

- [54] **LOW STRAIN OPTICAL FIBER COIL**
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[57] **ABSTRACT**

An optical fiber coil is formed by winding successive loops of a fiber in a toroidal helix to form a self-supporting ring. No coilform or adhesives are necessary, resulting in relaxed boundary conditions at the outside of the fiber jacket, and in an overall reduction of thermally-induced strain, as compared to existing coil constructions. One low-stress mounting includes a trellis or spoke-like frame structure which frictionally supports the coil about its circumference. Another mounting includes a bouyant bead support structure. In a third mounting, a filament suspends the coil from a frame. The coil may be suspended within an isothermal enclosure to further reduce thermal effects.

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**20 Claims, 3 Drawing Sheets**

