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United States Patent [19]

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Kamei et al.

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- [54] **AUTOMOTIVE OCCUPANT SENSING DEVICE**
- [75] Inventors: **John H. Kamei**, Chino Hills; **Cathy L. Boon**, Brea; **Phillip F. Stevens**, La Habra, all of Calif.
- [73] Assignee: **Rockwell International Corporation**, Seal Beach, Calif.
- [21] Appl. No.: **411,376**
- [22] Filed: **Mar. 27, 1995**
- [51] **Int. Cl.⁶** **G06K 9/00**
- [52] **U.S. Cl.** **382/100; 382/103; 382/104; 280/732; 280/735; 250/227.15**
- [58] **Field of Search** **280/732, 735; 250/227.15; 382/100, 103, 104; 348/143, 148**

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Primary Examiner—Jose L. Couso
Assistant Examiner—Anh Hong Do
Attorney, Agent, or Firm—George A. Montanye; David J. Arthur; Susie H. Oh

[57] **ABSTRACT**

A vehicle occupant safety system includes an image sensor and processor that provides a classification of the occupancy status of the passenger seat area to determine whether an airbag should be deployed. The image processing system includes a photodetector array sensor and lens assembly with image processing electronics to acquire a machine vision representation of the passenger seat area within a vehicle. The objects in the field of view are then discriminated to determine whether a rear-facing child carrier is located in the passenger seat, such that the passenger-side airbag can be disabled.

[56] **References Cited**

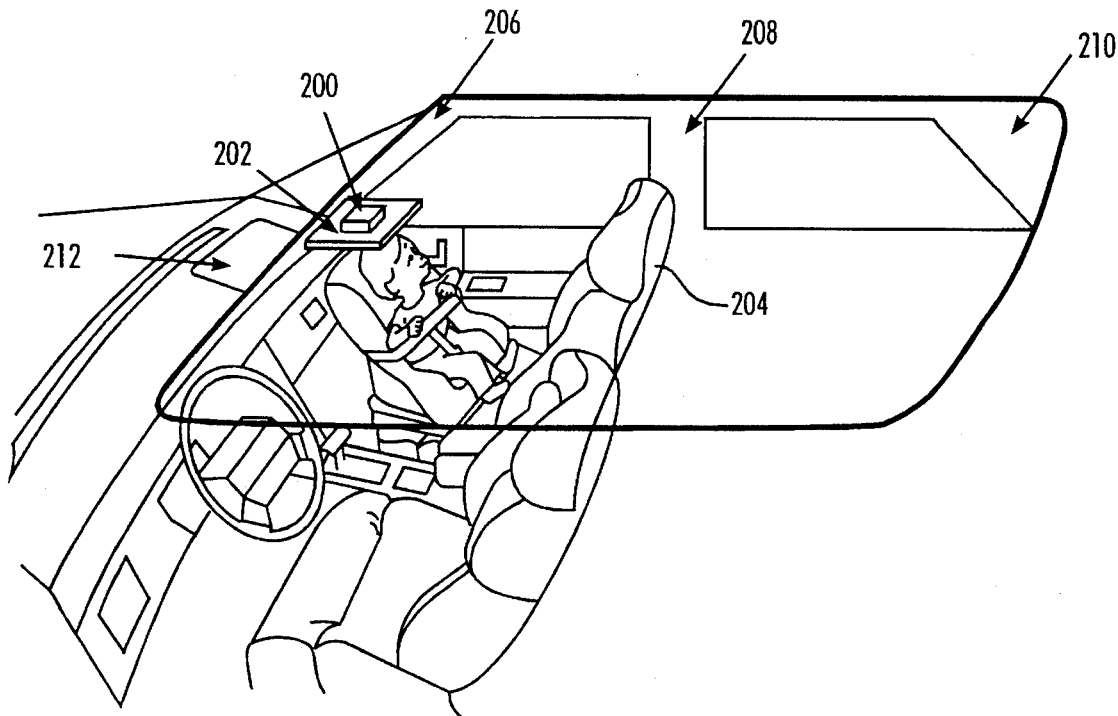
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19 Claims, 6 Drawing Sheets



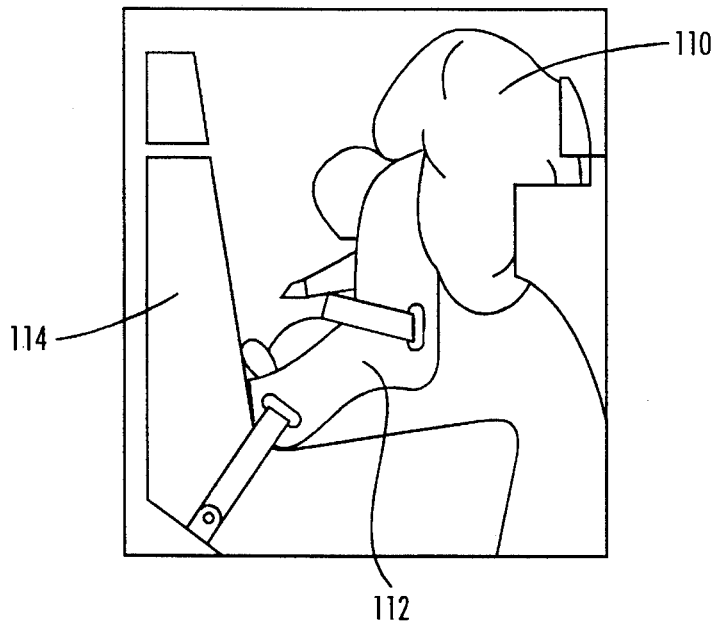


FIG. 1

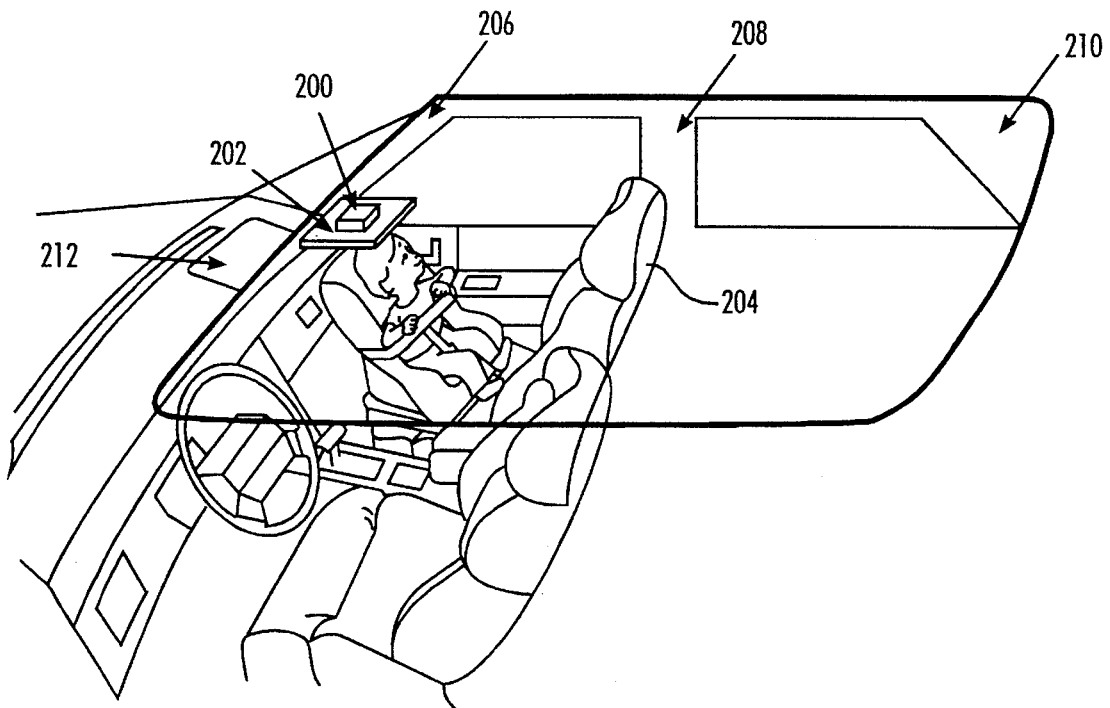


FIG. 2

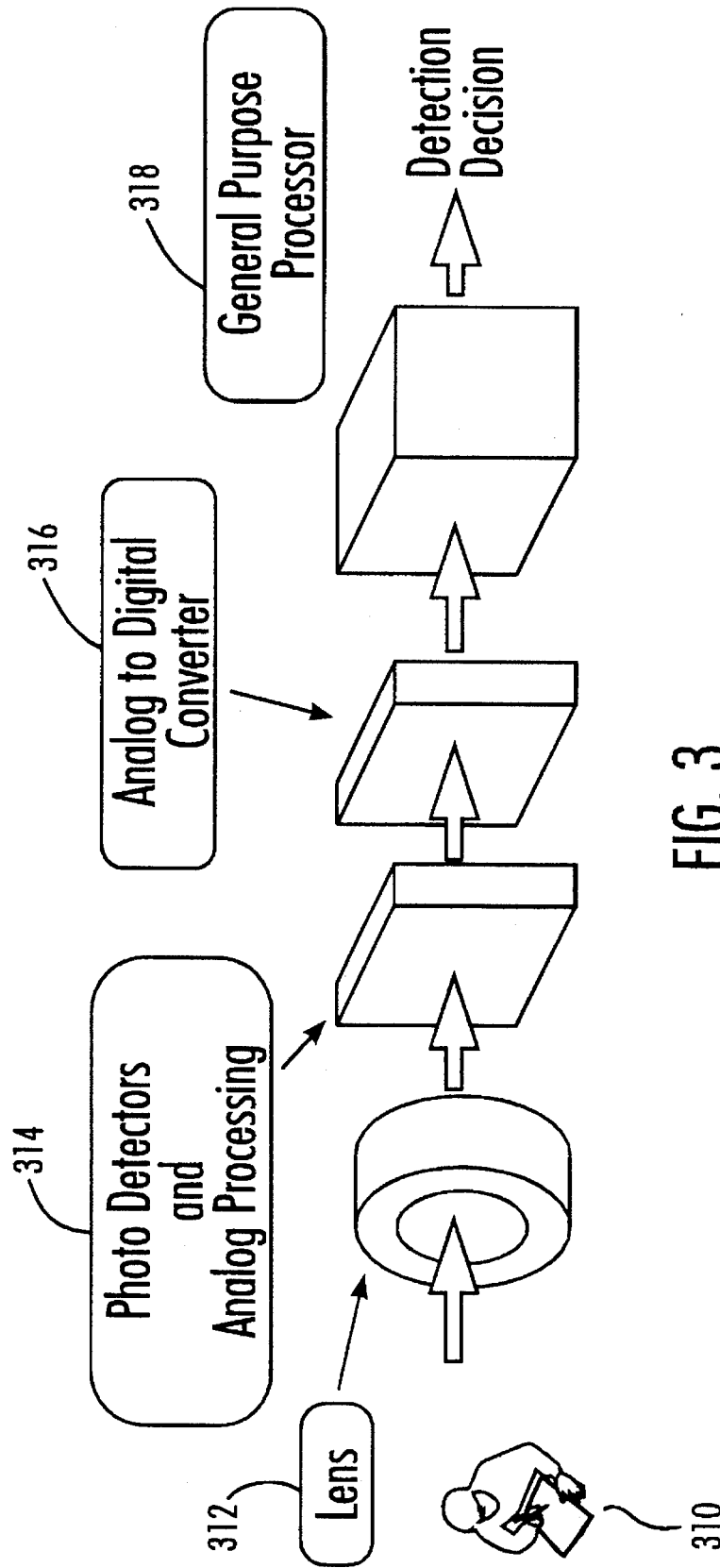


FIG. 3

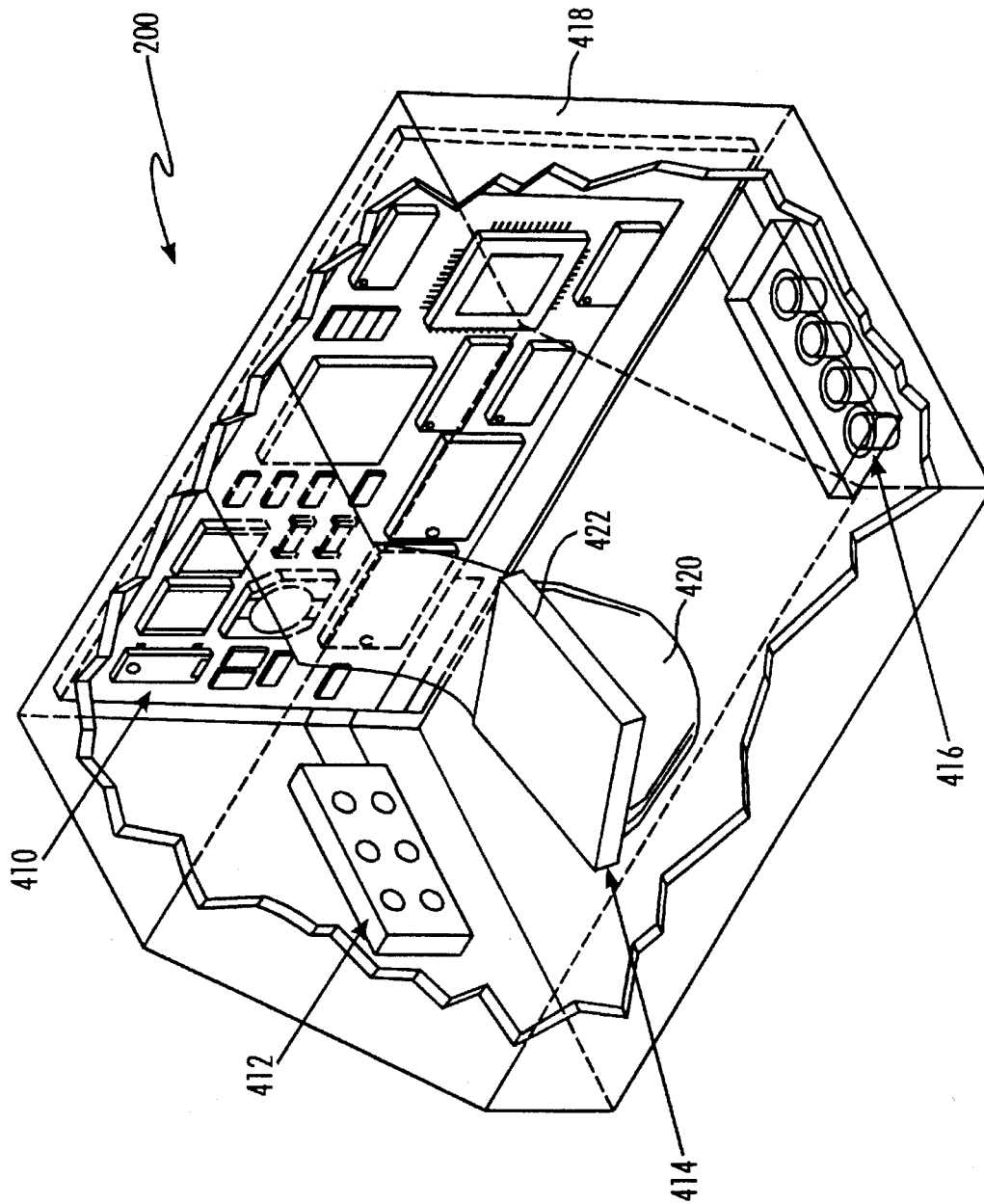


FIG. 4

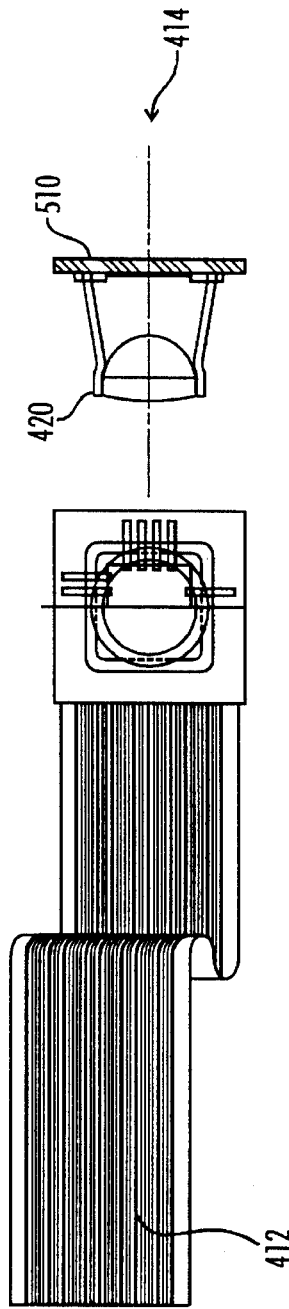


FIG. 5

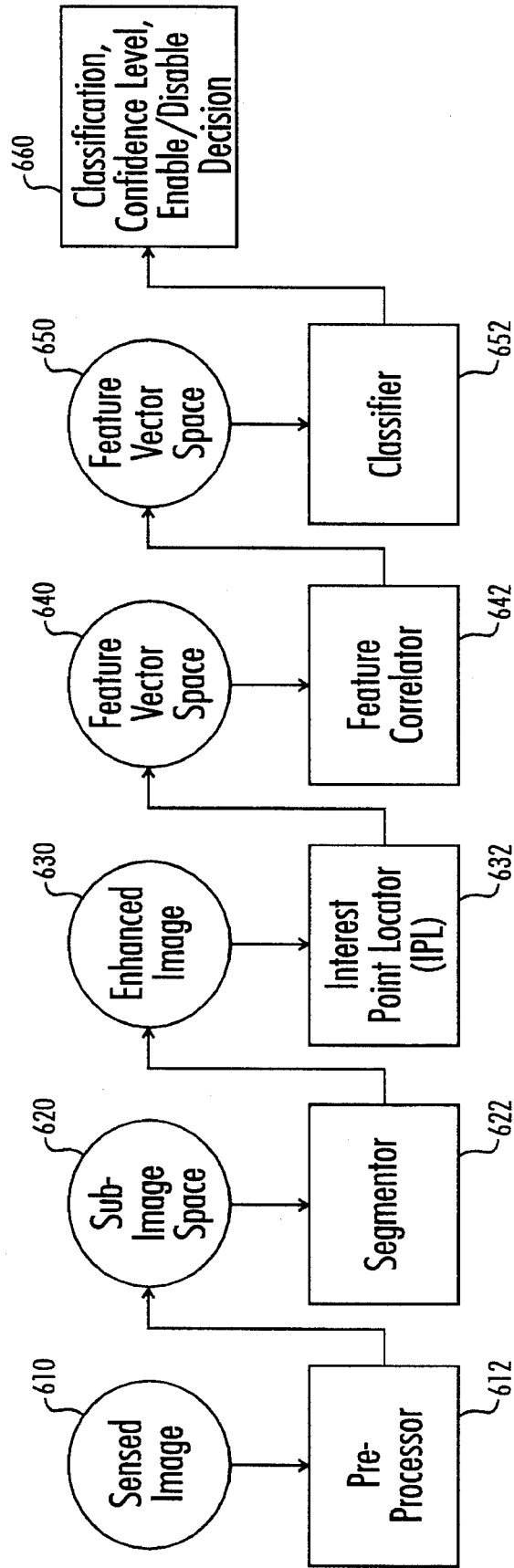


FIG. 6

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