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Ye et al.

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(54) **3D POINTING DEVICE AND METHOD FOR COMPENSATING ROTATIONS OF THE 3D POINTING DEVICE THEREOF**

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Related U.S. Application Data

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(51) **Int. Cl.**
G06F 3/033   (2013.01)
G09G 5/08   (2006.01)

(52) **U.S. Cl.**
USPC **345/157**; 345/156; 345/158; 345/173; 178/18.01; 178/18.03; 178/19.01

(58) **Field of Classification Search**
USPC ... 345/156–168, 173–183; 178/18.01–18.04, 178/19.01–19.04
See application file for complete search history.

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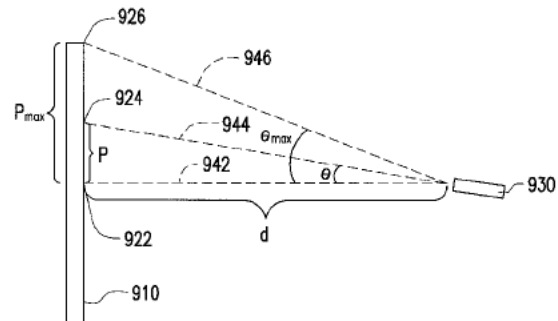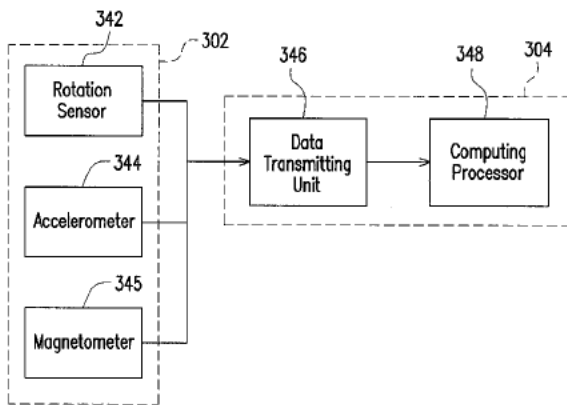
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(57) **ABSTRACT**

A 3D pointing device utilizing an orientation sensor, capable of accurately transforming rotations and movements of the 3D pointing device into a movement pattern in the display plane of a display device is provided. The 3D pointing device includes the orientation sensor, a rotation sensor, and a computing processor. The orientation sensor generates an orientation output associated with the orientation of the 3D pointing device associated with three coordinate axes of a global reference frame associated with the Earth. The rotation sensor generates a rotation output associated with the rotation of the 3D pointing device associated with three coordinate axes of a spatial reference frame associated with the 3D pointing device itself. The computing processor uses the orientation output and the rotation output to generate a transformed output associated with a fixed reference frame associated with the display device above. The transformed output represents a segment of the movement pattern.
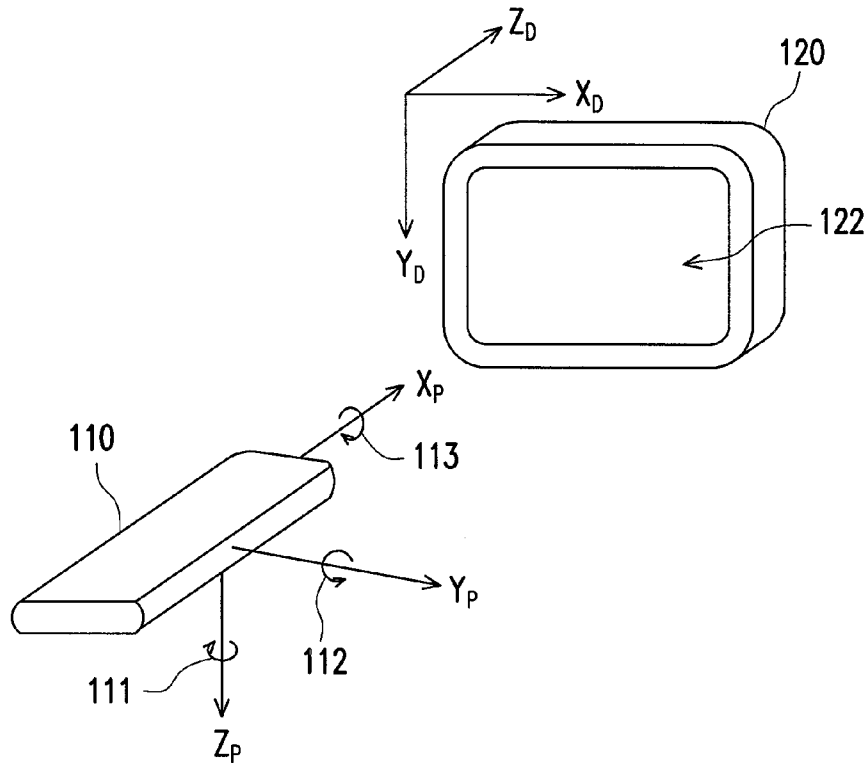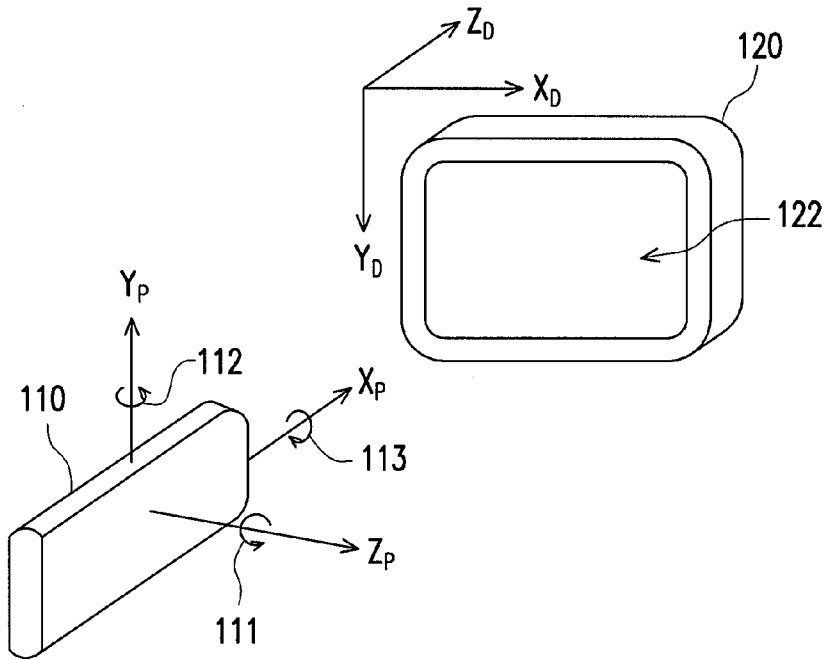
18 Claims, 12 Drawing Sheets

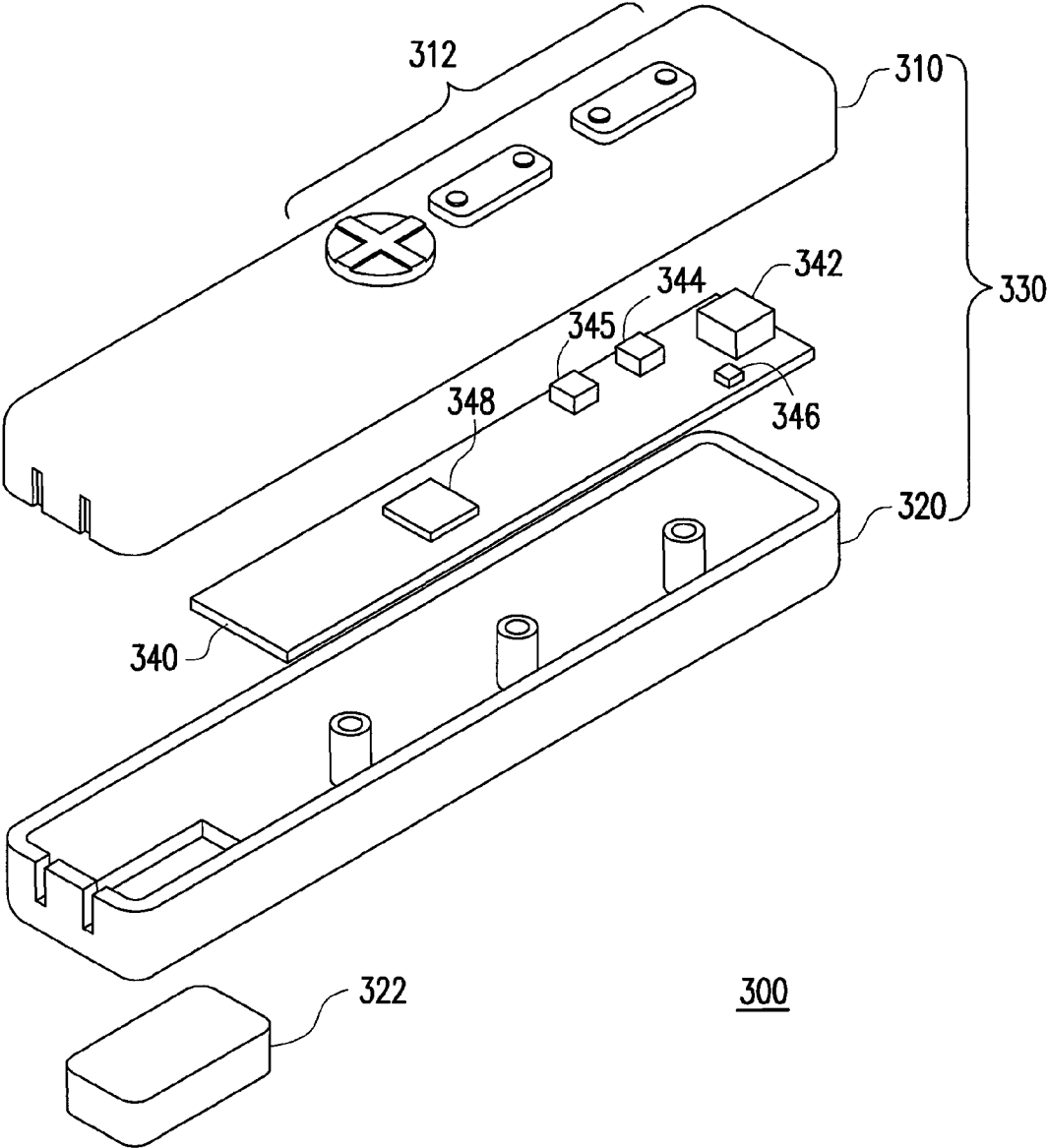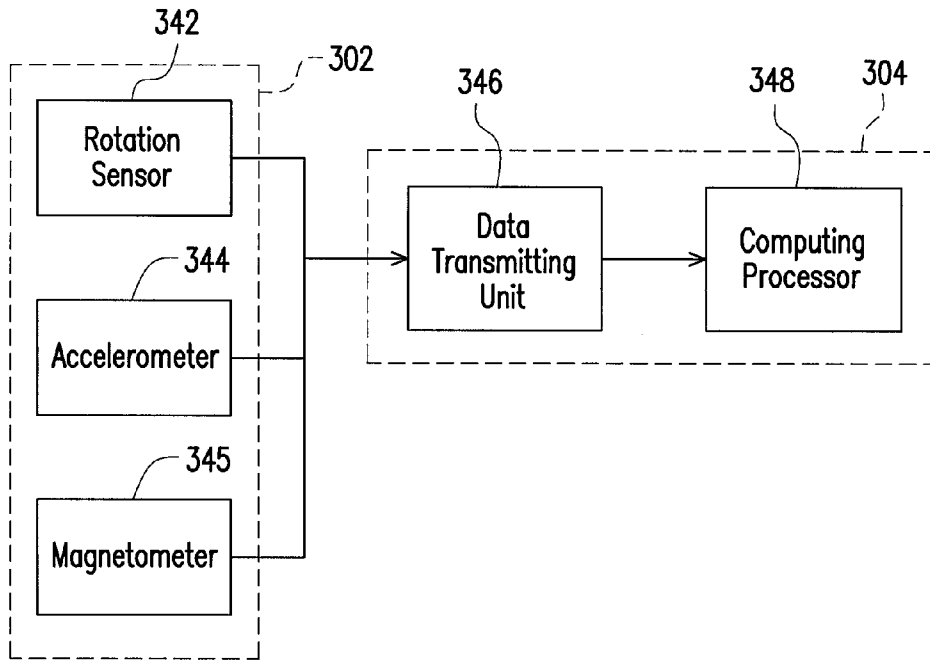FIG. 1 (RELATED ART)

FIG. 2 (RELATED ART)

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FIG. 3

FIG. 4

FIG. 5

FIG. 6

DOCKET ALARM
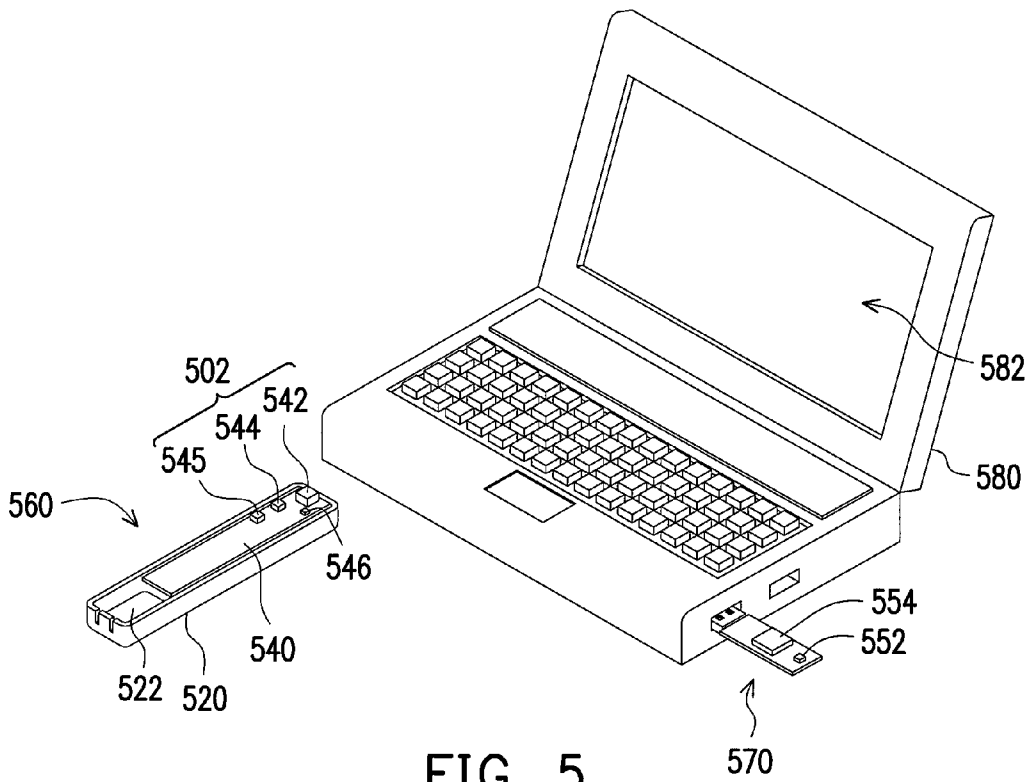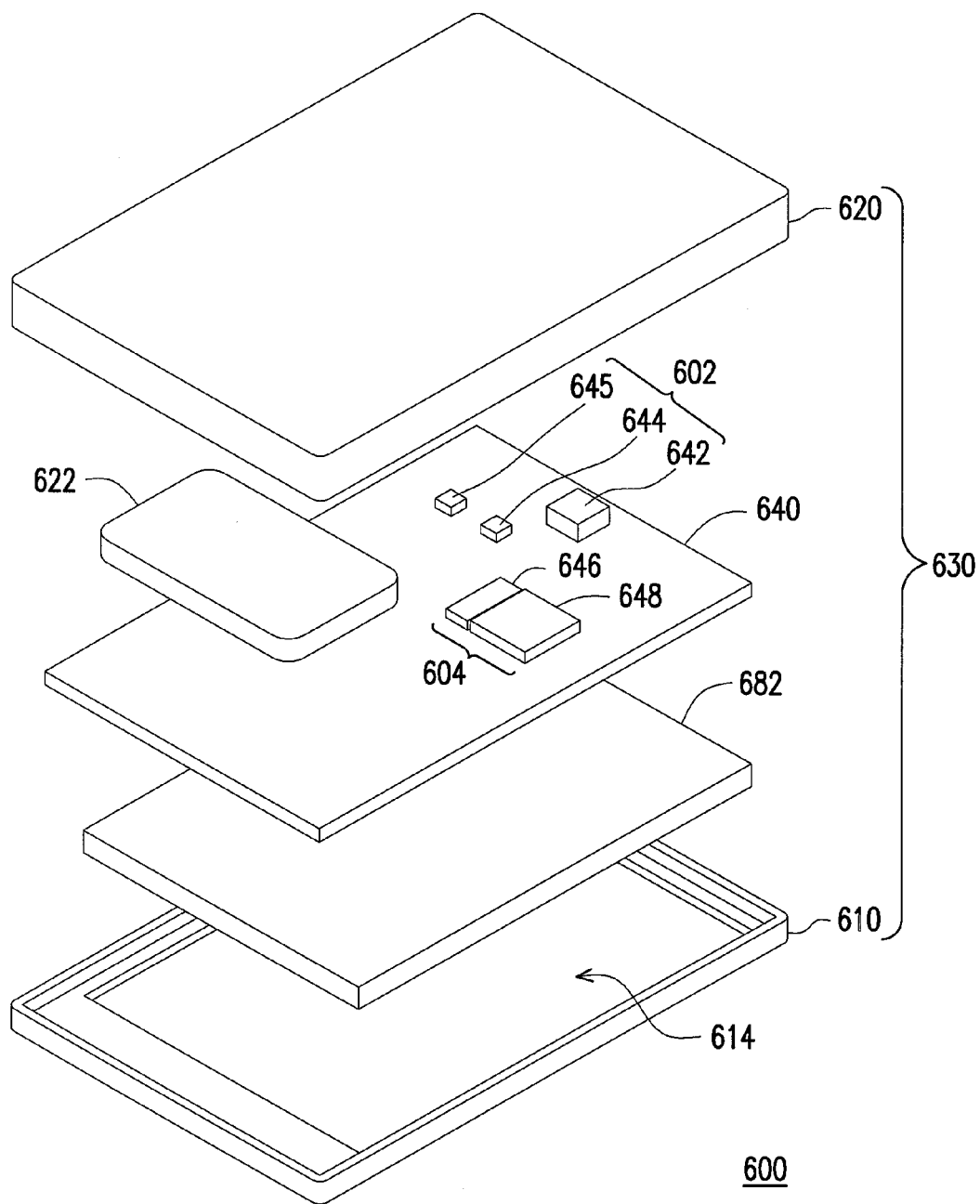
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