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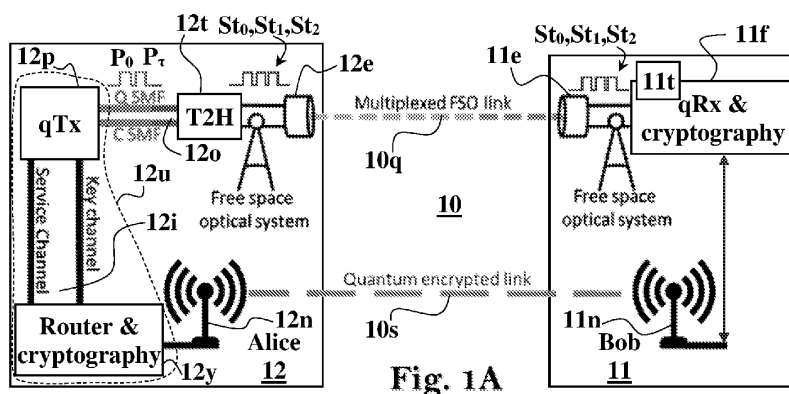
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(57) Abstract: Techniques for converting photon state polarization by passing time-bin and phase states encoded photons through an imbalanced interferometer configured to generate a first optical pulse signal responsive to a first time-bin of the time -bin and phase states encoded photon emerging through a short arm of the imbalanced interferometer, a second optical pulse signal responsive to an interference pattern between the first time -bin emerging through a long arm of the imbalanced interferometer and a second time -bin of the time-bin and phase states encoded photon emerging through said short arm, and a third optical pulse signal responsive to the second time -bin emerging through the long arm of the imbalanced interferometer, and setting orthogonal polarization orientations to light components from the imbalanced interferometer to thereby generated hybrid time-bin and polarization states encoded photons.

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