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(54) **IMAGE COMPRESSION FOR RAPID HIGH-QUALITY IMAGING**

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H04N 1/41 (2006.01)

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382/232; 382/244

(58) **Field of Classification Search** 382/162,
382/166, 232, 233, 238, 239, 244, 245, 246,
382/248, 250; 358/426.01, 426.13, 426.14,
358/539

See application file for complete search history.

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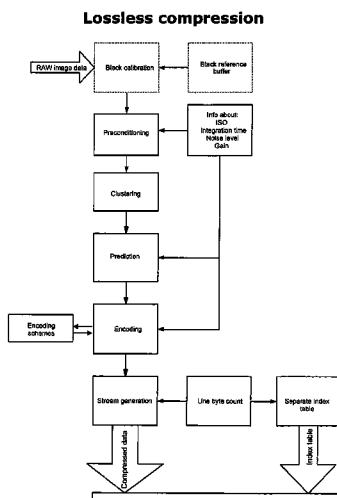
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(57) **ABSTRACT**

Lossless, near-lossless, and lossy compression and decompression of digital image data, whereby the image data can be compressed and decompressed on-the-fly with no need for external RAM resources for temporary data storage while compressing/decompressing image data. Implementing the algorithm only requires a very limited amount of silicon and yields very high performance in relation to very low power consumption. The described implementation is optimized for raw image data from a sensor with a Bayer filter pattern but can be used on data from image sensors with ay color filter. The compression algorithm contains a line indexing formation which enables very fast subsampling of an already compressed image and the possibility to decompress only parts of an image—this improves performance and reduces the need for temporary RAM storage greatly when zooming and in postprocessing.

10 Claims, 7 Drawing Sheets



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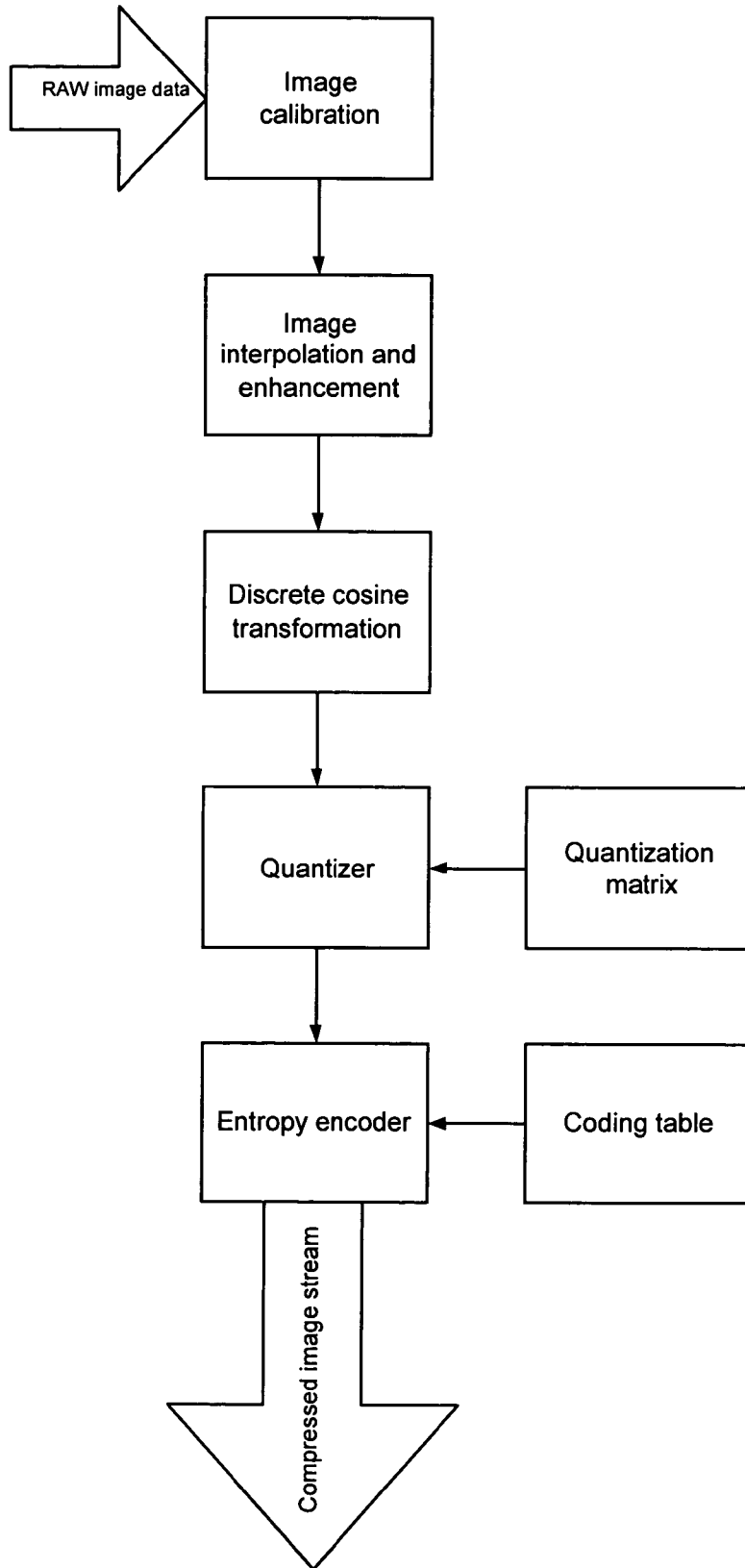


Fig. 1 (PRIOR ART)

Lossless compression

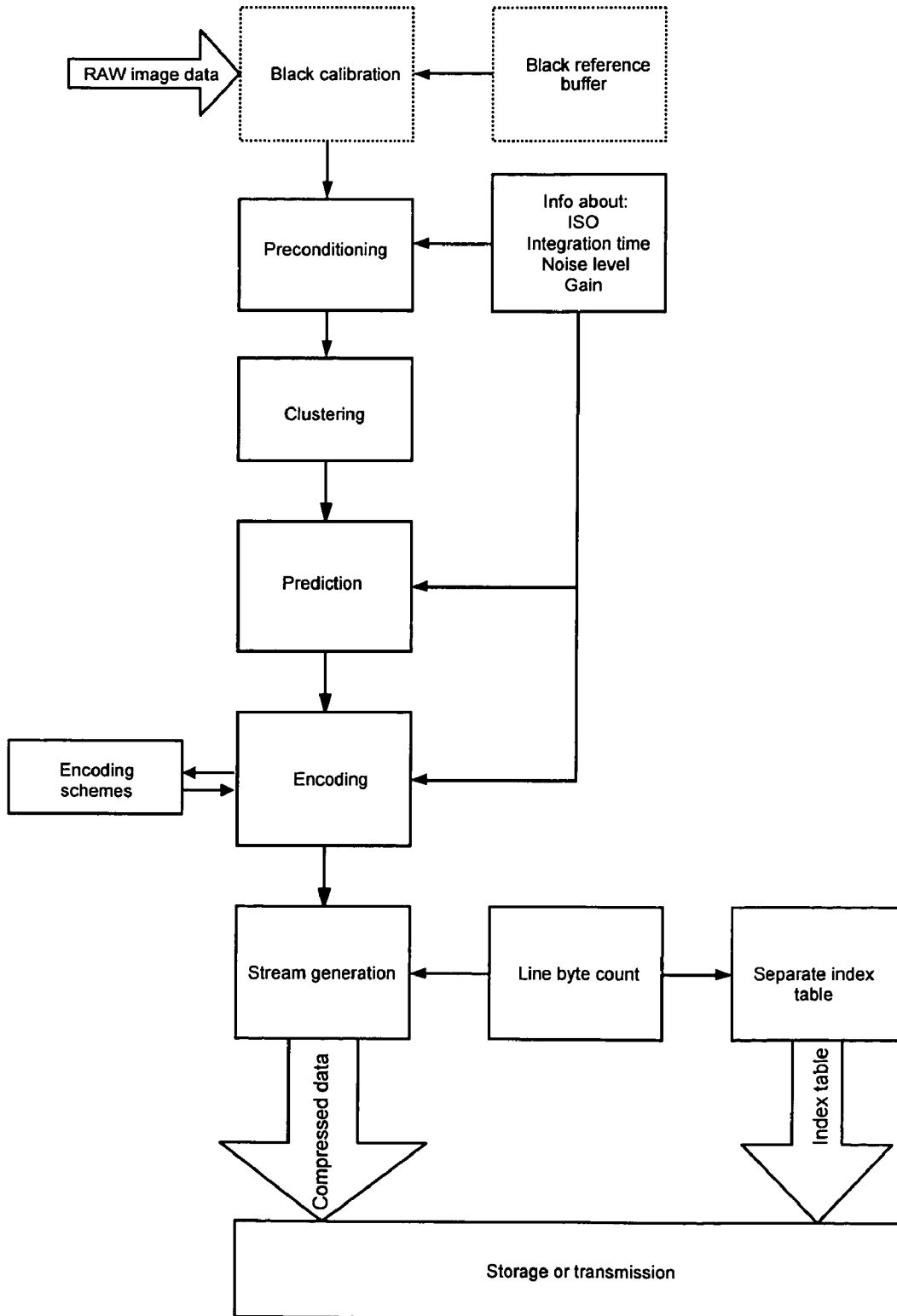


FIG. 2A

Near-lossless compression

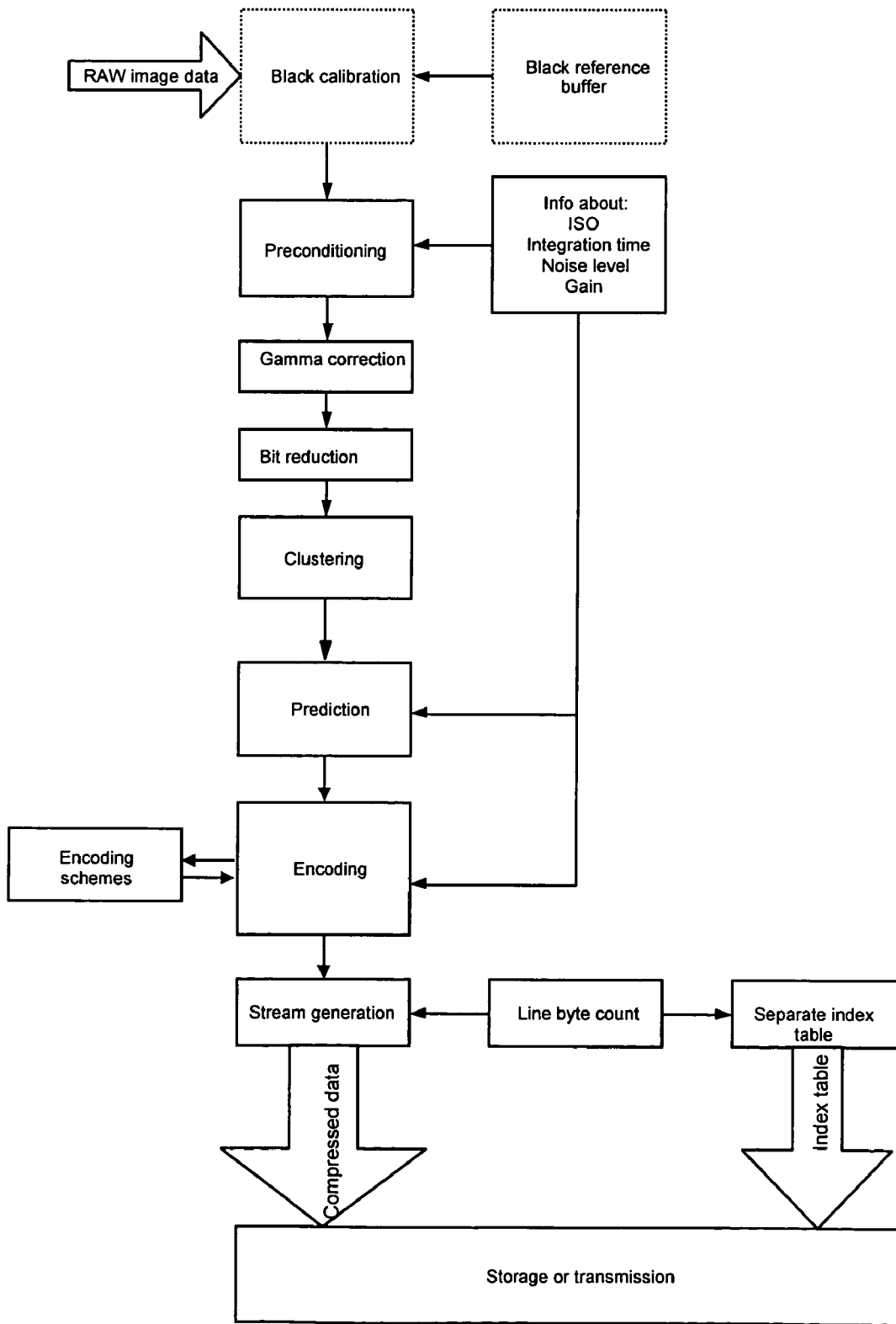


Fig. 2B

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