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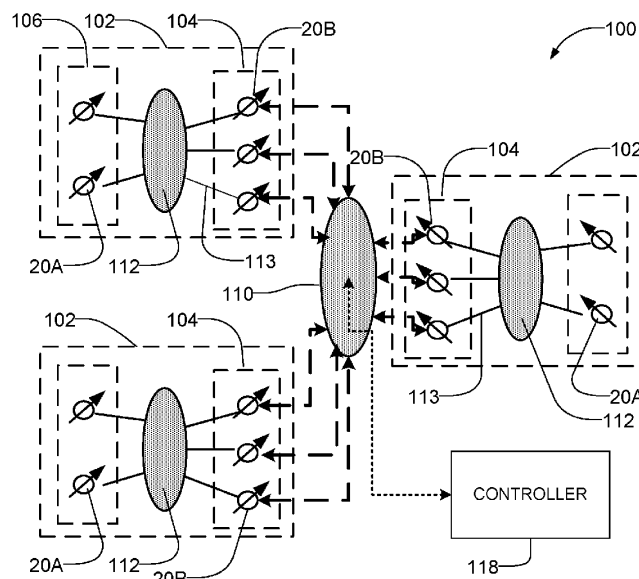


FIG. 1

(57) **Abstract:** A nested network includes plural nodes that each includes higher and lower level quantum systems. An intra-node optical network is configurable to interconnect the quantum systems of each of the nodes. An inter-node optical network is configurable to interconnect the higher level quantum systems of the plural nodes. The higher level quantum systems are selectively connectable to the intra-node optical network or the inter-node optical network. Each quantum system may include one or more broker qubits and one or more client qubits. Entanglement of quantum systems in different nodes may be made by making parallel attempts to entangle quantum states of pairs of the higher level quantum systems and, upon successful entanglement of one pair transferring the entanglement to lower level quantum system of each node.

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