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**United States Patent** [19]  
**Parulski et al.**

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[45] **Date of Patent:** **Oct. 27, 1998**

[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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**OTHER PUBLICATIONS**

"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.

[73] Assignee: **Eastman Kodak Company**, Rochester, N.Y.

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[21] Appl. No.: **367,399**

[22] Filed: **Dec. 30, 1994**

[57] **ABSTRACT**

[51] **Int. Cl.<sup>6</sup>** ..... **H04N 5/225**  
[52] **U.S. Cl.** ..... **348/220; 348/333**  
[58] **Field of Search** ..... **348/220, 222, 348/221, 333, 273, 391**

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.

[56] **References Cited**

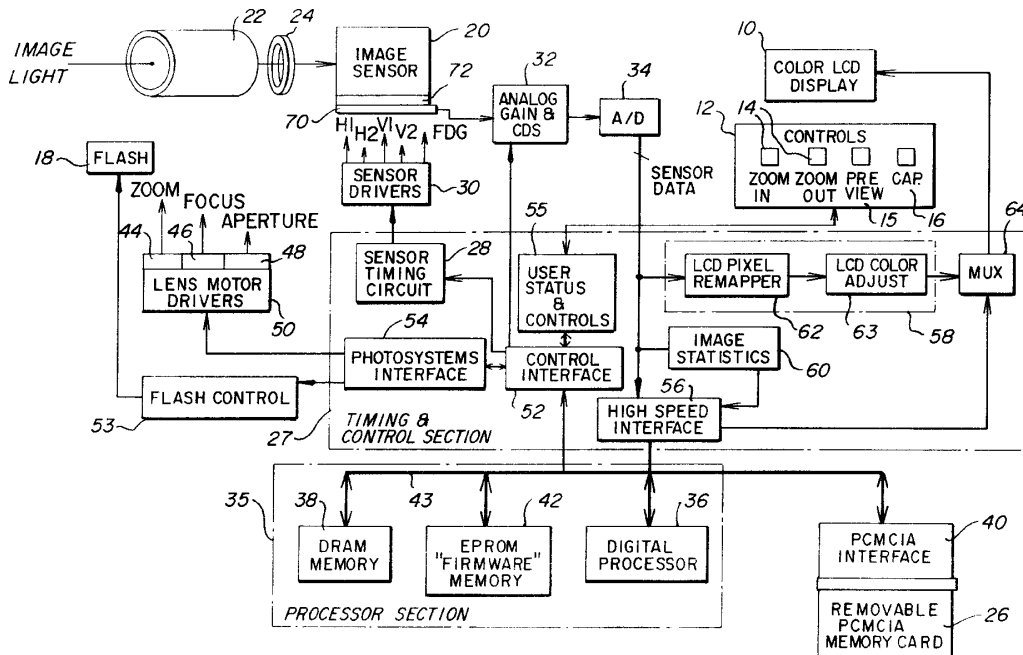
**U.S. PATENT DOCUMENTS**

4,541,010	9/1985	Alston	348/333
4,691,253	9/1987	Silver	360/33.1
4,714,963	12/1987	Vogel	348/220
4,876,590	10/1989	Parulski	348/333
4,928,137	5/1990	Kinoshita	348/333
5,418,565	5/1995	Smith	348/273
5,440,343	8/1995	Parulski et al.	348/220
5,444,483	8/1995	Maeda	348/220
5,943,335	2/1996	Parulski et al.	348/273

**FOREIGN PATENT DOCUMENTS**

0 405 491 A2 1/1991 European Pat. Off. .... H04N 5/91

**15 Claims, 10 Drawing Sheets**



Apple v. Maxell

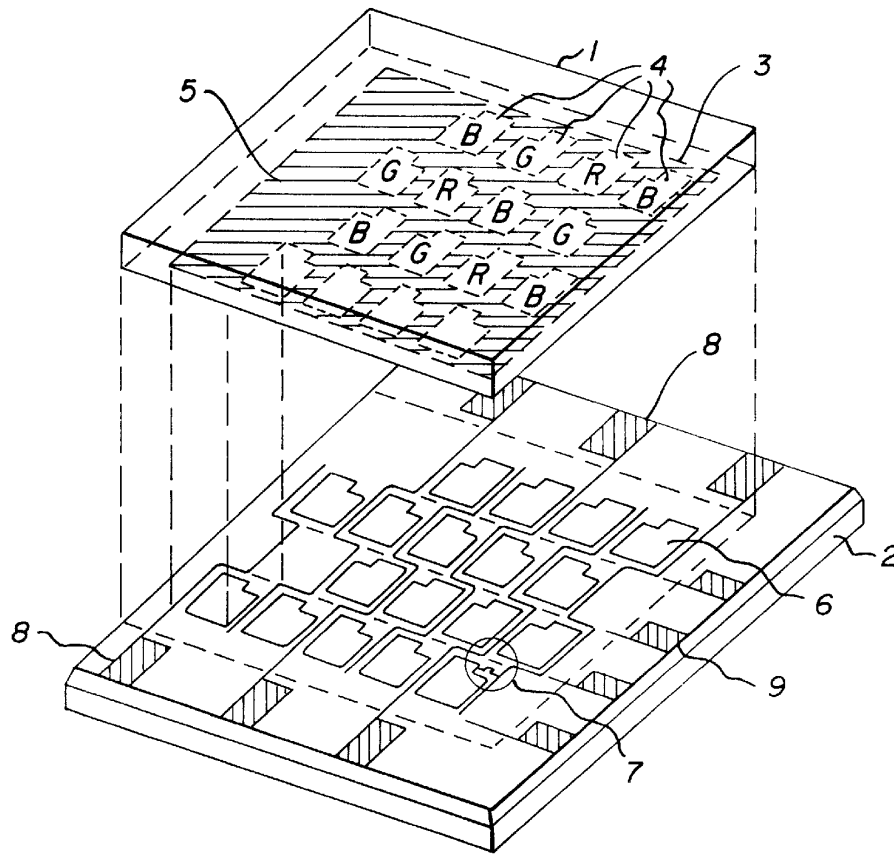


FIG. 1A

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

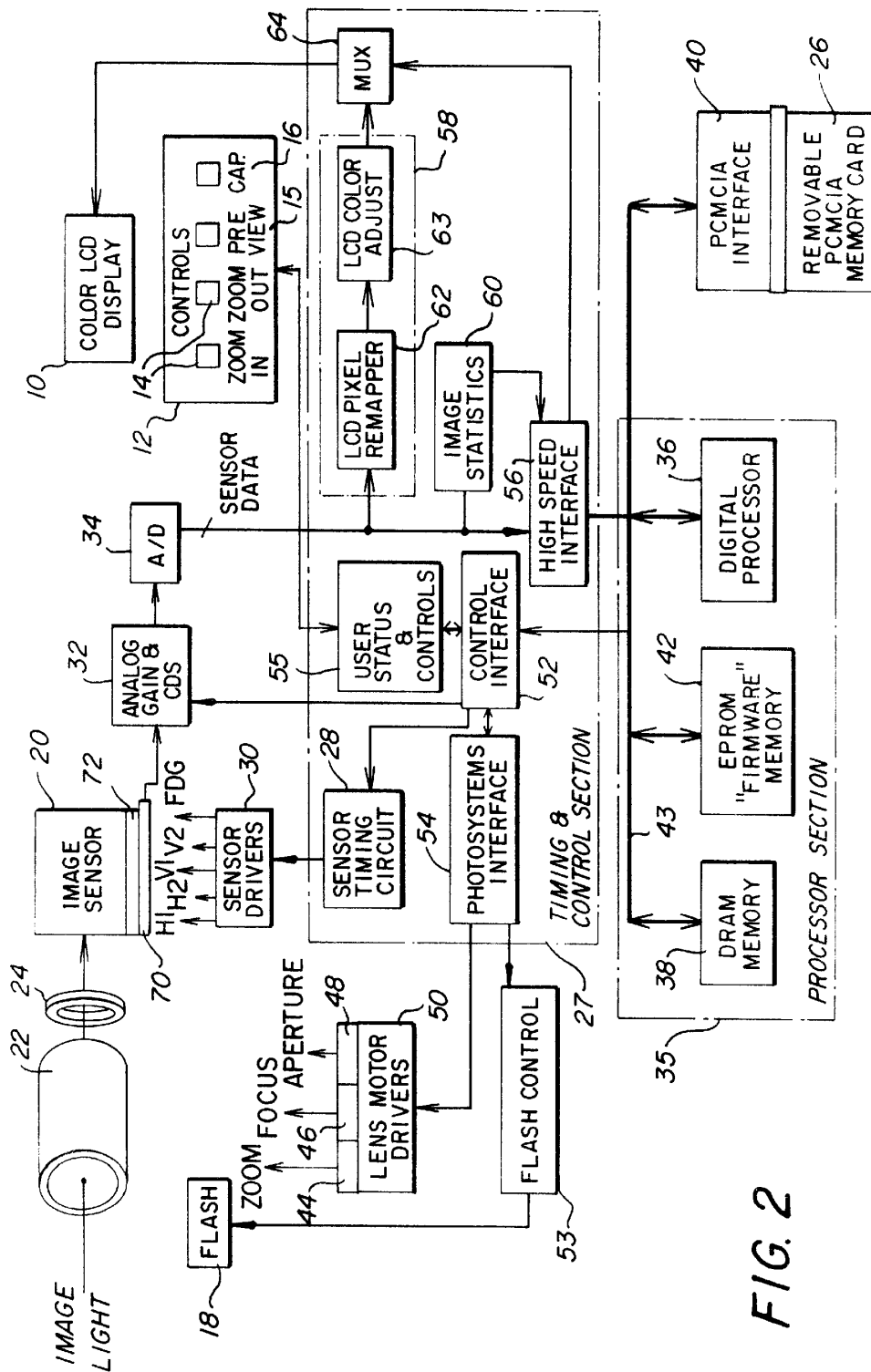


FIG. 2

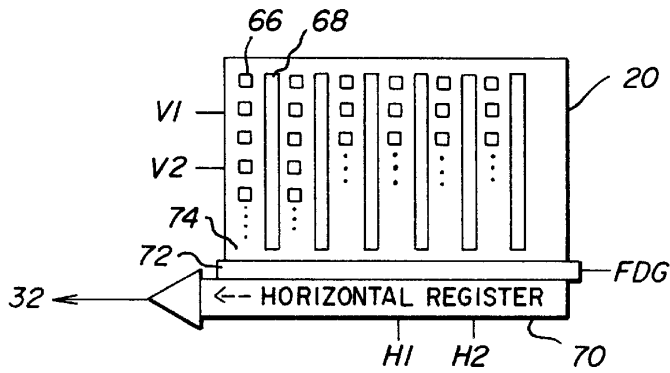


FIG. 3A

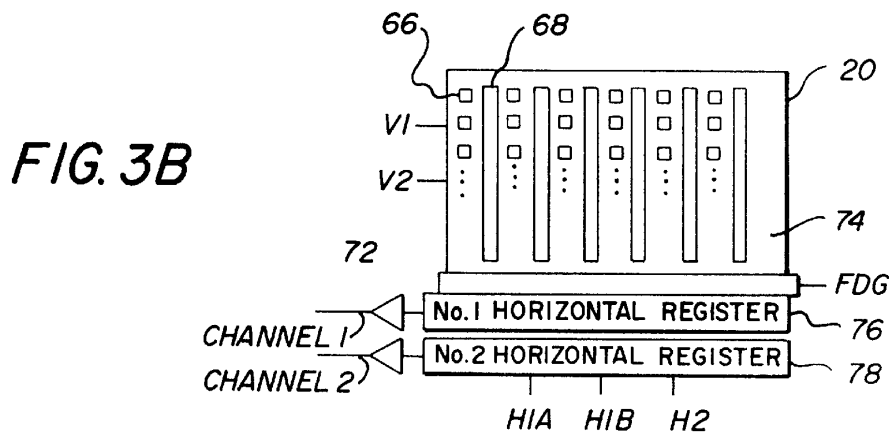
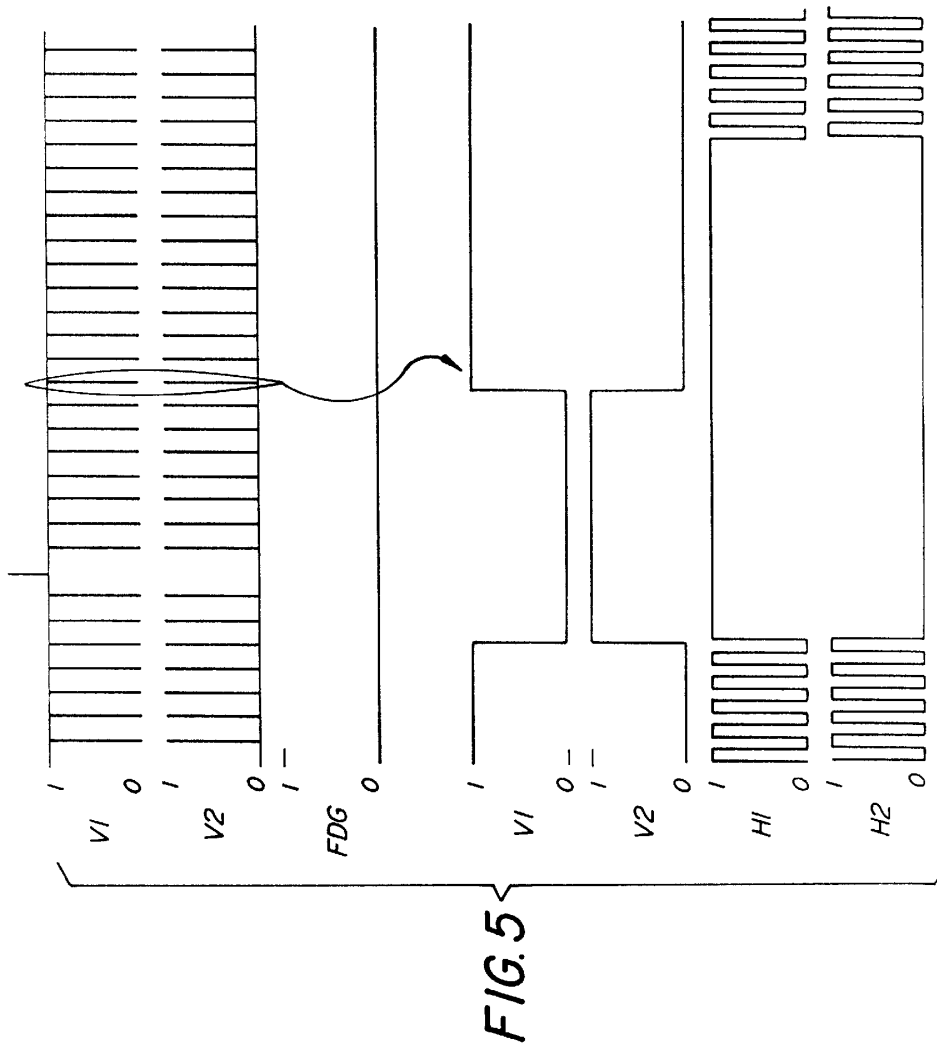


FIG. 3B

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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