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(54) Title: APPARATUS AND METHOD FOR LASER RANGE-FINDING

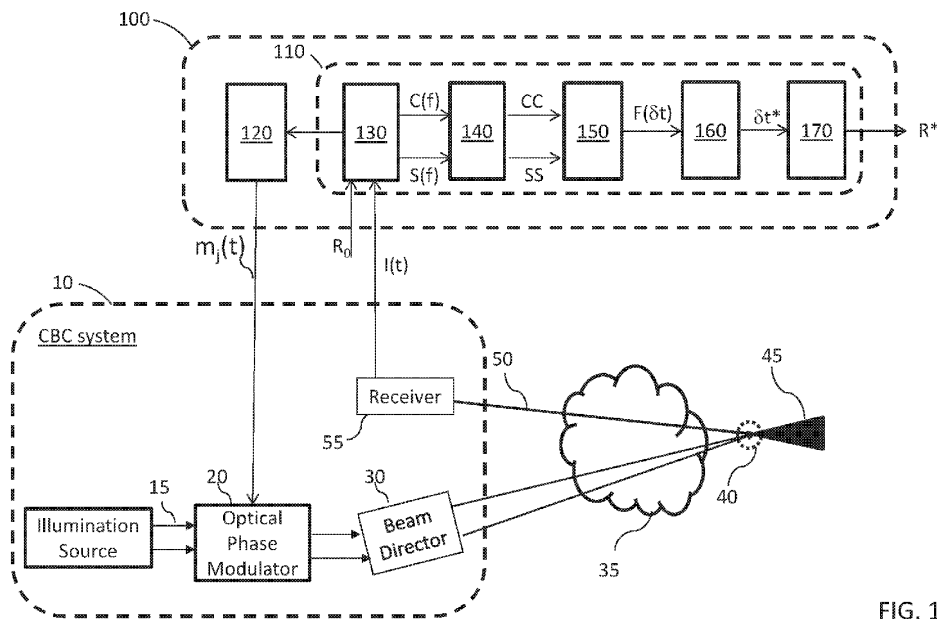


FIG. 1

(57) Abstract: A range-finding apparatus and method for measuring the range of a target illuminated by a coherent beam combining (CBC) system having at least two partially coherent sub-beams. The apparatus includes a phase modulation controller and a signal processor. The controller provides one or more optical phase modulation signals to the CBC system. The signal processor receives an initial measurement of target range, provided by either the CBC system or an external range-finding device and having a relatively large uncertainty, and a time-varying received intensity signal provided by the CBC system. The signal processor calculates frequency components of the intensity signal, forms rotated frequency components corresponding to a time-of-flight correction, calculates an objective function depending upon the rotated frequency components, determines a global minimum of the objective function, and calculates a corrected measurement of target range having an uncertainty which is less than that of the initial measurement of target

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