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Norred

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(54) **PERCUTANEOUS AORTIC VALVE  
REPLACEMENT**

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patent is extended or adjusted under 35  
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(58) **Field of Search** ..... 623/2.1, 2.12,  
623/2.13, 2.14, 2.18, 2.2, 2.22, 2.17

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,787,901 A \* 11/1988 Baykut ..... 623/2.1  
5,397,351 A \* 3/1995 Pavcnik ..... 623/2.1

5,413,599 A \* 5/1995 Imachi ..... 623/2.1  
5,545,215 A \* 8/1996 Duran ..... 623/2.1  
5,549,665 A \* 8/1996 Vesely ..... 623/2.1  
5,891,195 A \* 4/1999 Klostermeyer ..... 623/2.1  
5,957,949 A \* 9/1999 Leonhardt ..... 623/2.1  
6,027,525 A \* 2/2000 Suh ..... 623/2.1  
6,110,201 A \* 8/2000 Quijano ..... 623/2.1  
6,168,614 B1 \* 1/2001 Anderson ..... 623/12.2  
6,254,642 B1 \* 7/2001 Taylor ..... 623/12.2  
6,264,700 B1 \* 7/2001 Kilcoyne ..... 623/12.2

\* cited by examiner

*Primary Examiner*—Corrine McDermott

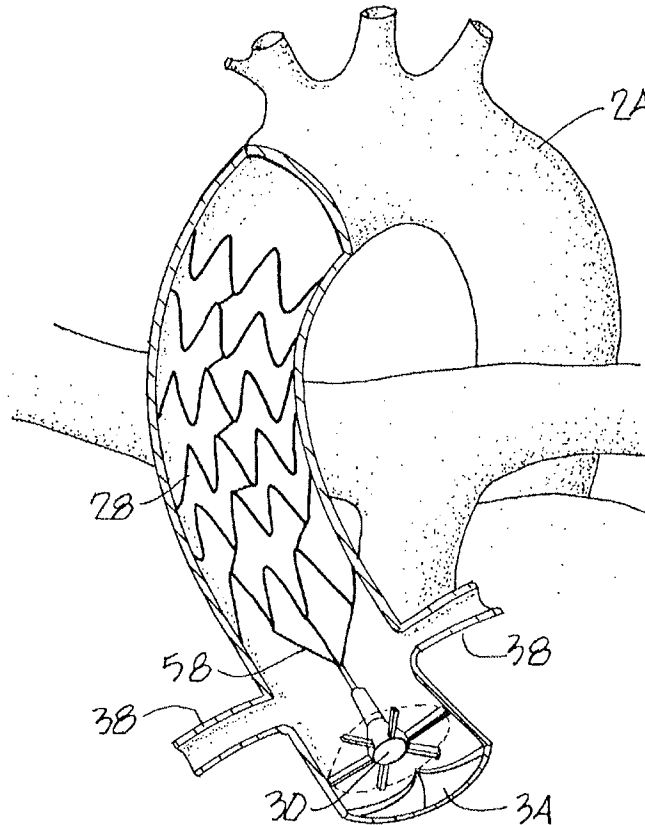
*Assistant Examiner*—William H Matthews

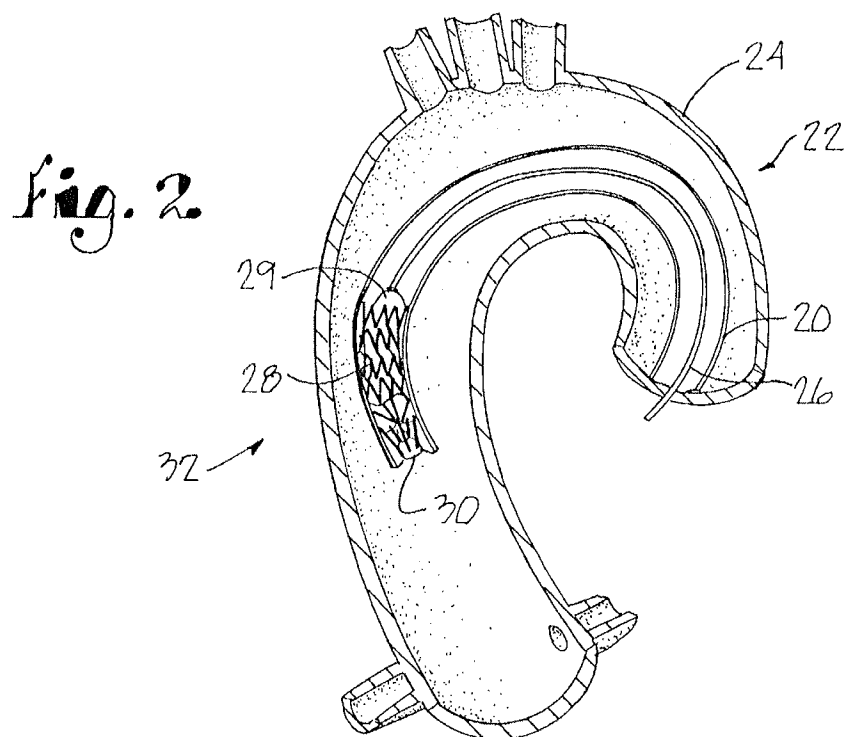
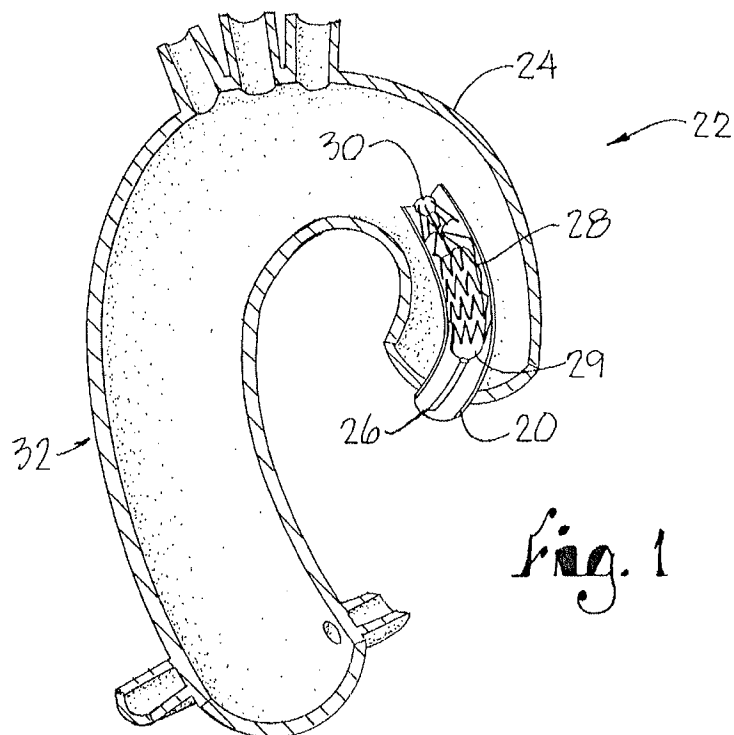
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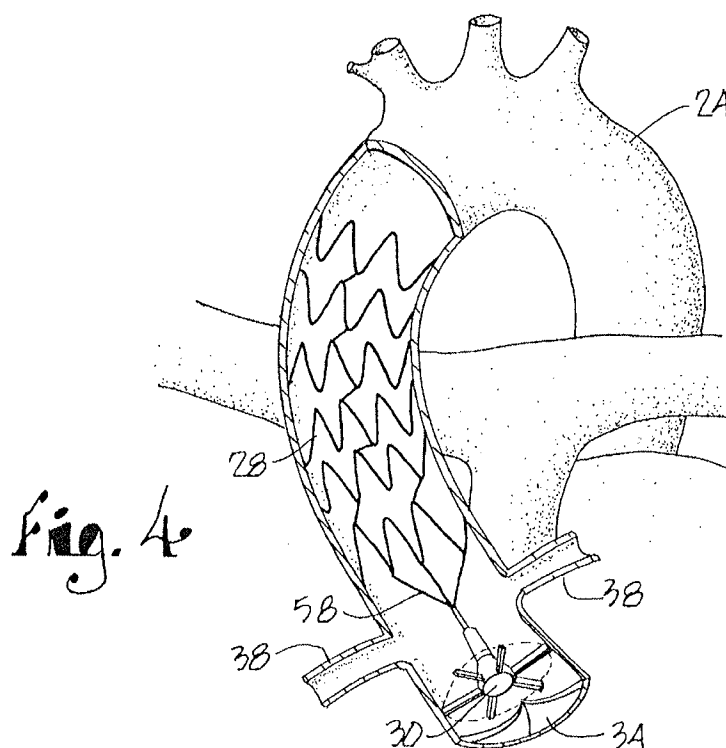
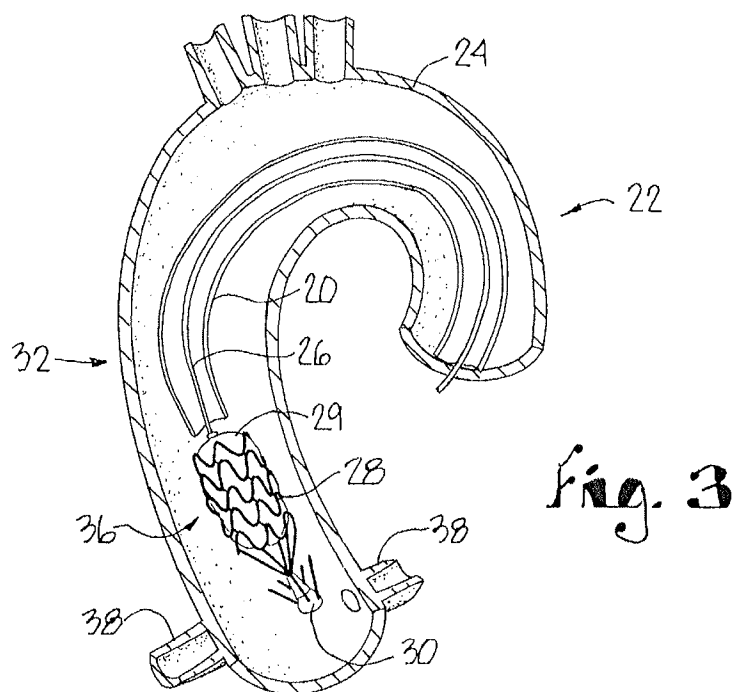
(57) **ABSTRACT**

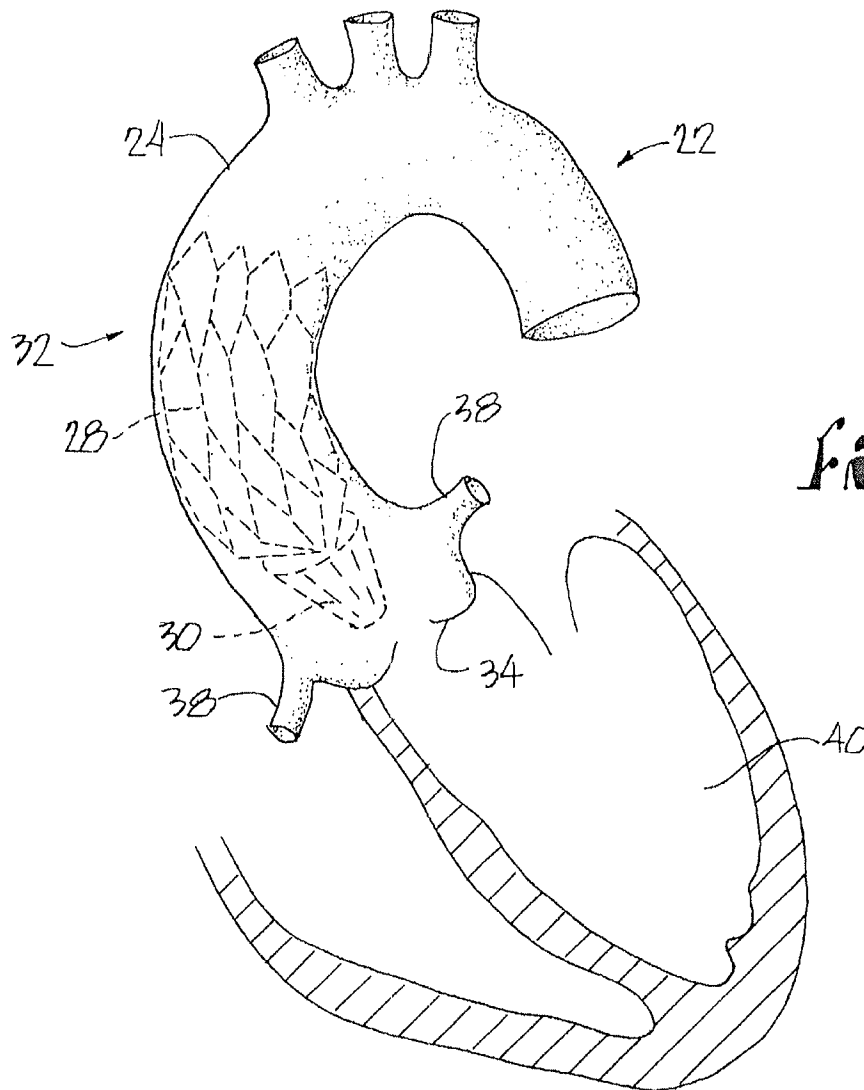
An aortic heart valve which is adapted to be placed percutaneously without the need for open-heart surgery is placed by a catheter and held in place with a stent system. The stent system is expanded in the ascending aorta to anchor the valve in the aortic channel above the native aortic valve.

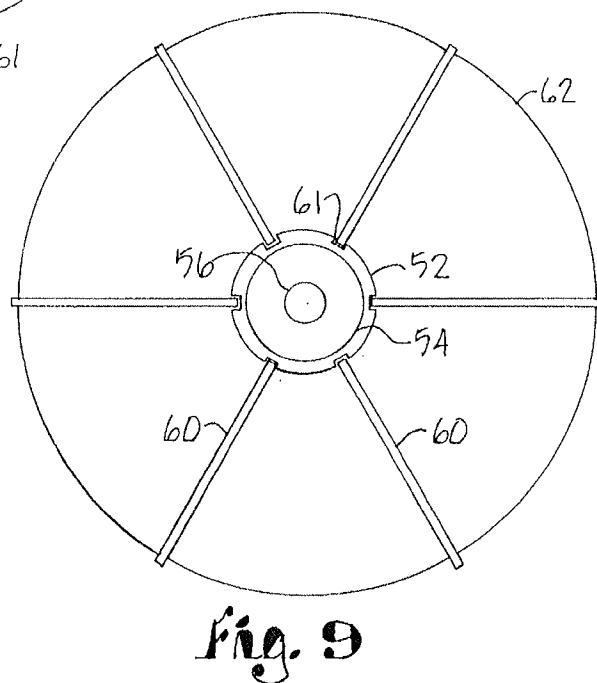
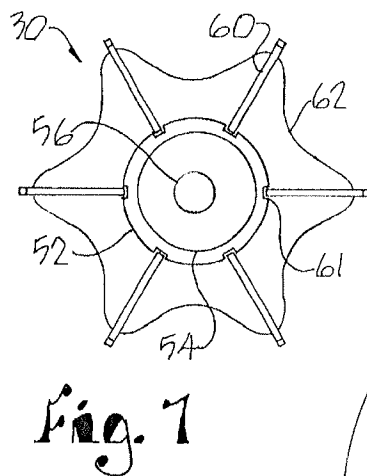
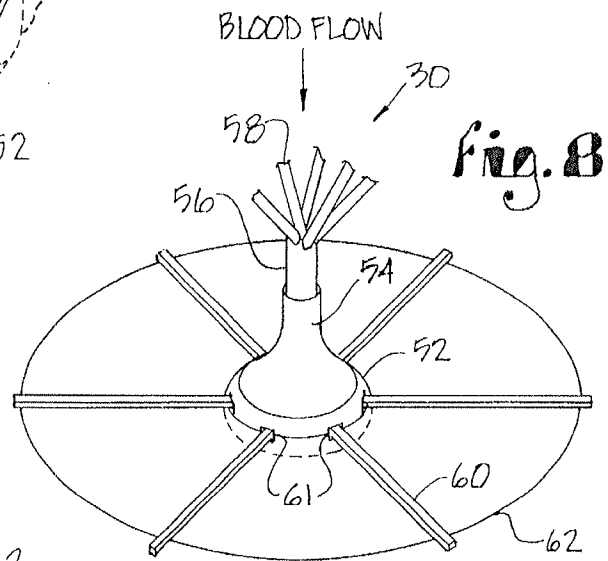
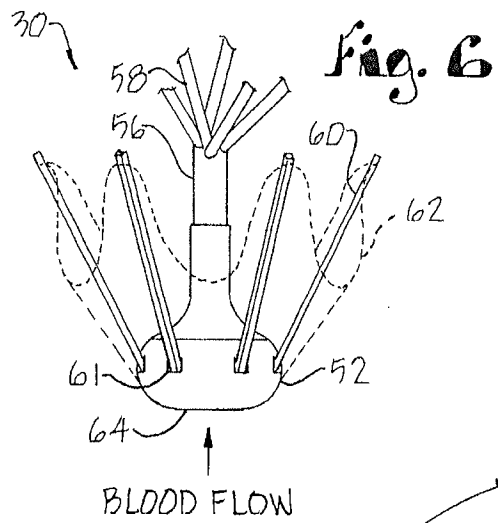
**24 Claims, 7 Drawing Sheets**











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