



US005751832A

United States Patent [19]

[11] Patent Number: **5,751,832**

Panter et al.

[45] Date of Patent: **May 12, 1998**

[54] **HEADLIGHT AIMING APPARATUS**

5,373,357	12/1994	Hopkins et al.	356/121
5,379,104	1/1995	Takao	356/121
5,392,111	2/1995	Murata et al.	356/121
5,426,500	6/1995	Ohana	356/218
5,504,574	4/1996	Murata	356/121

[75] Inventors: **Ronald L. Panter**, Flushing; **John J. Taylor**, Flint, both of Mich.

[73] Assignees: **Progressive Tool & Industries Co.**, Southfield; **Panter Master Controls, Inc.**, Mt. Morris, both of Mich.

FOREIGN PATENT DOCUMENTS

185800	7/1986	European Pat. Off.	G01M 11/06
0296856	12/1988	European Pat. Off.	G01M 11/06
1360619	7/1974	United Kingdom	G02B 27/00

[21] Appl. No.: **699,521**

[22] Filed: **Sep. 4, 1996**

[51] Int. Cl.⁶ **G06K 9/00**

[52] U.S. Cl. **382/104; 382/291; 356/121**

[58] Field of Search **382/104, 278, 382/288, 291; 356/121; 348/95, 135; 364/424.034**

[56] **References Cited**

U.S. PATENT DOCUMENTS

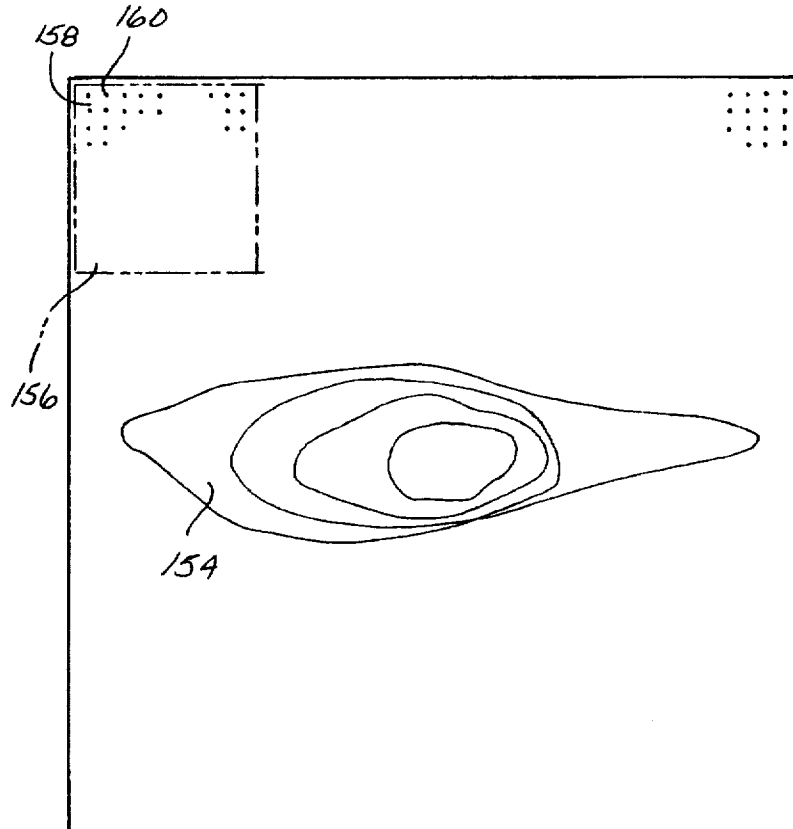
3,532,433	10/1970	Hopkins et al.	240/413
3,841,759	10/1974	Turner	356/121
4,634,275	1/1987	Yoshida et al.	356/121
4,679,935	7/1987	Fukuda et al.	356/121
4,907,877	3/1990	Fukuda et al.	356/121
4,948,249	8/1990	Hopkins et al.	356/121
5,078,490	1/1992	Oldweiler et al.	356/121
5,164,785	11/1992	Hopkins et al.	356/121
5,210,589	5/1993	Kaya et al.	356/121
5,321,439	6/1994	Rogers	348/135
5,331,393	7/1994	Hopkins et al.	356/121

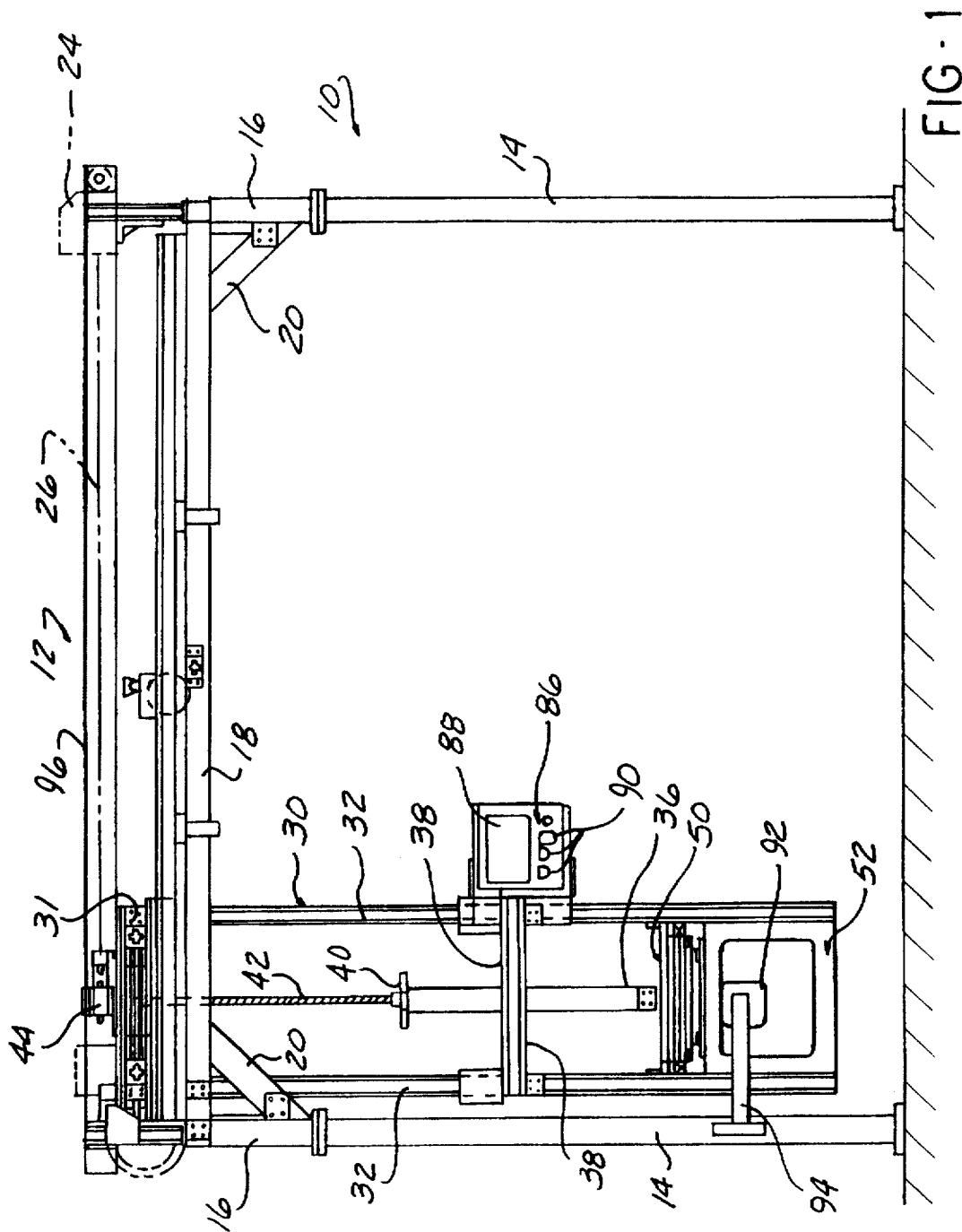
Primary Examiner—Andrew Johns
Attorney, Agent, or Firm—Young & Basile, P.C.

[57] **ABSTRACT**

An apparatus and method for aiming a vehicle headlight to a standard image pattern includes a frame movable relative to the vehicle. A housing carried on a vertically adjustable housing includes a lens focusing a headlight beam onto a reflective screen which reflects the beam image to a camera. A control compares the digitized image output from the camera with a standard image pattern and generates a correlation factor based on the difference between the reflected image and a standard image. Based on the difference, the control generates output signals to an adjustment device engagable with the headlight mounting frame to adjust the position of the mounting frame to reduce the difference to zero.

28 Claims, 9 Drawing Sheets





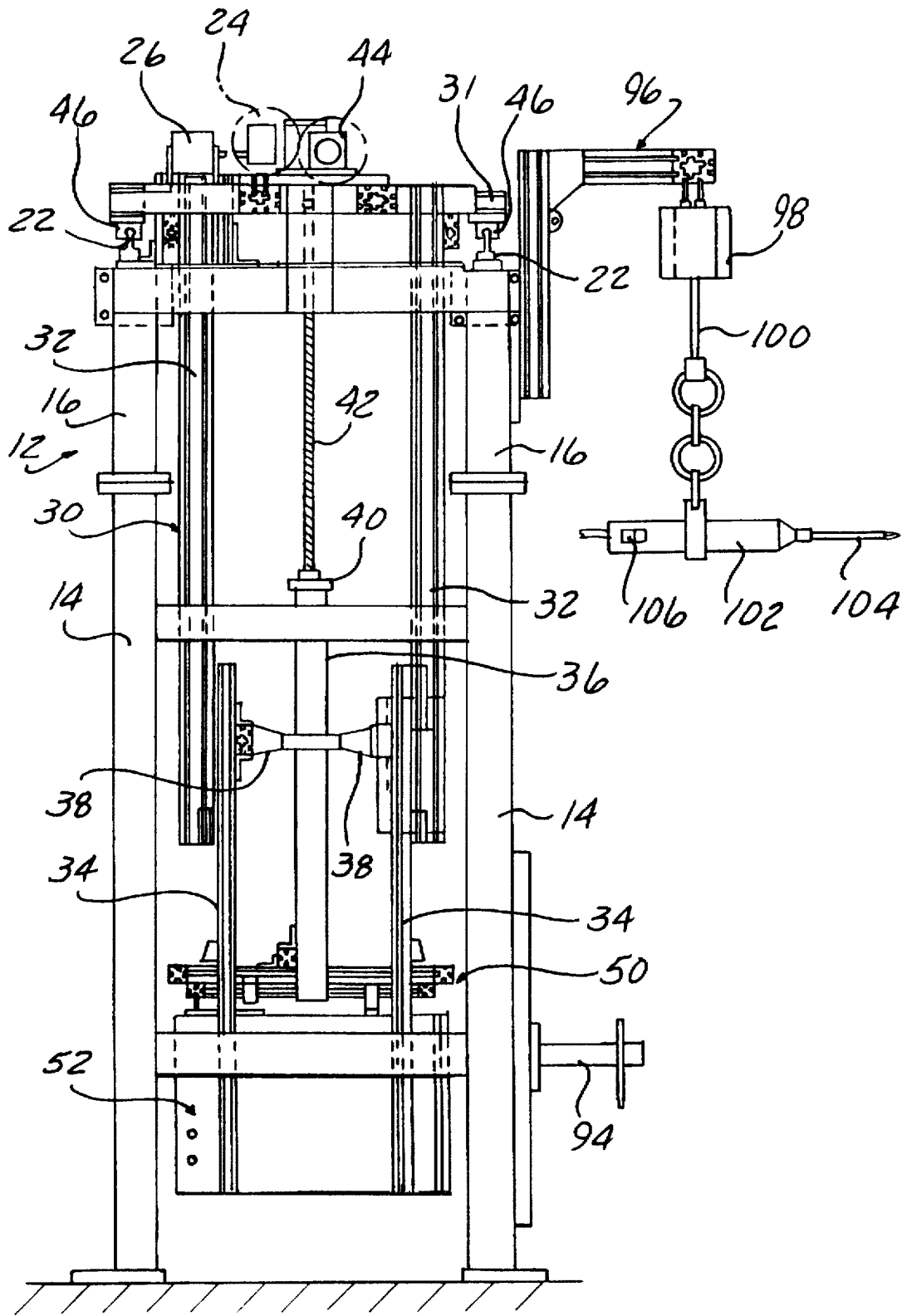


FIG - 2

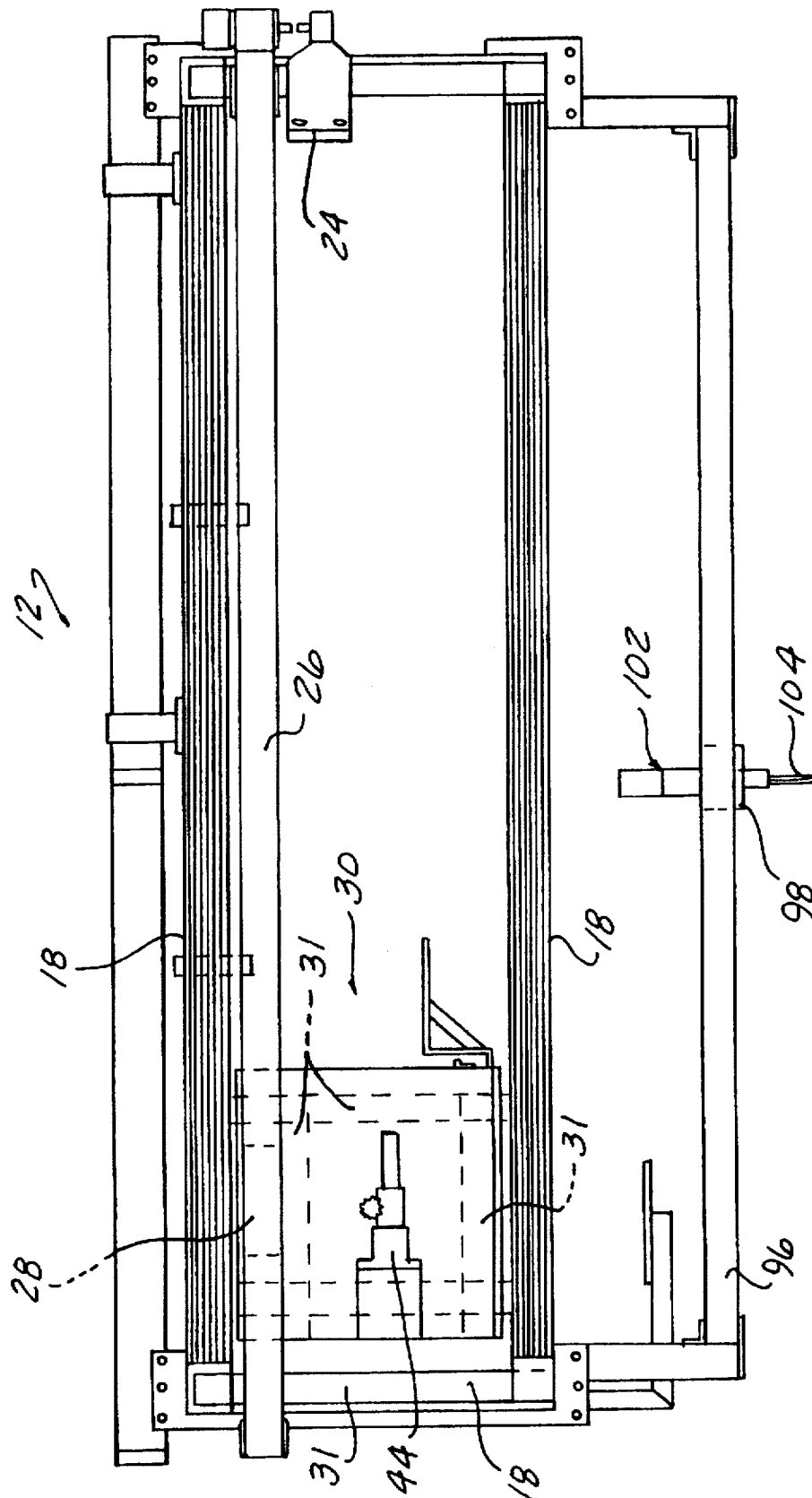


FIG - 3

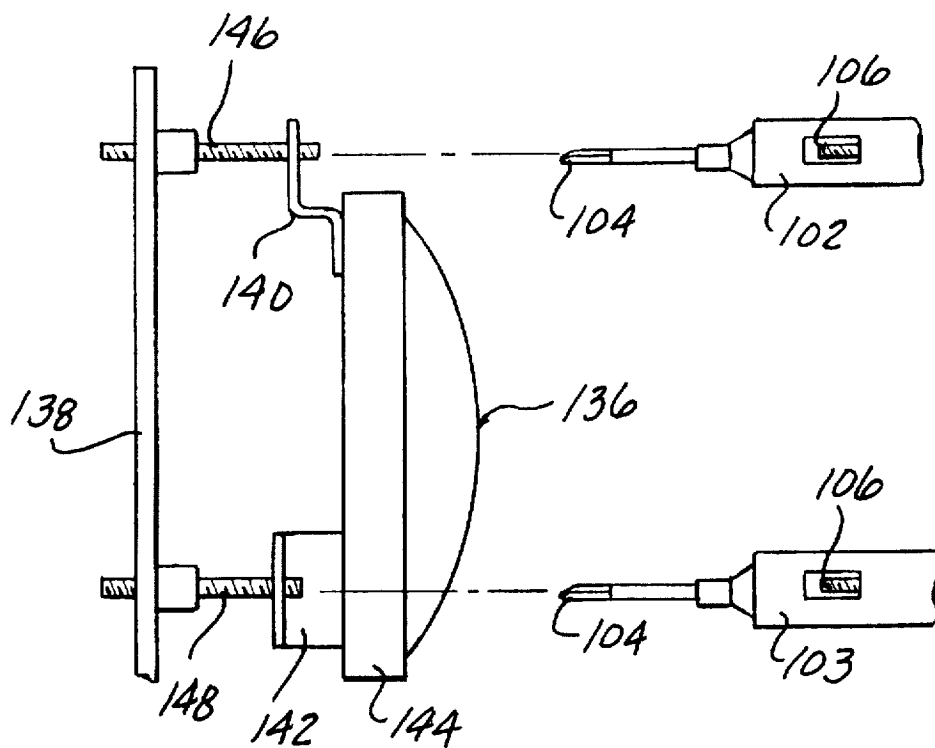


FIG - 6

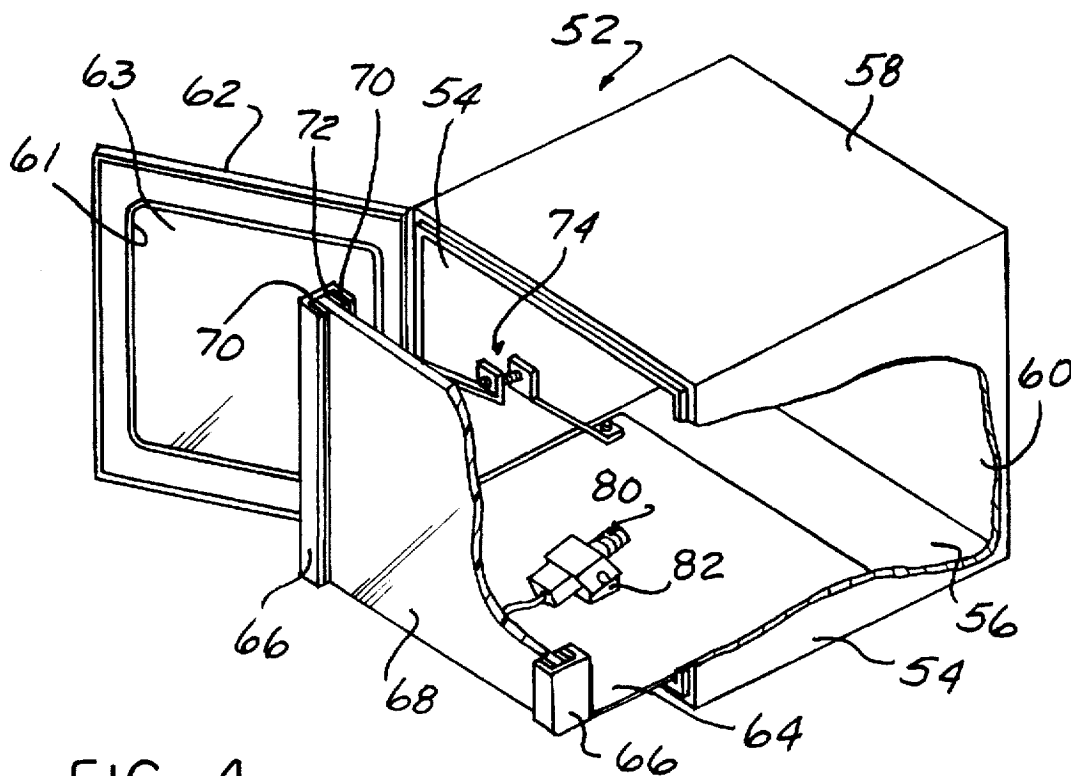


FIG - 4

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.