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(54) Title: PHOTODETECTOR AND UPCONVERSION DEVICE WITH GAIN (EC)

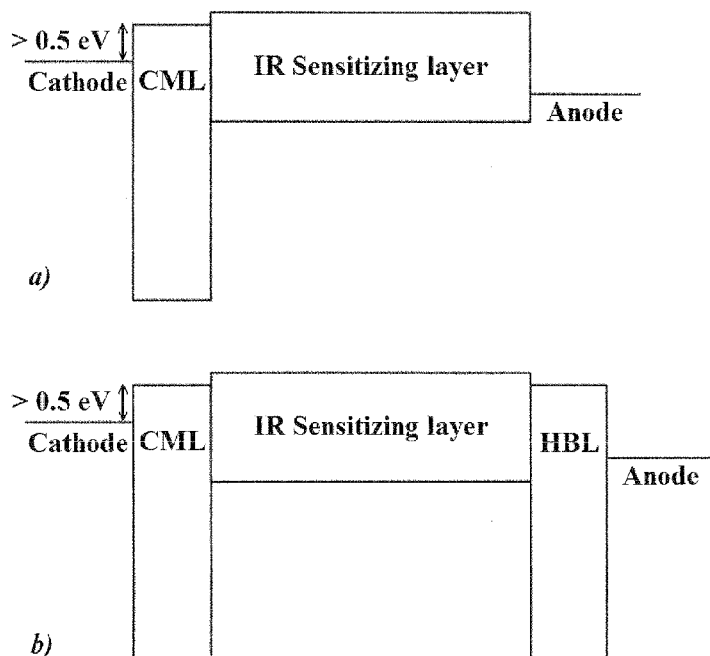


Figure 1

(57) Abstract: Embodiments of the invention are directed to IR photodetectors with gain resulting from the positioning of a charge multiplication layer (CML) between the cathode and the IR sensitizing layer of the photodetector, where accumulating charge at the CML reduces the energy difference between the cathode and the CML to promote injection of electrons that result in gain for an electron only device. Other embodiments of the invention are directed to inclusion of the IR photodetectors with gain into an IR-to-visible upconversion device that can be used in night vision and other applications.



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