

[54] **METHOD AND APPARATUS FOR A FIRST DEVICE ACCESSING COMPUTER MEMORY AND A SECOND DEVICE DETECTING THE ACCESS AND RESPONDING BY PERFORMING SEQUENCE OF ACTIONS**

5,247,650	9/1993	Judd et al.	395/500
5,426,737	6/1995	Jacobs	395/847
5,479,654	12/1995	Squibb	707/201
5,649,230	7/1997	Lentz	395/872
5,710,712	1/1998	Labun	364/528.21
5,732,283	3/1998	Rose et al.	395/836
5,765,022	6/1998	Kaiser et al.	395/842

[75] **Inventor:** **George Lockhart Morris, III**, Escondido, Calif.

*Primary Examiner*—Thomas C. Lee  
*Assistant Examiner*—Michael G. Smith  
*Attorney, Agent, or Firm*—Gates & Cooper

[73] **Assignee:** **NCR Corporation**, Dayton, Ohio

[21] **Appl. No.:** **08/778,938**

[57] **ABSTRACT**

[22] **Filed:** **Jan. 3, 1997**

A method of controlling an input/output (I/O) device connected to a computer to facilitate fast I/O data transfers. An address space for the I/O device is created in the virtual memory of the computer, wherein the address space comprises virtual registers that are used to directly control the I/O device. In essence, control registers and/or memory of the I/O devices are mapped into the virtual address space, and the virtual address space is backed by control registers and/or memory on the I/O device. Thereafter, the I/O device detects writes to the address space. As a result, a pre-defined sequence of actions can be triggered in the I/O device by programming specified values into the data written into the mapped virtual address space.

[51] **Int. Cl.<sup>6</sup>** ..... **G06F 13/00**  
 [52] **U.S. Cl.** ..... **395/829; 395/826; 395/836; 395/856; 711/146**

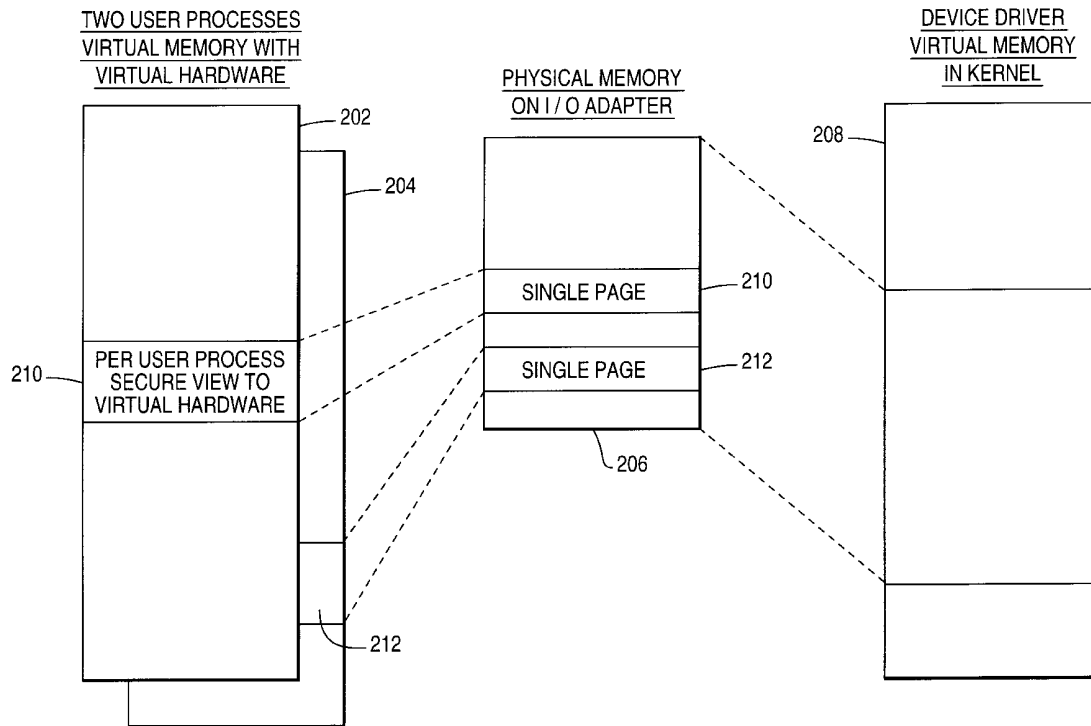
[58] **Field of Search** ..... 370/218; 395/520, 395/872, 828, 847, 836, 842, 829, 473; 707/201; 364/578, 528.21

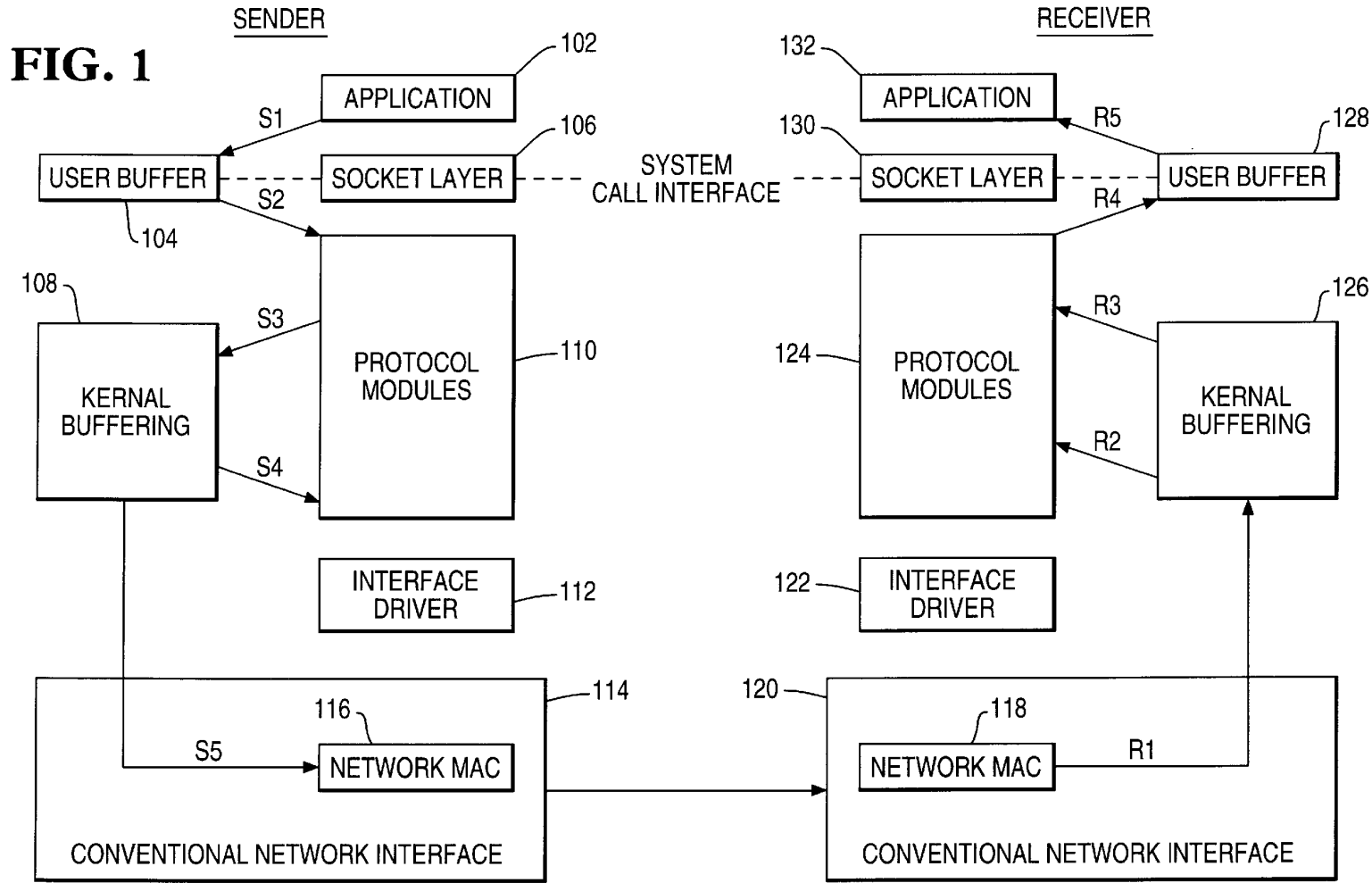
[56] **References Cited**

**U.S. PATENT DOCUMENTS**

4,725,971	2/1988	Doshi et al.	364/578
4,807,224	2/1989	Naron et al.	370/218
5,170,470	12/1992	Pindar et al.	395/828

**27 Claims, 8 Drawing Sheets**





**FIG. 2**

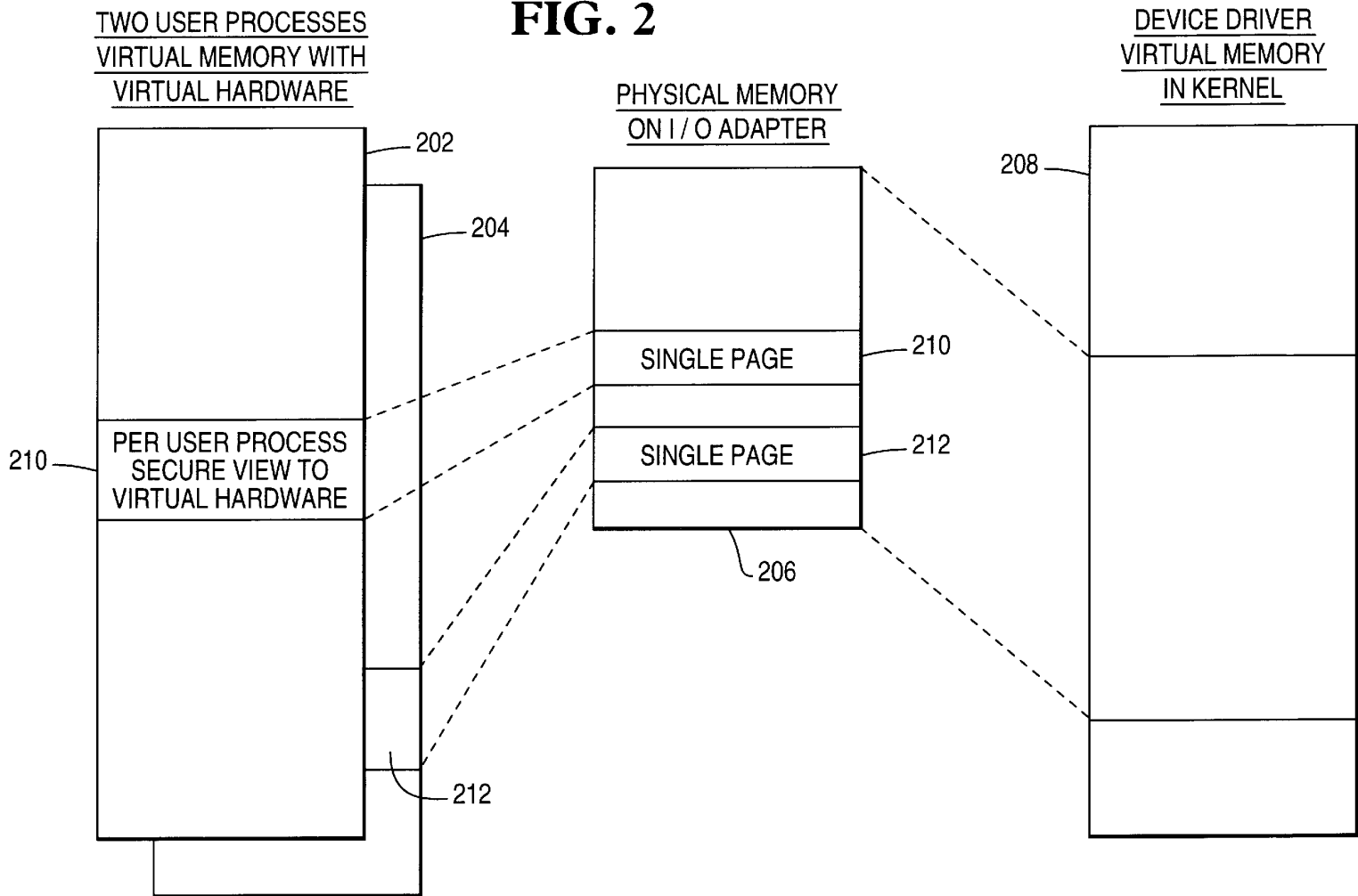


FIG. 3

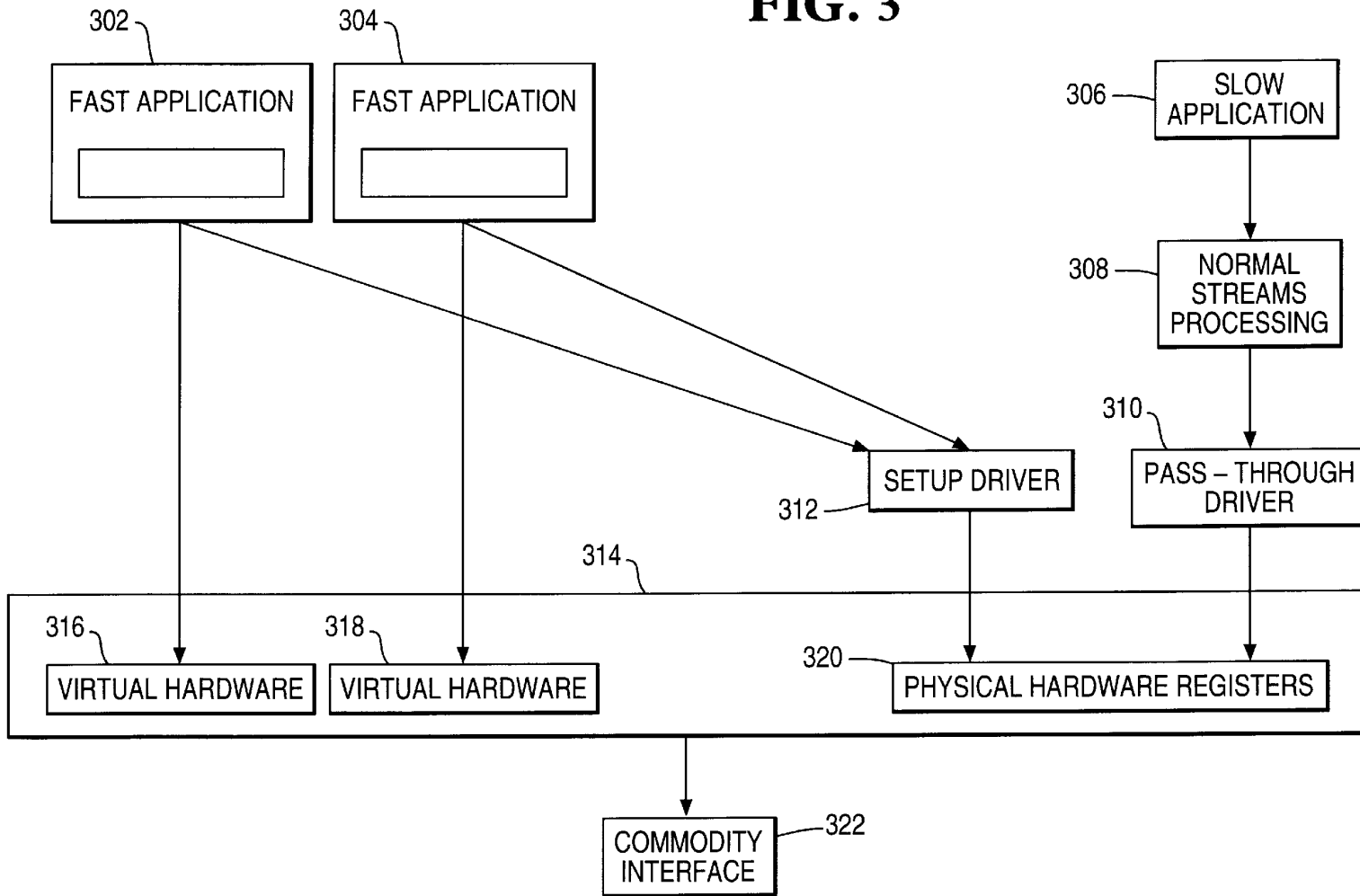
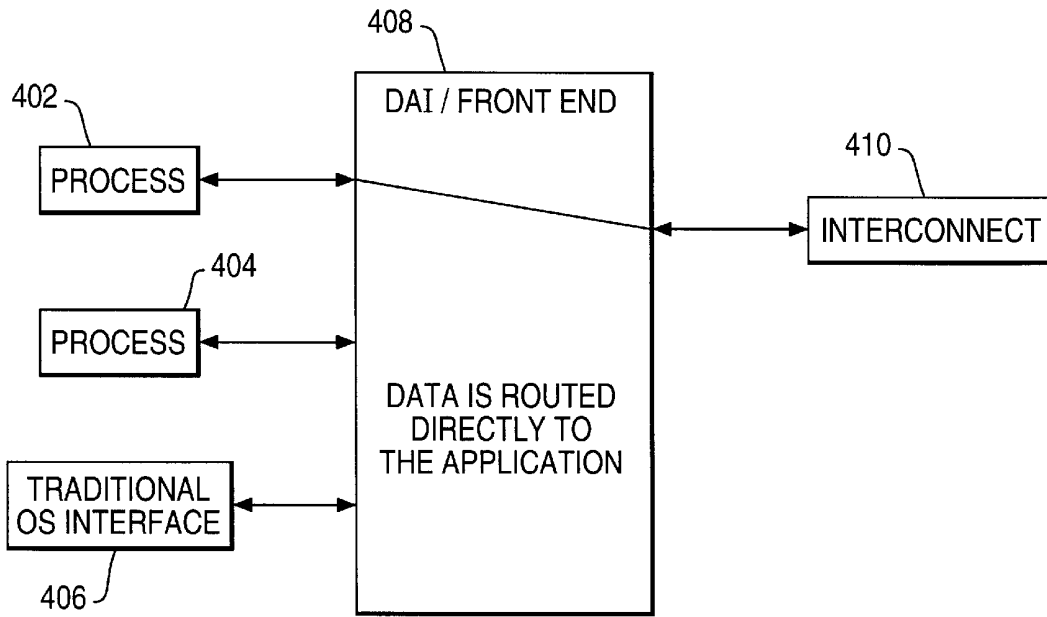


FIG. 4



# 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.