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**Chen et al.**

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(54) **PROTECTION DEVICE AND RELATED FABRICATION METHODS**

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| ***H01L 29/66*** | (2006.01) |
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See application file for complete search history.

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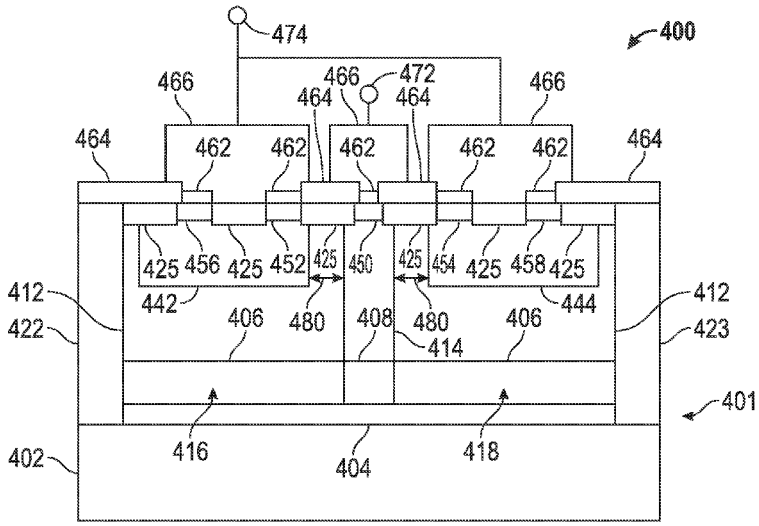
(57) **ABSTRACT**

Protection device structures and related fabrication methods are provided. An exemplary semiconductor protection device includes a base region of semiconductor material having a first conductivity type, an emitter region within the base region having the opposite conductivity type, and a collector region of semiconductor material having the second conductivity type, wherein at least a portion of the base region resides between the emitter region and the collector region. A depth of the collector region is greater than a depth of the emitter region and less than or equal to a depth of the base region such that a distance between a lateral boundary of the emitter region and a proximal lateral boundary of the collector region is greater than zero and the collector region does not overlap or otherwise underlie the emitter region.

**20 Claims, 9 Drawing Sheets**