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(54) **Title:** A QUANTUM PROCESSING SYSTEM

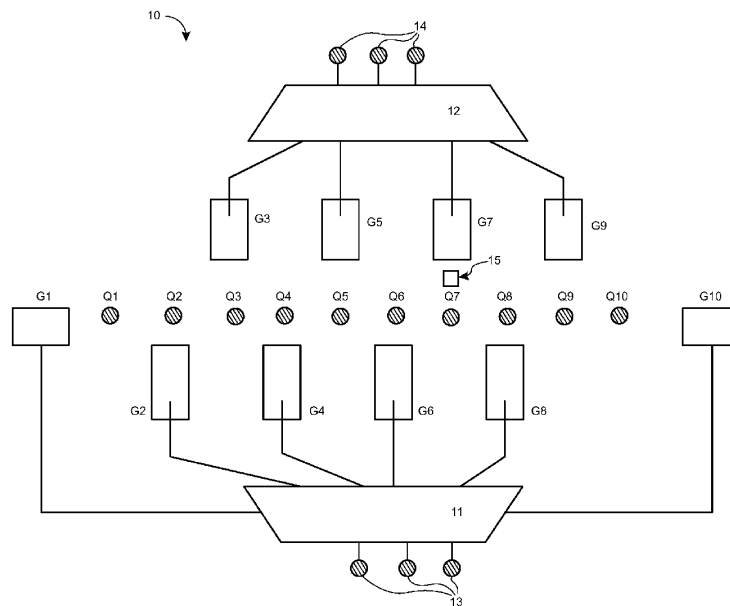


FIG. 1

(57) **Abstract:** Aspects of the present disclosure are directed to quantum processing systems that include a plurality of donor atom qubits positioned in a semiconductor substrate. The system also comprises a plurality of control gates configured to control the donor atom qubits. The system further comprises an SLQD charge sensor fabricated on/in the semiconductor substrate. The SLQD charge sensor is configured to sense spin-states of two or more donor atom qubits, which are positioned within a sensing range of the SLQD charge sensor.

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