US005725534A

United States Patent [19]

Rasmussen

[11] Patent Number: 5,725,534

[45] Date of Patent: Mar. 10, 1998

[54] **METHOD OF MANUFACTURING AN ASSEMBLY FOR POSITIONING AN EMBOLIZATION COIL IN THE VASCULAR SYSTEM, AND SUCH AN ASSEMBLY**

[75] Inventor: **Erik Edelboe Rasmussen**, Soeborg, Denmark

[73] Assignee: **William Cook Europe A/S**, Denmark

[21] Appl. No.: **484,854**

[22] Filed: **Jun. 7, 1995**

[30] **Foreign Application Priority Data**

Jan. 3, 1995 [DK] Denmark 0005/95

[51] **Int. Cl.**[6] **A61B 17/00**

[52] **U.S. Cl.** **606/108**; 128/772

[58] **Field of Search** 606/108; 128/772

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,994,069	2/1991	Ritchart et al. .	
5,122,136	6/1992	Guglielmi et al. .	
5,234,437	8/1993	Sepetka	606/108
5,250,071	10/1993	Palermo .	
5,267,573	12/1993	Evans et al.	128/772
5,273,042	12/1993	Lynch et al.	128/772
5,282,479	2/1994	Havran	128/772
5,297,546	3/1994	Spofford et al.	128/207.014
5,366,444	11/1994	Martin	128/772

FOREIGN PATENT DOCUMENTS

2684305	6/1993	France .
9003760	4/1990	WIPO .
9112836	9/1991	WIPO .
9205829	4/1992	WIPO .
WO9311823	6/1993	WIPO .
WO9311825	6/1993	WIPO .

OTHER PUBLICATIONS

Lund, Gunnar, M.D. et al. "Detachable Steel Spring Coils for Vessel Occlusion"; *Radiology*; May 1985, p. 530.

Primary Examiner—Robert A. Hafer
Assistant Examiner—Benjamin K. Koo
Attorney, Agent, or Firm—Richard J. Godlewski

[57] **ABSTRACT**

An assembly for positioning an embolization coil (**4**) in the vascular system. The assembly includes a guidewire having a relatively flexible distal section (**6**), which has a central core (**7**) and a threading coil (**10**), the distal turns (**11**) of which are arranged with such mutual spacing (**12**) that the embolization coil can be threaded in and out of the threading coil. The distal end section of the guidewire is manufactured with an elongated, rotationally symmetrical member, such as cylindrical member (**13**), and the peripheral surface of the member is provided with a bonding layer (**25**). Then the distal turns of the threading coil are positioned in the desired helical shape on the external side of the member, and the bonding layer is activated so that the distal turns are fixed to the member in this shape. The cylindrical member (**13**) has an outer diameter which is a fraction smaller than the inner diameter of the embolization coil (**4**) and has a length which is longer than the extent in the axial direction of the guidewire of at least three of the distal turns (**11**) of the threading coil. The distal turns of the threading coil are fixed to the external side of the member, so that the thread provided is geometrically stable and smooth-running.

8 Claims, 6 Drawing Sheets