United States Patent [19]

Tymes

[11] **Patent Number: 5,029,183**

[45] **Date of Patent: Jul. 2, 1991**

[54] **PACKET DATA COMMUNICATION NETWORK**

[75] Inventor: **LaRoy Tymes**, Palo Alto, Calif.

[73] Assignee: **Symbol Technologies, Inc.**, Bohemia, N.Y.

[21] Appl. No.: **374,452**

[22] Filed: **Jun. 29, 1989**

[51] **Int. Cl.**[5] **H04B 15/00**

[52] **U.S. Cl.** **375/1**

[58] **Field of Search** 375/1

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,641,433	2/1972	Mifflin et al.	375/1
4,247,908	1/1981	Lockart et al.	364/900
4,291,409	9/1981	Weinberg et al.	375/1
4,409,470	10/1983	Shepard et al.	235/472
4,460,120	7/1984	Shepard et al.	235/472
4,475,208	10/1984	Ricketts	375/1
4,639,914	1/1987	Winters	370/110.1
4,672,658	6/1987	Kavehrad et al.	379/63
4,673,805	6/1987	Shepard et al.	235/472
4,736,095	4/1988	Shepard et al.	235/472
4,740,792	4/1988	Sagey et al.	342/457
4,758,717	7/1988	Shepard et al.	235/472
4,789,983	12/1988	Acampora et al.	370/96
4,829,540	5/1989	Waggener, Sr. et al.	375/1
4,850,009	7/1989	Zook et al.	379/96

OTHER PUBLICATIONS

MSI Data Corporation, Product Brochure, MSI PRT Portable Radio Terminal, 2 pages, 1988.

Vectran Corporation, Product Brochures, VR1100, VR1120, VR1130 and VR1150 Systems for Radio Data Link.

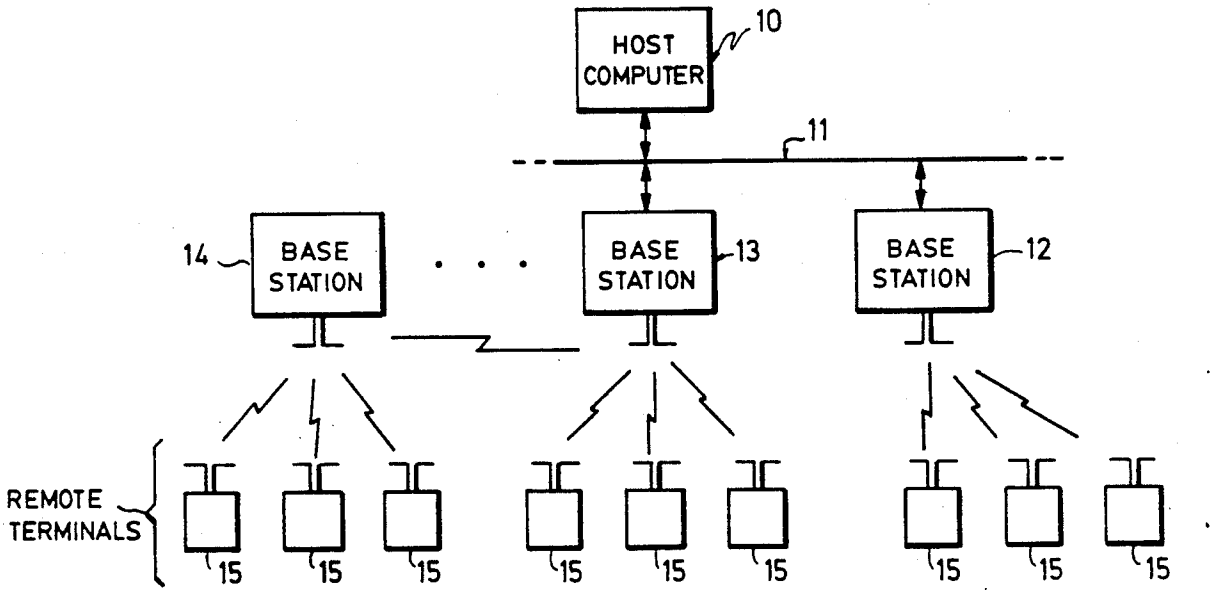
Freret et al., "Applications of Spread-Spectrum Radio to Wireless Terminal Communications", Conf. Record, Nat'l Telecom. Conf., Nov. 30-Dec. 4, '80.

Primary Examiner—Thomas H. Tarcza
Assistant Examiner—David Cain
Attorney, Agent, or Firm—Arnold, White & Durkee

[57] **ABSTRACT**

A packet data transmission system is used to link a number of remote hand-held data-gathering units such as bar code readers to a central computer which maintains a database management system. Data packets are sent from the remote units by an RF link to intermediate base stations, then sent by the base stations to the central computer by a serial link. Direct sequence spread spectrum modulation is used for the RF link. The remote hand-held units initiate an exhange using RF transmission to and from the base stations, receiving only during a rigid time window following a transmission from the remote unit. The base stations cannot initiate communication to the remote units, but instead send data to the remote units only as part of the exchange.

84 Claims, 6 Drawing Sheets



Qualcomm Incorporated

DOCKET ALARM

Find authenticated court documents without watermarks at docketalarm.com.

FIG.1

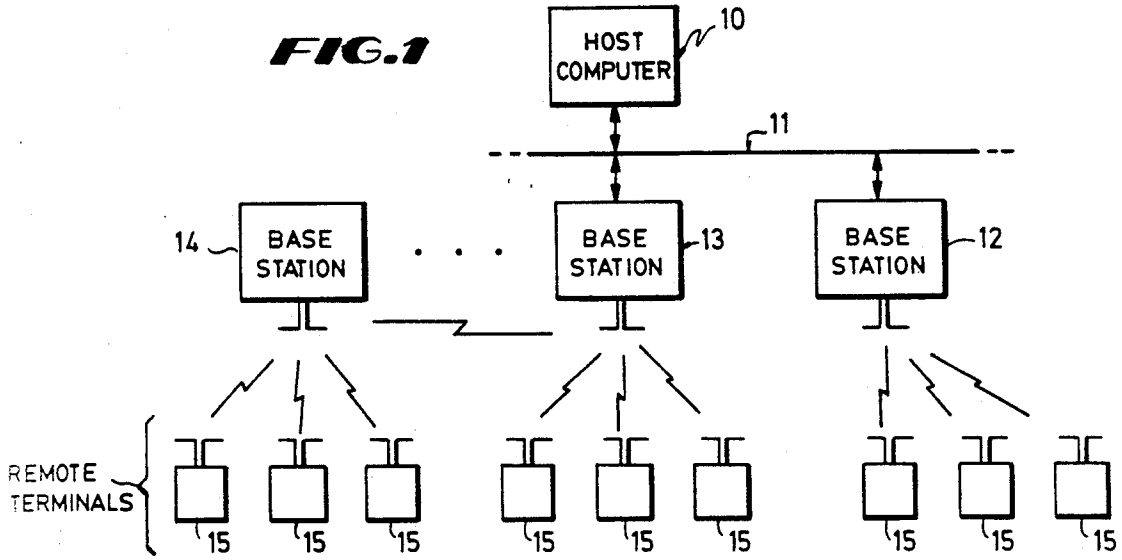


FIG.2

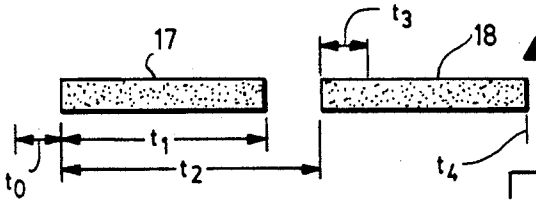


FIG.3

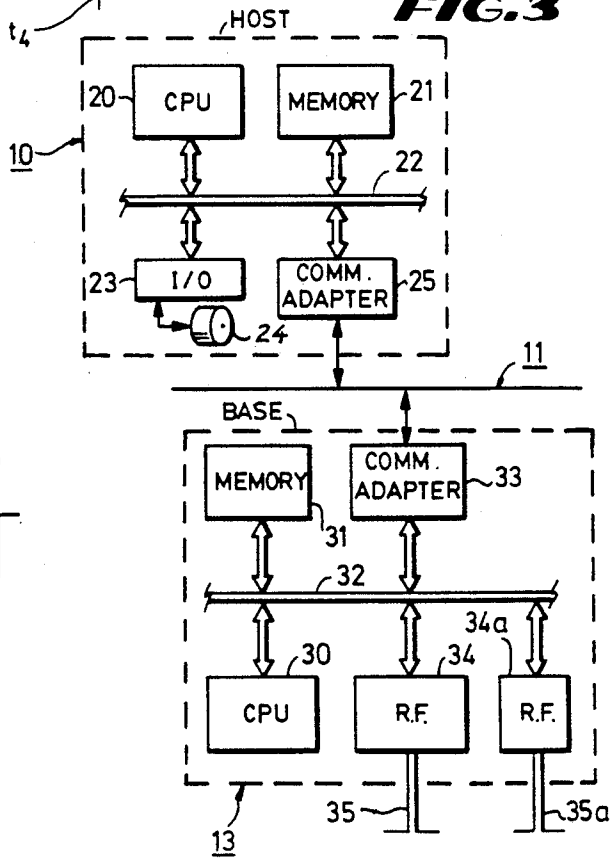
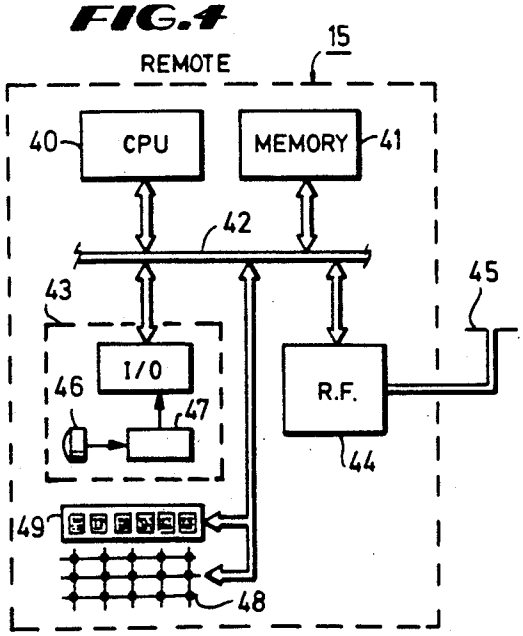


FIG.4



DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

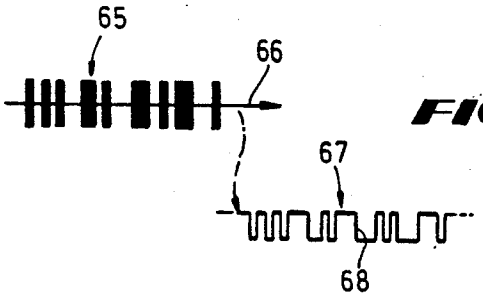


FIG.6

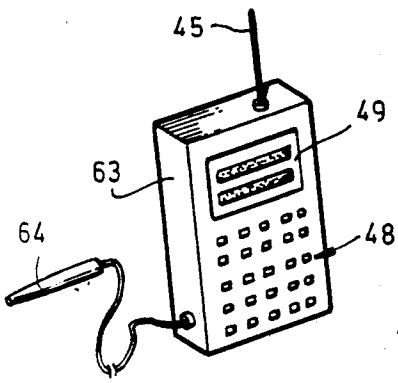
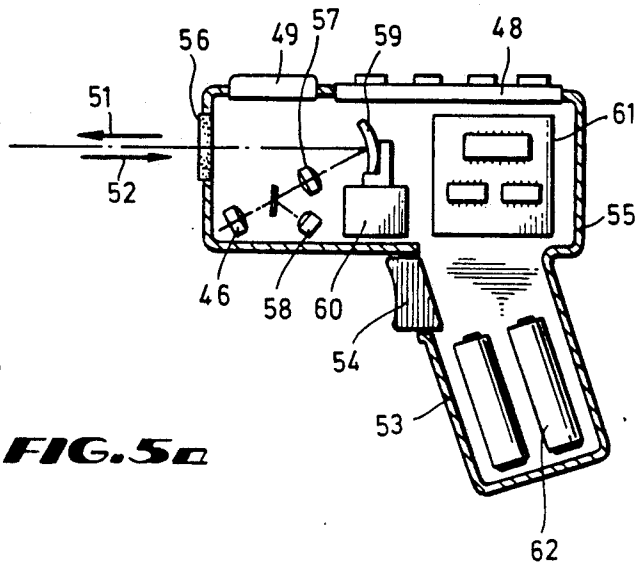


FIG.5a

FIG.5



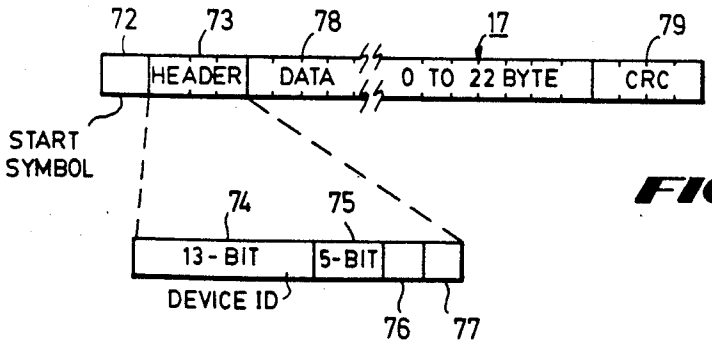
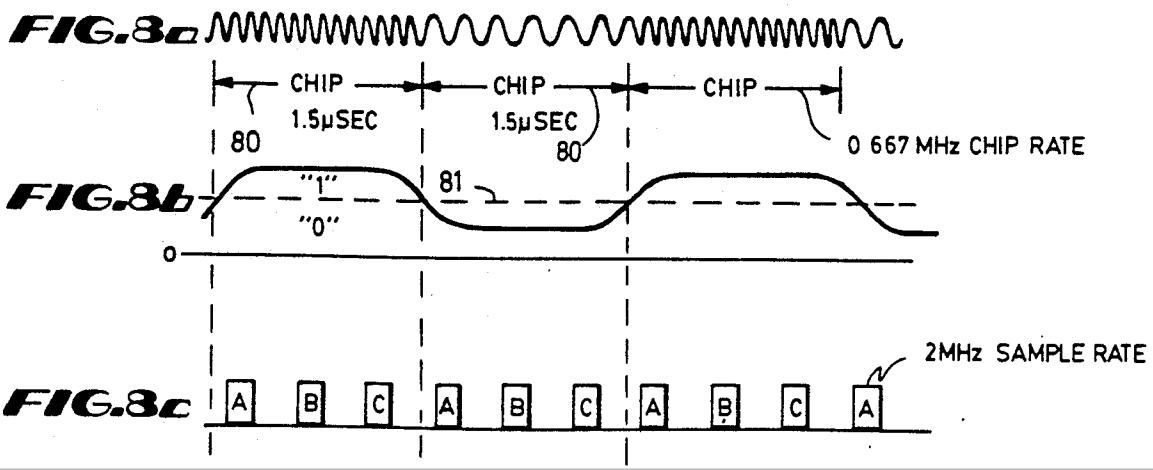


FIG.7



DOCKET ALARM Find authenticated court documents without watermarks at docketalarm.com.

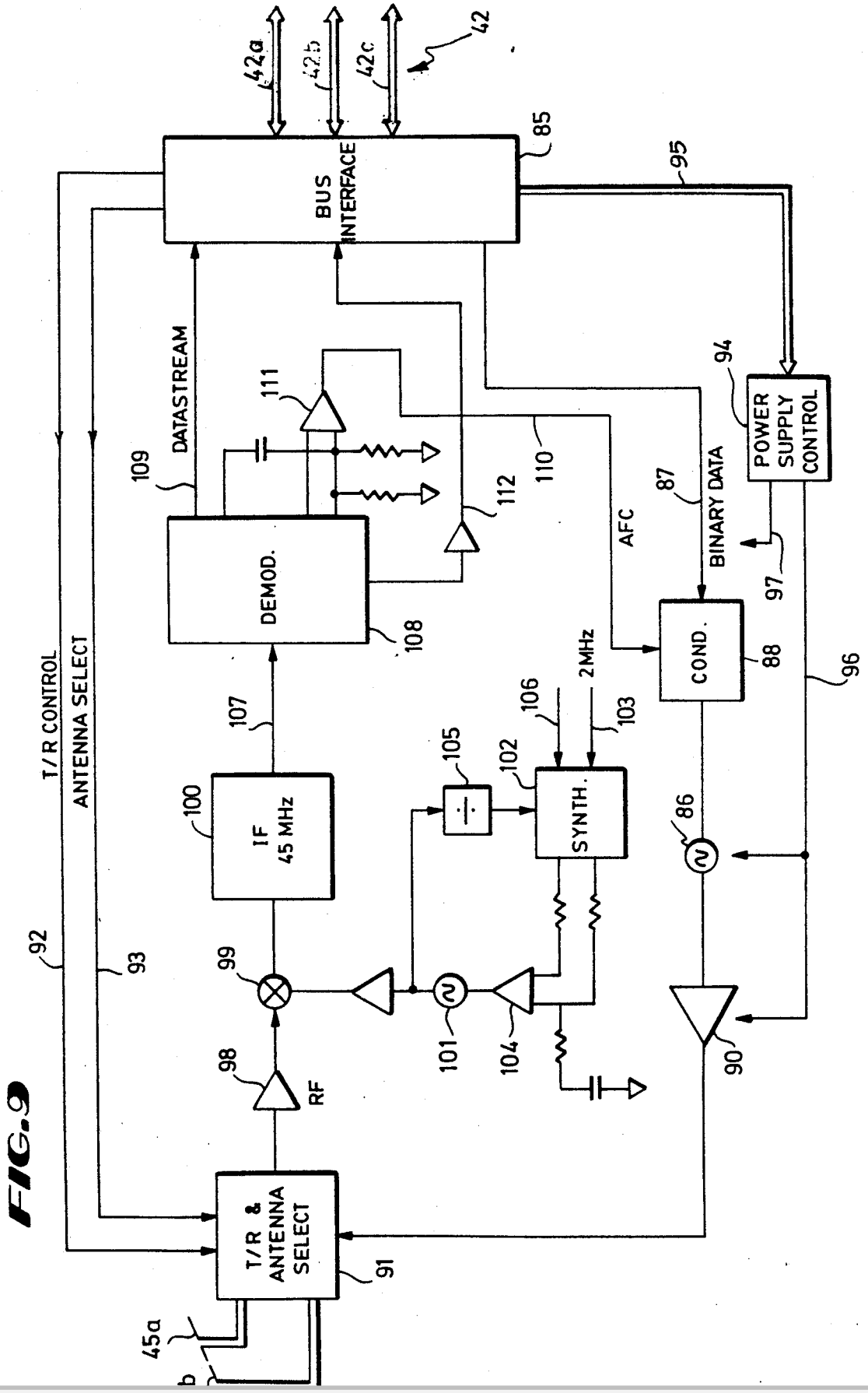


FIG.9

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

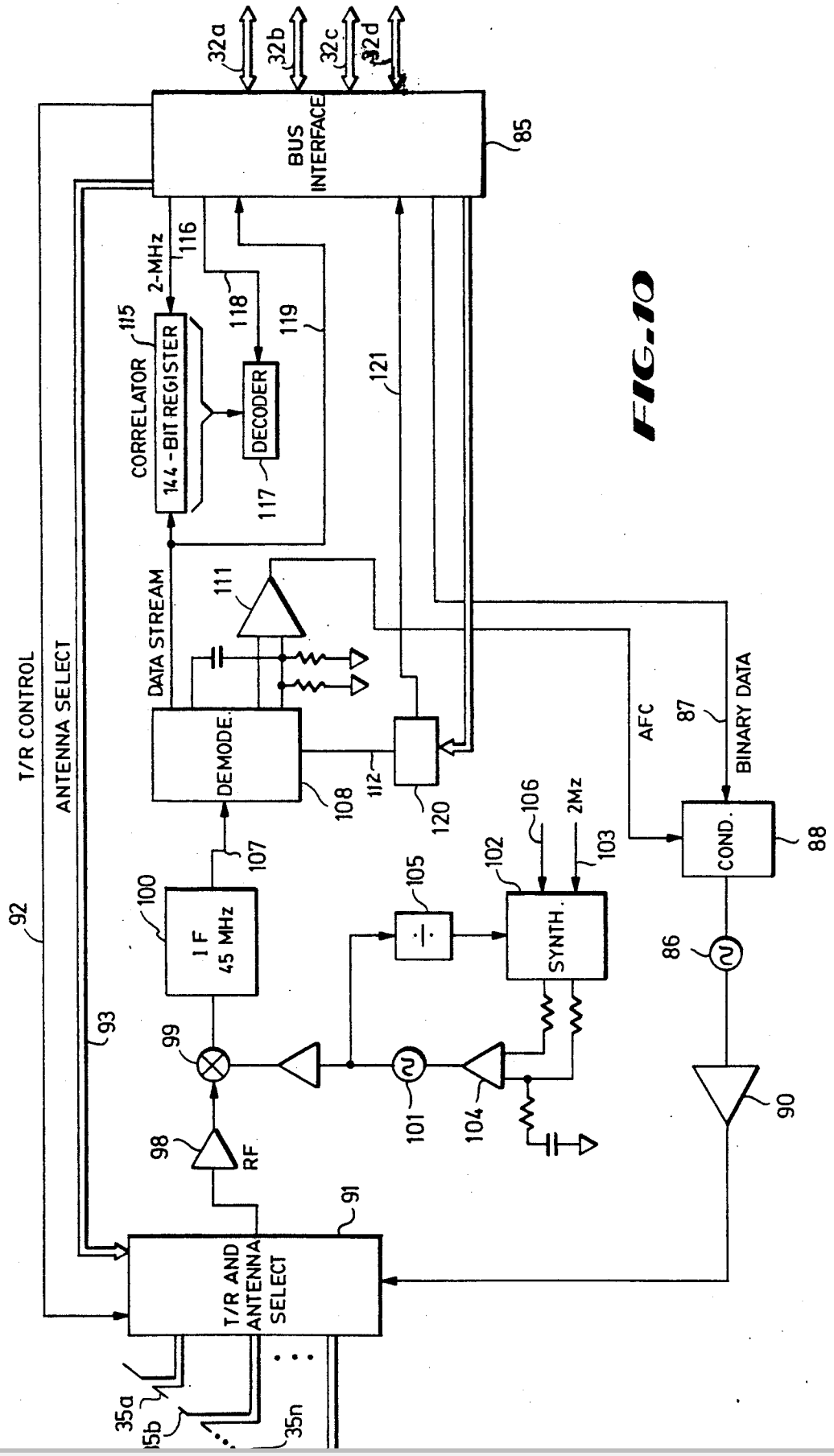


FIG. 10

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

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.