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United States Patent [19]

Doi et al.

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[45] Date of Patent: Jan. 13, 1998

[54] **VEHICLE RUNNING MODE DETECTING SYSTEM**

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[73] Assignee: **Mazda Motor Corporation**, Hiroshima, Japan

[21] Appl. No.: **525,218**

[22] Filed: **Sep. 8, 1995**

[30] **Foreign Application Priority Data**

Sep. 14, 1994 [JP] Japan 6-220294

[51] **Int. Cl.**[6] **B60T 8/32**

[52] **U.S. Cl.** **364/426.044**; 364/461; 180/169; 180/170; 340/903

[58] **Field of Search** 364/426.041, 426.044, 364/460, 461, 565; 180/167–170, 176–179; 123/350, 352; 342/454, 455; 340/903, 904

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Primary Examiner—Gary Chin

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[57] **ABSTRACT**

In a vehicle running mode detecting system, a relative speed of a vehicle, equipped with the vehicle running mode detecting system, to a forward object is calculated on the basis of a time elapsed from a reference time based on which the time elapsed is measured and a change in the distance between the vehicle and the forward object during the time elapsed. Whether the vehicle is running in a constant distance mode where the distance between the vehicle and the forward object is kept substantially constant or in a varying distance mode where the vehicle is accelerating or decelerating relative to the forward object and the distance between the vehicle and the forward object is varying is determined on the basis of the change in the distance between the vehicle and the forward object. The reference time is updated less frequently when the vehicle is running in the constant distance mode than when the vehicle is running in the varying distance mode.

9 Claims, 5 Drawing Sheets

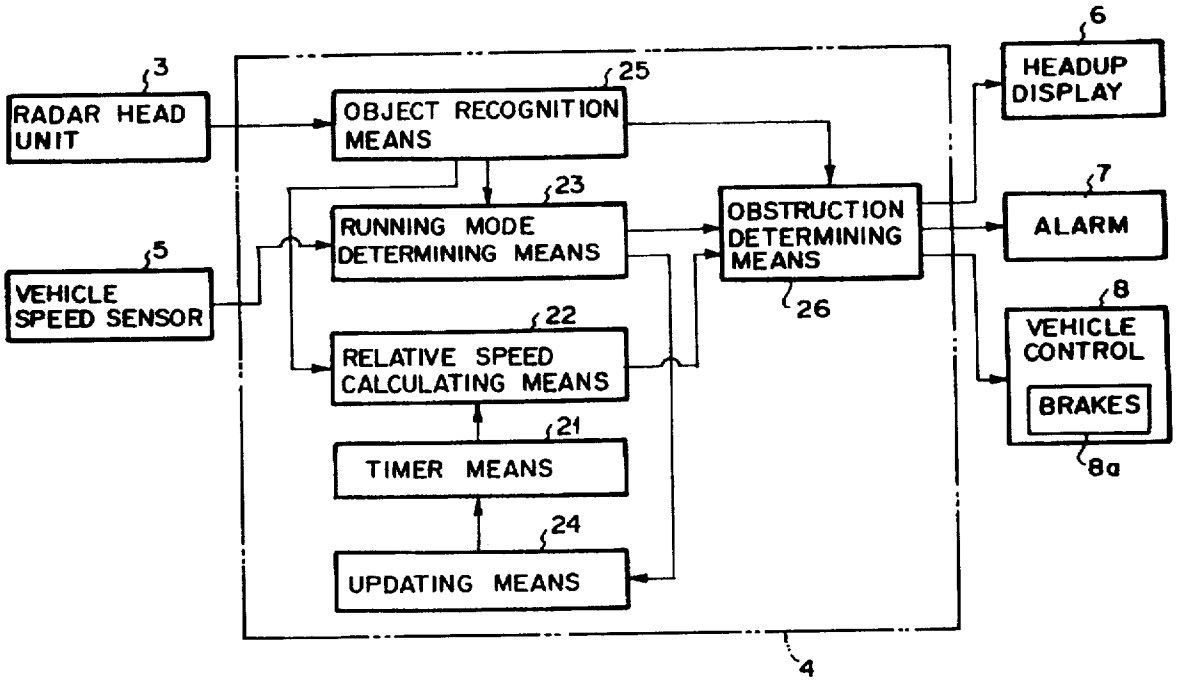

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FIG.1

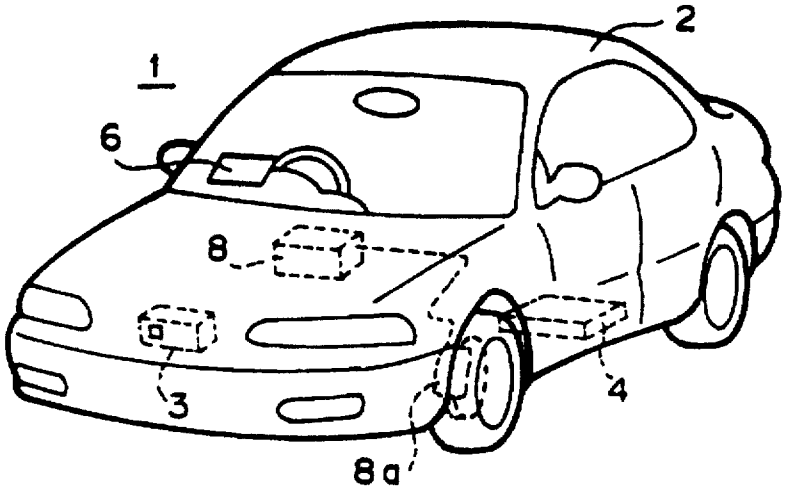
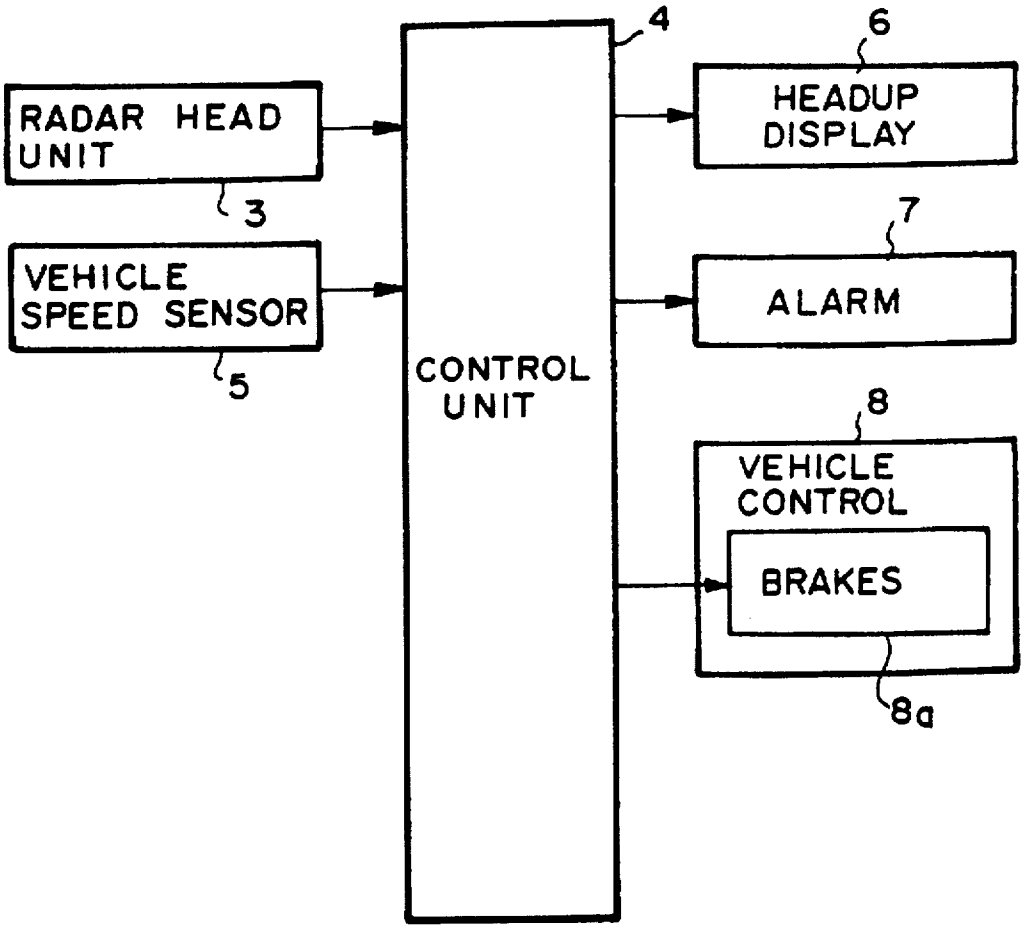


FIG.2



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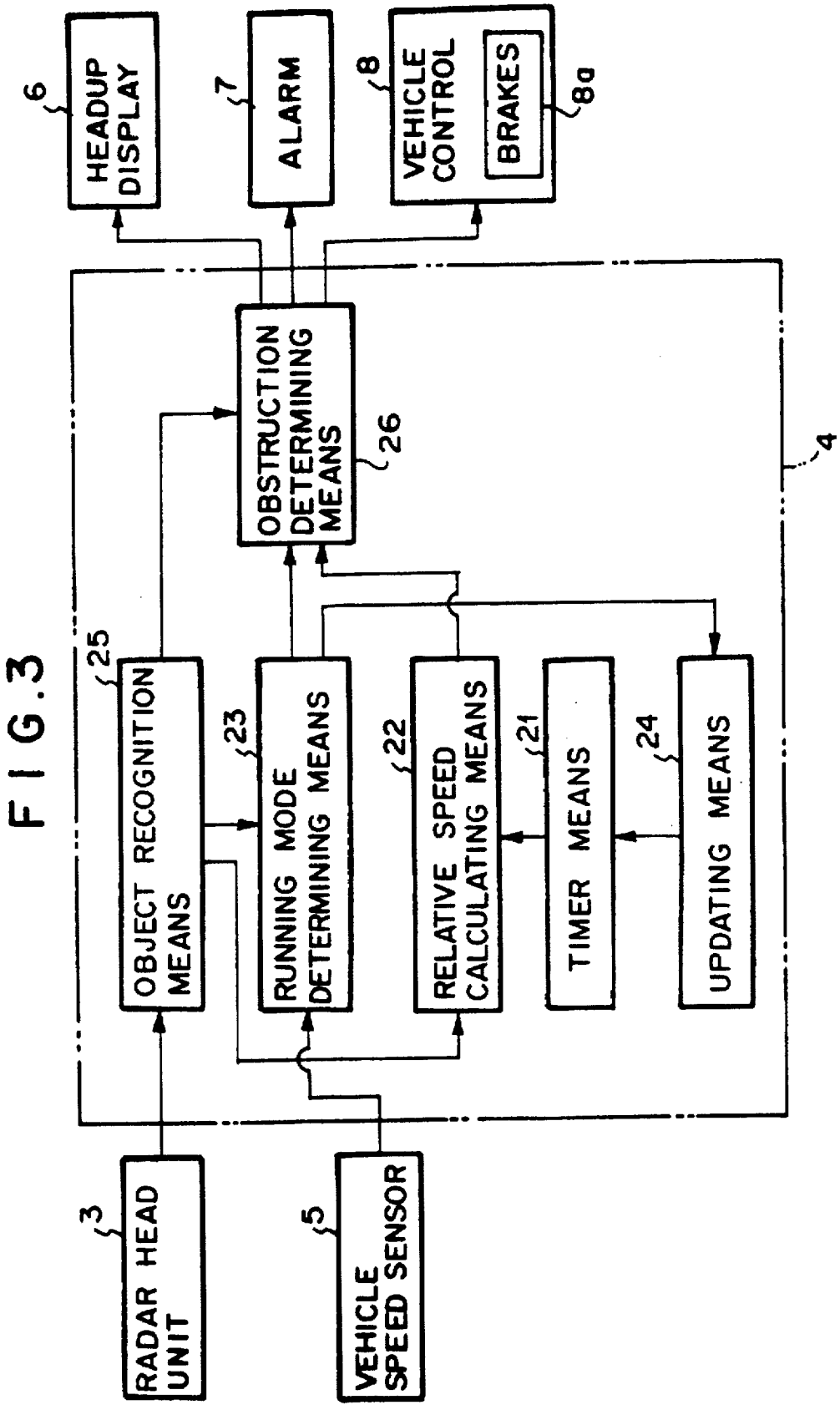

FIG. 3

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FIG. 4

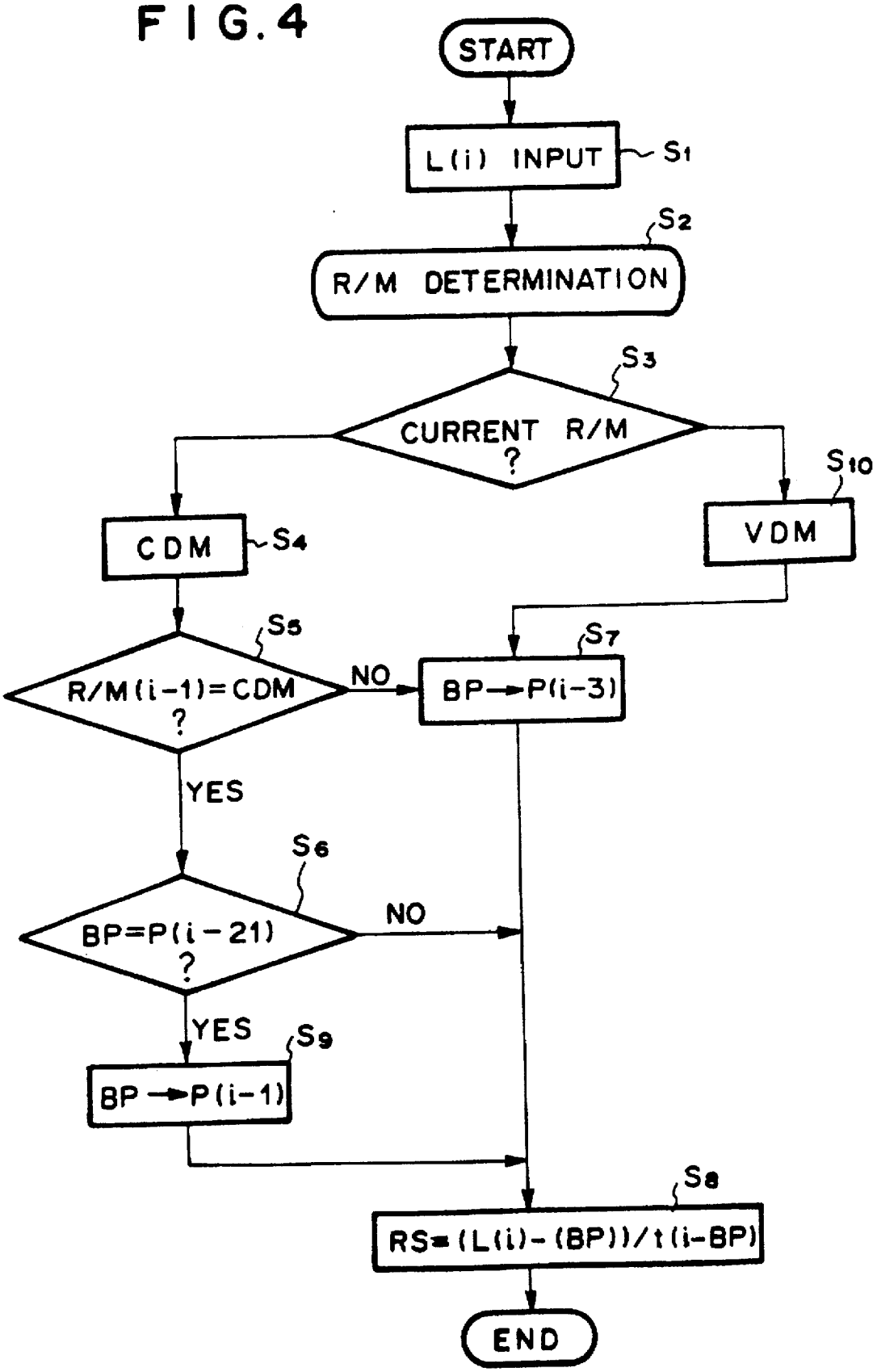

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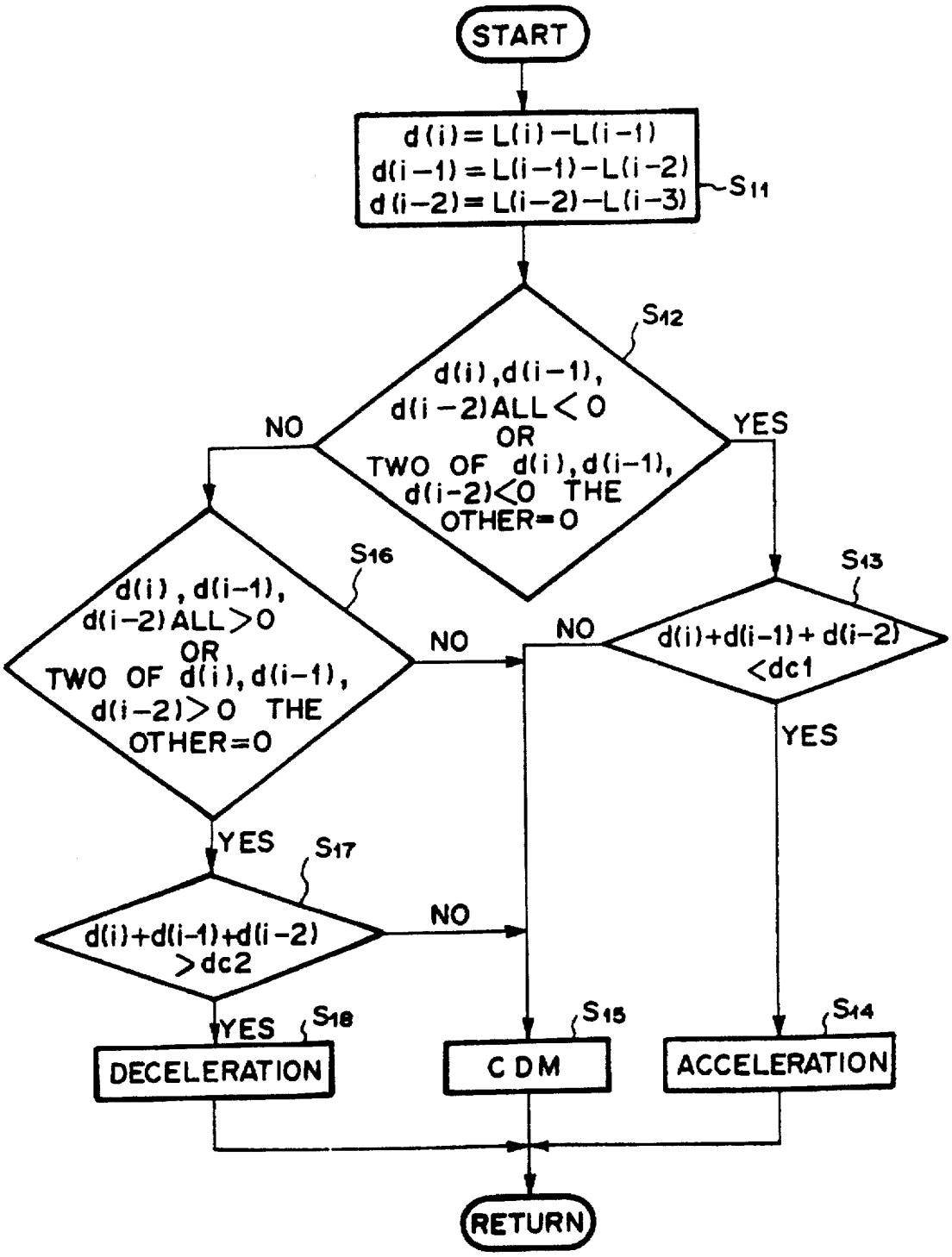
FIG.5



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