (1003) adjacent to the semiconductor substrate (1010); injecting chemical liquid (1032) on the semiconductor substrate (1010) and into a gap between the semiconductor substrate (1010) and the ultra/mega sonic device (1003) by using at least one nozzle (1012); and changing the gap between the semiconductor substrate (1010) and the ultra/mega sonic device (1003) for each rotation of the chuck (1014) during the cleaning process by turning the semiconductor substrate (1010) or the ultra/mega sonic device (1003) clockwise or count clockwise. An apparatus for cleaning a semiconductor substrate (1010) using an ultra/mega sonic device (1003) is also provided.

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