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(54) Title: TRANSISTOR-FREE LOGIC GATE AND CHIP DEVELOPMENT IN ARTIFICIAL 2D HONEYCOMB MAGNETIC MATERIAL

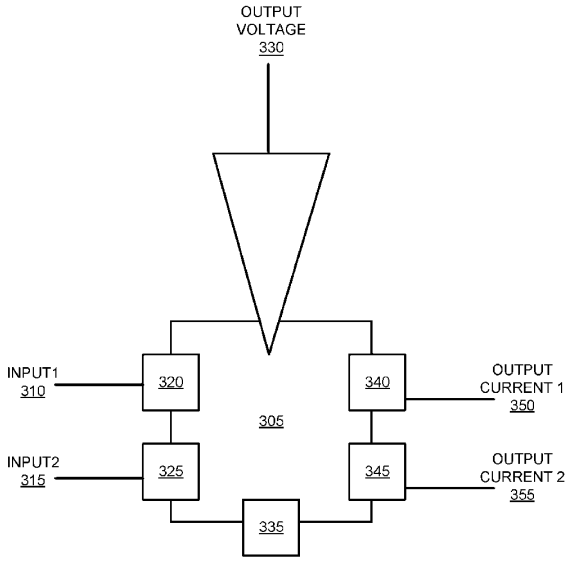


FIGURE 3

(57) Abstract: A magnetic artificial honeycomb lattice is provided. The magnetic artificial honeycomb lattice includes a multiplicity of connecting elements separated by hexagonal cylindrical pores. The (a) hexagonal cylindrical pores (i) have widths that are substantially uniform; and (ii) are substantially equispaced. The (b) connecting elements includes a magnetic material layer. The connecting elements have: (i) lengths that are substantially uniform; (ii) widths that are substantially uniform; and (iii) a thickness of the magnetic material layer that is substantially uniform and an average thickness. The magnetic artificial honeycomb lattice is configured to receive two input currents and configured to output an output voltage based upon the two input currents.

[Continued on next page]

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