United States Patent [19]

Ando

[11] **Patent Number: 5,008,946**

[45] **Date of Patent: Apr. 16, 1991**

[54] **SYSTEM FOR RECOGNIZING IMAGE**

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[21] Appl. No.: **242,441**

[22] Filed: **Sep. 9, 1988**

[30] **Foreign Application Priority Data**

Sep. 9, 1987 [JP] Japan 62-225862

[51] **Int. Cl.**[5] **G06K 9/00**

[52] **U.S. Cl.** **382/2**; 382/23; 382/24; 434/43; 180/271; 180/167

[58] **Field of Search** ..... 382/2, 1, 23, 24; 340/825.03; 358/103; 434/62, 43, 44; 244/222, 76 R, 194, 195, 3.11, 3.14; 414/901; 180/167, 272, 271

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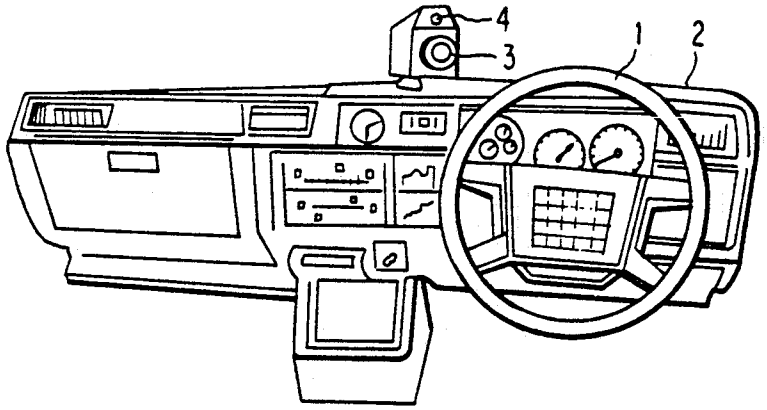
[57] **ABSTRACT**

There is disclosed a system which permits an automobile driver to control electrical devices installed on an automobile by moving his or her pupils and mouth intentionally. The system includes a TV camera, a light, a first microprocessor which controls the electrical devices according to the changes in the shape of the driver's mouth, a second microprocessor for performing various arithmetic operations, and memories. Reference values have been previously assigned to various elements of the driver's face and stored in one of the memories. The second microprocessor normalizes the distances between the elements of the face with the distance between the pupils of the eyes and compares the normalized distances with the reference values to calculate the degrees of similarity of the elements.

1 Claim, 22 Drawing Sheets



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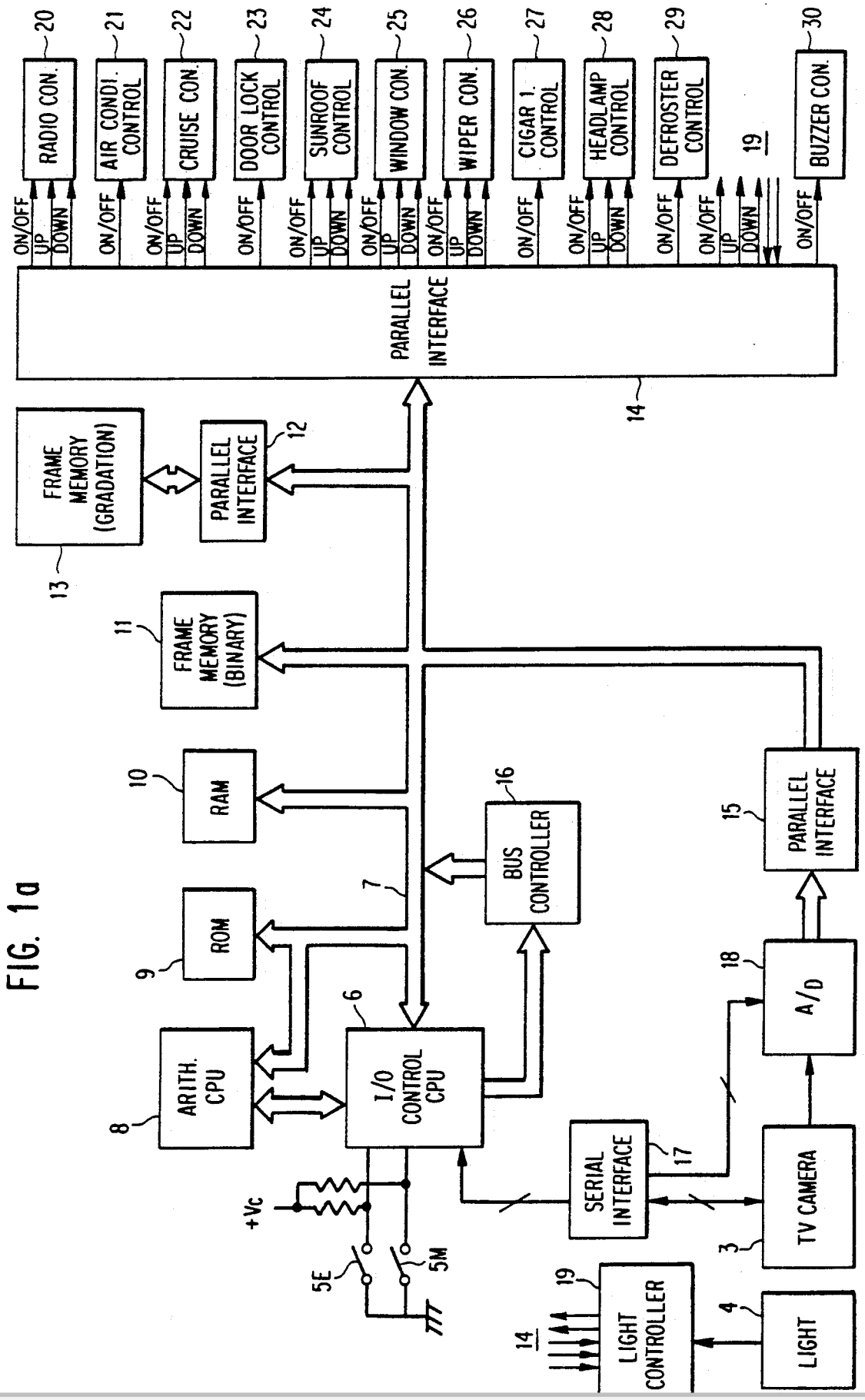

FIG. 1a

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FIG. 1b

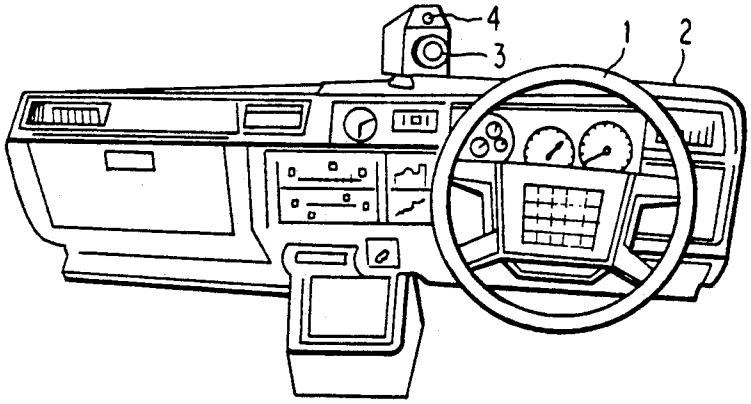

FIG. 3

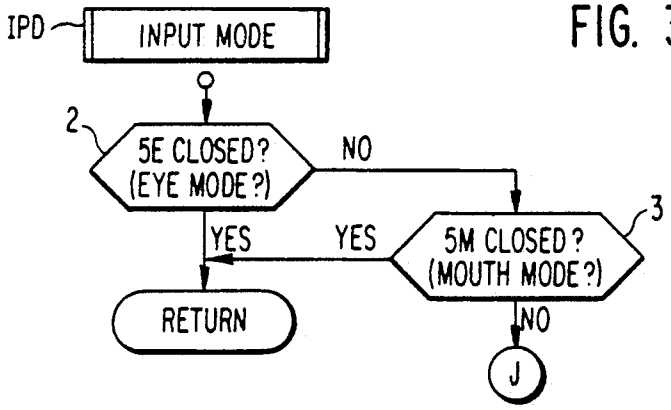

FIG. 4

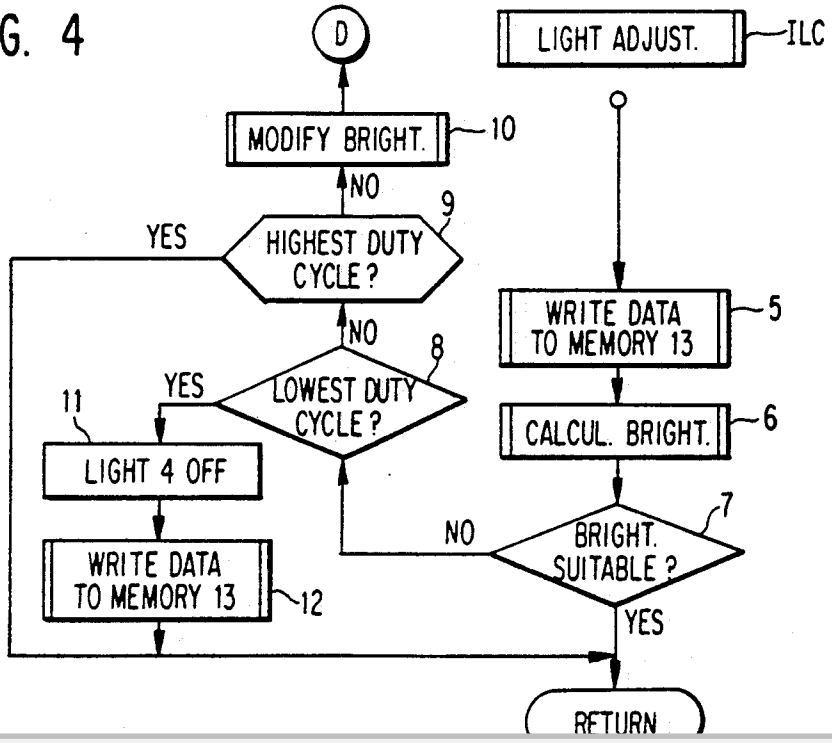

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FIG. 2

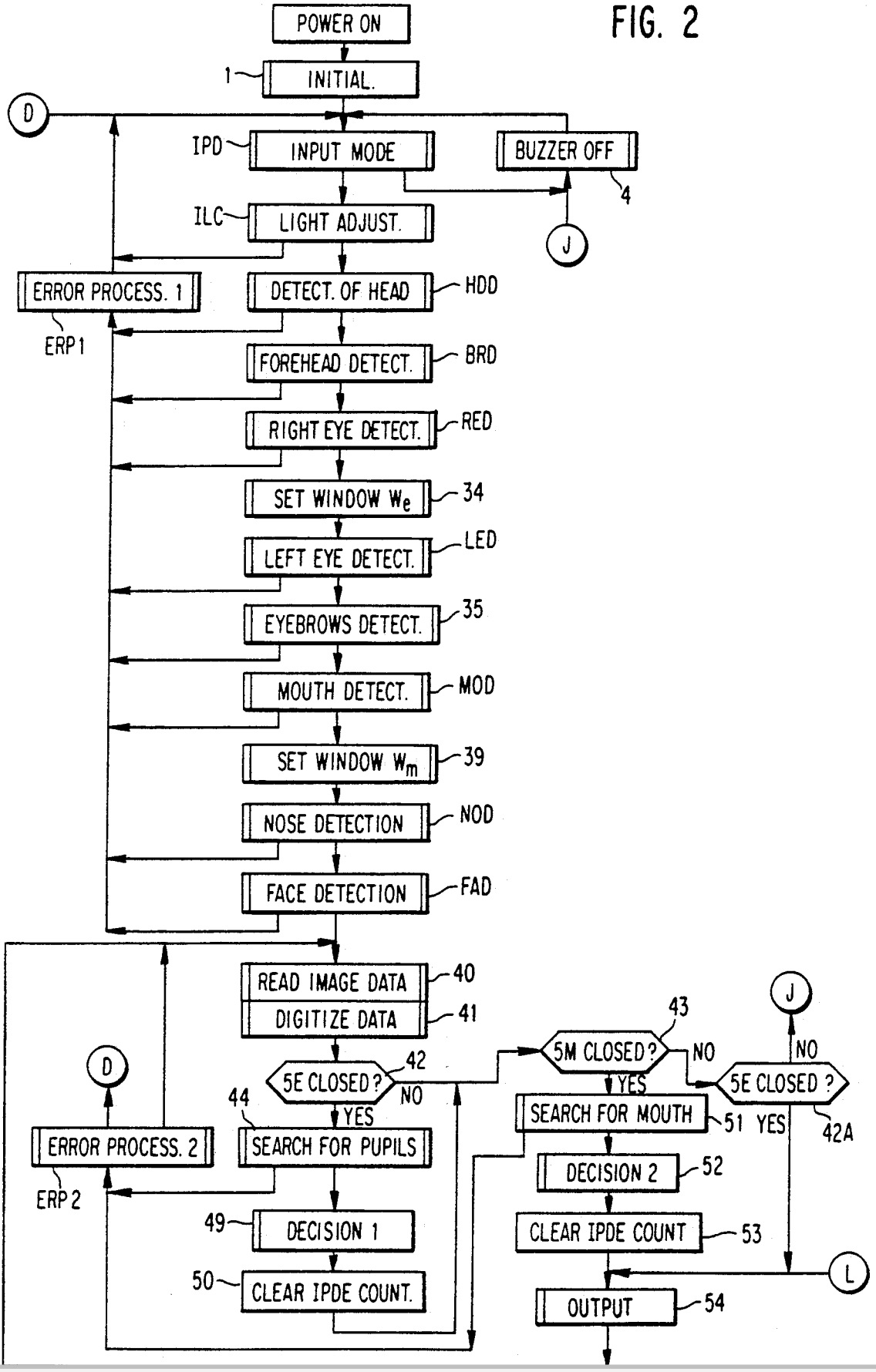

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FIG. 5a

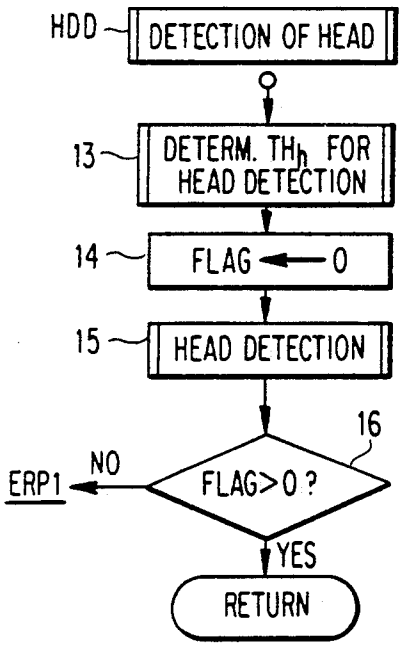
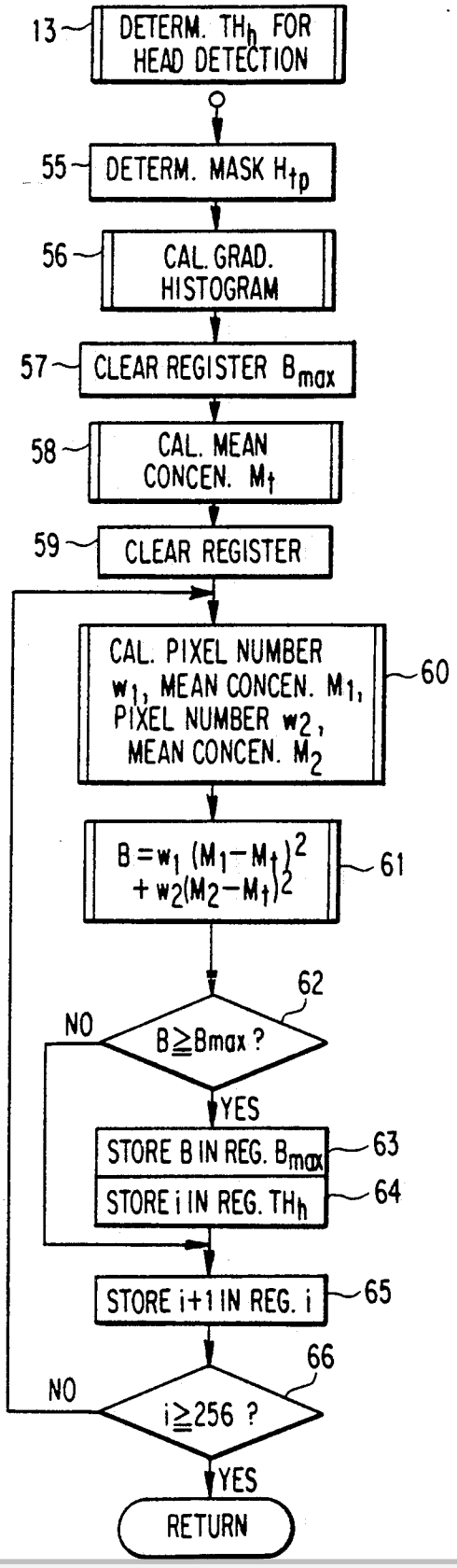


FIG. 5b



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