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(54) **SYSTEM AND METHOD FOR PROCESSING NON-LINEAR IMAGE DATA FROM A DIGITAL IMAGER**

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(51) **Int. Cl.**
G06K 9/00 (2006.01)
(52) **U.S. Cl.** **382/168**; 345/589
(58) **Field of Classification Search** 382/168–172, 382/312, 321; 345/589–605
See application file for complete search history.

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(57) **ABSTRACT**

A system and method process non-linear image data, still or video, from a digital imager. Noise generated by analog-to-digital converters is filtered from a pixel of digital image data. Moreover, the effects of single pixel defects in the imager are eliminated by clamping a predetermined pixel of image data within the window when the value of the predetermined pixel is greater than a maximum value of the image data of neighboring pixels or less than a minimum value of the image data of neighboring pixels. Ripples in image data are reduced by eliminating the effects of single pixel defects before filtering for crosstalk caused by elec-trical crosstalk between sensor elements in an imager. Dark current is removed from image data generated by an imager by subtracting a fraction of a determined dark current value from all image data generated by the imager to compensate for nonlinearities in dark current across the imager. The image data is white balanced by creating a set of scalar color adjustments from determined average color values and con-straining the set of scalar adjustments to plausible lighting conditions to prevent overcompensation on images having large regions of similar hue. Lastly, utilization of a fixed set of intensity levels is optimized by remapping and restrech-ing the image data to create new luma values for each pixel.
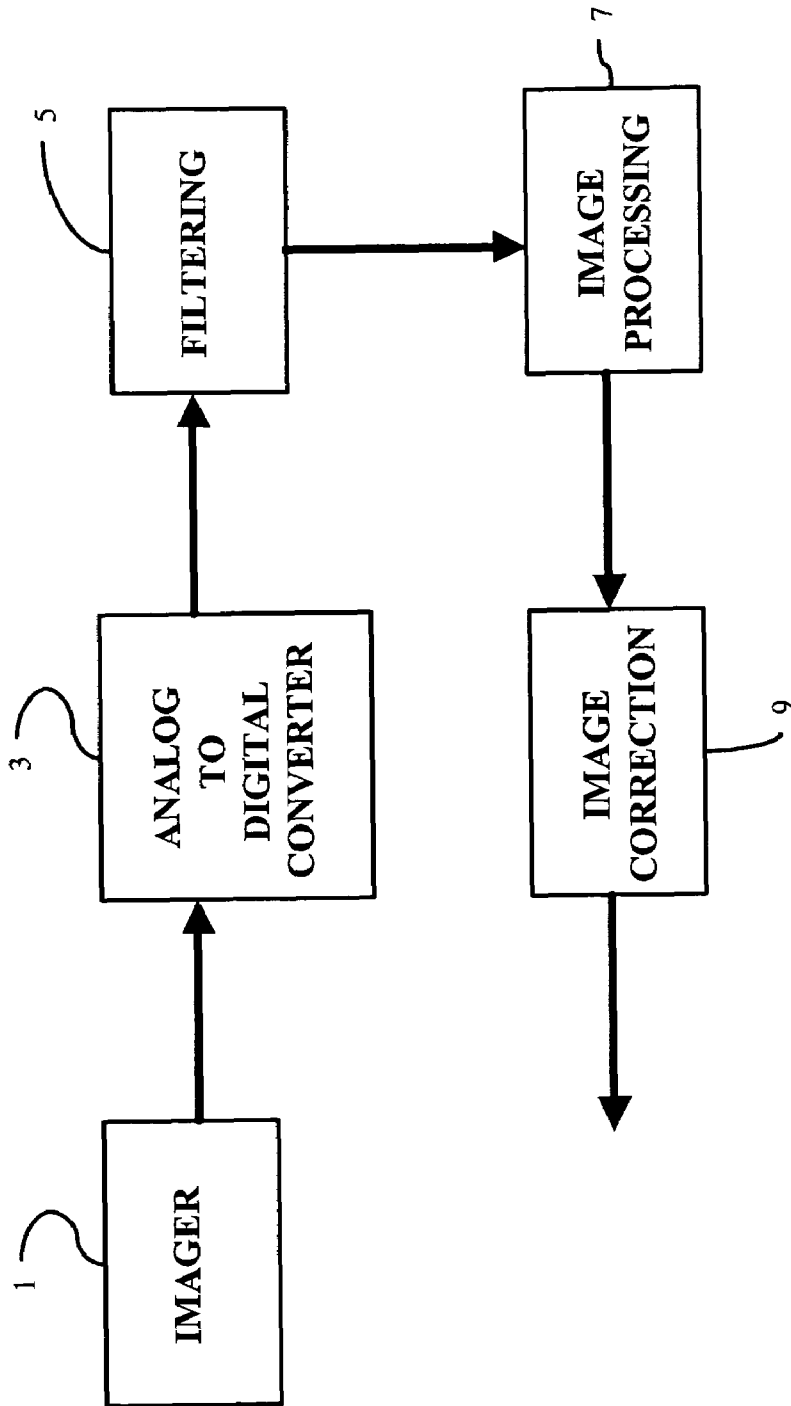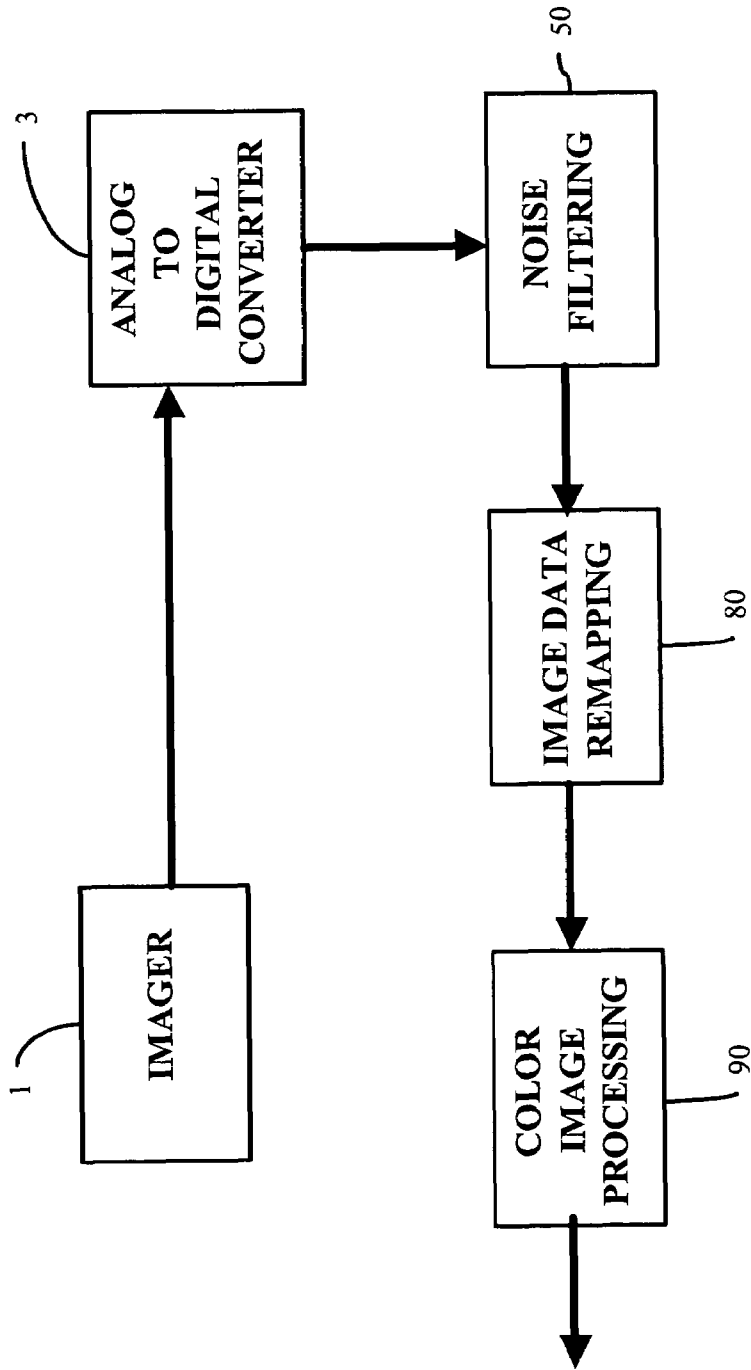
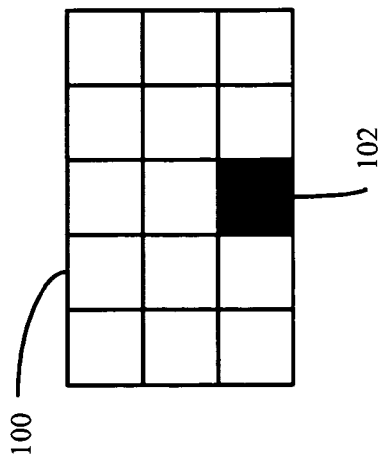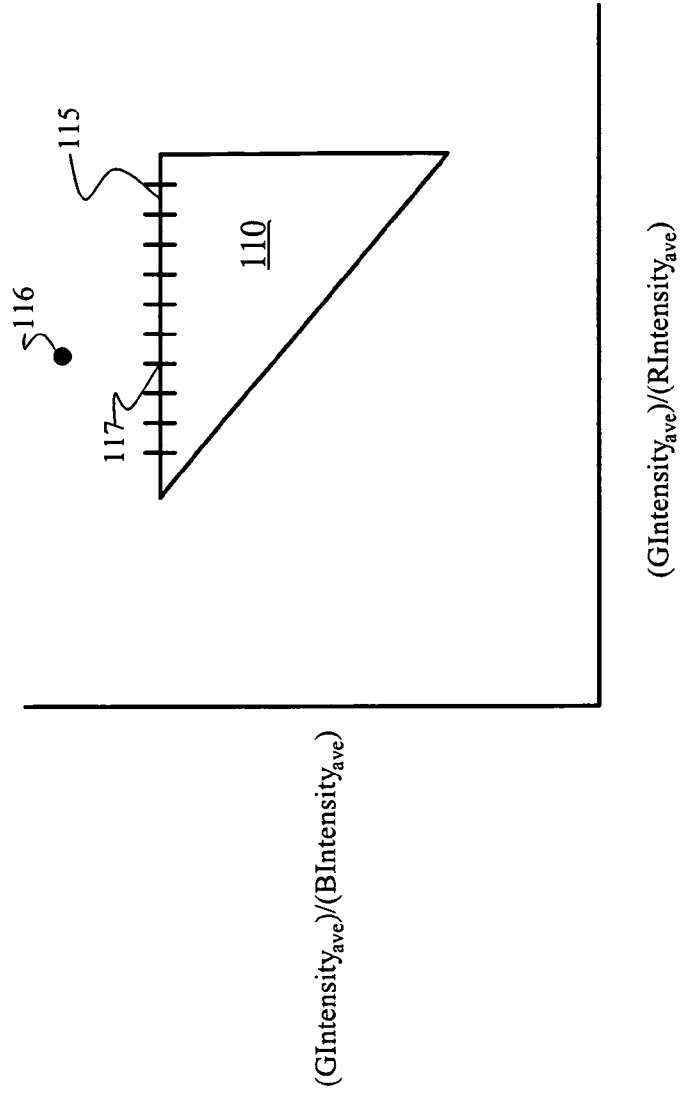**13 Claims, 10 Drawing Sheets**
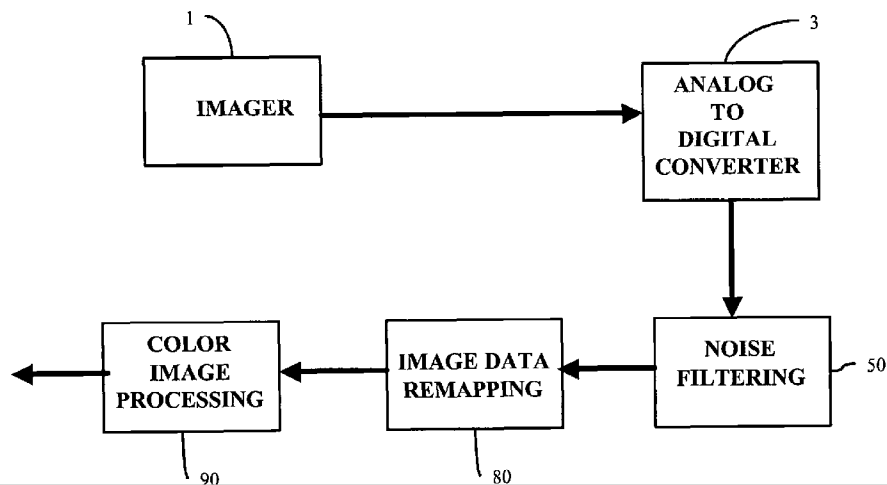
FIGURE 1 (Prior Art)
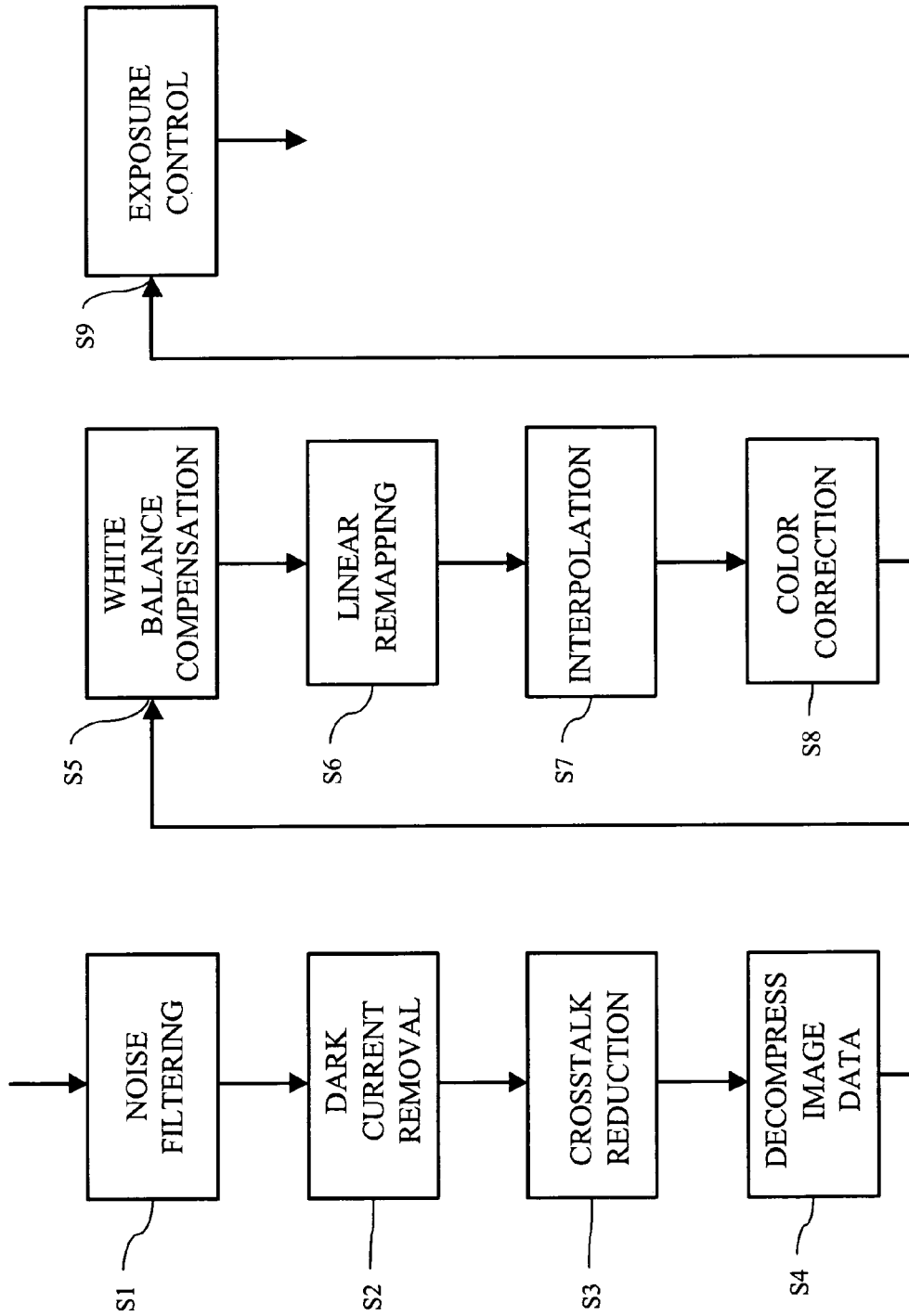
FIGURE 2

FIGURE 4

FIGURE 3

FIGURE 5

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