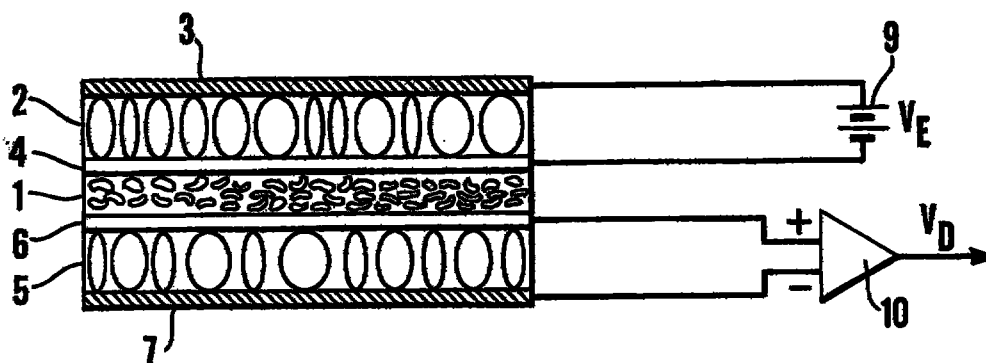




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(54) Title: OPTICAL LOGIC ELEMENT AND METHODS FOR RESPECTIVELY ITS PREPARATION AND OPTICAL ADDRESSING, AS WELL AS THE USE THEREOF IN AN OPTICAL LOGIC DEVICE



(57) Abstract

In a multistable optical logic element with a light-sensitive organic material (1) which undergoes a photocycle with several physical states by irradiation with light, and wherein a physical state is assigned a logical value which can be changed by addressing the element optically, the element initially before the addressing is in a metastable state generated in advance. A multistable optical logic element has been made proximity-addressable by providing at least a colour light source (1) for optical addressing and at least one colour-sensitive optical detector (5) adjacent to the light-sensitive material. In a method for preparing of the light-sensitive material (1) a desired initial metastable state is generated in the photocycle and assigned a determined logical value for the element. In a method for optical addressing of the optical logic element steps for respectively writing and storing, reading, erasing and switching comprises generating transitions between states in the photocycle and detection of the states. Use in an optical logical device for storing and processing of data.