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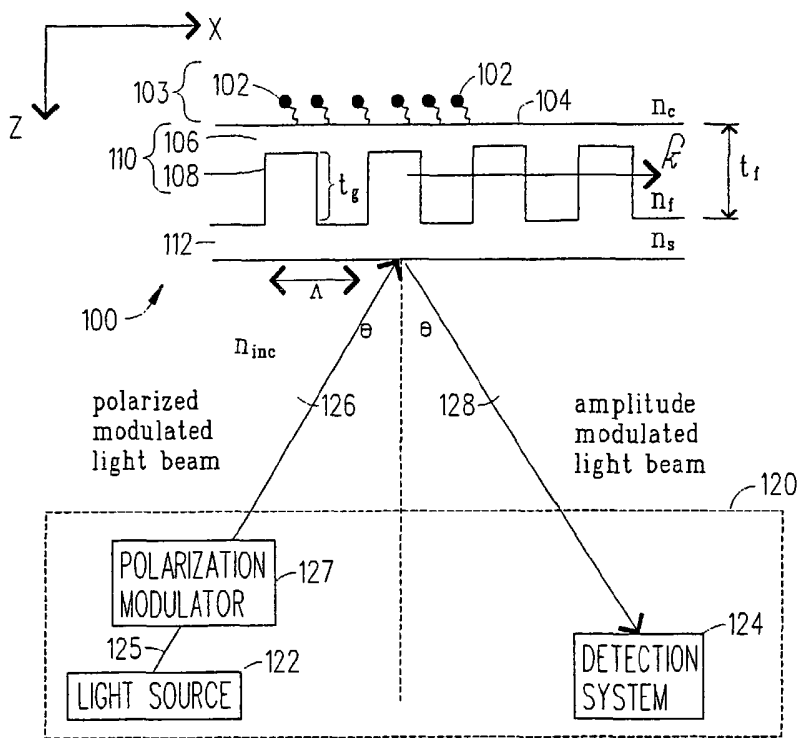
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(54) Title: POLARIZATION MODULATION INTERROGATION OF GRATING-COUPLED WAVEGUIDE SENSORS



(57) Abstract: An optical interrogation system and a GCW sensor are described herein that are used to determine whether a biological substance (e.g., cell, molecule, protein, drug) is located in a sensing region of the GCW sensor. The optical interrogation system includes a light source, a polarization modulator and a detection system. The light source outputs a polarized light beam and the polarization modulator modulates the polarized light beam and outputs a polarization-modulated light beam. The GCW sensor receives and converts the polarization-modulated light beam into an amplitude modulated light beam that is directed towards the detection system. The detection system receives the amplitude modulated light beam and demodulates the received amplitude modulated light beam by responding to signals at a modulation frequency of the polarization-modulated light beam and ignoring noise affecting the signals outside the modulation

frequency to detect a resonant condition (e.g., resonant angle, resonant wavelength). The detected resonant condition that has a one-to-one relationship with the refractive index of the superstrate containing the biological substance is analyzed to determine whether or not the biological substance is located in the sensing region of the GCW sensor.

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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 738 825 A (PFEFFERKORN ROLAND ET AL) 14 April 1998 (1998-04-14) abstract; figure 3 -----	1, 2, 30, 31
X	US 6 455 004 B1 (TIEFENTHALER KURT) 24 September 2002 (2002-09-24) abstract -----	1, 2, 30, 31
X	US 5 479 260 A (FATTINGER CHRISTOF) 26 December 1995 (1995-12-26) abstract -----	1, 2

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Patent family members are listed in annex.

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