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United States Patent [19]

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Glynn

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[54] **COMPUTER APPARATUS INPUT DEVICE FOR THREE-DIMENSIONAL INFORMATION**

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[73] Assignee: **Triton Technologies, Inc., Burke, Va.**

[21] Appl. No.: **588,824**

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[51] Int. Cl.⁵ **G01P 7/00; G01P 15/00; G09G 1/00**

[52] U.S. Cl. **364/566; 340/710; 364/709.11**

[58] Field of Search **364/560, 453, 709.11, 364/565, 566; 340/710, 706; 178/18-20; 73/505**

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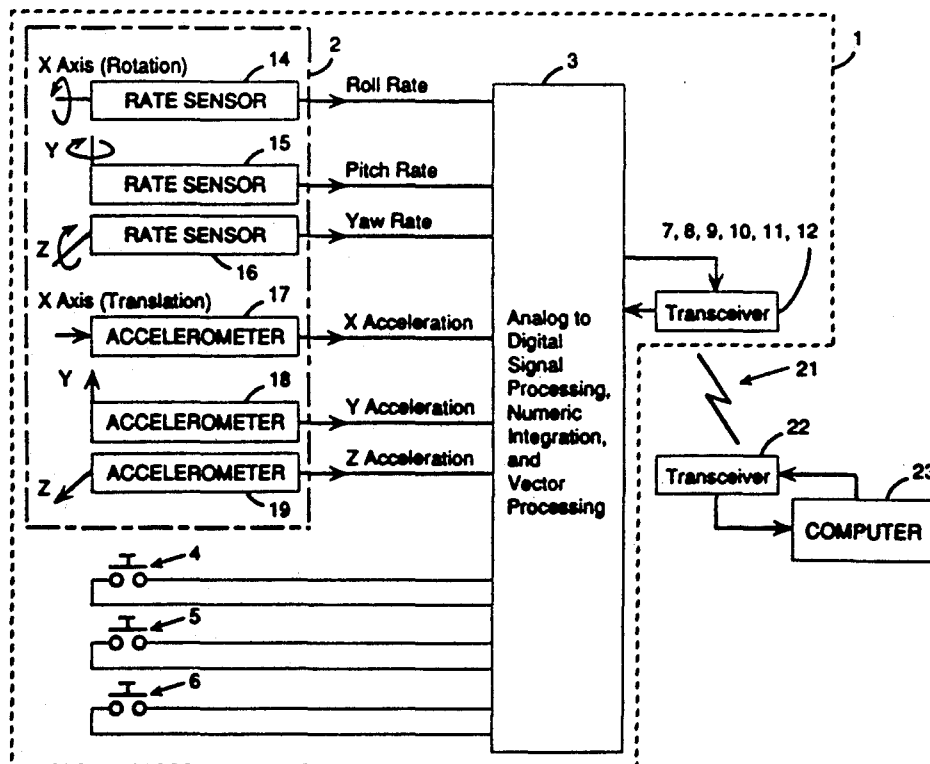
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[57] **ABSTRACT**

A mouse which senses six degrees of motion arising from movement of the mouse within three dimensions. A hand-held device includes three accelerometers for sensing linear translation along three axes of a Cartesian coordinate system and three angular rate sensors for sensing angular rotation about the three axes. Signals produced by the sensors are processed to permit the acceleration, velocity and relative position and attitude of the device to be conveyed to a computer. Thus, a person may interact with a computer with six degrees of motion in three-dimensional space. Computer interface ports and unique address identification ensure proper communication with the computer regardless of the orientation of the mouse.

21 Claims, 7 Drawing Sheets



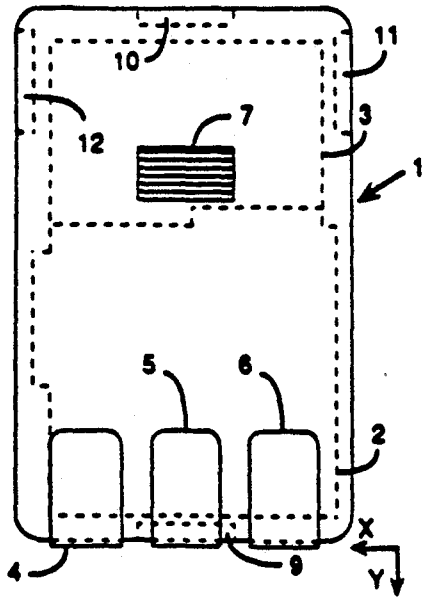


FIG. 1(a)

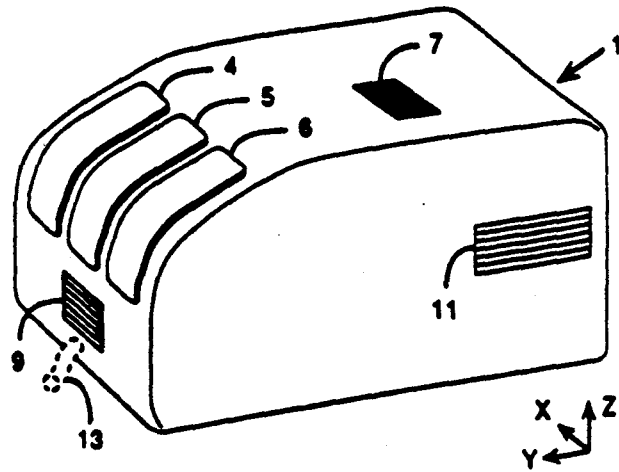


FIG. 1(d)

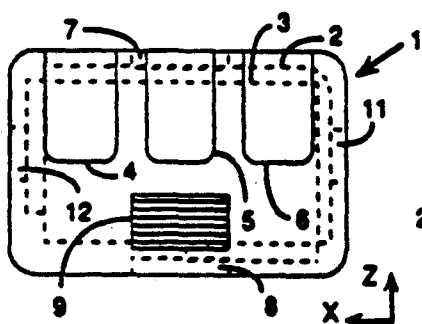


FIG. 1(b)

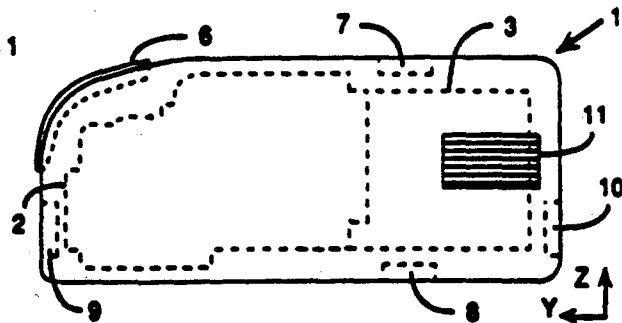


FIG. 1(c)

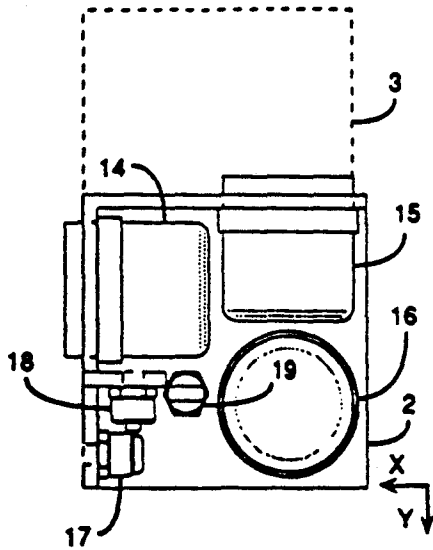


FIG. 2(a)

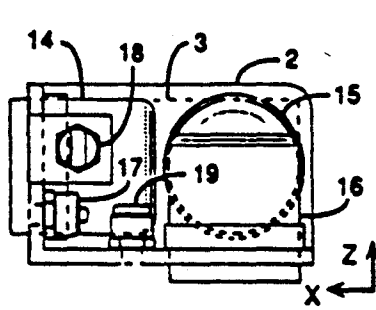


FIG. 2(b)

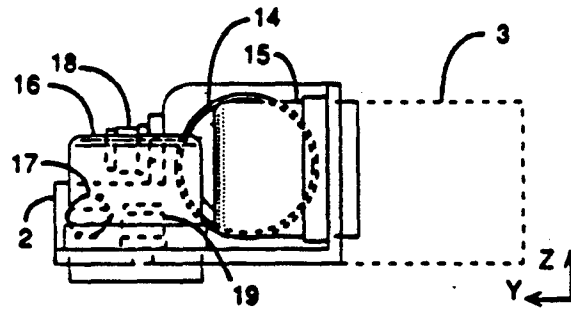


FIG. 2(c)

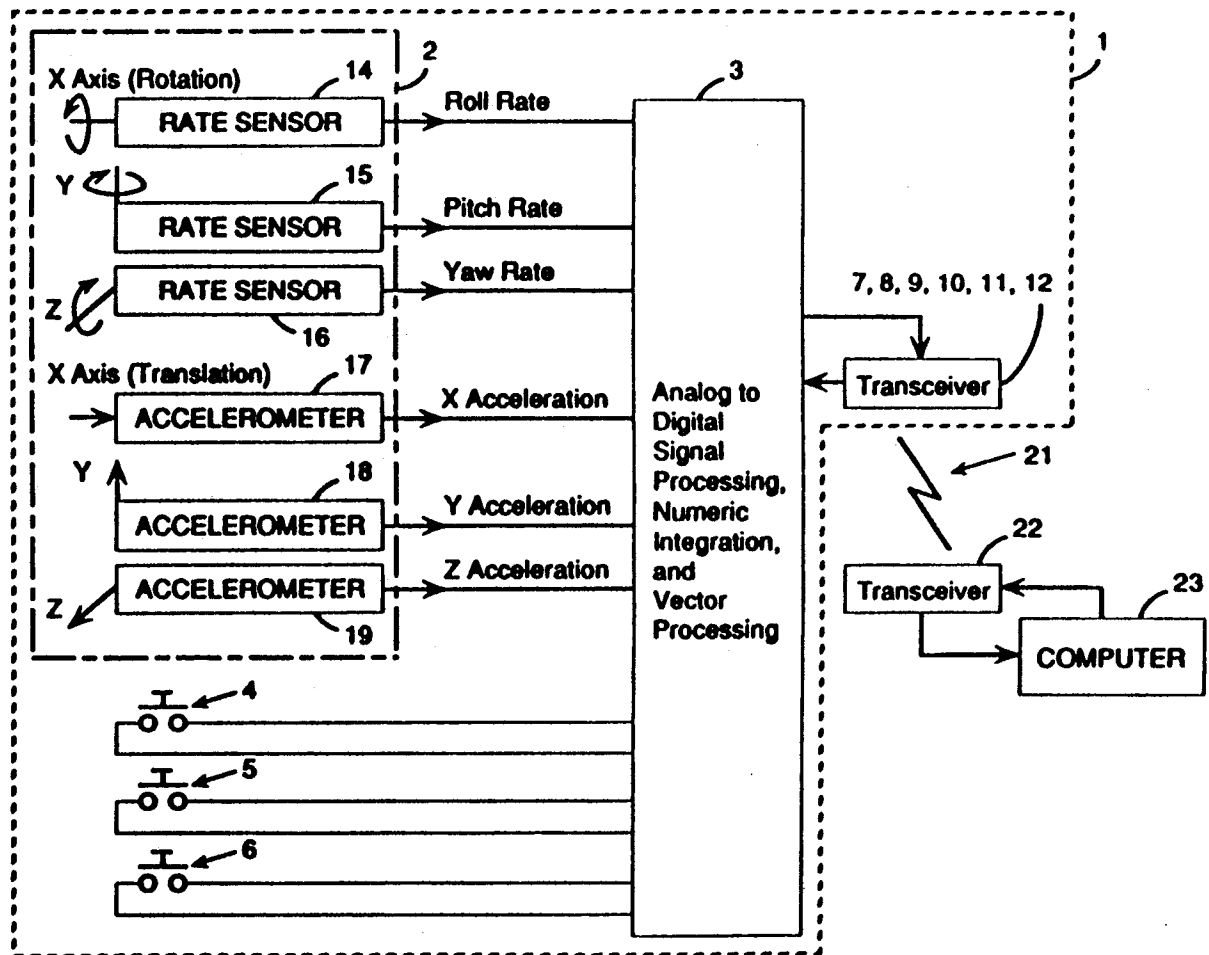


FIG. 3

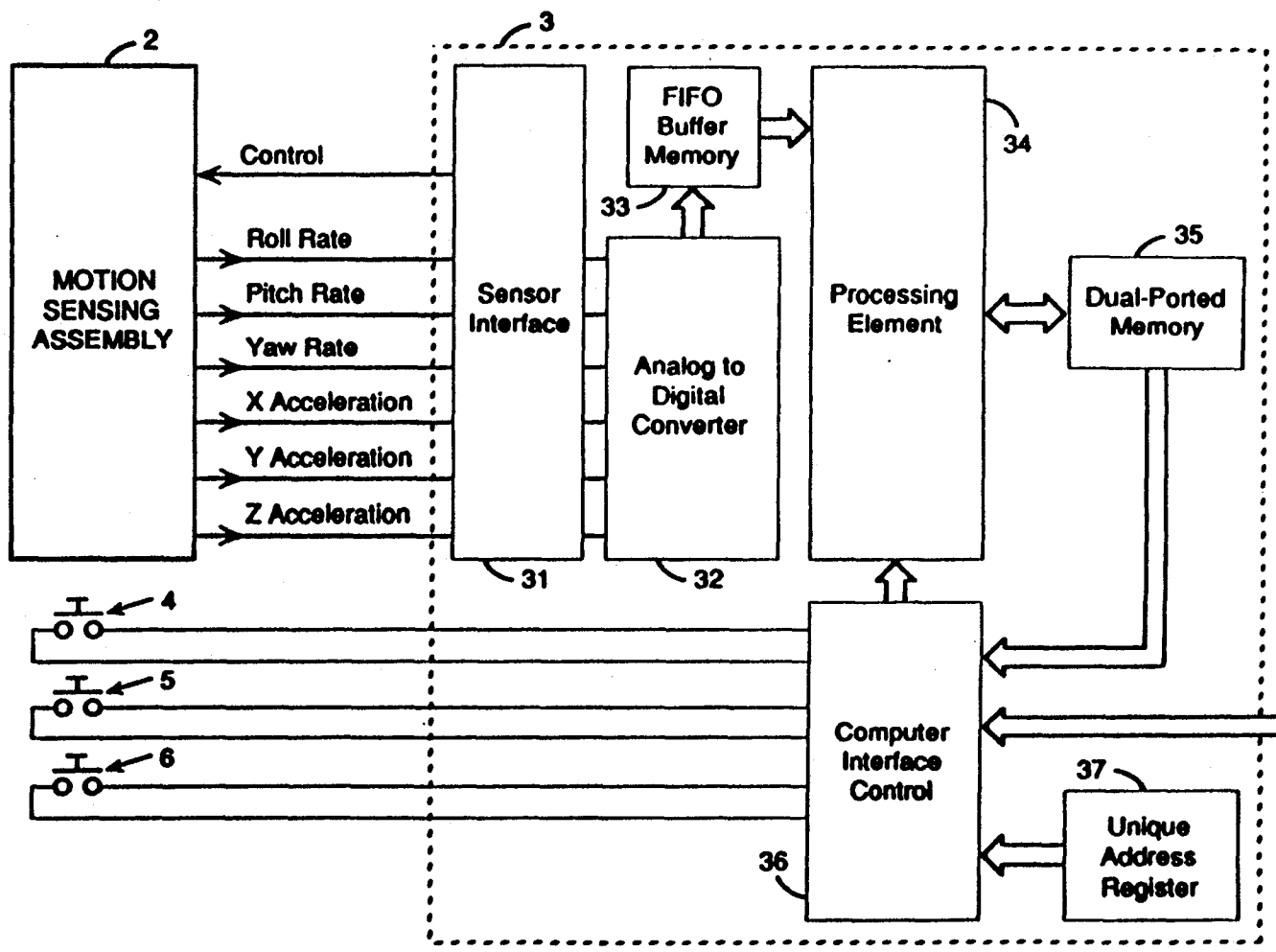


FIG. 4

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