



US007087034B2

(12) **United States Patent**  
**McPherson et al.**

(10) **Patent No.:** US 7,087,034 B2  
(45) **Date of Patent:** Aug. 8, 2006

(54) **VASCULAR SHUNT WITH AUDIO FLOW INDICATION**

(76) **Inventors:** William E. McPherson, 14605 Anchorct Rd., Tampa, FL (US) 33624; Walter Smithwick, 3500 Timuquana Rd., Jacksonville, FL (US) 32210

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 435 days.

(21) **Appl. No.:** 10/247,601

(22) **Filed:** Sep. 19, 2002

(65) **Prior Publication Data**

US 2004/0059278 A1 Mar. 25, 2004

(51) **Int. Cl.**

A61M 5/00 (2006.01)  
A61B 5/02 (2006.01)  
A61F 2/06 (2006.01)

(52) **U.S. Cl.** 604/8; 604/96.01; 600/504; 623/1.31

(58) **Field of Classification Search** 210/645-646, 210/739, 745, 746, 97; 604/4.01, 6.1, 6.16, 604/101.05, 96.01, 101.01, 101.03, 264, 604/66, 26-28, 509, 7-10, 118; 623/1.12, 623/1.25, 1.3, 1.31; 73/861.18; 600/485, 600/486, 500, 504, 301, 381

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,516,408 A \* 6/1970 Montanti ..... 604/8  
3,958,458 A \* 5/1976 Forcman et al. .... 73/861.18  
3,991,767 A \* 11/1976 Miller et al. .... 604/8  
4,230,119 A \* 10/1980 Blum ..... 606/194  
4,312,238 A 1/1982 Rey  
4,566,462 A 1/1986 Janssen

4,709,690 A 12/1987 Haber  
4,712,551 A 12/1987 Rayhanabad  
4,731,055 A \* 3/1988 Melnyshyn et al. .. 604/100.02  
4,986,276 A 1/1991 Wright  
5,259,386 A 11/1993 Sharkawy  
5,320,105 A 6/1994 Bonnefous et al.  
5,363,852 A \* 11/1994 Sharkawy ..... 600/461  
5,562,098 A 10/1996 Lerner  
5,957,866 A 9/1999 Shapiro et al.  
5,967,989 A 10/1999 Cimochoowski et al.  
6,086,557 A \* 7/2000 Morejohn et al. .... 604/96.01  
6,127,410 A 10/2000 Duhaylongsod  
6,153,109 A 11/2000 Krivitski  
6,398,764 B1 \* 6/2002 Finch et al. .... 604/284

**OTHER PUBLICATIONS**

Online Product brochure for HT331 Neurosurgery Flow-QC Meter, by Transonic Systems Inc. Rev. Feb. 9, 1999.

Product brochure for vascular products entitled *A proven concept in Vascular Surgery*, by Ideas for Medicine Inc. date unknown.

Ian L. Gordon, MD, PhD., et al., "Intraoperative Measurement of Javid Shunt Flow With Transit-time Ultrasound", *Annals of Vascular Surgery* vol. 8, No. 6, 1994, pp. 571-577.

\* cited by examiner

*Primary Examiner*—Patricia Bianco

*Assistant Examiner*—Leslie Deak

(74) *Attorney, Agent, or Firm*—Tarolli, Sandheim, Covell & Tummino LLP

(57) **ABSTRACT**

A vascular shunt apparatus (10) includes a tubular member having first and second end portions (16, 20) and an aperture extending through the first and second end portions (16, 20). A transducer (64) can be associated with the tubular member to provide a signal in response to the flow of fluid through the tubular member. One or both of the end portions (16, 20) also can be adapted to form respective sealing connections with different parts of a patient's vascular system.

**20 Claims, 3 Drawing Sheets**

