

United States Patent [19] Brann

[11] Patent Number: 6,059,576 [45] Date of Patent: *May 9, 2000

[54] TRAINING AND SAFETY DEVICE, SYSTEM AND METHOD TO AID IN PROPER MOVEMENT DURING PHYSICAL ACTIVITY [76] Inventor: Theodore L. Brann, P.O. Box 1897, Mission, Tex. 78572 [*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Table with 4 columns: Patent No., Date, Inventor Name, and Reference. Includes entries for Stone et al., Spielman, McMillen et al., Cusimano, Kovacevic, Zaharkin et al., Cusimano et al., Petragallo, Waters, and Plotke.

Primary Examiner—Joe H. Cheng Attorney, Agent, or Firm—Locke Liddell & Sapp LLP

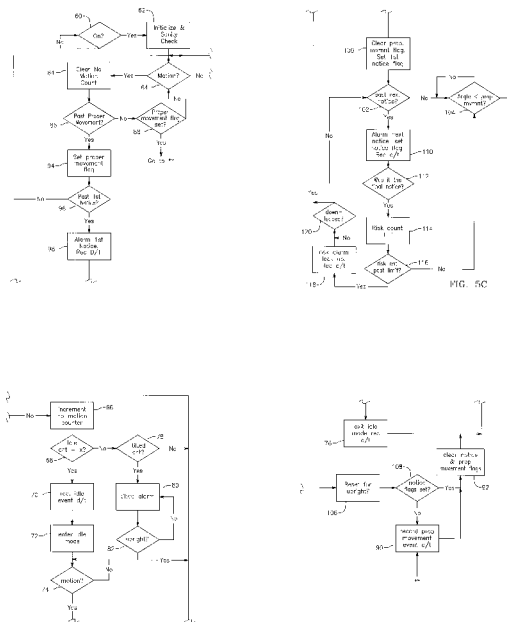
[21] Appl. No.: 08/976,228 [22] Filed: Nov. 21, 1997 [51] Int. Cl. 7 A63B 69/00; G09B 9/00 [52] U.S. Cl. 434/247; 128/782; 600/595; 601/34; 482/8; 482/901; 340/686.1; 702/101 [58] Field of Search 434/118, 247, 434/365; 482/3, 4, 6, 8, 9, 92, 137, 900-903; 128/897, 905, 782; 600/301, 502, 587, 594, 595; 601/5, 33, 34; 73/379.01, 379.06, 379.08; 340/573.1, 573.7, 686.1, 689; 364/167.12; 702/19, 41, 101, 141, 174

[57] ABSTRACT

An electronic device, system and method to monitor and train an individual on proper motion during physical movement. The system employs an electronic device which tracks and monitors an individual's motion through the use of an accelerometer capable of measuring parameters associated with the individual's movement. The device also employs a user-programmable microprocessor which receives, interprets, stores and responds to data relating to the movement parameters based on customizable operation parameters, a real-time clock connected to the microprocessor, memory for storing the movement data, a power source, a port for downloading the data from the device to other computation or storage devices contained within the system, and various input and output components. The downloadable, self-contained device can be worn at various positions along the torso or appendages being monitored depending on the specific physical task being performed. The device also detects the speed of movements made while the device is being worn. When a pre-programmed recordable event is recognized, the device records the time and date of the occurrence while providing feedback to the wearer via visual, audible and/or tactile warnings.

[56] References Cited U.S. PATENT DOCUMENTS 4,571,682 2/1986 Silverman et al. 482/903 X 4,665,928 5/1987 Linial et al. 4,911,427 3/1990 Matsumoto et al. 482/902 X 4,912,638 3/1990 Pratt, jr. 482/903 X 4,934,694 6/1990 McIntosh 482/902 X 5,042,505 8/1991 Mayer et al. 5,052,375 10/1991 Stark et al. 482/902 X 5,128,655 7/1992 Shore 5,348,519 9/1994 Prince et al. 482/903 X 5,373,858 12/1994 Rose et al. 5,375,610 12/1994 LaCourse et al.

29 Claims, 9 Drawing Sheets



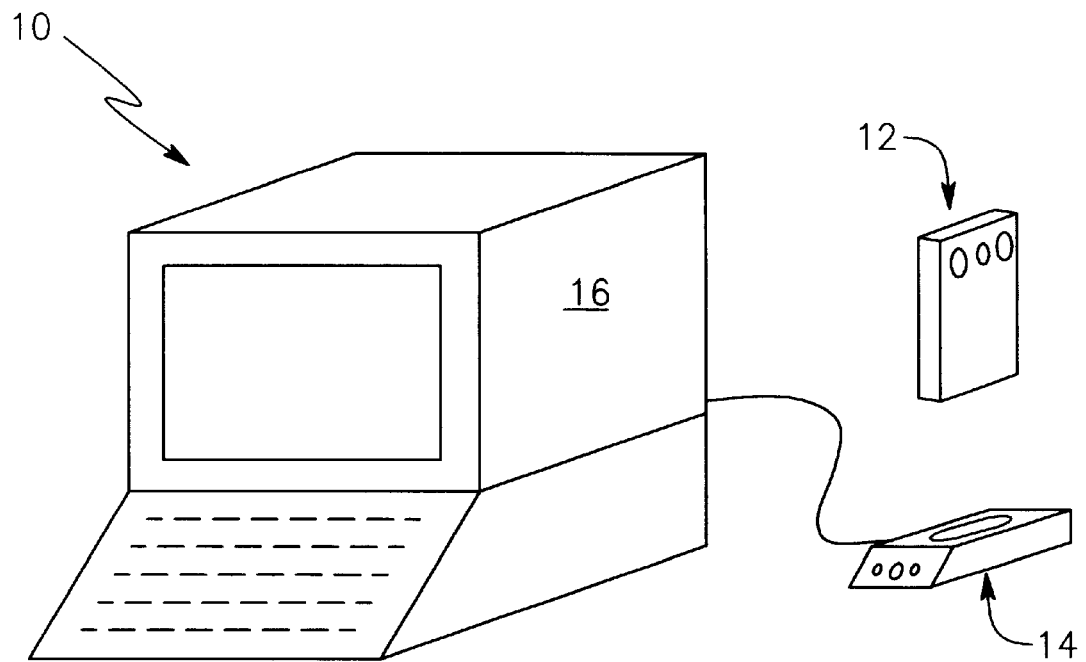


FIG. 1

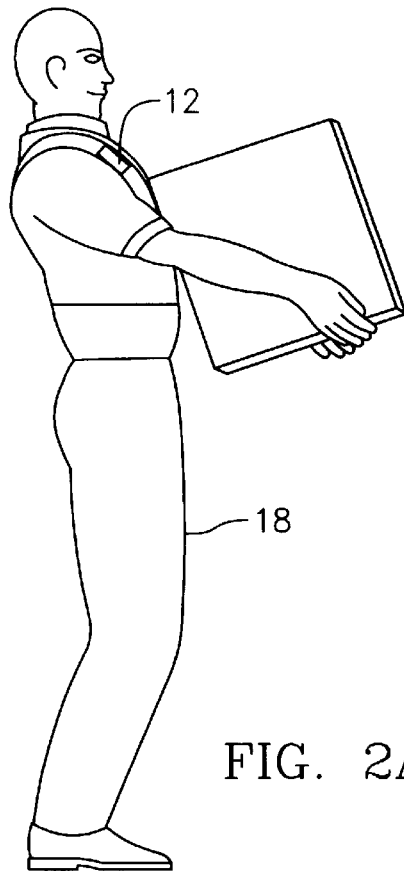


FIG. 2A

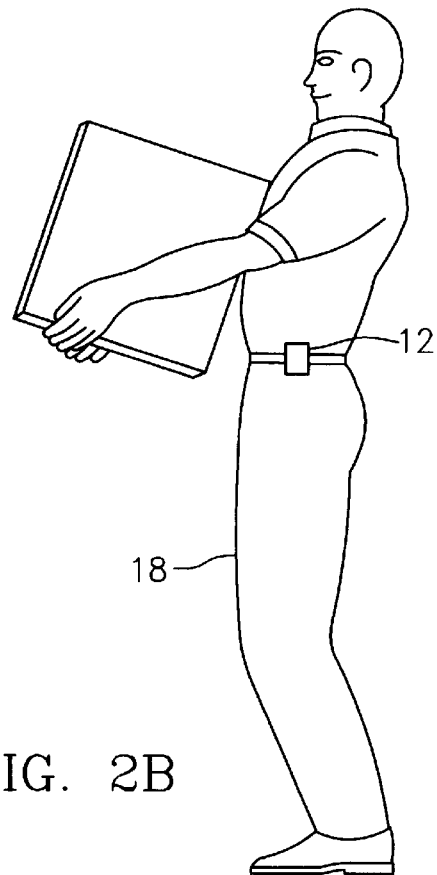


FIG. 2B

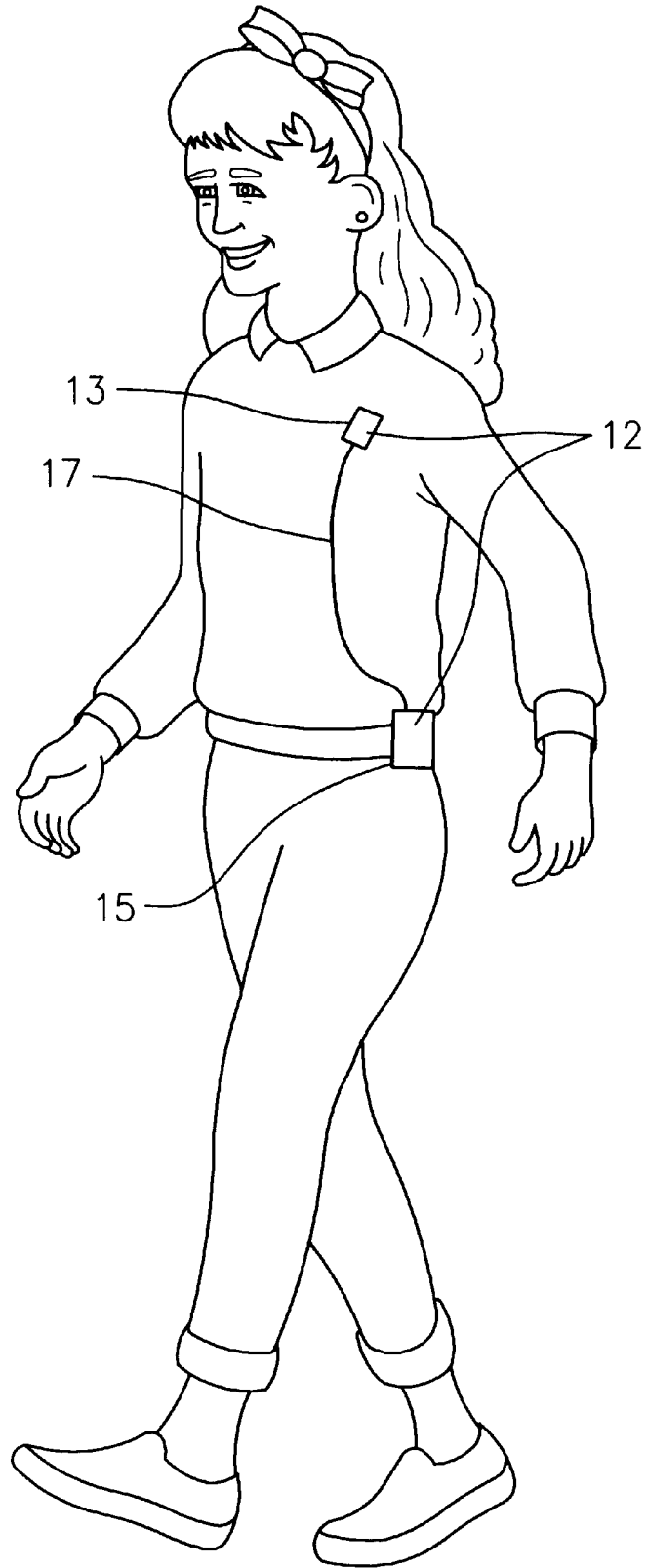


FIG. 2C

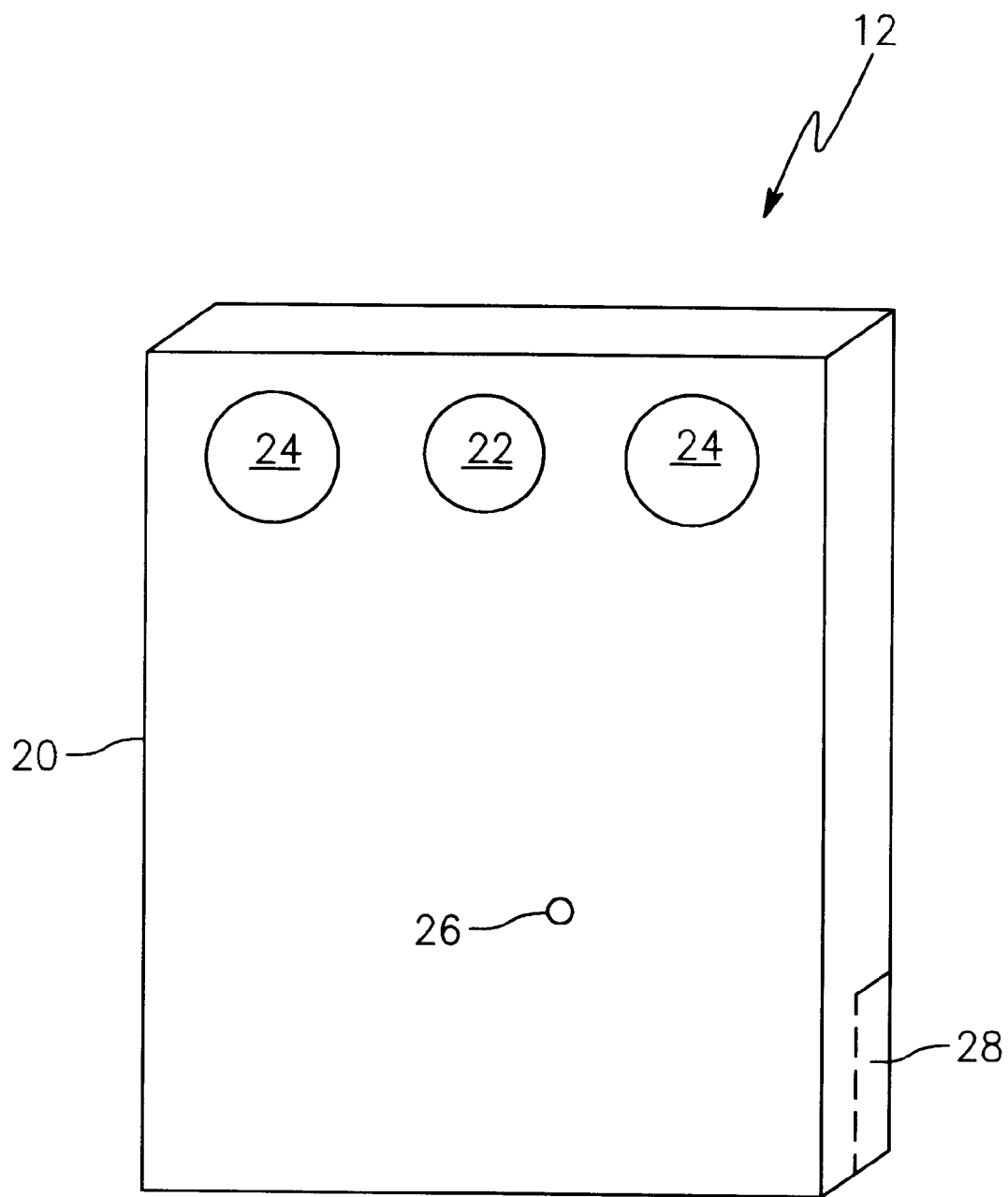


FIG. 3

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