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**Jakobsson et al.**

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 (45) **Date of Patent:** **Jun. 3, 2003**

(54) **METHOD AND APPARATUS FOR ENSURING SECURITY OF USERS OF BLUETOOTH TM-ENABLED DEVICES**

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(21) Appl. No.: **09/851,098**

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**Related U.S. Application Data**

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(51) **Int. Cl.<sup>7</sup>** ..... **H04O 7/20**

(52) **U.S. Cl.** ..... **455/41; 455/411; 455/517**

(58) **Field of Search** ..... 455/443, 410, 455/411, 421, 422, 517, 518, 519, 444, 465, 462, 41; 370/338, 471, 349; 379/35, 32.05; 340/825.08, 825.06; 713/161, 163, 162, 170, 200, 201, 150

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(57) **ABSTRACT**

Rather than including a static network descriptor in messages transmitted between master and slave Bluetooth-enabled devices communicating on a piconet, which network descriptor is computed as a known function of the master's Bluetooth address (BD\_ADDR), the network descriptor is changed each time a new session begins on one of the devices. This prevents an intentional eavesdropper, who may be in proximity to the piconet and who may be listening for and detecting the network descriptor included within these messages, from associating a detected network descriptor with a particular device of a user and thereafter using that network descriptor to track the location of the user who is carrying and using that device. The network descriptor, the channel access code (CAC), is changed each time a new session begins by computing it as a known function of a seed and the master's BD\_ADDR, wherein the seed is a random number chosen at the beginning of each new session by the master. For further security, CAC is changed not only when a new session begins but within each session on a periodic basis. For the latter, the seed is a combination of the random number generated for each session by the master and a time parameter associated with the master.

**40 Claims, 5 Drawing Sheets**

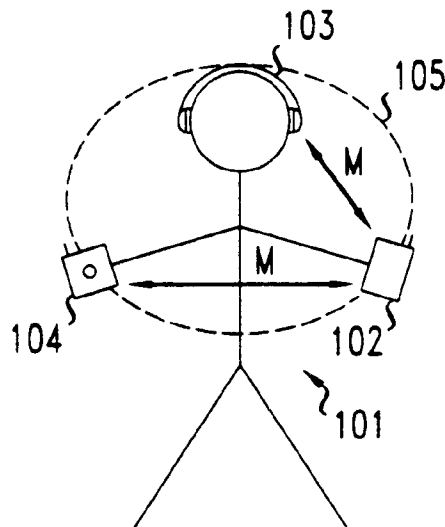


FIG. 1

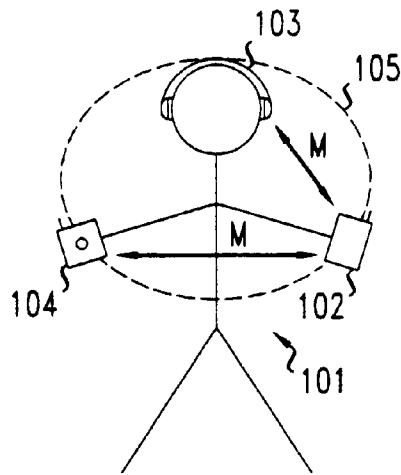


FIG. 2

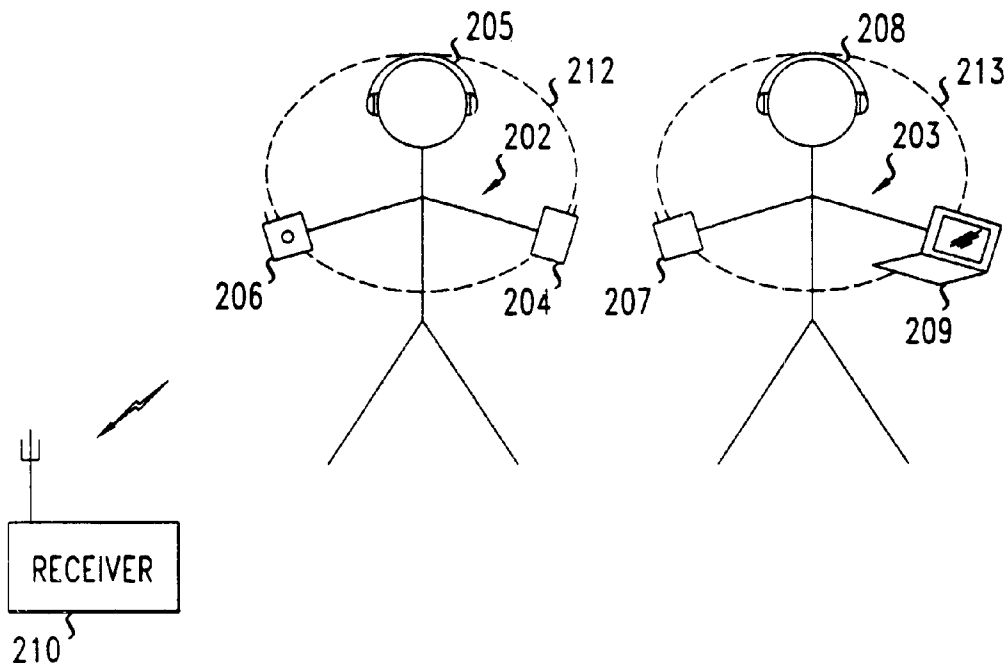


FIG. 3

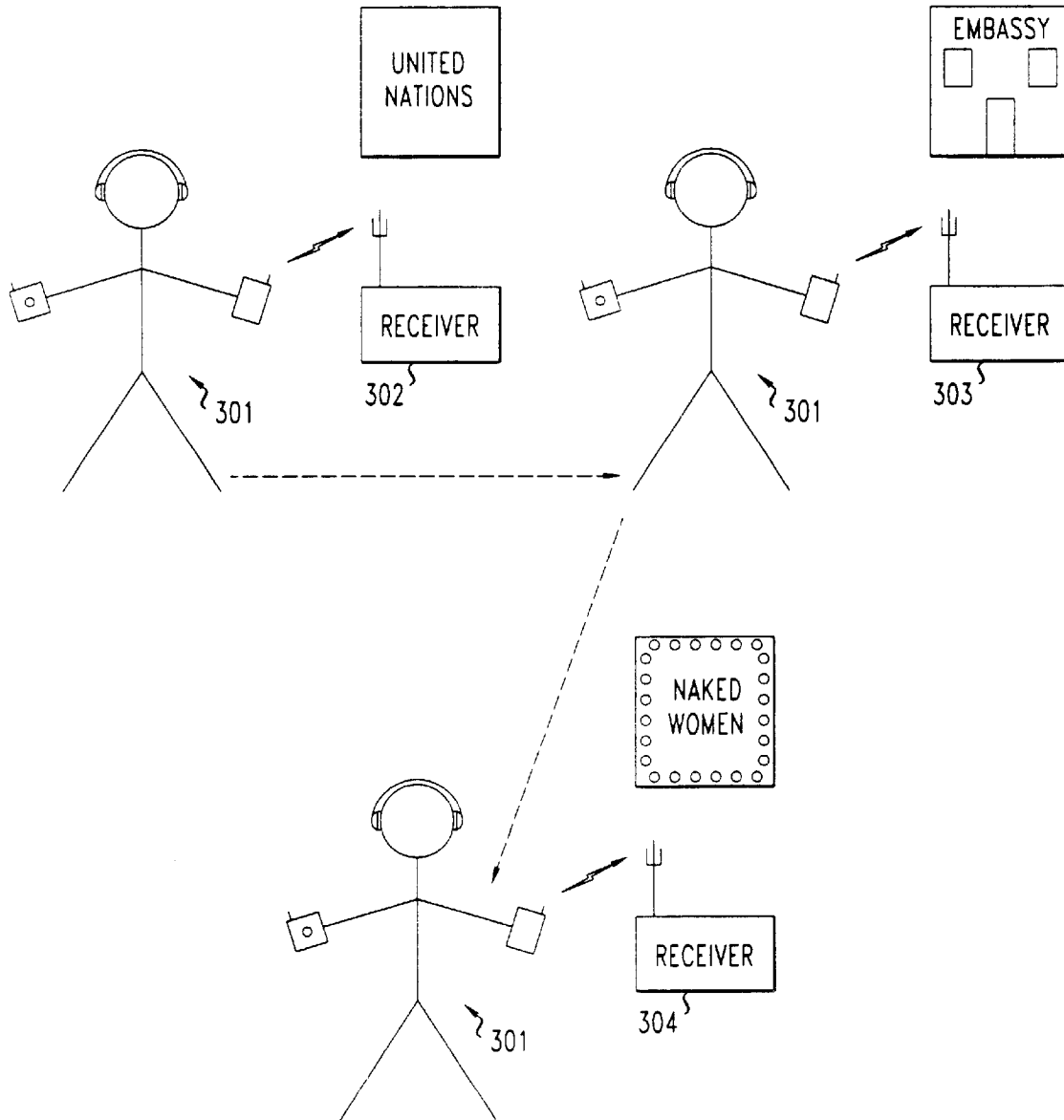


FIG. 4

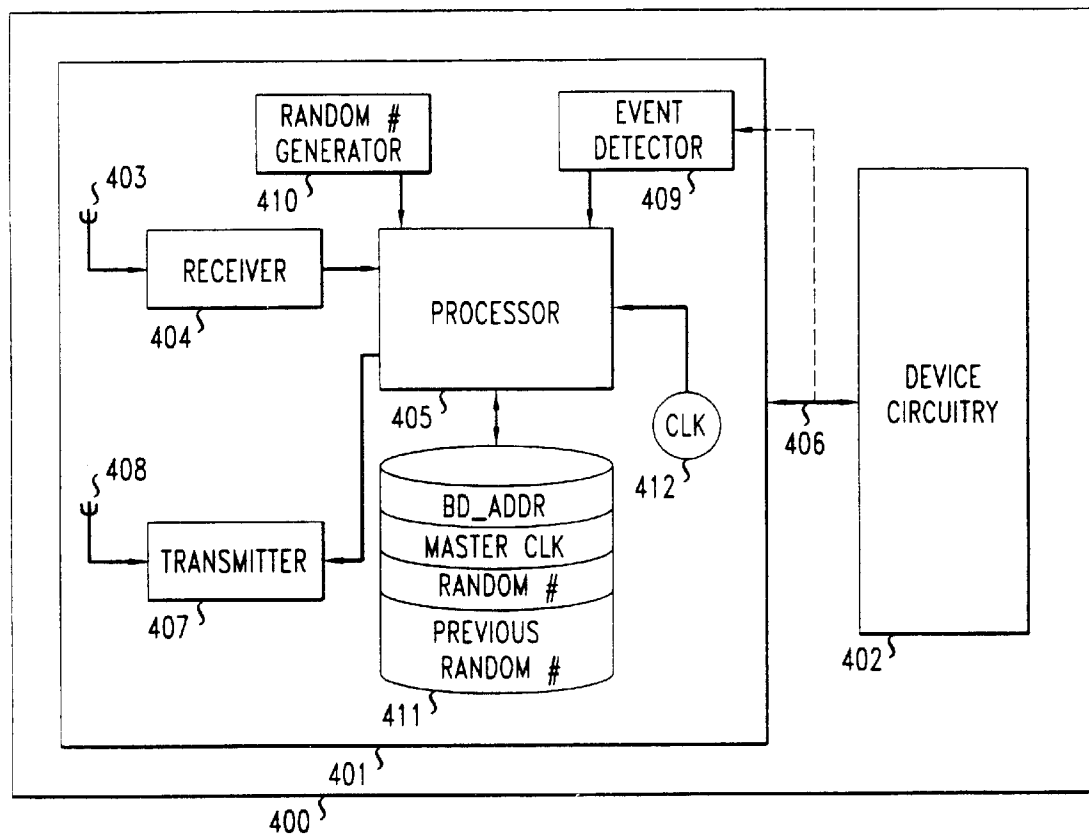
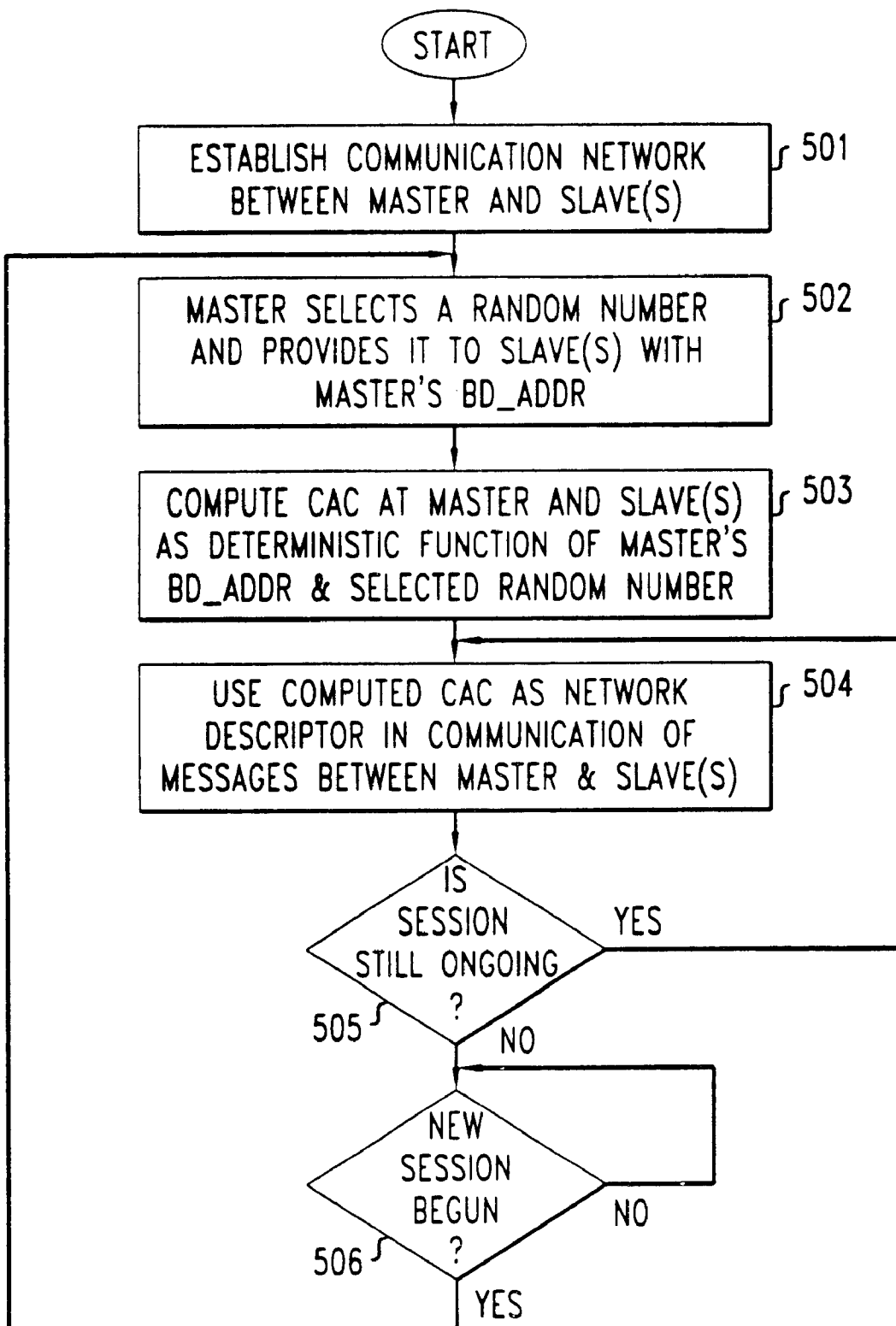


FIG. 5



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