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**United States Patent** [19]

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McMillan et al.

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[54] **MOTOR VEHICLE MONITORING SYSTEM FOR DETERMINING A COST OF INSURANCE**

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[75] **Inventors:** Robert John McMillan, Tampa, Fla.;  
 Alexander Dean Craig, Moreland Hills, Ohio; John Patrick Heinen, Tampa, Fla.

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[73] **Assignee:** Progressive Casualty Insurance Company, Mayfield Village, Ohio

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[21] Appl. No.: 592,958

[22] Filed: Jan. 29, 1996

[51] **Int. Cl.<sup>6</sup>** ..... **G06F 17/60**

[52] **U.S. Cl.** ..... **705/400; 705/4**

[58] **Field of Search** ..... 395/204; 364/424.01,  
 364/424.04, 565; 340/441; 346/18; 705/4,  
 400

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*Attorney, Agent, or Firm*—Fay, Sharpe, Beall, Fagan, Minnich and McKee

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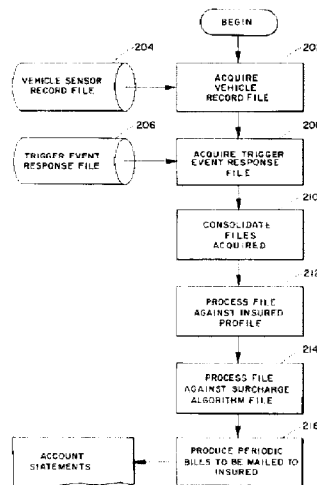
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[57] **ABSTRACT**

A method and system of determining a cost of automobile insurance based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics. The cost is adjustable retrospectively and can be prospectively set by relating the driving characteristics to predetermined safety standards. The method comprises steps of monitoring a plurality of raw data elements representative of an operating state of the vehicle or an action of the operator. Selected ones of the raw data elements are recorded when the ones are determined to have an identified relationship to safety standards. The selected ones are consolidated for processing against an insurer profile and for identifying a surcharge or discount to be applied to a base cost of automobile insurance. A final cost is produced from the base costs and the surcharges or discounts.

**26 Claims, 6 Drawing Sheets**



**Liberty Mutual  
 Exhibit 1023**

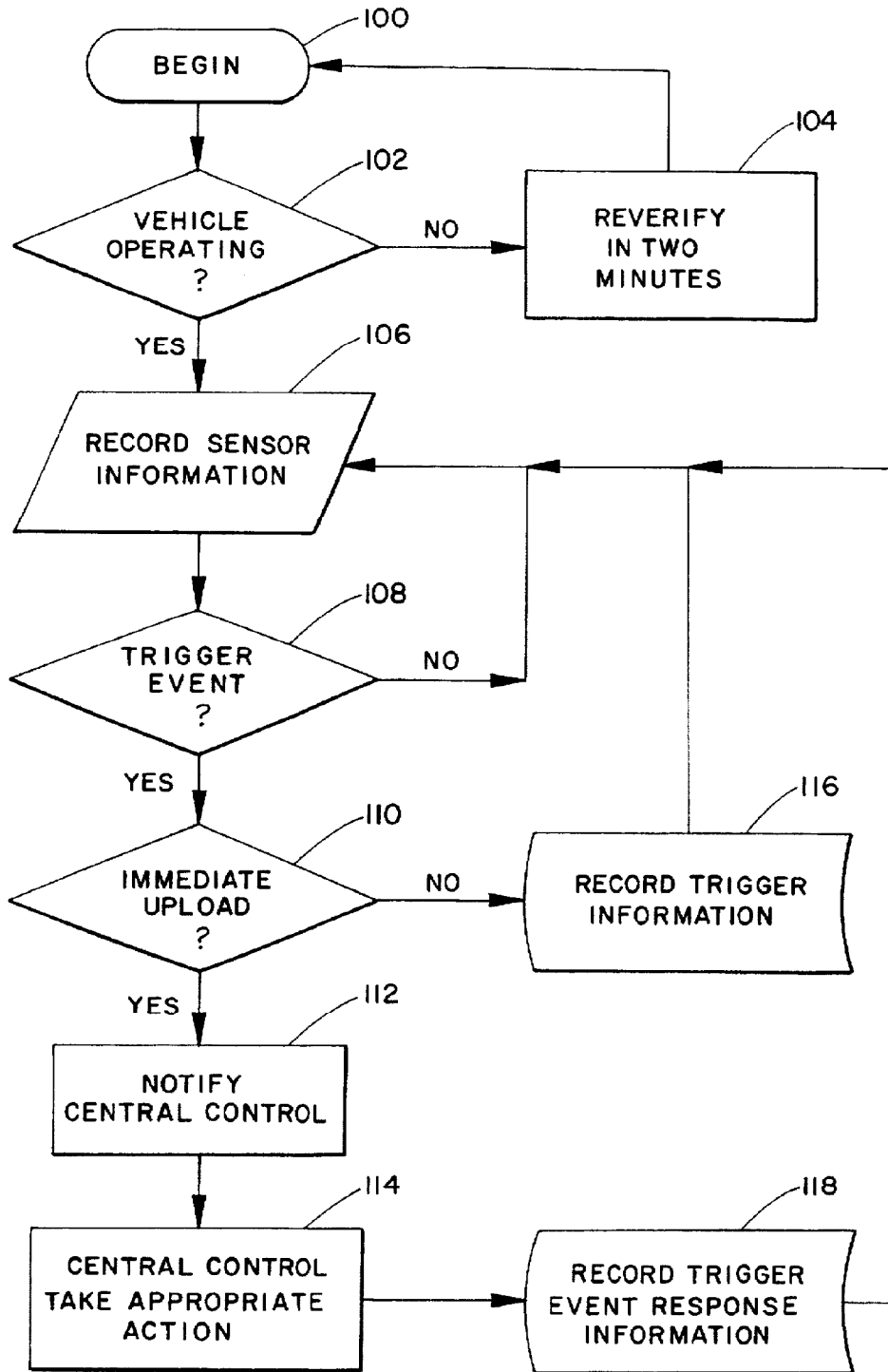
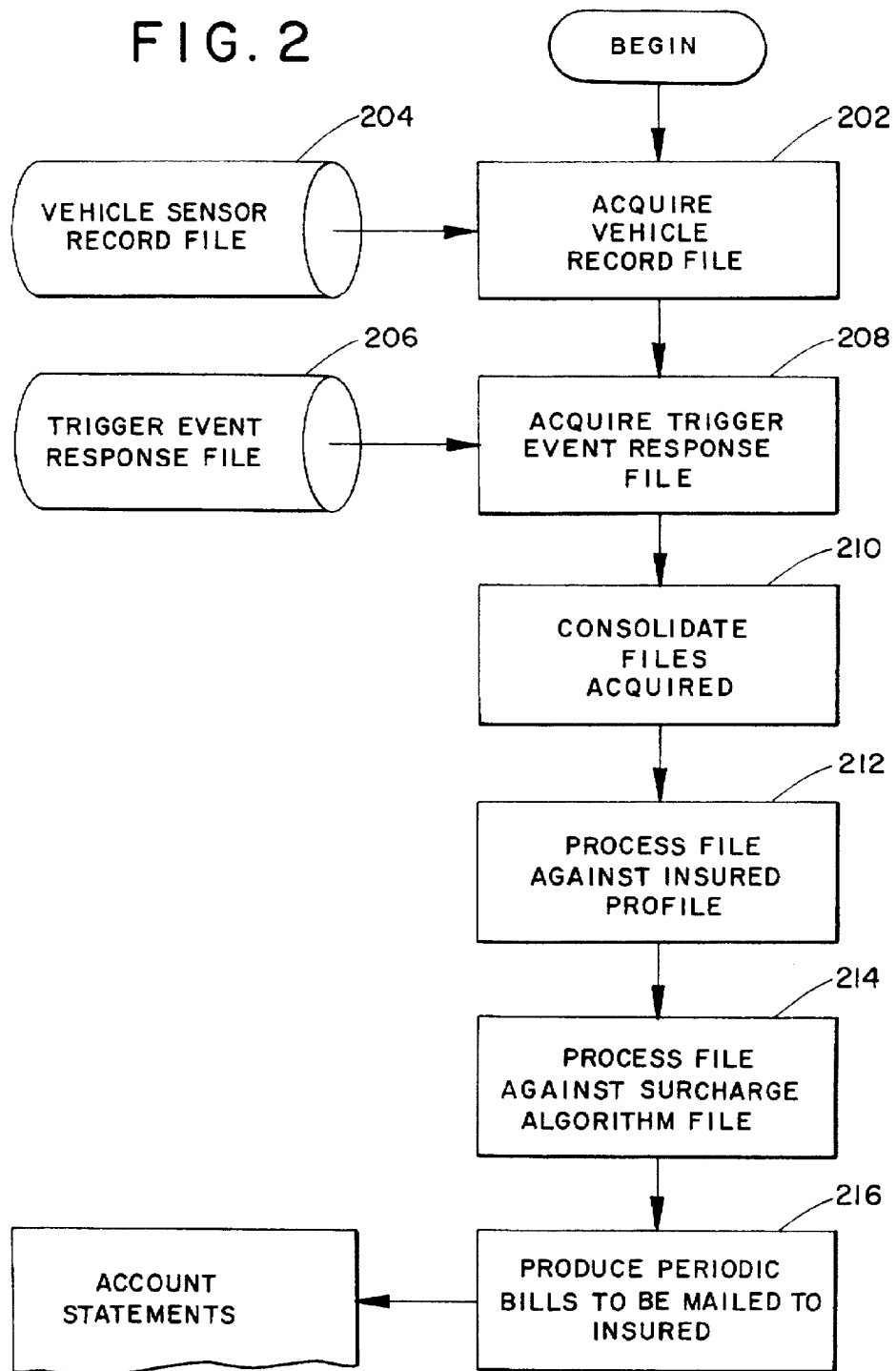


FIG. 1

FIG. 2



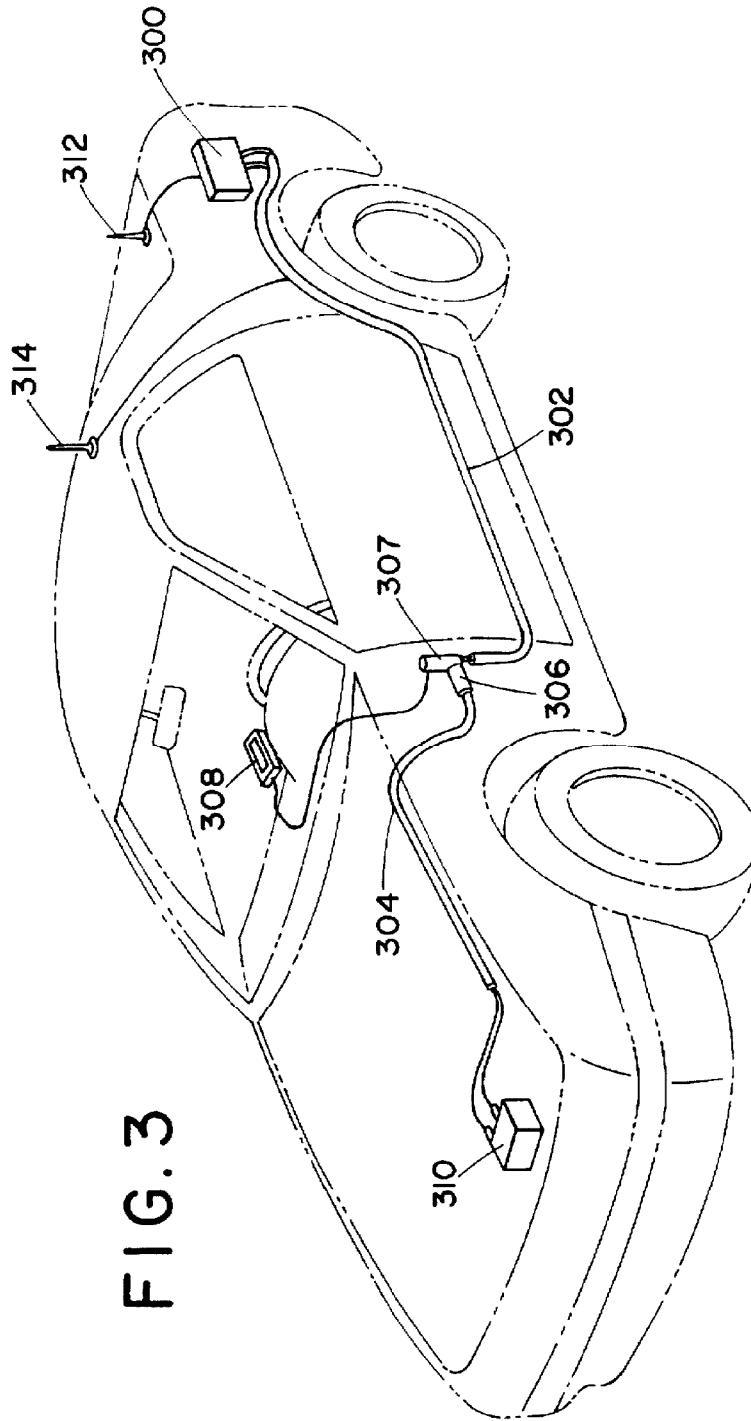
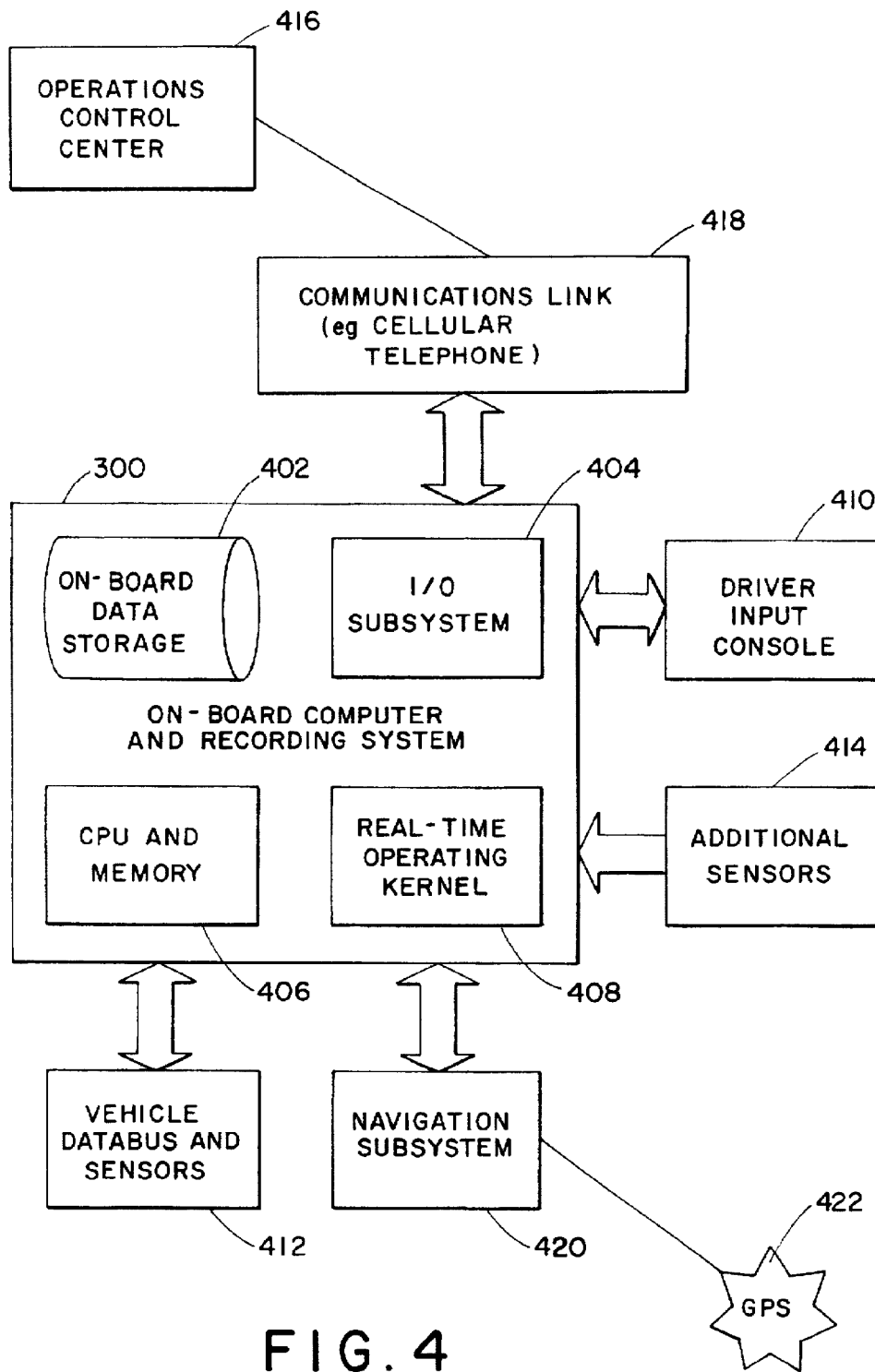


FIG. 3



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