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(54) Title: **EDGE COUPLER HAVING SUSPENDED WAVEGUIDE WITH IMPROVED MECHANICAL RIGIDITY**

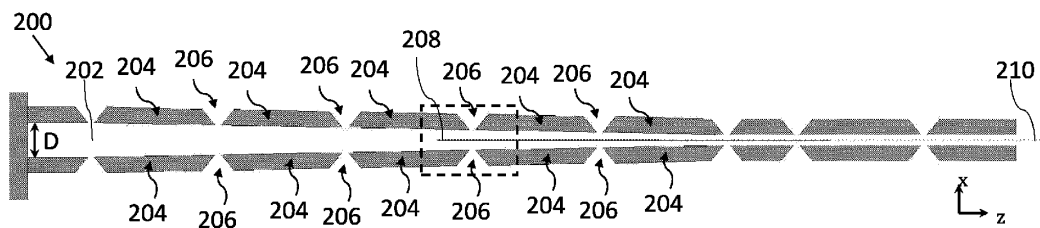


FIG. 2A

(57) **Abstract:** The present disclosure relates generally to photonic edge coupler comprising a suspended waveguide having a longitudinal direction and a lateral direction, the suspended waveguide arranged between two longitudinal rows of periodic isolation trenches; an outer cladding; a plurality of lateral support rods arranged between the isolation trenches and interconnecting the suspended waveguide and the outer cladding; a silicon substrate having a cavity in fluid communication with the isolation trenches, wherein the waveguide and the support rods are suspended over the cavity, wherein the outer cladding is supported by the substrate; and an inverse taper of a second waveguide which is embedded in the first waveguide, wherein each support rod includes a footprint having a first edge width interfacing the suspended waveguide, and a second edge width interfacing the outer cladding, wherein the second edge width is larger than the first edge width.

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