



US006425916B1

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

(10) **Patent No.:** **US 6,425,916 B1**

(45) **Date of Patent:** **Jul. 30, 2002**

(54) **METHODS AND DEVICES FOR IMPLANTING CARDIAC VALVES**

\* cited by examiner

(76) Inventors: **Michi E. Garrison**, 212 Roosevelt Blvd., Half Moon Bay, CA (US) 94019; **Hanson S. Gifford, III**, 3180 Woodside Rd., Woodside, CA (US) 94062; **Frederick G. St. Goar**, 2 Frederick Ct., Menlo Park, CA (US) 94025

*Primary Examiner*—David H. Willse

(57) **ABSTRACT**

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

The valve implantation system has a valve displacer for displacing and holding the native valve leaflets open in a first aspect of the invention. A replacement valve may be attached to the valve displacer before or after introduction and may be positioned independent of the valve displacer. In another aspect of the invention, the valve displacer and valve are in a collapsed condition during introduction and are expanded to deploy the valve displacer and valve. The valve is a tissue valve mounted to an expandable support structure. The support structure may have protrusions for engaging the valve displacer or barbs for anchoring the valve displacer to the heart or blood vessel. A temporary valve mechanism may be used to provide temporary valve functions during and after deployment of the valve displacer.

(21) Appl. No.: **09/248,911**

(22) Filed: **Feb. 10, 1999**

(51) **Int. Cl.<sup>7</sup>** ..... **A61F 2/24**

(52) **U.S. Cl.** ..... **623/2.11; 623/1.26; 623/2.38; 623/904**

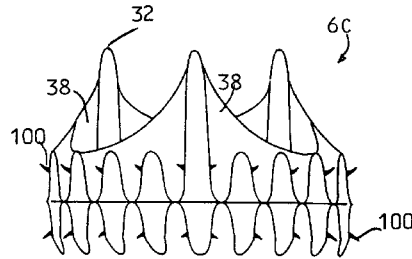
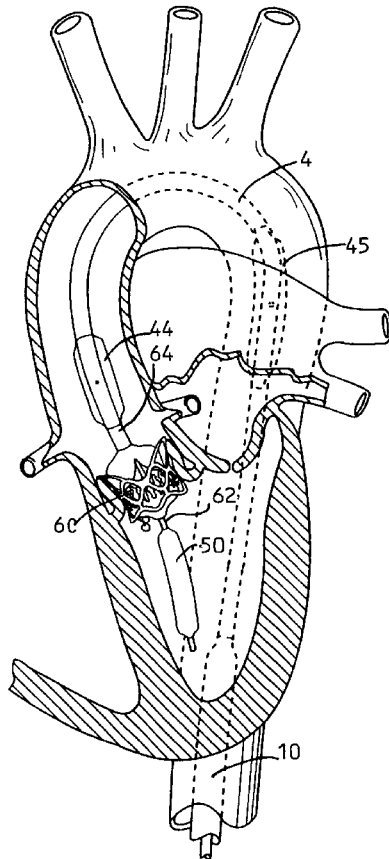
(58) **Field of Search** ..... 623/1.26, 1.24, 623/2.11, 2.1, FOR 101, 2.12-2.19, 2.42, 904, 2.38

(56) **References Cited**

**FOREIGN PATENT DOCUMENTS**

EP 0850607 A1 \* 7/1998 ..... 623/FOR 101

**16 Claims, 23 Drawing Sheets**



**Medtronic Exhibit 1005**

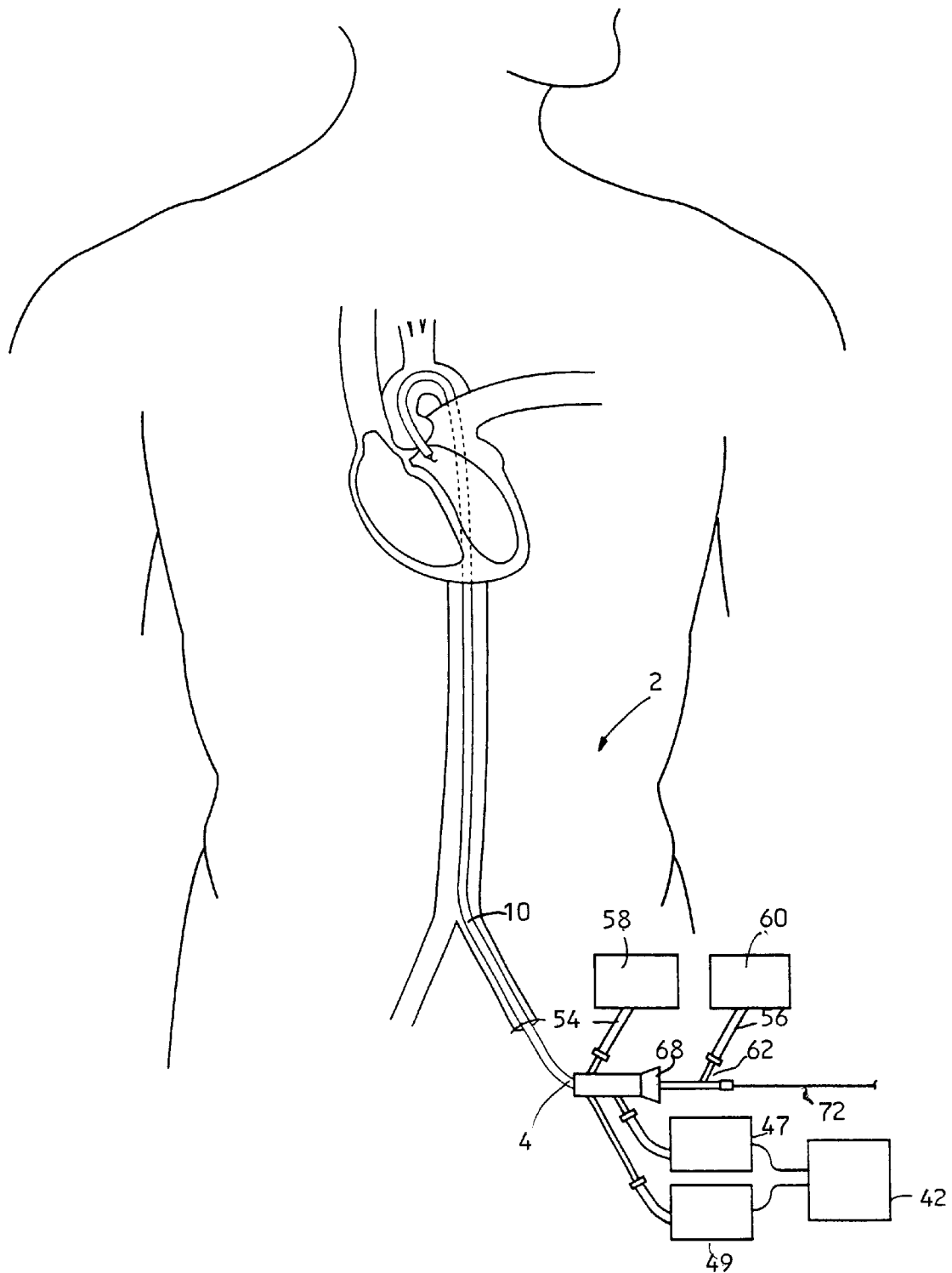


FIG. 1A

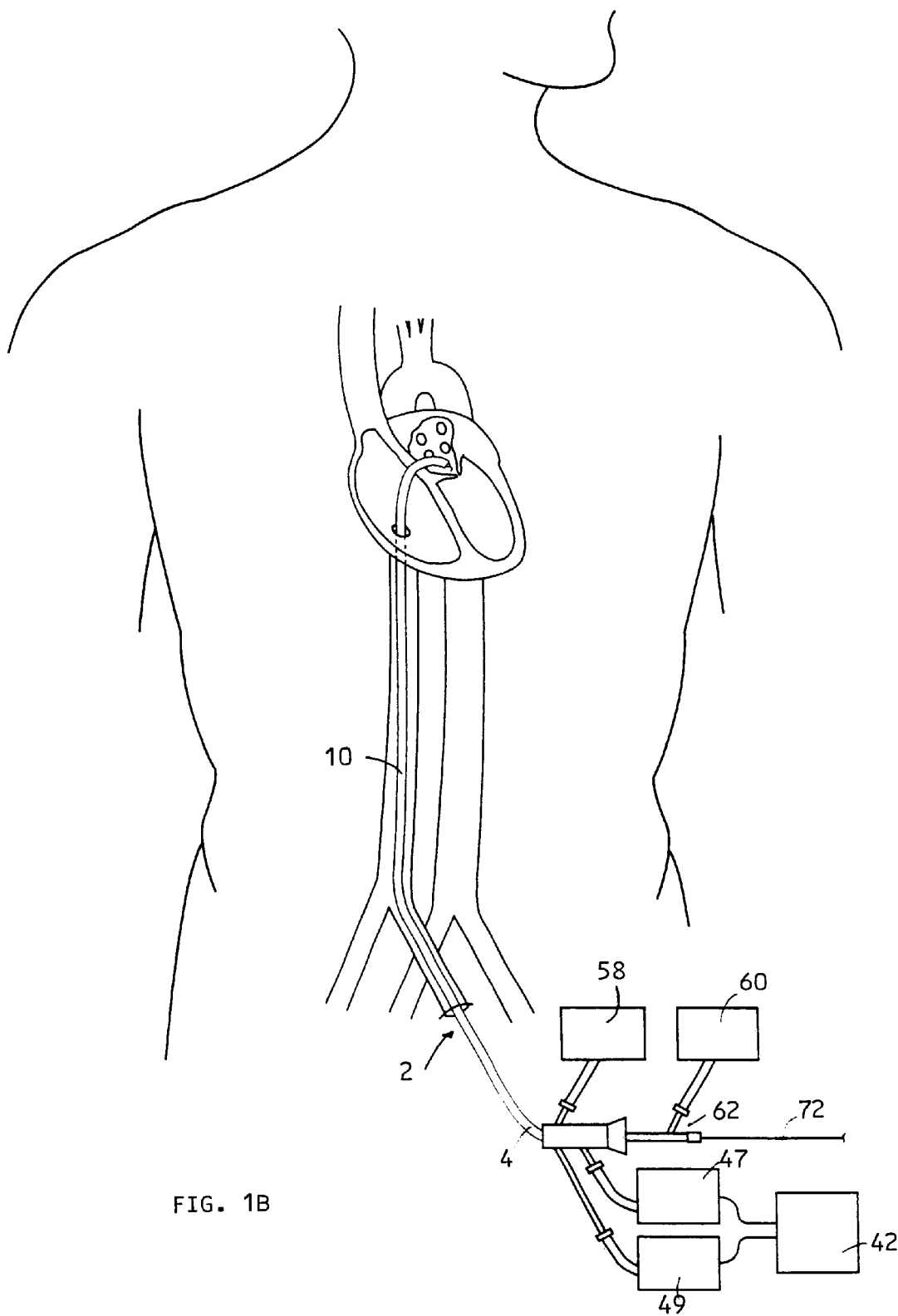


FIG. 1B

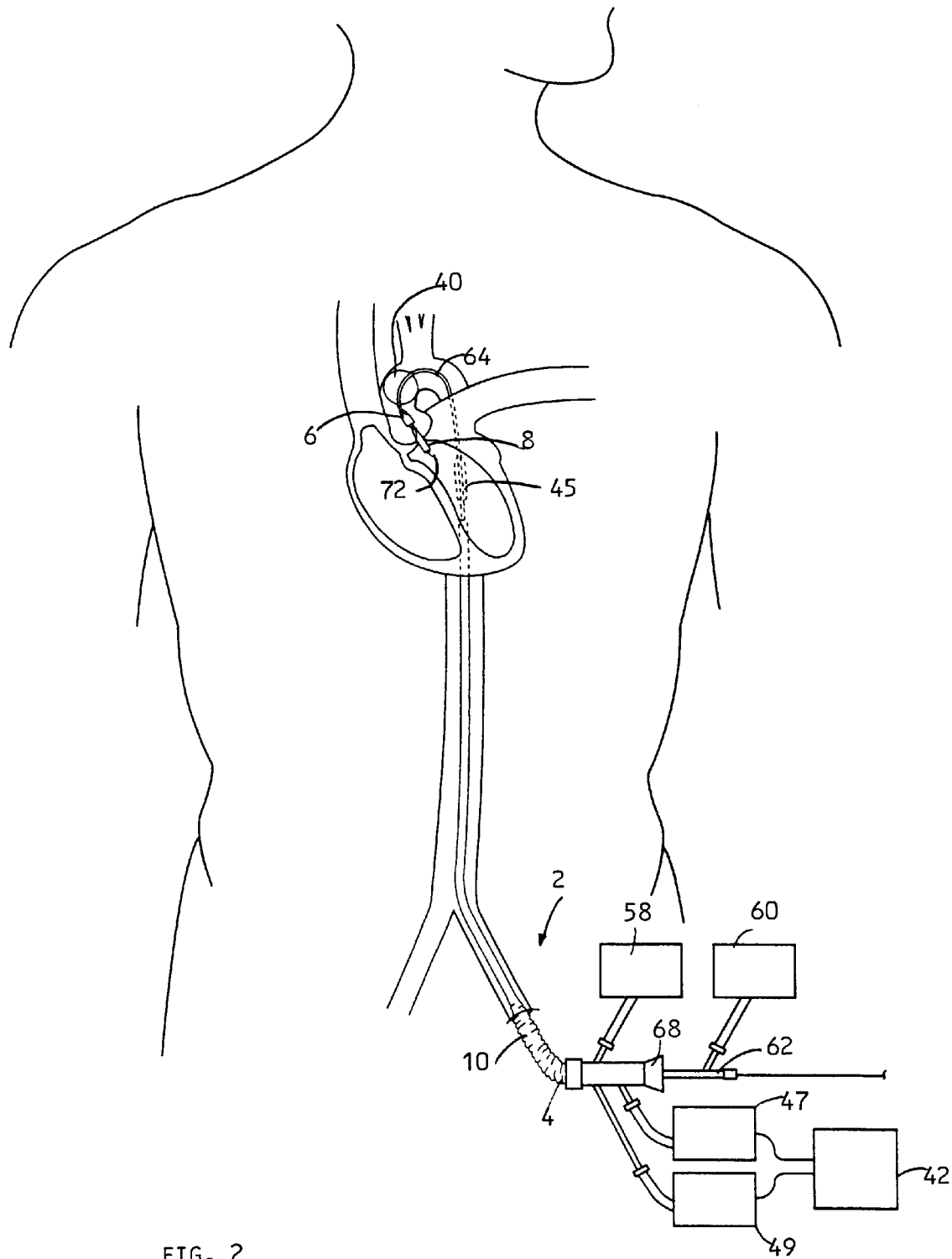


FIG. 2

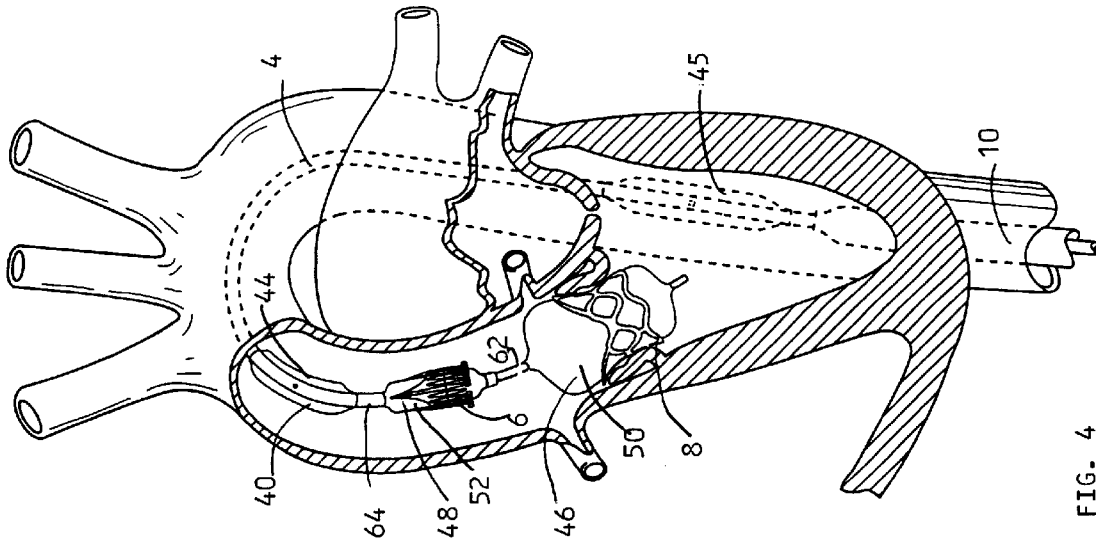


FIG. 4

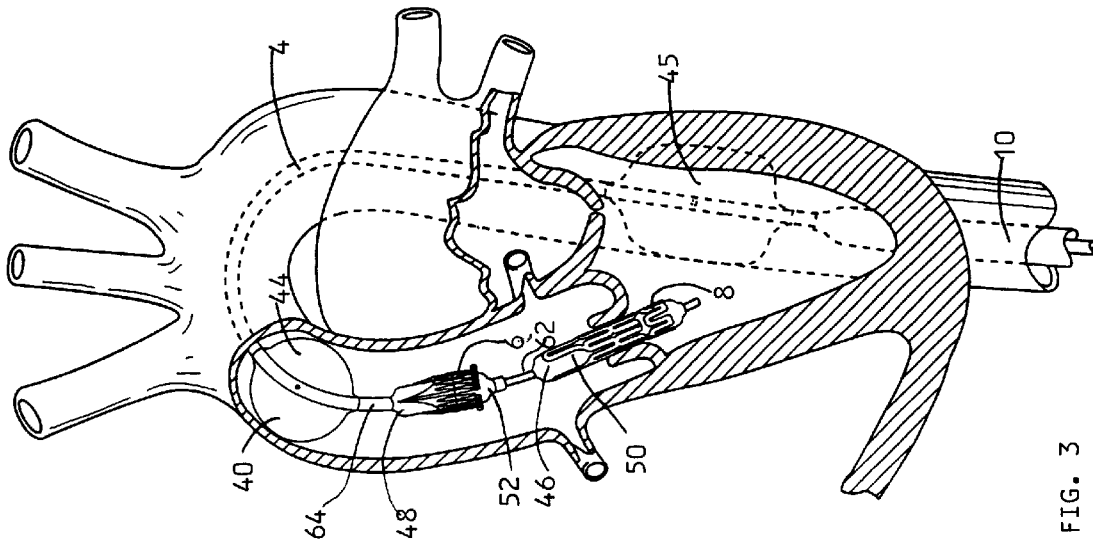


FIG. 3

# 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.