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(54) Title: OPTICAL POINTING AND TRACKING SYSTEM

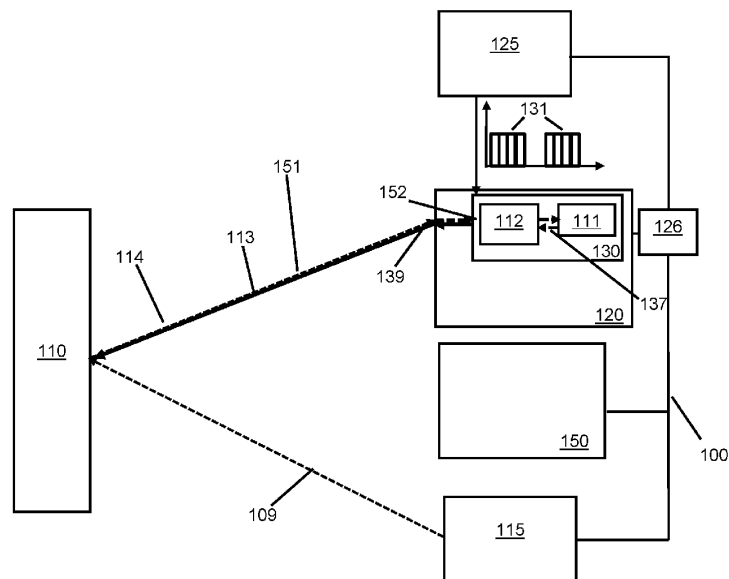


FIG. 1

(57) Abstract: A system comprises a probe laser device configured to transmit a probe pulse towards an object, thereby obtaining a reflected probe pulse, a reorientation module including a film polarizer, a medium and a phase conjugate mirror, wherein a path of the reflected probe pulse from its reflection to the film polarizer is designated as a reflected probe path, wherein the reorientation module is operative to use the phase conjugate mirror to generate a phase conjugated reflected probe pulse, which is phase conjugated with the reflected probe pulse, receive, by the medium, the phase conjugated reflected probe pulse, and sequentially, a plurality of pump laser pulses, thereby generating, in the medium, a grating, reflect, using the grating, the plurality of pump laser pulses as a plurality of reoriented pump laser pulses each exiting the film polarizer along a path coinciding with the reflected probe path, to illuminate the object.

[Continued on next page]

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