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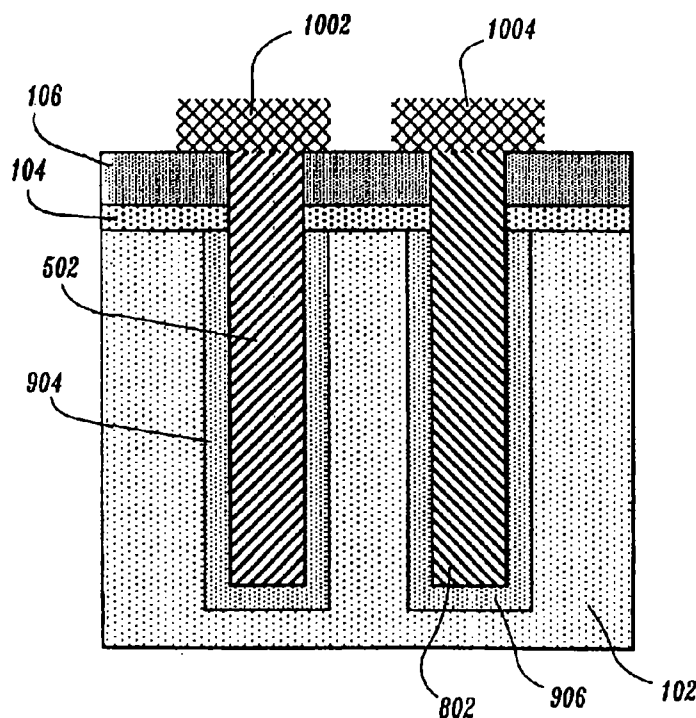
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(54) Title: METHODS FOR FORMING LATERAL TRENCH OPTICAL DETECTORS



(57) **Abstract:** A method for forming an optical detector device on a semiconductor substrate (102). The method includes forming a first set and a second set of trenches in the substrate (102), wherein trenches of the first set are alternately disposed with respect to trenches of the second set, filling the trenches with a sacrificial material (202), and etching the sacrificial material (202) from the first set of trenches. The method further includes filling the first set of trenches with a doped material (502) of a first conductivity, etching the sacrificial material (202) from a second set of trenches, filling the second set of trenches with a doped material (802) of a second conductivity, forming a first junction layer (904) by driving dopants from the doped material (502) in each of the first set of trenches and forming a second junction layer (906) by driving dopants from the doped material (802) in each of the second set of trenches, and providing separate wiring connections (1002, 1004) to the first set of trenches and the second set of trenches. The first and second set of trenches are formed simultaneously.

WO 02/067339 A1



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