

(12) **United States Patent**  
**Okuchi et al.**

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(54) **SYSTEM FOR AUTOMATICALLY ADJUSTING OPTICAL AXIS DIRECTION OF VEHICLE HEADLIGHT**

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(73) Assignee: **DENSO Corporation, Kariya (JP)**

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 Apr. 15, 1999 (JP) ..... 11-107851  
 Apr. 15, 1999 (JP) ..... 11-107852  
 Apr. 15, 1999 (JP) ..... 11-107853

(51) **Int. Cl.<sup>7</sup>** ..... **G01B 13/18**

(52) **U.S. Cl.** ..... **362/466; 362/460; 362/464; 362/465; 362/37; 362/276**

(58) **Field of Search** ..... **362/460, 464, 362/465, 466, 37, 276**

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(57) **ABSTRACT**

In a vehicle headlight optical axis automatic adjusting system, a pitch angle in the longitudinal direction of a vehicle is calculated from a signal of a height sensor. Filtering corresponding to a control mode according to the acceleration is fixed and is not frequently switched unless the constant speed state of the vehicle continues for a predetermined time. The pitch angle may be calculated on the basis of the vehicle rear height value by using a prediction expression which is divided into a plurality of regions of vehicle postures according to loading conditions of an occupant load and a trunk load in correspondence with the vehicle type. The pitch angle may be updated when the vehicle enters a constant speed driving mode, i.e., stable driving mode, so that even when one trip is not finished the error is cancelled.

**9 Claims, 18 Drawing Sheets**

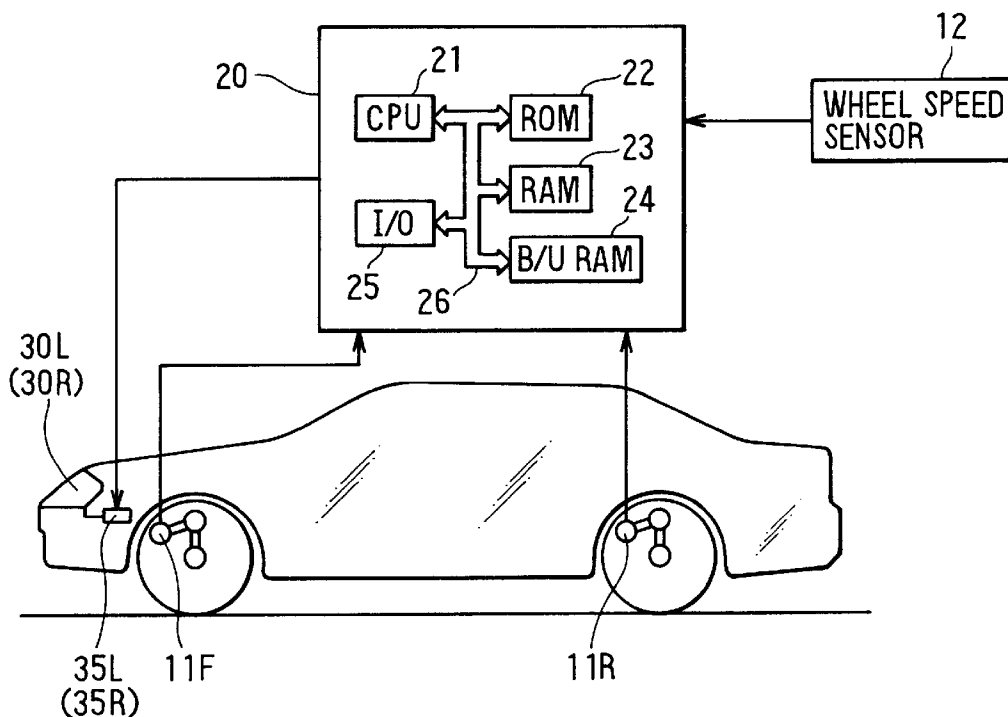


FIG. 1

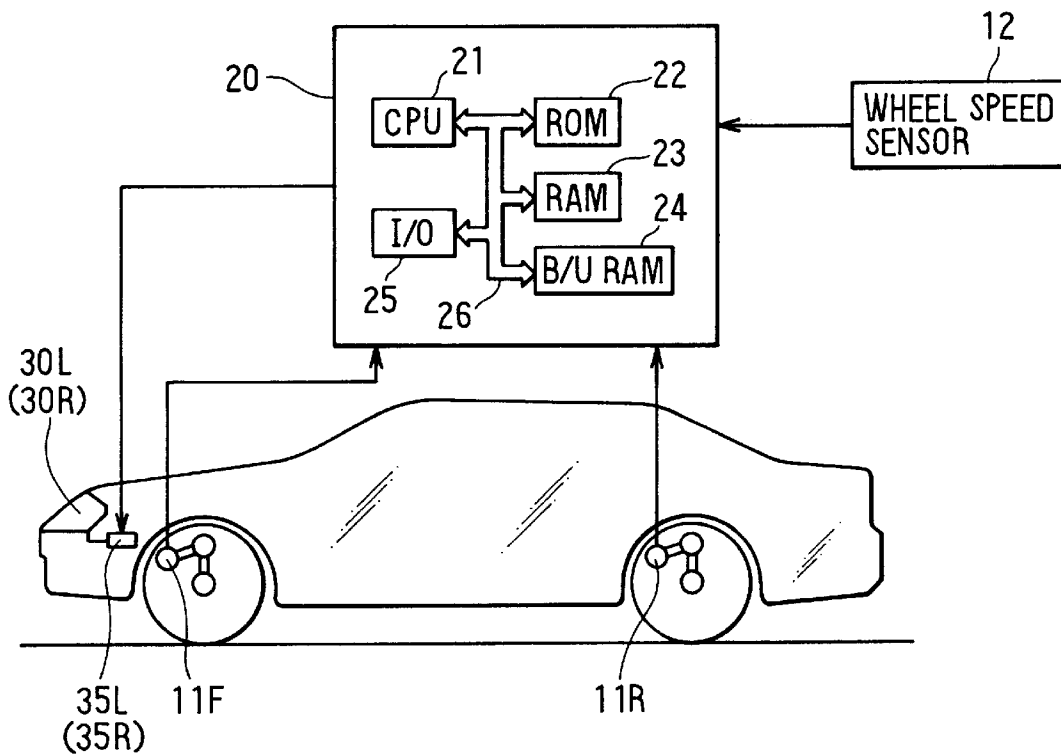


FIG. 2

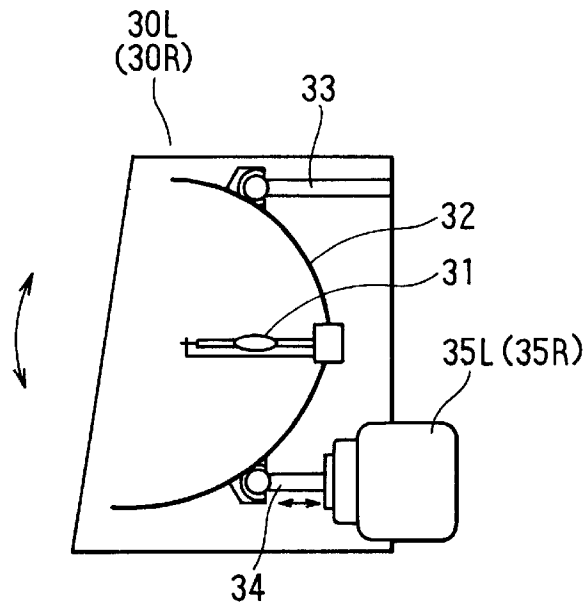


FIG. 3

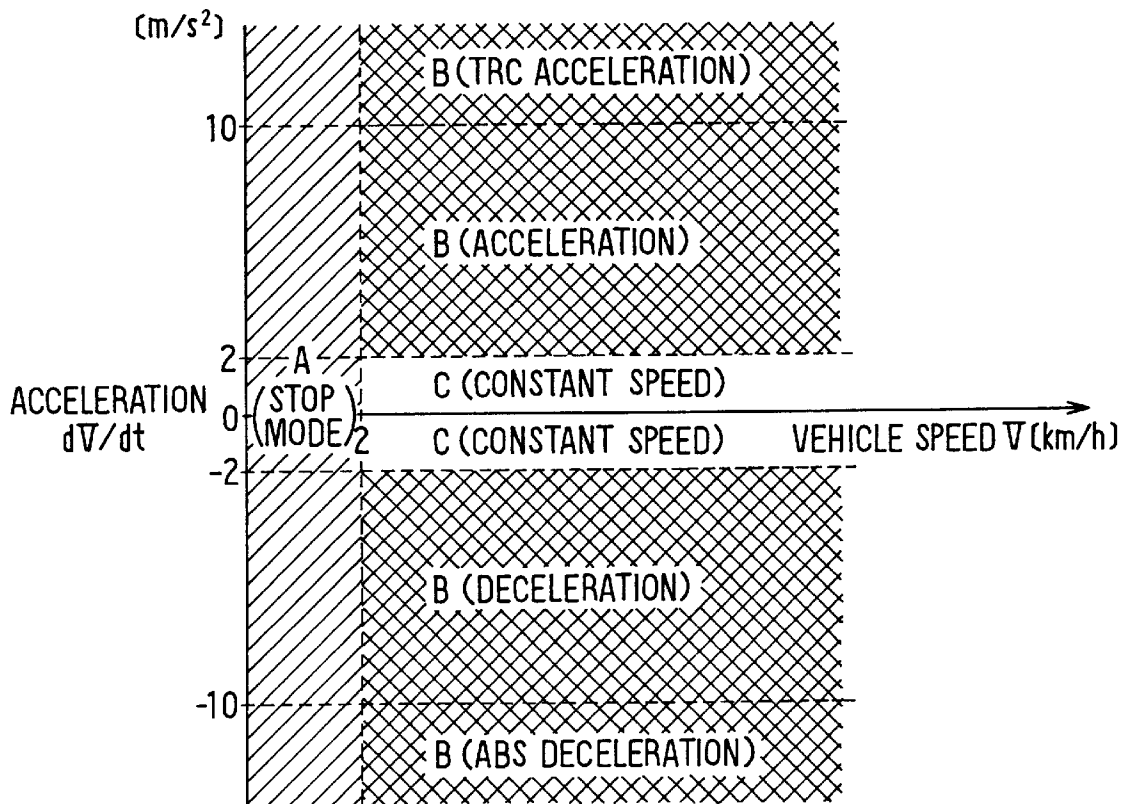


FIG. 4

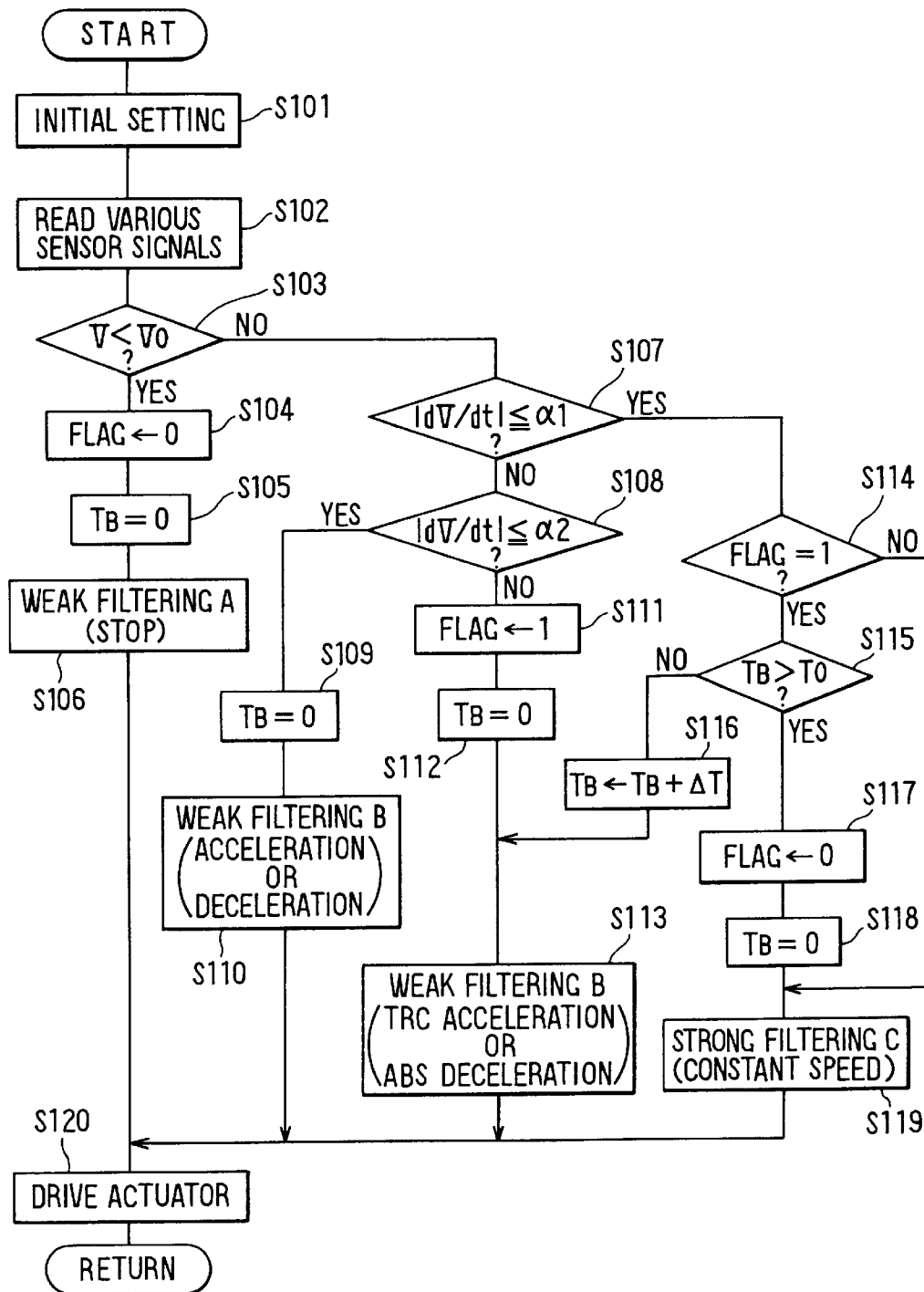


FIG. 5

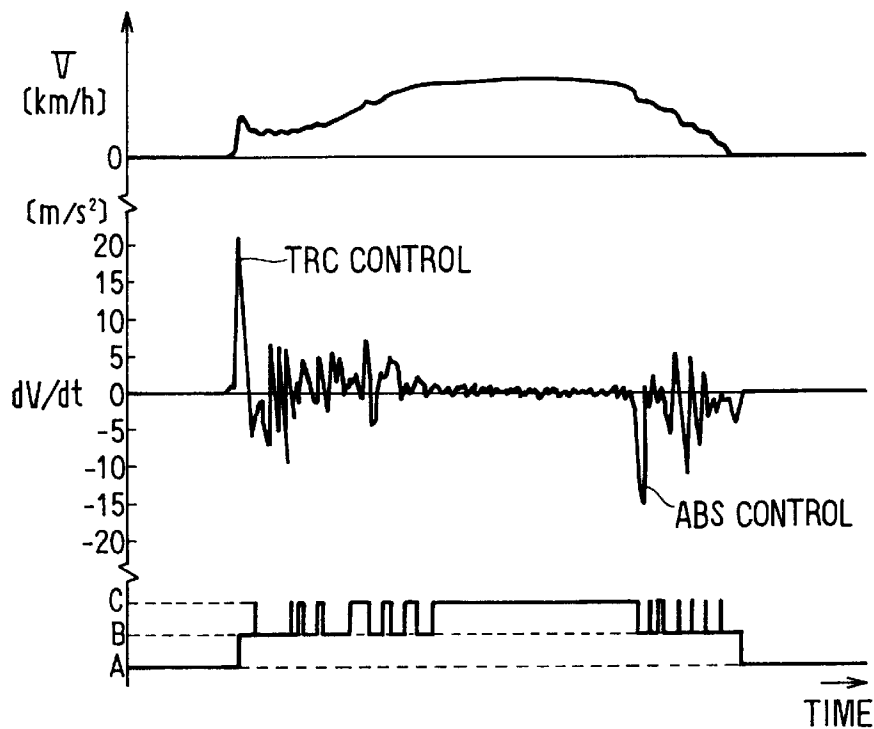
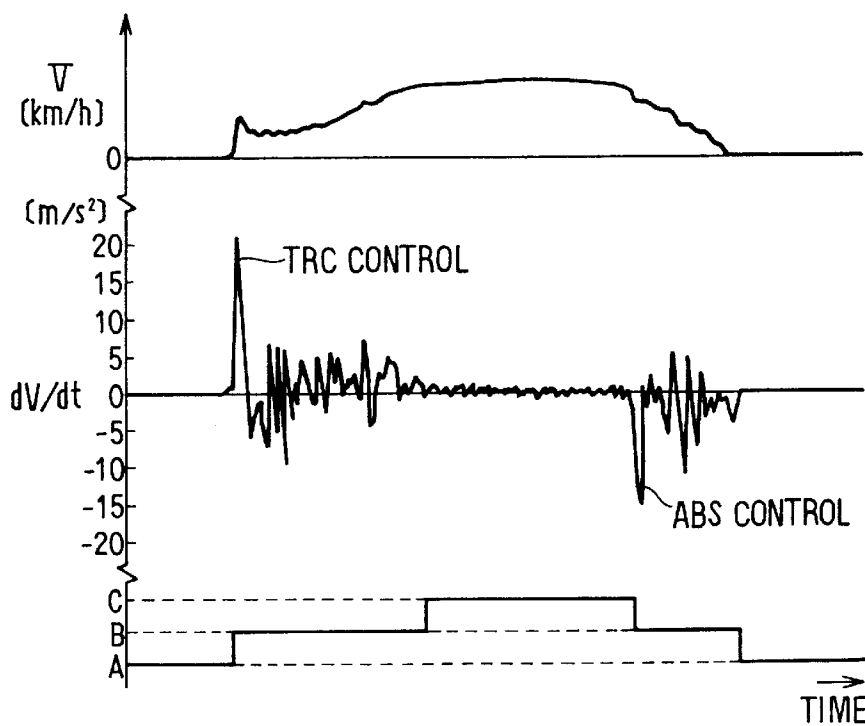


FIG. 6



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