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Shaw et al.

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(54) **CAPACITIVE MOUSE**

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(75) Inventors: **Scott J. Shaw**, Fremont, CA (US);
Shawn P. Day, San Jose, CA (US);
Raymond A. Trent, Jr., San Jose, CA
(US); **David W. Gillespie**, Los Gatos,
CA (US); **Andrew M. Errington**,
Milpitas, CA (US)

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Primary Examiner—Steven Saras

Assistant Examiner—Paul Bell

(74) *Attorney, Agent, or Firm*—Sierra Patent Group, Ltd.

(73) Assignee: **Synaptics Incorporated**, San Jose, CA
(US)

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1999.

(51) **Int. Cl.**⁷ **G09G 5/08**; G01R 27/26

(52) **U.S. Cl.** **345/163**; 324/660

(58) **Field of Search** 345/156, 157,
345/163, 164, 167, 173, 174, 184; 341/20,
22, 33; 178/18.06, 19.06; 324/658, 660,
661, 662, 686.725; 200/600; 340/870.37

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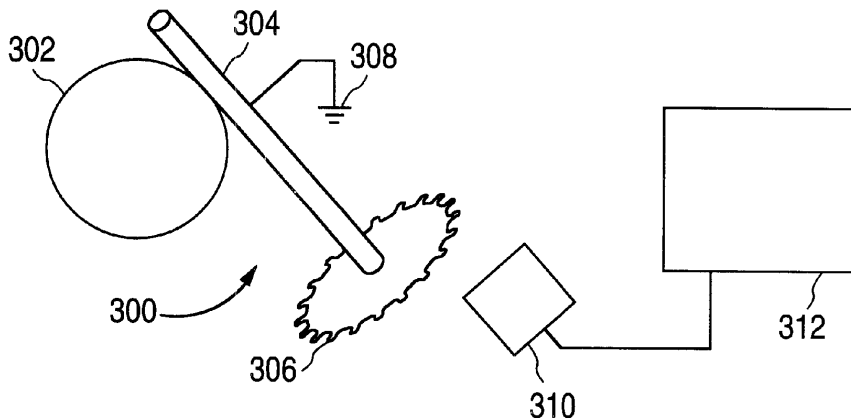
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(57) **ABSTRACT**

A pointing device some or all of whose elements are made from capacitive sensors. Such elements may include a rotary motion detector which includes a rotating member and a plurality of fixed capacitive detecting members; a rolling ball with patterned conductive surface and a plurality of fixed capacitive detecting members; capacitive touch sensors or capacitive switches to serve as mouse buttons; and a scrolling wheel, knob, or touch surface built from capacitive sensors. The pointing device further includes a capacitance measuring circuit and processor to measure variations of capacitance on the various capacitive elements and to determine the movement of and other activations of the mouse.

31 Claims, 10 Drawing Sheets



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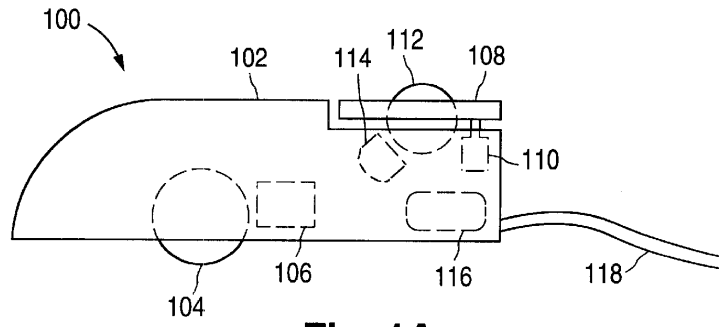


Fig. 1A
(PRIOR ART)

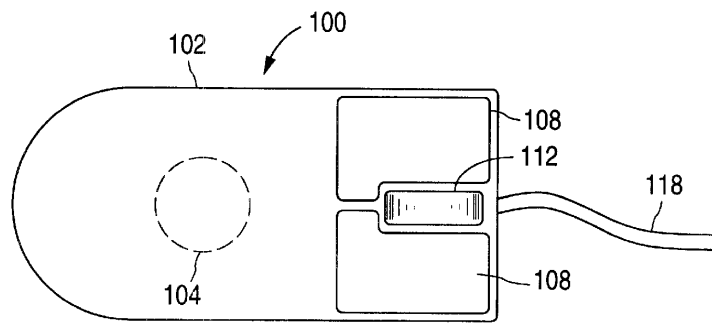


Fig. 1B
(PRIOR ART)

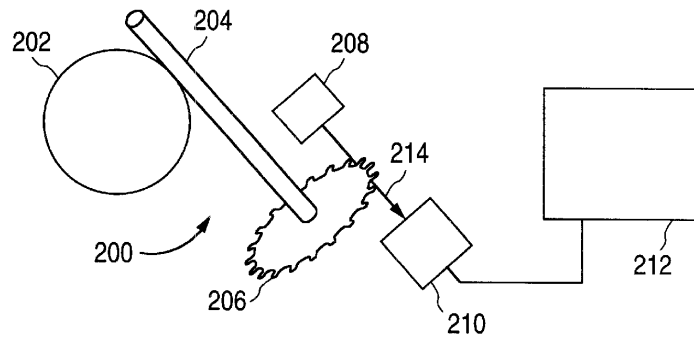


Fig. 2A
(PRIOR ART)

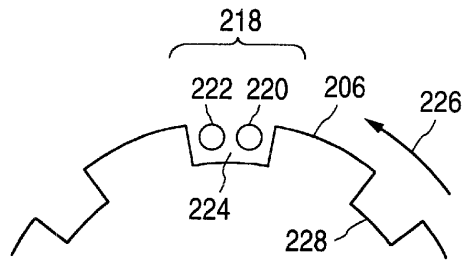


Fig. 2B
(PRIOR ART)

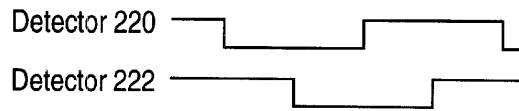


Fig. 2C

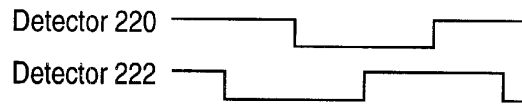


Fig. 2D

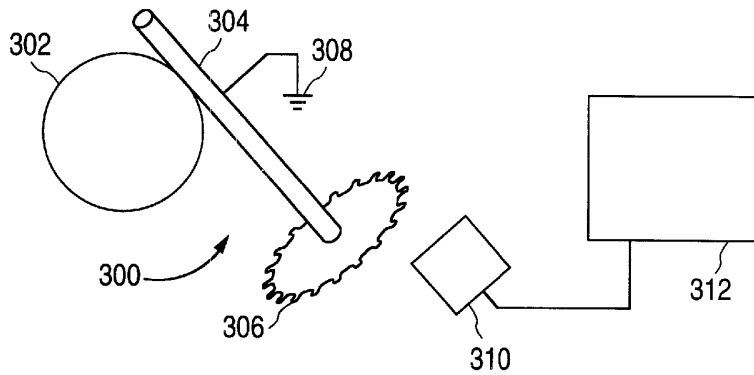


Fig. 3A

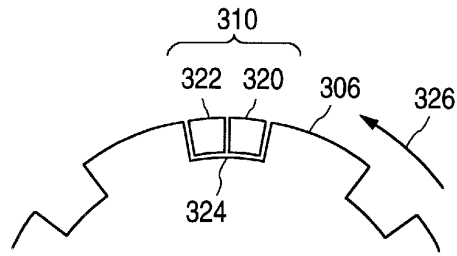


Fig. 3B

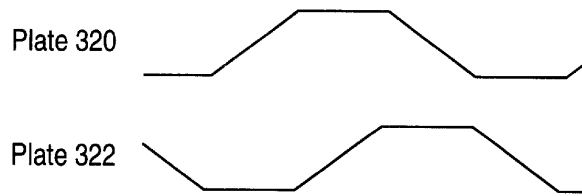


Fig. 3C

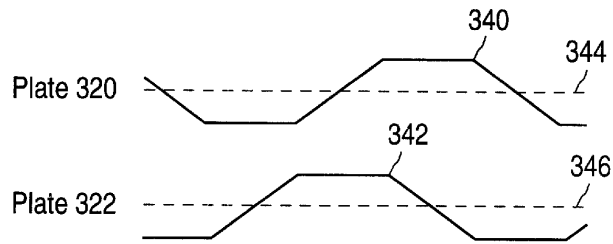


Fig. 3D

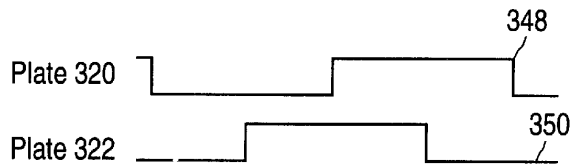


Fig. 3E

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