US005491495A

United States Patent [19]

Ward et al.

[11] **Patent Number: 5,491,495**

[45] **Date of Patent: Feb. 13, 1996**

[54] **USER INTERFACE HAVING SIMULATED DEVICES**

[75] Inventors: **Jean R. Ward**, Arlington; **David M. Barrett**, Tyngsboro; **Patricia A. Martin**, Groton; **Christopher D. Mokoski**, Auburn, all of Mass.

[73] Assignee: **Wang Laboratories, Inc.**, Lowell, Mass.

[21] Appl. No.: **613,416**

[22] Filed: **Nov. 13, 1990**

[51] **Int. Cl.**[6] **G09G 3/02**

[52] **U.S. Cl.** **345/173**; 345/168; 345/112

[58] **Field of Search** 340/706, 707, 340/710, 711, 712; 178/18; 382/3, 13; 345/156, 157, 161–168, 173–175, 112, 179, 127, 145; 395/159

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,028,695	6/1977	Saich	340/711
4,202,041	5/1989	Kaplow et al.	340/712
4,562,304	12/1985	Ward et al. .	
4,587,633	5/1986	Wang et al. .	
4,602,286	7/1986	Kellar et al. .	
4,641,354	2/1987	Fukunaga et al. .	
4,803,463	2/1989	Sado	340/712
4,839,634	6/1989	More et al.	340/707
4,859,995	8/1989	Hansen et al.	340/710
4,899,136	2/1990	Beard et al. .	
4,901,221	2/1990	Kodosky et al. .	
4,972,496	11/1990	Sklarew .	

FOREIGN PATENT DOCUMENTS

0254561A2	1/1988	European Pat. Off. .	
0271280	6/1988	European Pat. Off.	G06F 3/03
0395469	10/1990	European Pat. Off. .	
2127720	7/1990	Japan .	
WO8911695	11/1989	WIPO .	

OTHER PUBLICATIONS

Brad A. Myers; "Creating Interaction Techniques by Demonstration"; IEE CG&A; Sep. 1987; pp. 51–60.

Randall B. Smith; "Experiences with the Alternate Reality Kit:An example of the tension between literalism and magic"; IEEE CG&A; Sep. 1989; pp. 42–50.

Apple Computer, Macintosh Plus Owner's Guide, 1987, pp. 72–73, 148–149.

Baran, "Agilis Hand–Held Workstations: Computing Power in the Field", Byte, Aug. 1989, pp. 91–94.

Fisher, "New Computer Reads Handwriting", New York Times, Sep. 28, 1989.

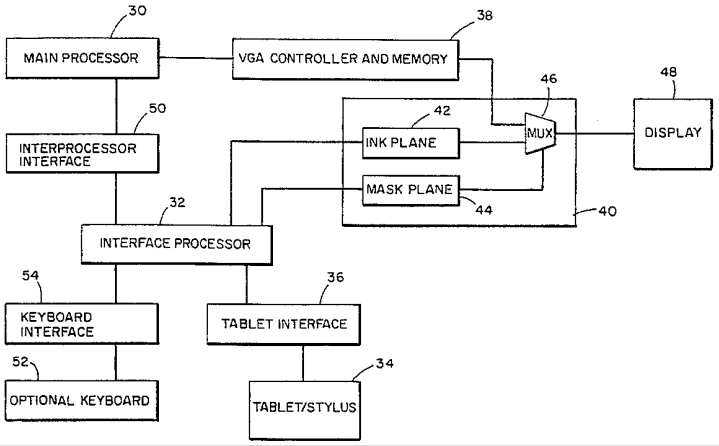
(List continued on next page.)

Primary Examiner—Ulysses Weldon
Assistant Examiner—M. Fatahiyar
Attorney, Agent, or Firm—Kenneth L. Milik

[57] **ABSTRACT**

A computer system hating a digitizing tablet overlaying the display screen. The tablet serves as a user's primary input device. Various features of the system make it possible for the user to run and interact with standard programs designed for keystroke and mouse input and not designed for use with a tablet. In addition to the main processor, on which the user's programs are executed, there is an interface processor. In addition to a standard display buffer, there is an ink plane buffer for interface display data that is combined with the data from the standard display buffer on a pixel-by-pixel basis according to data from a mask plane buffer. The interface processor manages input from the tablet, presents feedback to the user by means of the ink and mask planes, and provides keystroke and mouse data to the main processor as if from a standard keyboard controller. The interface processor presents the user with a collection of simulated devices, including standard devices such as a keyboard and a mouse. A nonstandard simulated device performs character recognition, permitting handwritten characters to be used for program input. During interaction with one of the user's programs, the user can activate and deactivate simulated devices (by removing them from and returning them to a device tray) and can make adjustments in their operation and location on the screen.

18 Claims, 12 Drawing Sheets



OTHER PUBLICATIONS

Microsoft Corp., "Microsoft Windows Desktop Applications User's Guide", pp. 63–67, in Microsoft Windows User's Guide, Version 2.0, 1987.

Schmeupe, "A Pair of Digitizing Tablets", Macworld, Mar. 1987, pp. 144–145.

Ward & Philips, "Digitizer Technology: Performance Characteristics and the Effects on the User Interface", IEEE Computer Graphics and Applications, Apr. 1987, pp. 31–44.

Berlis & Borden, "Building a Better Mouse", Macuser, Oct. 1989, pp. 124–139.

IBM Technical Disclosure Bulletin, vol. 32, No. 10B, Mar. 1990, (Armonk, US) "Briefcase icon for take–home and disconnected user support"pp. 88–89.

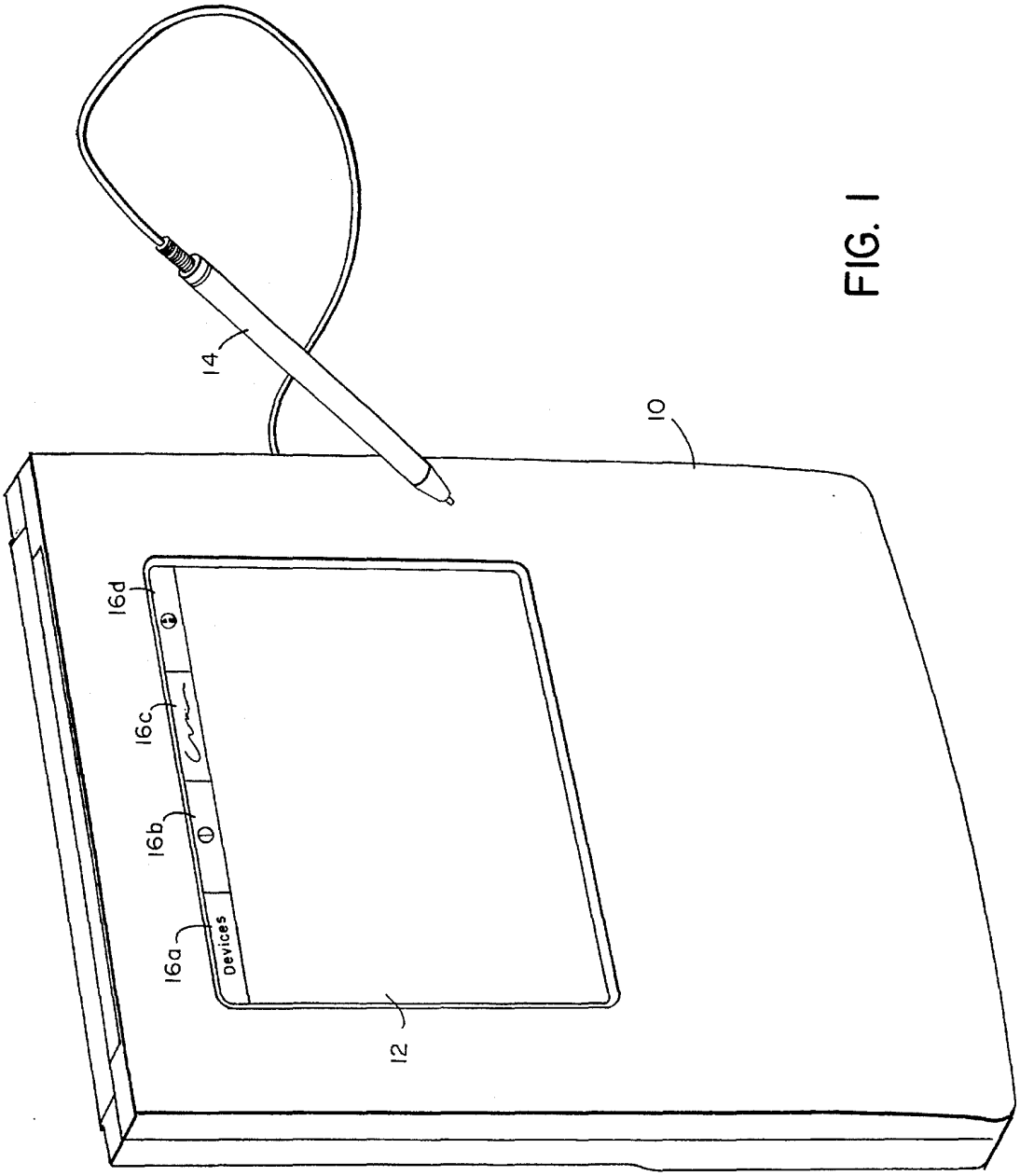


FIG. 1

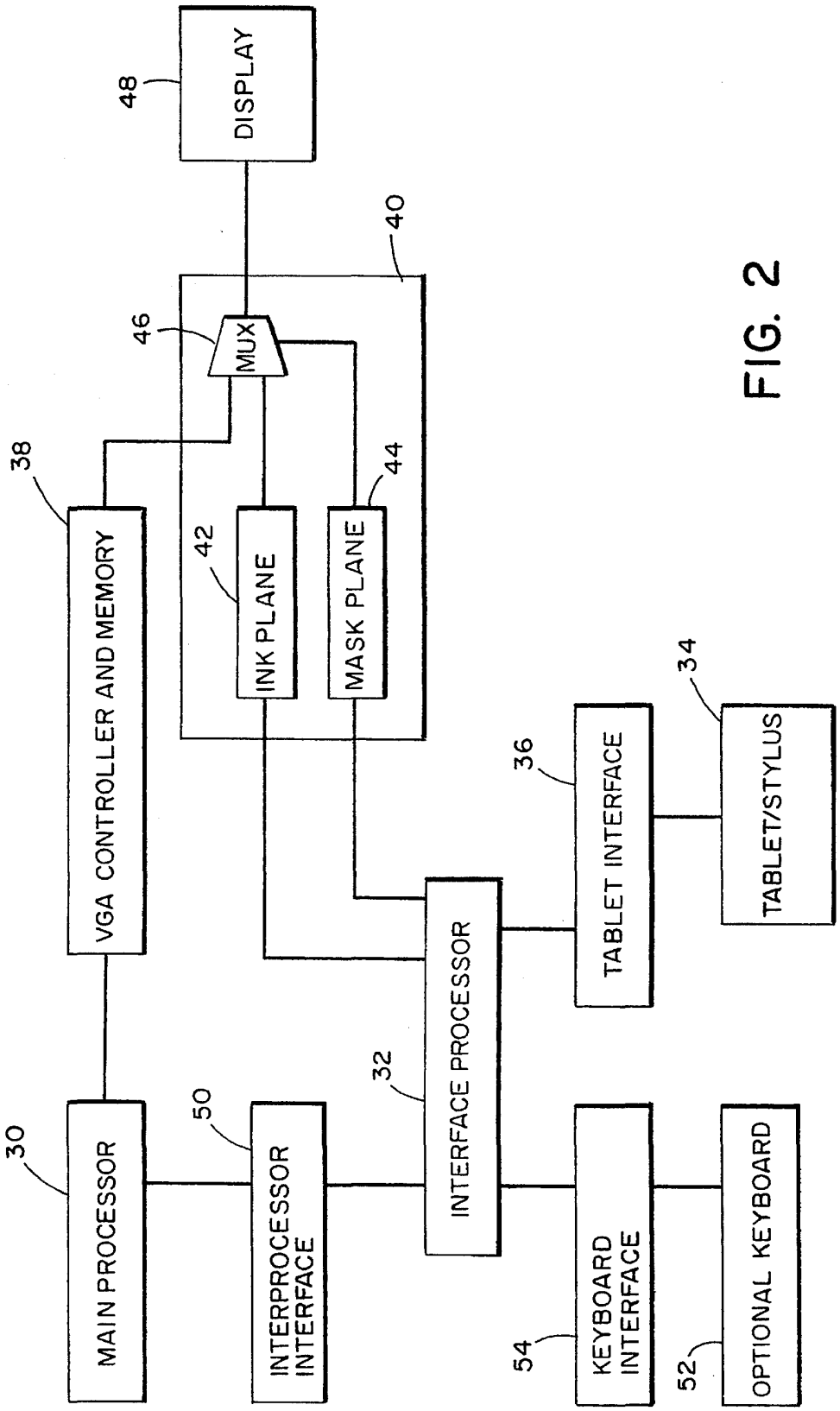
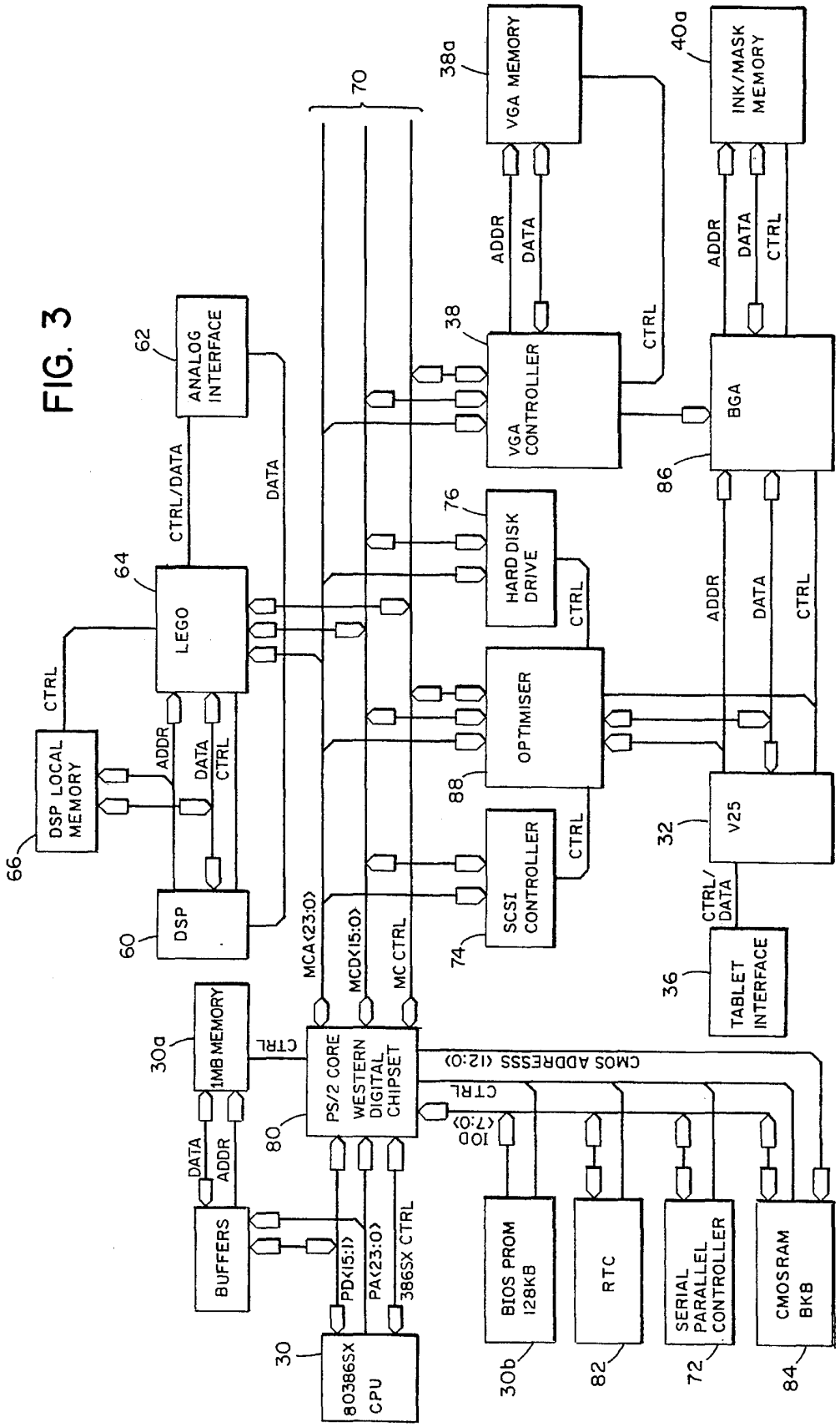


FIG. 2

FIG. 3



DOCKET ALARM

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.