

# EXHIBIT 9

[54] ELECTRONIC CAMERA HAVING A PROCESSOR FOR MAPPING IMAGE PIXEL SIGNALS INTO COLOR DISPLAY PIXELS

0 456 369 A2 11/1991 European Pat. Off. .... H04N 5/14  
 0 533 107 A2 3/1993 European Pat. Off. .... H04N 1/21  
 WO 89/12939 6/1989 WIPO ..... H04N 5/232

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 Timothy J. Tredwell, Fairport, both of N.Y.

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"A Multimedia Color Camera Providing Multi-Format Digital Images" by Takuya Imaide, Toshiro Kinugasa, Yoshimichi Kudo, and Naoki Yamamoto. From *IEEE Transactions on Consumer Electronics*, Aug. 1993, No. 3.

[21] Appl. No.: 367,399

Primary Examiner—Wendy Garber

[22] Filed: Dec. 30, 1994

Attorney, Agent, or Firm—David M. Woods

[51] Int. Cl.<sup>6</sup> ..... H04N 5/225

[57] ABSTRACT

[52] U.S. Cl. .... 348/220; 348/333

An electronic camera uses a relatively more complex digital image processing technique in a still image mode to produce high quality still images, and a relatively more simple image processing technique in a motion preview mode to produce preview images of acceptable quality prior to initiation of the still image mode. The more complex digital technique is done in software in a general purpose processor section 35, while the more simple digital technique is implemented in a fixed digital circuit in an application specific integrated circuit 27, which also implements timing and control functions. The motion preview mode uses a shorter image readout period than the still mode and further involves mapping image sensor pixels into a fewer number of color display pixels on a color LCD display 10. The mapping further converts color pixel signals from a mosaic array into a different color pattern on the color LCD display 10.

[58] Field of Search ..... 348/220, 222, 348/221, 333, 273, 391

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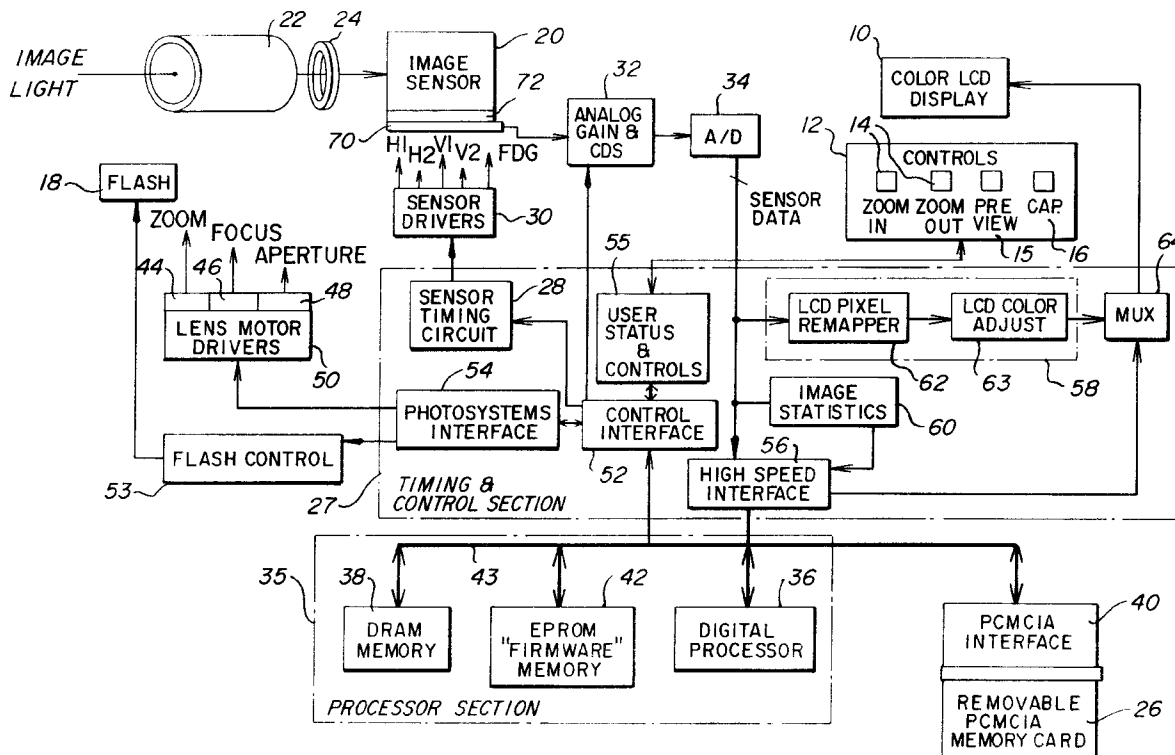
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15 Claims, 10 Drawing Sheets



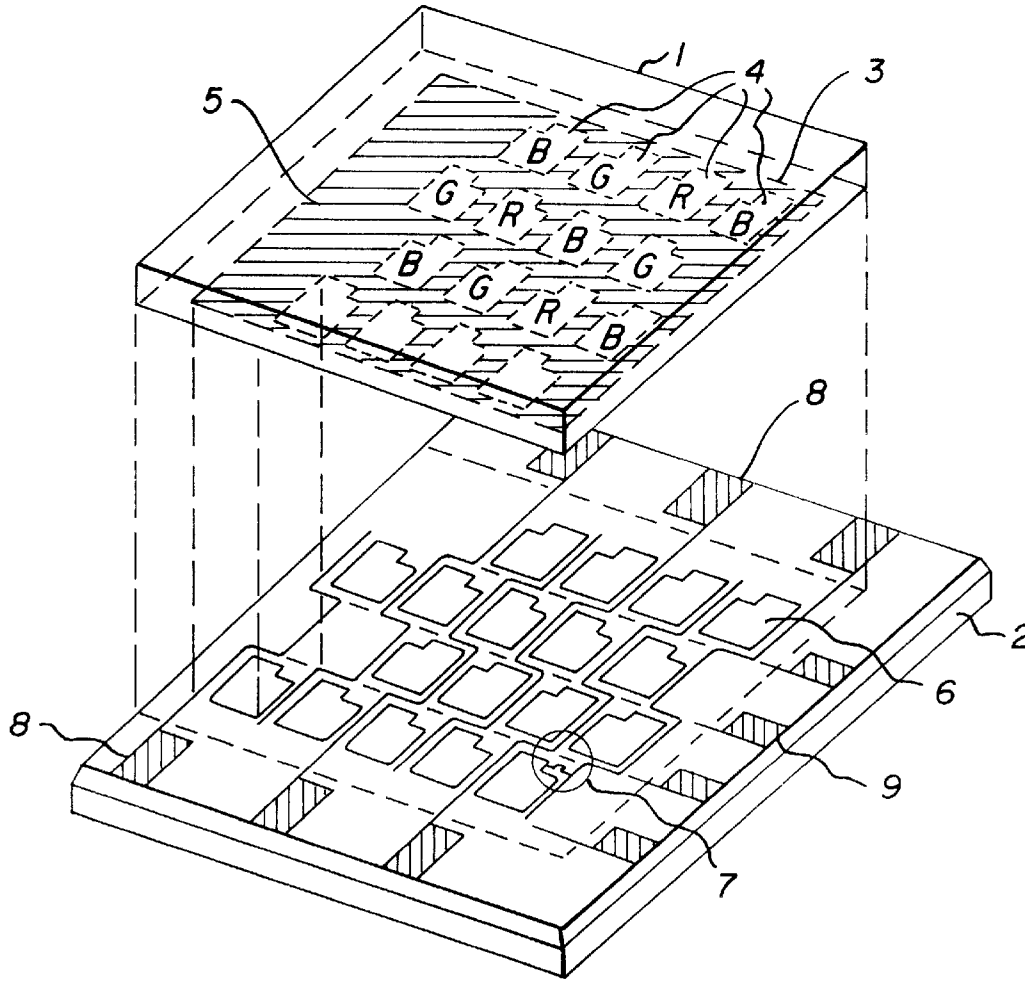


FIG. 1A

G	R	B	G	R	B	G	R
B	G	R	B	G	R	B	G
R	B	G	R	B	G	R	B
G	R	B	G	R	B	G	R

FIG. 1B

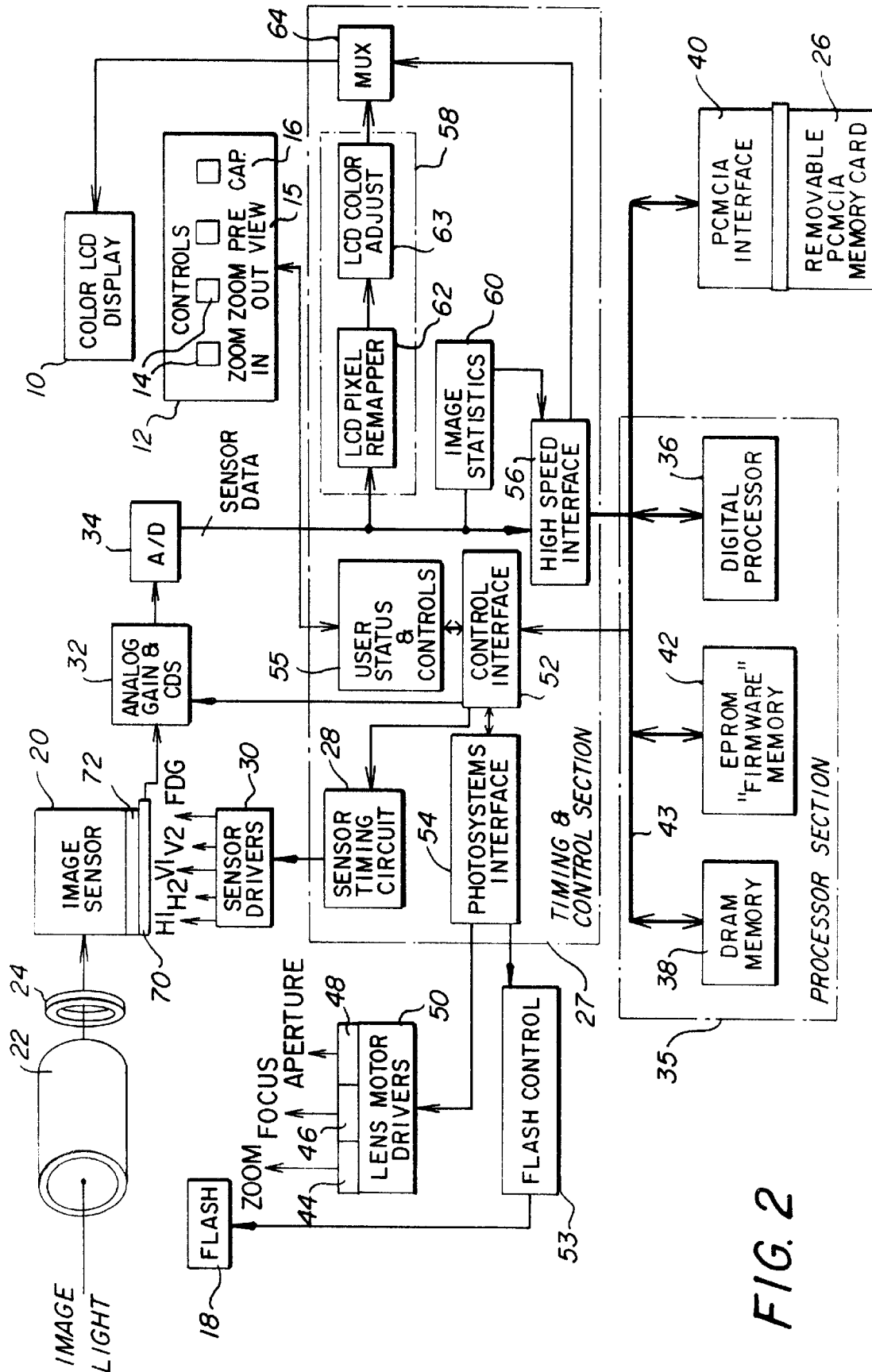


FIG. 2

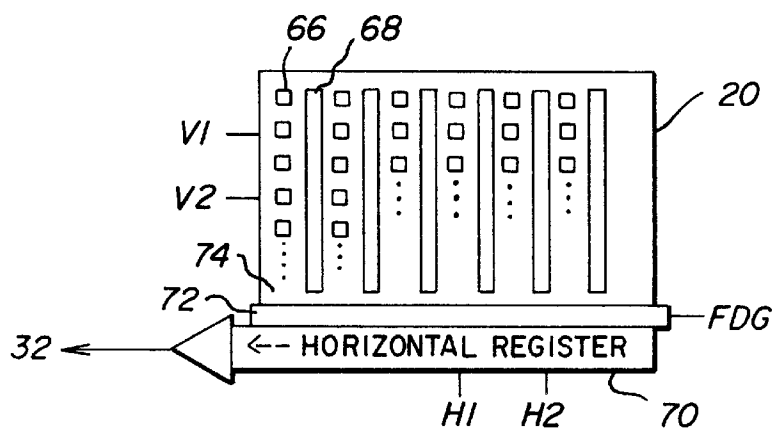
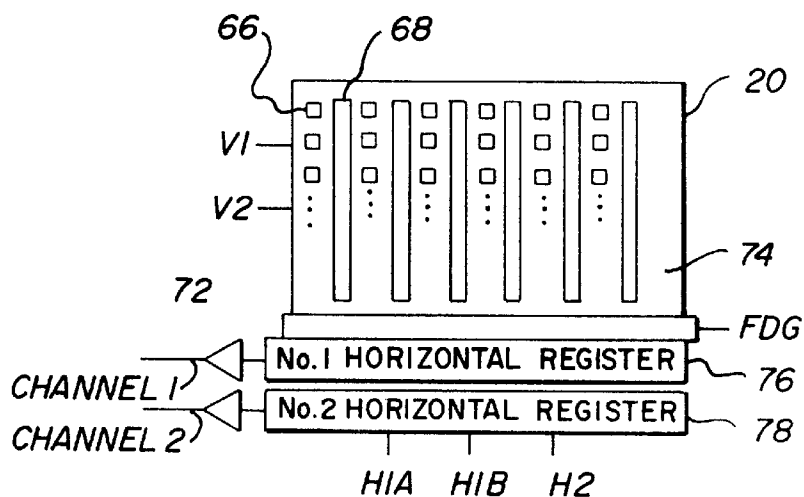


FIG. 3A

FIG. 3B



CCD LINES

LINE 1	G	R	G	R	G	R	G	R
LINE 2	B	G	B	G	B	G	B	G
LINE 3	G	R	G	R	G	R	G	R
LINE 4	B	G	B	G	B	G	B	G
LINE 5	G	R	G	R	G	R	G	R
LINE 6	B	G	B	G	B	G	B	G
LINE 7	G	R	G	R	G	R	G	R
LINE 8	B	G	B	G	B	G	B	G

FIG. 4

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