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(54) Title: INTEGRATED OPTICAL WAVEGUIDE INTERFEROMETRIC SENSOR

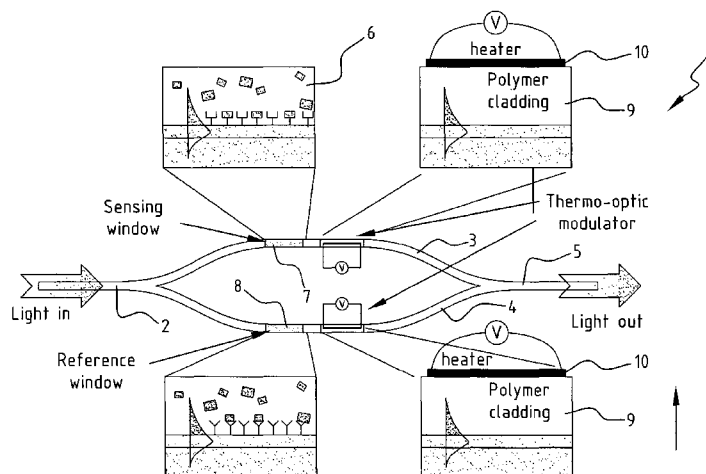


FIG. 3

(57) **Abstract:** Integrated optical waveguide interferometer for evanescent sensing of chemical and/or physical quantities, comprising a substrate carrying a waveguide layer structure provided with: - a first waveguide core layer sandwiched between two first cladding layers formed by a first lower and a first upper (6) cladding layer, of a lower refractive index than the first waveguide core layer, - a second waveguide core layer sandwiched between two second claddings layers formed by a second lower and a second upper (6) cladding layer, of a lower refractive index than the second waveguide core layer, - a splitter (2) and a combiner (5) for optically coupling said first and second waveguide core layers at first and second junctions, respectively, characterized by - a modulation section of a polymer cladding material (9) included in one of the first upper cladding layers (6) and/or included in one of the second upper cladding layers (6), the polymer cladding material covering an identifiable area of said first waveguide core layer and/or said second waveguide core layer between the first and second junctions, said polymer cladding material having an index of refraction between 1.46 and 2.5 that varies with temperature, thereby changing the phase of radiation propagating through said first and second waveguide core layers, means (10) for raising and lowering the temperature of said polymer cladding material (9).