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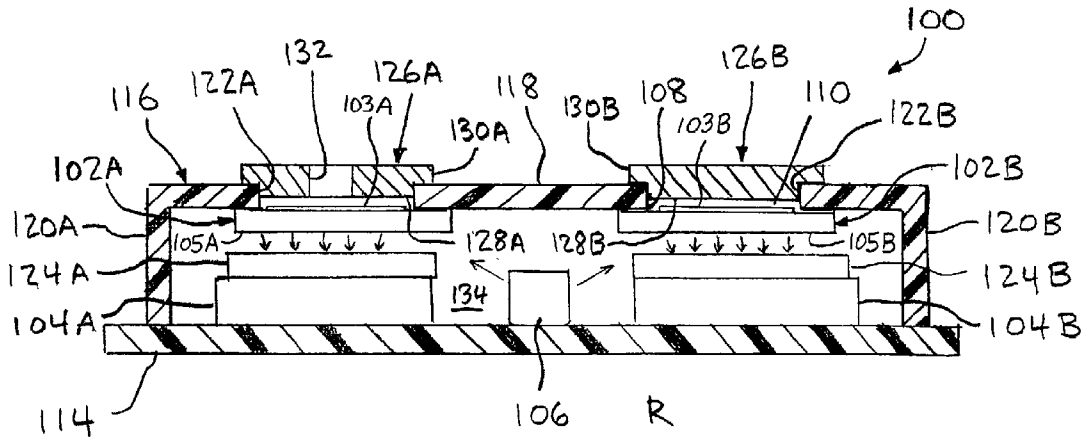
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(54) Title: ELECTRO-OPTICAL SENSING DEVICE WITH REFERENCE CHANNEL



(57) Abstract: An electro-optical sensing device for detecting the presence and concentration of an analyte in a liquid or gaseous medium includes a pair of indicator elements positioned to receive radiation from a radiation source and transmit radiation to a pair of photosensitive elements. The indicator elements each contain indicator molecules having an optical characteristic responsive to the presence of an analyte; however, one of the indicator elements is covered by an analyte-impermeable chamber that renders the indicator element insensitive to the presence of the analyte in the medium outside the chamber so that it can be used as a reference to cancel environmental and systemic variables that affect both indicator elements. The chamber preferably holds an analyte-containing fluid in contact with the reference indicator element so that the indicator elements operate under nominally identical conditions. The indicator element used to measure the analyte in the external medium is preferably also covered, but in a manner that provides direct contact between the analyte and the indicator element.

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