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Mehrotra et al.

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(54) **INTRA COMPRESSION OF PIXEL BLOCKS USING PREDICTED MEAN**

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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.: **08/850,957**

(22) Filed: **May 5, 1997**

Related U.S. Application Data

(63) Continuation of application No. 08/623,299, filed on Mar. 28, 1996, now Pat. No. 6,215,910.

(51) **Int. Cl.**[7] **G06K 9/36**; G06K 9/46
(52) **U.S. Cl.** **382/236**; 375/240.13
(58) **Field of Search** 382/236, 238, 382/248, 253; 375/240.13, 240.16, 240.22, 240.24

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(74) *Attorney, Agent, or Firm*—Lee & Hayes, PLLC

(57) **ABSTRACT**

An apparatus and method for encoding video frames is provided. The video frames are divided into blocks for encoding. Encoding of the video blocks utilizes motion detection, motion estimation and adaptive compression, to obtain the desired compression for a particular bit rate. Adaptive compression includes intra compression (without regard to other frames) and inter compression (with regard to other frames). Intra compression, inter compression with motion detection, and inter compression with motion estimation are performed on a block by block basis, as needed. Segmentation is provided to compare encoding of a block with encoding of its sub-blocks, and to select the best block size for encoding.

50 Claims, 17 Drawing Sheets

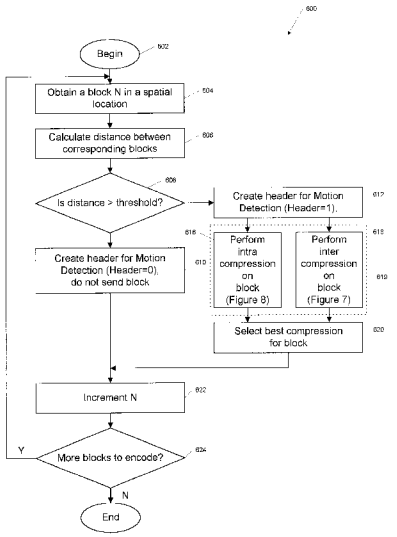

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FIG. 1 (Prior art)

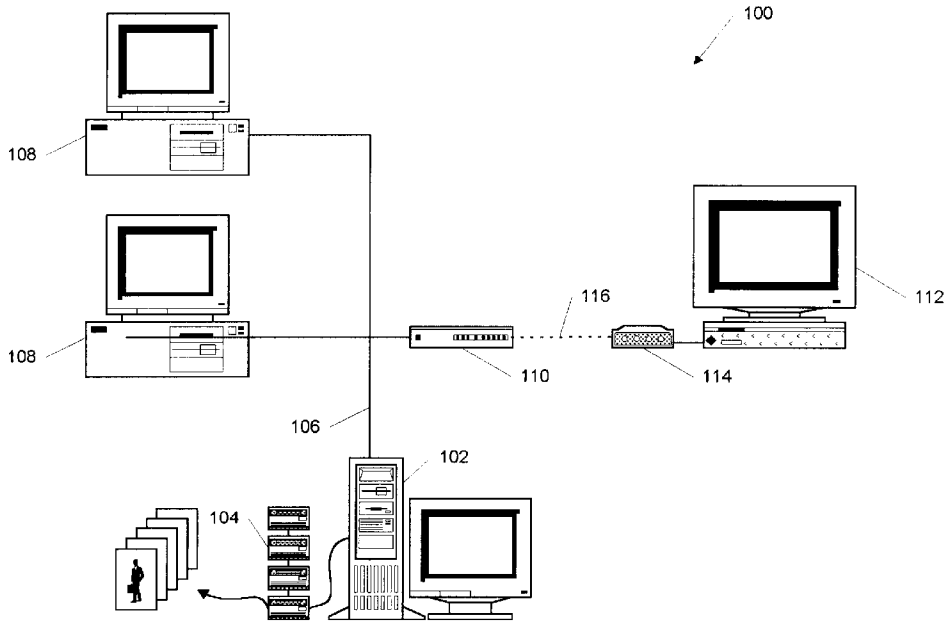

FIG. 2 (Prior art)

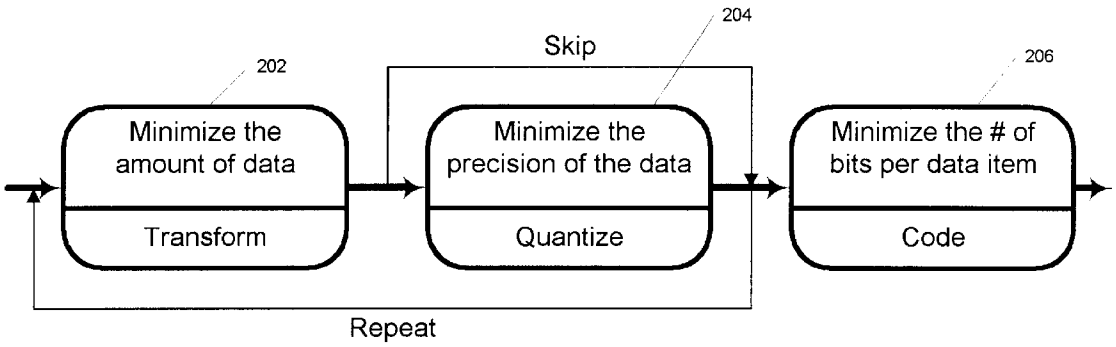

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FIG. 3 (Related art)

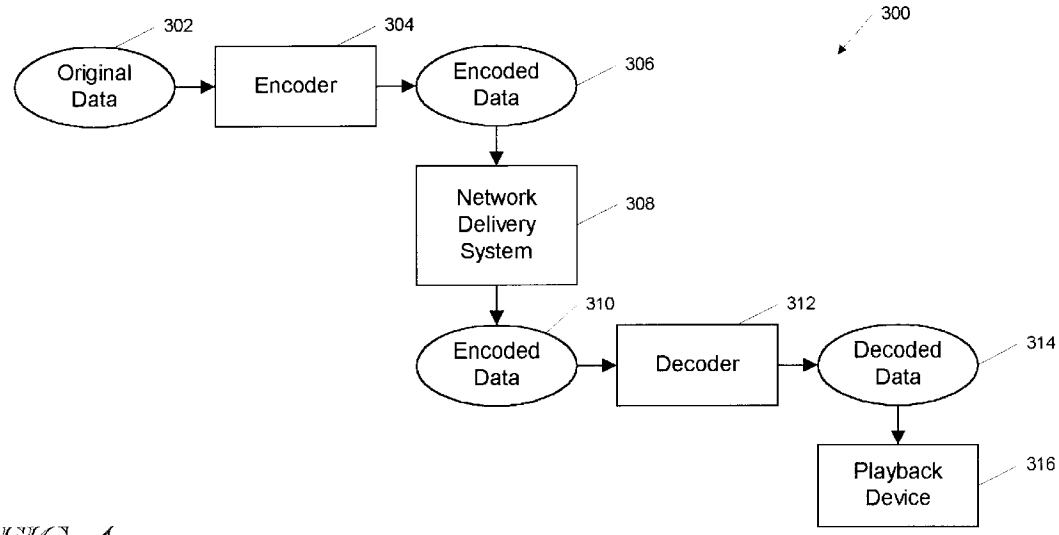

FIG. 4a

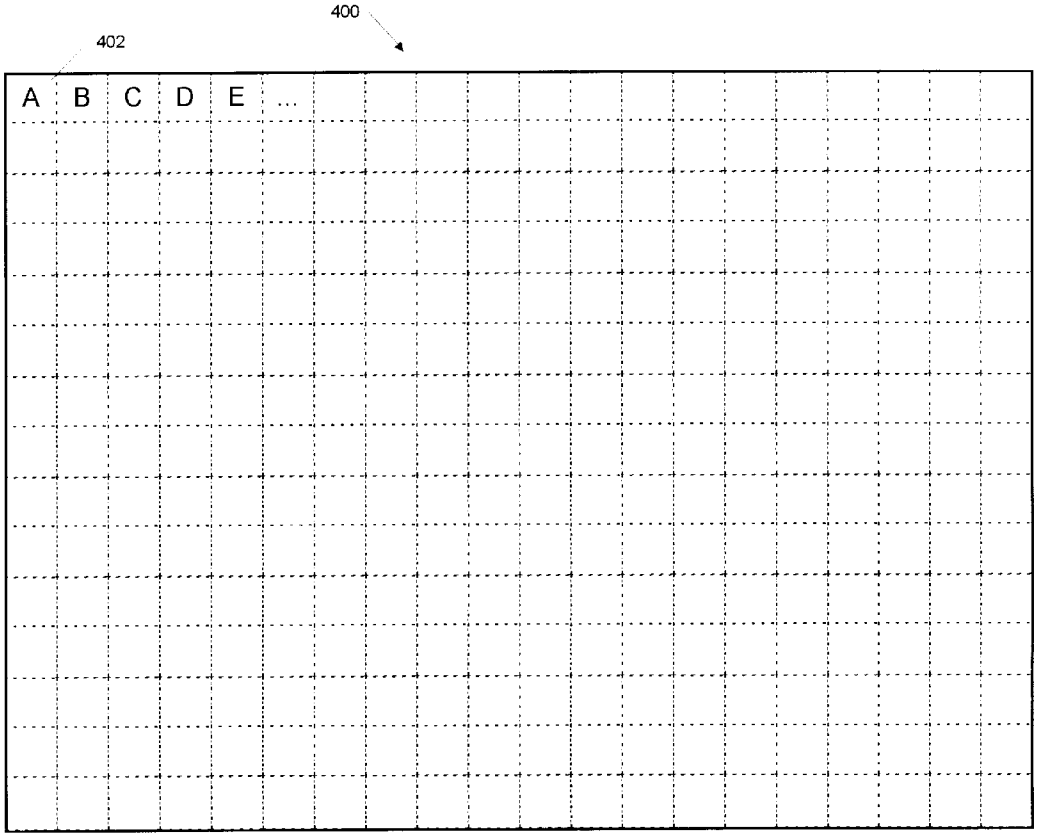

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FIG. 4b

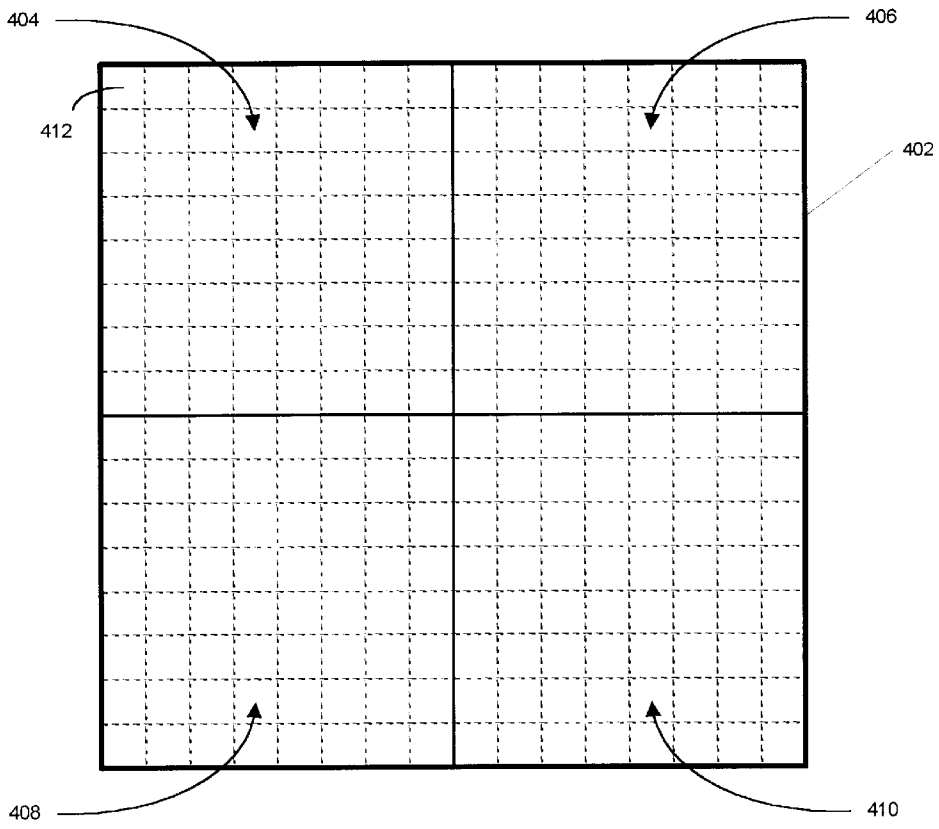

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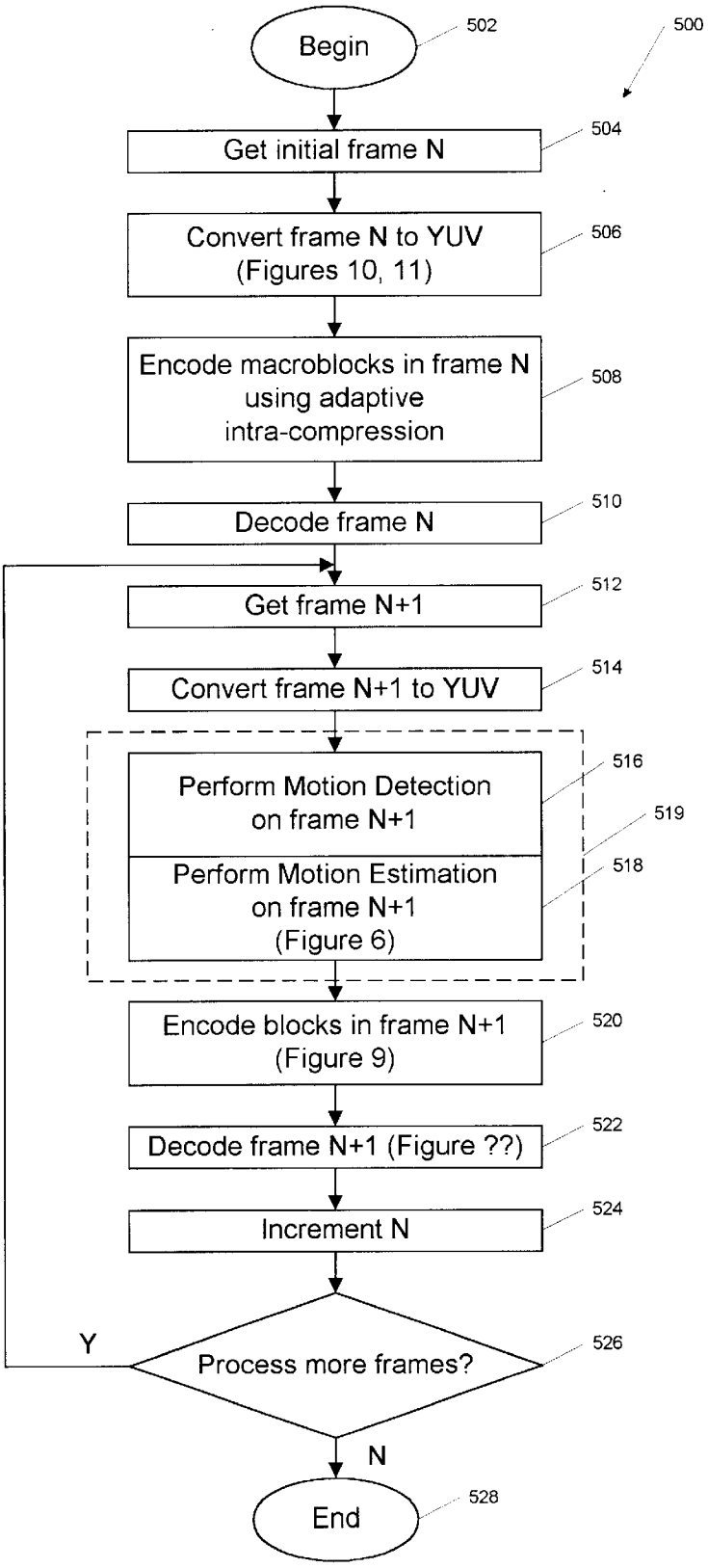
FIG. 5



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