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**Kabel et al.**

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(54) **METHODS, SYSTEMS, AND DEVICES FOR CARTOGRAPHIC ALERTS**

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**G06F 17/10** (2006.01)  
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(52) **U.S. Cl.** ..... **340/984**; 701/21; 701/301

(58) **Field of Classification Search** ..... 340/686.6, 340/995.1, 984, 985, 851, 539.13, 539.2, 340/539.22, 7.56, 825.36, 961, 995.11, 850; 367/909, 87-116; 342/41, 357.13; 701/21, 701/201, 301, 211

See application file for complete search history.

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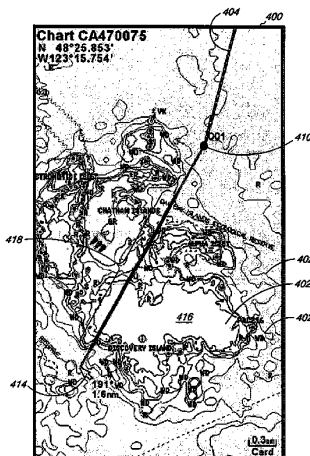
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(57) **ABSTRACT**

Systems, devices, and methods are provided for marine navigation and course calculation for avoiding preselected conditions. An electronic marine navigation device with marine course calculation capabilities includes a processor connected to a memory that includes cartographic data. A potential waypoint can be identified and a marine route calculation algorithm can be performed to calculate a course between a first location and the potential waypoint in view of preselected conditions. Performing the marine route calculation algorithm includes analyzing the cartographic data for the area between the first location and the potential waypoint with a preference for providing a course that avoids preselected conditions. A display is connected to the processor and is capable of displaying the calculated course and cartographic data. The device is also adapted to dynamically analyze an area surrounding the first location for preselected conditions and display the results of the analysis.

**50 Claims, 10 Drawing Sheets**



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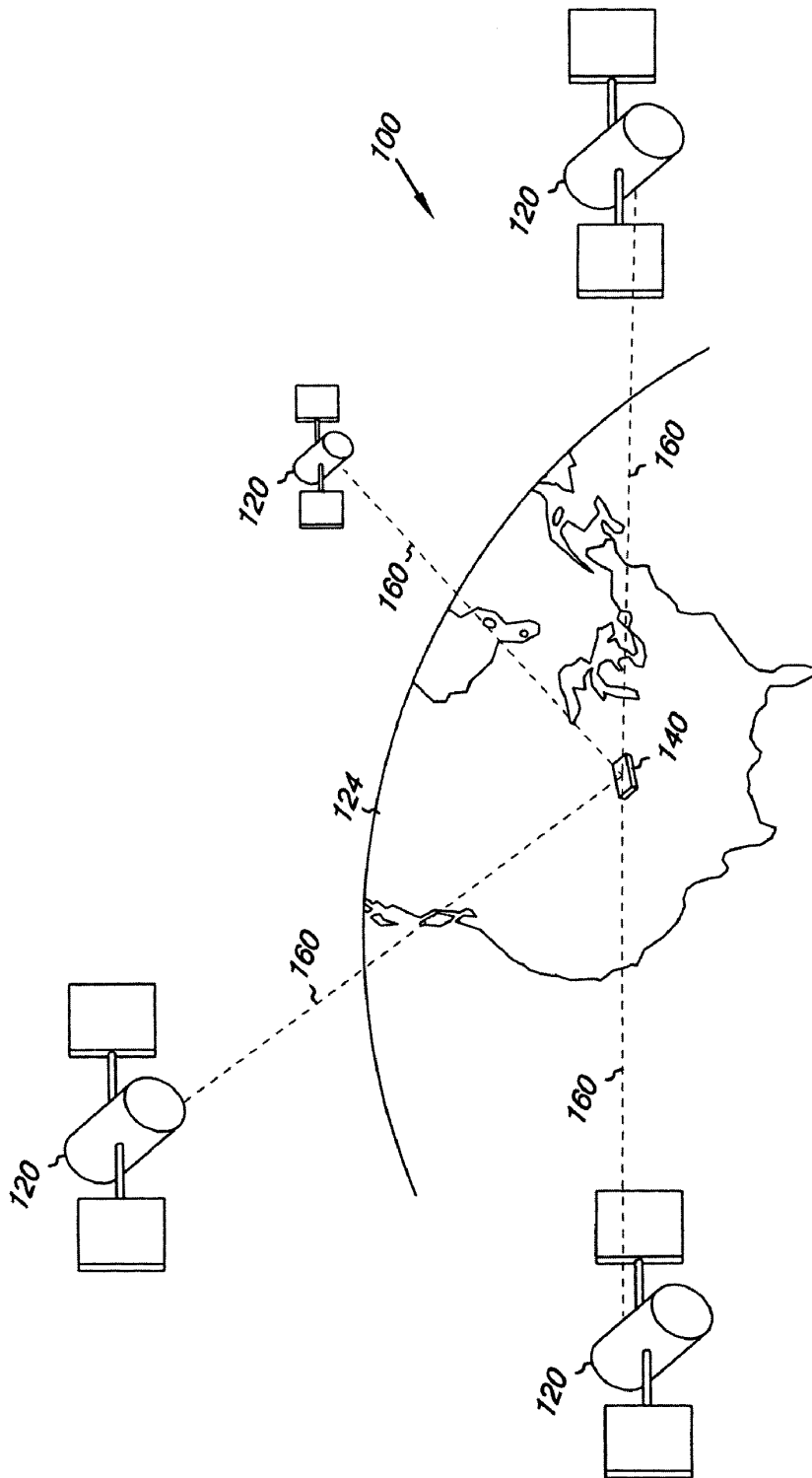


Fig. 1

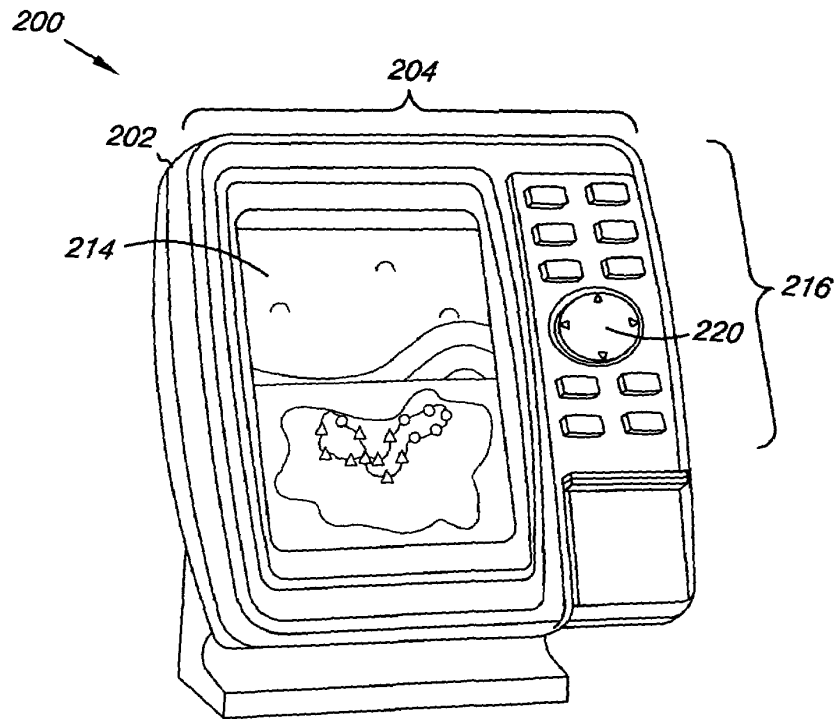


Fig. 2A

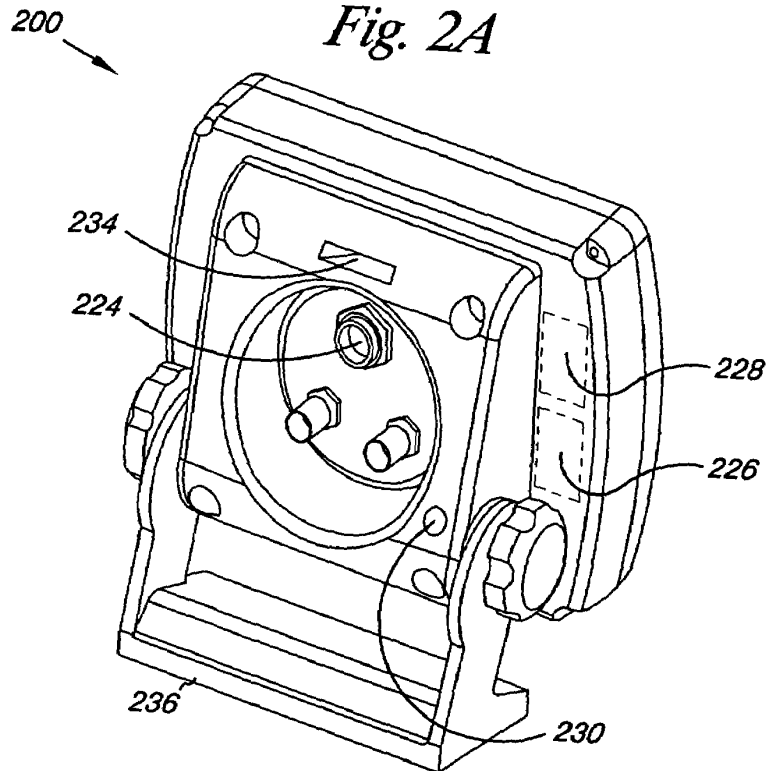
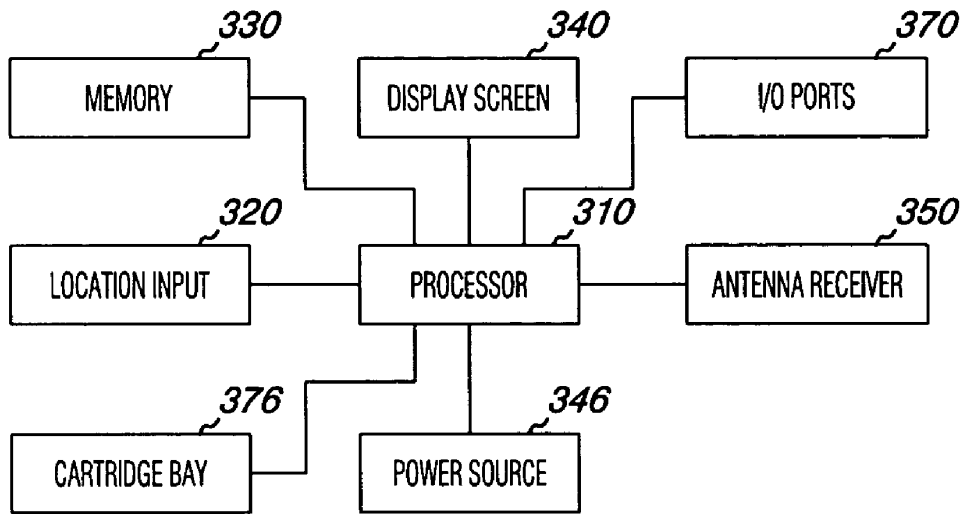


Fig. 2B



*Fig. 3*

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