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Smallcomb

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(54) **DIGITAL BROADCASTING SYSTEM AND METHOD**

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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.

(21) Appl. No.: **09/222,836**

(22) Filed: **Dec. 30, 1998**

Related U.S. Application Data

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(51) **Int. Cl.⁷** **G06F 11/10**

(52) **U.S. Cl.** **714/786**

(58) **Field of Search** 714/790, 746,
714/786; 370/464, 542

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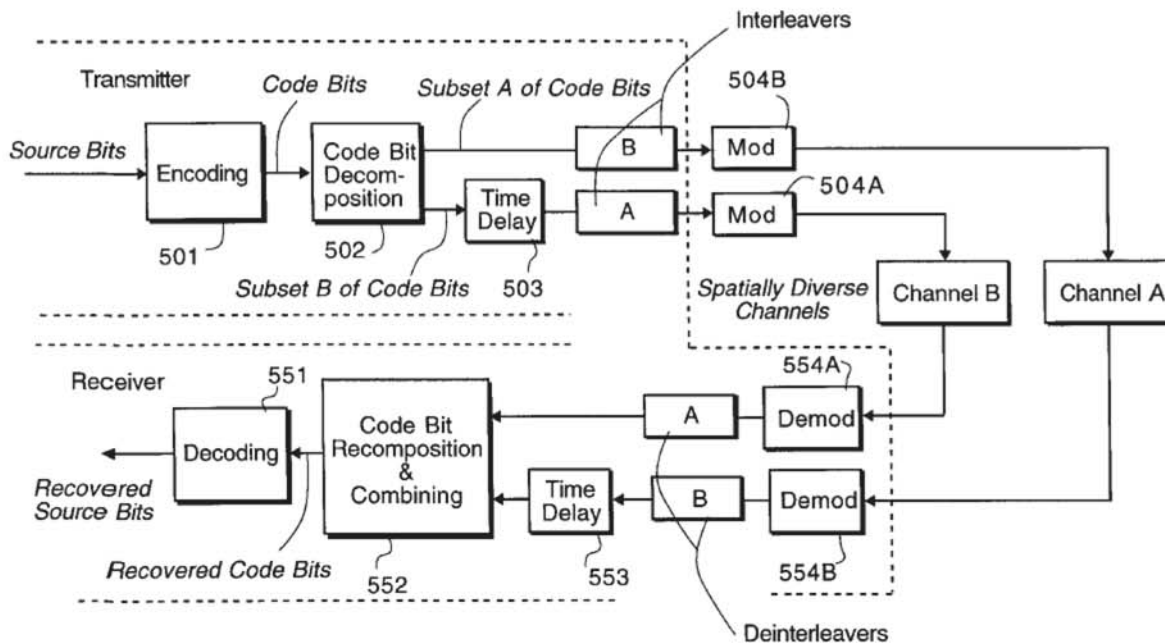
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(57) **ABSTRACT**

Apparatus and method of achieving diversity in reception of plural digital broadcast signals. A stream of a complete set of code bits is generated from one or more sources of data bits. A first Critical Subset of code bits is chosen or selected for a first channel (e.g. a specified puncturing pattern is applied to the stream of a complete set of code sets). A second (e.g. alternative) Critical Subset of code bits is chosen or selected for a second channel (e.g. a second or alternative puncturing pattern is chosen for the second channel). Further alternative Critical Subsets may be chosen for any additional channels. All the channels are transmitters, some can incorporate time delay to achieve temporal diversity. Moreover, the order of transmitting the code bits on each channel can be it different (for example, the interleaving depths can be different). At the receiver, the stream of Critical Subsets of code bits for all of the channels are simultaneously received and a reconstruction of a complete set of code bits accomplished and the reconstructed code and may be inserted into a single Viterbi decoder. Various weighting functions and reconstruction algorithms are disclosed.

21 Claims, 8 Drawing Sheets



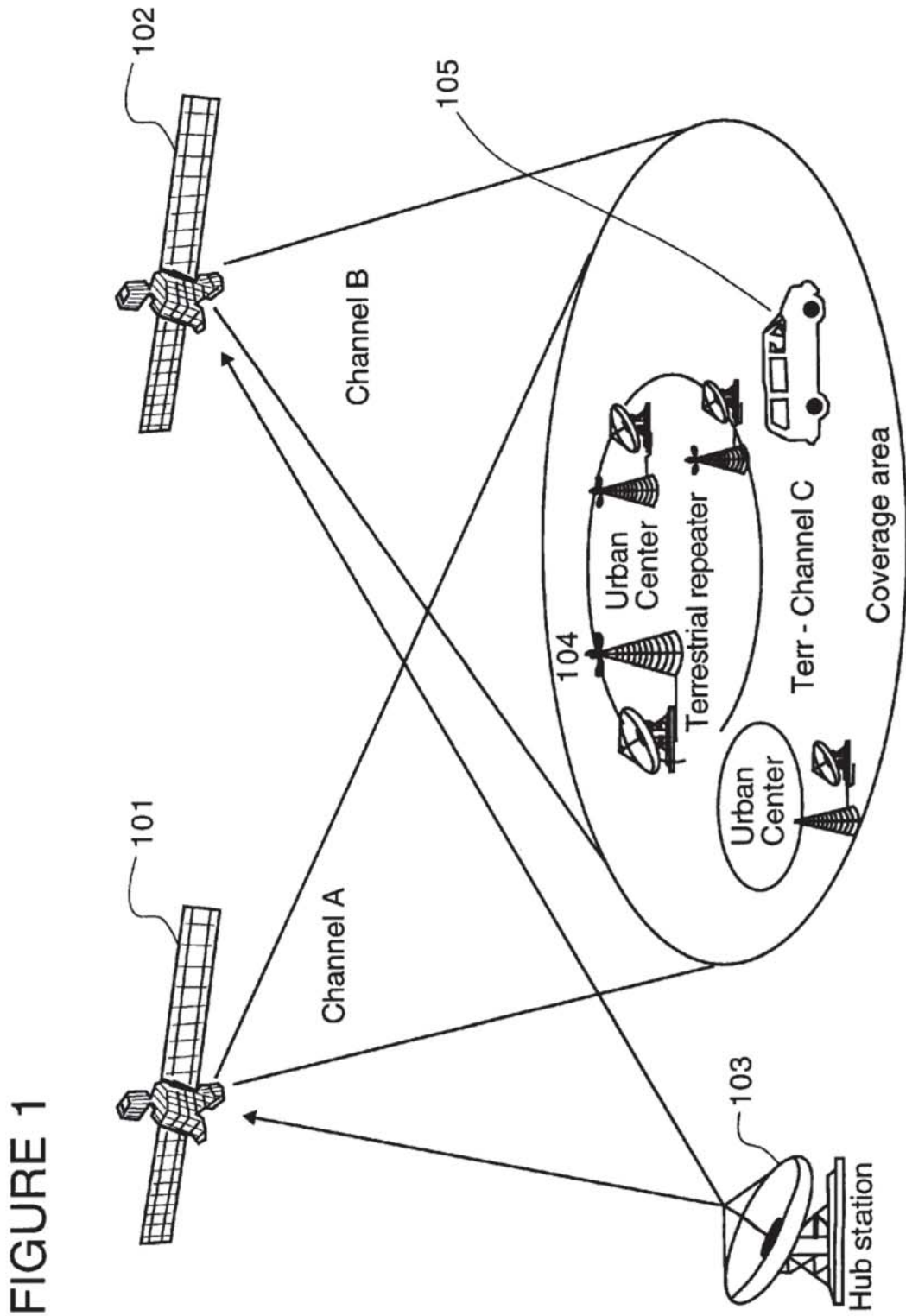


FIGURE 1

FIGURE 2
(PRIOR ART)

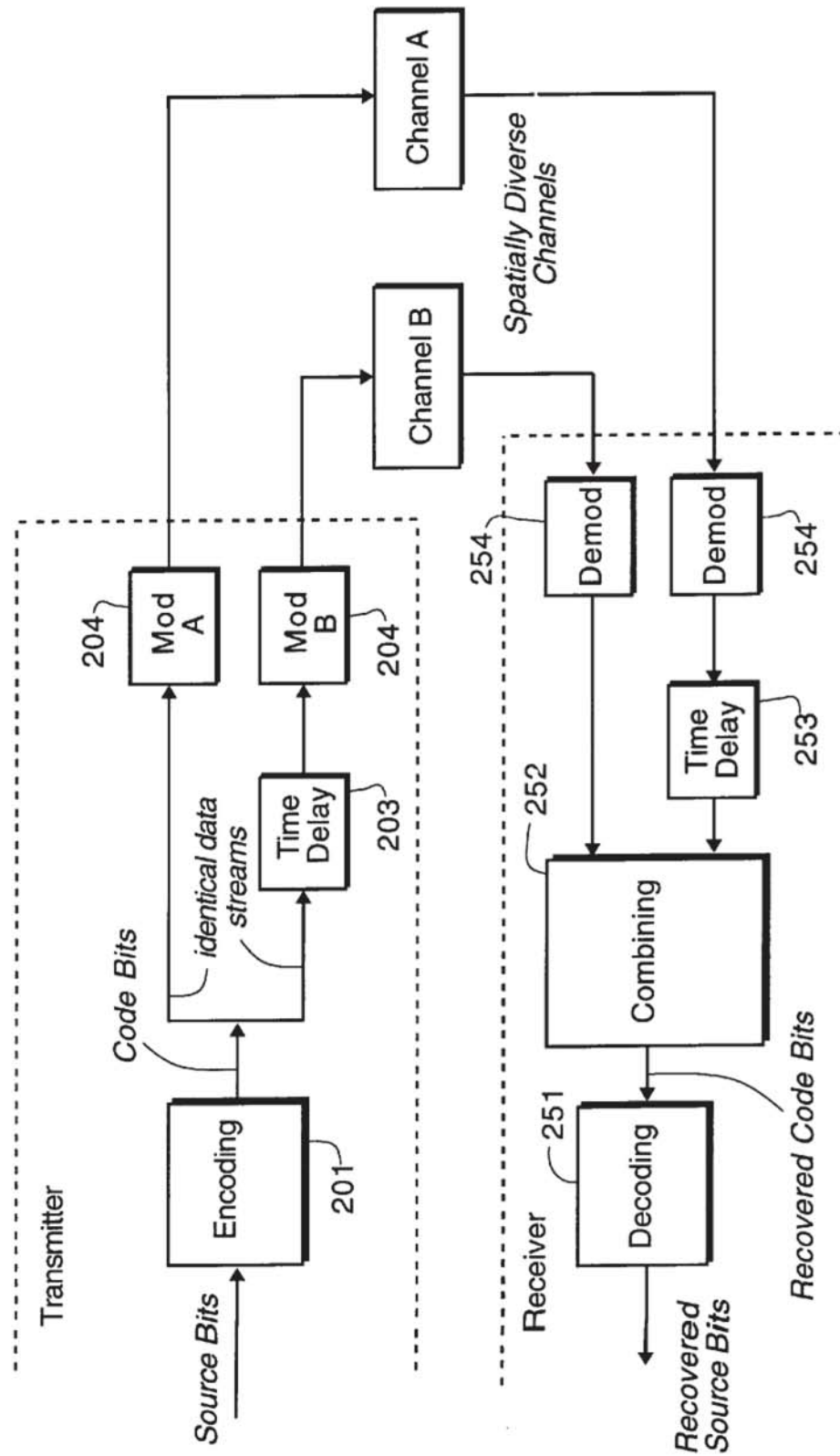


FIGURE 3
(PRIOR ART)

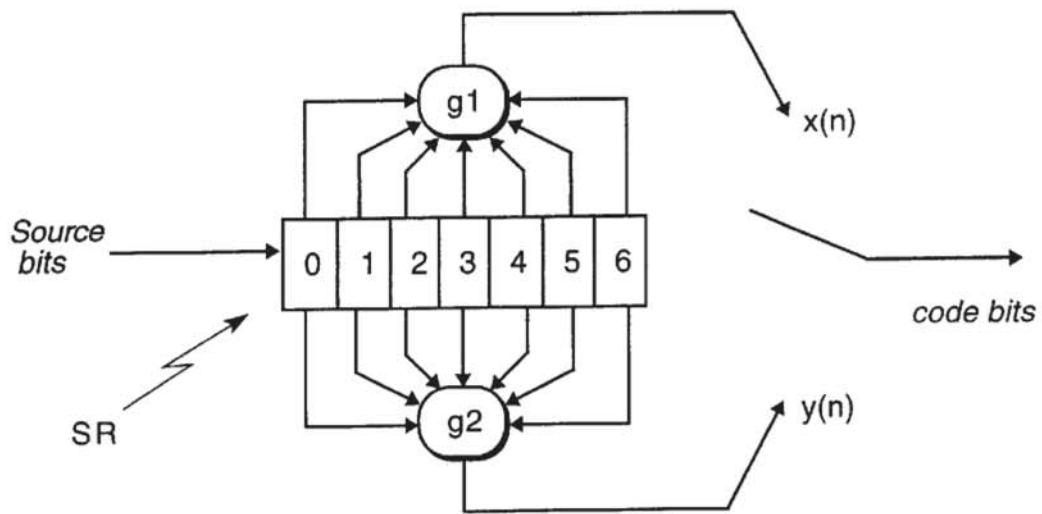
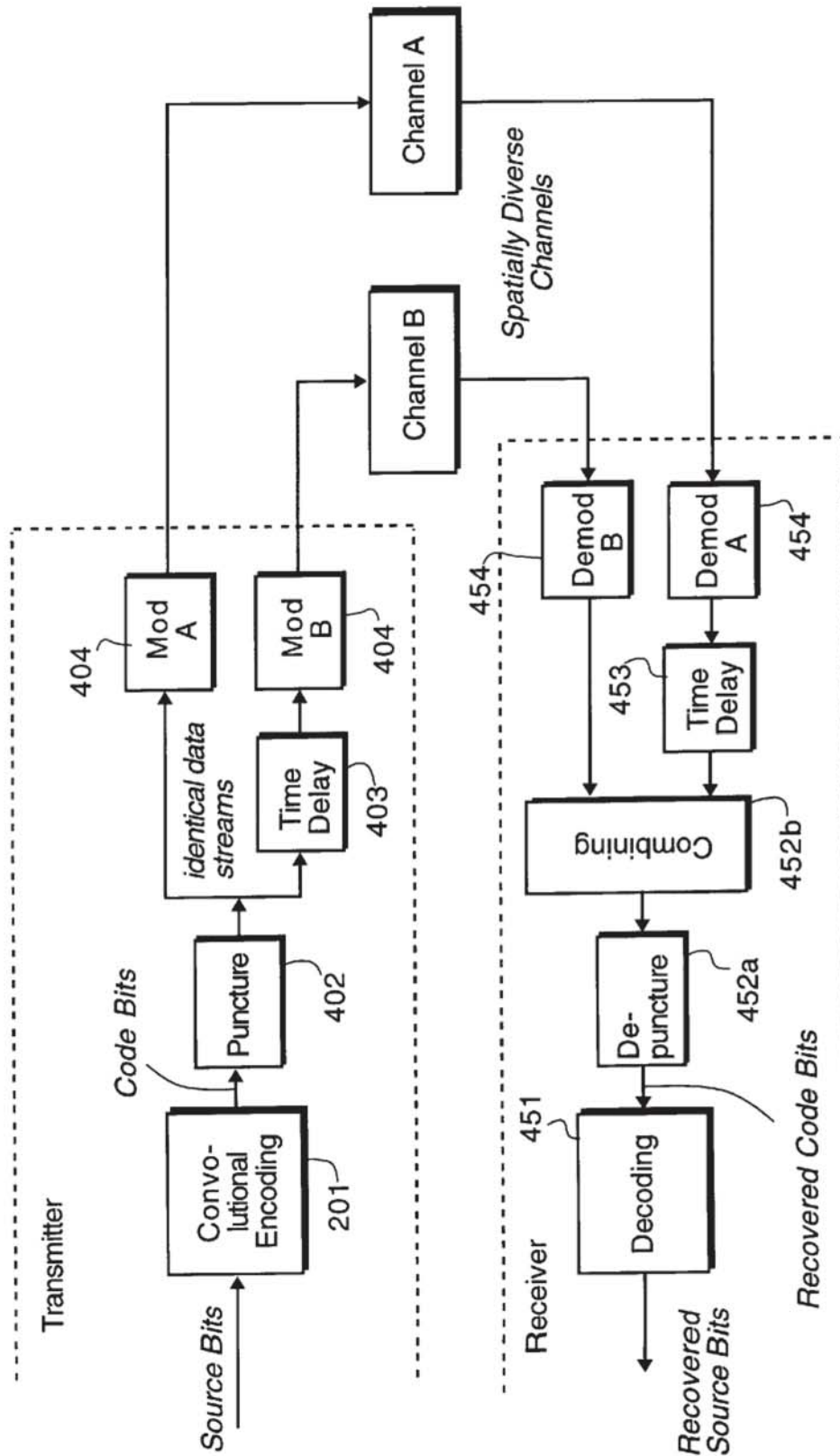


FIGURE 4



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