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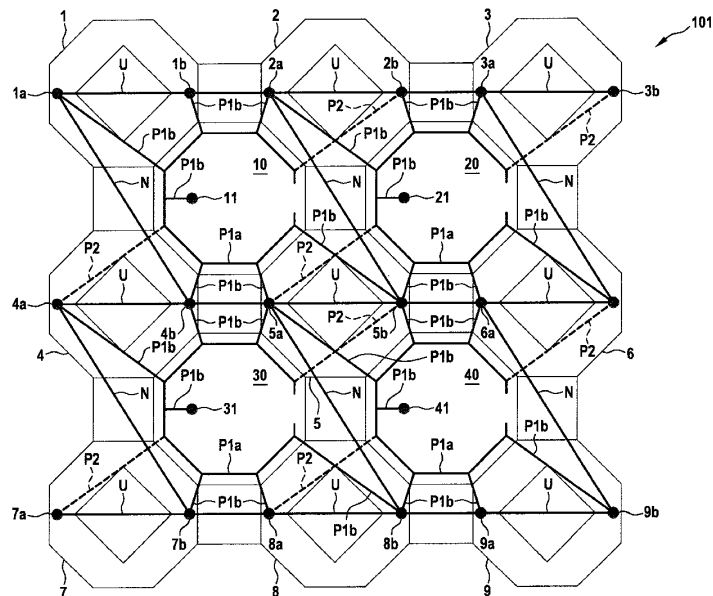
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(54) Title: QUANTUM CHIP OF QUBITS

Fig. 1a



(57) Abstract: A quantum chip (101, 102, 103, 104) of qubits comprising a number of at least two superimposed layers, wherein a plurality of unit cells (1-9) is located at vertices of a lattice structure, said lattice comprises said vertices and defines a plurality of edges connecting neighboring vertices and a plurality of plaquettes, each plaquette being surrounded by a plurality of vertices, wherein each unit cell (1-9) of the plurality of unit cells (1-9) comprises a plurality of data qubits (1a, b, c, d, e, f - 9a, b, c, d, e, f) having connectivity between themselves, wherein each pair of neighboring unit cells (1-9) on the lattice has connectivity between at least one data qubit of one unit cell of the pair and at least one data qubit of another unit cell of the pair, said quantum chip (101, 102, 103, 104) further comprising for at least one plaquette (10, 20, 30, 40) of said lattice at least one syndrome qubit (11, 21, 31, 41), wherein there is connectivity between said at least one syndrome qubit (11, 21, 31, 41) and at least one data qubit of the unit cells at the vertices

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surrounding said plaquette (10, 20, 30, 40), wherein the connectivity of the quantum chip (101, 102, 103, 104) is distributed over at least two of the layers, and the data and syndrome qubits (1a, b, c, d, e, f - 9a, b, c, d, e, f; 11, 21, 31, 41) are located on at least one of the layers.