United States Patent [19]

Minami et al.

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4,280,136

[54] NAVIGATION SYSTEM FOR USE WITH AN AUTOMOBILE AND READING UNIT FOR THE SYSTEM [75] Inventors: Kazuaki Minami, Kariya; Shinzo Totani, Nagoya; Kunio Miura, Okazaki; Kazushi Akutsu; Shinji Ohyama, both of Kariya, all of Japan [73] Assignee: Nippondenso Co., Ltd., Kariya, Japan [21] Appl. No.: 395,338 [22] Filed: Jul. 6, 1982 [30] Foreign Application Priority Data Jul. 7, 1981 [JP] Japan 56-106570 Int. Cl.³ G06F 15/50 364/521; 340/990; 340/995; 73/178 R; 343/451 [58] Field of Search 364/424, 443, 444, 449, 364/521; 353/11, 12; 343/450-453; 340/988-990, 992, 995, 996; 73/178 R: 358/104; 360/61, 79, 94, 132, 134 [56] References Cited U.S. PATENT DOCUMENTS 3,760,360 9/1973 Reynolds et al. 340/990 4,086,632 4/1978 Lions 340/709 4,109,115 8/1978 Yamamoto 360/61 4,139,889 2/1979 Ingels 364/424 4,159,490 6/1979 Wood 340/996

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[11] Paten	t Number:
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4,502,123

[45] Date of Patent:

Feb. 26, 1985

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		al	360/94

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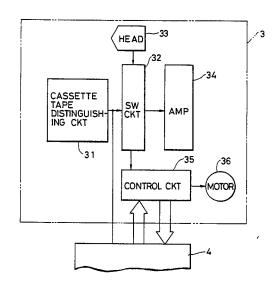
Primary Examiner-Gary Chin

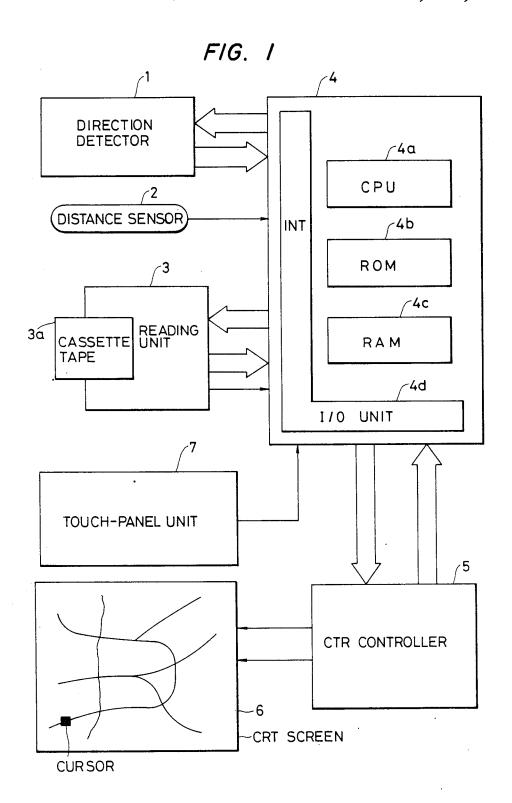
Attorney, Agent, or Firm-Cushman, Darby & Cushman

[57] ABSTRACT

In a navigation system arranged to display a road map in accordance with road map information from a cassette tape, and the present location of a motor vehicle equipped with the navigation system, a cassette tape distinguishing circuit is provided to a cassette tape player which picks up the road map information from a predetermined cassette having a window at given portion of the cassette housing. A switching circuit is responsive to the cassette tape distinguishing circuit so that the output data of the cassette tape is processed to display a given map only when a cassette carrying road map information is loaded in the cassette tape player. In the case a normal cassette carrying audio signals, such as music, is loaded the picked up audio signal is transmitted to an amplifier so that sound reproduction is effected. Thus, a single cassette player can be used in common as both a part of the navigation system and a part of a sound reproduction system.

9 Claims, 13 Drawing Figures





4,502,123

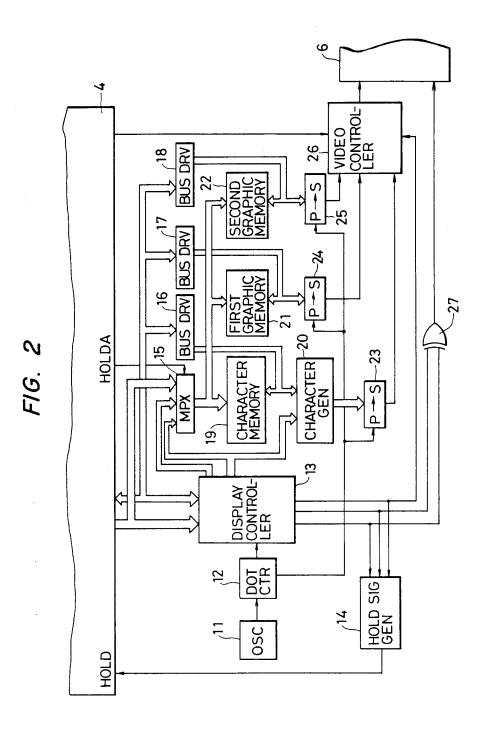


FIG. 3A

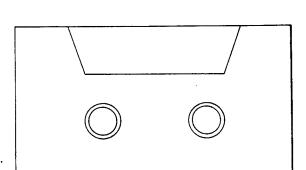


FIG. 3C



FIG. 3B

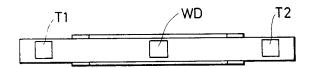
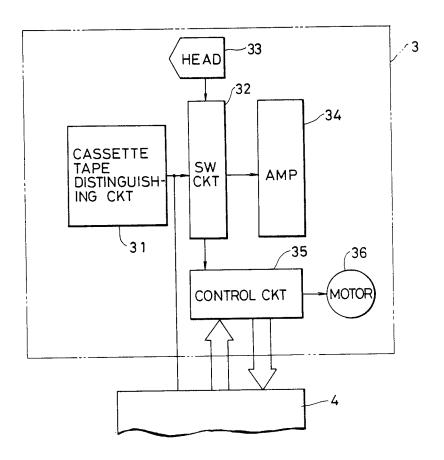


FIG. 4



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