



US005803740A

# United States Patent [19]

[11] Patent Number: **5,803,740**

Gesink et al.

[45] Date of Patent: **Sep. 8, 1998**

- [54] **LEARNING AND ASSESSMENT AID FOR A SEVERELY VISUALLY IMPAIRED INDIVIDUAL**
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- [73] Assignee: **Board of Trustees of Western Michigan University**, Kalamazoo, Mich.
- [21] Appl. No.: **837,660**
- [22] Filed: **Apr. 22, 1997**
- [51] Int. Cl.<sup>6</sup> ..... **G08B 13/00**
- [52] U.S. Cl. .... **434/112; 434/116; 704/271**
- [58] Field of Search ..... **434/112, 116; 135/72; 704/271, 270; 367/116, 107**

### OTHER PUBLICATIONS

- Goldish, *A Hand-Held Inertial Navigation Aid For The Blind Thesis*, Massachusetts Institute of Technology, Apr. 1965.
- LaDuke, *The Veering Tendency of Blind Pedestrians: An Analysis of the Problem and Literature Review*, Sep-Oct, 1994, pp. 391-400.
- Cratty, *Movement And Spatial Awareness In Blind Children and Youth*, 1971, pp. 65-80.
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### ABSTRACT

A learning and assessment aid (10) for helping visually impaired individuals develop desirable ambulatory motion habits. The learning aid includes a housing (14) designed to be attached to an article of clothing worn by the individual. Internal to the housing is an inertial transducer (16) that monitors the rotation of the housing and the individual. The individual enters commands to the learning aid through a keypad (20) in response to audible instructions generated over a speaker (22). To foster desirable turning motions, the learning aid informs of the extent to which the individual turns. To foster straight-line walking, the learning aid generates a message over the speaker whenever the individual rotates more than a pre-set individual-entered maximum veer.

[56] **References Cited**  
**U.S. PATENT DOCUMENTS**

4,212,116	7/1980	Hajduch .	
4,870,687	9/1989	DeLeon .....	367/116
4,906,193	3/1990	McMullen et al. .	
5,032,083	7/1991	Friedman .	
5,032,836	7/1991	Ono et al. .	
5,097,856	3/1992	Sheng .....	135/72
5,120,228	6/1992	Stahl et al. .	
5,144,294	9/1992	Alonzi et al. .	
5,409,380	4/1995	Balbuena et al. .	
5,470,233	11/1995	Fructerman et al. .	
5,487,669	1/1996	Kelk .....	434/112
5,508,699	4/1996	Silverman .	

**25 Claims, 13 Drawing Sheets**

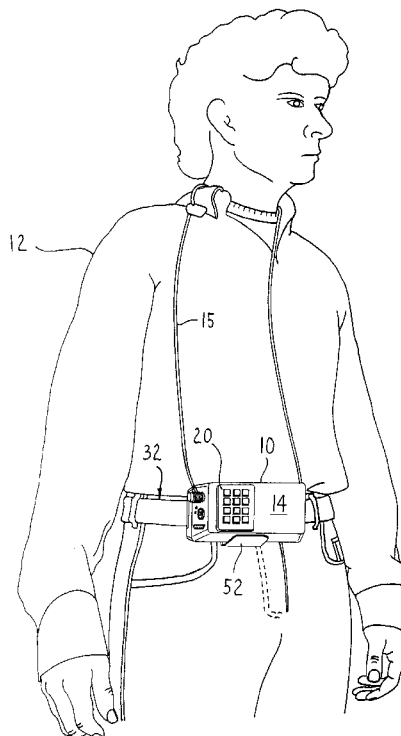


FIG. 1

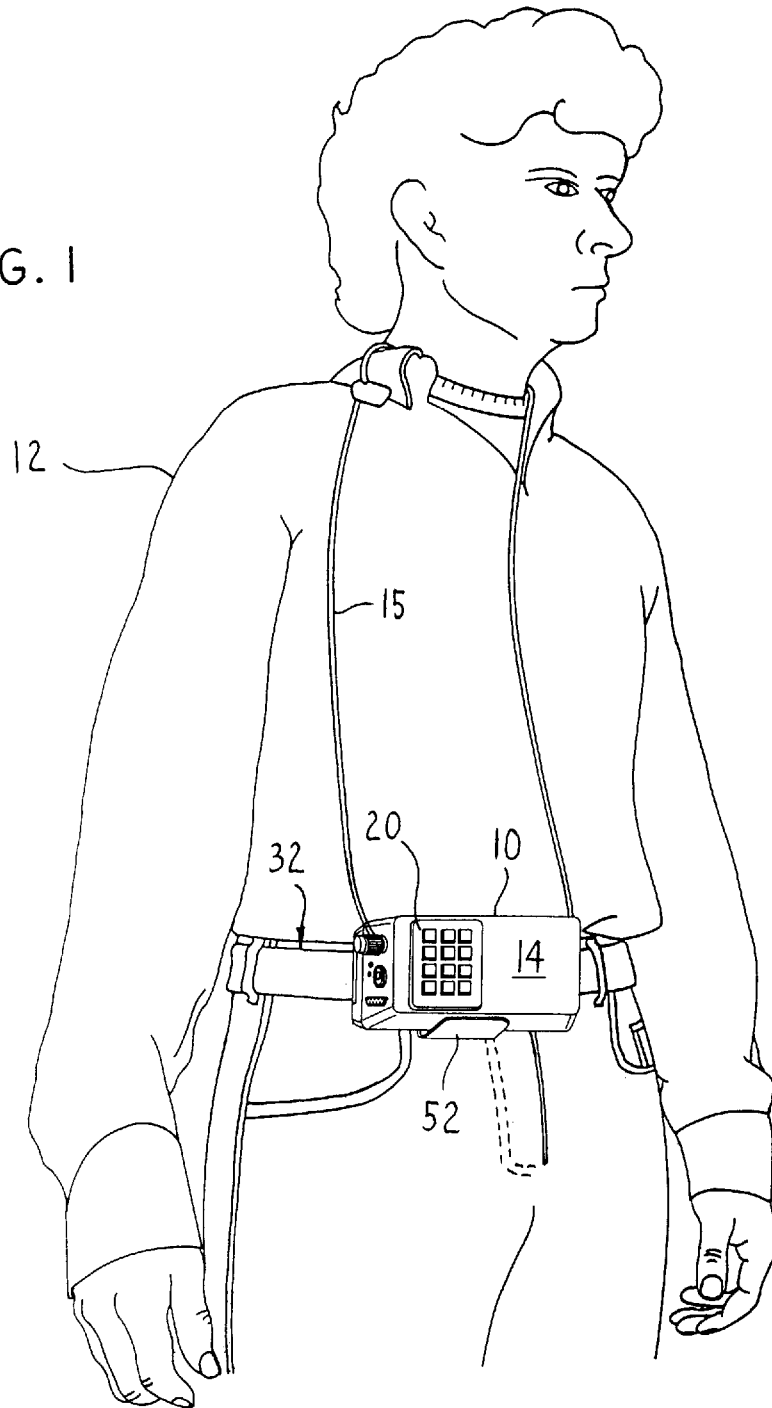
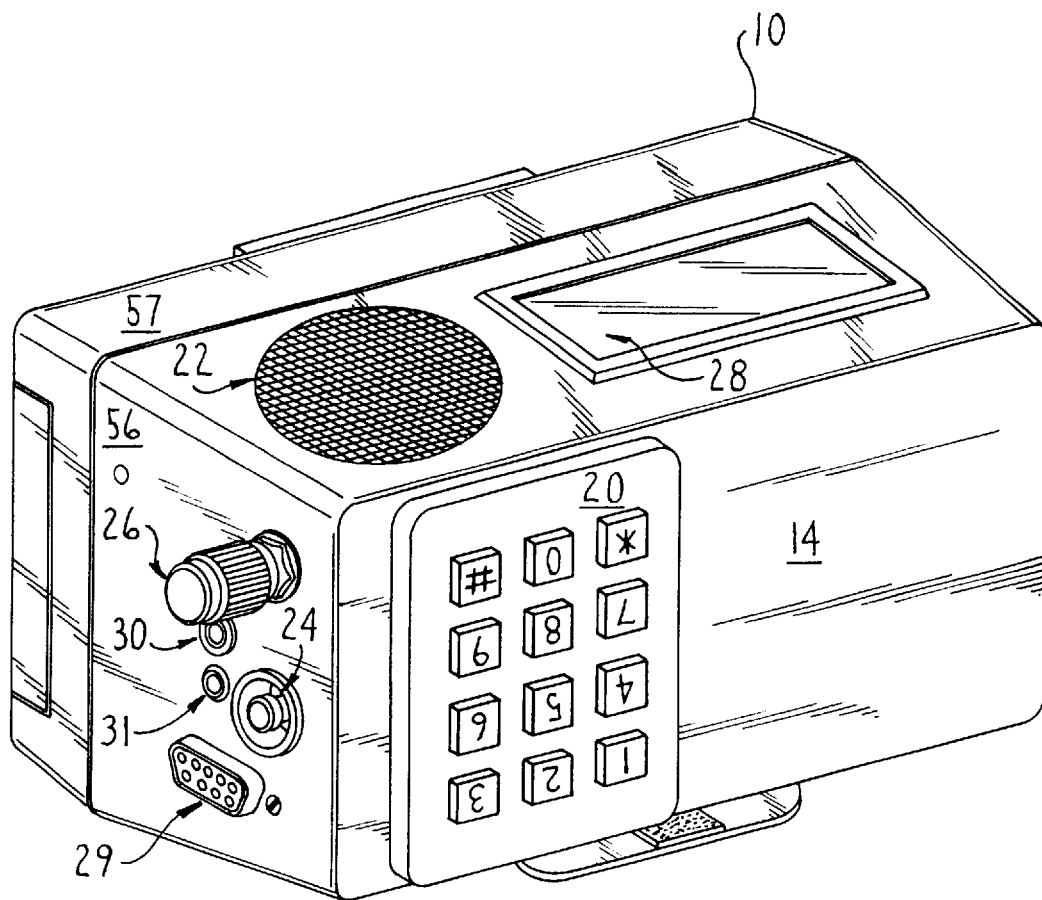


FIG. 2



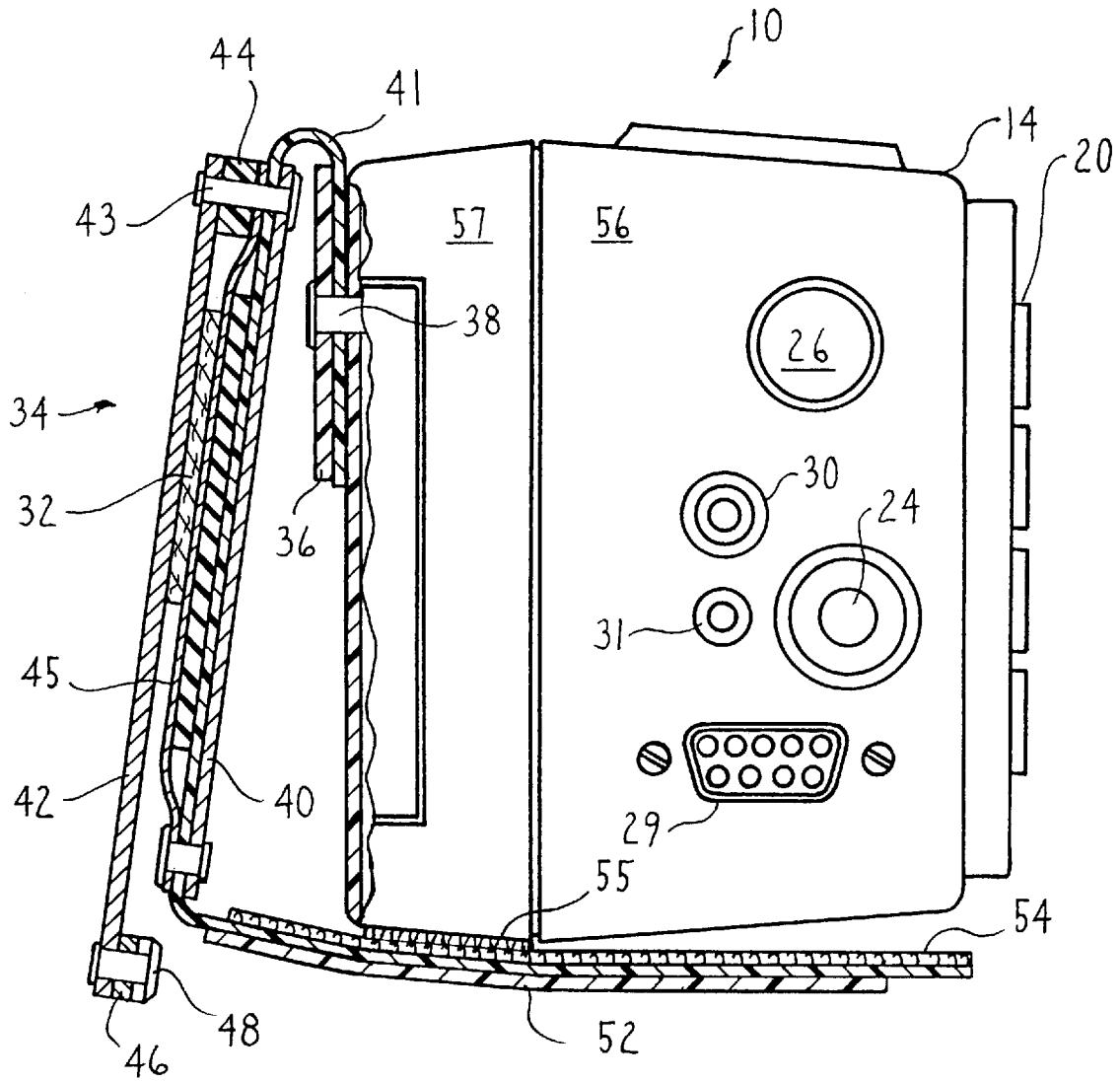
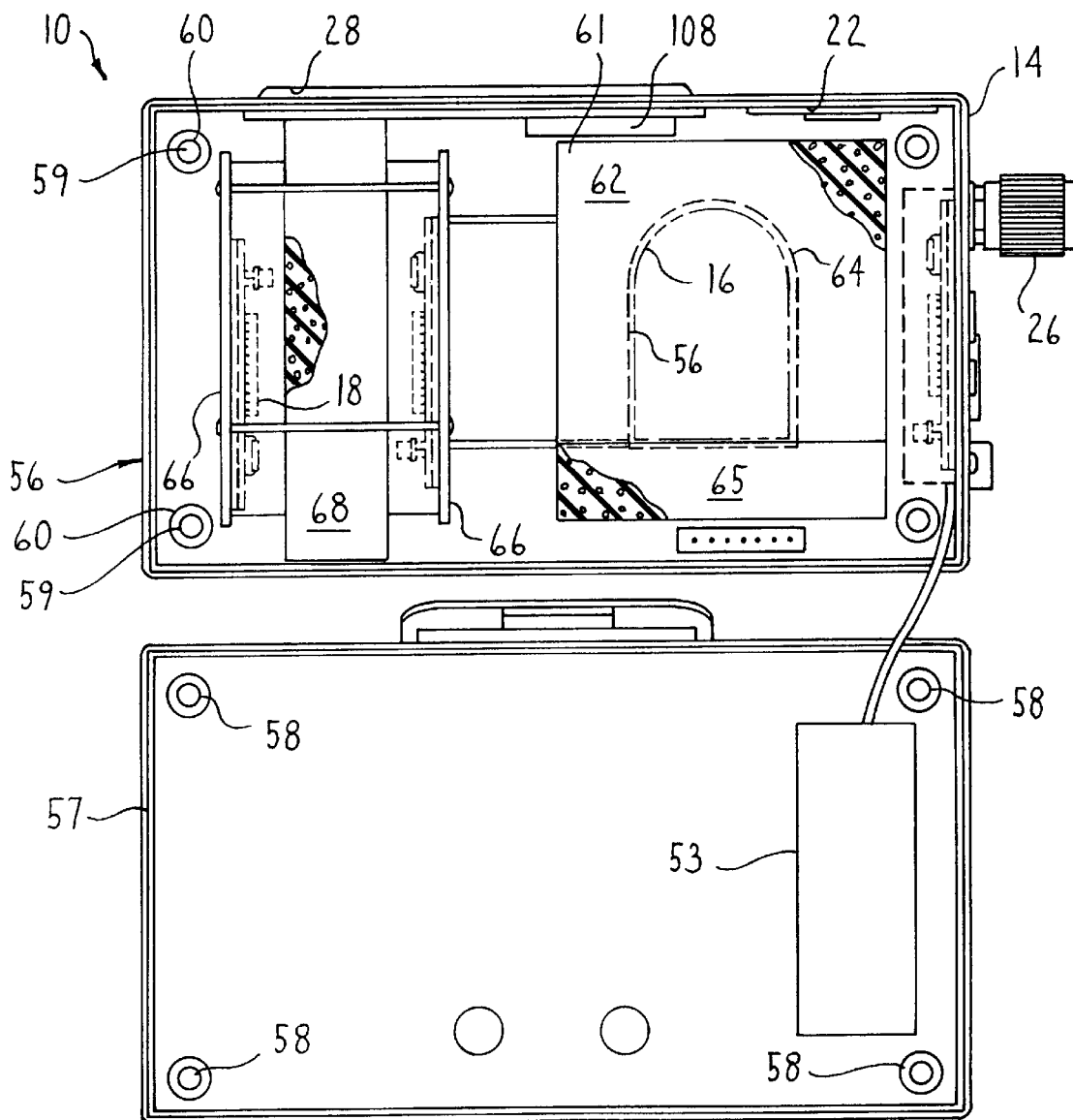


FIG. 3

FIG. 4



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