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United States Patent [19]

Roberts et al.

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[54] **ELECTRONIC STILL VIDEO CAMERA WITH DIRECT PERSONAL COMPUTER (PC) COMPATIBLE DIGITAL FORMAT OUTPUT**

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[73] Assignee: **St. Clair Intellectual Property Consultants, Inc.**, Grosse Pointe, Mich.

[*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: **08/651,562**

[22] Filed: **May 22, 1996**

Related U.S. Application Data

[63] Continuation of application No. 08/098,787, Jul. 29, 1993, Pat. No. 5,576,757, which is a continuation of application No. 07/878,603, May 5, 1992, abandoned, which is a continuation of application No. 07/615,848, Nov. 20, 1990, Pat. No. 5,138,459.

[51] **Int. Cl.**[7] **H04N 5/225**

[52] **U.S. Cl.** **348/207**; 348/220; 348/552

[58] **Field of Search** 348/207, 220, 348/231, 222, 384, 552; 360/132, 133, 135; 358/906, 909.1; 386/27, 48, 109, 112, 117, 118, 131; H04N 5/225

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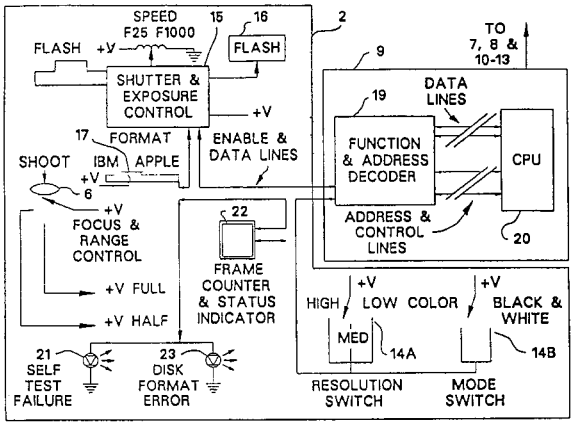
[57] **ABSTRACT**

An electronic still camera comprising a lens, shutter, and exposure control system, a focus and range control circuit, a solid state imaging device incorporating a Charge Coupled Device (CCD) through which an image is focused, a digital control unit through which timing and control of an image for electronic processing is accomplished, an Analog-to-Digital (A/D) converter circuit to convert the analog picture signals into their digital equivalents, a pixel buffer for collecting a complete row of an image's digital equivalent, a frame buffer for collecting all rows of an image's digital equivalent, and a selectively adjustable digital image compression and decompression algorithm that compresses the size of a digital image and selectively formats the compressed digital image to a compatible format for either the IBM Personal Computer and related architectures or the Apple Macintosh PC architecture as selected by the operator so that the digital image can be directly read into most word processing, desktop publishing, and data base software packages including means for executing the appropriate selected decompression algorithm; and a memory input/output interface that provides both temporary storage of the digital image and controls the transmission and interface with a standard Personal Computer (PC) memory storage device such as a digital diskette. The digital diskette is removably inserted into the housing of the camera prior to use in recording digital image data.

26 Claims, 11 Drawing Sheets



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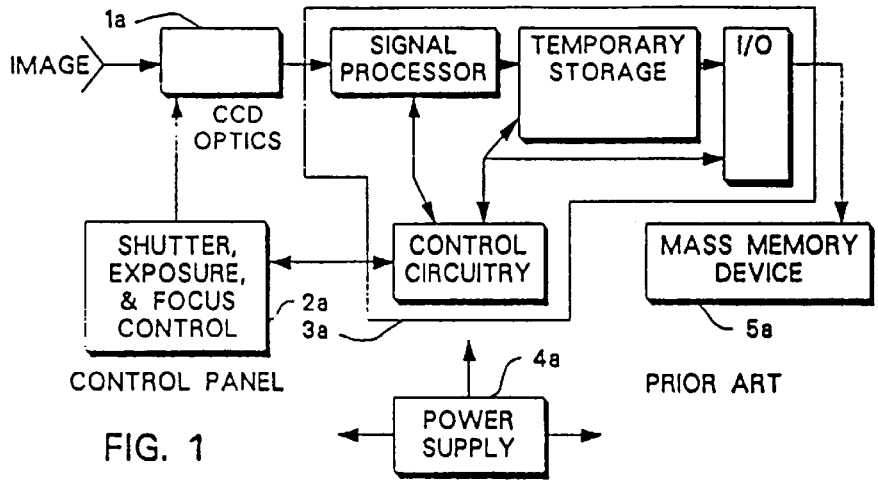

FIG. 1

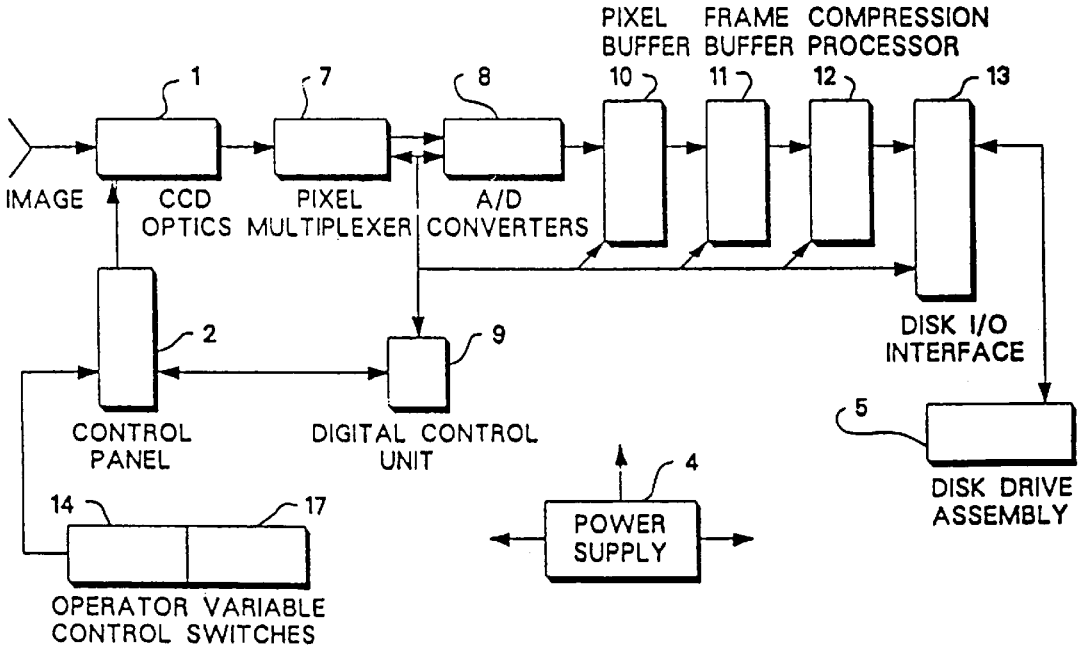

FIG. 2

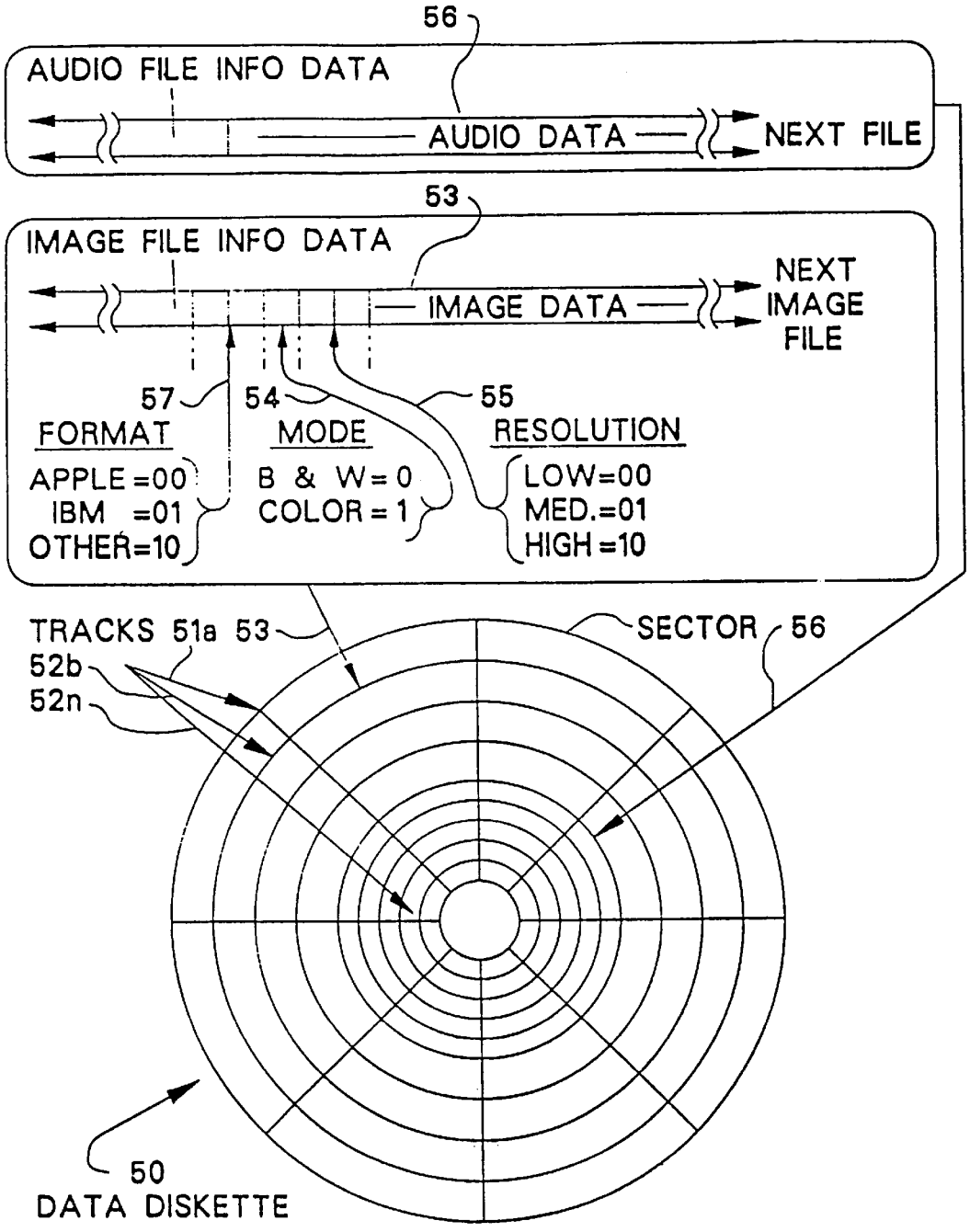

FIG. 2A

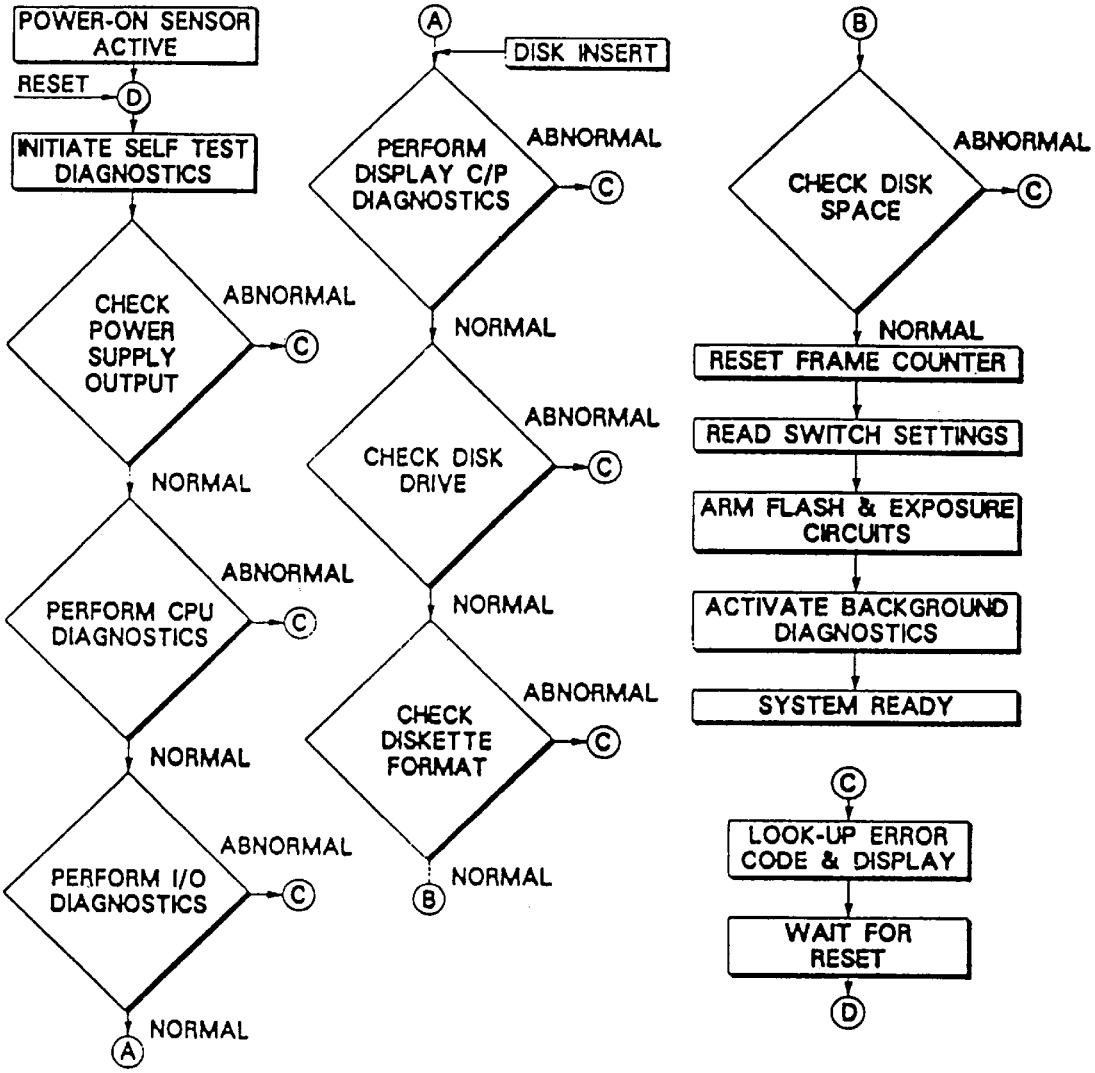

FIG. 3

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