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Lee et al.

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(54) **RATE-13/15 MAXIMUM TRANSITION RUN CODE ENCODING AND DECODING METHOD AND APPARATUS**

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(51) **Int. Cl.**
H03M 7/00 (2006.01)

(52) **U.S. Cl.** 341/59; 341/58

(58) **Field of Classification Search** 341/59
See application file for complete search history.

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(57) **ABSTRACT**

Provided are a rate 13/15 MTR code encoding/decoding method and apparatus. The encoding method includes: generating a predetermined rate-13/15 MTR code in which 13-bit data corresponds to 15-bit data; outputting input 13-bit data as a 15-bit codeword according to the rate-13/15 MTR code; checking whether codewords satisfy a predetermined constraint condition by connecting the 15-bit codeword and a subsequent 15-bit codeword; and converting specific bits of the codewords if the codewords violate the constraint condition and not converting the codewords if the codewords do not violate the constraint condition. The rate-13/15 MTR (j=2, k=8) code includes: 8192 codewords obtained to prevent the number of consecutive transitions from becoming 3 at code boundaries in a modulation coding process. Data can be reliably reproduced with high write density, and a large amount of data can be stored in and reproduced from a magnetic recording information storage medium.

20 Claims, 47 Drawing Sheets

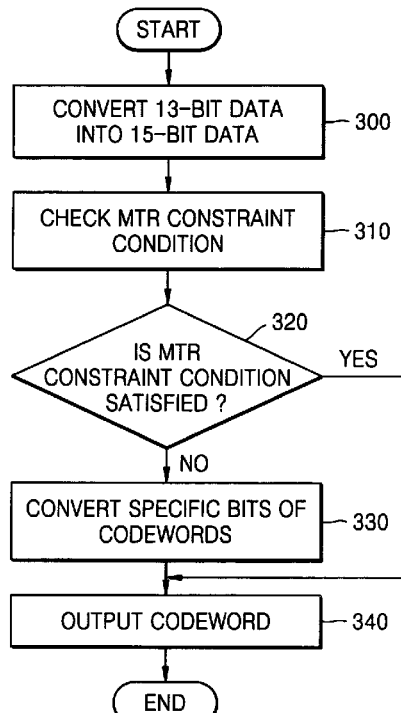


FIG. 1

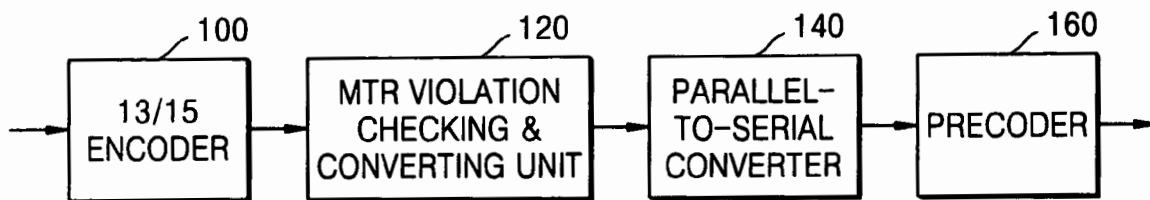


FIG. 2

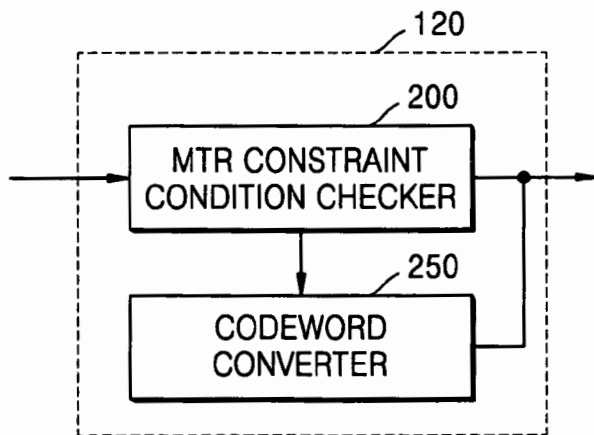


FIG. 3

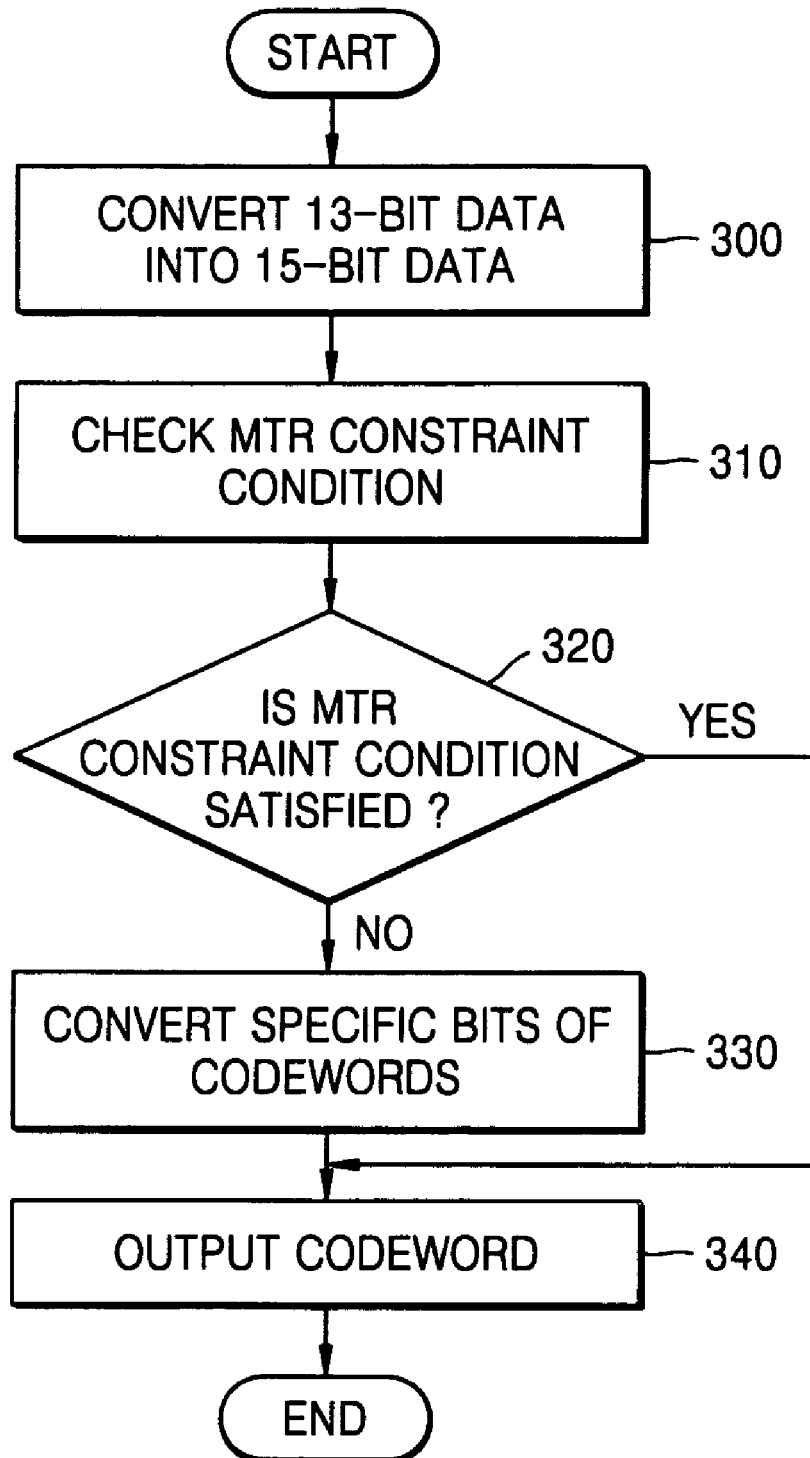


FIG. 4

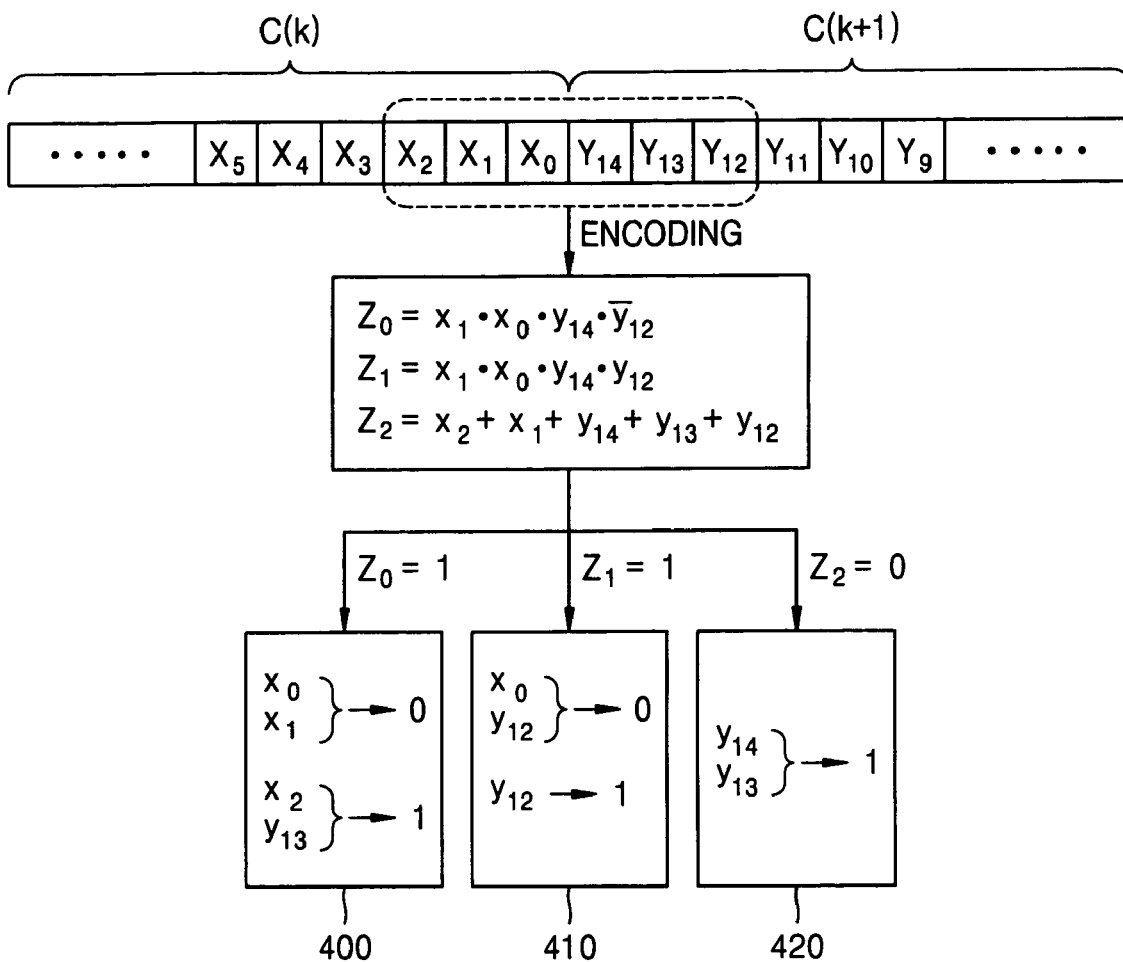


FIG. 5

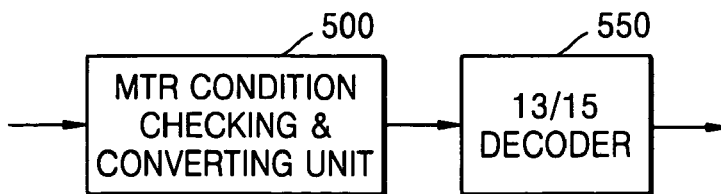


FIG. 6

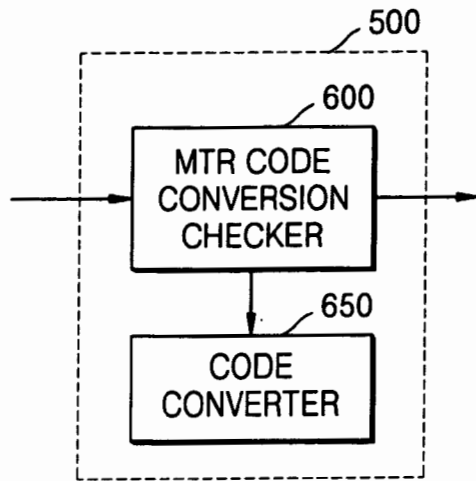
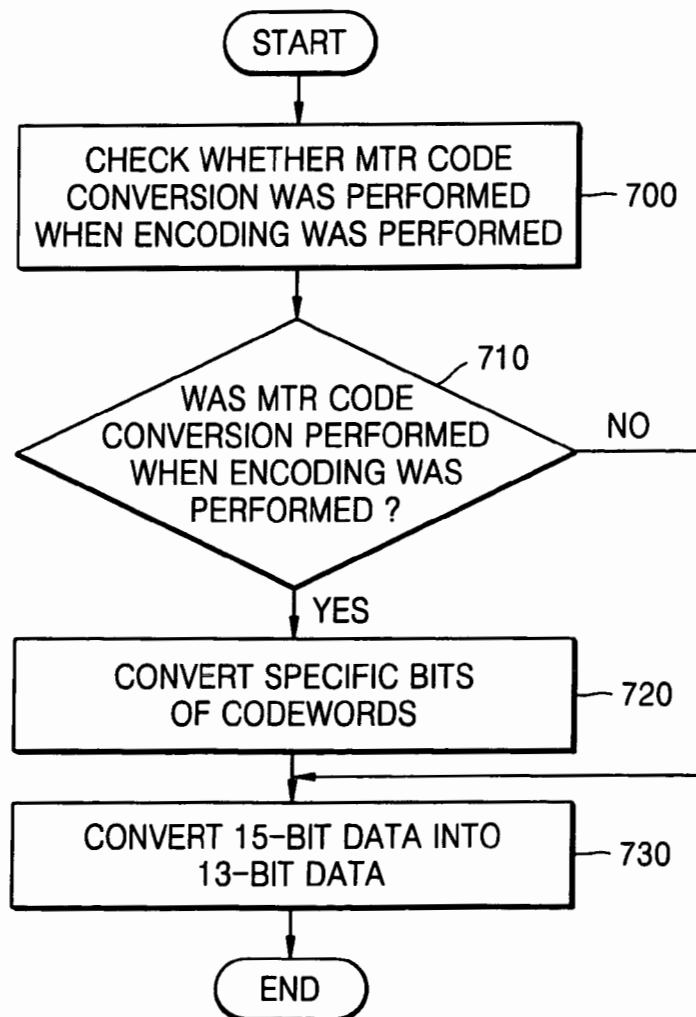


FIG. 7



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