



US 20040252109A1

(19) **United States**

(12) **Patent Application Publication**

**Trent, JR. et al.**

(10) **Pub. No.: US 2004/0252109 A1**

(43) **Pub. Date: Dec. 16, 2004**

(54) **CLOSED-LOOP SENSOR ON A SOLID-STATE OBJECT POSITION DETECTOR**

(75) Inventors: **Raymond A. Trent JR.**, San Jose, CA (US); **Scott J. Shaw**, Fremont, CA (US); **David W. Gillespie**, Los Gatos, CA (US); **Christopher Heiny**, Boulder Creek, CA (US); **Mark A. Huie**, San Carlos, CA (US)

Correspondence Address:  
**SIERRA PATENT GROUP, LTD.**  
**P O BOX 6149**  
**STATELINE, NV 89449 (US)**

(73) Assignee: **Synaptics, Inc.**

(21) Appl. No.: **10/338,765**

(22) Filed: **Jan. 7, 2003**

**Related U.S. Application Data**

(60) Provisional application No. 60/372,009, filed on Apr. 11, 2002.

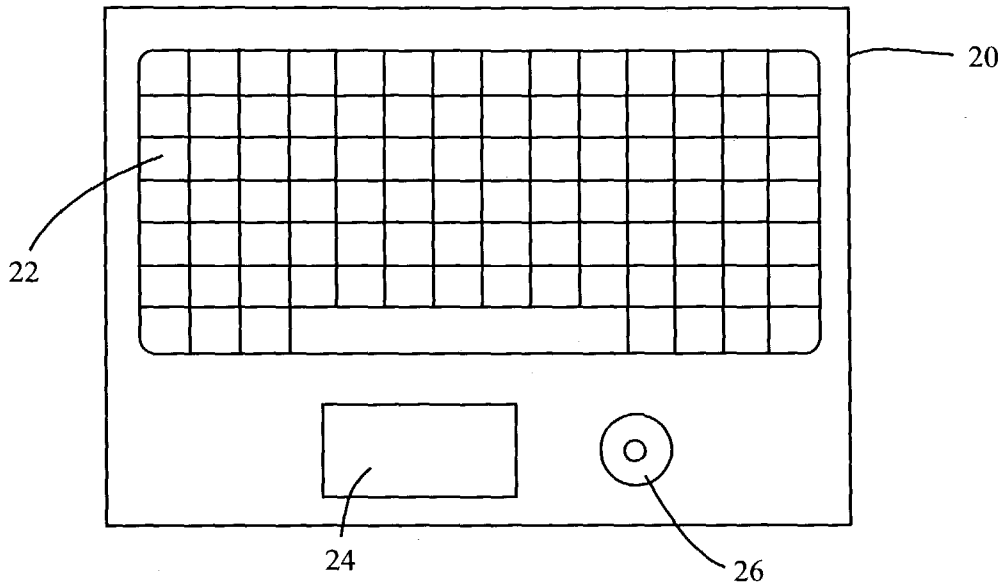
**Publication Classification**

(51) **Int. Cl.<sup>7</sup> ..... G09G 5/00**

(52) **U.S. Cl. .... 345/174**

(57) **ABSTRACT**

The present disclosure discloses an object position detector. The object position detector comprises a touch sensor formed as a closed loop and having a physical constraint formed on an upper surface of the touch sensor and coextensive with the closed loop. The touch sensor is configured to sense motion of an object proximate to the closed loop. The object position detector also comprises a processor coupled to the touch sensor and is programmed to generate an action in response to the motion on the touch sensor.



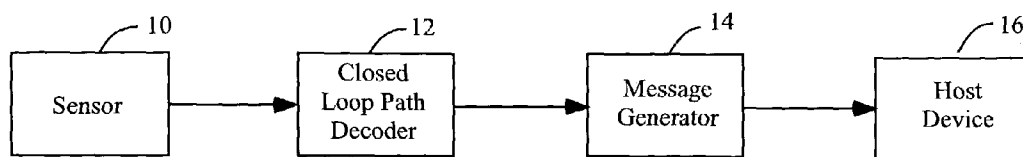


Fig. 1

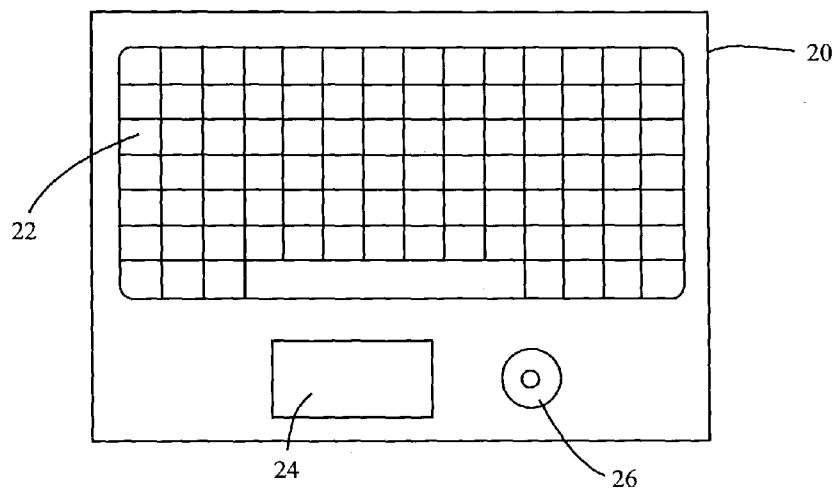


Fig. 2

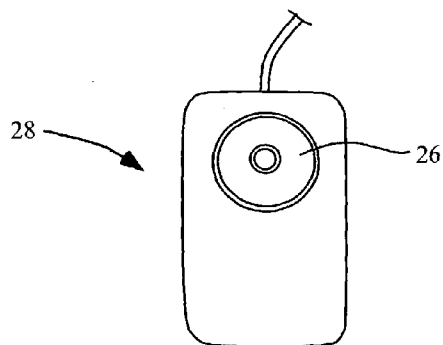


Fig. 3

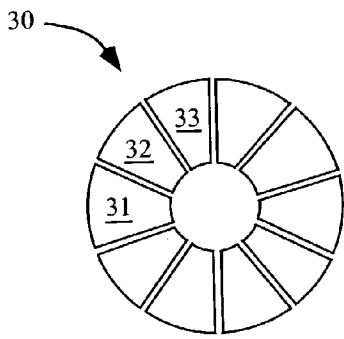


Fig. 4

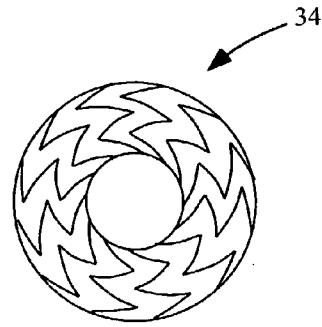


Fig. 5

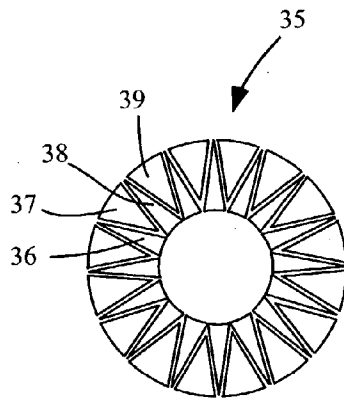


Fig. 6

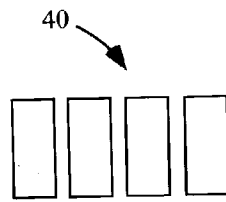


Fig. 7

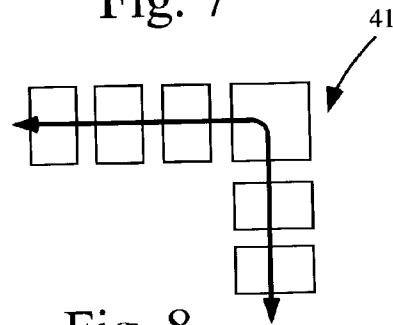


Fig. 8

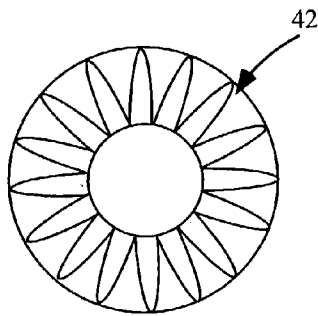


Fig. 9

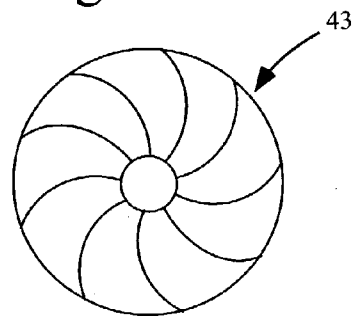


Fig. 10



Fig. 11



Fig. 12



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17

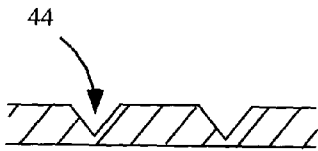


Fig. 18

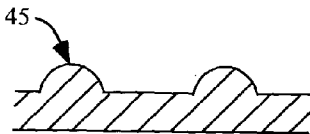


Fig. 19



Fig. 20

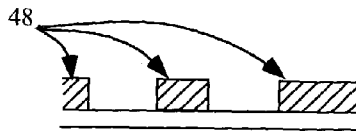


Fig. 21

Fig. 22

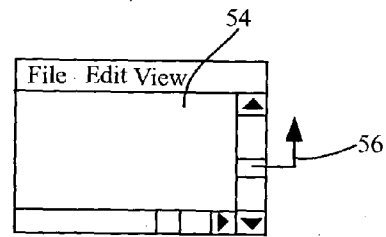
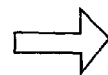
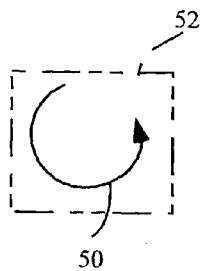
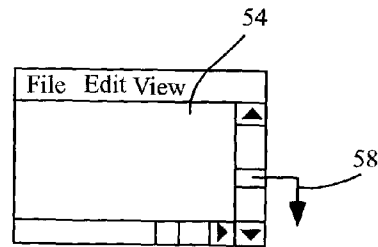
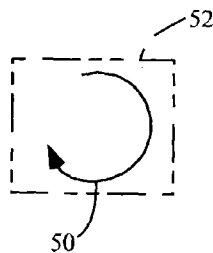


Fig. 23



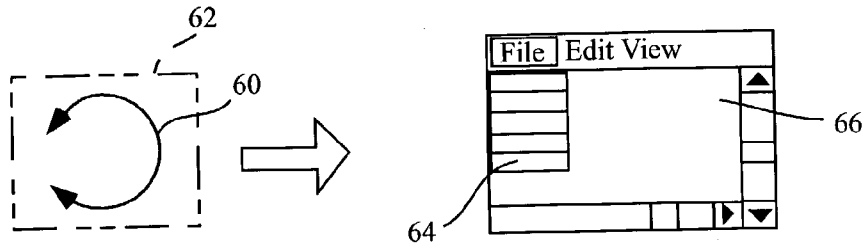


Fig. 24

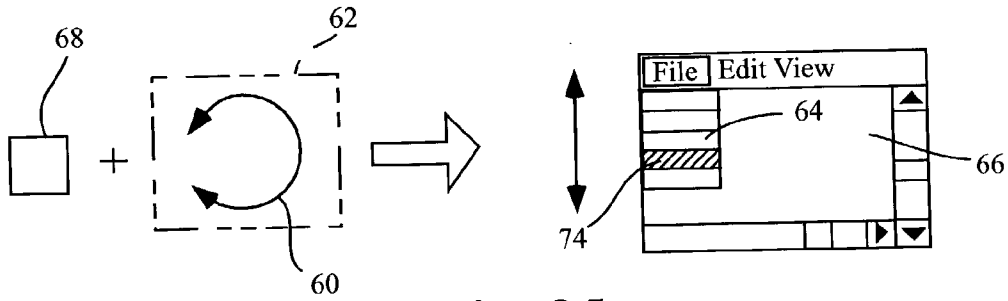


Fig. 25

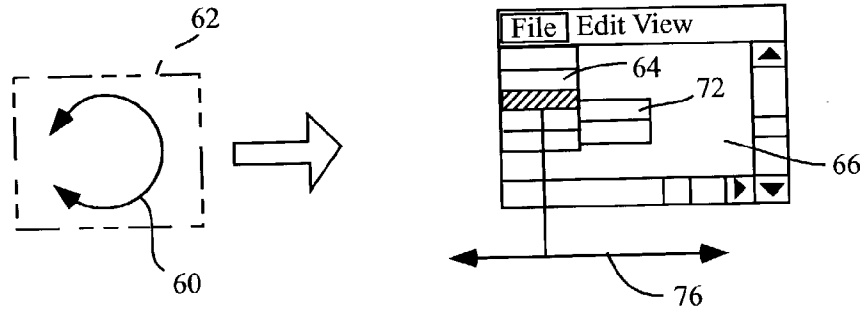


Fig. 26

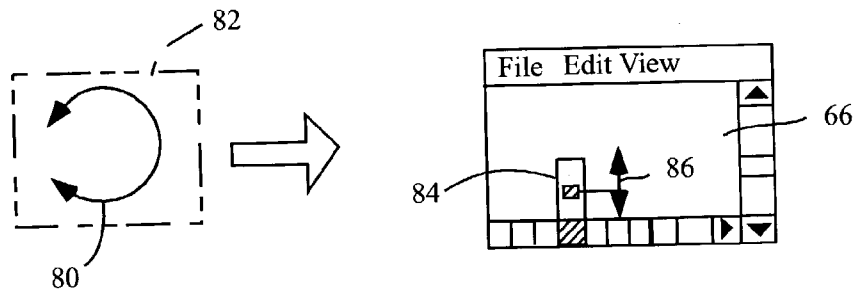


Fig. 27

# 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.