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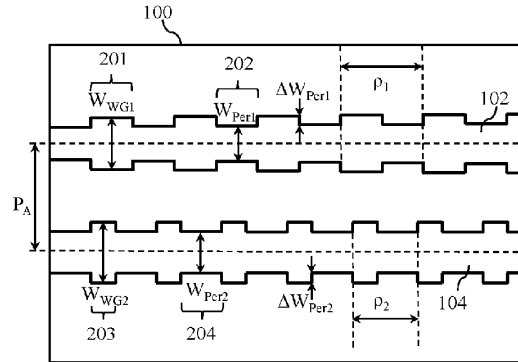


FIGURE 2

(57) Abstract: This document describes a waveguide antenna array for use in an optical phased array (OPA) such that the OPA is able to achieve a wide field of view and grating-lobe-free far field projection. The waveguide antenna array comprises a first waveguide antenna having periodic perturbations comprising first waveguide sections and first perturbed sections, a second waveguide antenna having periodic perturbations comprising second waveguide sections and second perturbed sections. A pitch between the first and second waveguide antenna is equal or less than half an operating wavelength of an optical signal to be received by the waveguide antenna array. A width of the first waveguide section is different from a width of the second waveguide section. The perturbation period of the first waveguide antenna is different from the perturbation period of the second waveguide antenna.

