

[54] **DEAD RECKONING NAVIGATIONAL SYSTEM USING ACCELEROMETER TO MEASURE FOOT IMPACTS**

4,991,126	2/1991	Reiter .....	364/561
5,117,301	5/1992	Tsumura .....	359/154
5,117,444	5/1992	Sutton et al. ....	377/24.2
5,367,458	11/1994	Roberts et al. ....	364/424.02
5,485,402	1/1996	Smith et al. ....	354/566

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OTHER PUBLICATIONS

[73] Assignee: **Point Research Corporation**, Santa Ana, Calif.

Meijer, et al., *Methods to Assess Physical Activity with Special Reference to Motion Sensors and Accelerometers*, IEEE Transactions on Biomedical Engineering, Mar. 1991, vol. 38, No. 3, pp. 221-229.  
 "American Practical Navigator", originally by N. Bowditch, L.L.D., 1966—Corrected Print, published by the U.S. Navy Hydrographic Office.

[21] Appl. No.: **405,087**

[22] Filed: **Mar. 16, 1995**

[51] Int. Cl.<sup>6</sup> ..... **G01C 22/00**

[52] U.S. Cl. .... **364/450; 364/443; 364/460**

[58] Field of Search ..... 364/449, 450, 364/452, 460, 454, 443; 235/105; 340/944; 73/490

Primary Examiner—Michael Zanelli  
 Attorney, Agent, or Firm—Price, Gess & Ubell

[57] **ABSTRACT**

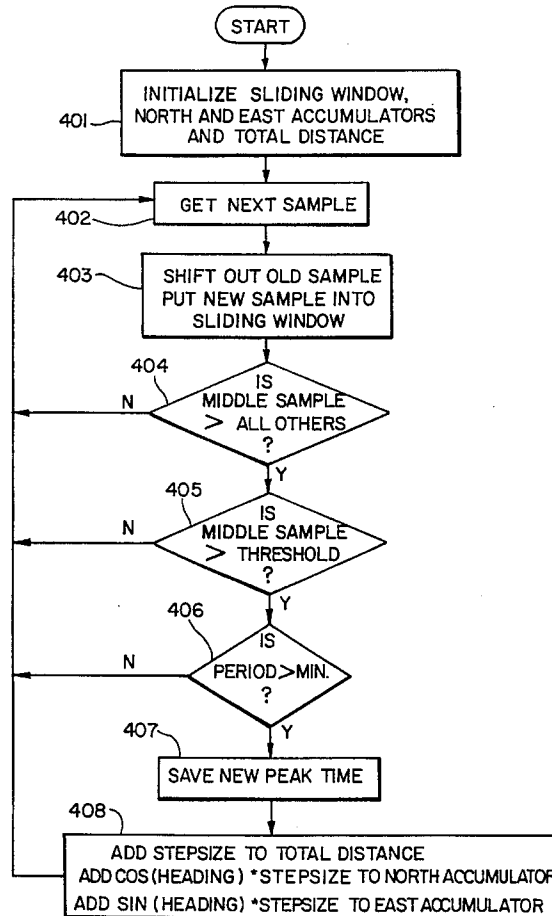
A microcomputer-assisted position finding system that integrates GPS data, dead reckoning sensors, and digital maps into a low-cost, self-contained navigation instrument is disclosed. A built-in radio frequency transponder allows individual positions to be monitored by a central coordinating facility. Unique dead reckoning sensors and features are disclosed for ground speed/distance measurement and computer-aided position fixes.

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,635,399	1/1972	Dahlquist et al. ....	235/105
3,797,010	3/1974	Adler et al. ....	340/323
3,901,086	8/1975	Griffiths et al. ....	73/490
4,053,755	10/1977	Sherrill .....	364/561
4,149,417	4/1979	Griffiths et al. ....	73/490
4,409,992	10/1983	Sidorenko et al. ....	128/782

15 Claims, 8 Drawing Sheets



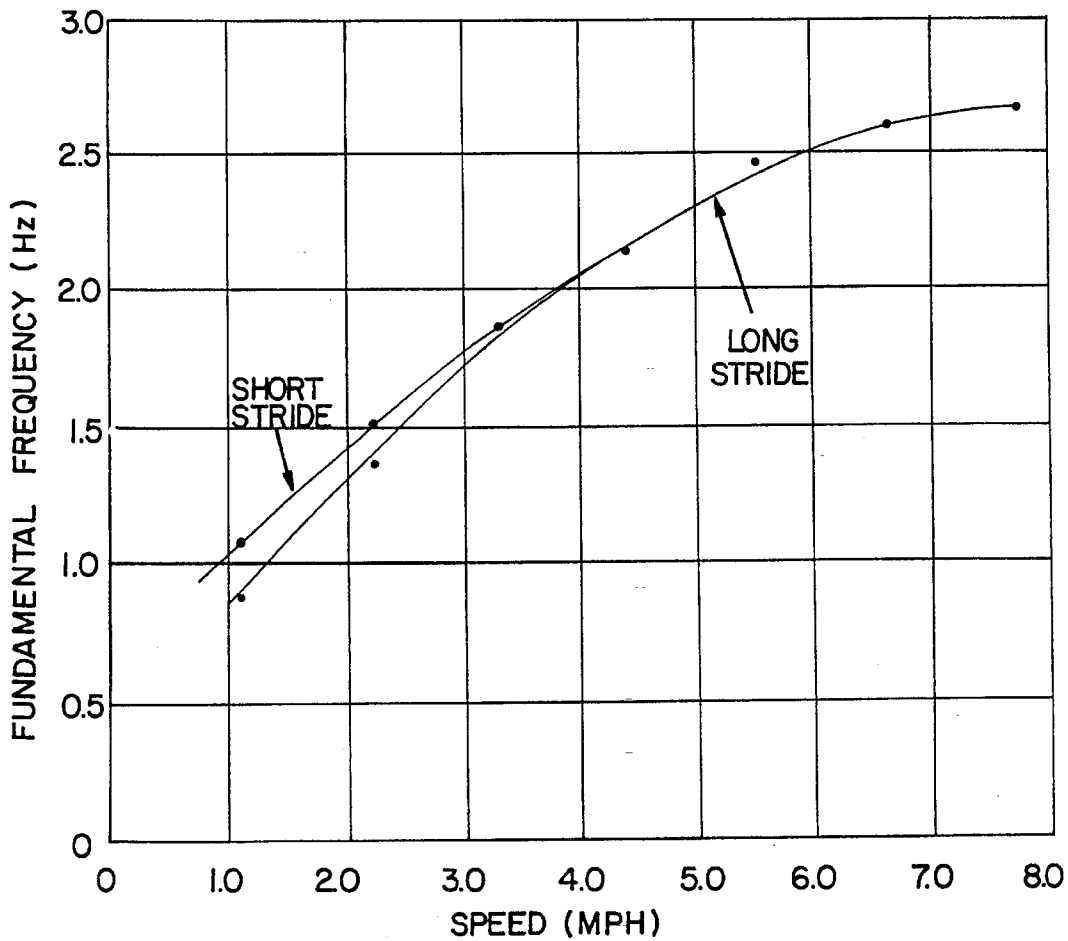


FIG. 1

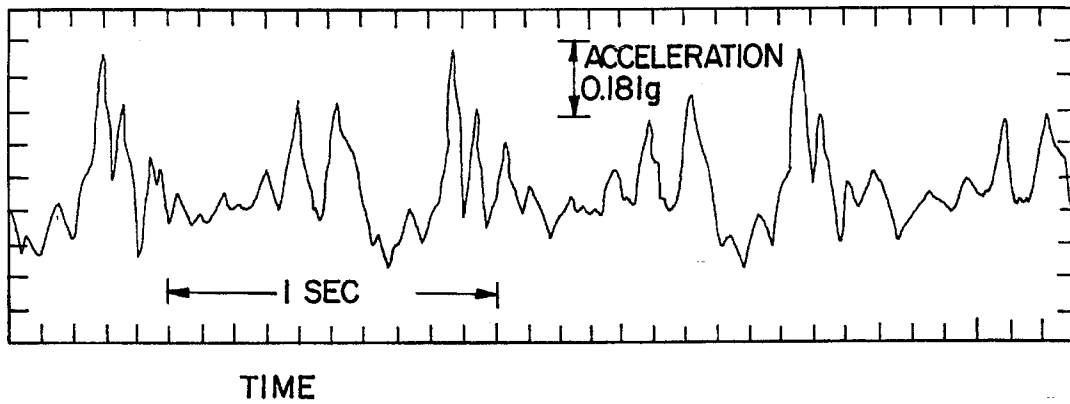


FIG. 2

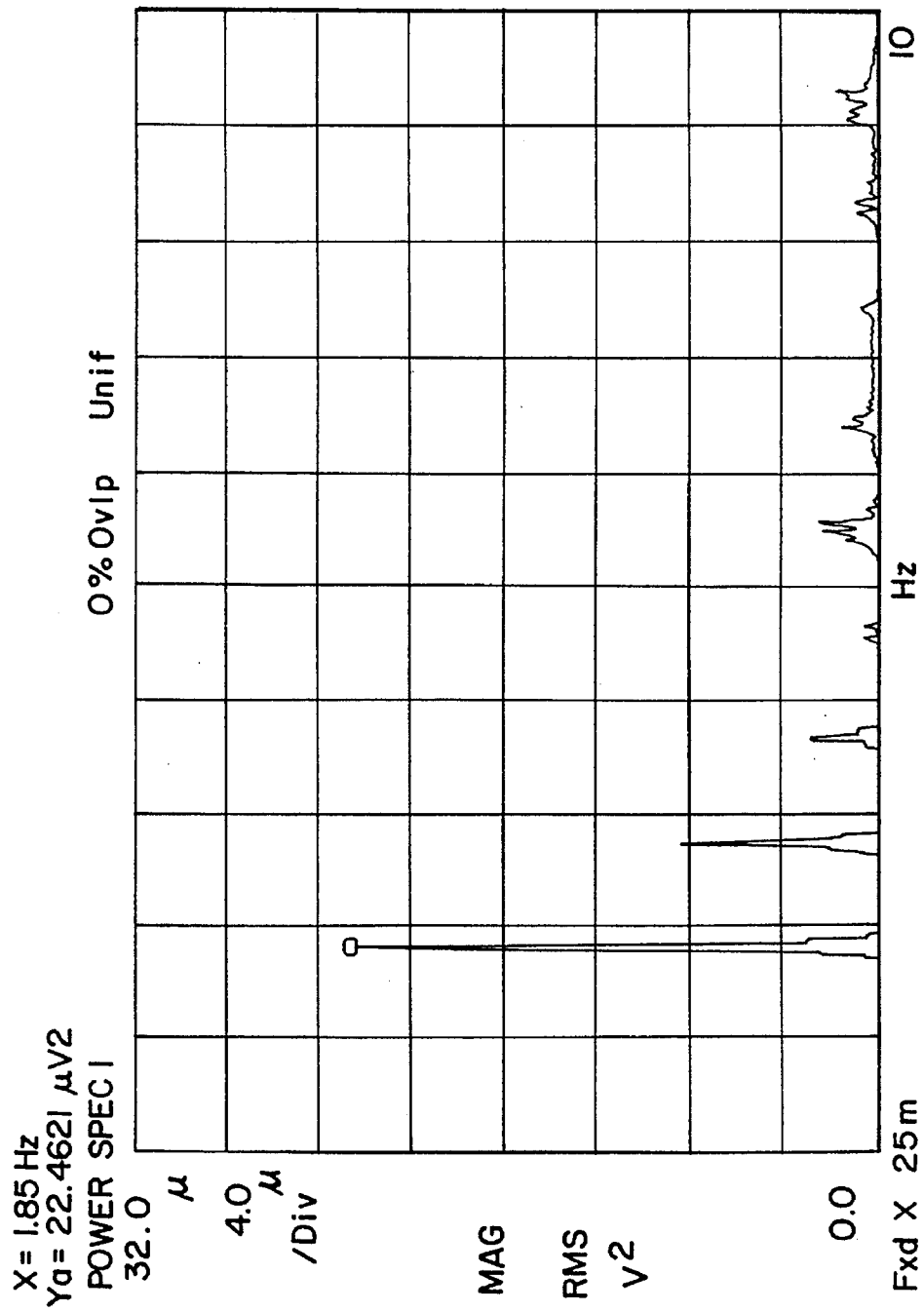


FIG. 3

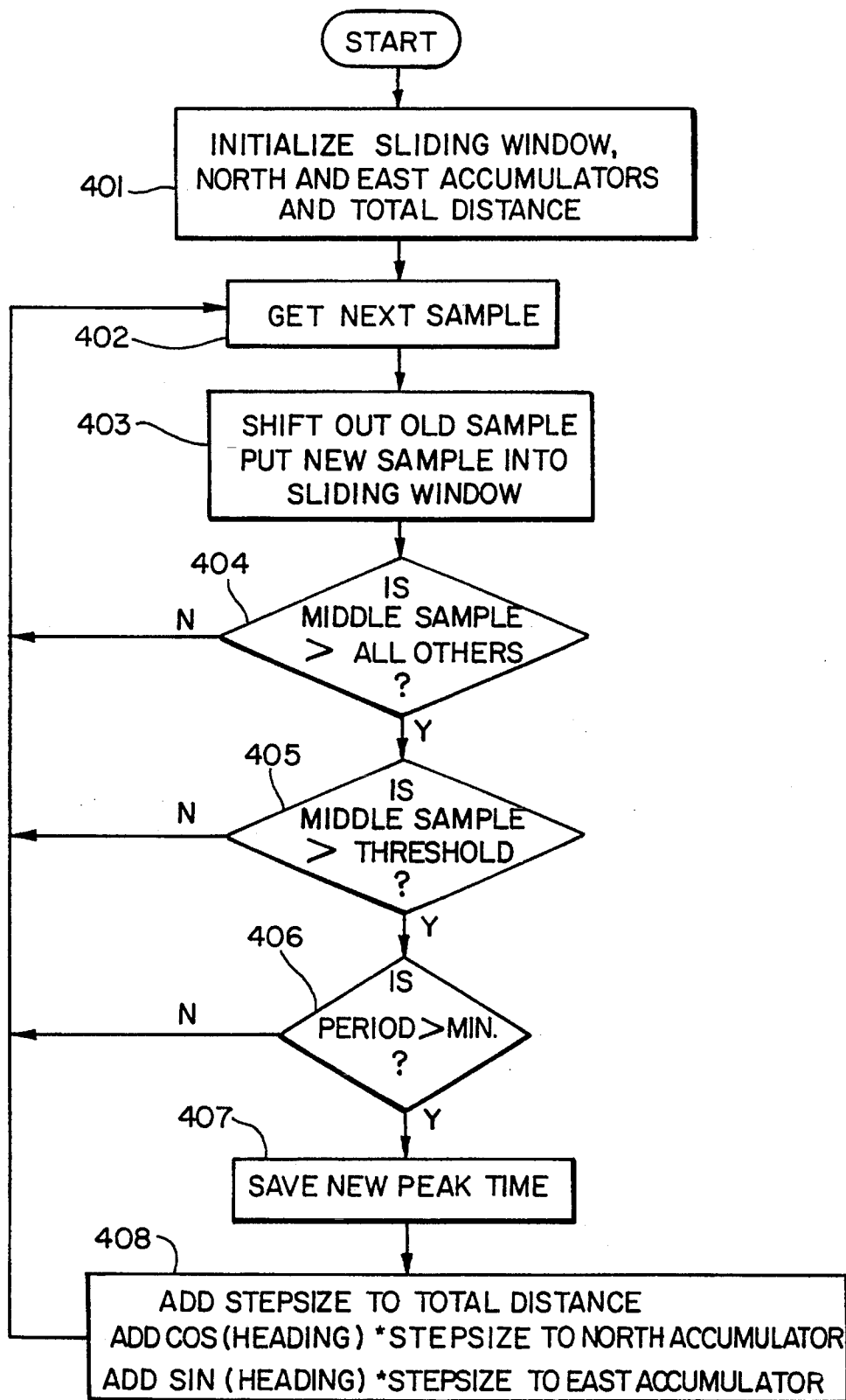


FIG. 4

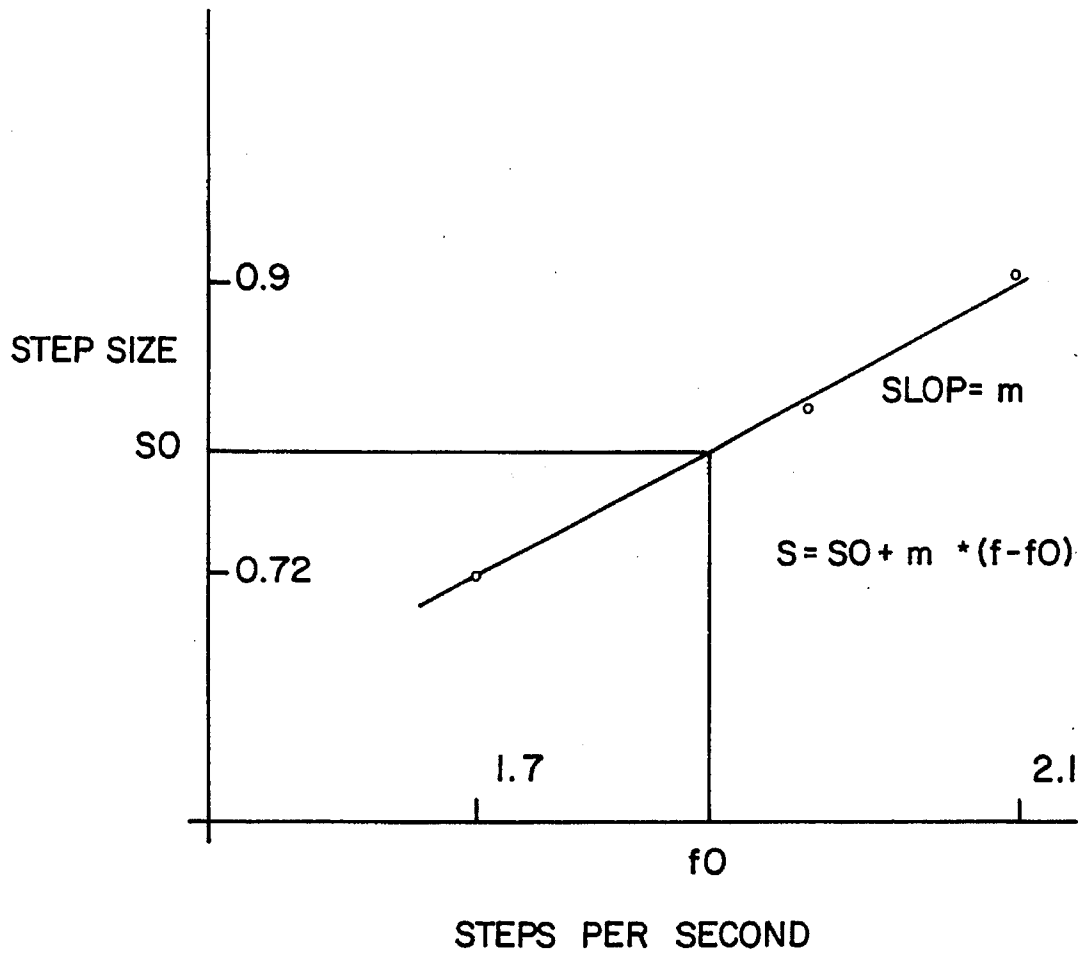


FIG. 5

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