

- [54] SIGNAL TRANSMISSION CIRCUIT PROVIDING AMPLIFIED OUTPUT FROM POSITIVE FEEDBACK OF INTERMEDIATE AMPLIFIER CIRCUIT
- [75] Inventor: **Shunichi Sukegawa**, Oume, Japan
- [73] Assignee: **Texas Instruments Incorporated**, Dallas, Tex.
- [21] Appl. No.: **658,766**
- [22] Filed: **Jun. 5, 1996**

4,939,691	7/1990	Mizukami et al.	365/189.01
4,943,944	7/1990	Sakui et al.	365/189.05
4,948,993	8/1990	Chin et al.	307/530
4,980,799	12/1990	Tobita	361/311
5,010,523	4/1991	Yamauchi	365/205
5,068,831	11/1991	Hoshi et al.	307/530
5,130,581	7/1992	Oh et al.	307/530
5,132,930	7/1992	Furutani et al.	307/530
5,184,326	2/1993	Hoffmann et al.	365/203
5,227,697	7/1993	Sakagami	365/203
5,231,318	7/1993	Reddy	307/530
5,307,317	4/1994	Shiraishi et al.	307/530

**Related U.S. Application Data**

- [63] Continuation of Ser. No. 393,525, Feb. 23, 1995, abandoned, which is a continuation of Ser. No. 979,085, Nov. 19, 1992, abandoned.

**Foreign Application Priority Data**

- [30] Jan. 22, 1991 [JP] Japan ..... 3-334121
- [51] Int. Cl.<sup>6</sup> ..... **H03K 5/22**
- [52] U.S. Cl. .... **327/67; 327/55; 327/57; 327/208; 327/391**
- [58] Field of Search ..... 307/530, 279, 307/572, 443; 365/203, 205; 327/51, 54, 55, 57, 65, 67, 206, 208, 379, 389, 391; 326/21, 23, 24

**References Cited**

**U.S. PATENT DOCUMENTS**

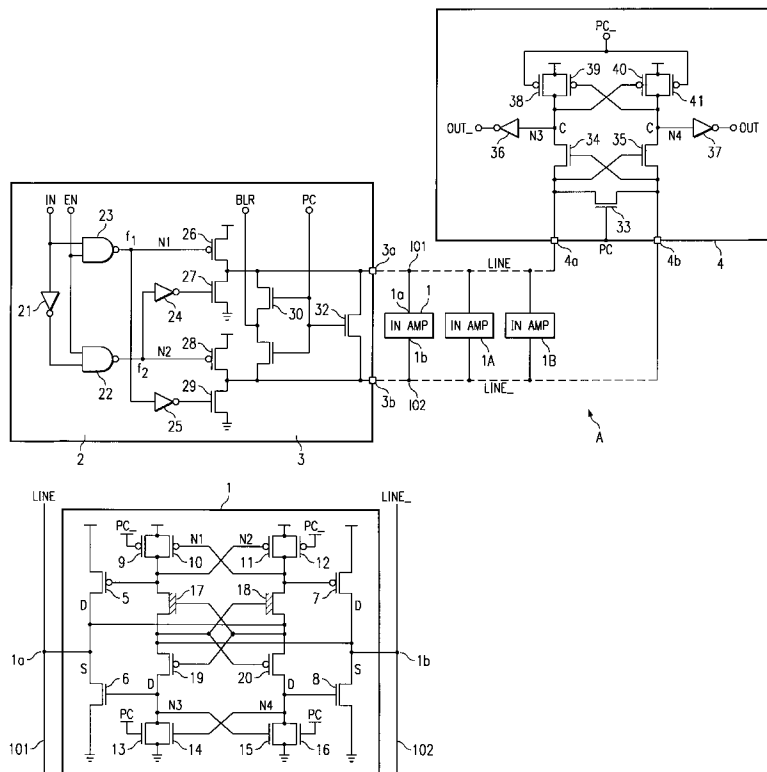
- 4,716,320 12/1987 McAdams ..... 307/530

Primary Examiner—Terry Cunningham  
Attorney, Agent, or Firm—William B. Kempler; Richard L. Donaldson

[57] **ABSTRACT**

A signal transmission circuit which enables the distance of signal transmission as measured by the length of the wiring electrically connecting a driver circuit and a receiver circuit of the signal transmission circuit to be increased, while the signal delay and power consumption are reduced. The signal transmission circuit includes the driver circuit, the receiver circuit, an equalizer circuit that flattens the output of the driver circuit, and an intermediate amplifier circuit. The intermediate amplifier circuit is connected to input/output shared terminals in the wiring that connects the driver circuit and the receiver circuit. With the aid of the positive feedback of the intermediate amplifier circuit, a differential signal output from the driver circuit is amplified and then transmitted to the receiver circuit.

**4 Claims, 7 Drawing Sheets**



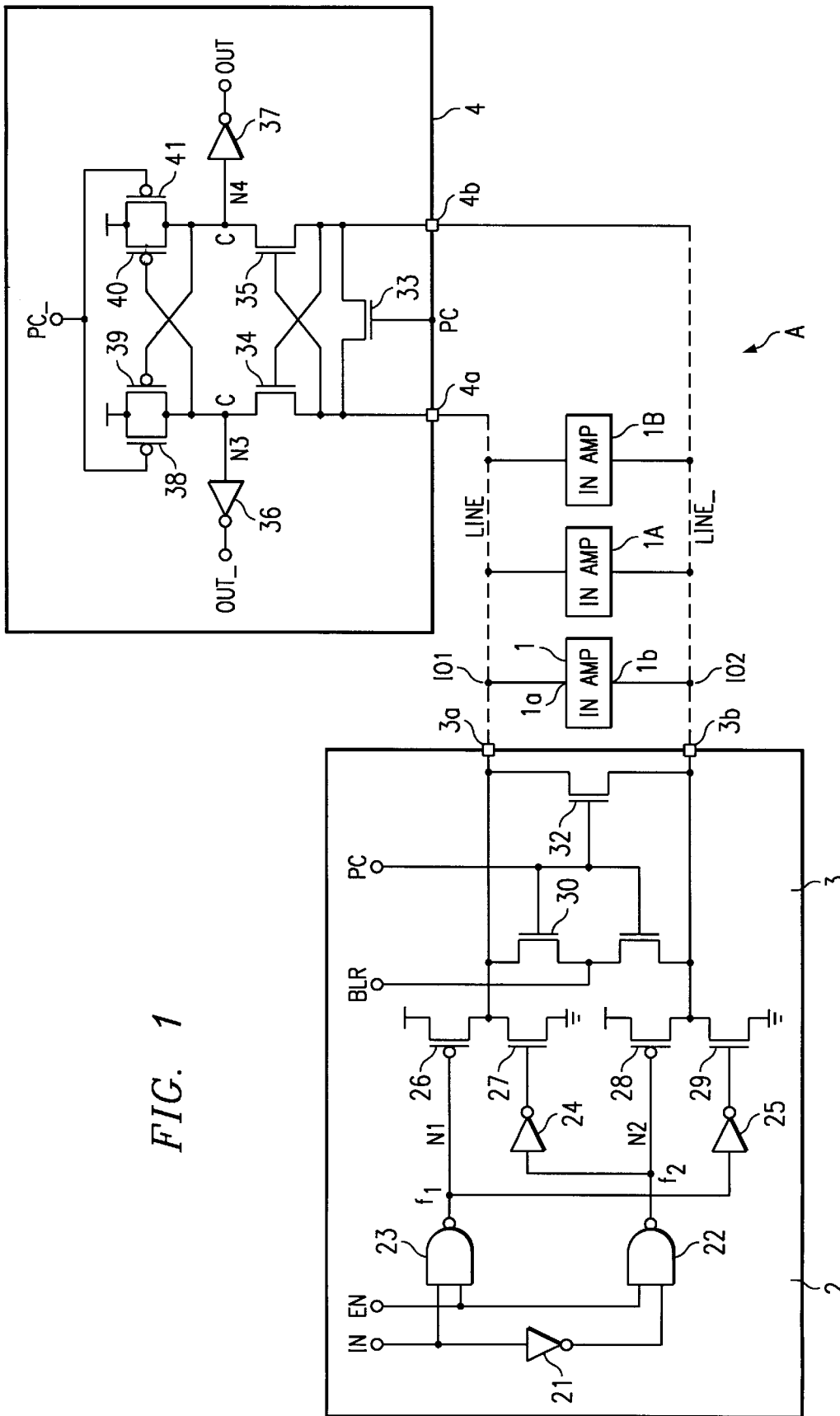


FIG. 1

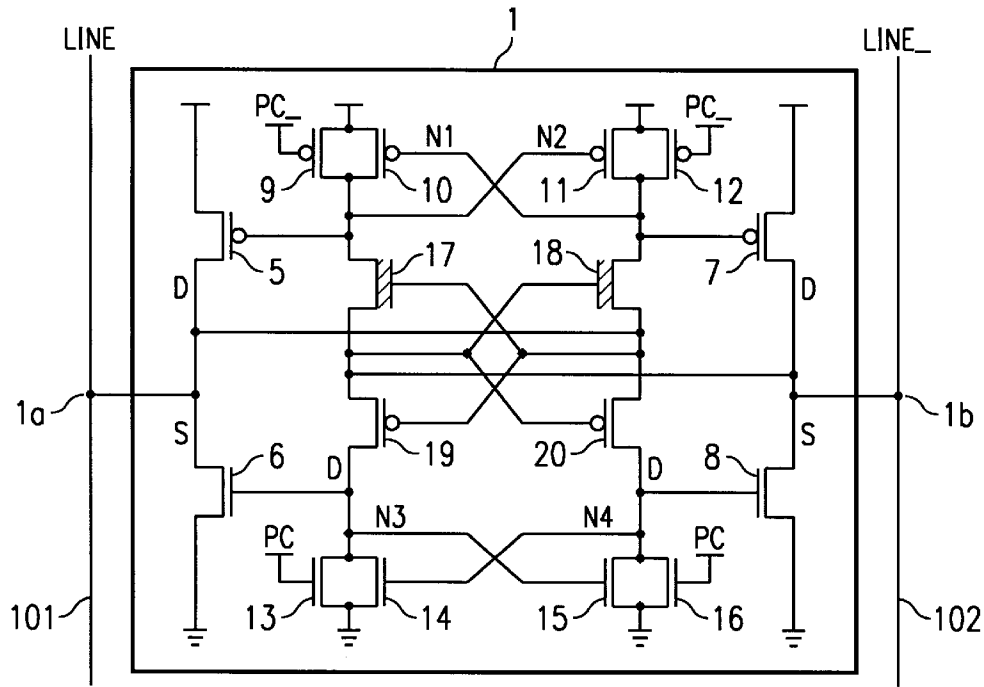


FIG. 2

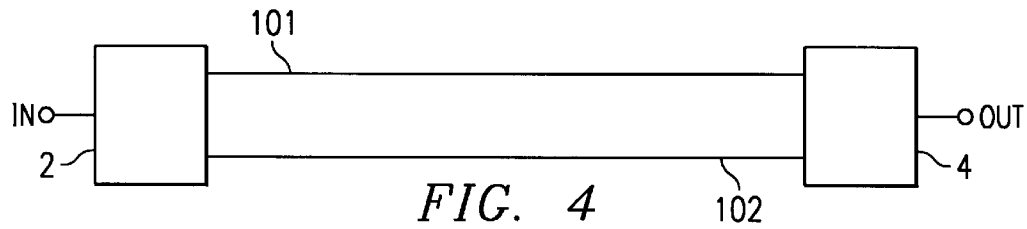


FIG. 4

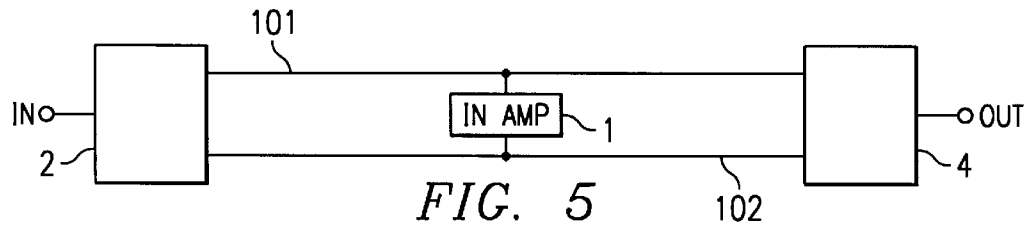


FIG. 5

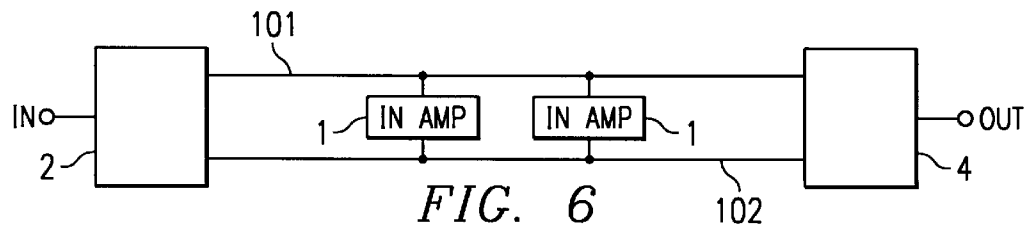


FIG. 6

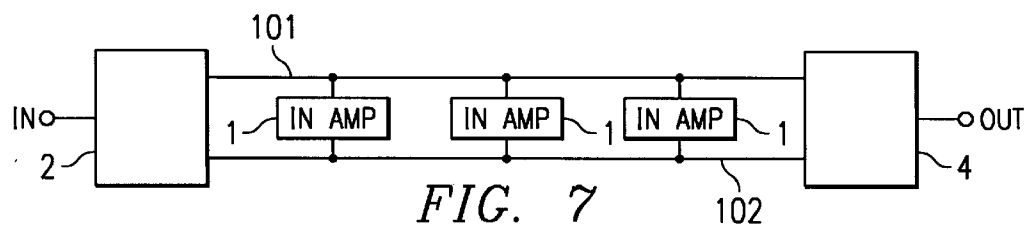


FIG. 7

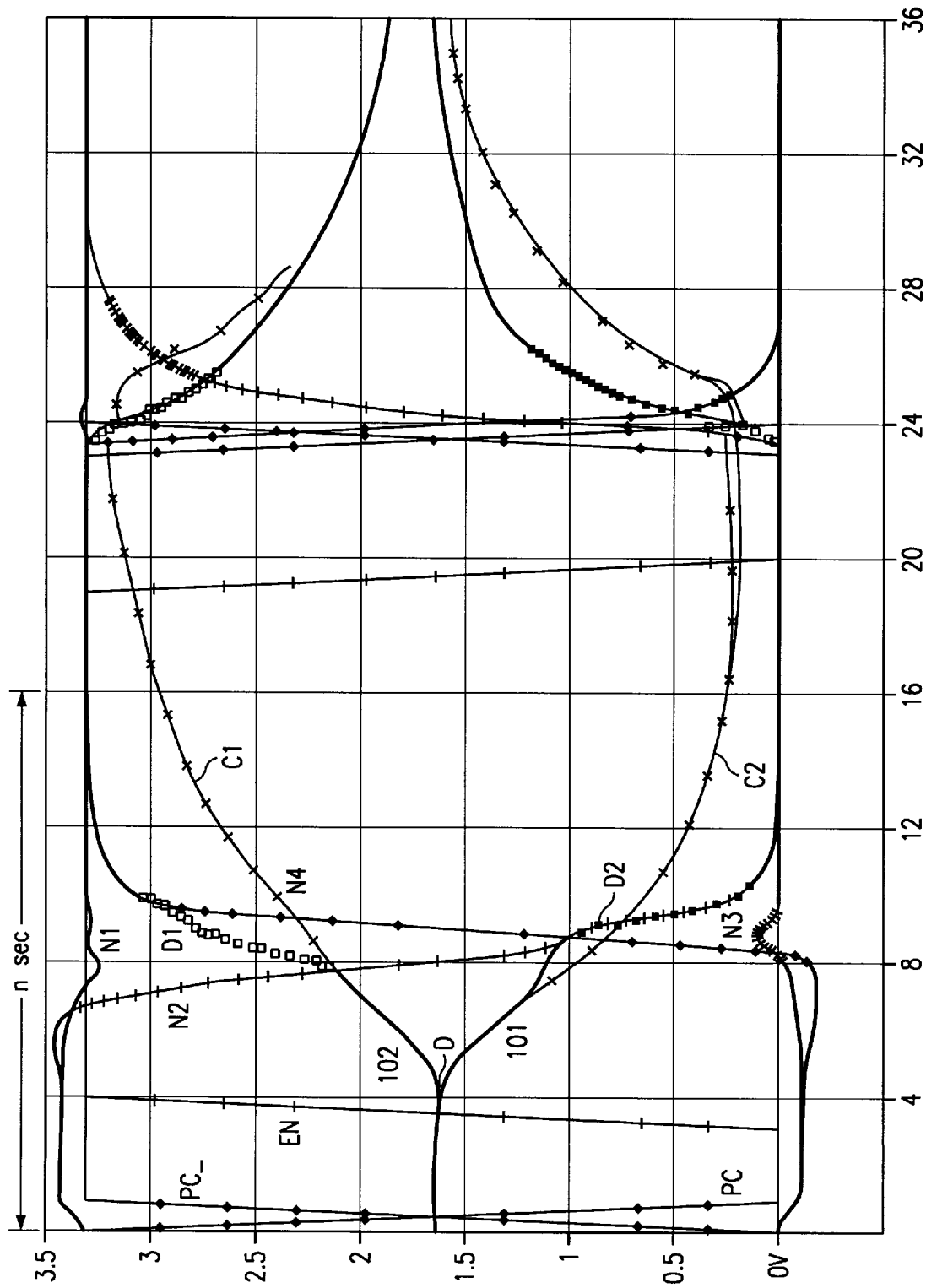


FIG. 3

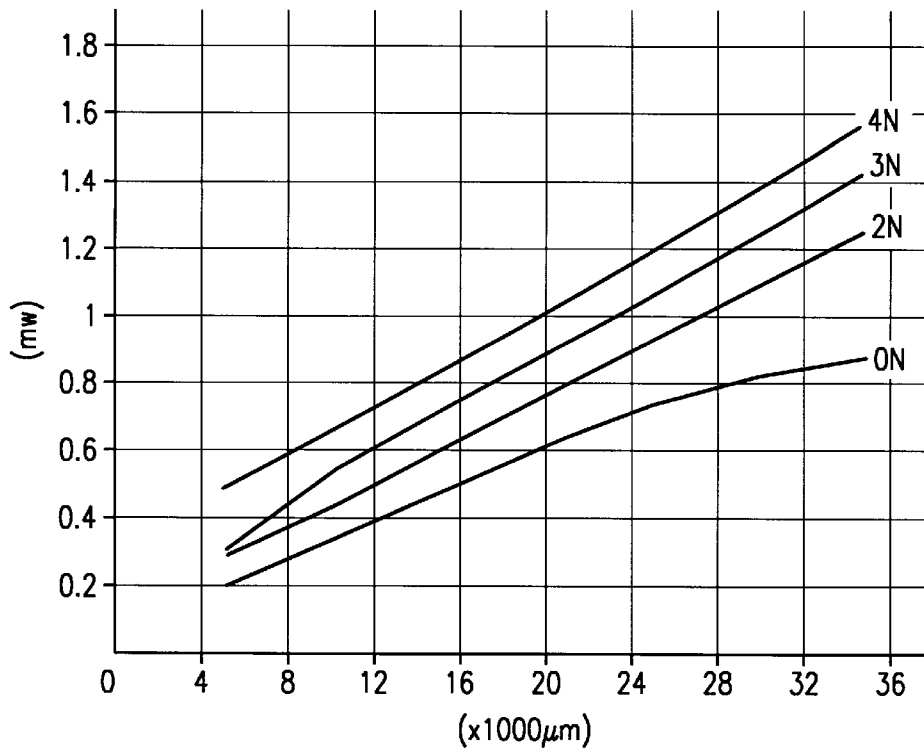


FIG. 8

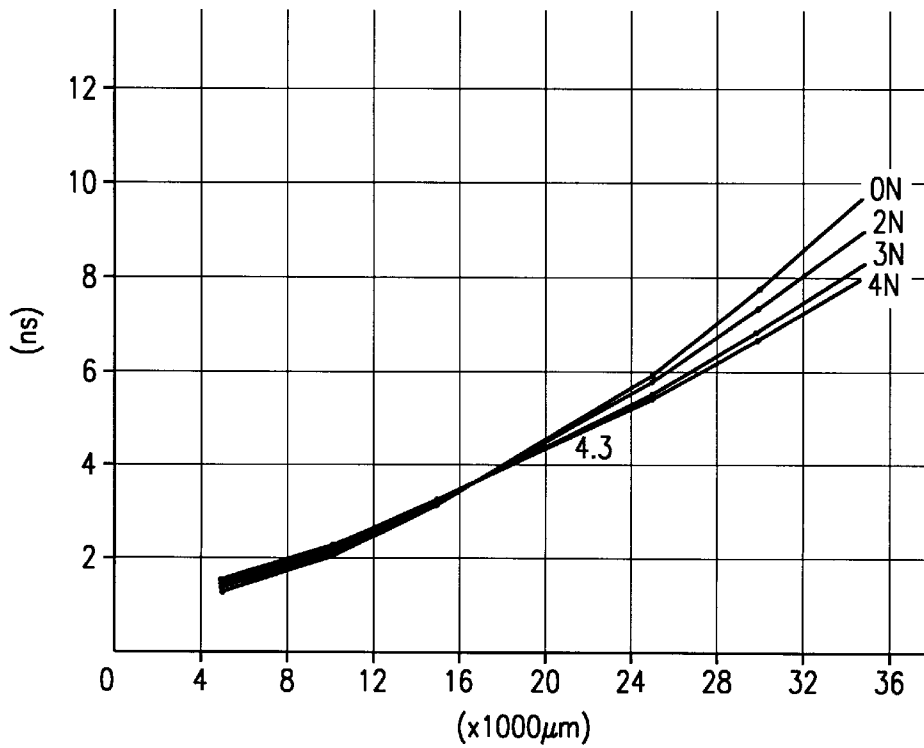


FIG. 9

# 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.