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**Pasolini et al.**

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(54) <b>PEDOMETER DEVICE AND STEP DETECTION METHOD USING AN ALGORITHM FOR SELF-ADAPTIVE COMPUTATION OF ACCELERATION THRESHOLDS</b>	6,052,654 A 4/2000 Gaudet et al. .... 702/160 6,135,951 A 10/2000 Richardson et al. .... 600/300 6,826,477 B2 * 11/2004 Ladetto et al. .... 701/217 6,898,550 B1 5/2005 Blackadar et al. .... 702/182 2006/0020177 A1 * 1/2006 Seo et al. .... 600/300 2007/0073514 A1 * 3/2007 Nogimori et al. .... 702/160 2007/0143069 A1 * 6/2007 Pasolini et al. .... 702/160 2007/0198187 A1 * 8/2007 Pasolini et al. .... 701/220
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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 3 days.

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\* cited by examiner

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*Primary Examiner*—Michael P Nghiem

(65) **Prior Publication Data**

(74) *Attorney, Agent, or Firm*—Lisa K. Jorgenson; Dennis M. de Guzman; Seed IP Law Group PLLC

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(30) **Foreign Application Priority Data**

(57) **ABSTRACT**

Oct. 3, 2005 (EP) ..... 05425683

In a pedometer device for detecting and counting steps of a user on foot, an accelerometer sensor detects a vertical acceleration generated during the step. A processing unit, connected to the accelerometer sensor, processes an acceleration signal relating to the acceleration in order to detect the occurrence of a step, and in particular compares the acceleration signal with a first reference threshold. The processing unit automatically adapts the first reference threshold as a function of the acceleration signal. In particular, the processing unit modifies the first reference threshold as a function of an envelope of the amplitude of the acceleration signal.

(51) **Int. Cl.**  
**G01C 22/00** (2006.01)  
(52) **U.S. Cl.** ..... **702/160**  
(58) **Field of Classification Search** ..... 702/141,  
702/150-154, 158, 160; 600/595; 73/490,  
73/510

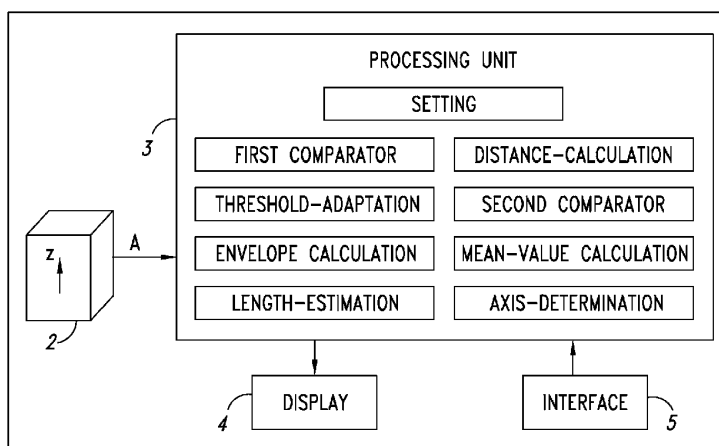
See application file for complete search history.

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**30 Claims, 5 Drawing Sheets**



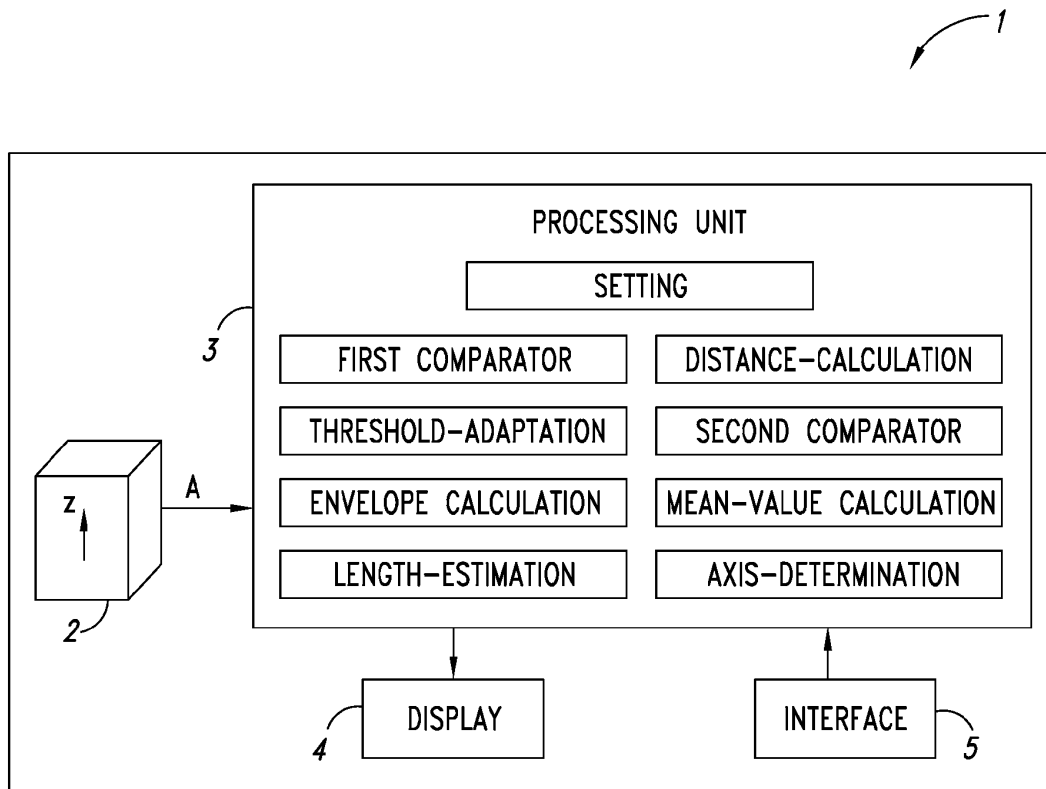


FIG. 1

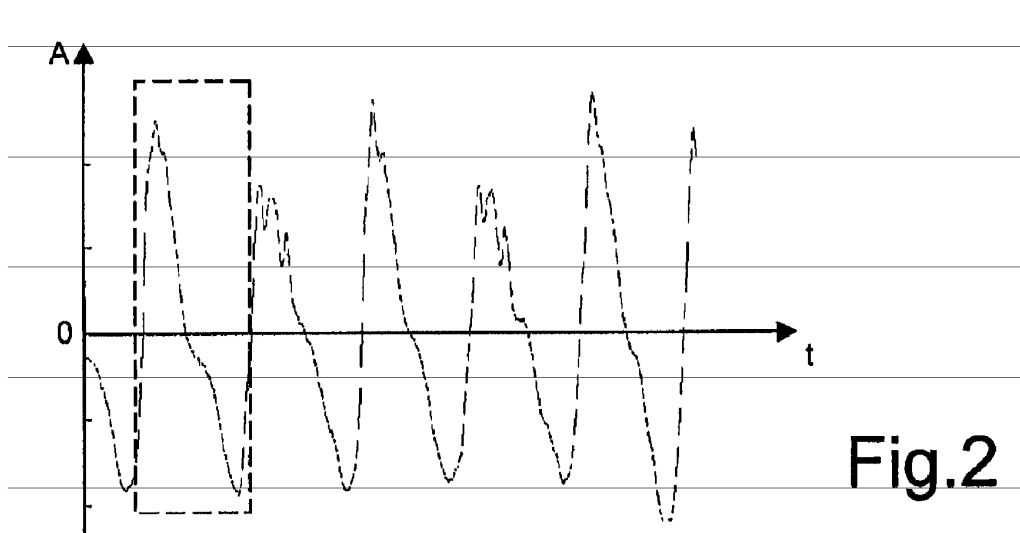


Fig.2

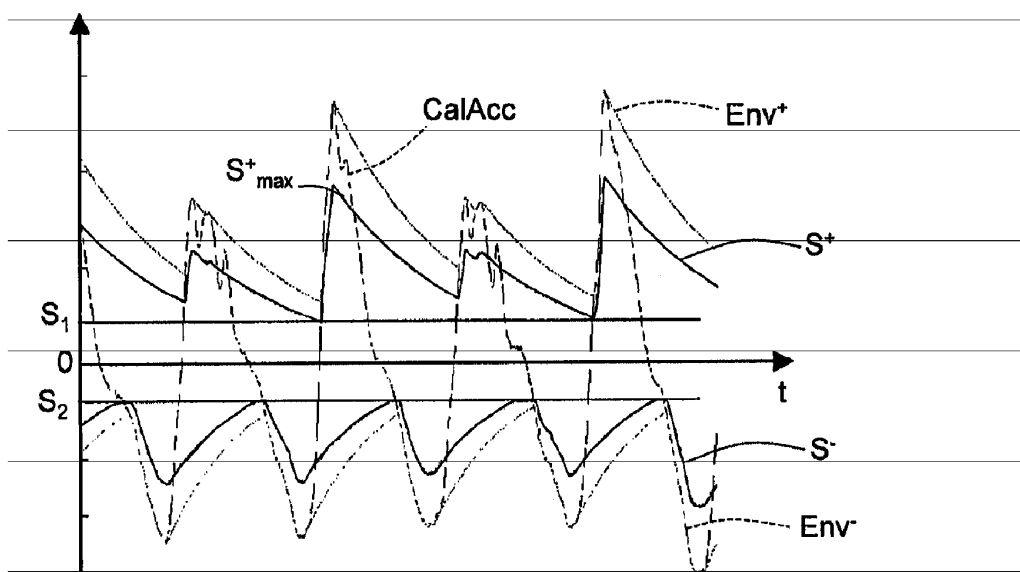


Fig.5

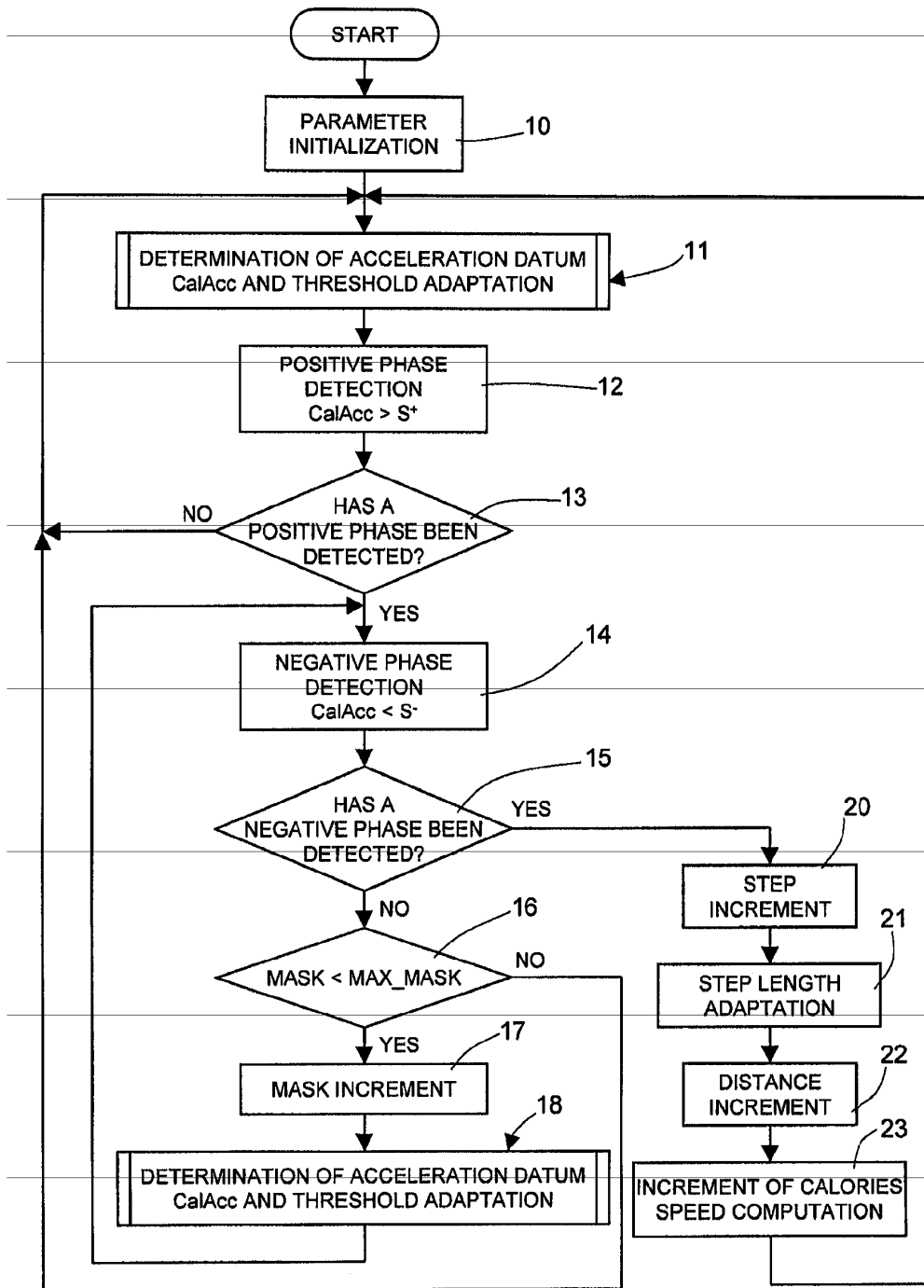


Fig.3

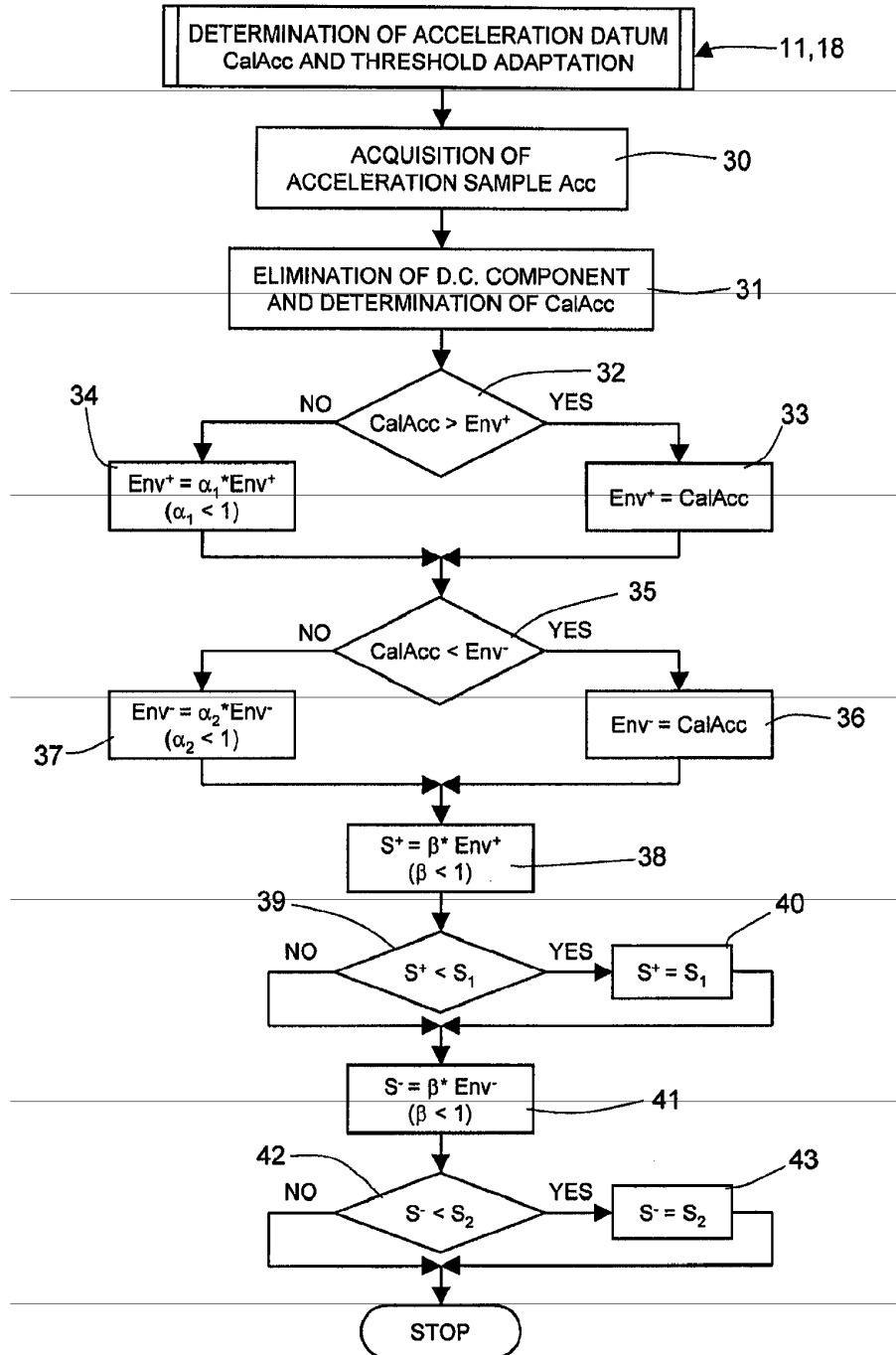


Fig.4

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