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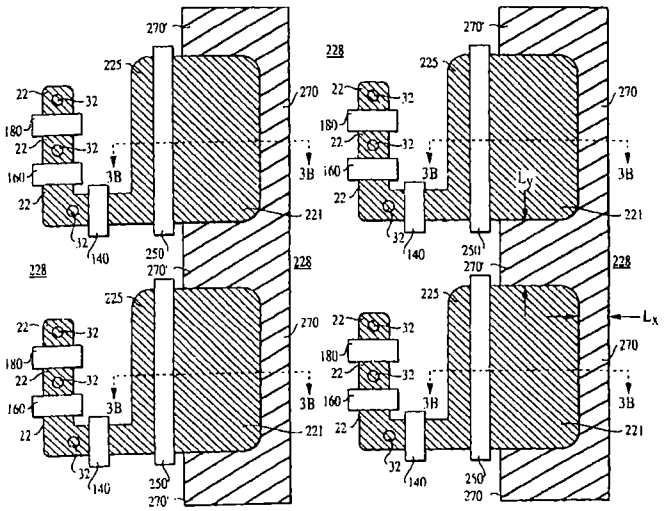
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(54) Title: GROUNDED GATE AND ISOLATION TECHNIQUES FOR REDUCING DARK CURRENT IN CMOS IMAGE SENSORS



(57) Abstract: Isolation methods and devices for isolating regions of a semiconductor device. The isolation structure and methods include forming a biased gate over a field isolation region and adjacent a pixel of an image sensor. The isolation methods also include forming an isolation gate over substantial portions of a field isolation region to isolate pixels in an array of pixels. The isolation method and structure further include forming an isolating trench in an active area and filling the trench with a doped conductive material containing silicon. There is also provided a method and structure for isolating the regions by providing a trench in an active area of a substrate, growing an epitaxial layer in the trench to fill the trench or to partially fill the trench and depositing an insulating material over the epitaxial layer and within the trench to completely fill the trench.

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