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# United States Patent [19]

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Mansell et al.

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## [54] VEHICLE TRACKING AND SECURITY SYSTEM

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[73] Assignee: **Auto-Trac, Inc.,** Dallas, Tex.

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[22] Filed: **Apr. 17, 1992**

[51] Int. Cl.<sup>5</sup> ..... **H04B 7/185; G01S 5/02**

[52] U.S. Cl. .... **342/357; 342/457**

[58] Field of Search ..... **342/357, 457**

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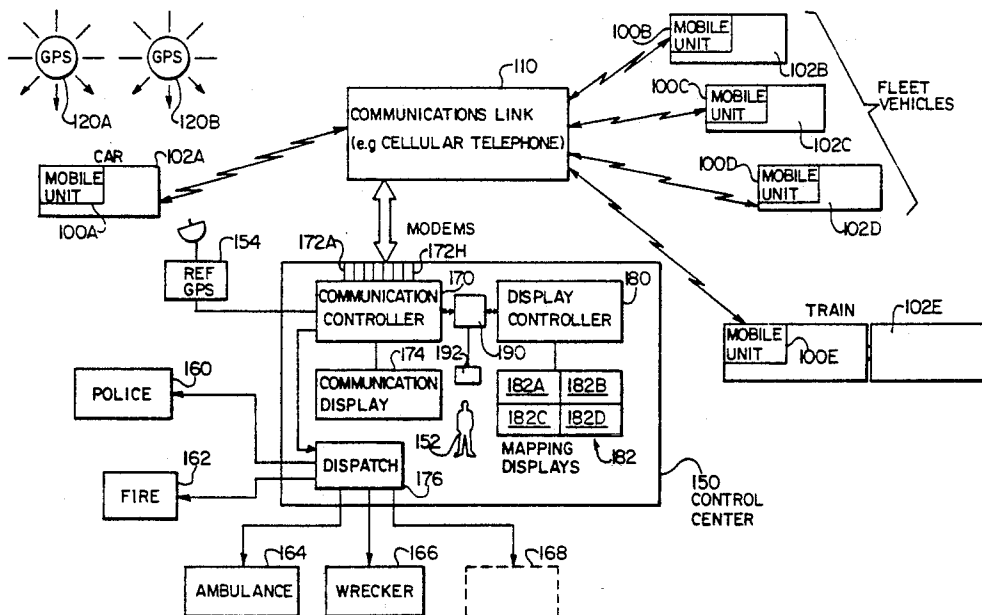
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### [57] ABSTRACT

The present invention provides a vehicle tracking and security system which allows immediate response in case of vehicle theft, an accident, vehicle breakdown, or other emergency. Guardian and tracking functions are provided through Mobile Units installed in hidden locations in vehicles to be monitored. The Mobile Units communicate with a Control Center. Preferably, the Mobile Unit provides vehicle theft and intrusion protection using an in-vehicle alarm and security system linked to the Control Center by a transceiver in the Mobile Unit. Also, a keypad or other human interface device is provided, allowing a vehicle driver or occupant to signal the Control Center that a particular type of assistance is needed. The vehicle's location may be automatically transmitted to the Control Center along with any automatic alarm signal or manually entered request, the location being precisely determinable anywhere in the world through use of Global Positioning System (GPS) information. The present invention provides continuous monitoring of a large number of vehicles for a broad range of status and emergency conditions over a virtually unlimited geographic area, also allowing manual communication of requests for assistance to that specific location. Advantageously, the system is implemented using existing commercial or police communications equipment.

11 Claims, 20 Drawing Sheets



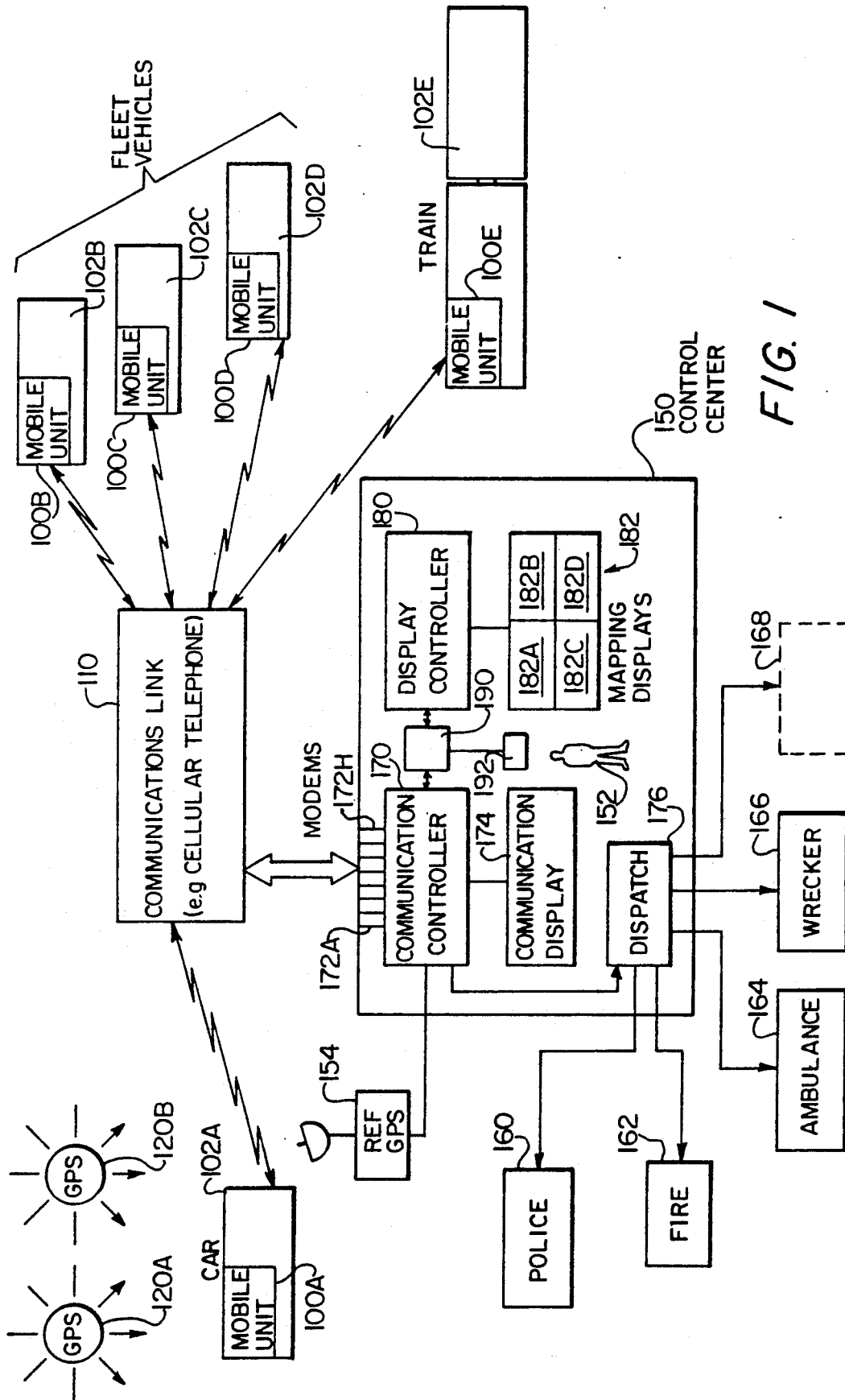
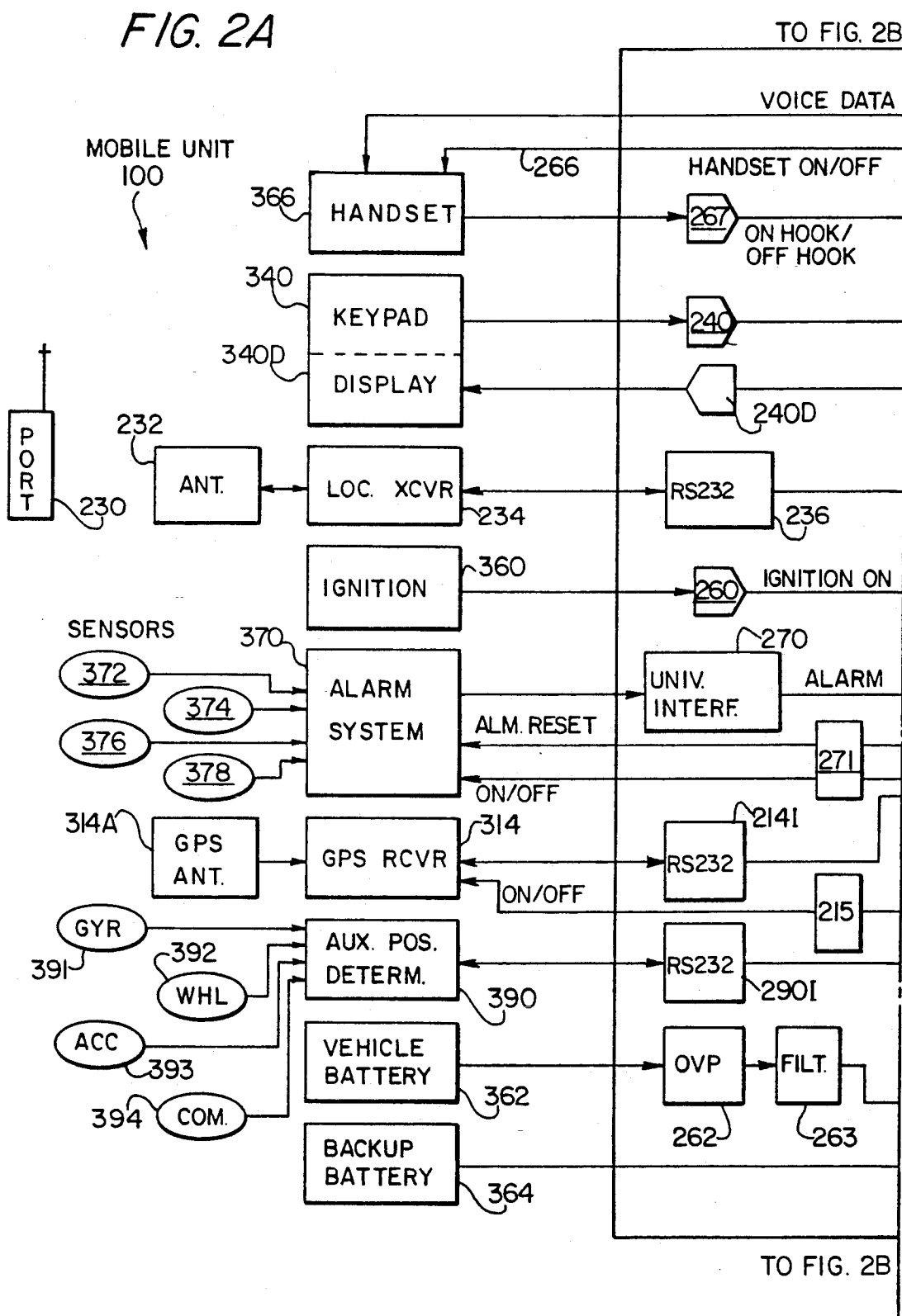
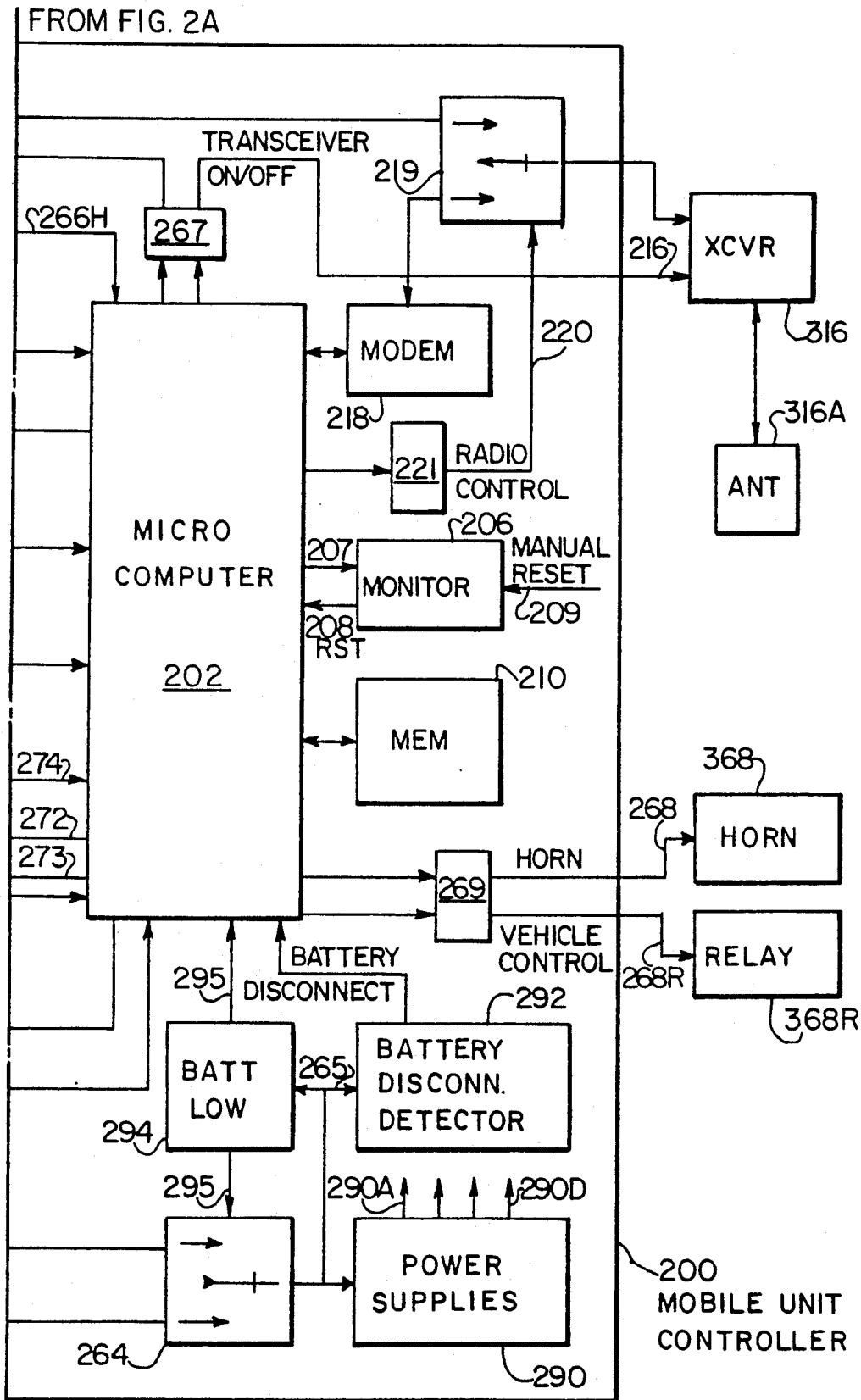


FIG. 1

FIG. 2A





FROM FIG. 2A

FIG. 2B

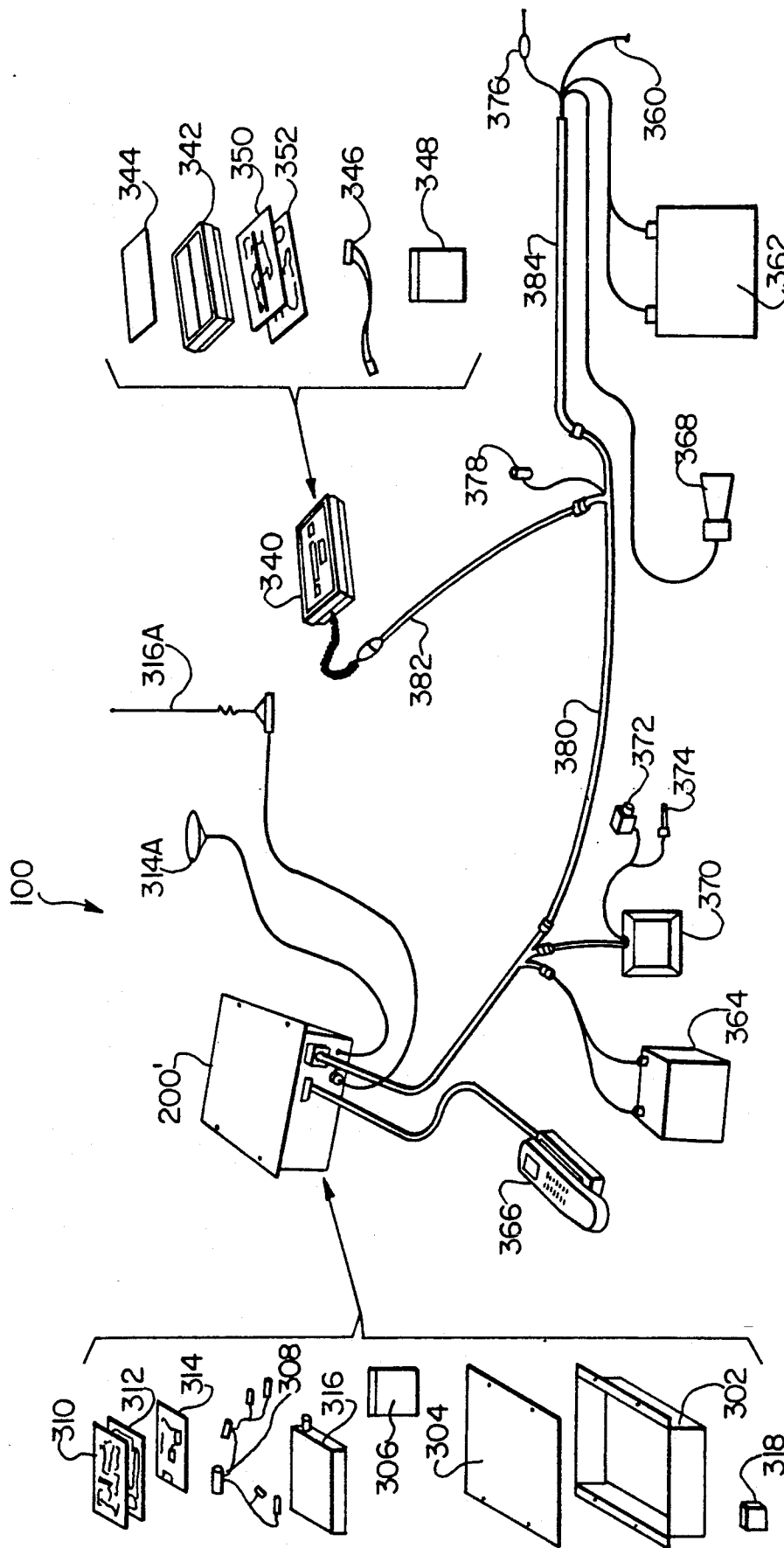


FIG. 3

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