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Bastianini

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(54) **APPARATUS FOR INTERROGATING DISTRIBUTED STIMULATED BRILLOUIN SCATTERING OPTICAL FIBRE SENSORS USING A QUICKLY TUNEABLE BRILLOUIN RING LASER**

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See application file for complete search history.

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(57) **ABSTRACT**

Device for measuring the distribution of strain and/or temperature along an optical fiber through the analysis of the stimulated Brillouin scattering, characterized by the fact that both the “optical pump” light from which the scattered energy is derived, and the “stimulus” or “probe” light that stimulates the scattering process are both derived by the same ring-type tuneable optical circuit that at the same time amplifies the amplitude of the “optical pump” light and generates, through a controlled Brillouin amplified scattering, the “probe” light having the spectrum linewidth required for the measurement needs and a wavelength shift with respect to the “optical pump” light that is accurately and quickly tuneable and fully adjustable within the range that is needed for interrogating a distributed optical fiber sensor.

10 Claims, 6 Drawing Sheets

