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# United States Patent [19]

Sheffer et al.

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- [54] **VEHICLE TRACKING SYSTEM**
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- [73] Assignee: **Trackmobile**, San Diego, Calif.
- [21] Appl. No.: **891,805**
- [22] Filed: **Jun. 1, 1992**
- [51] Int. Cl.<sup>5</sup> ..... **G01S 3/02; H04M 11/00**
- [52] U.S. Cl. .... **342/457; 379/59**
- [58] Field of Search ..... **342/457, 463; 455/33.1; 379/58, 59, 63**

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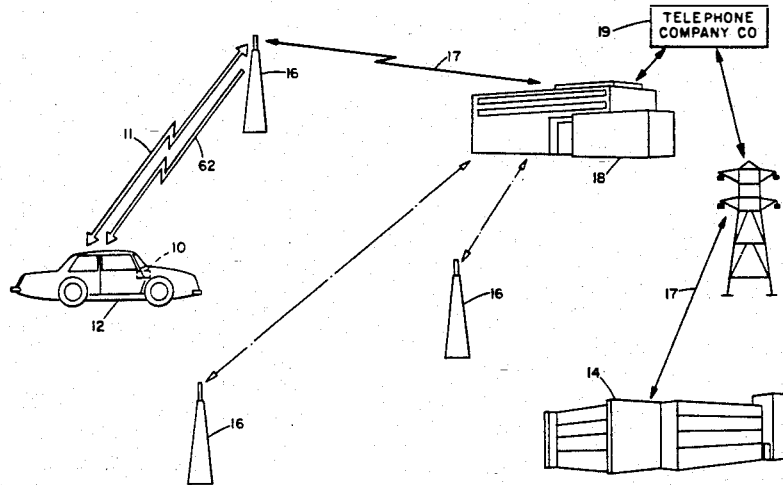
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### [57] ABSTRACT

A vehicle tracking system makes use of a conventional cellular telephone network including a plurality of fixed cellular transmitter sites each covering a predetermined area. The system includes a plurality of cellular signal processing units for installation at hidden locations in vehicles to be monitored. Each unit is connected to one or more different sensors in the vehicle, at least one of the sensors being a break-in detector for detecting tampering with the vehicle, and to a cellular antenna, and includes a controller for monitoring the sensor outputs and initiating an emergency message transmission to a remote monitoring station in the event of actuation of a sensor. The car processing unit monitors site identifying signals and signal strengths of transmissions from adjacent cellular transmitter sites in an emergency, and the emergency message includes vehicle identifying information, cell site identifying information, and signal strength information which will be dependent on distance from the cell site. The monitoring station includes a computer for determining and displaying an approximate vehicle location from the incoming cell site identifying and signal strength information.

16 Claims, 7 Drawing Sheets



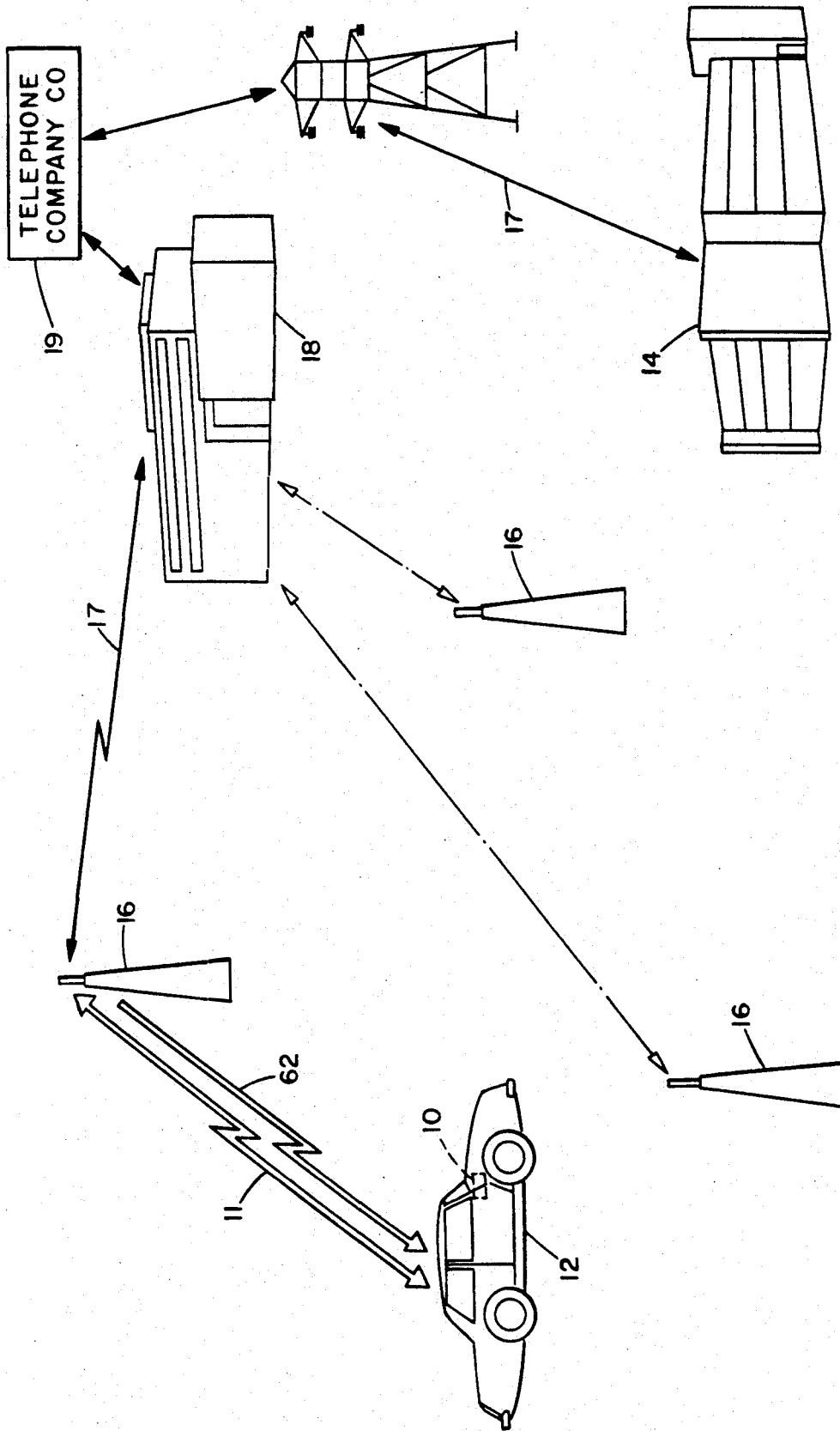
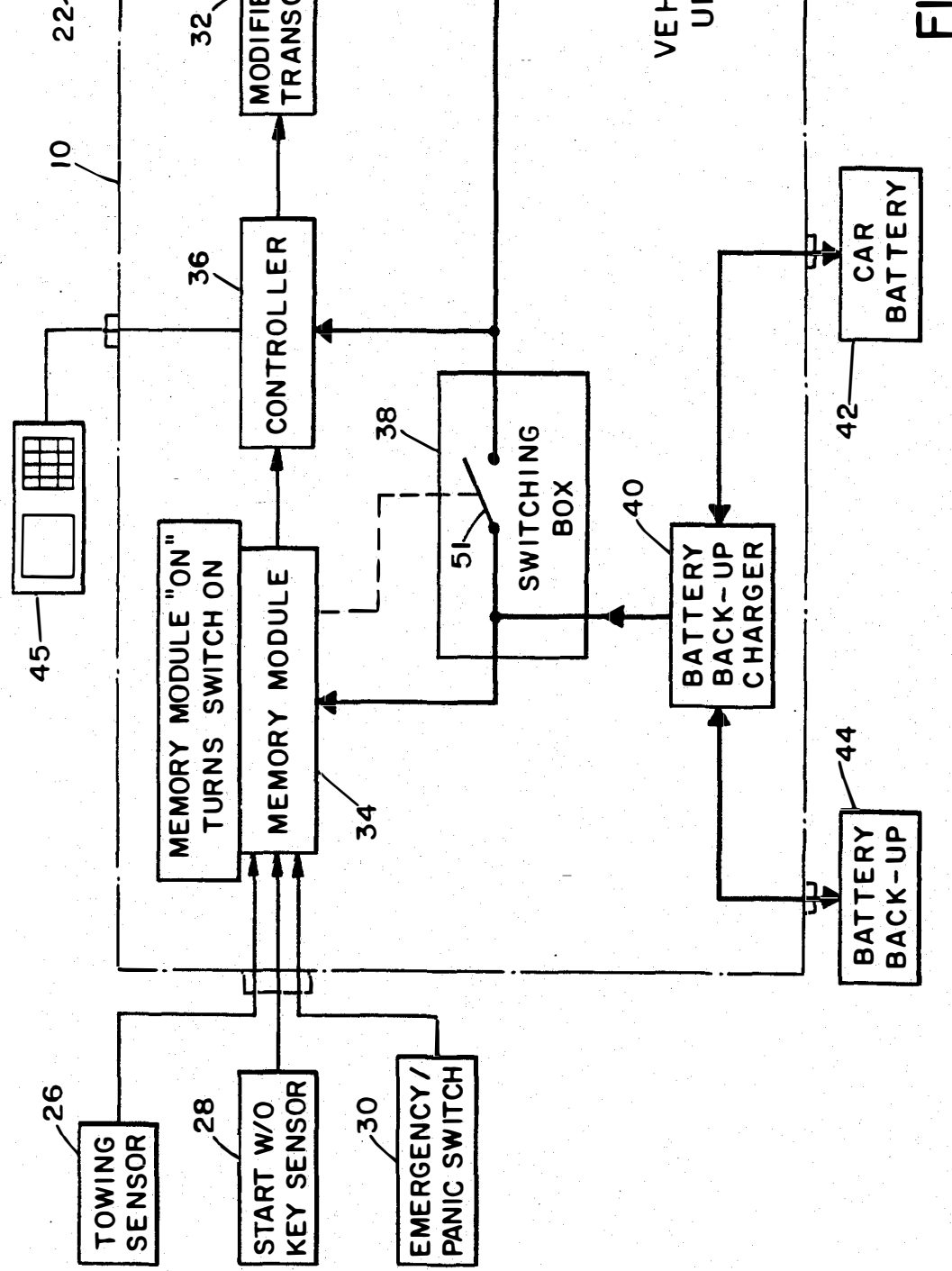


FIG. 1



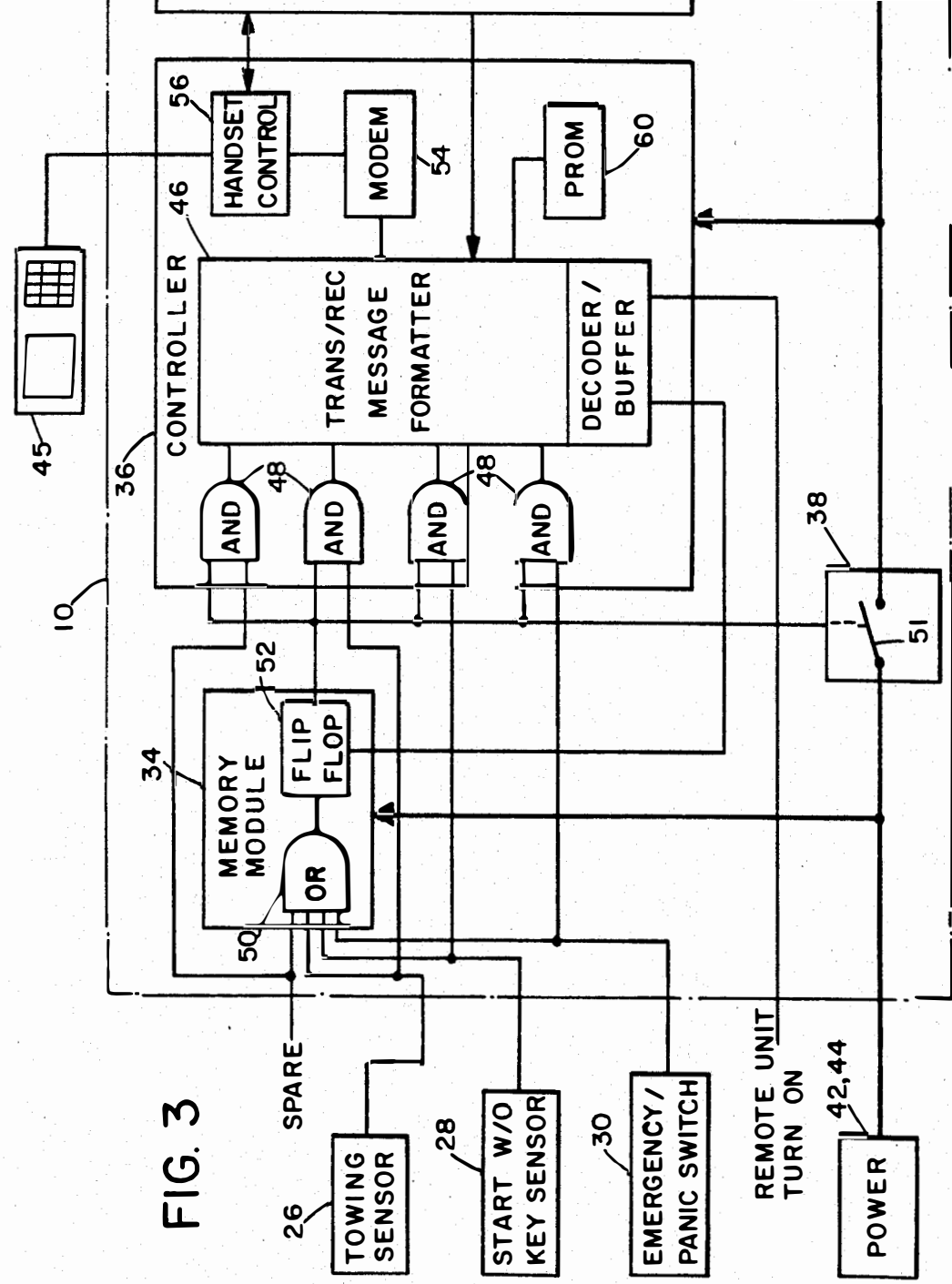


FIG. 3

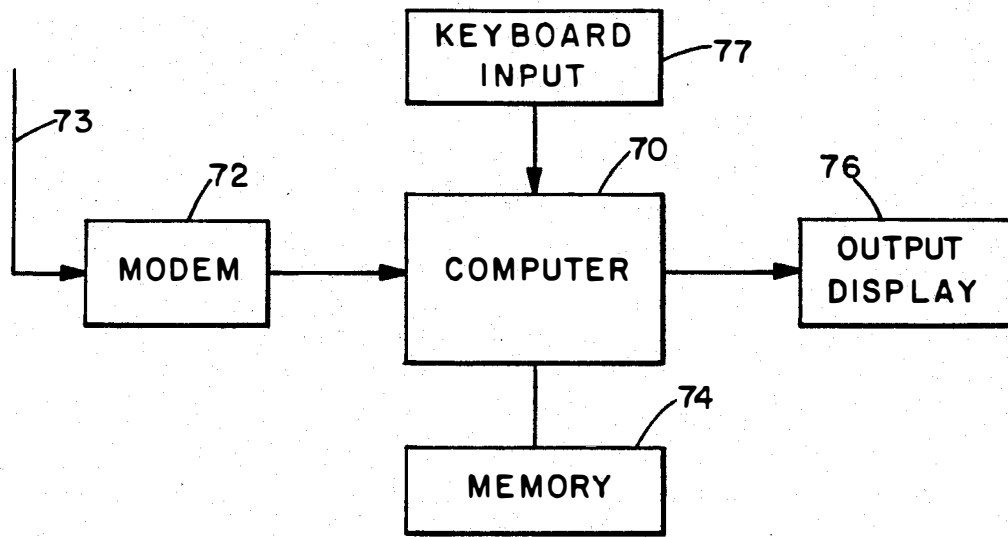


FIG. 4

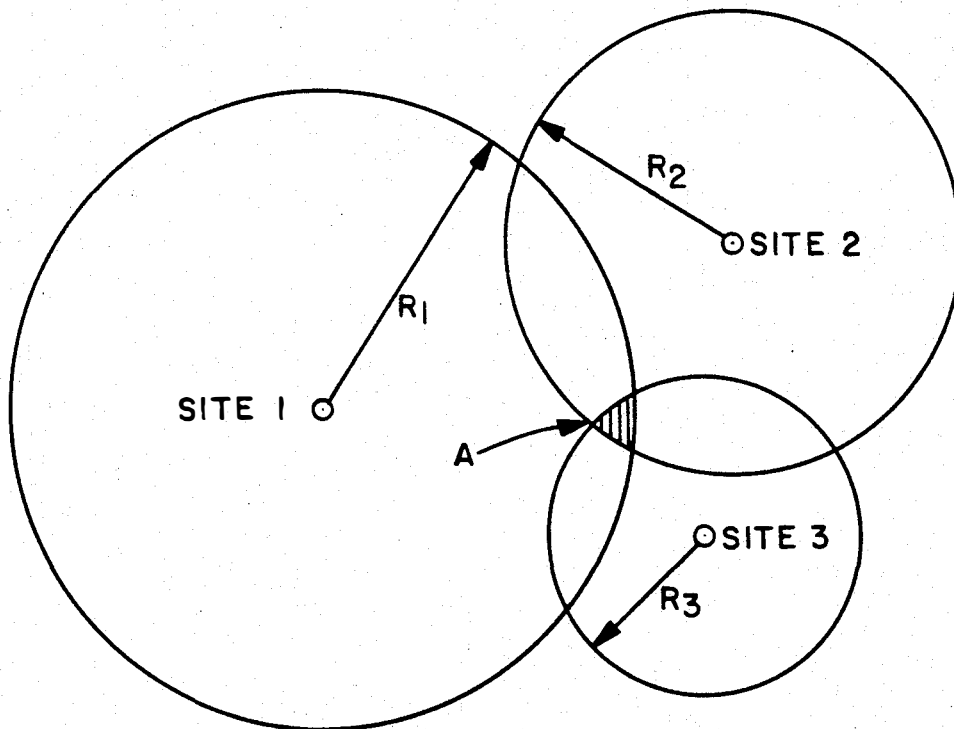


FIG. 6

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