



(12) **United States Patent**
Strecker

(10) **Patent No.:** **US 6,485,524 B2**
(45) **Date of Patent:** ***Nov. 26, 2002**

(54) **STENT FOR TREATING PATHOLOGICAL BODY VESSELS**

(76) **Inventor:** **Ernst-Peter Strecker**, Vierordt Str 7A, 76228 Karlsruhe (DE)

(*) **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/250,714**

(22) **Filed:** **Feb. 16, 1999**

(65) **Prior Publication Data**

US 2001/0003801 A1 Jun. 14, 2001

Related U.S. Application Data

(63) Continuation of application No. PCT/DE98/00226, filed on Jan. 24, 1998.

(30) **Foreign Application Priority Data**

Jan. 31, 1997 (DE) 197 03 482

(51) **Int. Cl.⁷** **A61F 2/06**

(52) **U.S. Cl.** **623/122; 623/1.15**

(58) **Field of Search** 623/1, 12, 1.15, 623/1.22, 1.51, 1.53, 1.54, 1.16; 606/194, 200

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,015,253 A * 5/1991 MacGregor 623/1
5,061,275 A * 10/1991 Wallsten et al. 623/1.22

5,116,365 A 5/1992 Hillstead 623/1
5,354,308 A 10/1994 Simon et al. 606/198
5,360,401 A 11/1994 Turnland et al. 604/96
5,395,390 A 3/1995 Simon et al. 606/198
5,405,377 A * 4/1995 Cragg 623/1

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

DE 44 07 079 A1 3/1994
DE 44 32 938 A1 9/1994
EP 0 556 850 A1 8/1993
EP 0 647 148 B1 6/1994
WO WO 92/05829 4/1992
WO WO 94/00179 1/1994
WO WO 95/18585 7/1995
WO WO 97/36556 10/1997

Primary Examiner—Corrine McDermott
Assistant Examiner—Brian E. Pellegrino
(74) *Attorney, Agent, or Firm*—RatnerPrestia

(57) **ABSTRACT**

A known method for treating pathological body vessels is the implantation of stents as an extended filament, by means of a catheter, which springs into a given form at the implantation site, as a result of its thermo-memory property or its elasticity. The invention relates to a new kind of stent, created in order to improve the flexibility and stability of the stent. This is achieved in that the stent filament or stent filaments are present in the form of at least two opposed spirals. The filament consists of a material with high elasticity or with thermo-memory properties. The stent can be covered with a structure made of pieces of fabric and/or fibers and serves in this way as a stent graft. The new stent demonstrates high stability and flexibility. The stent can be introduced into a body vessel by means of a catheter lumen, which essentially corresponds to the outside diameter of the filaments forming the stent which expands in the point of destination to a larger-lumen tube-shaped implant.

6 Claims, 13 Drawing Sheets

