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United States Patent [19] Erskine

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[54] **SINGLE AND DOUBLE SUPERIMPOSING INTERFEROMETER SYSTEMS**

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[*] Notice: This patent is subject to a terminal disclaimer.

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[51] **Int. Cl.**⁷ **G01B 9/02**

[52] **U.S. Cl.** **356/345; 356/28.5; 356/352**

[58] **Field of Search** 356/345, 346, 356/351, 352, 357, 359, 28.5

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[57] **ABSTRACT**

Interferometers which can imprint a coherent delay on a broadband uncollimated beam are described. The delay value can be independent of incident ray angle, allowing interferometry using uncollimated beams from common extended sources such as lamps and fiber bundles, and facilitating Fourier Transform spectroscopy of wide angle sources. Pairs of such interferometers matched in delay and dispersion can measure velocity and communicate using ordinary lamps, wide diameter optical fibers and arbitrary non-imaging paths, and not requiring a laser.

32 Claims, 34 Drawing Sheets

