



US006064737A

# United States Patent [19]

[11] **Patent Number:** **6,064,737**

**Rhoads**

[45] **Date of Patent:** **May 16, 2000**

[54] **ANTI-PIRACY SYSTEM FOR WIRELESS TELEPHONY**

[75] Inventor: **Geoffrey B. Rhoads**, West Linn, Oreg.

[73] Assignee: **Digimarc Corporation**, Lake Oswego, Oreg.

[21] Appl. No.: **09/172,324**

[22] Filed: **Oct. 13, 1998**

### Related U.S. Application Data

[63] Continuation of application No. 08/637,531, Apr. 25, 1996, Pat. No. 5,822,436.

### Foreign Application Priority Data

Nov. 16, 1994 [WO] WIPO ..... PCT/US94/13366

[51] **Int. Cl.<sup>7</sup>** ..... **H04L 9/00**

[52] **U.S. Cl.** ..... **380/23; 380/28**

[58] **Field of Search** ..... 380/4, 18, 23, 380/28, 54; 382/232

[56] **References Cited**

### U.S. PATENT DOCUMENTS

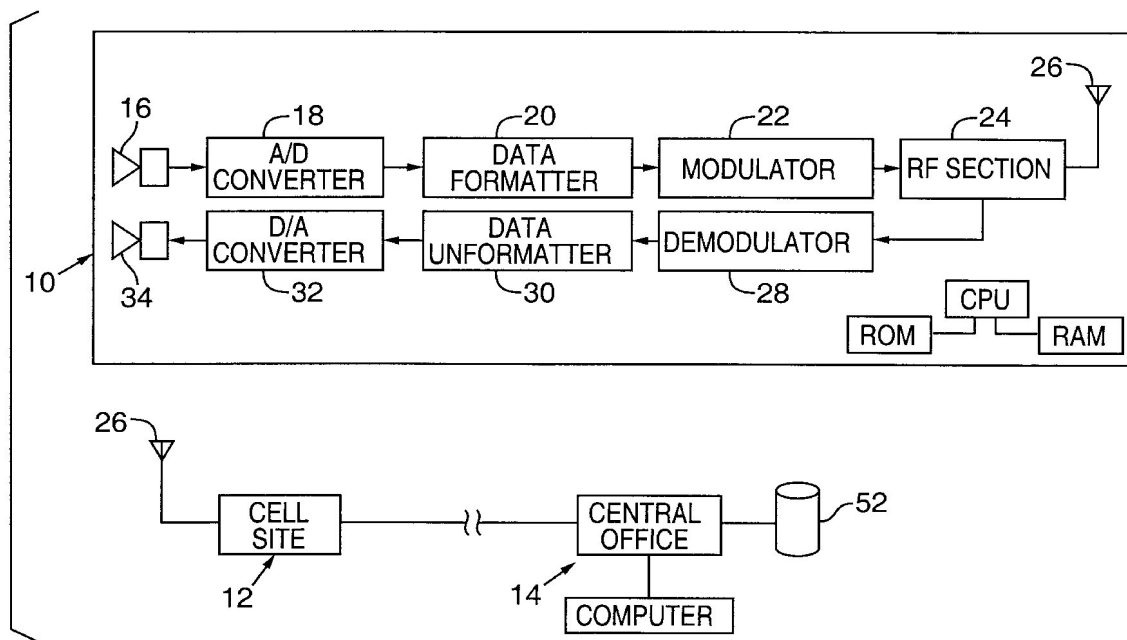
5,613,004	3/1997	Cooperman et al.	380/28
5,636,292	6/1997	Rhoads	382/232
5,687,236	11/1997	Moskowitz et al.	380/28
5,710,834	1/1998	Rhoads	380/18
5,745,569	4/1998	Moskowitz et al.	380/28
5,745,604	4/1998	Rhoads	380/4
5,748,763	5/1998	Rhoads	382/232
5,748,783	5/1998	Rhoads	382/232
5,768,426	7/1998	Rhoads	382/232
5,822,436	10/1998	Rhoads	380/54
5,841,886	11/1998	Rhoads	382/232
5,841,978	11/1998	Rhoads	380/28
5,850,481	12/1998	Rhoads	382/232

Primary Examiner—Salvatore Cangialosi

[57] **ABSTRACT**

A method and system are described for reducing the theft of wireless telephony services, such as cellular systems and PCS systems, altering voice data to steganographically embed verification data therein. The verification data comprises a plurality of symbols which are steganographically detected at the carrier facility to confirm authorized use of the wireless device.

**10 Claims, 4 Drawing Sheets**



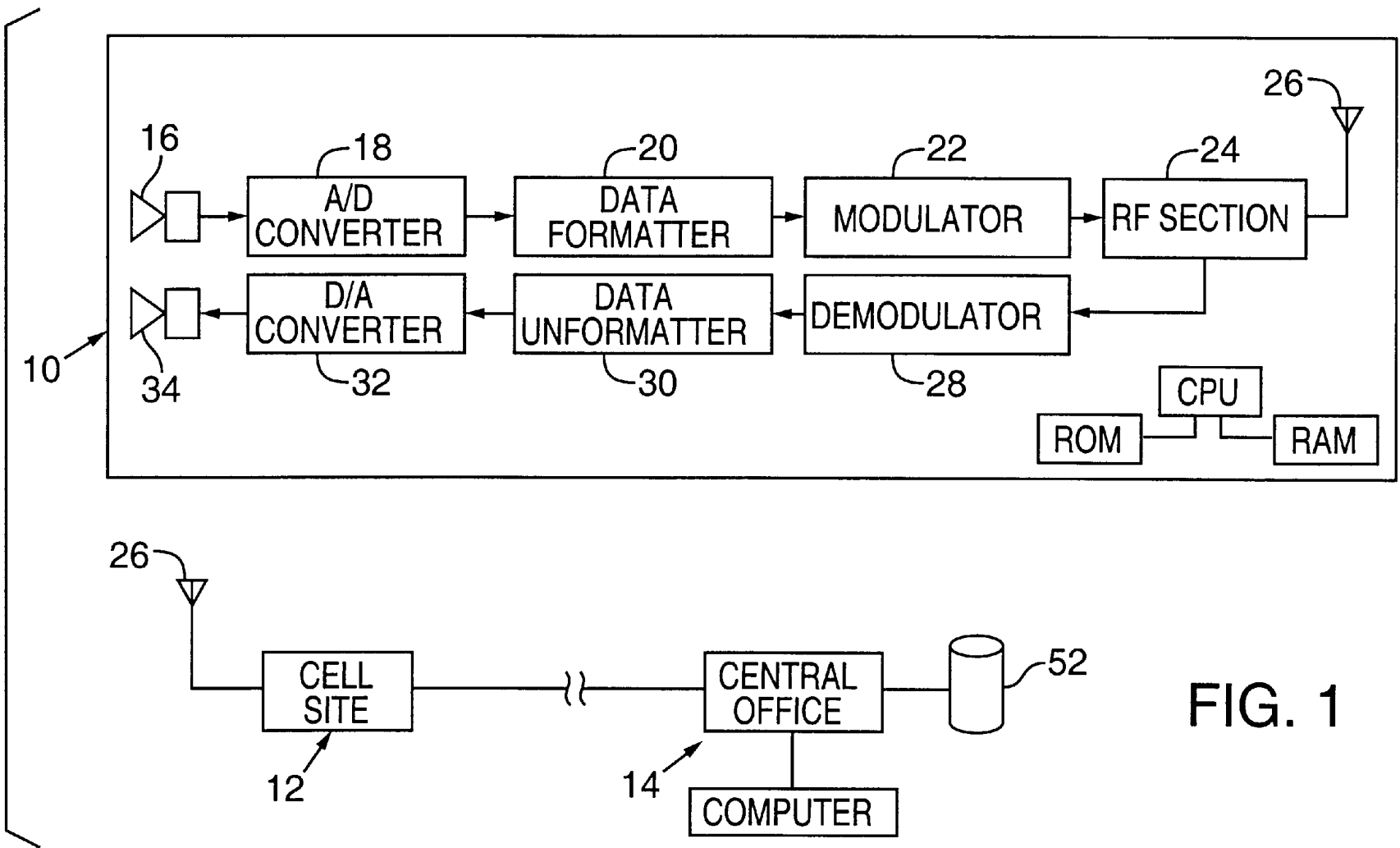
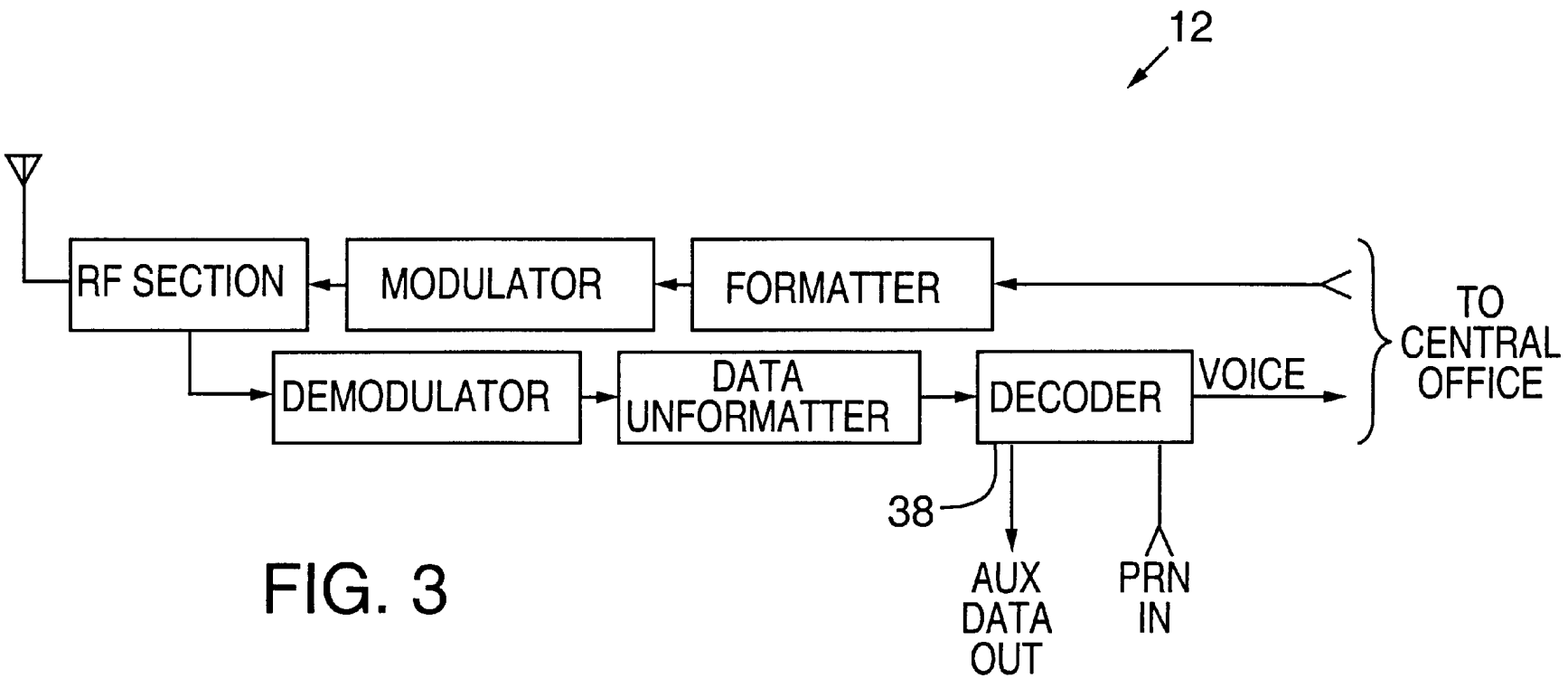
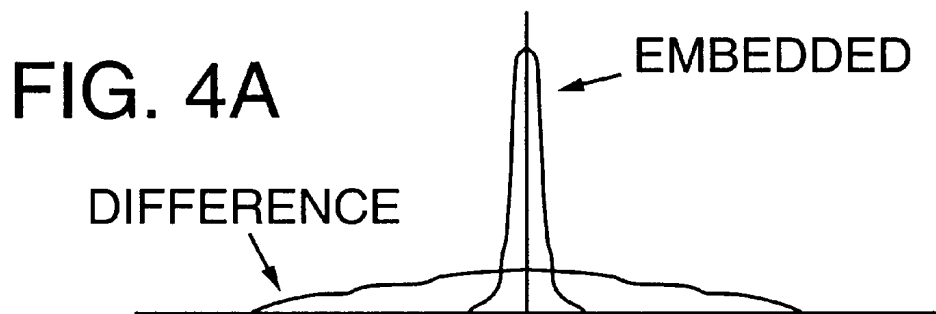


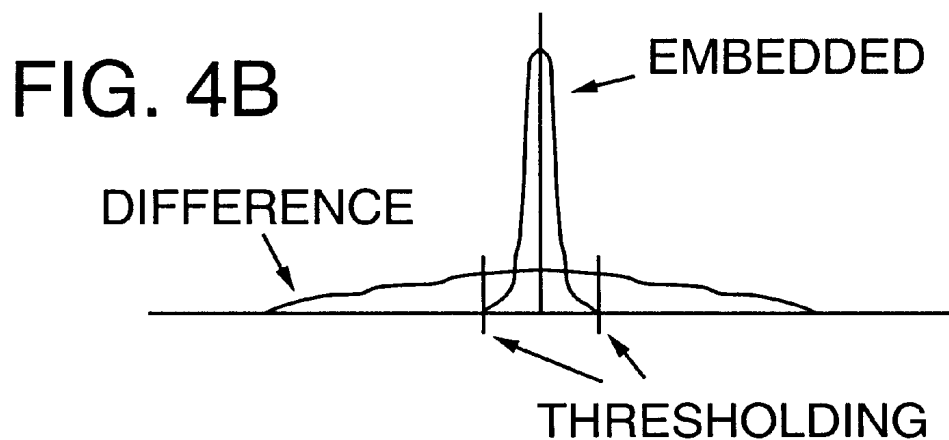
FIG. 1







MEAN-REMOVED HISTOGRAMS OF  
DIFFERENCE SIGNAL AND KNOWN EMBEDDED  
CODE SIGNAL



MEAN-REMOVED HISTOGRAMS OF  
FIRST DERIVATIVES (OR SCALER GRADIENTS  
IN THE CASE OF AN IMAGE)

# 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.