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(54) **Title:** COHERENT OPTICAL DETECTOR HAVING A MULTIFUNCTIONAL WAVEGUIDE GRATING

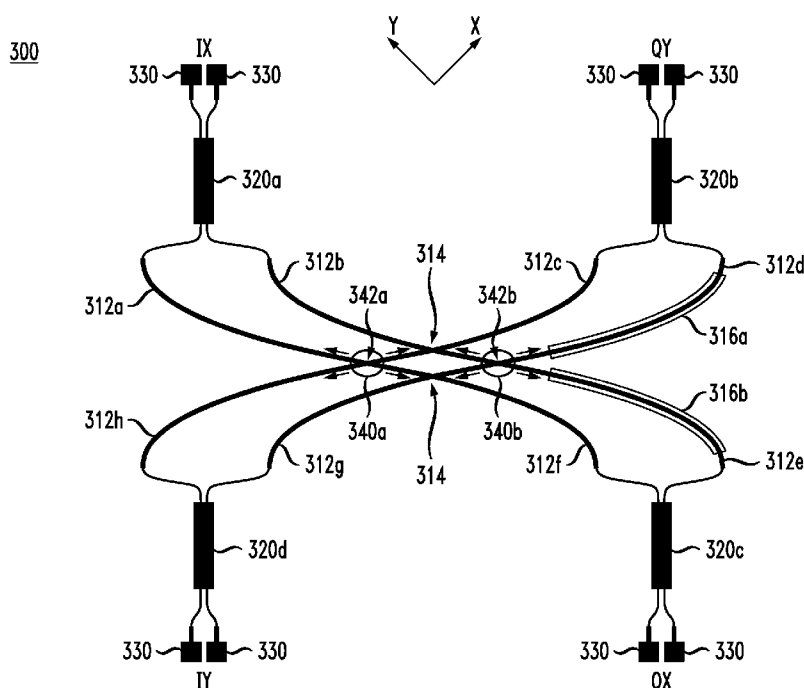


FIG. 3

(57) **Abstract:** A coherent optical detector having a waveguide circuit, in which a plurality of waveguides are connected to a waveguide grating. In a representative embodiment, the waveguide grating serves at least three different functions, e.g., those of a fiber-optic coupler, a polarization splitter, and two power splitters, one for each of two orthogonal polarizations. Various embodiments of the coherent optical detector can be used to demodulate various forms of polarization-division-multiplexed (PDM) QAM- and/or PSK-modulated optical communication signals.