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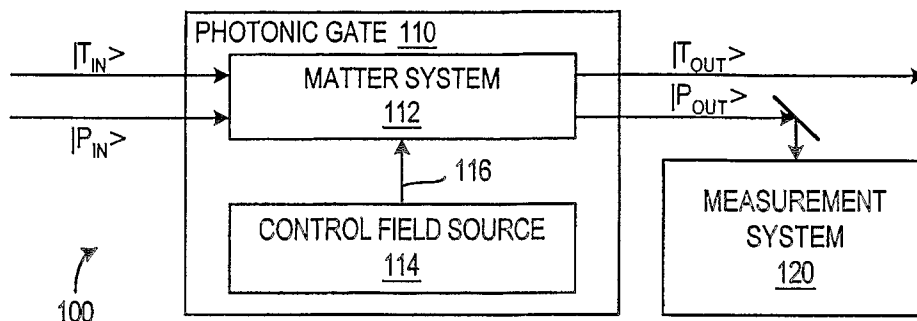
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(54) Title: PHOTON NUMBER RESOLVING SYSTEMS AND METHODS



(57) **Abstract:** Photon resolving detectors with near unit detection efficiency distinguish between a target state including n photons and a target state including $n+1$ photons by measuring a change such as a phase shift or attenuation that a probe photon state receives in a quantum gate. The detection does not destroy the photons from the target state, so that photons can be used after detection. A system using a non-destructive detector in conjunction with one or more single photon storage system can store a determined number of photons and release one or more stored photons when required to produce a photon state including a determined number of photons.

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