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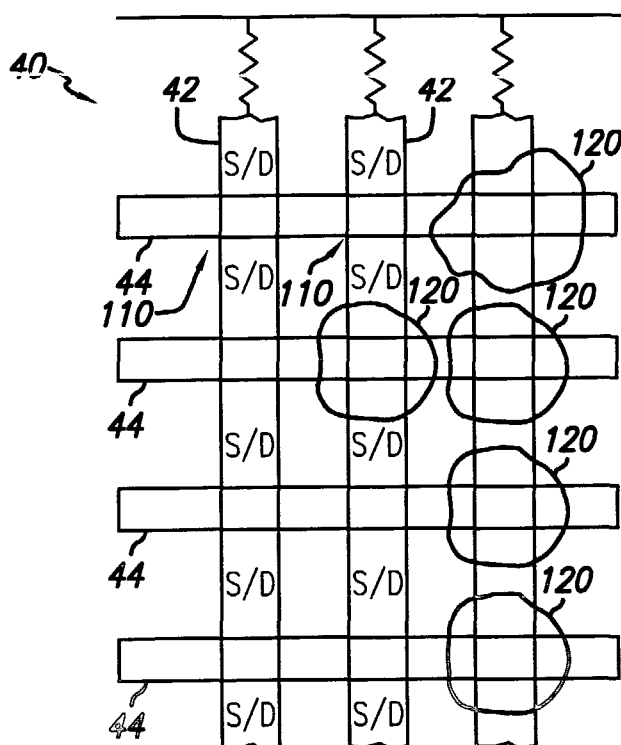
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(54) Title: **MOLECULAR WIRE CROSSBAR FLASH MEMORY**



(57) Abstract: A nano-scale flash memory comprises: (a) source and drain regions in a plurality of approximately parallel first wires, the first wires comprising a semiconductor material, the source and drain regions separated by a channel region; (b) gate electrodes in a plurality of approximately parallel second wires, the second wires comprising either a semiconductor material or a metal, the second wires crossing the first wires at a non-zero angle over the channel regions, to form an array of nanoscale transistors; and (c) a hot electron trap region at each intersection of the first wires with the second wires. Additionally, crossed-wire transistors are provided that can either form a configurable transistor or a switch memory bit that is capable of being set by application of a voltage. The crossed-wire transistors can be formed in a crossbar array.



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