



US006513532B2

(12) **United States Patent**  
**Mault et al.**

(10) **Patent No.:** **US 6,513,532 B2**  
(45) **Date of Patent:** **Feb. 4, 2003**

(54) **DIET AND ACTIVITY-MONITORING DEVICE**

(75) Inventors: **James R. Mault**, Evergreen, CO (US); **Edwin Pearce**, San Francisco, CA (US); **David Gilmore**, San Francisco, CA (US); **Roshi Givechi**, San Francisco, CA (US); **Jeanne Ragan**, Plymouth, MI (US); **Andrzej Skoskiewicz**, Menlo Park; **Neil Grimmer**, San Francisco, both of CA (US)

(73) Assignee: **Healthtech, Inc.**, Golden, CO (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/745,373**

(22) Filed: **Dec. 23, 2000**

(65) **Prior Publication Data**

US 2001/0049470 A1 Dec. 6, 2001

**Related U.S. Application Data**

(60) Provisional application No. 60/251,179, filed on Dec. 5, 2000, provisional application No. 60/243,621, filed on Oct. 26, 2000, provisional application No. 60/240,185, filed on Oct. 13, 2000, provisional application No. 60/230,860, filed on Oct. 7, 2000, provisional application No. 60/234,866, filed on Sep. 22, 2000, provisional application No. 60/212,319, filed on Jun. 16, 2000, provisional application No. 60/209,921, filed on Jun. 7, 2000, provisional application No. 60/207,051, filed on May 25, 2000, provisional application No. 60/207,089, filed on May 25, 2000, provisional application No. 60/201,902, filed on May 4, 2000, provisional application No. 60/200,428, filed on Apr. 28, 2000, provisional application No. 60/195,779, filed on Apr. 10, 2000, provisional application No. 60/194,126, filed on Apr. 3, 2000, provisional application No. 60/179,882, filed on Feb. 2, 2000, provisional application No. 60/178,979, filed on Jan. 28, 2000, and provisional application No. 60/177,016, filed on Jan. 19, 2000.

(51) **Int. Cl.**<sup>7</sup> ..... **G06F 17/00; A61B 5/103; A61B 5/112**

(52) **U.S. Cl.** ..... **128/921; 600/595**  
(58) **Field of Search** ..... **600/595, 587, 600/300, 301; 128/920-921**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,972,038 A	7/1976	Fletcher et al. ....	340/189 M
4,100,401 A	7/1978	Tutt et al. ....	235/92 T
4,101,071 A	7/1978	Brejnik et al. ....	235/92 MT
4,117,834 A	10/1978	McPartland et al. ....	128/2 S
4,159,416 A	6/1979	Brejnik et al. ....	235/92 MT
4,192,000 A	3/1980	Lipsey .....	364/415
4,212,079 A	7/1980	Segar et al. ....	364/900
4,221,959 A	9/1980	Sessier .....	
4,224,952 A	9/1980	Sidorenko et al. ....	128/782
4,244,020 A	1/1981	Ratcliff .....	364/413
4,321,674 A	3/1982	Krames et al. ....	364/413
4,353,375 A	10/1982	Colburn et al. ....	128/782
4,380,802 A	4/1983	Segar et al. ....	364/900
4,387,777 A	6/1983	Ash .....	177/43

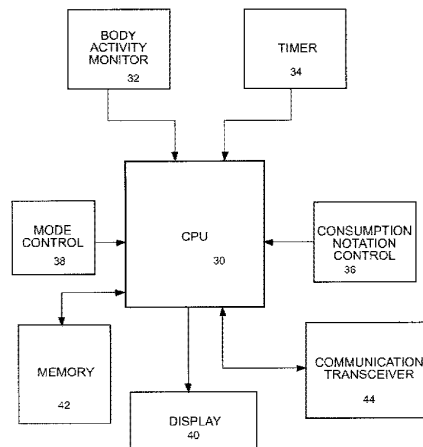
(List continued on next page.)

*Primary Examiner*—Kevin Shaver  
*Assistant Examiner*—Navin Natnithadhha  
(74) *Attorney, Agent, or Firm*—Gifford, Krass, Groh, Sprinkle, Anderson & Citkowski, P.C.

(57) **ABSTRACT**

A diet and activity-monitoring device includes a timer which outputs a time-indicative signal. A body activity monitor monitors the body activity of a subject and outputs a signal indicative of the body activity. A consumption notation control is provided which the subject may operate to indicate when they consume food. An activity calculator receives the body activity signal and determines a body activity level for the subject. A consumption calculator communicates with the consumption notation control and receives the time-indicative signal. The consumption calculator determines and stores the times when the consumption location control is operated.

**39 Claims, 8 Drawing Sheets**



U.S. PATENT DOCUMENTS

4,566,461 A	1/1986	Lubell et al. ....	128/668	5,729,479 A	3/1998	Golan .....	364/709.02
4,571,682 A	2/1986	Silverman et al. ....	364/413	5,788,655 A	* 8/1998	Yoshimura et al. ....	600/587
4,575,804 A	3/1986	Ratcliff .....	364/715	5,819,735 A	10/1998	Mansfield et al. ....	128/630
4,629,015 A	12/1986	Fried et al. ....	177/25	5,827,179 A	10/1998	Lichter et al. ....	600/300
4,650,218 A	3/1987	Hawke .....	283/67	5,828,943 A	10/1998	Brown .....	434/258
4,686,624 A	8/1987	Blum et al. ....	364/415	5,832,448 A	11/1998	Brown .....	705/2
4,796,182 A	1/1989	Duboff .....	364/413.29	5,836,312 A	11/1998	Moore .....	128/897
4,803,625 A	2/1989	Fu et al. ....	364/413.03	5,841,115 A	11/1998	Shepley .....	235/375
4,807,169 A	2/1989	Overbeck .....	364/715.01	5,845,263 A	12/1998	Camaisa et al. ....	705/27
4,823,808 A	4/1989	Clegg et al. ....	128/773	5,876,351 A	3/1999	Rohde .....	600/523
4,853,854 A	8/1989	Behar et al. ....	364/413.01	5,890,128 A	3/1999	Diaz et al. ....	705/2
4,855,942 A	8/1989	Bianco .....	364/561	5,899,855 A	5/1999	Brown .....	600/301
4,855,945 A	8/1989	Sakai .....	364/709.02	5,908,301 A	6/1999	Lutz .....	434/236
4,891,756 A	1/1990	Williams, III .....	364/413.29	5,913,310 A	6/1999	Brown .....	128/897
4,894,793 A	1/1990	Ikemoto et al. ....	364/709.03	5,918,603 A	7/1999	Brown .....	128/897
4,911,256 A	3/1990	Attkiouzel .....	177/25.16	5,951,300 A	9/1999	Brown .....	434/236
4,924,389 A	5/1990	Gerbaulet et al. ....	364/413.29	5,954,510 A	9/1999	Merrill et al. ....	434/236
4,951,197 A	8/1990	Mellinger .....	364/413.2	5,987,493 A	11/1999	Rangan et al. ....	709/105
4,954,954 A	9/1990	Madsen et al. ....	364/413.29	5,989,188 A	11/1999	Birkhoelzer et al. ....	600/300
4,966,155 A	10/1990	Jackson .....	128/671	5,989,200 A	* 11/1999	Yoshimura et al. ....	600/587
5,012,411 A	4/1991	Policastro et al. ....	364/413.04	5,997,476 A	12/1999	Brown .....	600/300
5,033,561 A	7/1991	Hettinger .....	177/25.16	6,013,007 A	1/2000	Root et al. ....	428/8
5,173,588 A	12/1992	Harrah .....	235/114	6,014,578 A	1/2000	Minoz .....	600/350
5,233,520 A	8/1993	Kretsch et al. ....	364/413.29	6,024,281 A	2/2000	Shepley .....	235/375
5,263,491 A	11/1993	Thornton .....	128/774	6,024,699 A	2/2000	Surwit et al. ....	600/300
5,307,263 A	4/1994	Brown .....	364/413.09	6,030,342 A	2/2000	Amano et al. ....	600/301
5,387,164 A	2/1995	Brown, Jr. ....	482/9	6,032,119 A	2/2000	Brown et al. ....	705/2
5,388,043 A	2/1995	Hettinger .....	364/413.29	6,032,676 A	3/2000	Moore .....	128/898
5,398,688 A	3/1995	Laniado .....	128/660.02	6,039,688 A	3/2000	Douglas et al. ....	600/300
5,412,560 A	5/1995	Dennison .....	364/413.01	6,040,531 A	3/2000	Miller-Kovach et al. ....	177/25.16
5,412,564 A	5/1995	Ecer .....	364/413	6,042,383 A	3/2000	Herron .....	434/238
5,454,721 A	10/1995	Kuch .....	434/127	6,045,513 A	4/2000	Stone et al. ....	600/508
5,478,989 A	12/1995	Shepley .....	235/375	6,077,193 A	6/2000	Buhler et al. ....	482/8
5,485,402 A	1/1996	Smith et al. ....	364/566	6,083,006 A	7/2000	Coffman .....	434/127
5,542,420 A	8/1996	Goldman et al. ....	128/630	6,095,949 A	8/2000	Arai .....	482/4
5,640,774 A	6/1997	Goldman .....	33/15 D	6,095,985 A	8/2000	Raymond et al. ....	600/513
5,673,691 A	10/1997	Abrams et al. ....	128/630	6,101,478 A	8/2000	Brown .....	705/2
5,678,562 A	10/1997	Sellers .....	128/710	6,135,950 A	10/2000	Adams .....	600/300
5,691,927 A	11/1997	Gump .....	364/709.01	6,135,951 A	10/2000	Richardson et al. ....	600/300
5,704,350 A	1/1998	Williams, III .....	128/630	6,139,494 A	10/2000	Cairnes .....	600/300
5,722,418 A	3/1998	Bro .....	128/732				

\* cited by examiner

FIG - 1

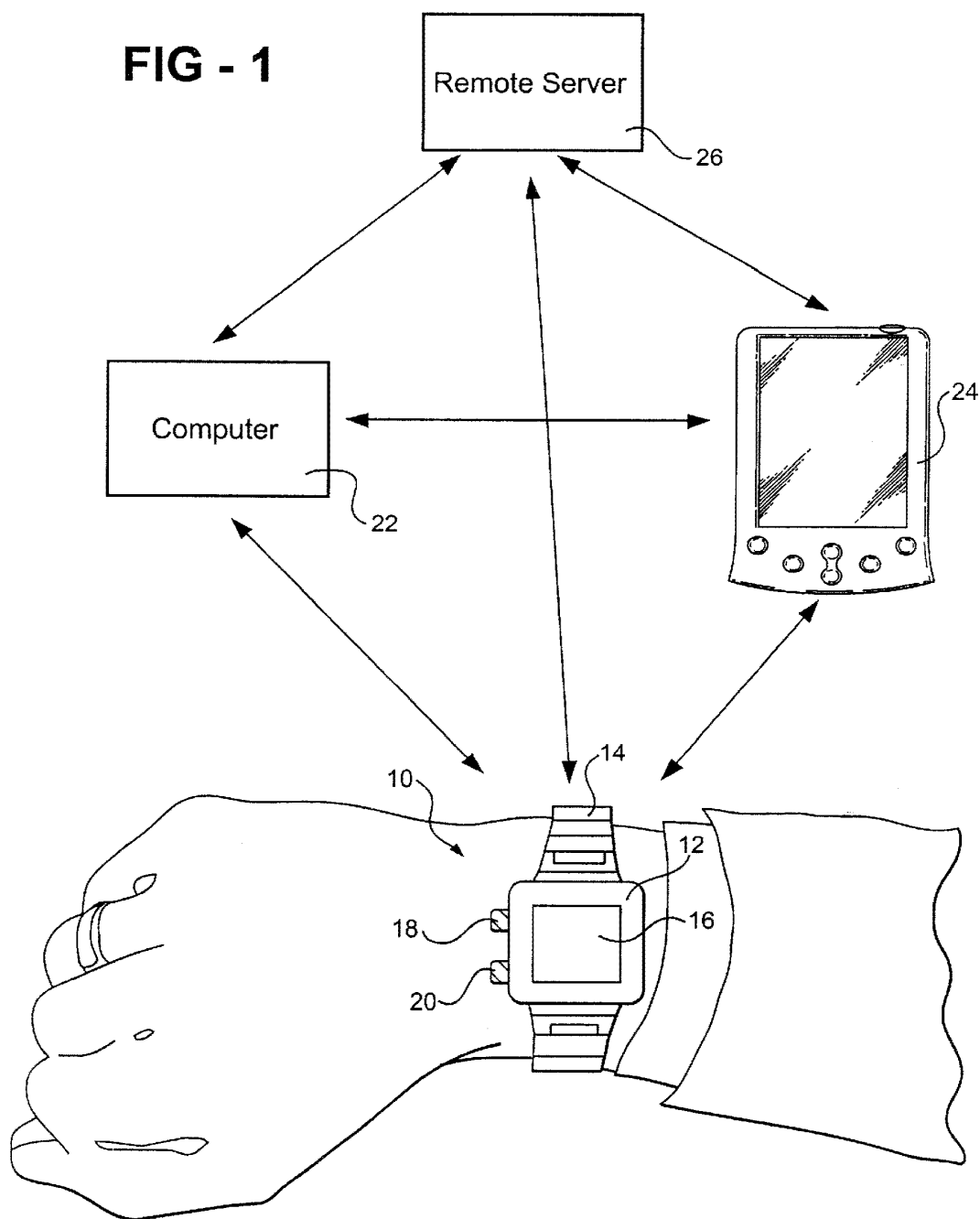


FIG - 2

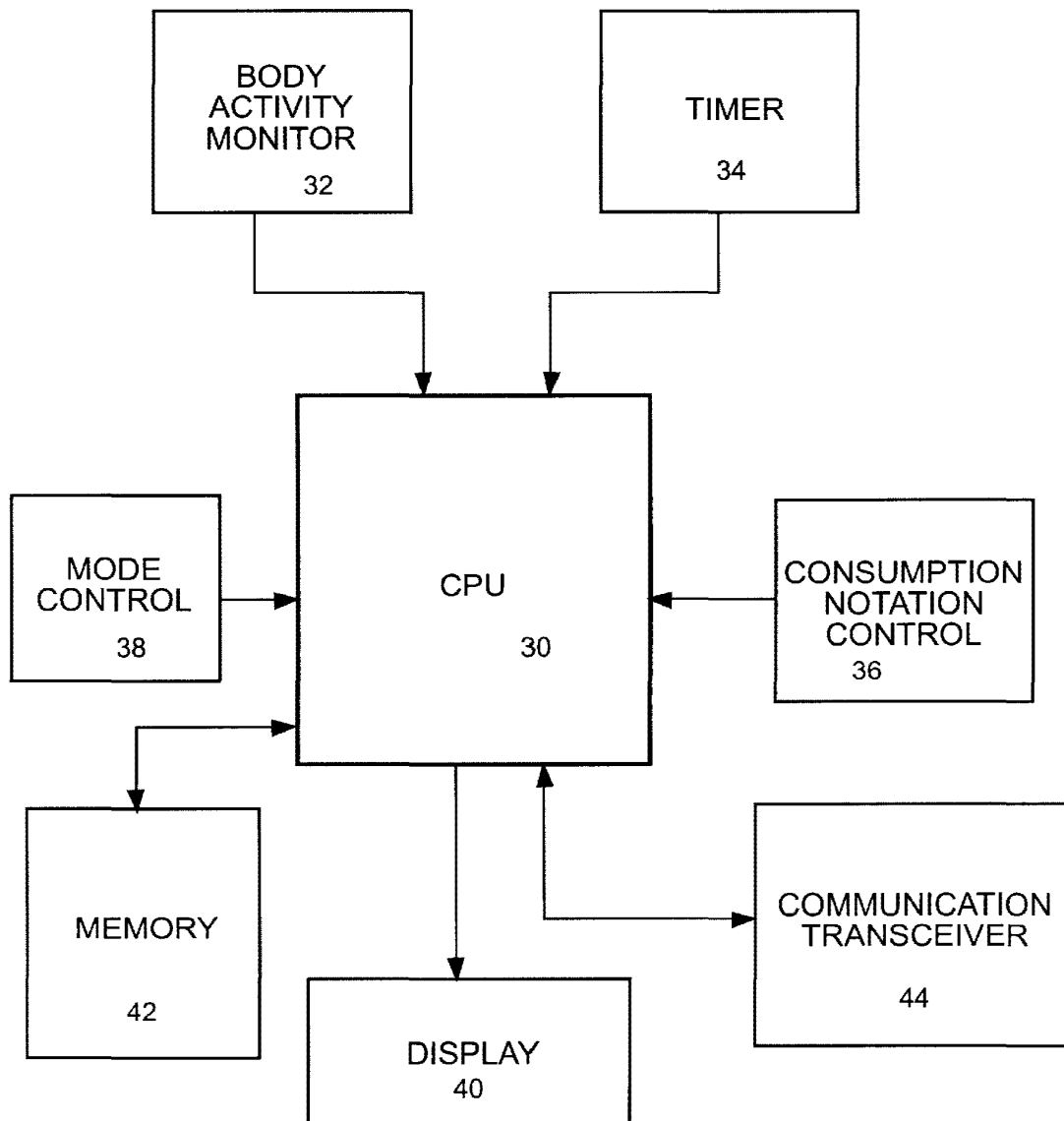


FIG - 3A

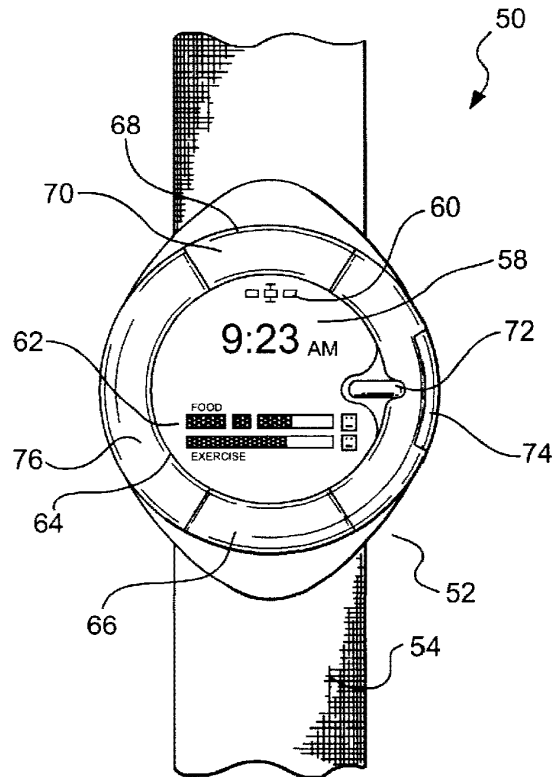
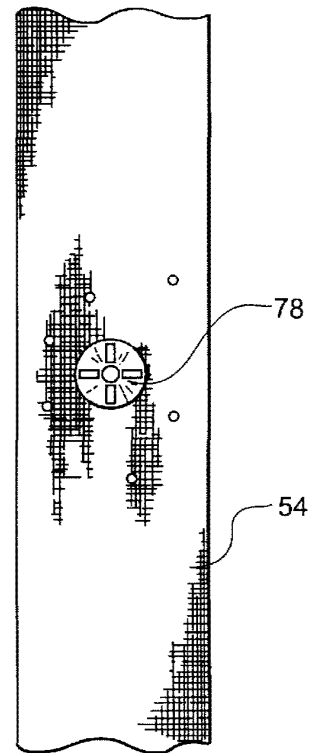


FIG - 3B



# 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.