



US006482228B1

(12) **United States Patent**
Norred

(10) **Patent No.:** **US 6,482,228 B1**
(45) **Date of Patent:** **Nov. 19, 2002**

(54) **PERCUTANEOUS AORTIC VALVE REPLACEMENT**

(76) Inventor: **Troy R. Norred**, 4511 Royal Lythem, Columbia, MO (US) 65203

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

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

(74) *Attorney, Agent, or Firm*—Chase Law Firm, L.C.

(21) Appl. No.: **09/712,121**

(22) Filed: **Nov. 14, 2000**

(51) **Int. Cl.**⁷ **A61F 2/06**

(52) **U.S. Cl.** **623/2.17; 623/1.24**

(58) **Field of Search** 623/2.1, 2.12, 623/2.13, 2.14, 2.18, 2.2, 2.22, 2.17

(57) **ABSTRACT**

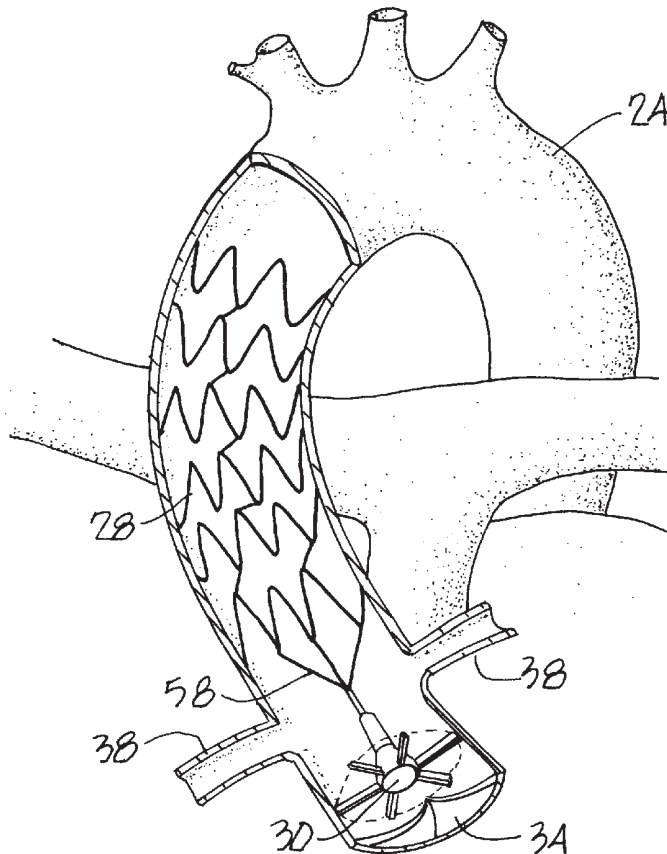
An aortic heart valve which is adapted to be placed percutaneously without the need for open-heart surgery is placed by a catheter and held in place with a stent system. The stent system is expanded in the ascending aorta to anchor the valve in the aortic channel above the native aortic valve.

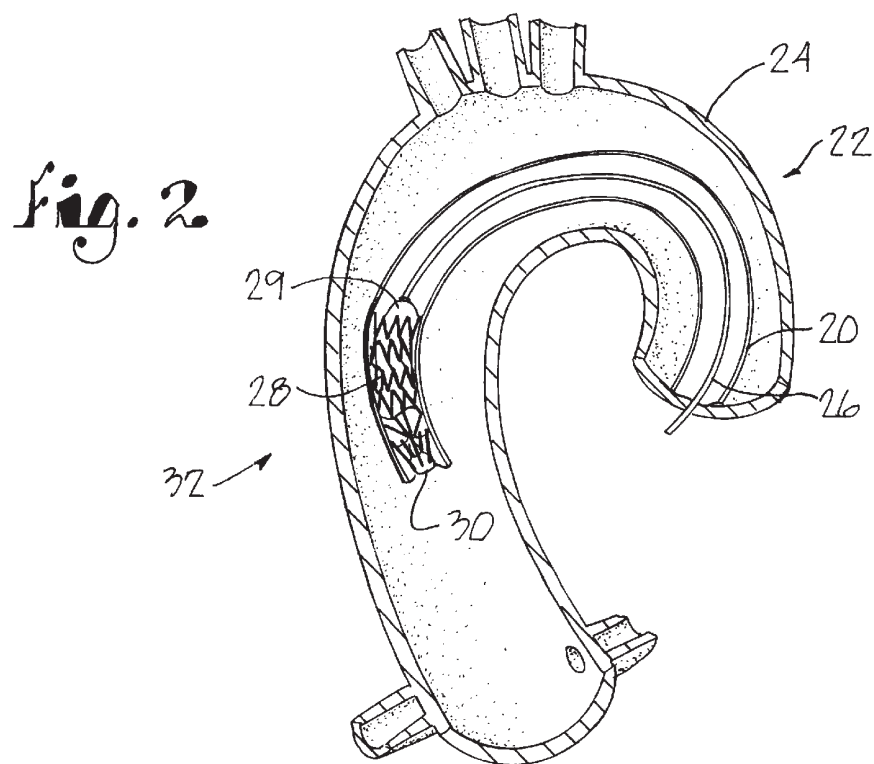
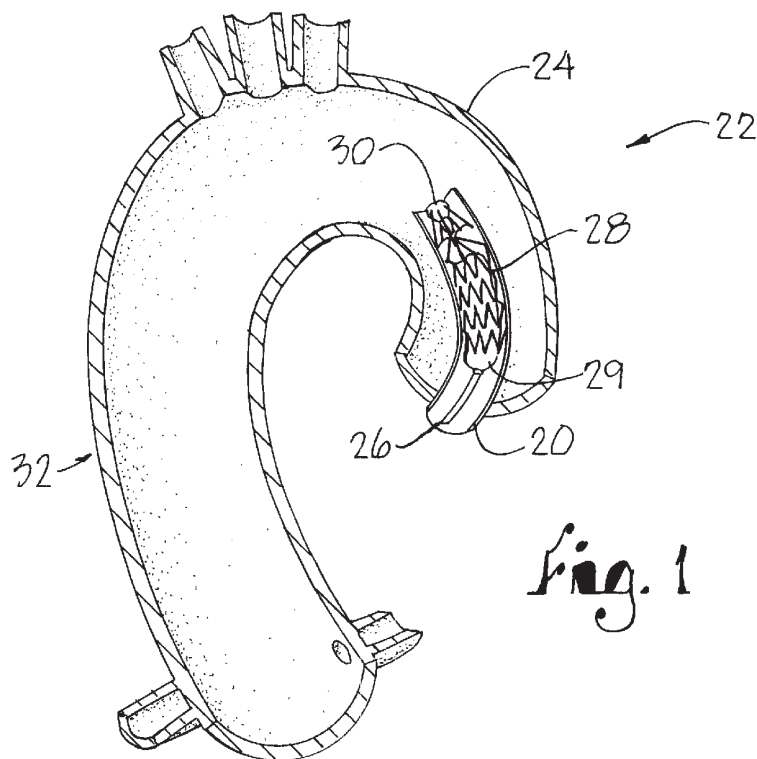
(56) **References Cited**

U.S. PATENT DOCUMENTS

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

24 Claims, 7 Drawing Sheets





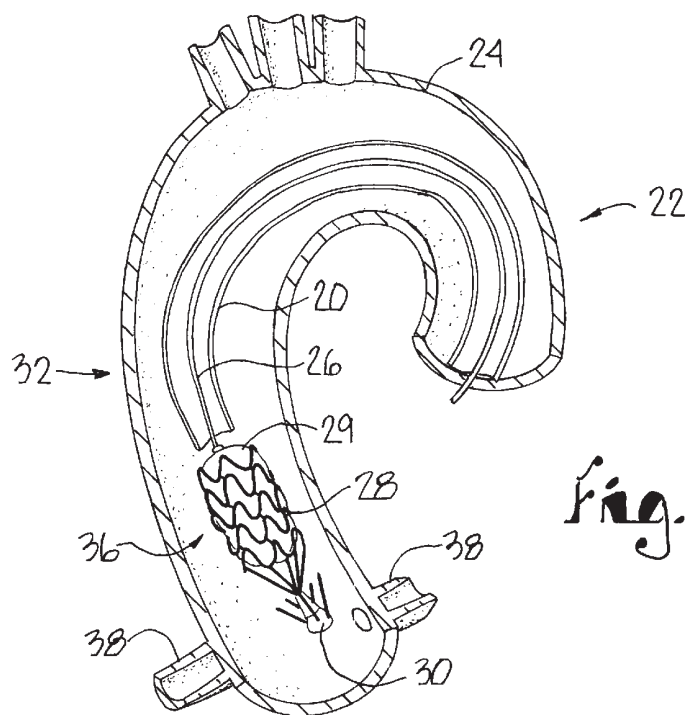


Fig. 3

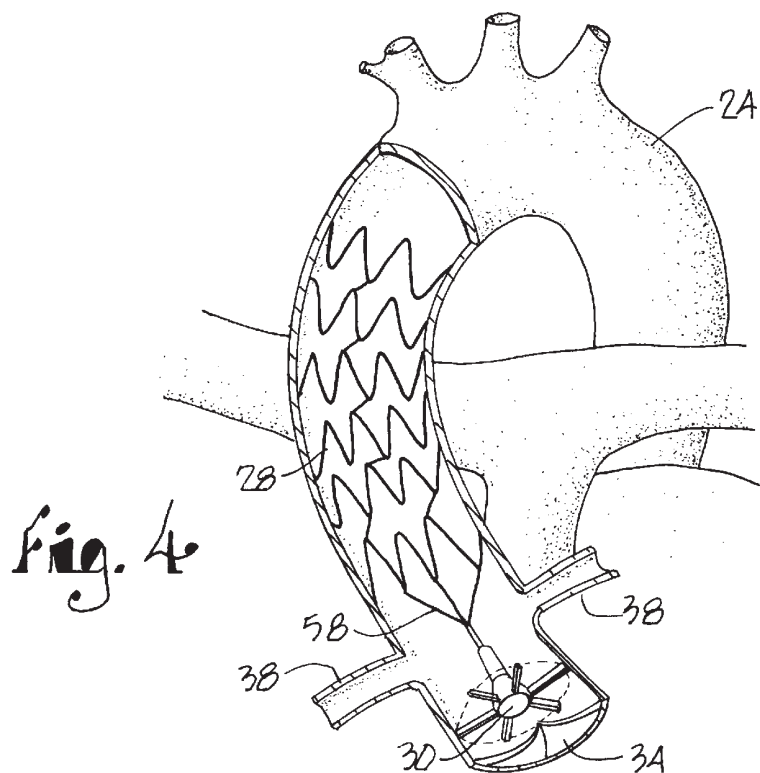


Fig. 4

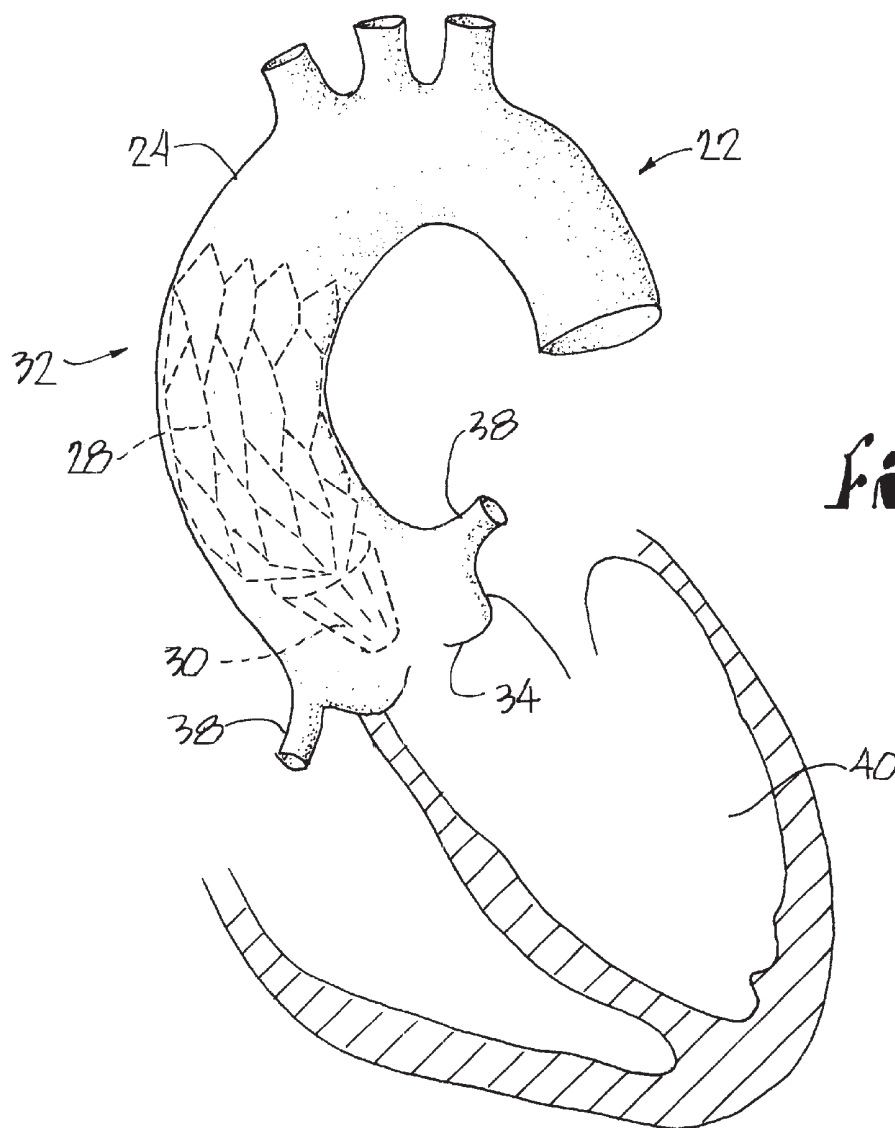


Fig. 5

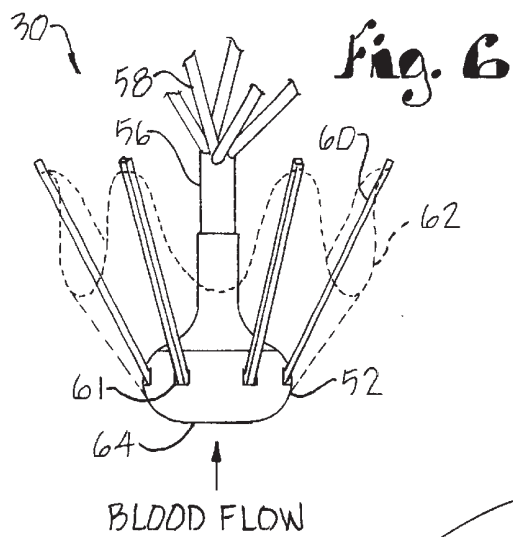


Fig. 6

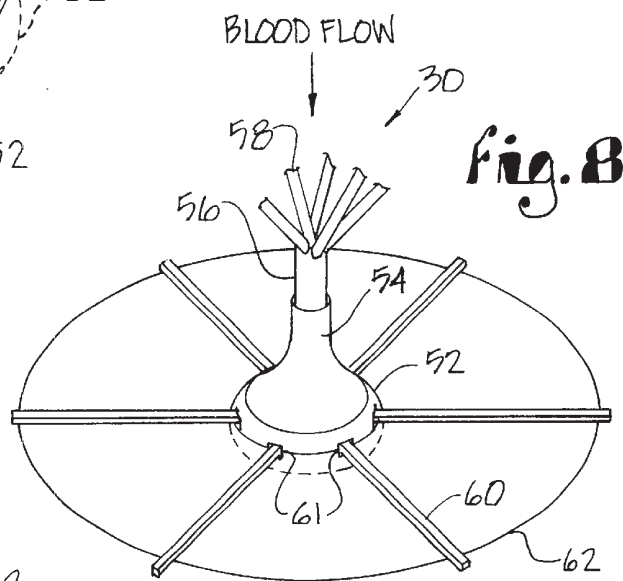


Fig. 8

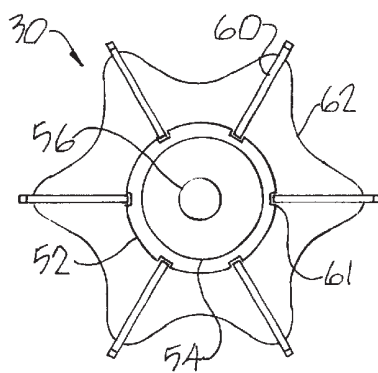


Fig. 7

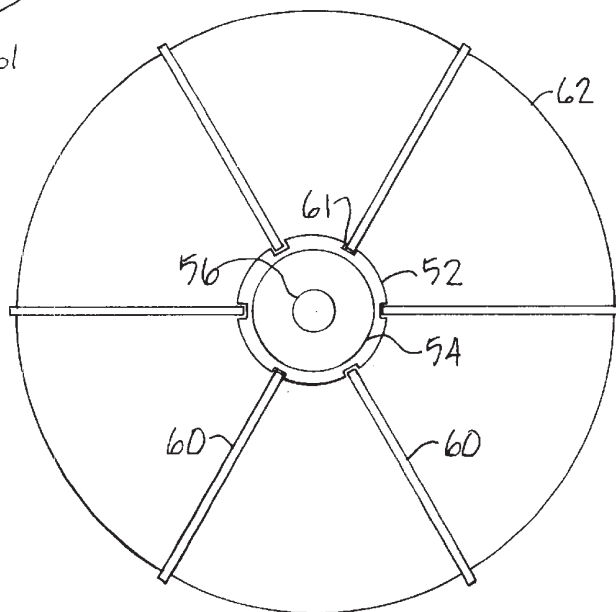


Fig. 9

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.