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(71) Applicant: **TOKYO ELECTRON LIMITED** [JP/JP], TBS Broadcast Center, 3-6, Akasak 5-chome, Minato-ku, Tokyo 107 (JP)

(71) Applicant *(for JP only)*: **TOKYO ELECTRON ARIZONA, INC.** [US/US], 2120 W Guadalupe Road, Gilbert, AZ 85233-8205 (US)

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **COOMER, Stephen, D.** [US/US], 7347 South Willow Drive, Tempe, AZ 85283-5009 (US). **KOPACZ, Stanislaw** [US/US], 4630 Evans Drive, Phoenix, AZ 85032 (US). **REYNOLDS, Glyn** [GB/US], 2200 W San Angelo St. #1176, Gilbert, AZ 85233 (US). **LOMBARDI, Michael, James** [US/US], 1541 W Saltsage Drive, Phoenix, AZ 85045 (US) **VISCONTI, Todd, Michael** [US/US], 5102 E. Piedmont Road, No. 1208, Phoenix, AZ 85044 (US)

(74) Agents: **FREI, Donald, F.** et al., Wood, Herron & Evans, L.L.P., 2700 Carew Tower, Cincinnati, OH 45202 (US).

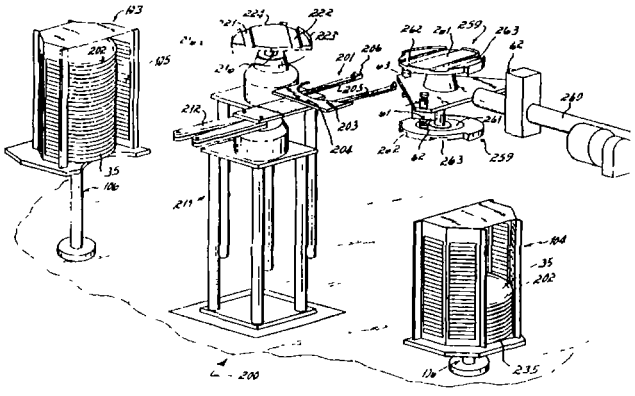
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(54) Title: REDUCED EDGE CONTACT WAFER HANDLING SYSTEM AND METHOD OF RETROFITTING AND USING SAME

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(57) Abstract: A wafer handling system (200) and a method of retrofitting the system to an existing wafer handling apparatus (100) are provided that make possible a method of handling wafers (35) by contacting only a narrow area (202) of not more than two millimeters wide adjacent the edge of the wafer, which is particularly useful for backside deposition where device side contact defines an area of exclusion (202) that renders the wafer unusable in that area. The system (200) provides a chuck (201) on a wafer transfer arm (212) that holds a wafer by gravity on a segmented, upwardly facing annular surface (207, 208). A compatible annular surface (223) is provided on an aligning station chuck (216) so that wafers can be transferred by contact only with the exclusion area (202) of the wafer surface. A load arm (260) has two similarly compatible chucks (259) further provided with pneumatically actuated grippers (270) to allow the wafer to be loaded into a vertical processing apparatus (10). The wafer chucks (201, 216, 259) are retrofitted into a processing apparatus (100) in place of vacuum chucks and the vacuum lines that were provided to activate them are used for wafer detection. The electrical signals that were provided for vacuum chuck commands are utilized to actuate the grippers (270) on the transfer arm (260) so that no control software and little hardware need be altered for the retrofit.

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