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United States Patent [19]

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Root et al.

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[54] **ATHLETE'S GPS-BASED PERFORMANCE MONITOR**

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[75] Inventors: **Gary Miller Root**, San Francisco;
Frank van Hoorn, Mill Valley, both of Calif.

[57] **ABSTRACT**

[73] Assignee: **Liquid Spark, LLC**, San Francisco, Calif.

A Global Positioning System (GPS) based personal athletic performance monitor for providing an athlete with real-time athletic performance feedback data such as elapsed exercise time, distance covered, average pace, elevation difference, distance to go and/or advice for reaching pre-set targets. The monitor is integrated with an AM/FM/TV personal radio, and the athletic performance feedback is provided through a set of audio headphones using an audio module. The monitor can be connected to an external personal computer via a serial or infrared port for further data storage and long term trend analysis, or to a remote computer via modem, where historical performance data is collected and logically compiled from participating athletes worldwide. Results are then transferred to an Internet web site which displays comparison data representing the relative performances of two or more athletes, provides customized individual training advice and virtual competitions, and an opportunity for advertisers to reach highly well defined potential customers. Geographically and demographically targeted advertising messages are also downloaded to the performance monitor while connected to the remote computer.

[21] Appl. No.: **09/048,214**

[22] Filed: **Mar. 26, 1998**

[51] **Int. Cl.**⁷ **G01B 21/00**

[52] **U.S. Cl.** **482/8; 482/900; 482/902; 701/213**

[58] **Field of Search** **482/1-9, 900-902; 701/213-216; 342/357**

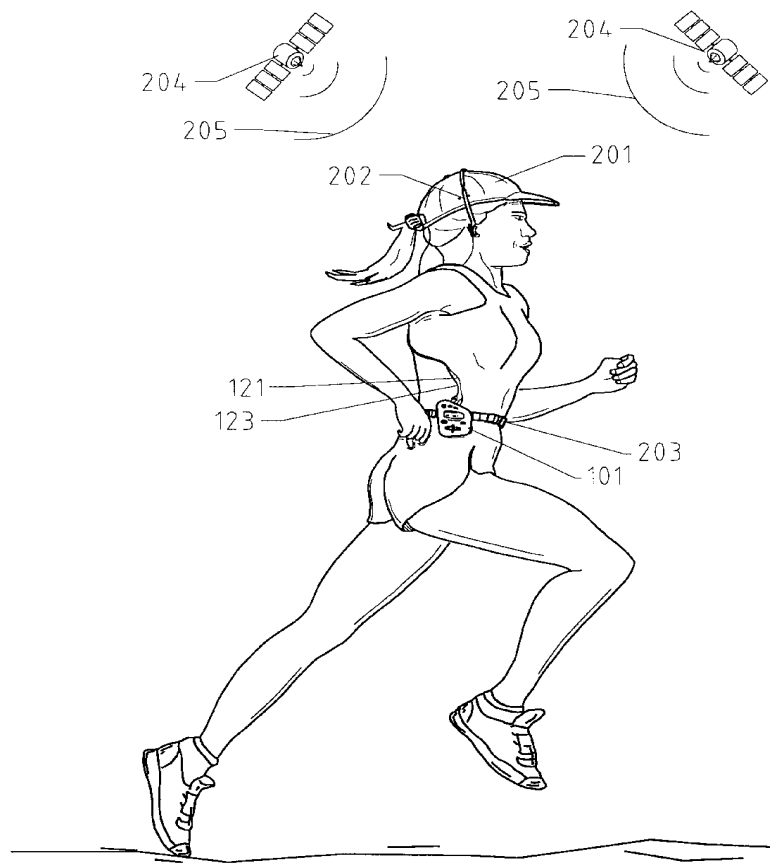
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Primary Examiner—Glenn E. Richman

38 Claims, 11 Drawing Sheets



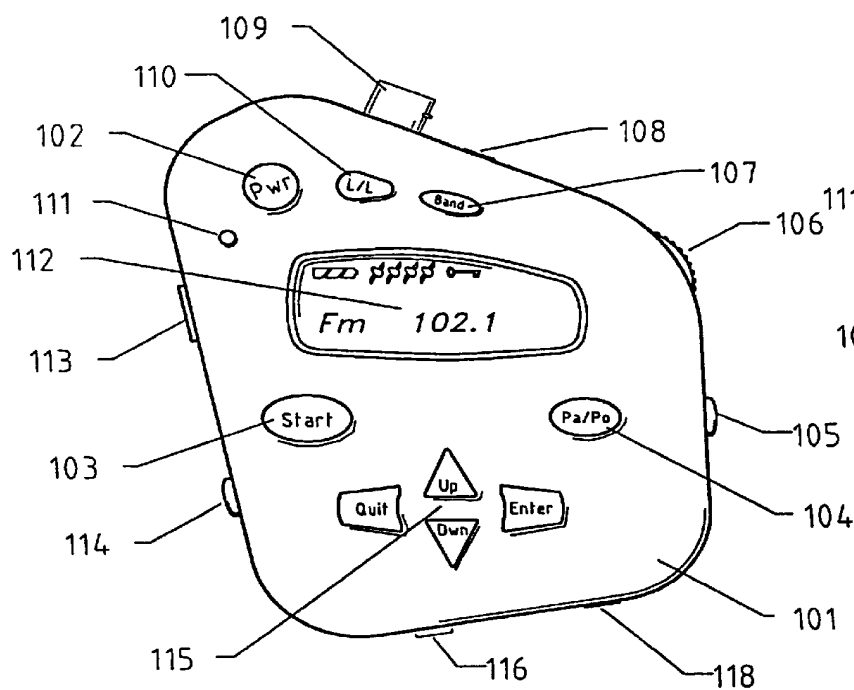
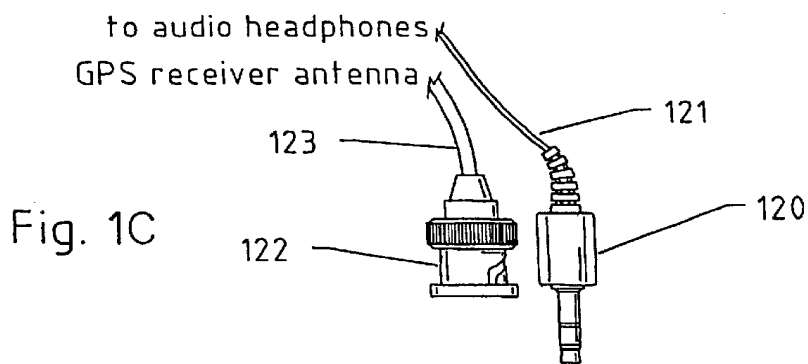


Fig. 1A

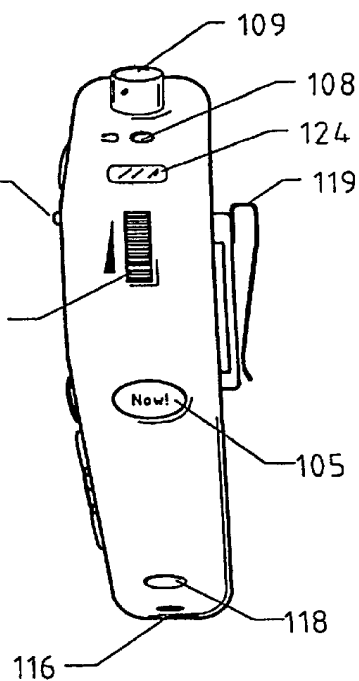


Fig. 1B

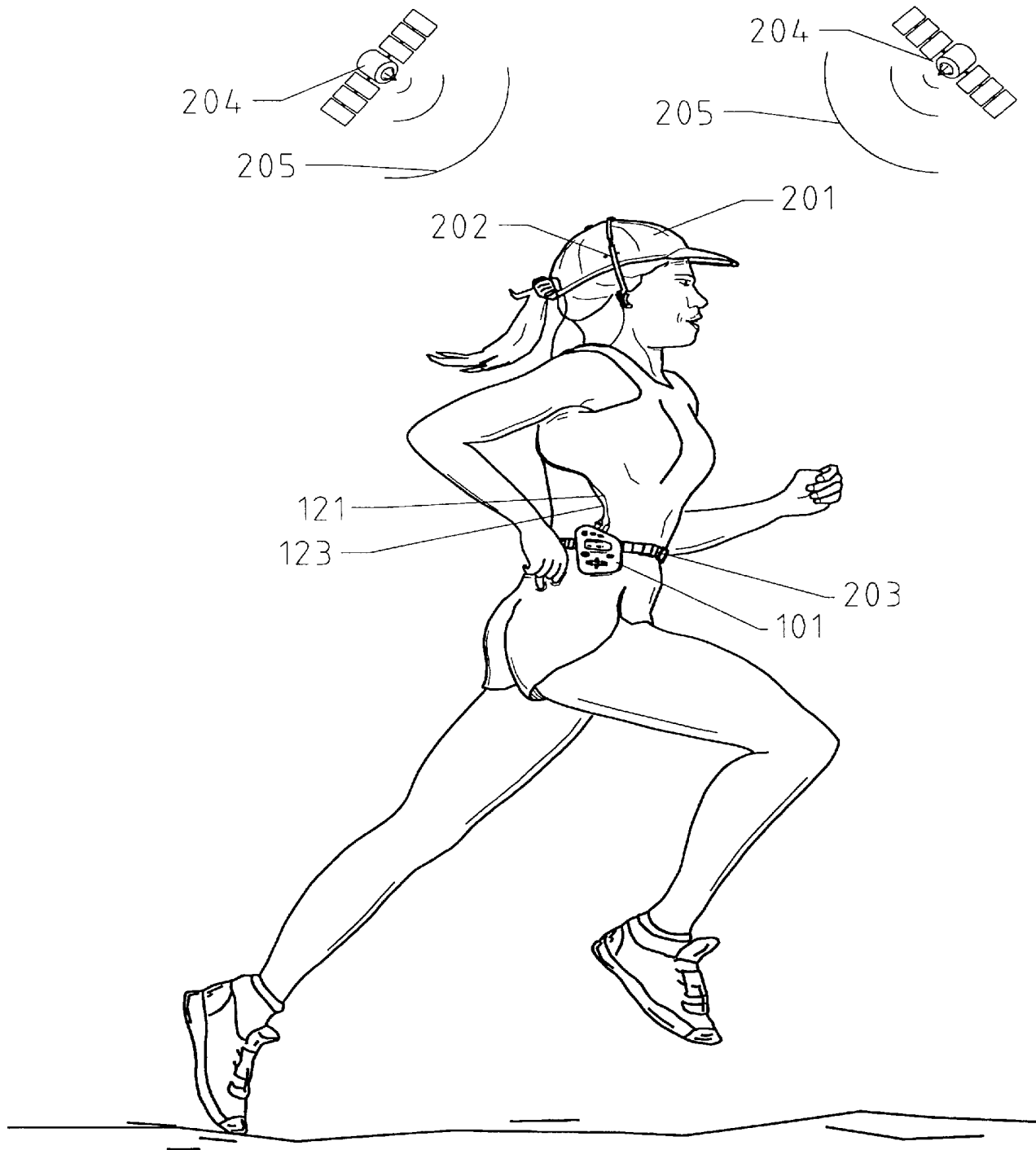


Fig. 2

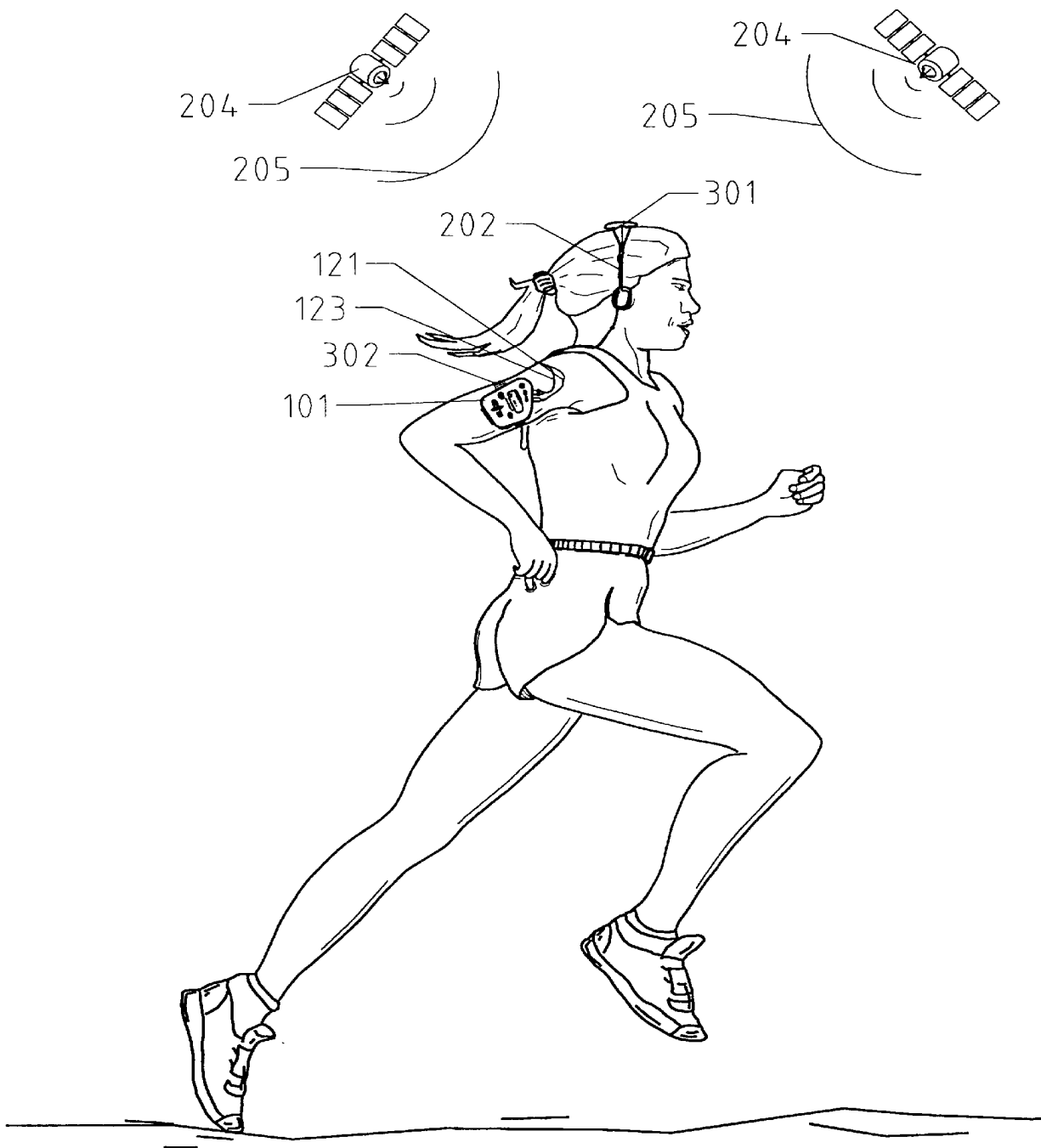


Fig. 3

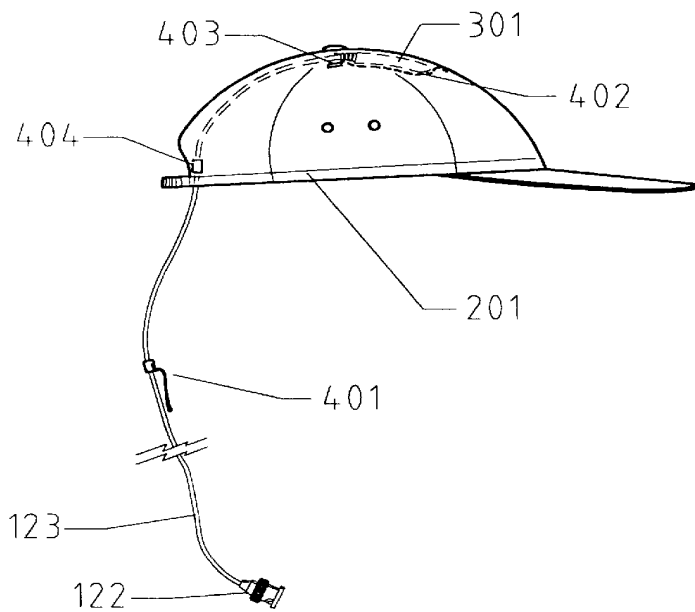


Fig. 4

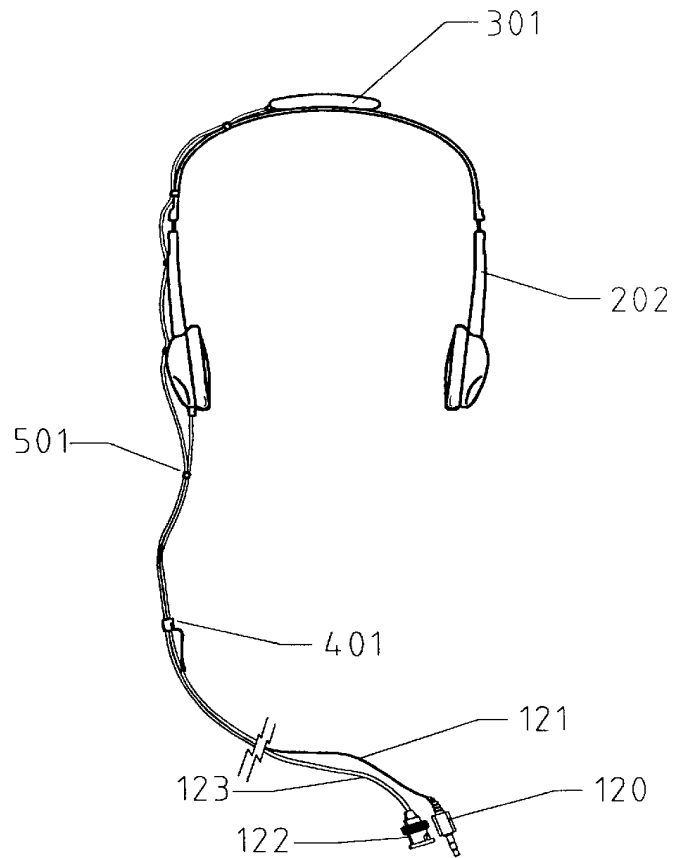


Fig. 5

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