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# United States Patent [19]

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**Ruffa**

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[54] **TOW CABLE WITH CONDUCTING POLYMER JACKET FOR MEASURING THE TEMPERATURE OF A WATER COLUMN**

5,042,903	8/1991	Jakubowski	385/101
5,198,662	3/1993	Yamaguchi et al.	250/227.18
5,313,185	5/1994	DeChurch	338/22 R
5,468,913	11/1995	Seaman et al.	174/102 R

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[57] **ABSTRACT**

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A tow cable for measuring temperature in a water column comprising an optical fiber core, an electrically conducting polymer jacket concentrically superimposed over the cable core and a temperature sensor embedded in the electrically conducting polymer jacket. The superior heat transfer characteristics of the electrically conducting polymers allow the heat sensors to be embedded directly into the insulating polymer jacket.

[51] **Int. Cl.<sup>7</sup>** ..... G02B 6/44

[52] **U.S. Cl.** ..... 385/100; 385/101; 385/113

[58] **Field of Search** ..... 385/100-114; 250/227.18; 338/22 R; 174/102 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,577,925 3/1986 Winter et al. .... 385/100

**18 Claims, 1 Drawing Sheet**

