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**Pasolini et al.**

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(54) **PEDOMETER DEVICE AND STEP  
DETECTION METHOD USING AN  
ALGORITHM FOR SELF-ADAPTIVE  
COMPUTATION OF ACCELERATION  
THRESHOLDS**

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.

**FOREIGN PATENT DOCUMENTS**

GB 2 359 890 9/2001

(21) Appl. No.: **11/537,933**

\* cited by examiner

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*Primary Examiner*—Michael P Nghiem

(65) **Prior Publication Data**

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

(30) **Foreign Application Priority Data**

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(57) **ABSTRACT**

(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

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.

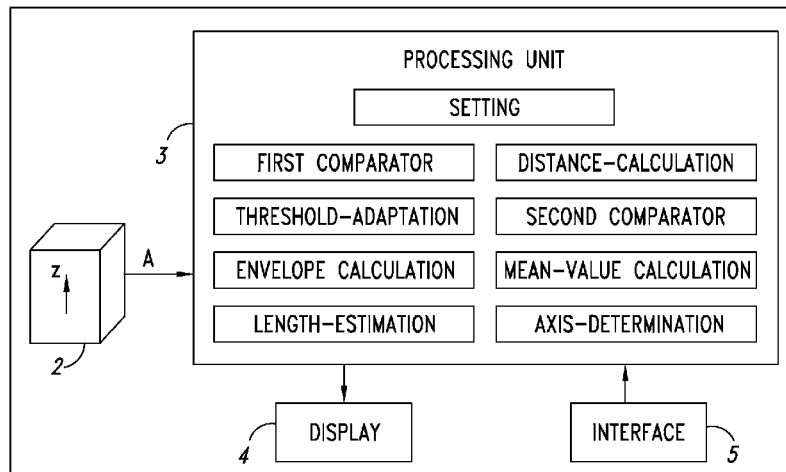
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,583,776 A 12/1996 Levi et al. .... 364/450

**30 Claims, 5 Drawing Sheets**



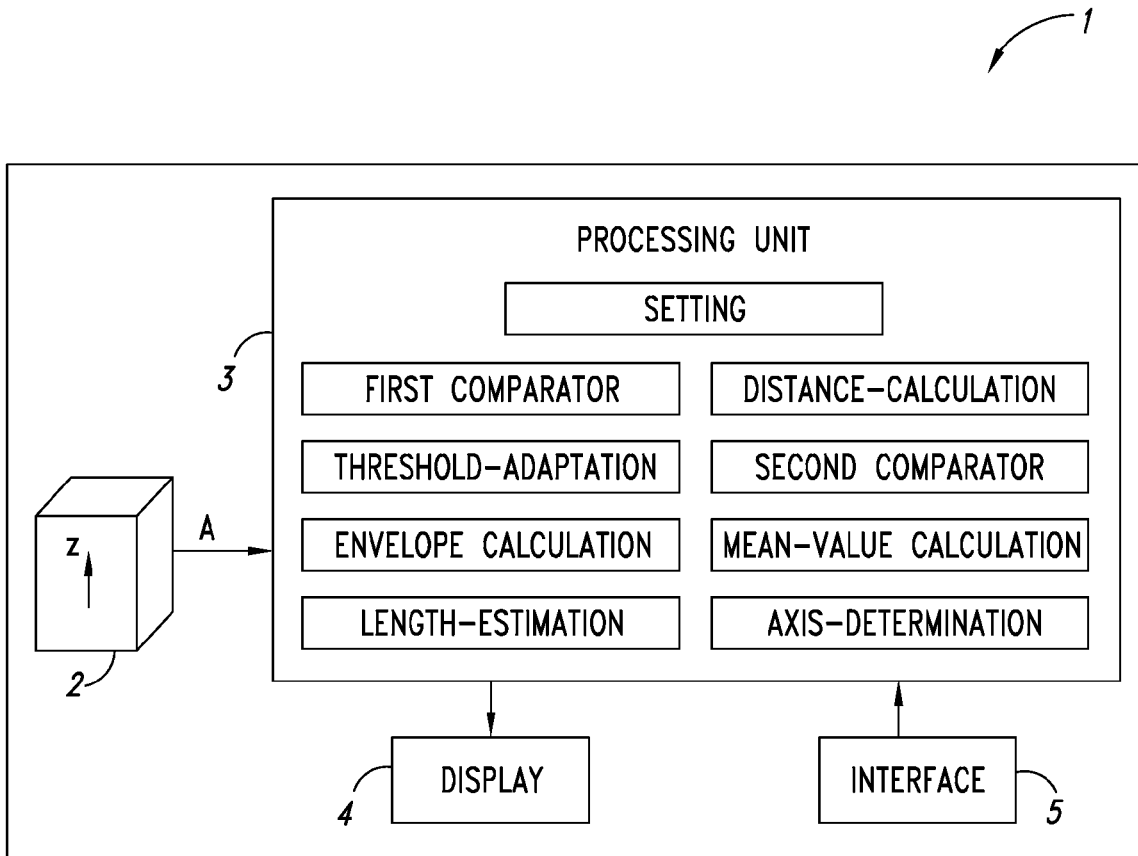


FIG. 1

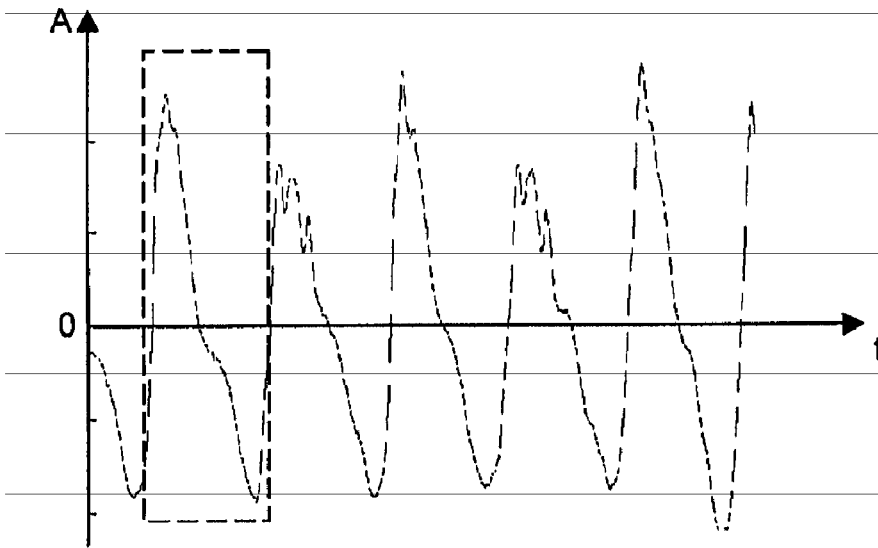


Fig.2

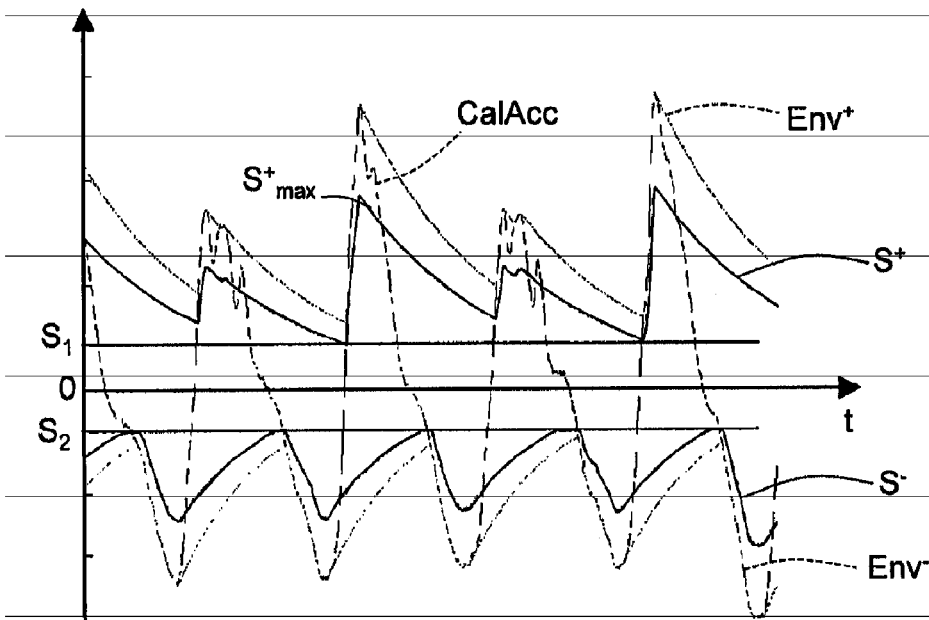


Fig.5

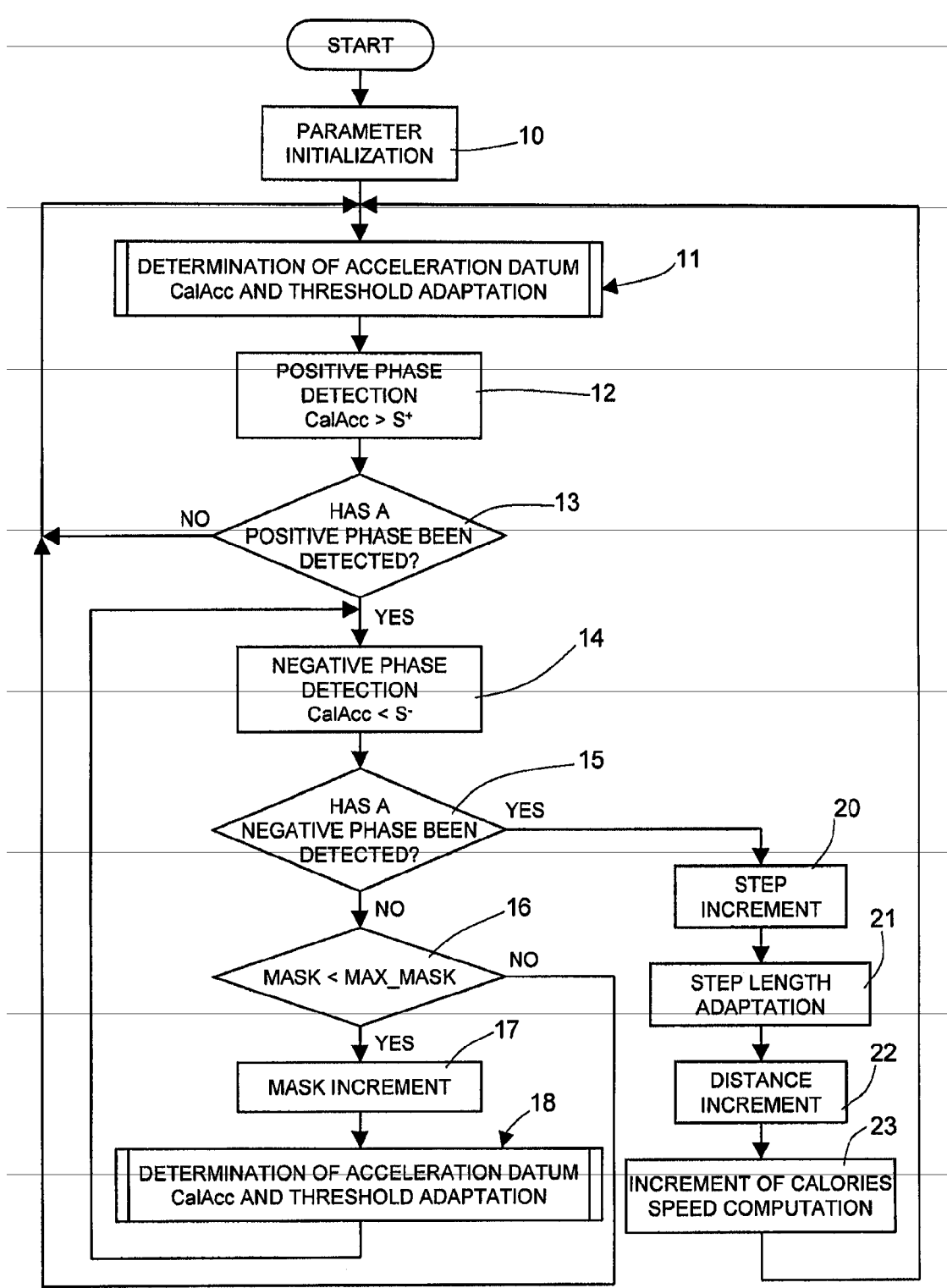


Fig.3

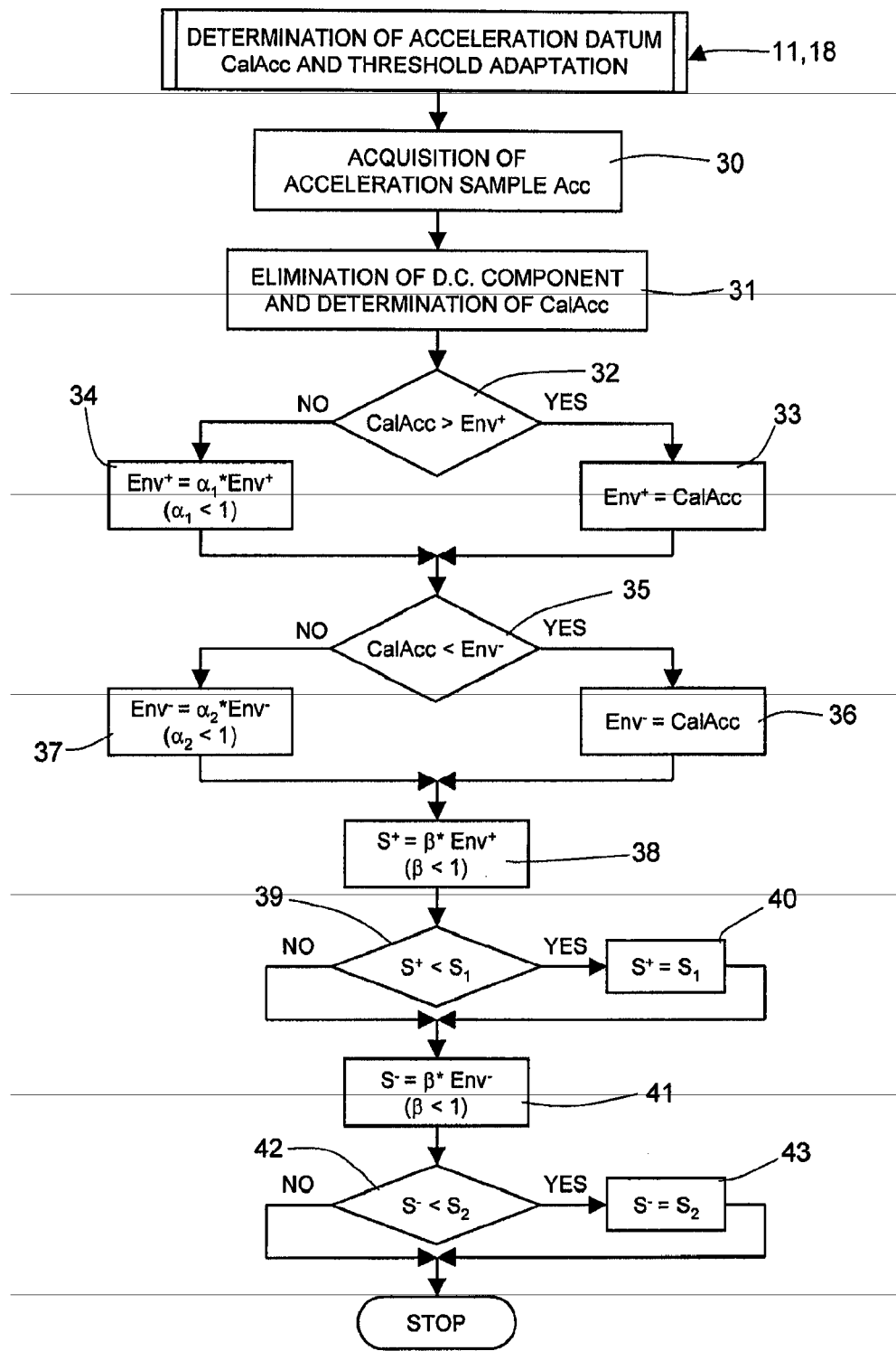


Fig.4

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