US005848373A

United States Patent [19]

DeLorme et al.

[11] Patent Number: 5,848,373

[45] Date of Patent: Dec. 8, 1998

[54] **COMPUTER AIDED MAP LOCATION SYSTEM**

[75] Inventors: **David M. DeLorme**, Cumberland; **Keith A. Gray**, Dresden, both of Me.

[73] Assignee: **DeLorme Publishing Company**, Yarmoath, Me.

[21] Appl. No.: **896,712**

[22] Filed: **Jul. 18, 1997**

Related U.S. Application Data

[63] Continuation of Ser. No. 265,327, Jun. 24, 1994, abandoned.

[51] **Int. Cl.**[6] **G06F 165/00**; G01S 5/00

[52] **U.S. Cl.** **701/200**; 701/208; 701/212; 340/998; 340/990; 340/995; 342/357

[58] **Field of Search** 701/207, 208, 701/210, 212, 216, 217, 300; 340/998, 990, 995; 342/357, 457

[56] **References Cited**

U.S. PATENT DOCUMENTS

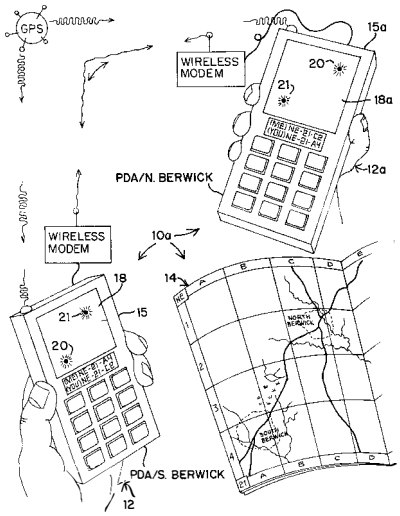
4,543,572	9/1985	Tanaka et al.	340/723
4,675,676	6/1987	Takanabe et al.	340/995
4,689,747	8/1987	Kurose et al.	364/449
4,791,572	12/1988	Green, III et al.	364/449
4,796,189	1/1989	Nakayama et al.	364/449
4,807,157	2/1989	Fukushima et al.	364/521
4,862,374	8/1989	Ziemann	364/449
4,891,761	1/1990	Gray et al.	364/452
4,972,319	11/1990	DeLorme	364/419
4,984,168	1/1991	Neukrichner	364/449
4,998,752	3/1991	Judson	283/34
5,030,117	7/1991	DeLorme	434/130
5,059,970	10/1991	Raubenheimer et al.	342/451
5,067,081	11/1991	Person	364/444
5,068,654	11/1991	Husher	340/903
5,089,816	2/1992	Holmes, Jr.	340/995
5,204,817	4/1993	Yoshida	364/449
5,212,643	5/1993	Yoshida	701/212
5,214,757	5/1993	Mauney et al.	395/161
5,268,844	12/1993	Carver et al.	364/443
5,289,195	2/1994	Inoue	342/457
5,337,242	8/1994	Yamamoto et al.	364/449
5,359,527	10/1994	Takanabe et al.	364/449
5,396,254	3/1995	Toshiyuki	342/357
5,422,814	6/1995	Sprague et al.	364/449
5,475,387	12/1995	Matsumoto	340/990
5,559,511	9/1996	Ito et al.	701/201

Primary Examiner—Tan Q. Nguyen
Attorney, Agent, or Firm—Pierce Atwood

[57] **ABSTRACT**

A computer aided map location system (CAMLS) provides correlation and coordination of spatially related data between a computer (PDA/PC/EC) and a set of printed maps typically printed on paper depicting surface features at desired levels of detail. A first set of constant scale printed maps substantially coincides with or is overprinted with equal area grid quadrangles of a first scale grid. The first scale grid quadrangles are identified by a first set of unique names. The PDA/PC/EC has a computer display or other computer output, a first database, and display subsystem. The first database includes the first set of unique names of the grid quadrangles of the first scale grid. The boundary lines of the respective first scale grid quadrangles are identified in the first database by latitude and longitude location. The display subsystem causes the display of a selected grid quadrangle or gridname on the PDA/PC/EC display in response to a user query. The displayed grid quadrangle or gridname is correlated with a grid quadrangle of a printed map from the first set of printed maps. The PDA/PC/EC may have access to a second database or multiple databases of latitude and longitude locatable objects (loc/objects) for display on selected grid quadrangles. Alternatively or in addition the PDA/PC/EC may incorporate a user location system such as a GPS location system for displaying the location and route of the CAMLS user on the display. Multiple level scales of grids and corresponding multiple sets of maps at the different scales are available. Communications links are provided between CAMLS computers and CAMLS users in various combinations.

19 Claims, 18 Drawing Sheets



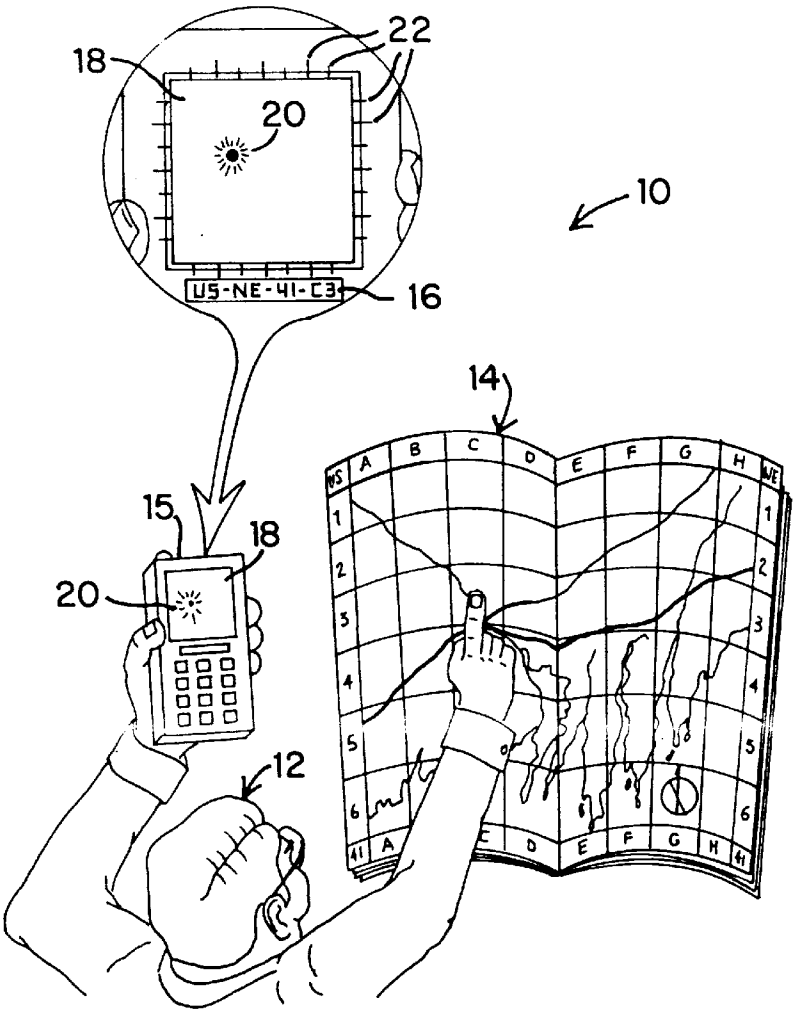


FIG 1

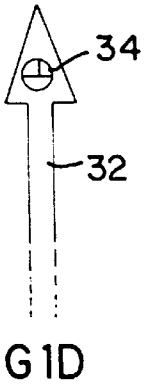


FIG 1D

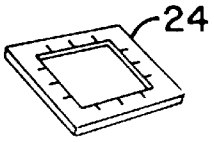


FIG 1A

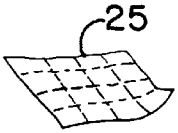


FIG 1B

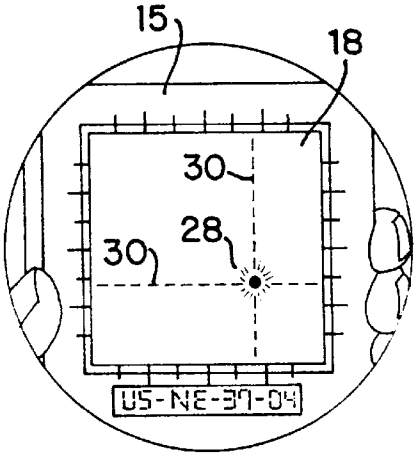


FIG 1C

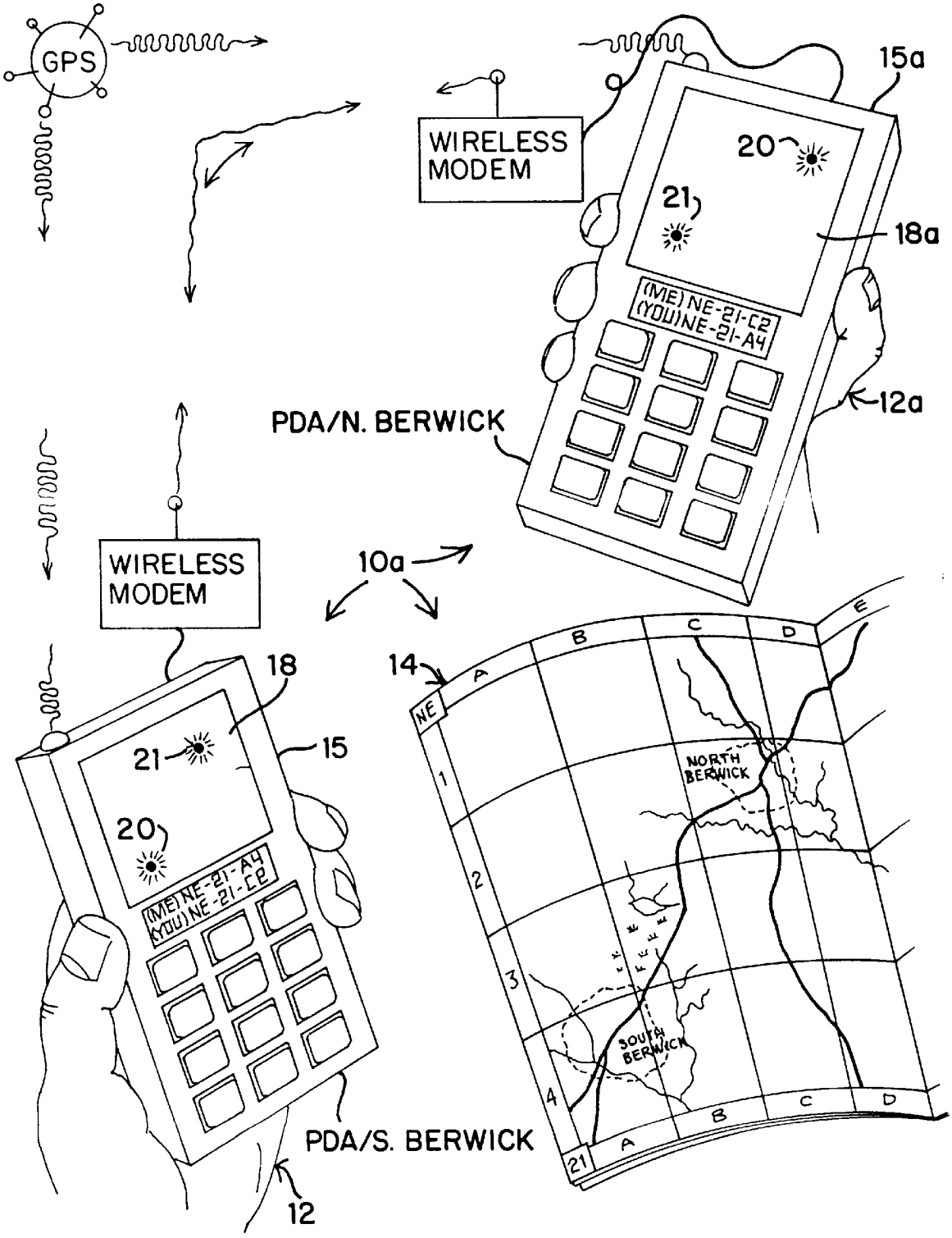


FIG 2

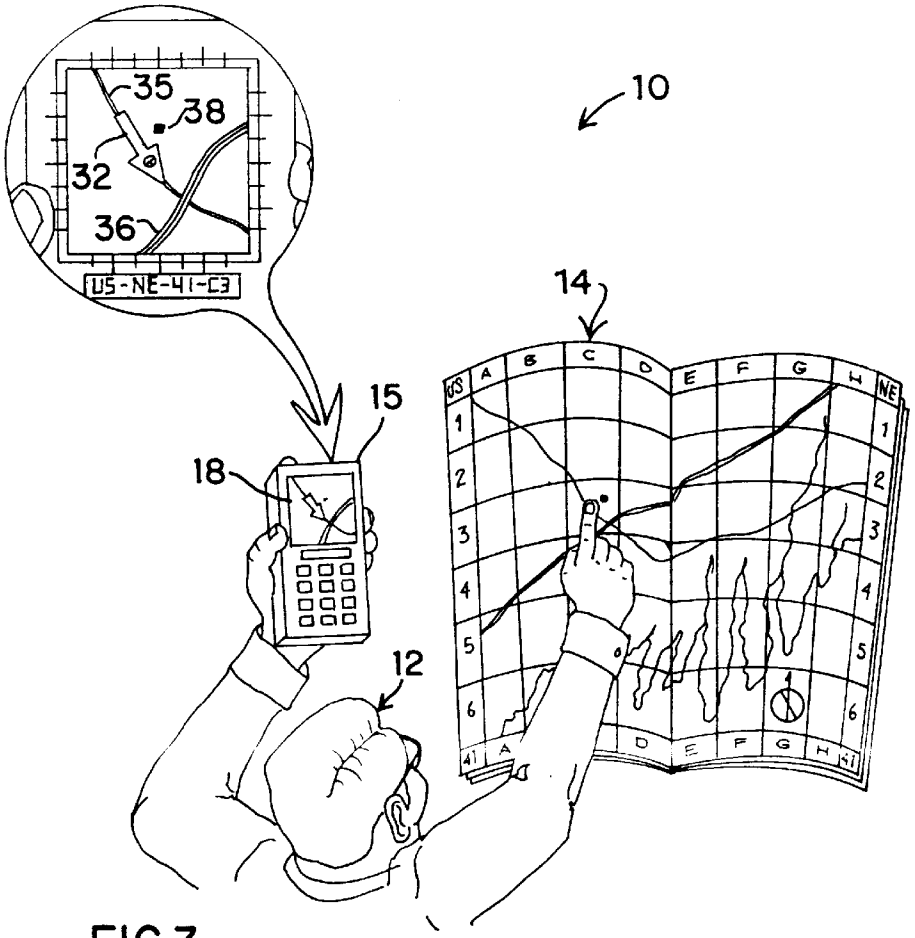


FIG 3

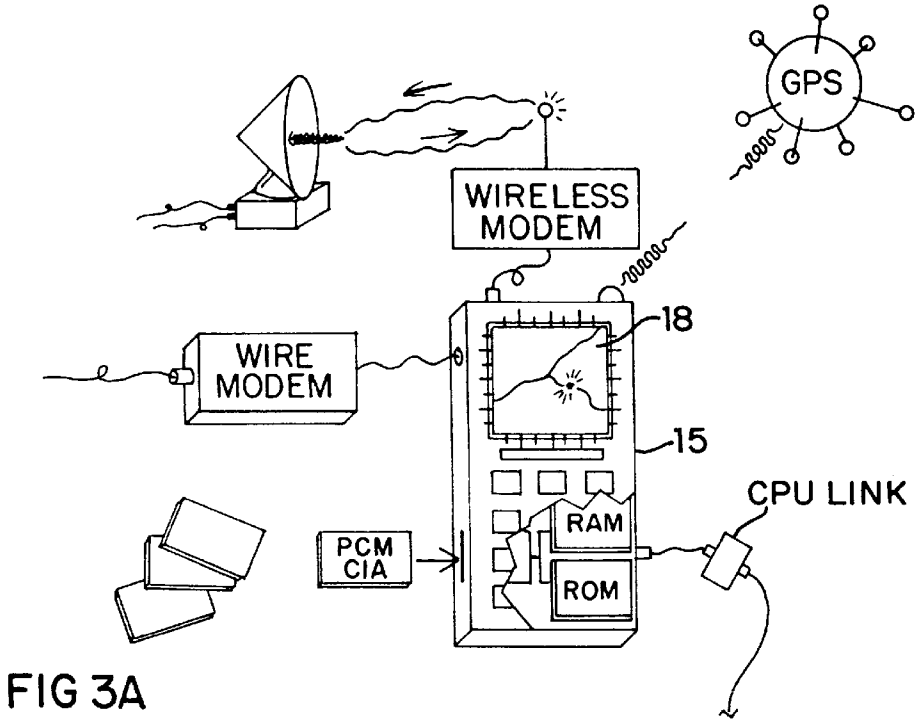


FIG 3A

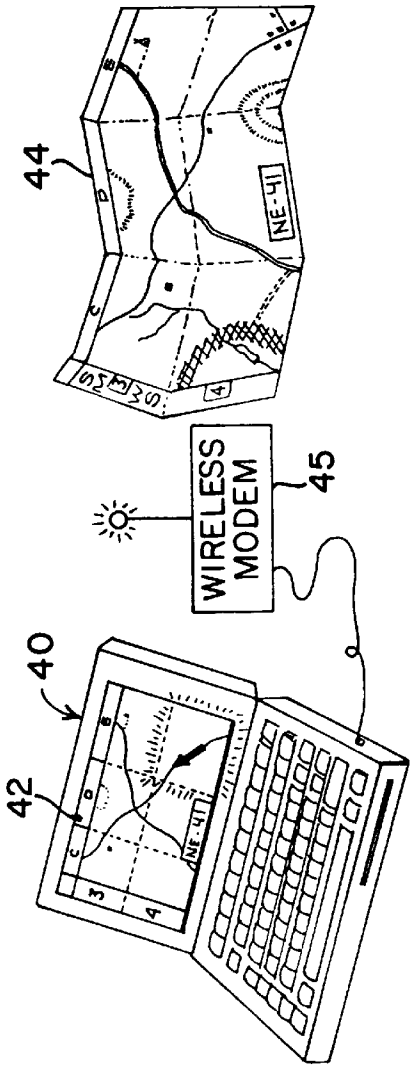


FIG 4

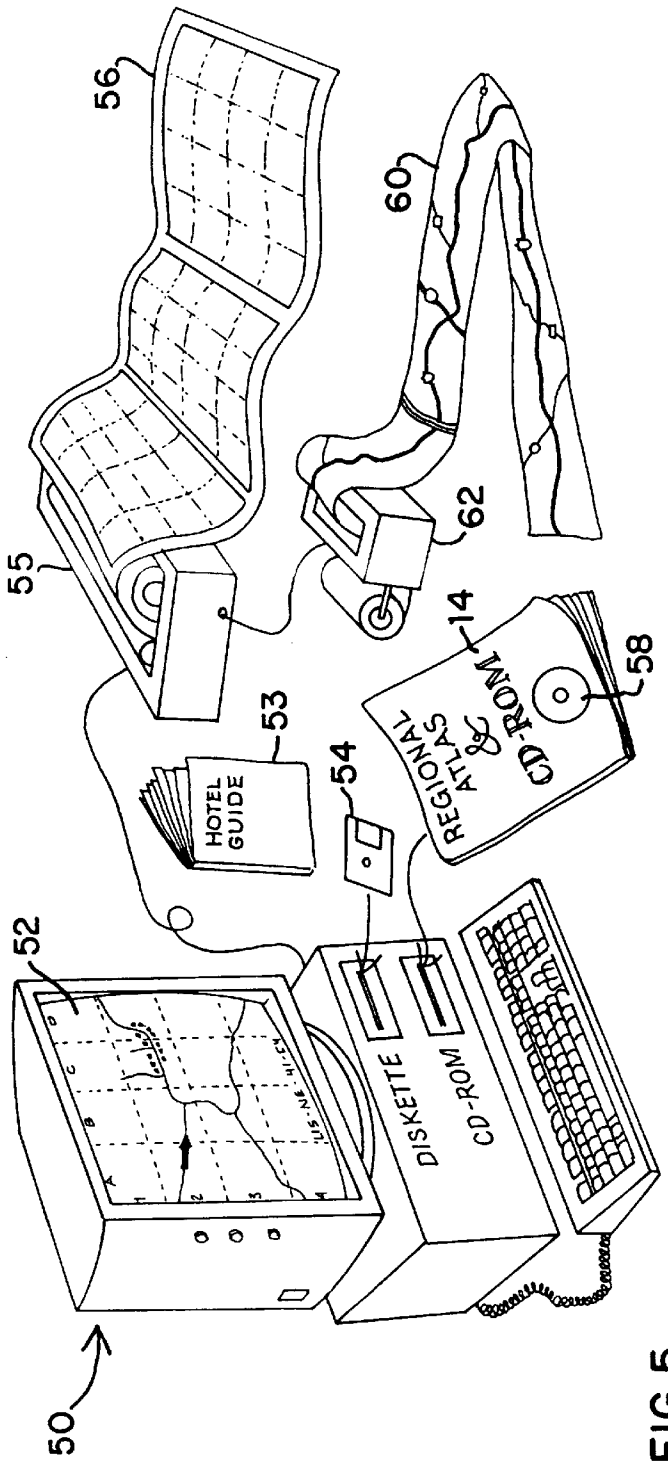


FIG 5

DOCKET ALARM

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.