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(54) **DTS MEASUREMENT OF HV CABLE TEMPERATURE PROFILE**

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(58) **Field of Search** **374/130, 131, 374/141, 147, 148, 161; 250/227.14, 227.17, 227.18, 227.19; 356/44, 301**

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(57) **ABSTRACT**

A fiber optic cable is used as a distributed temperature sensing (DTS) transducer for temperature profile measurements in a protective underground duct in which a high voltage (HV) cable has already been laid. The sensing cable is not incorporated into the power cable itself, and in some installations does not have direct physical contact with the HV cable. The sensing cable is installed externally (along side) of the HV power cable, either in direct surface contact with the HV cable, or alternatively, the fiber optic sensing cable is installed in a small diameter guide tube that is placed in the upper annulus between the HV cable and the protective duct. The sensing fiber and one or more guide tubes are installed in a loose bundle at least in part by fluid drag forces (blowing with pressurized air) using conventional cable launching equipment. Large diameter guide tubes are placed on opposite sides of the HV cable in a wedging position that blocks shifting movement of the small guide tubes and optical fibers down into the lower cusp-shaped space between the HV cable and the protective duct.

5 Claims, 3 Drawing Sheets

