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(12) **United States Patent**  
**Banerjee**

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(54) **SYSTEM AND METHOD FOR FINGER MANAGEMENT IN A RAKE RECEIVER**  
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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 899 days.

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(21) Appl. No.: **10/209,650**

*Primary Examiner*—Jean B. Corrielus

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(57) **ABSTRACT**

(51) **Int. Cl.**  
**H04B 1/00** (2006.01)  
(52) **U.S. Cl.** ..... **375/348; 375/349**  
(58) **Field of Classification Search** ..... 375/148, 375/147, 205, 150, 149, 130, 140, 142, 267, 375/347, 349; 455/421, 456  
See application file for complete search history.

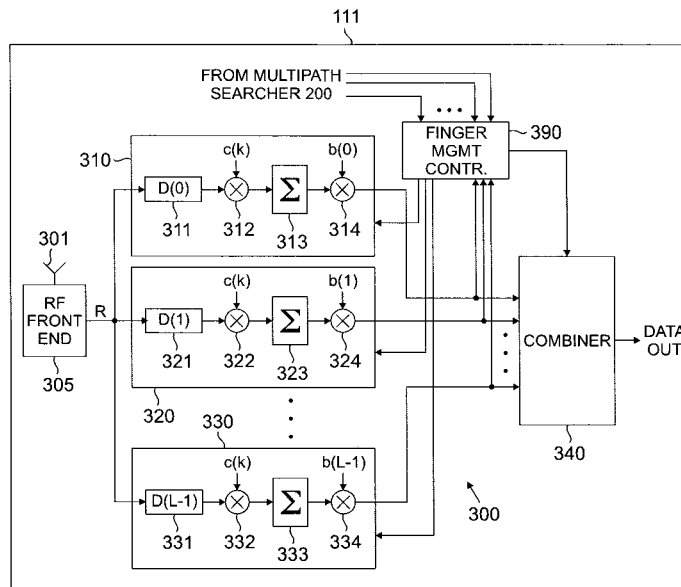
In a RAKE receiver capable of detecting and combining a plurality of multipath signals, a controller for managing the assignment of the plurality of multipath signals to fingers of the RAKE receiver. The controller determines a phase difference between a selected multipath signal and a first multipath signal assigned to a first finger of the RAKE receiver and does not assign the selected multipath signal to a second finger of the RAKE receiver unless the phase difference is greater than one-half chip. If the phase difference is less than one-half chip, the controller assigns the stronger of the selected multipath signal and the first multipath signal to the first finger of the RAKE receiver. If the finger power falls below a certain threshold, the finger internal states (viz. channel estimate and delay estimate) are maintained while the output of the finger is not processed. If the finger power exceeds the threshold anytime within a specified time interval, the normal activities of the finger are restored. If the power remains lower than the threshold for that time period, the finger is deactivated.

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**27 Claims, 6 Drawing Sheets**



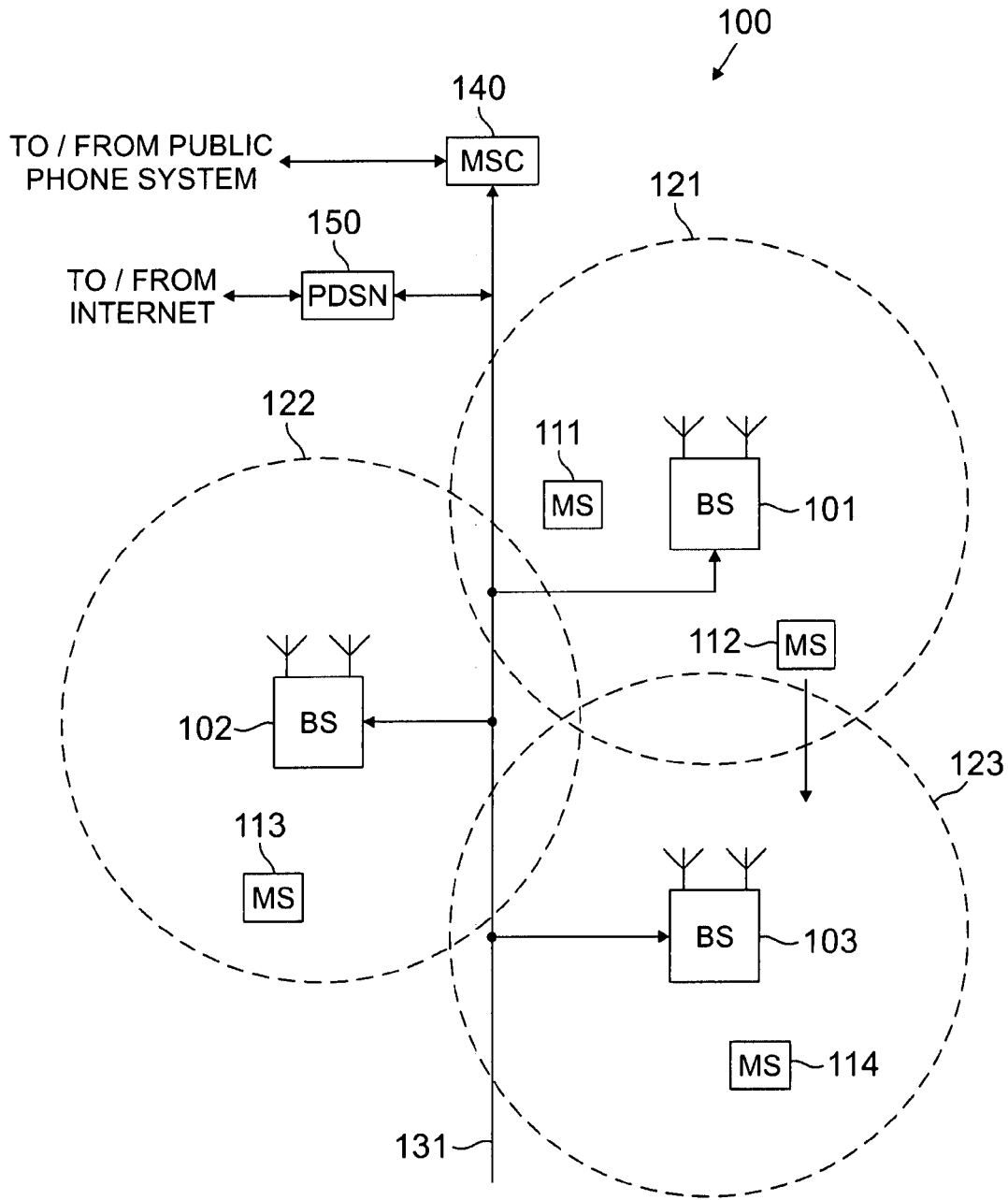


FIG. 1

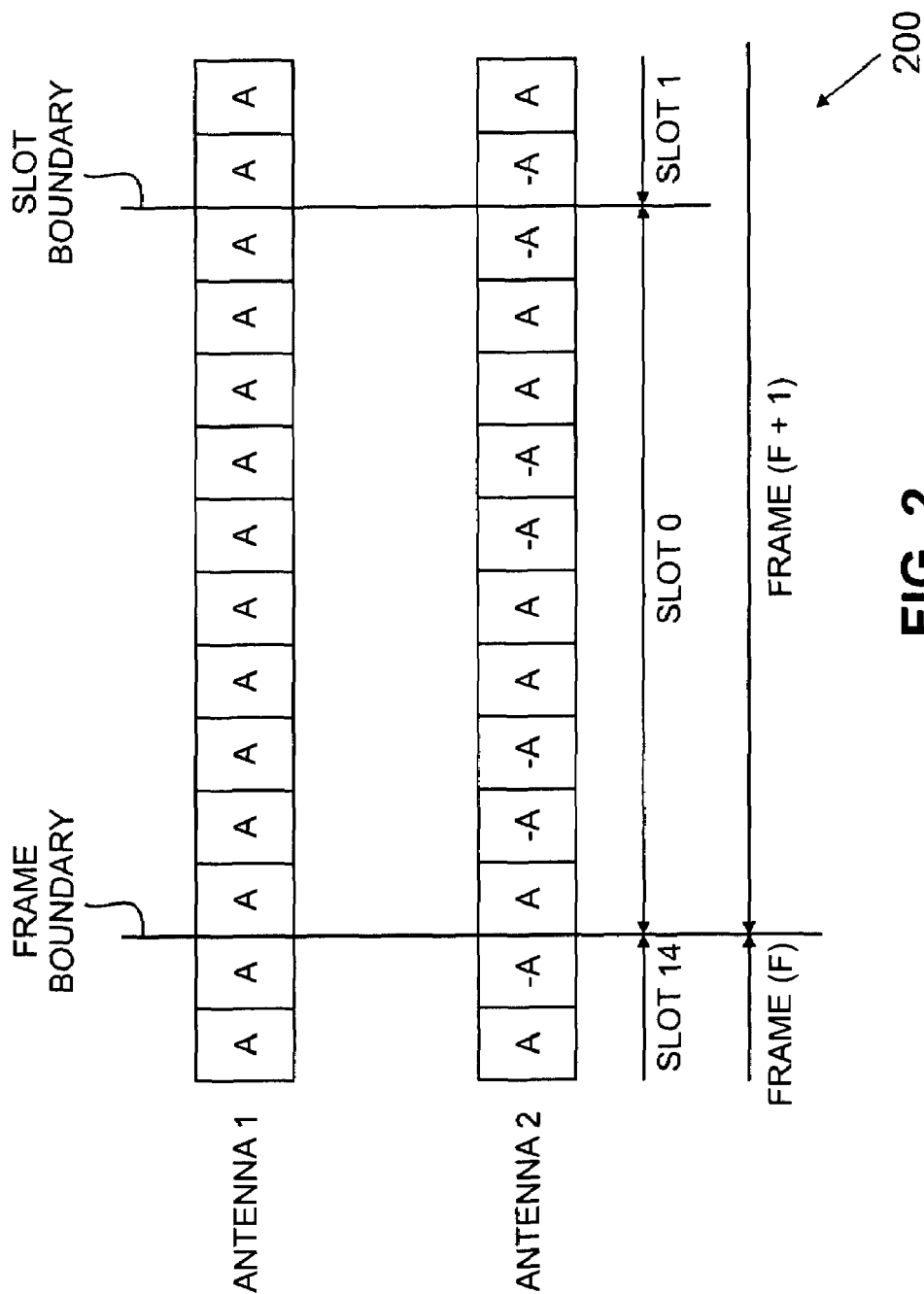


FIG. 2

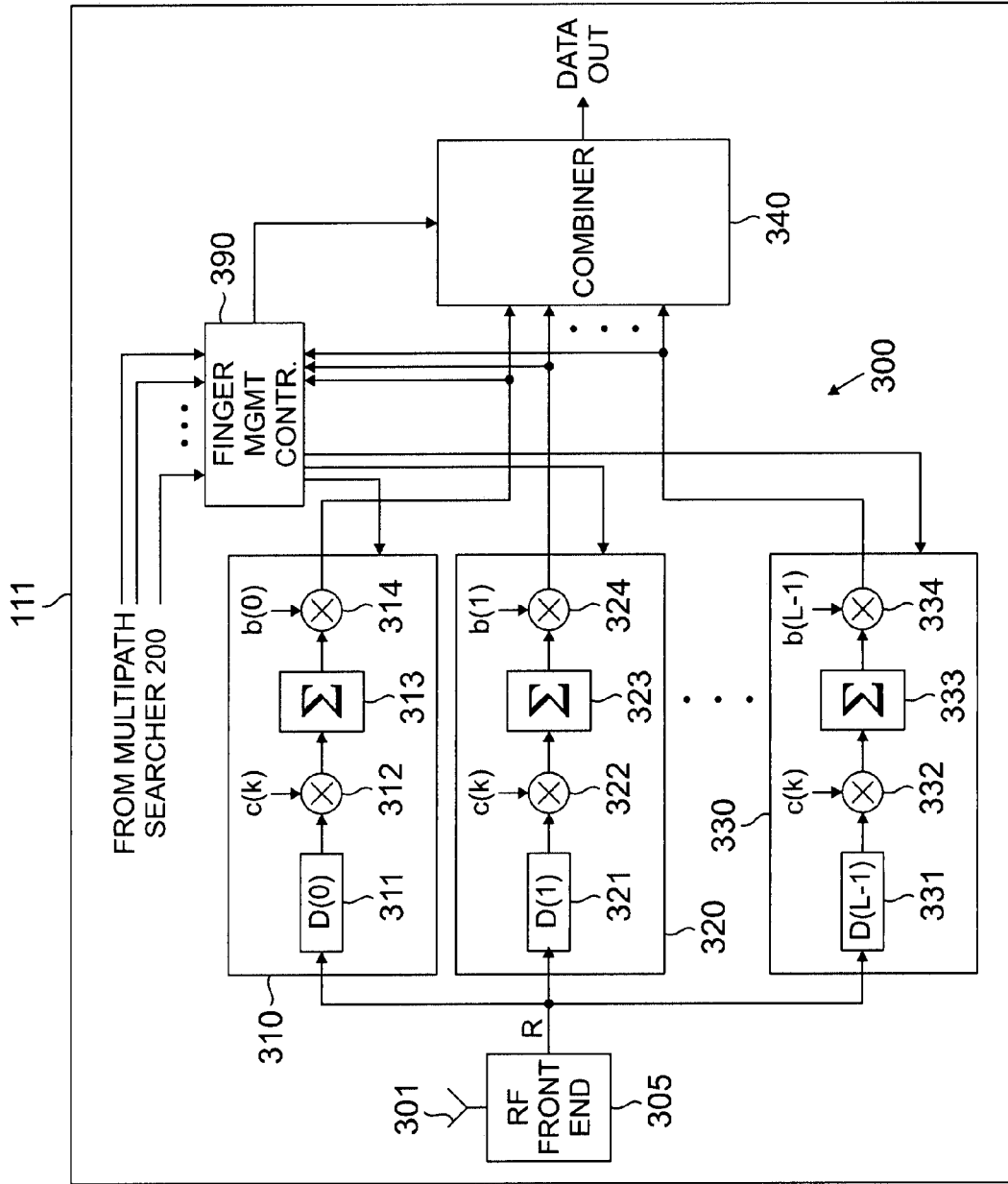


FIG. 3

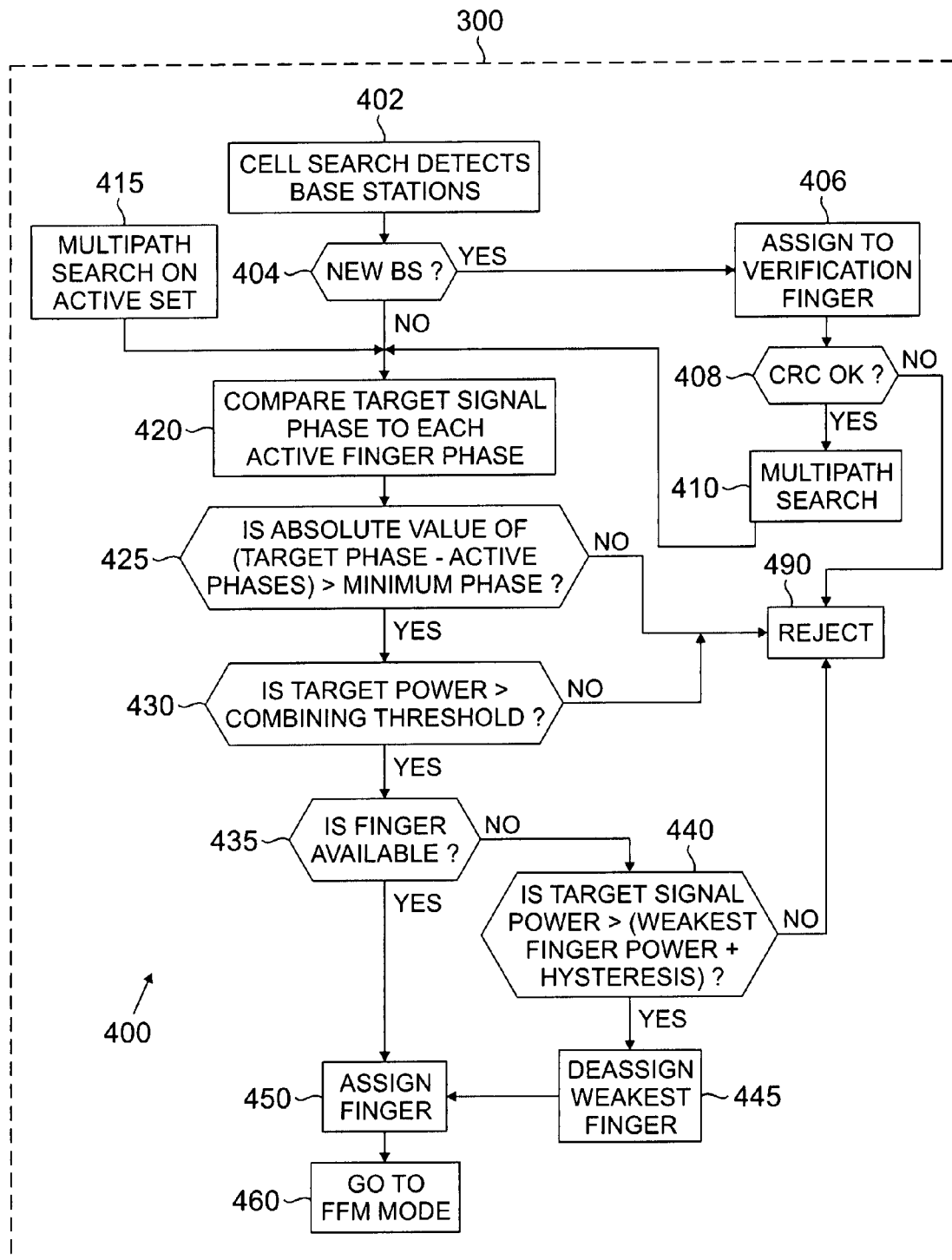


FIG. 4

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