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**Raleigh et al.**

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[54] **SPATIO-TEMPORAL PROCESSING FOR COMMUNICATION**

[75] Inventors: **Gregory G. Raleigh**, El Granada;  
**Vincent K. Jones, IV**, Redwood Shores; **Michael A. Pollack**, Cupertino, all of Calif.

[73] Assignee: **Cisco Systems, Inc.**, San Jose, Calif.

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**Related U.S. Application Data**

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[51] **Int. Cl.<sup>7</sup>** ..... **H04L 1/02**  
[52] **U.S. Cl.** ..... **375/347; 375/346; 375/349**  
[58] **Field of Search** ..... 375/219, 260, 375/316, 346, 347, 348, 285, 349, 350; 370/342, 203, 210; 455/63, 64, 65; 708/403, 404, 405

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*Primary Examiner*—Stephen Chin

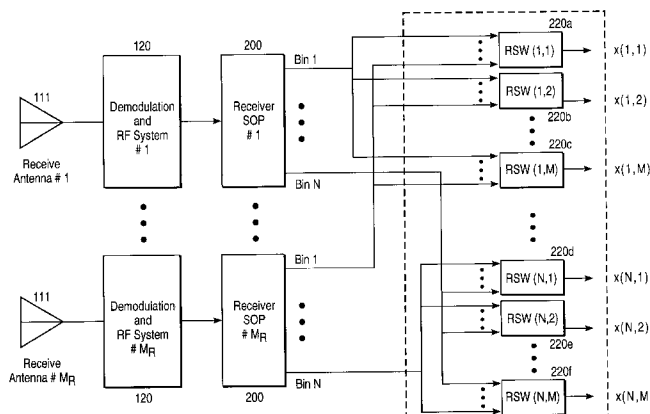
*Assistant Examiner*—Chieh M. Fan

*Attorney, Agent, or Firm*—Ritter, Van Pelt & Yi LLP

[57] **ABSTRACT**

A space-time signal processing system with advantageously reduced complexity. The system may take advantage of multiple transmitter antenna elements and/or multiple receiver antenna elements, or multiple polarizations of a single transmitter antenna element and/or single receiver antenna element. The system is not restricted to wireless contexts and may exploit any channel having multiple inputs or multiple outputs and certain other characteristics. Multipath effects in a transmission medium cause a multiplicative increase in capacity.

**32 Claims, 26 Drawing Sheets**



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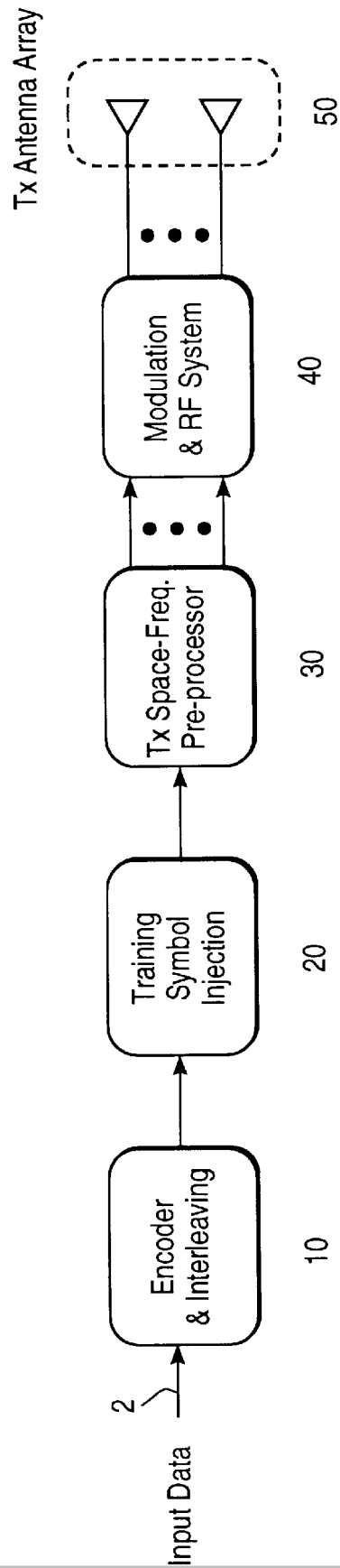


FIG. 1

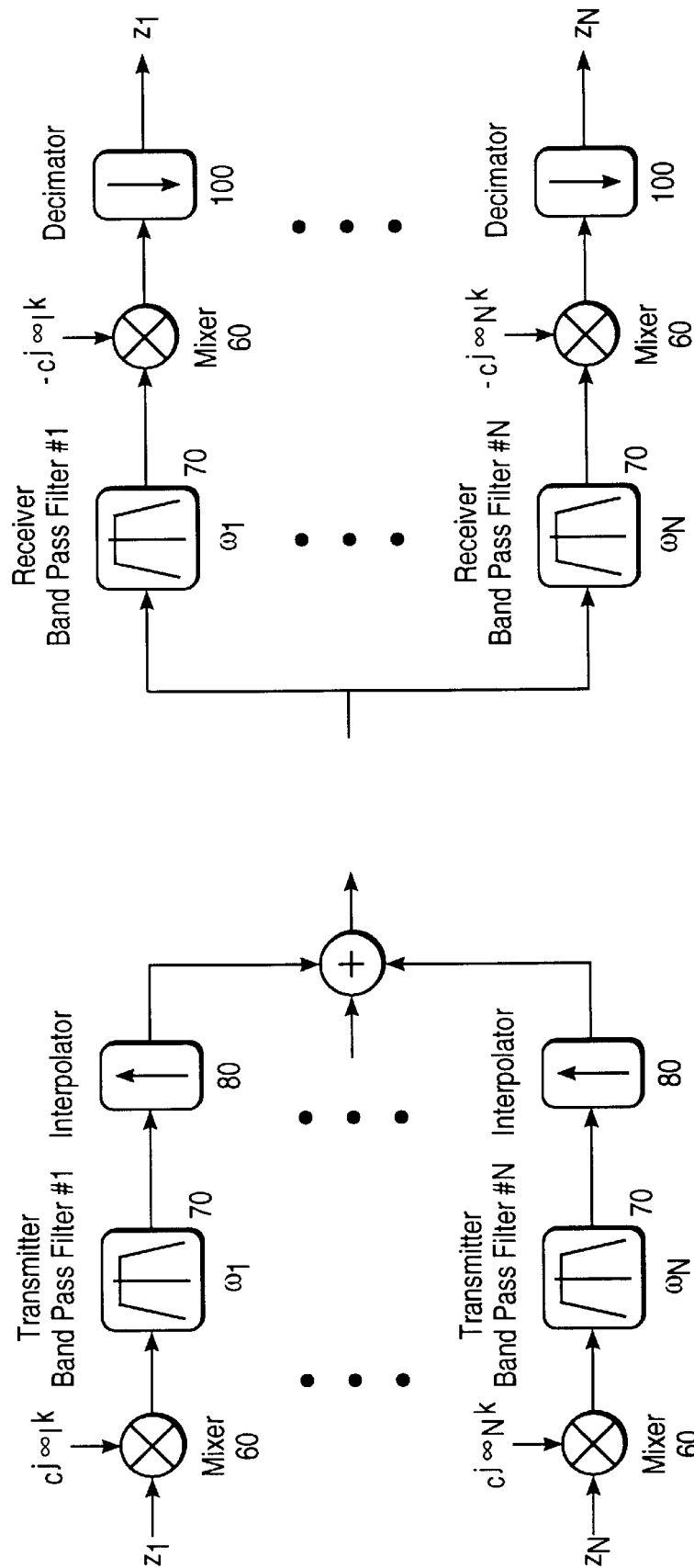


FIG. 2

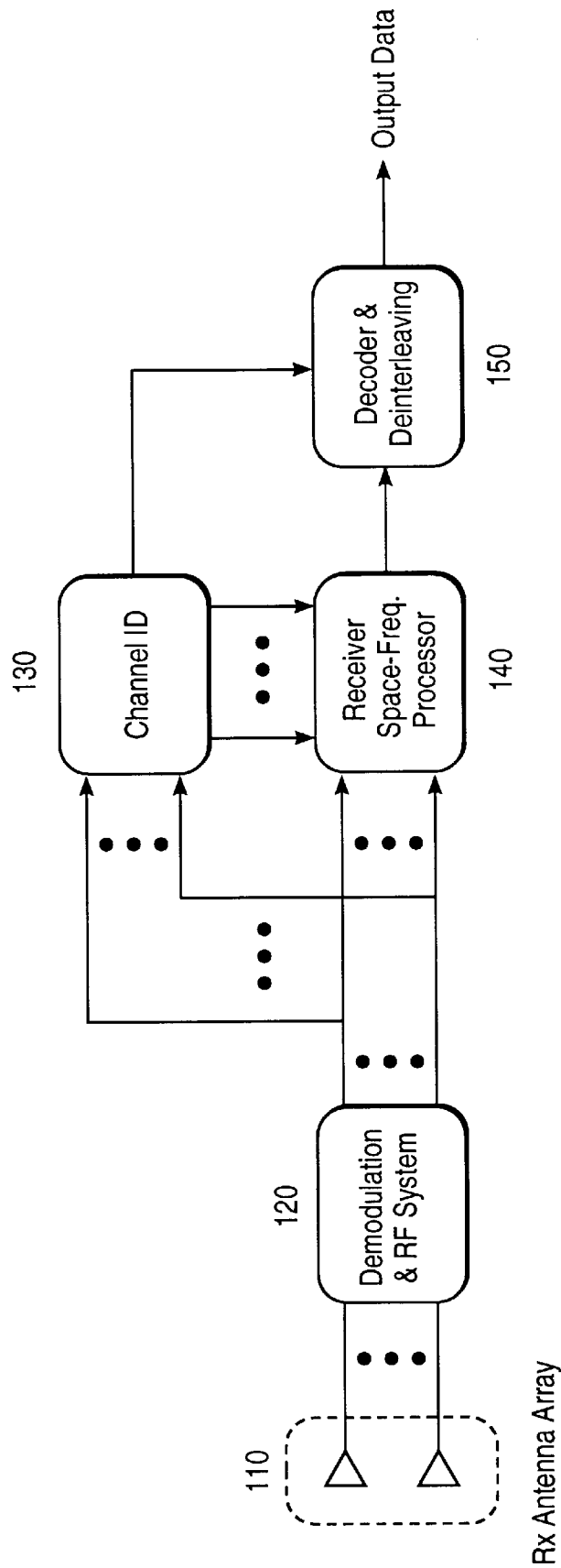


FIG. 3

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