



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**
- [75] Inventors: **John Gesink**, Kalamazoo; **David Guth**, Portage; **Bernard Fehr**, Okemos, all of Mich.
- [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.

Primary Examiner—Richard J. Apley  
 Assistant Examiner—Glenn Richman  
 Attorney, Agent, or Firm—Flynn, Thiel, Boutell & Tanis, P.C.

### [57] 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**

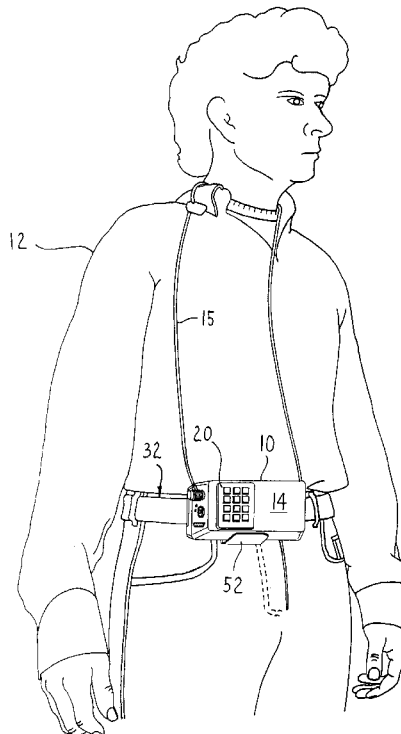


FIG. 1

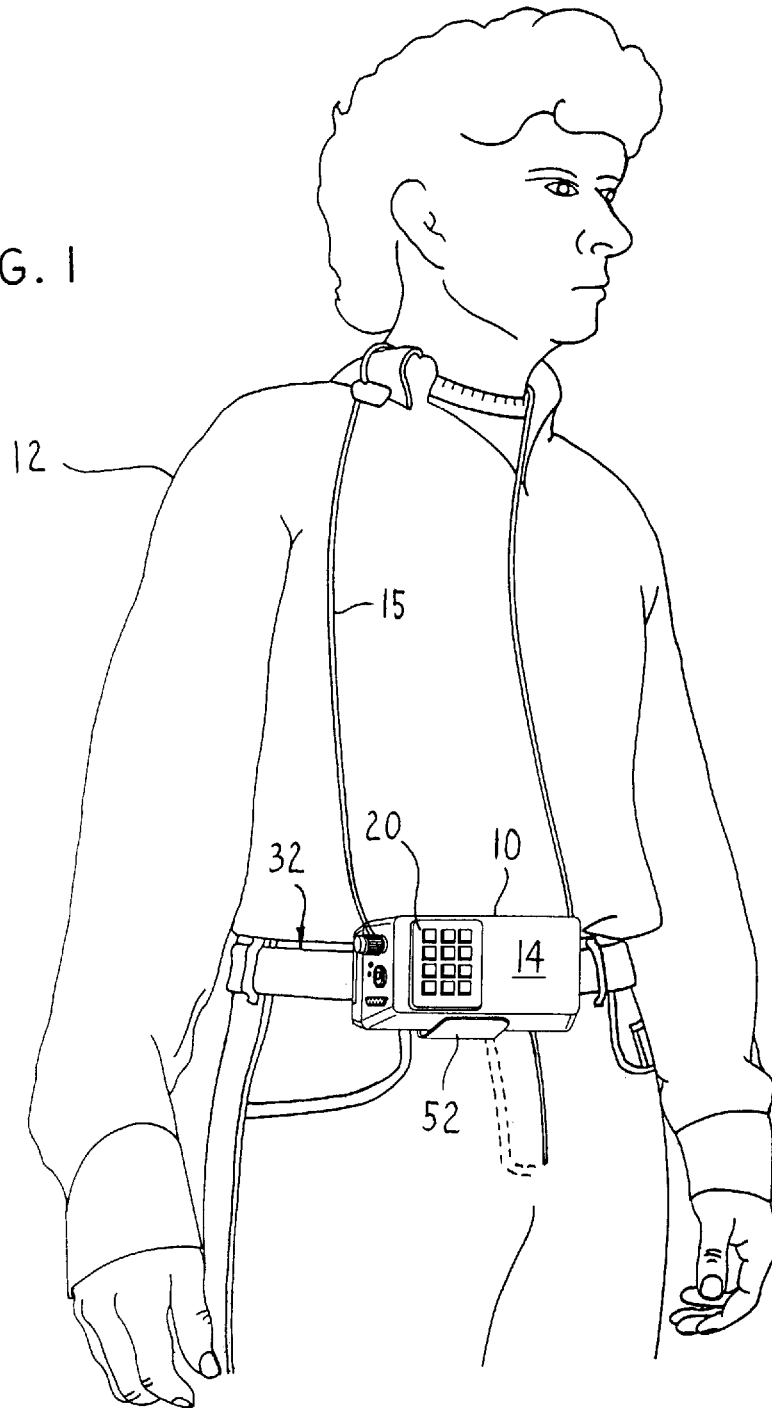
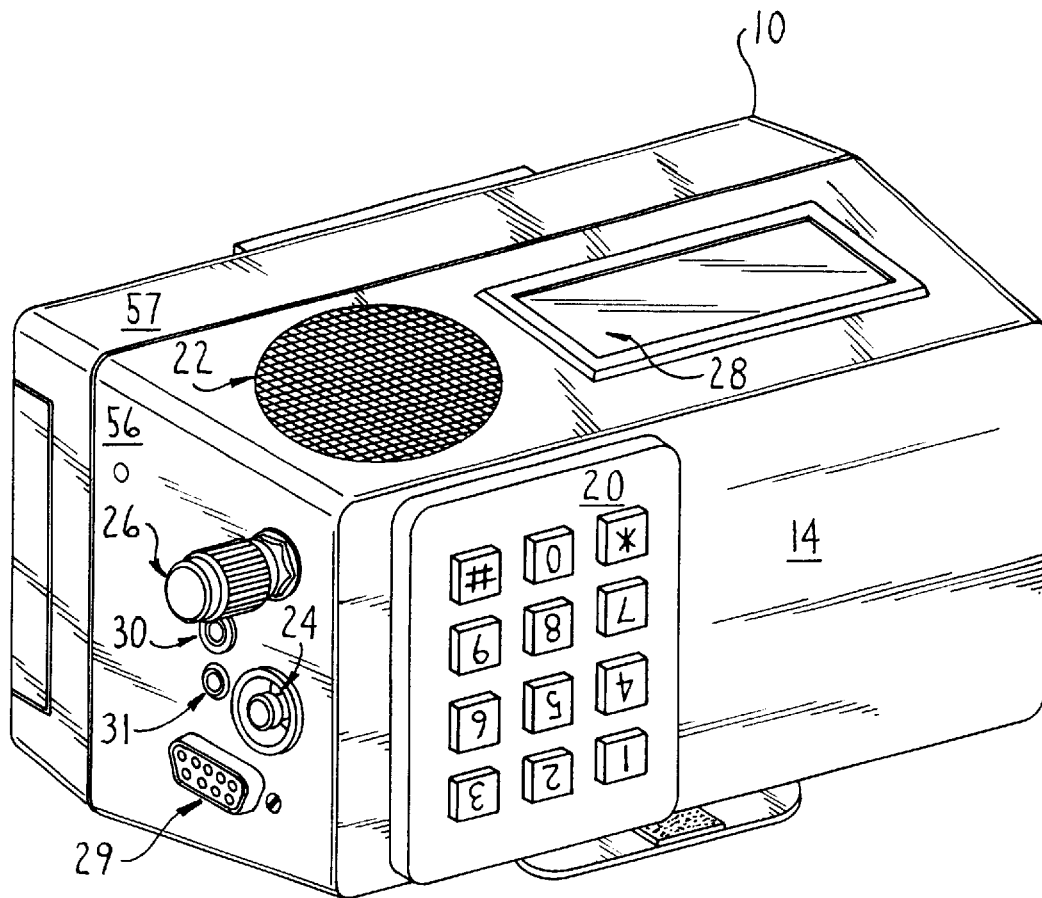


FIG. 2



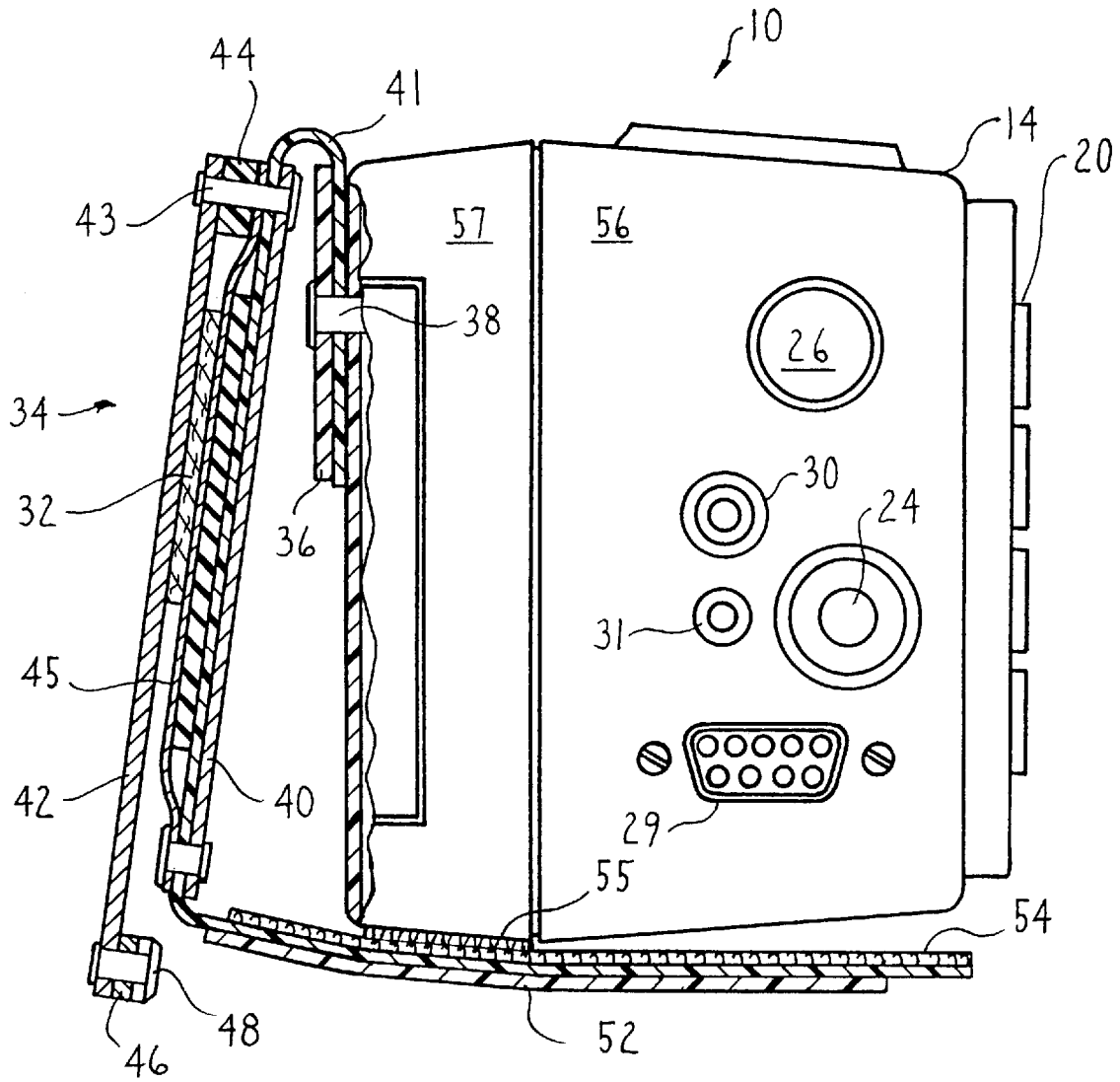
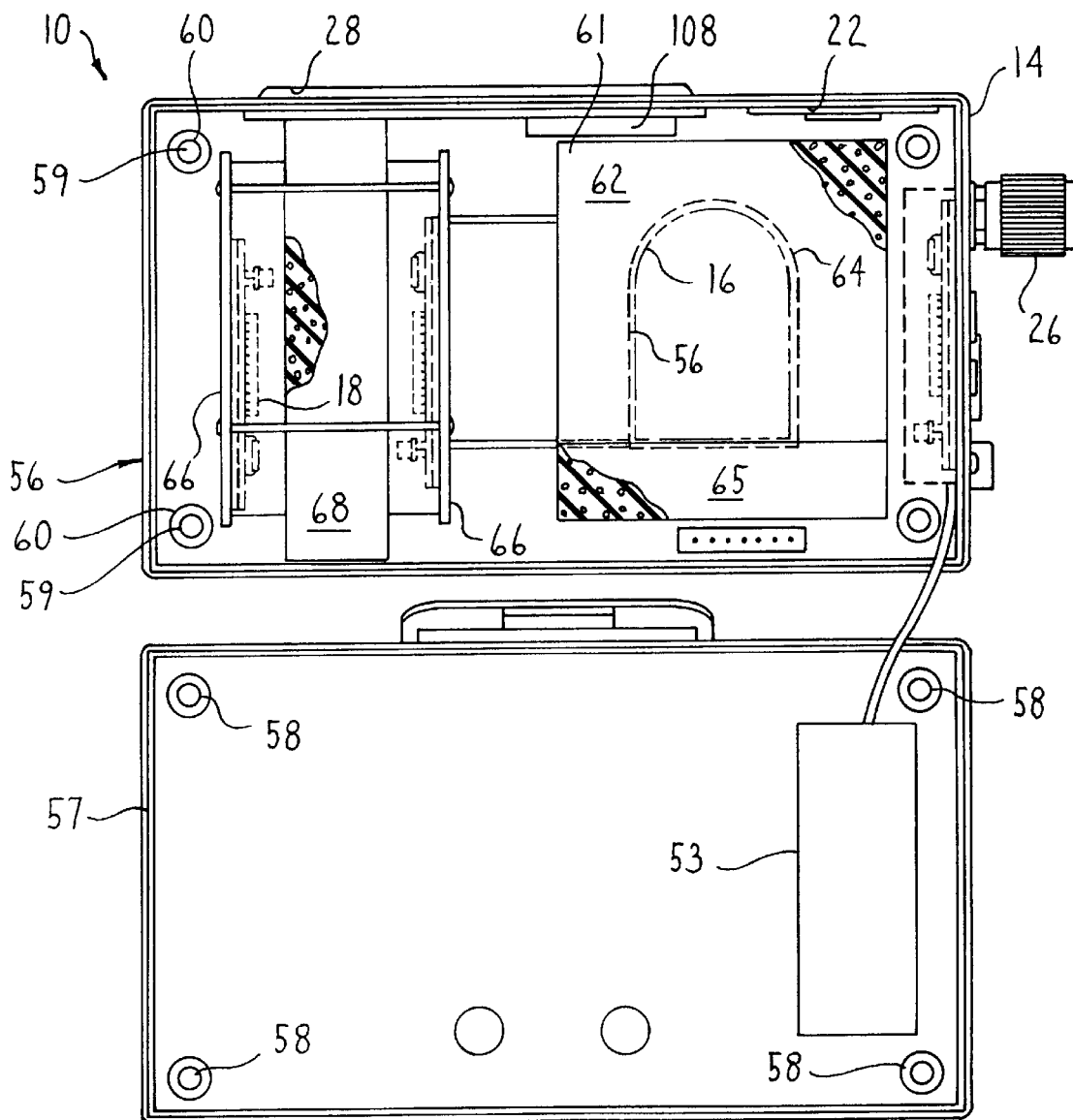


FIG. 3

FIG. 4



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.