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Miller et al.

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(54) **APPARATUS AND METHOD TO DIGITALLY COMPRESS VIDEO SIGNALS**

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Related U.S. Application Data

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(51) **Int. Cl.^{7}** **H04N 7/12**
(52) **U.S. Cl.** **375/240.12**
(58) **Field of Search** 348/409; 358/403; 375/240, 240.23, 240.12

(56) **References Cited**

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* cited by examiner

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(57) **ABSTRACT**

A method and apparatus is disclosed for digitally compressing video signals. The method and apparatus provides a system which generates values related to the differences between respective pixel locations in an x, y pixel display. The differences generated between proximate pixel locations are used to generate various delta values which are encoded in an asymmetric fashion. The asymmetric coding eliminates artifacts in the displayed image, and the delta encoding is performed in both a horizontal and vertical direction. Errors due to the compression process are distributed randomly in both horizontal and vertical directions, approximating the effect of analog media such as video and especially film.

2 Claims, 7 Drawing Sheets

ENCODE PROCESS DIAGRAM
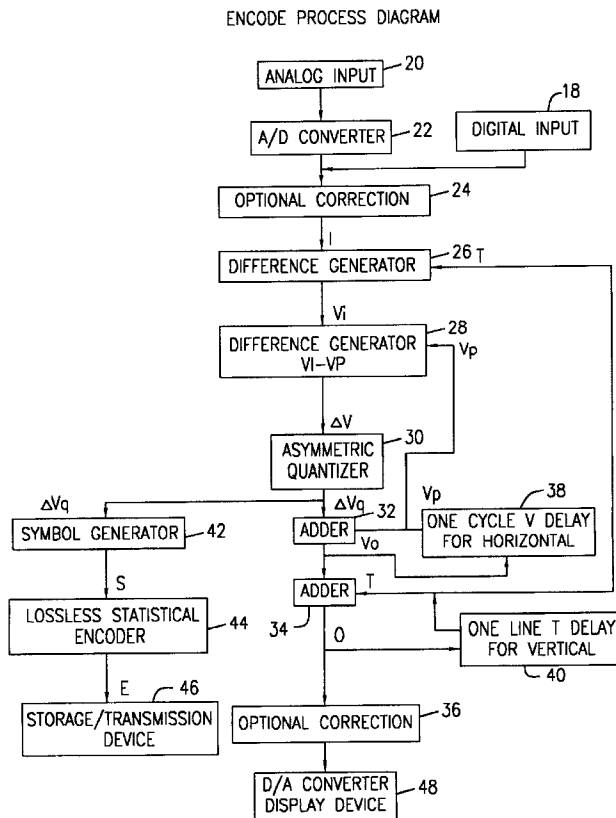
PRE-ENCODE PROCESS DIAGRAM
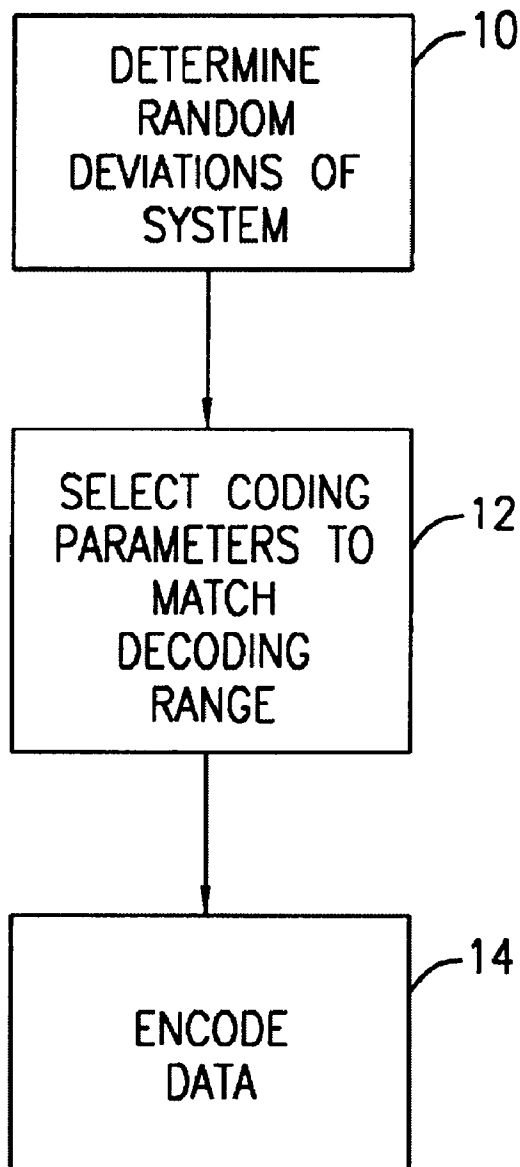
FIG. 1

ENCODE PROCESS DIAGRAM
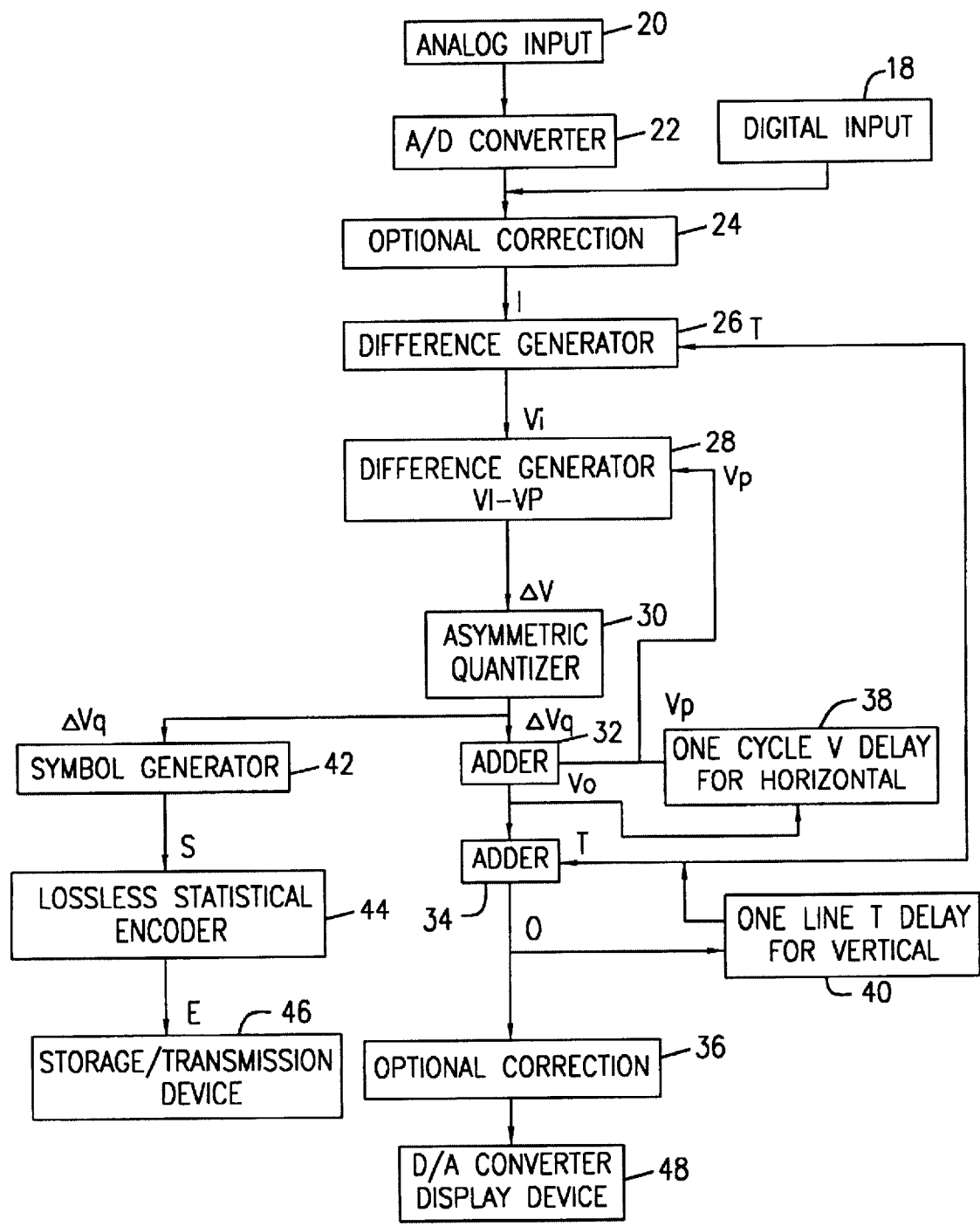
FIG. 2

DECODE PROCESS DIAGRAM
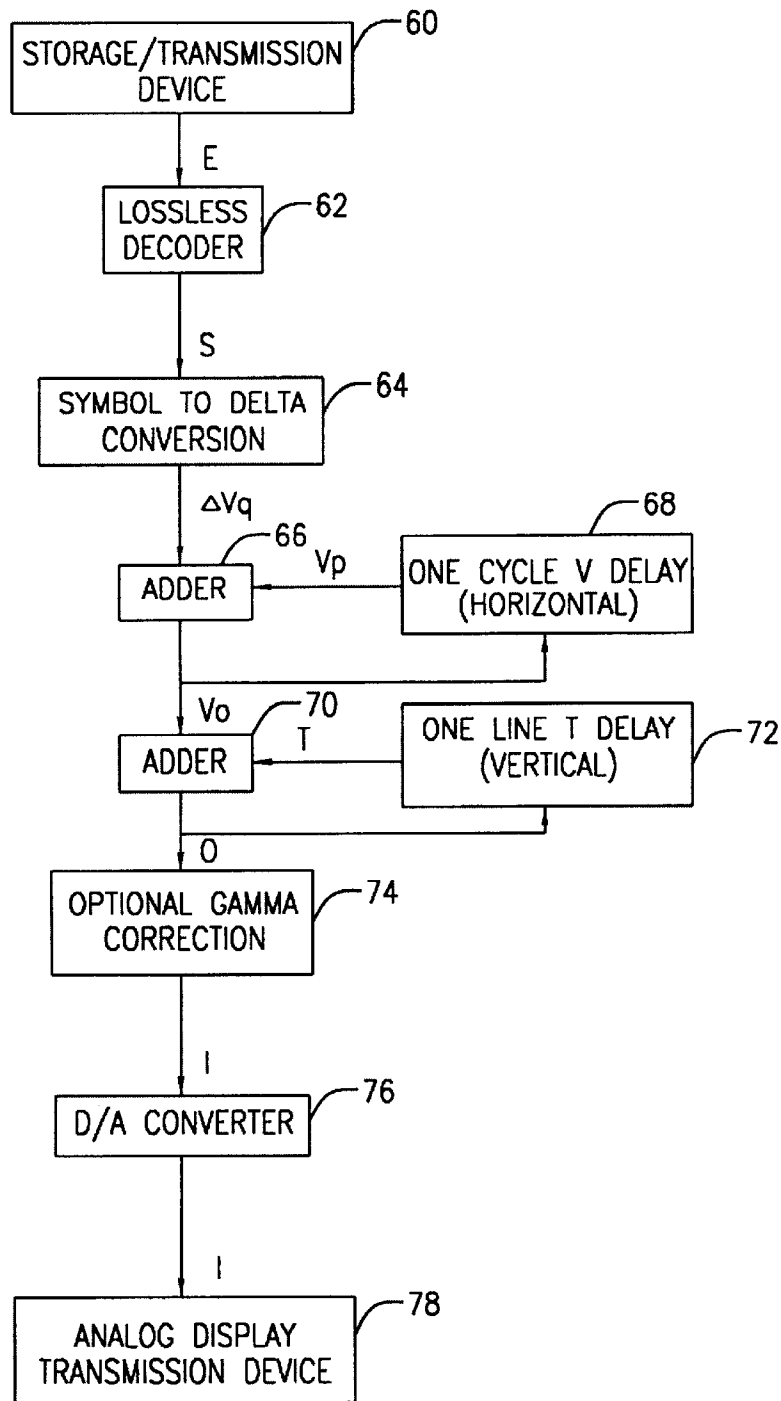
FIG. 3

I	INPUT PIXEL (CORRECTED)
T	TOP PIXEL (DECODED)
O	OUTPUT PIXEL (DECODED)
Vp	PREVIOUS VERTICAL DIFFERENCE
Vi	NEW VERTICAL DIFFERENCE(INPUT)
Vo	VERTICAL DIFFERENCE
ΔVo	DELTA BETWEEN Vp AND Vi
ΔVq	QUANTIZED DELTA
S	CODED SYMBOL
E	LOSSLESS-ENCODED BITSTREAM

FIG. 3A

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