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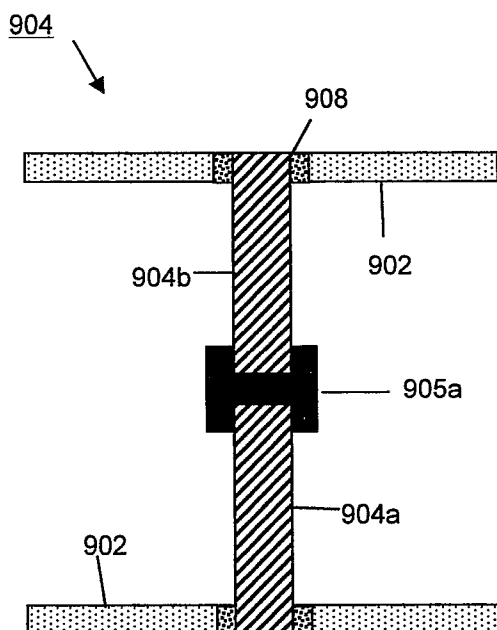
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- (54) Title:** EM RECTIFYING ANTENNA SUITABLE FOR USE IN CONJUNCTION WITH A NATURAL BREAKDOWN DEVICE



(57) Abstract: A rectenna capable of power conversion from electromagnetic (EM) waves of high frequencies is provided. In one embodiment, a rectenna element generates currents from two sources -- based upon the power of the incident EM wave and from an n-type semiconductor, or another electron source attached to a maximum voltage point of an antenna element. The combined current from both sources increases the power output of the antenna, thereby increasing the detection sensitivity of the antenna of a low power signal. Full wave rectification is achieved using a novel diode connected to a gap in the antenna element of a rectenna element. The diode is conductive at forward bias voltage or reverse bias voltage, and rectifies the antenna signal generated by the desired EM wave received by antenna. raise from The rectenna element of the present invention may be used as a building block to create large rectenna arrays.