

[54] **APPARATUS FOR MULTI-RATE SIMULCAST COMMUNICATIONS**

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[51] **Int. Cl.**⁶ **H04B 7/00**; H04J 1/02;
H04J 11/00

[52] **U.S. Cl.** **370/19**; 370/23; 370/69.1;
370/84; 370/92; 370/110.1; 455/51.2; 455/56.1

[58] **Field of Search** 370/19, 21, 23,
370/49.5, 50, 60.1, 70, 84, 92, 93, 94.1,
95.1, 95.3, 99, 110.1; 375/260; 340/311.1;
455/15, 16, 51.2, 56.1

[57] **ABSTRACT**

A messaging system (500) for transmitting a message to a subscriber unit (312). The messaging system (500) includes a plurality of geographically distributed messaging transmitters (302-310), each transmitter designed to transmit in a first modulation format, such as FM, during a first transmission portion (102) including address information; and in a second modulation format, such as OFDM, during a second transmission portion (104) including message data (110) transmitted in frames. The address information includes message characterization information (108) defining a predetermined frame rate. The second transmission portion (104) includes message data (110) transmitted in frames representing a time sequence of N data bits at the predetermined frame rate and provides a plurality of carrier frequencies related to a frequency domain representation of the time sequence of data bits. The predetermined frame rate numerically matches the predetermined symbol rate. The subscriber unit (312) includes circuitry for receiving and demodulating both modulation formats.

[56] **References Cited**

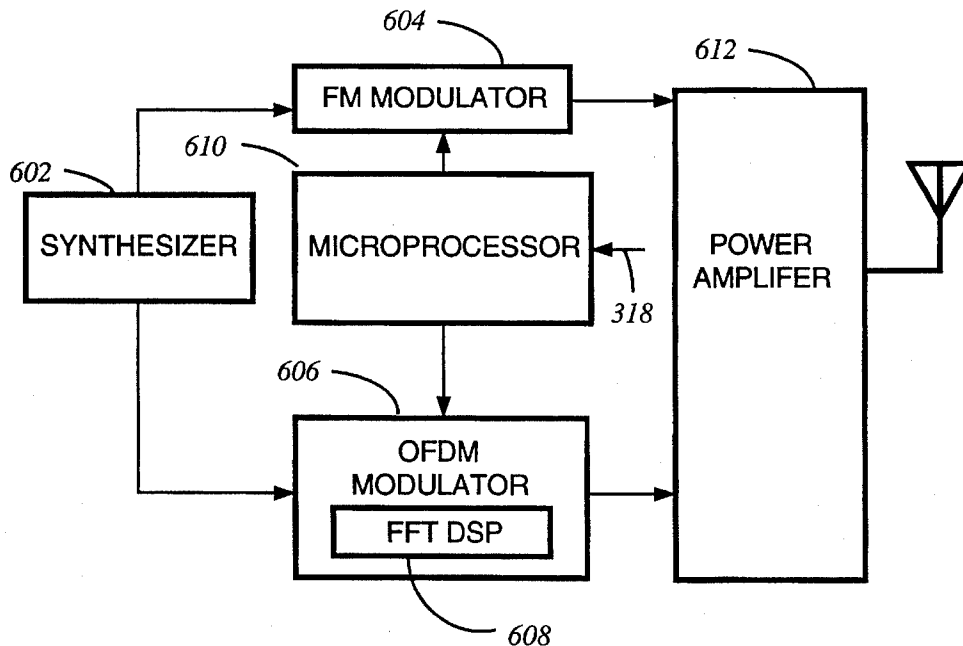
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23 Claims, 4 Drawing Sheets



302-310 Rembrandt Wireless

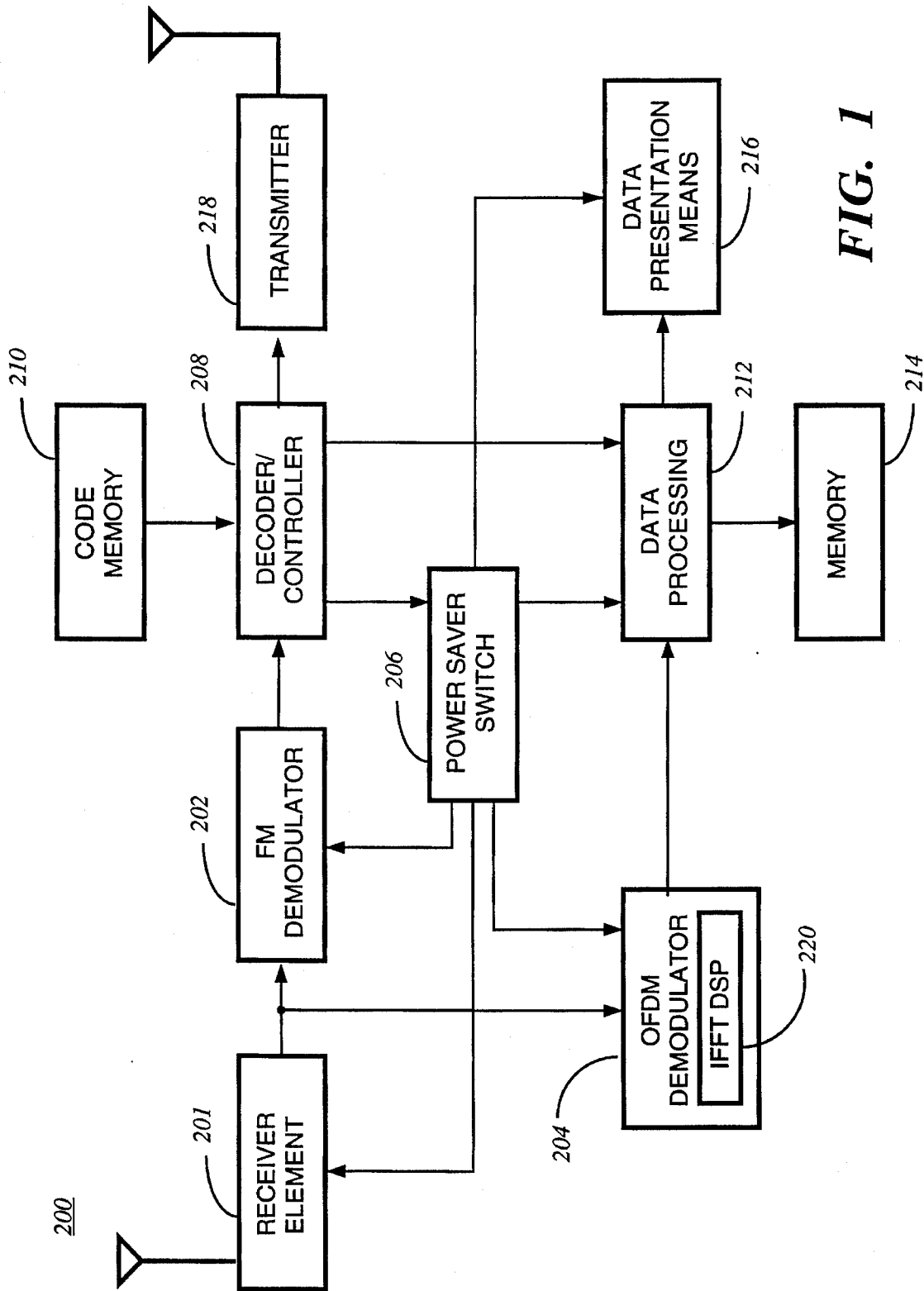


FIG. 1

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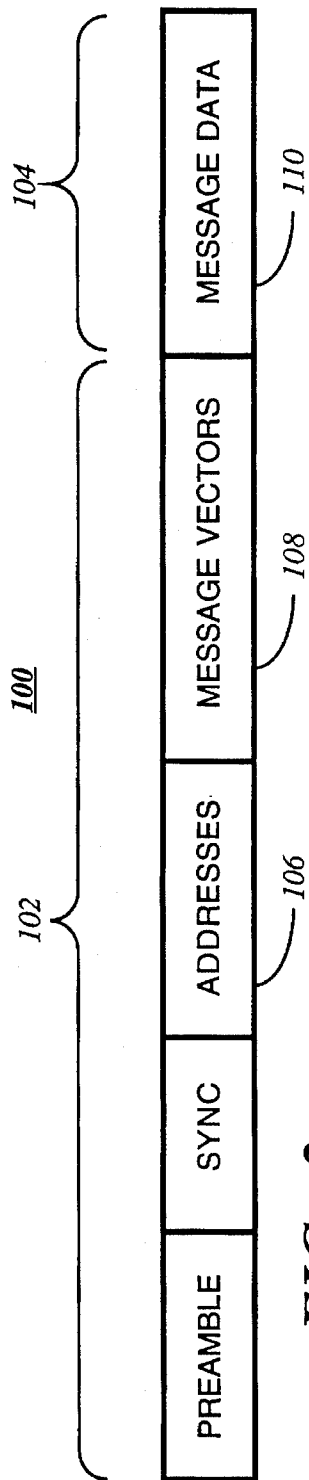


FIG. 2

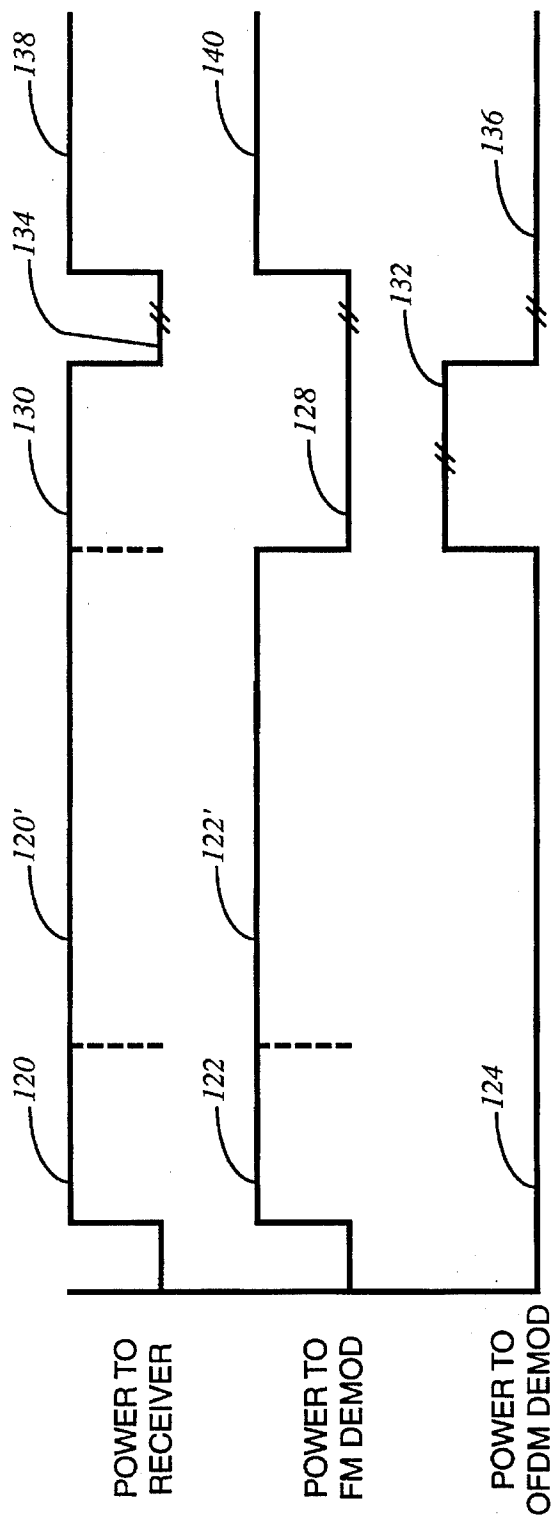


FIG. 3

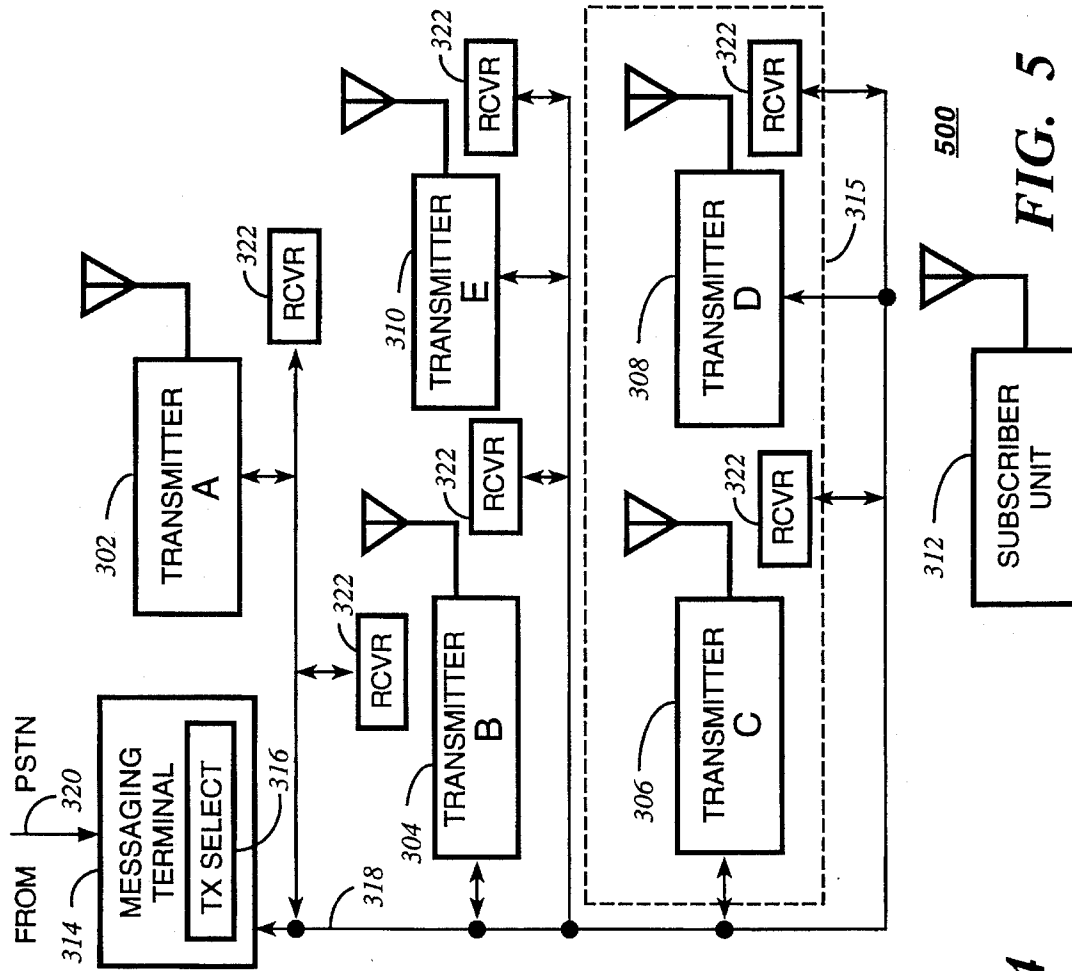


FIG. 5

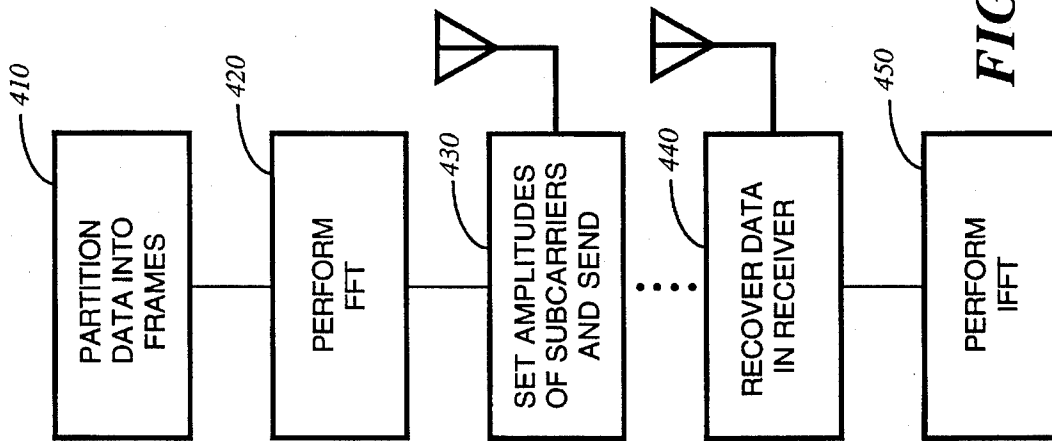
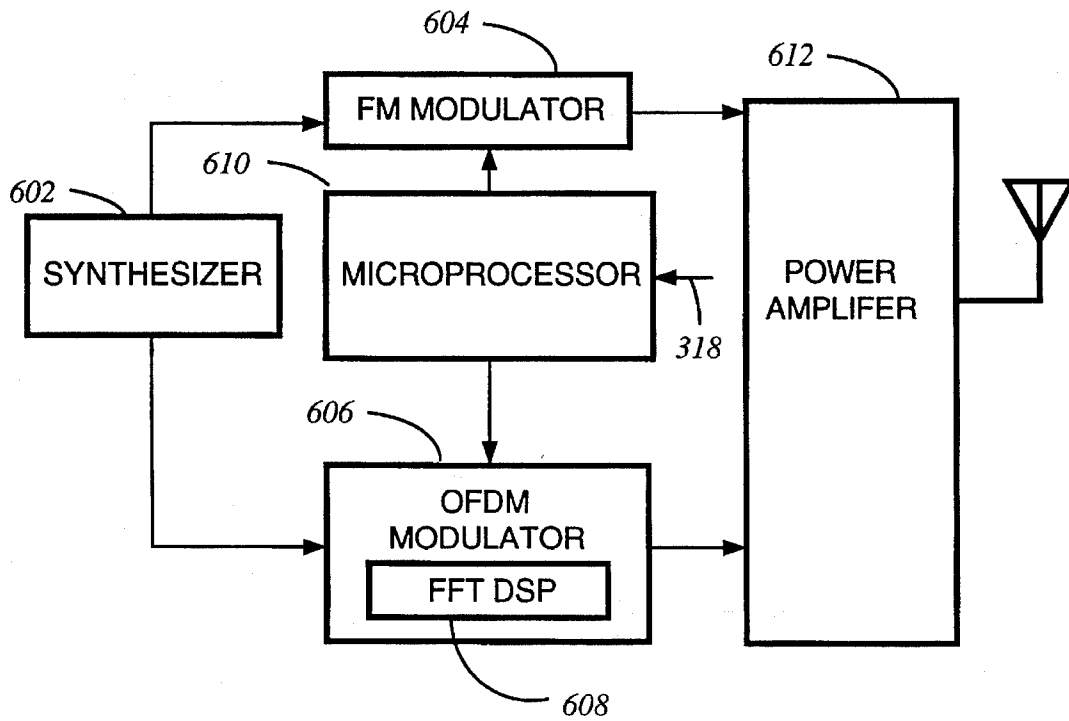


FIG. 4

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302-310

FIG. 6

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