



US006049749A

# United States Patent [19] Kobayashi

[11] Patent Number: **6,049,749**

[45] Date of Patent: **Apr. 11, 2000**

[54] **LIGHTING DEVICE FOR A VEHICLE**

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[73] Assignee: **Koito Manufacturing Co., Ltd.**,  
Tokyo, Japan

[21] Appl. No.: **08/989,415**

[22] Filed: **Dec. 12, 1997**

[30] **Foreign Application Priority Data**

Dec. 13, 1996 [JP] Japan ..... 8-353006

[51] **Int. Cl.<sup>7</sup>** ..... **G06F 17/00**

[52] **U.S. Cl.** ..... **701/49; 701/36; 362/466;**  
**362/37; 362/276; 340/469**

[58] **Field of Search** ..... **701/49, 36; 362/272,**  
**362/276, 466, 494, 540, 541, 544, 465,**  
**524, 37, 40; 340/469, 471, 472**

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[57] **ABSTRACT**

A lighting device in which the vehicle advancing direction at which a driver aims is predicted, and the irradiating direction and irradiating range of a lighting device are controlled by comparing the result of the prediction to the information of the profile of a road on which the vehicle is running at present. The lighting device (1) includes a road profile calculating device (2) for finding an advancing direction of the vehicle in the case where the vehicle advances along a road on which the vehicle is running at present, in accordance with the map information including the road profile and the present position information of the vehicle; and a vehicle advancing direction predicting device (3) for predicting an advancing direction of the vehicle intended by a driver, by an operation signal given by the driver or detection information of the vehicle running state. The irradiation controller device (4) compares the direction data of the road profile calculating device (2) with the direction data of the vehicle advancing direction predicting device (3), the irradiation control of the lighting device (5) is conducted by the road profile in accordance with the direction data of the road profile calculating device (2) when a difference between them is in an allowable range, and the irradiation control of the lighting device (5) is conducted by the direction data of the vehicle advancing direction predicting device (3) when the difference between them is out of the allowable range.

**10 Claims, 9 Drawing Sheets**

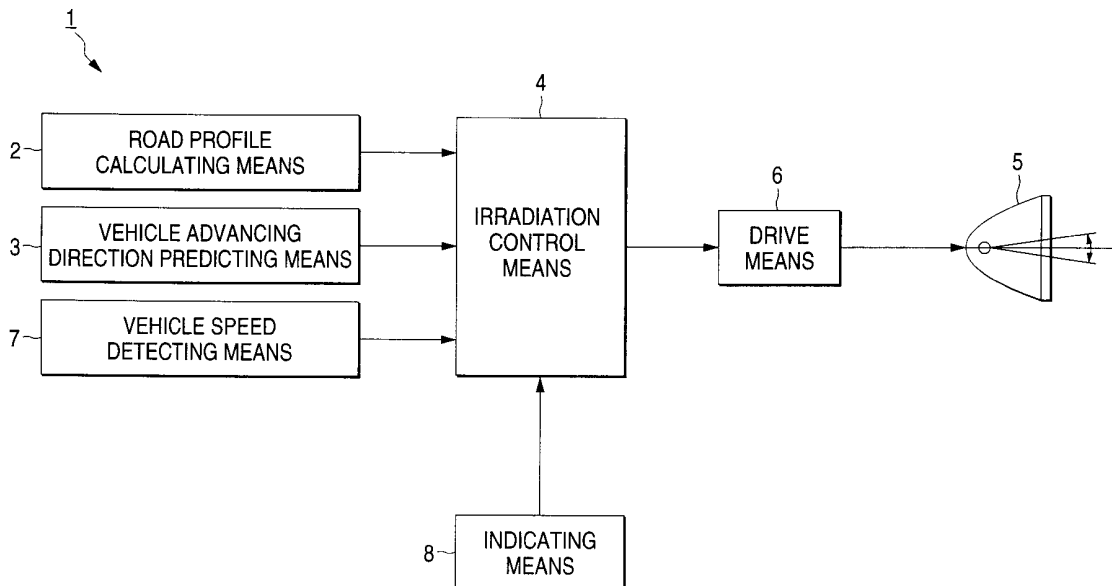


FIG. 1

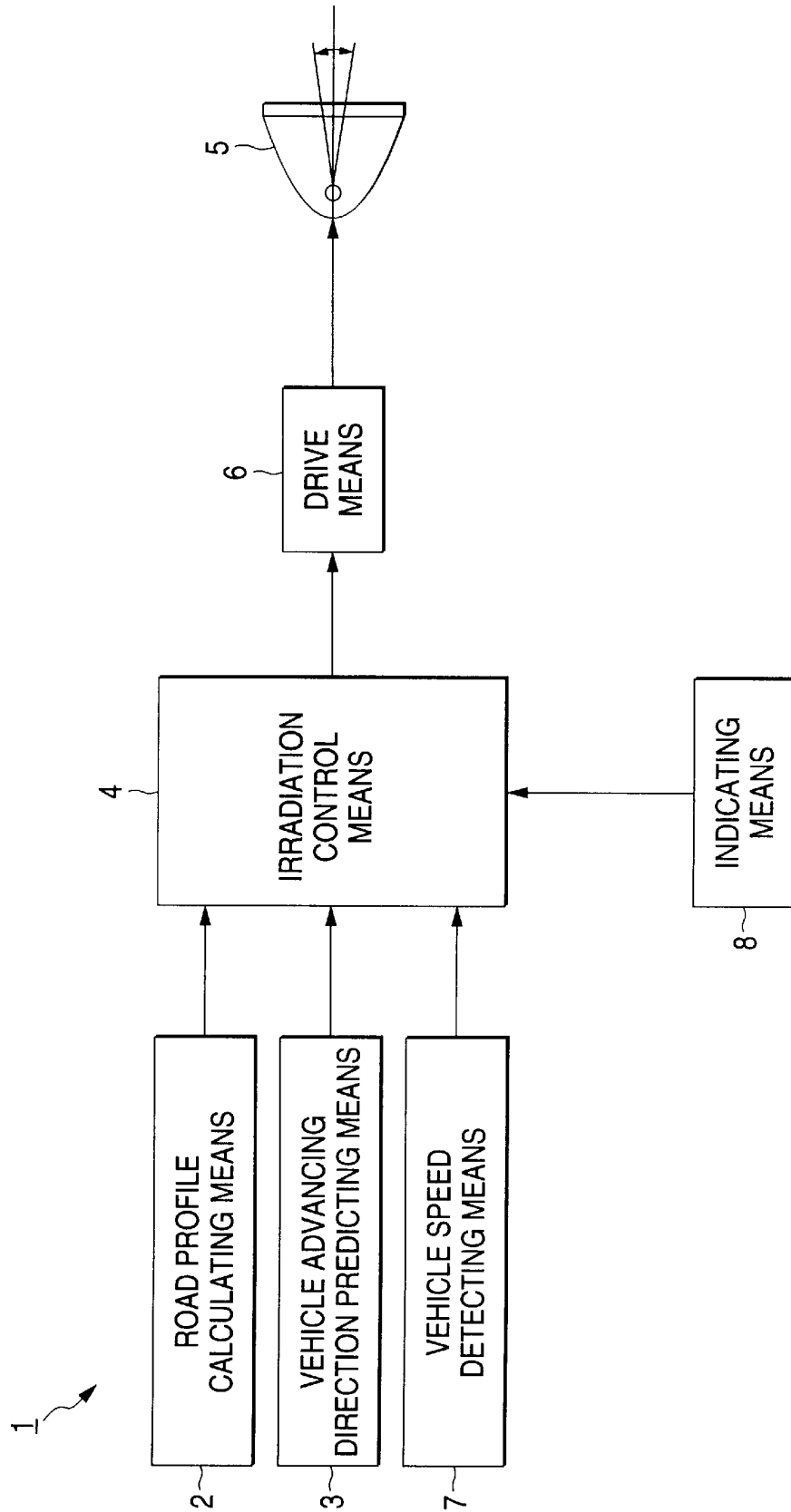


FIG. 2

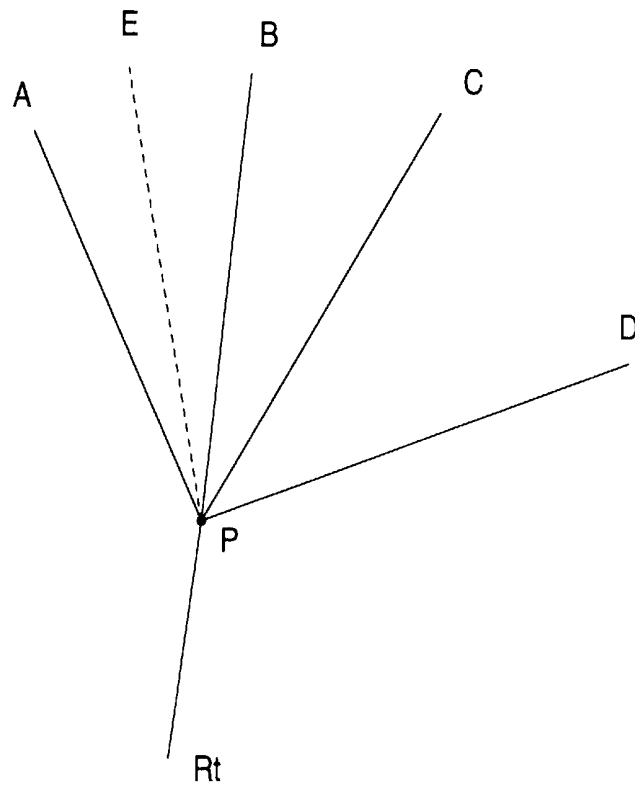


FIG. 3

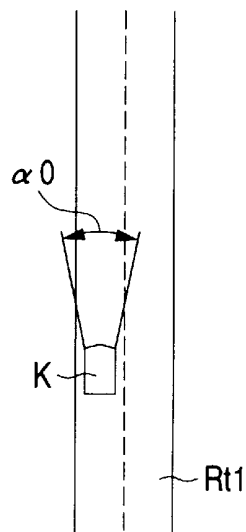


FIG. 4

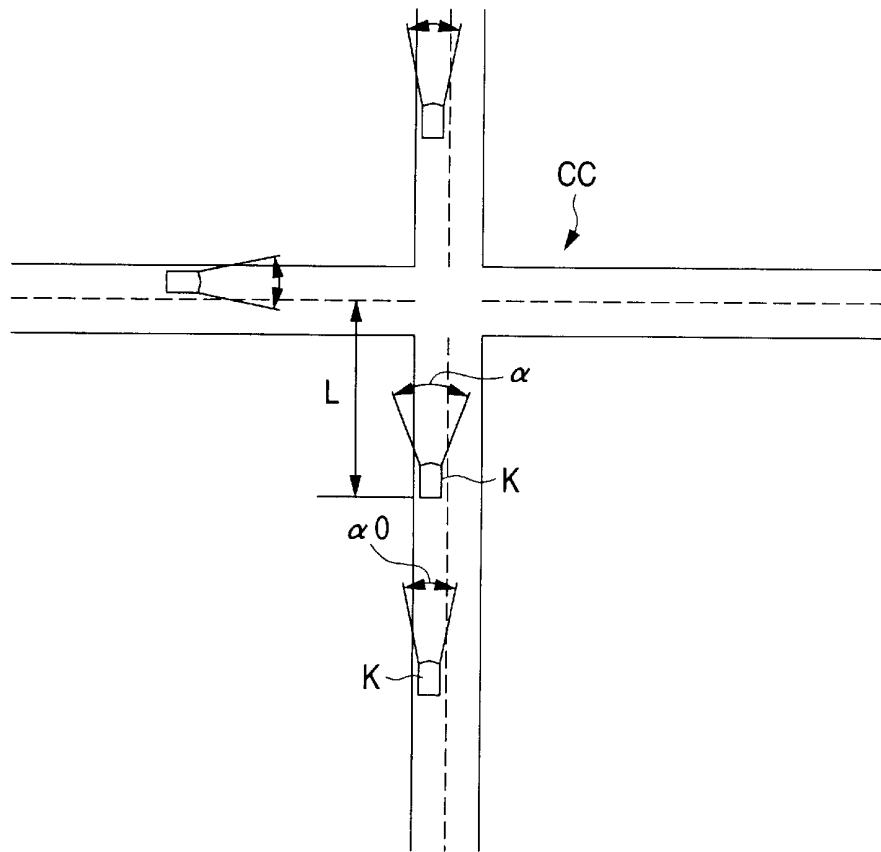


FIG. 5

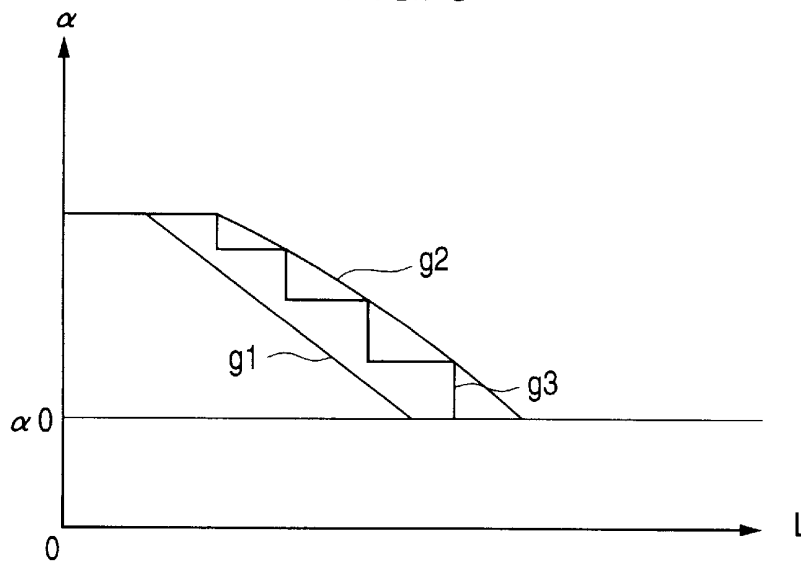
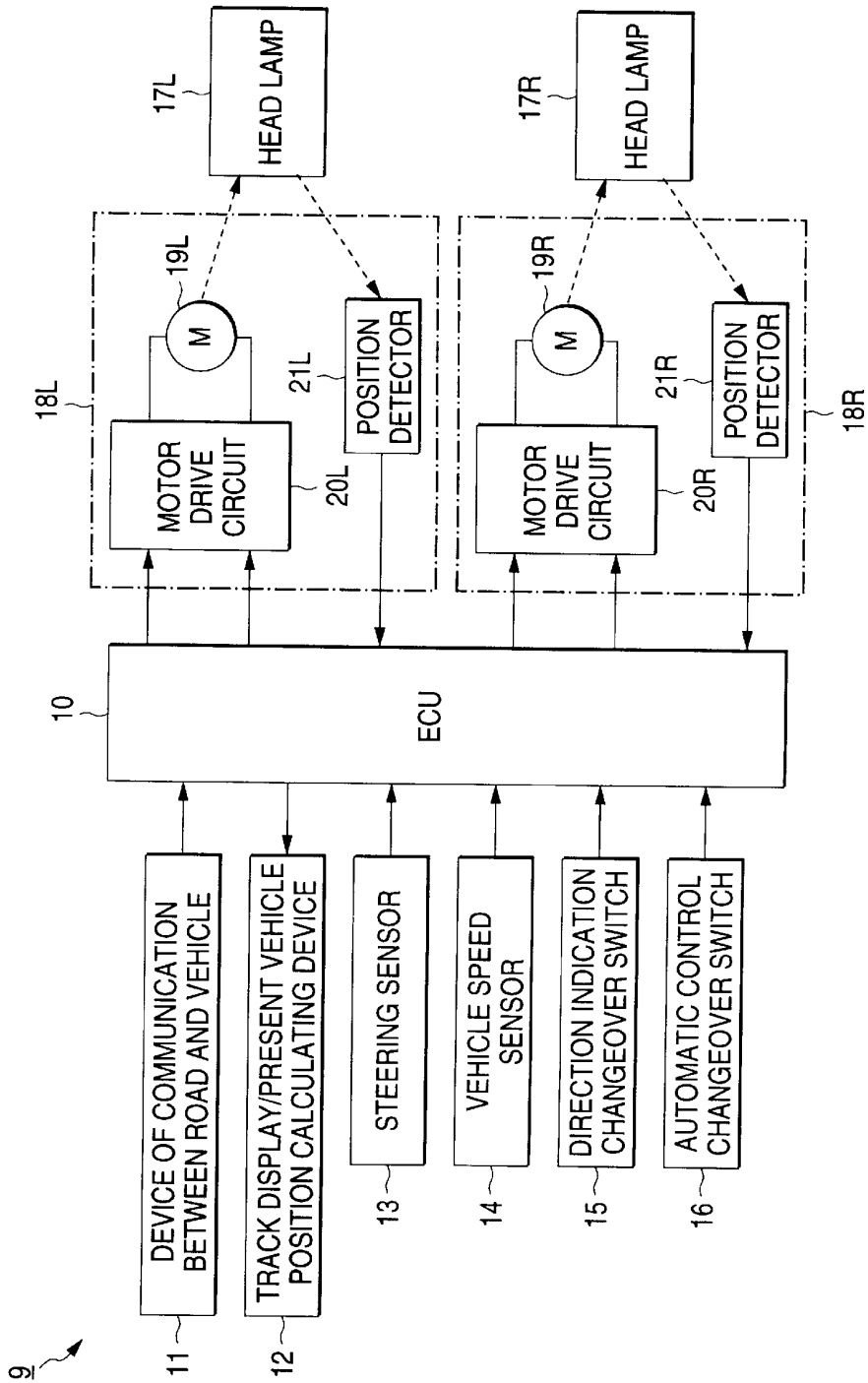


FIG. 6



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