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Guglielmi et al.

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[54] **DETACHABLE ENDOVASCULAR OCCLUSION DEVICE ACTIVATED BY ALTERNATING ELECTRIC CURRENT**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 311,508, Sep. 23, 1994, which is a continuation of Ser. No. 840,211, Feb. 24, 1992, Pat. No. 5,354,295, which is a continuation-in-part of Ser. No. 492,717, Mar. 13, 1990, Pat. No. 5,122,136.

[51] **Int. Cl.⁶** **A61B 17/39**

[52] **U.S. Cl.** **606/49; 606/32; 606/40**

[58] **Field of Search** **606/32, 41, 49, 606/40**

[56] References Cited

U.S. PATENT DOCUMENTS

5,122,136 6/1992 Guglielmi et al. 606/41
5,354,295 10/1994 Guglielmi et al. 606/32

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[57] ABSTRACT

An apparatus is provided for electrocoagulating blood and tissue at an occlusion site by means of application of an alternating signal or current through a detachable coil on the end of a microcatheter. A Guglielmi Detachable Coil (GDC) is preferably used in the combination with radio frequency energy to cause local heating at the coil. Once carbonization of blood at the detachment zone of the GDC coil occurs, the impedance of the entire system increases. The impedance increase is detected to automatically turn off the alternating current and then to apply a direct current to electrolytically detach the GDC coil from the microcatheter.

21 Claims, 1 Drawing Sheet

