

United States Patent [19]

Meany et al.

[11] **Patent Number:** **5,850,482**

[45] **Date of Patent:** **Dec. 15, 1998**

- [54] **ERROR RESILIENT METHOD AND APPARATUS FOR ENTROPY CODING**
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Louis, Mo.
- [21] Appl. No.: **633,896**
- [22] Filed: **Apr. 17, 1996**
- [51] **Int. Cl.⁶** **G06K 9/00**
- [52] **U.S. Cl.** **382/232; 382/275**
- [58] **Field of Search** 382/232, 233,
382/234, 235, 236, 237, 238, 239, 240,
244, 245, 246, 248, 249, 250, 251, 252,
253, 270, 274, 275, 254, 305, 309, 310,
311, 224, 190, 166, 172, 306; 375/286,
298, 254, 264; 371/37.7, 43.1, 37.08, 37.5;
380/20, 10; 370/314; 348/476, 5.5; 340/825.44

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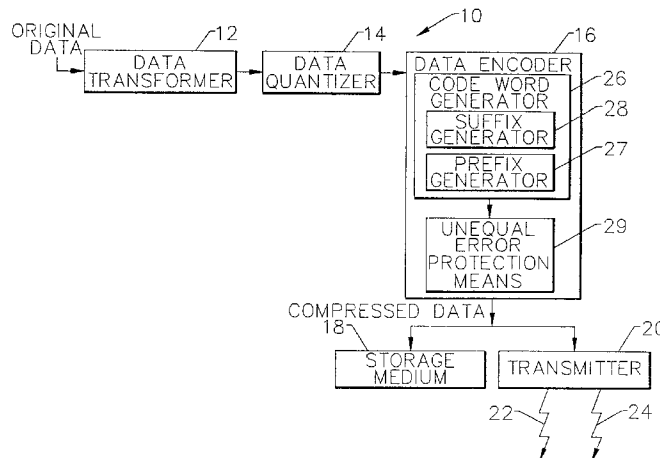
(List continued on next page.)

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[57] **ABSTRACT**

The error resilient method and apparatus for encoding data includes an encoder including a code word generator for generating a plurality of code words representative of respective portions of the data. The code word generator encodes data pursuant to split field coding in which each code word includes a prefix field and an associated suffix field. The prefix field includes information representative of a predetermined characteristic of the associated suffix field, such as the predetermined number of characters which form the associated suffix field. In addition, the suffix fields include information representative of at least some of the original data. Consequently, if the prefix field of a code word is decoded correctly, i.e., without the occurrence of bit error, the error resilient method and apparatus can correctly determine the length of the associated suffix field and the range of coefficient values to be represented by the associated suffix field such that the associated suffix field is resilient to errors. In order to increase the probability that the prefix field will be correctly decoded, the method and apparatus protects the prefix and suffix fields of the encoded data to greater and lesser degrees, respectively, such that the data can be more efficiently compressed.

30 Claims, 6 Drawing Sheets



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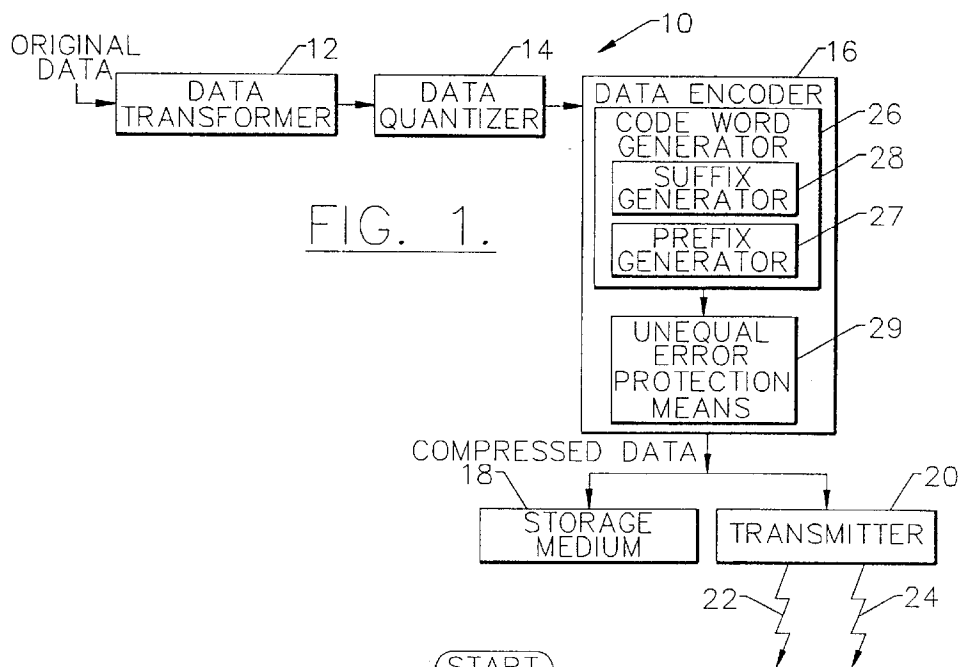


FIG. 1.

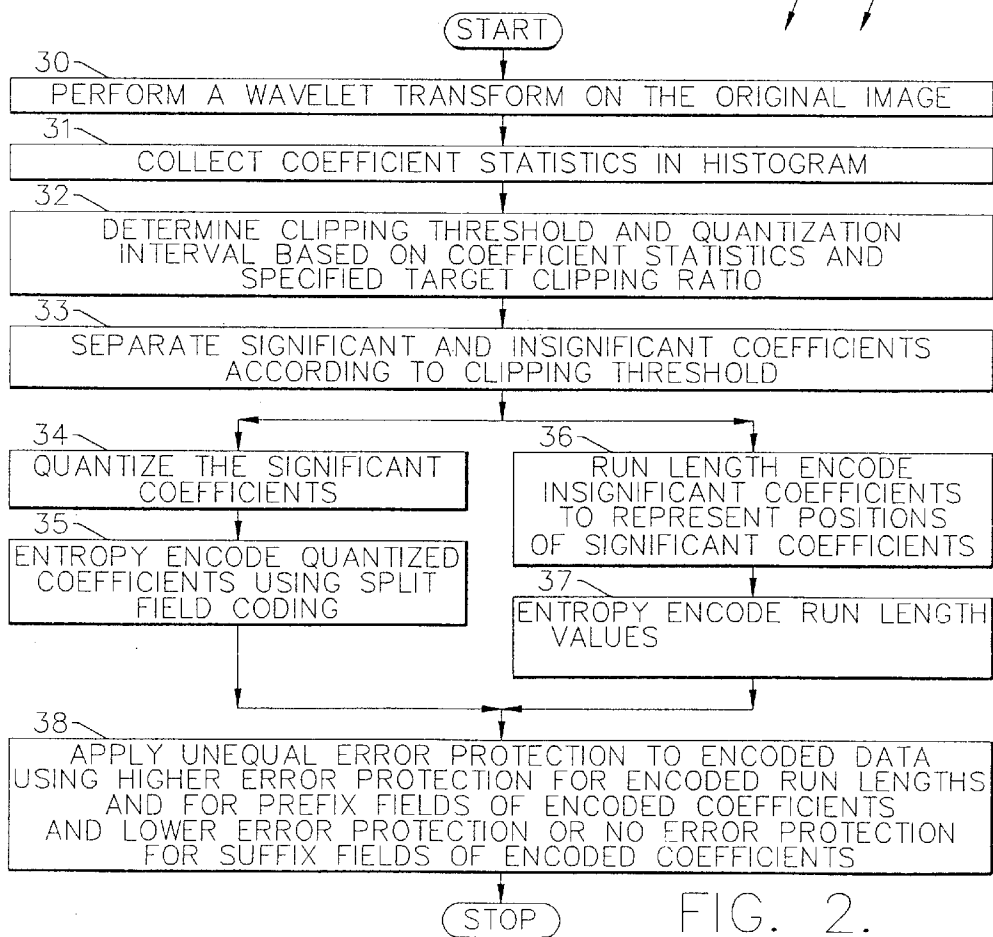


FIG. 2.

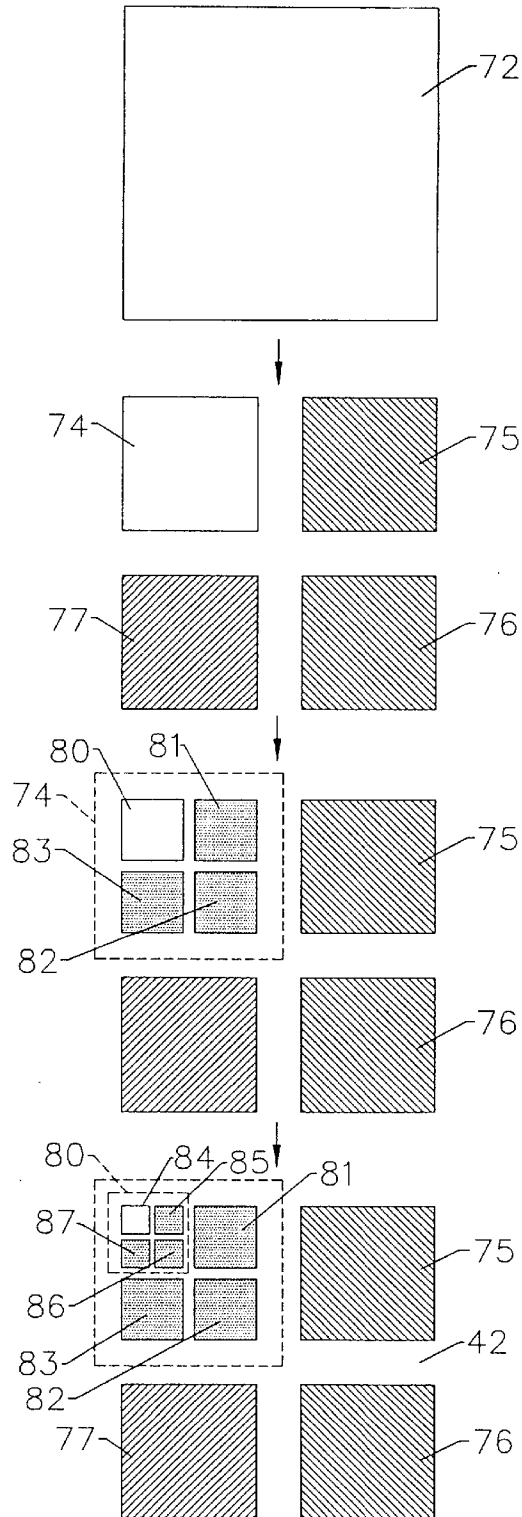


FIG. 3.

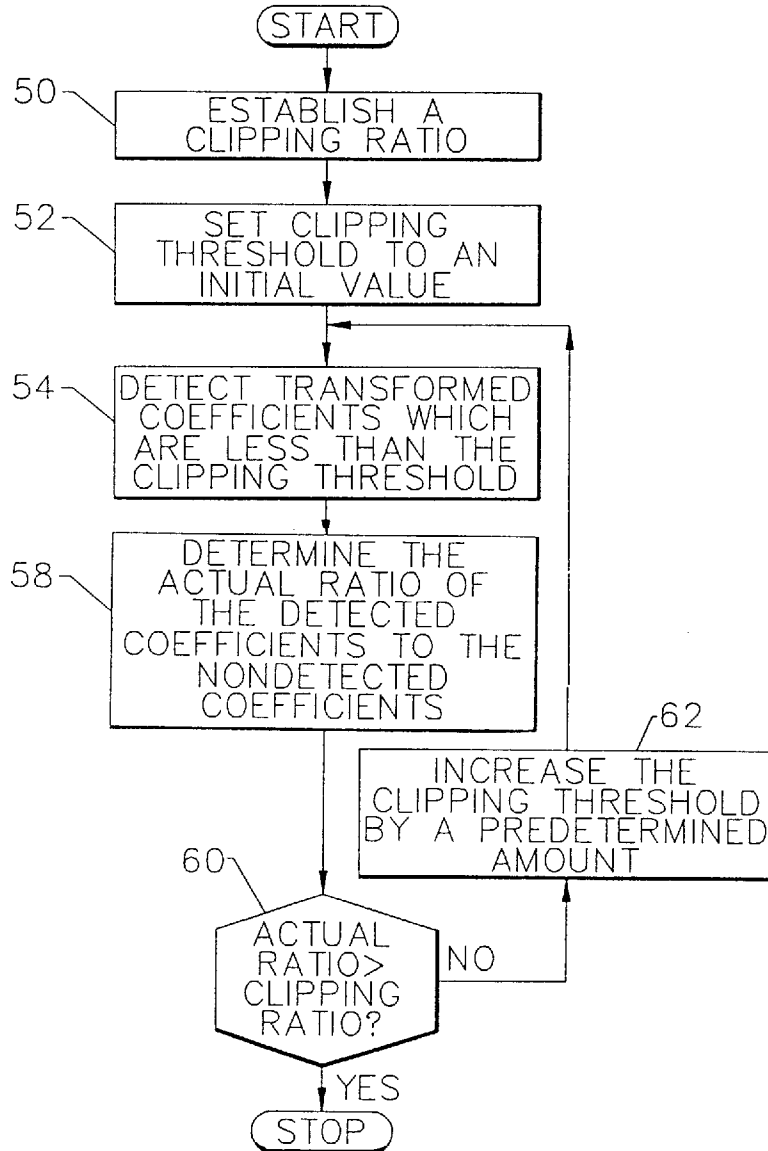


FIG. 4.

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