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(12) **United States Patent**
Raith et al.

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(54) **MULTI-RATE RADIOCOMMUNICATION SYSTEMS AND TERMINALS**

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(73) Assignee: **Telefonaktiebolaget LM Ericsson (publ)**, Stockholm (SE)

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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 0 days.

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(21) Appl. No.: **09/399,771**

Primary Examiner—Wellington Chin
Assistant Examiner—Frank Duong

(22) Filed: **Sep. 21, 1999**

(74) *Attorney, Agent, or Firm*—Burns, Doane, Swecker & Mathis, L.L.P.

Related U.S. Application Data

(57) **ABSTRACT**

(62) Division of application No. 08/725,643, filed on Oct. 15, 1996, now Pat. No. 5,987,019.

Variances in bandwidth used by a radiocommunication connection are adapted to by changing the type of information being transmitted. For example, in a TDMA environment, a first downlink time slot associated with a double- or triple-rate connection may have a first format, while a second time slot associated with the same connection may have a second format different from the first format. Bandwidth in the second (or third) time slot can be used to carry information in a fast out-of-band channel (FOC). The FOC may provide information relating to the same connection as the payload or data field in that time slot, e.g., a service type identifier which informs the mobile or base station of the type of information (e.g., voice, video or data) being conveyed in the payload. Alternatively, the FOC information may be associated with a connection or connections which are different from that supported by the payload or data field containing the FOC.

(51) **Int. Cl.**⁷ **G06F 11/00**

(52) **U.S. Cl.** **370/347; 370/328; 370/471; 455/422**

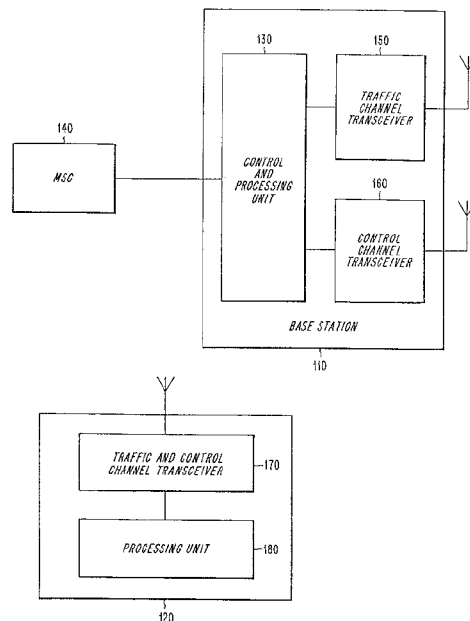
(58) **Field of Search** 370/320, 342, 370/335, 347, 280, 294, 328, 329, 321, 330, 337, 479, 468, 469, 470, 471, 472; 455/422, 561, 575

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7 Claims, 8 Drawing Sheets



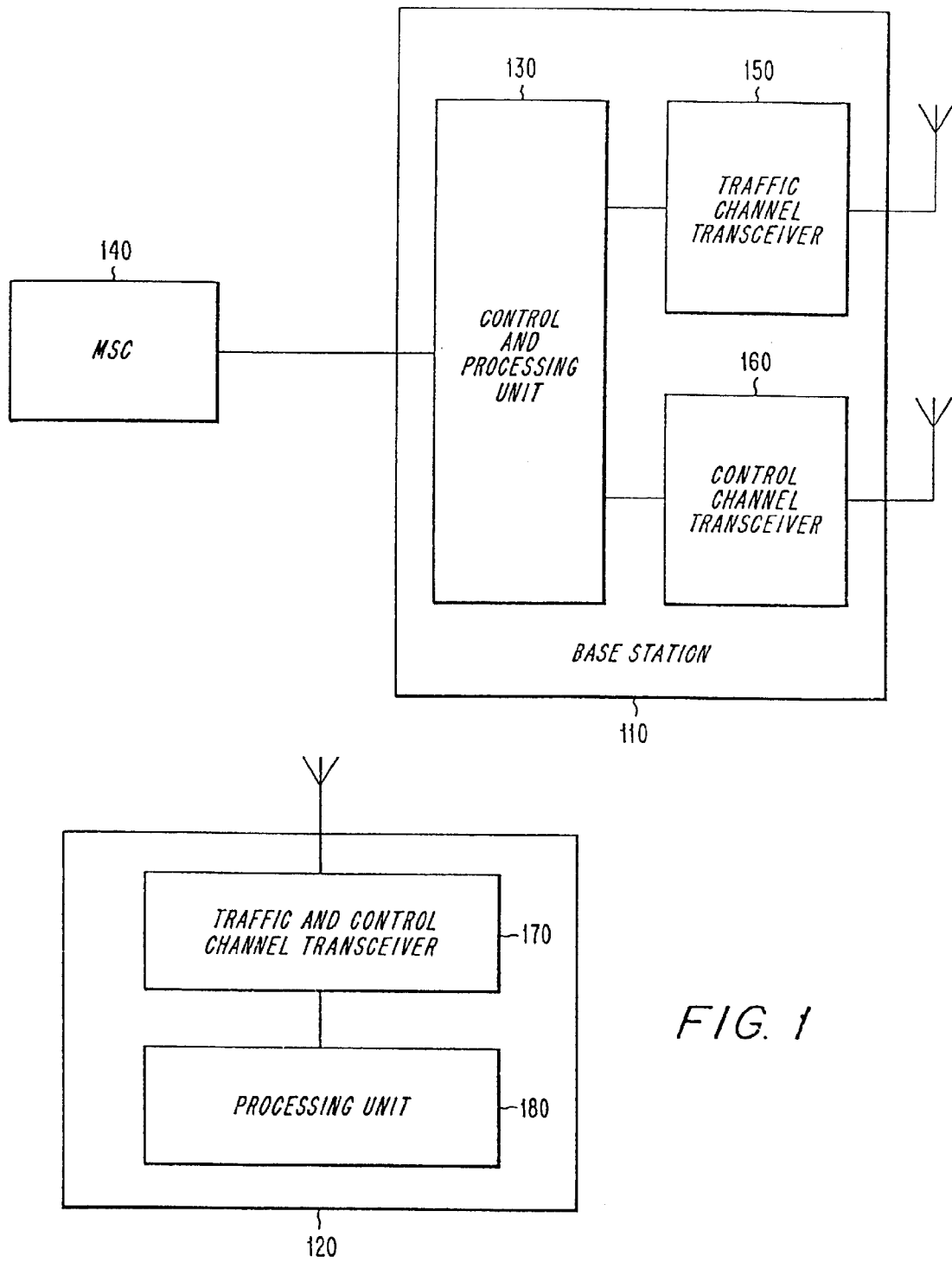


FIG. 1

FIG. 2

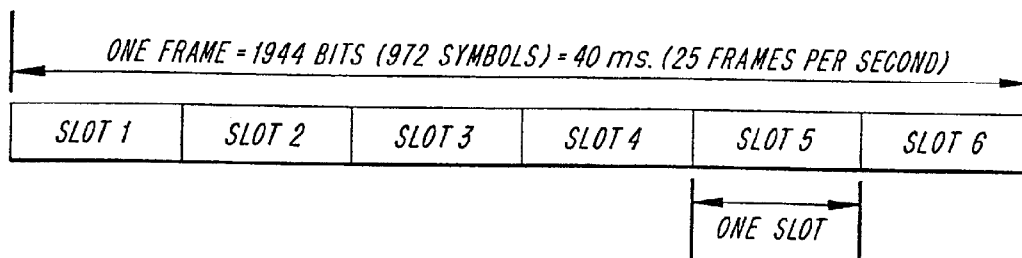


FIG. 3

PRIOR ART

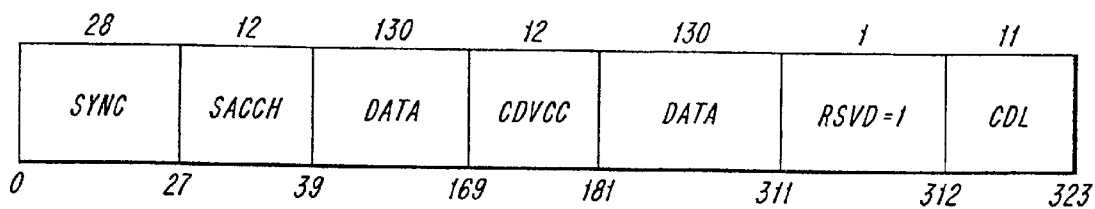


FIG. 4A

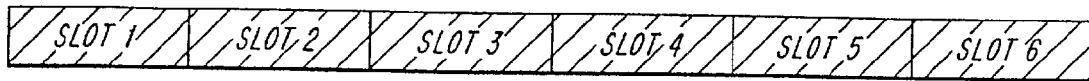


FIG. 4B

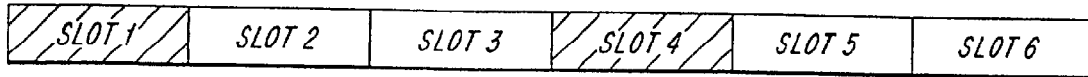


FIG. 5

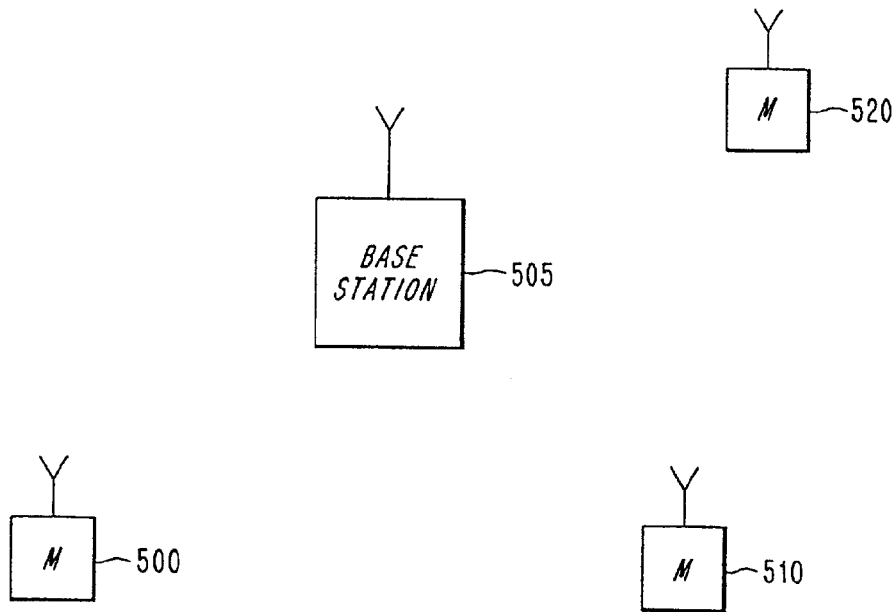


FIG. 6

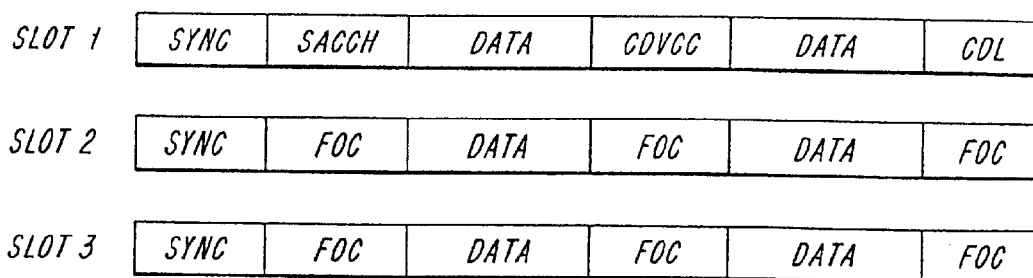


FIG. 7A

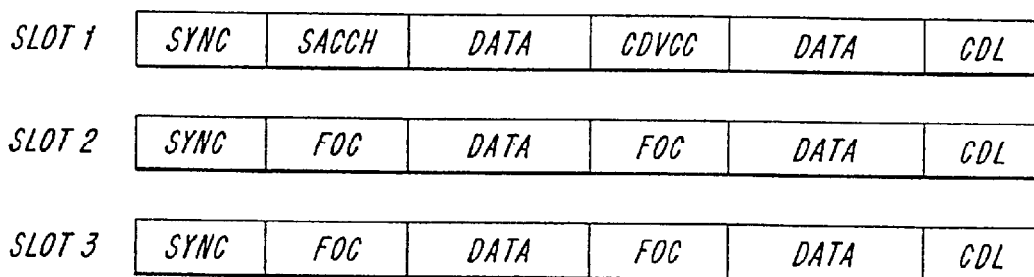
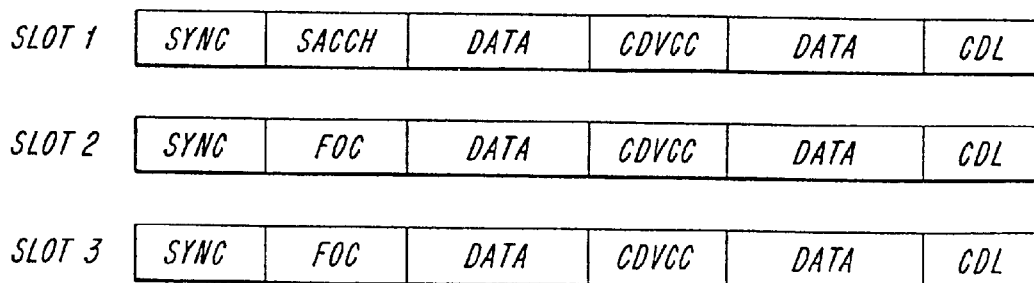


FIG. 7B



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