



United States Patent [19]

[11] **Patent Number:** **5,543,588**

Bisset et al.

[45] **Date of Patent:** **Aug. 6, 1996**

[54] **TOUCH PAD DRIVEN HANDHELD COMPUTING DEVICE**

[75] Inventors: **Stephen Bisset**, Palo Alto; **Robert J. Miller**, Fremont; **Timothy P. Allen**, Los Gatos; **Günter Steinbach**, Palo Alto, all of Calif.

[73] Assignee: **Synaptics, Incorporated**, San Jose, Calif.

[21] Appl. No.: **161,671**

[22] Filed: **Dec. 3, 1993**
(Under 37 CFR 1.47)

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 895,934, Jun. 8, 1992, and a continuation-in-part of Ser. No. 115,743, Aug. 31, 1993, Pat. No. 5,374,787.

[51] **Int. Cl.⁶** **G08C 21/00; G09G 5/00**

[52] **U.S. Cl.** **178/18; 345/173**

[58] **Field of Search** **178/18, 19; 341/33, 341/34; 345/173, 174**

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,327,163 7/1994 Hashimoto et al. 178/18 X

FOREIGN PATENT DOCUMENTS

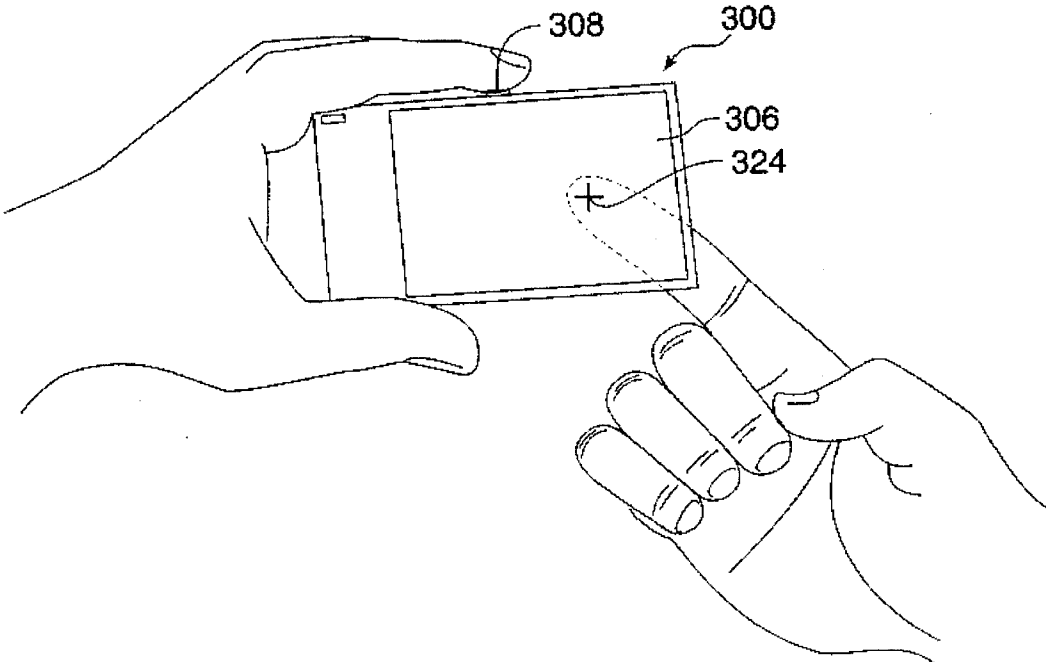
2662528 11/1991 European Pat. Off. .

Primary Examiner—Stephen Chin
Assistant Examiner—Kevin Kim
Attorney, Agent, or Firm—D'Alessandro & Ritchie

[57] **ABSTRACT**

A handheld computing device comprises a thin enclosure having two opposing major faces. A display screen is disposed on a first one of the major opposing faces of the enclosure and a touch-sensitive object position detector input device is disposed on a second one of the major opposing faces of the enclosure. Computing device circuitry, circuitry for interfacing the touch-sensitive object position detector to the computing device circuitry, and circuitry for driving the display screen are all disposed within the enclosure.

4 Claims, 15 Drawing Sheets



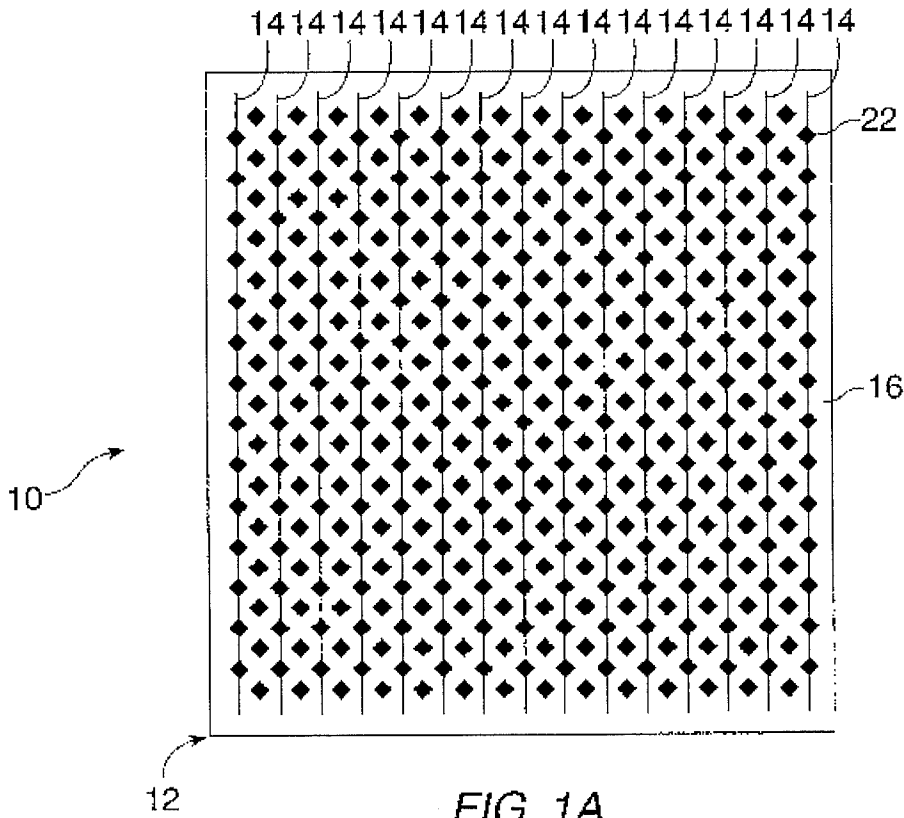


FIG. 1A

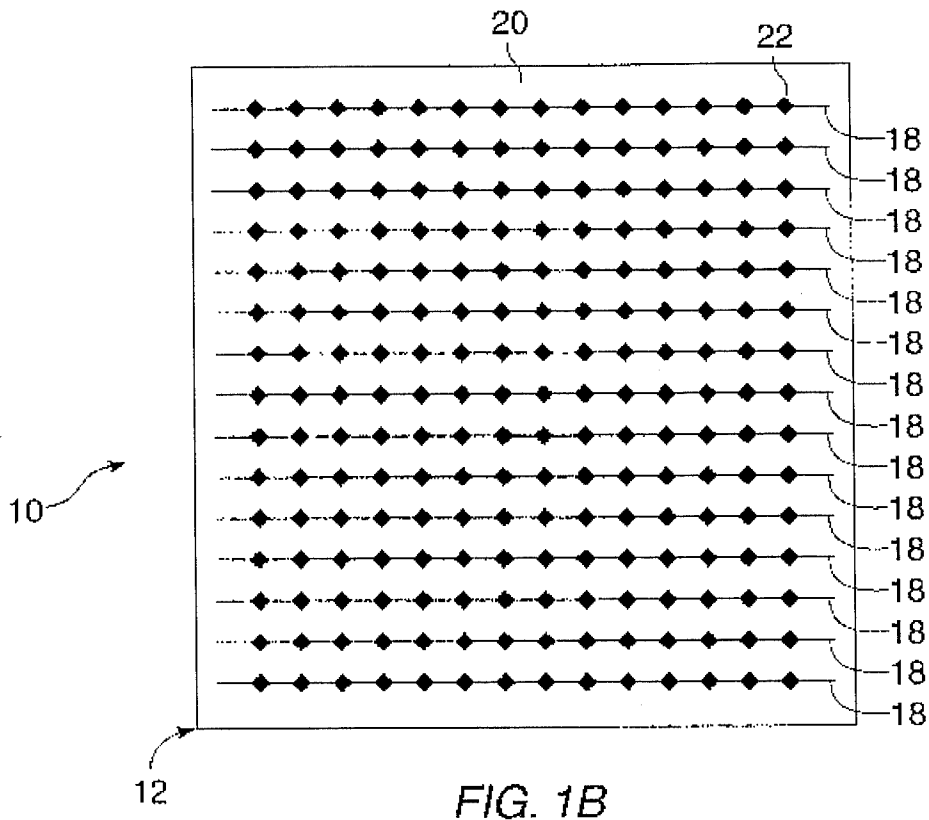


FIG. 1B

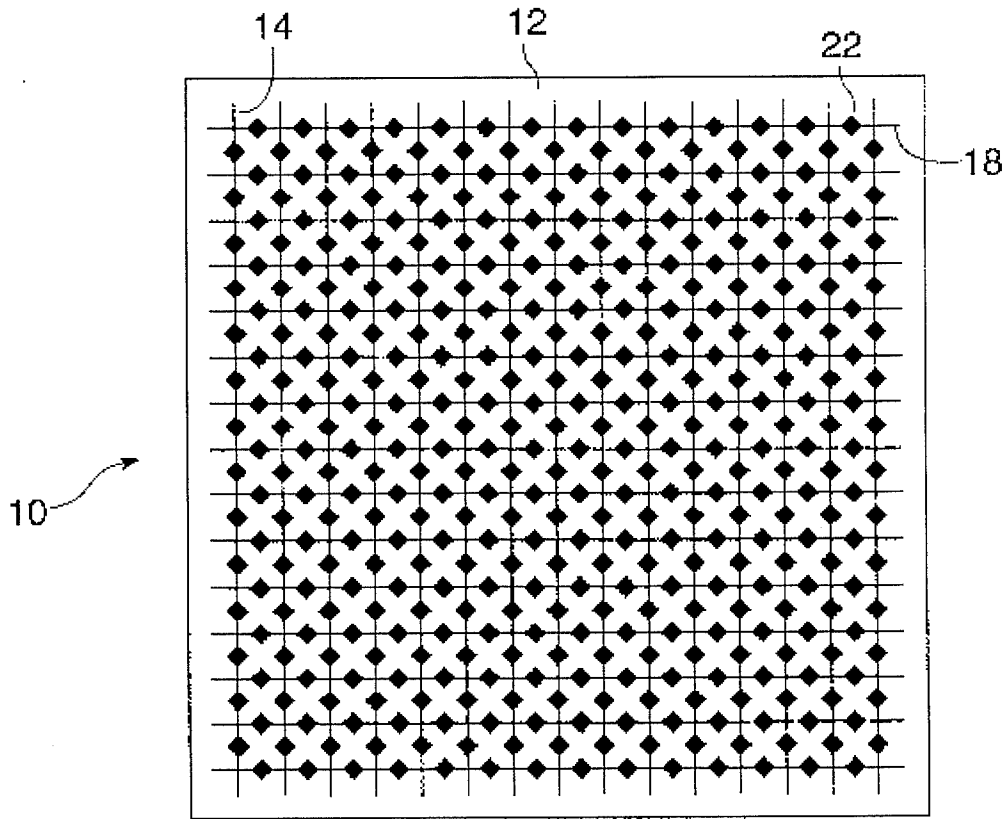


FIG. 1C

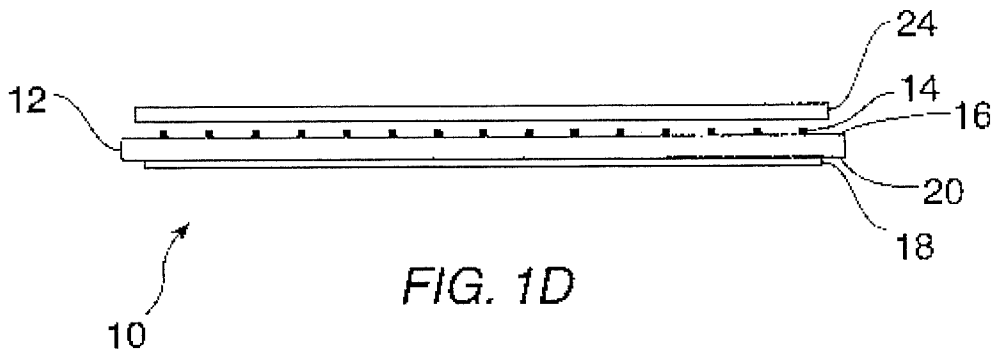


FIG. 1D

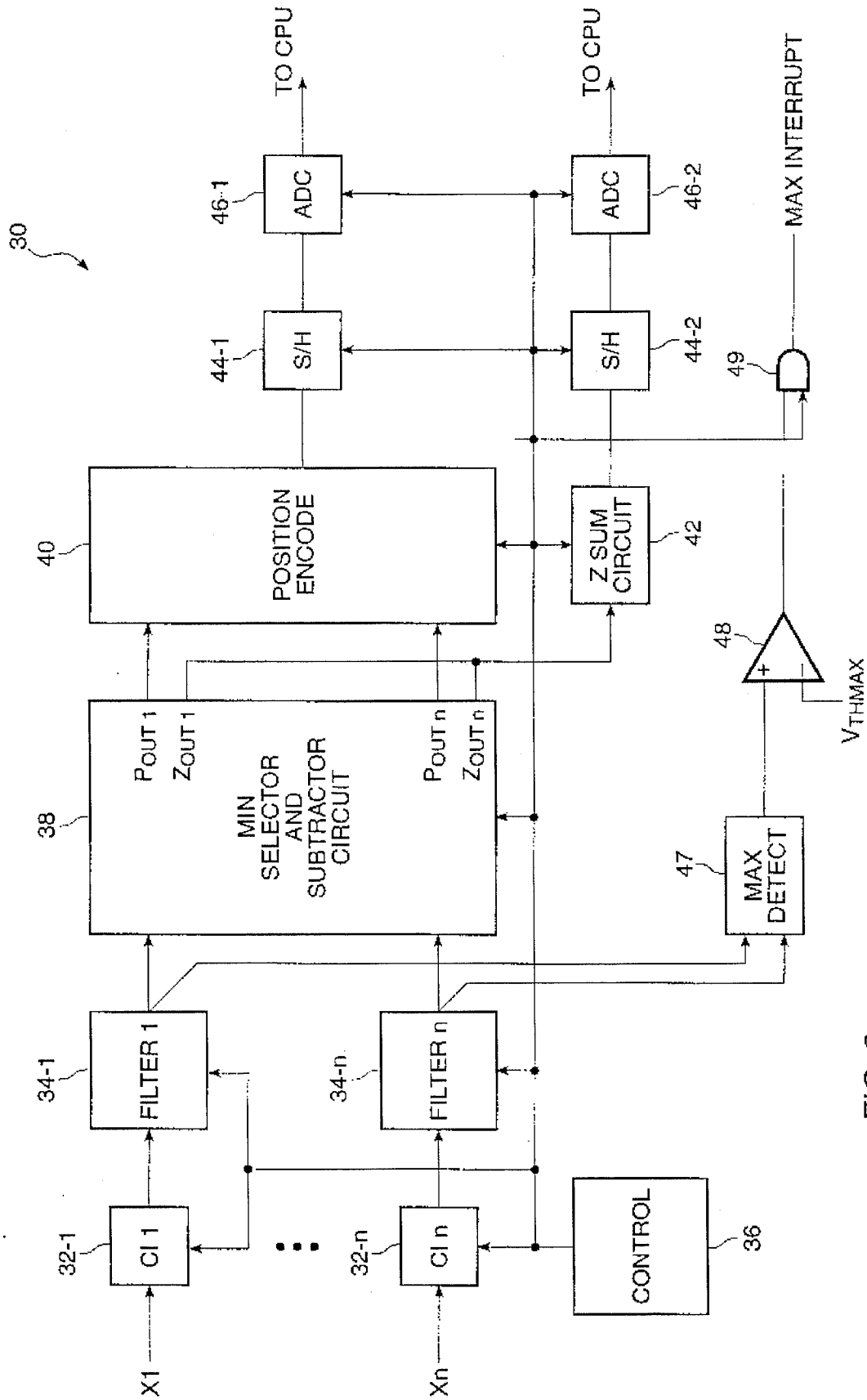


FIG. 2

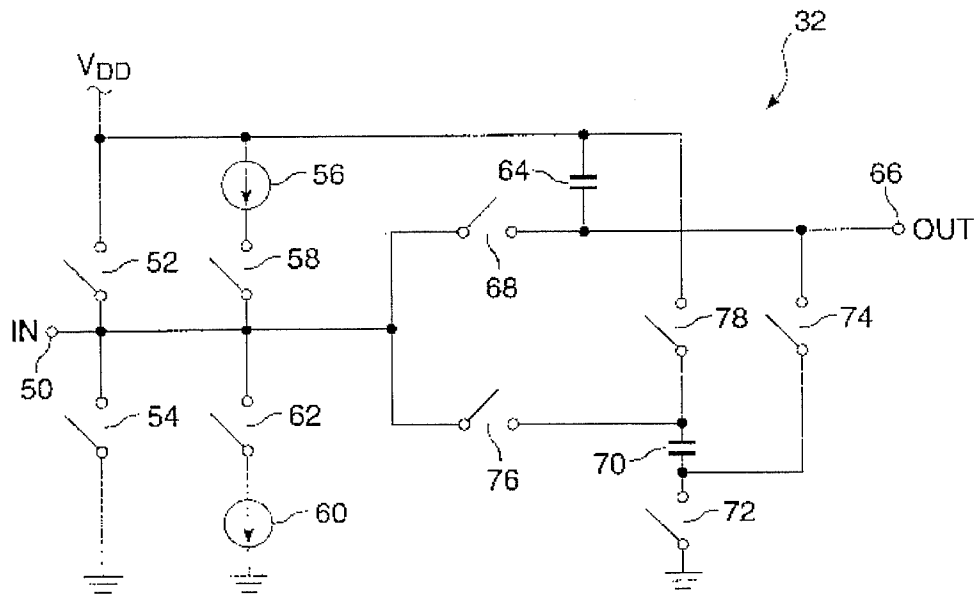


FIG. 3A

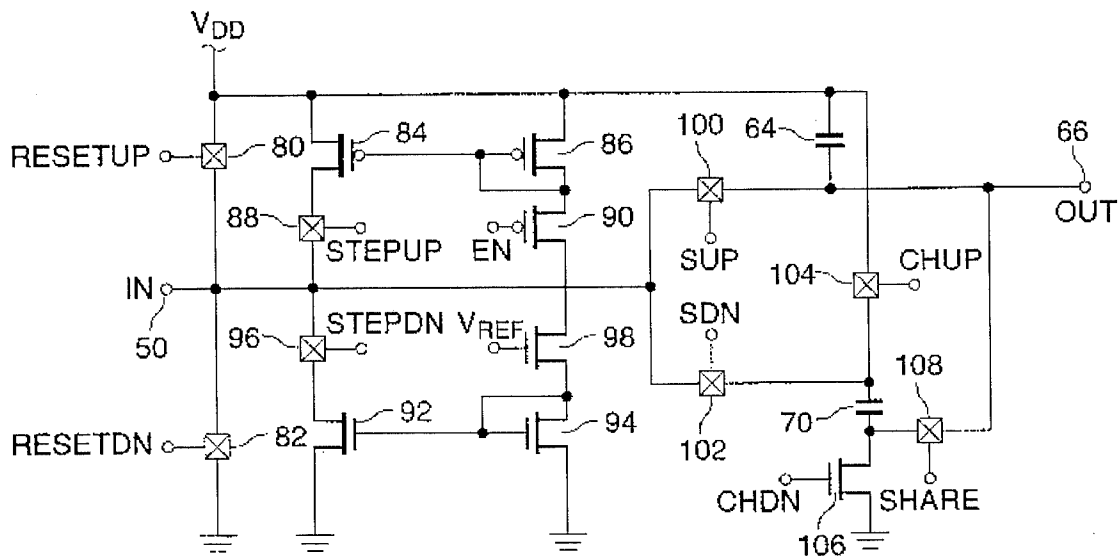


FIG. 3B

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.