

United States Patent [19]

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Jubinski

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[54] **OPTICAL GONIOMETER CONTAINING IMMISCIBLE FLUIDS HAVING DIFFERENT REFRACTIVE INDICES**

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[52] U.S. Cl. **250/227; 250/231 SE; 33/379; 350/96.15**

[58] Field of Search **250/227, 577, 231 SE; 356/141, 152, 249, 128, 133; 350/96.15, 96.32; 73/293; 33/379, 389; 116/202, DIG. 5, 26, 13**

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[57] ABSTRACT

An optical encoding goniometer includes a rotatable chamber containing unequal volumes of two immiscible fluids having different indices of refraction and different densities. A plurality of optical fibers are bent to a critical radius and mounted in the chamber. The fiber cladding is exposed in different desired patterns along the bent fibers. The transmissivities of the respective fibers are measured as a function of the angular rotation of said chamber, the transmissivities of the fibers being governed by the radiation bending loss due to immersion of the exposed cladding in one of the two fluids.

24 Claims, 8 Drawing Figures

