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**Parsonage**

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(54) **ABLATION CATHETERS AND SYSTEMS INCLUDING ROTATIONAL MONITORING MEANS**

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(58) **Field of Classification Search**  
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See application file for complete search history.

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(57) **ABSTRACT**

The present disclosure provides an improved ablation catheter. In particular, the present disclosure provides an improved renal denervation ablation catheter and system including a catheter handle and a means for tracking, monitoring, and/or recording the circumferential angular history of the renal denervation ablation catheter handle. The renal denervation ablation catheters in accordance with the present disclosure are well-suited for use with a renal denervation ablation system that can record the circumferential angular history of the renal denervation catheter handle, and hence the circumferential angular ablation history of the catheter electrode within a vessel, and use this data in combination with other known information to estimate the percent circumferential denervation of the vessel.

**20 Claims, 4 Drawing Sheets**

