



[54] ELECTRONIC IMAGING SYSTEM CAPABLE OF IMAGE CAPTURE, LOCAL WIRELESS TRANSMISSION AND VOICE RECOGNITION

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[57] ABSTRACT

A system for digital image capture and transmission, includes a digital camera that has an electronic image sensor for sensing an image and producing a digital image; a memory for storing digital images produced by the image sensor in digital image files, the digital image files having associated information for controlling a remote image fulfillment server; a voice recorder for digitizing voice commands relating to control of the image fulfillment server; and a transmitter for transmitting the digital image file to the image fulfillment server. Either the camera or the fulfillment server includes a voice recognition module responsive to the digitized voice commands for producing control signals for the image fulfillment server. The image fulfillment server includes a receiver for receiving the digital image file and control signals; a memory for storing the received digital image file; and a file manager for managing the digital image file in response to the control signals.

[21] Appl. No.: 672,773

[22] Filed: Jun. 28, 1996

[51] Int. Cl. 6 G10L 3/00

[52] U.S. Cl. 395/2.79; 395/2.81; 395/2.84; 396/283; 348/211

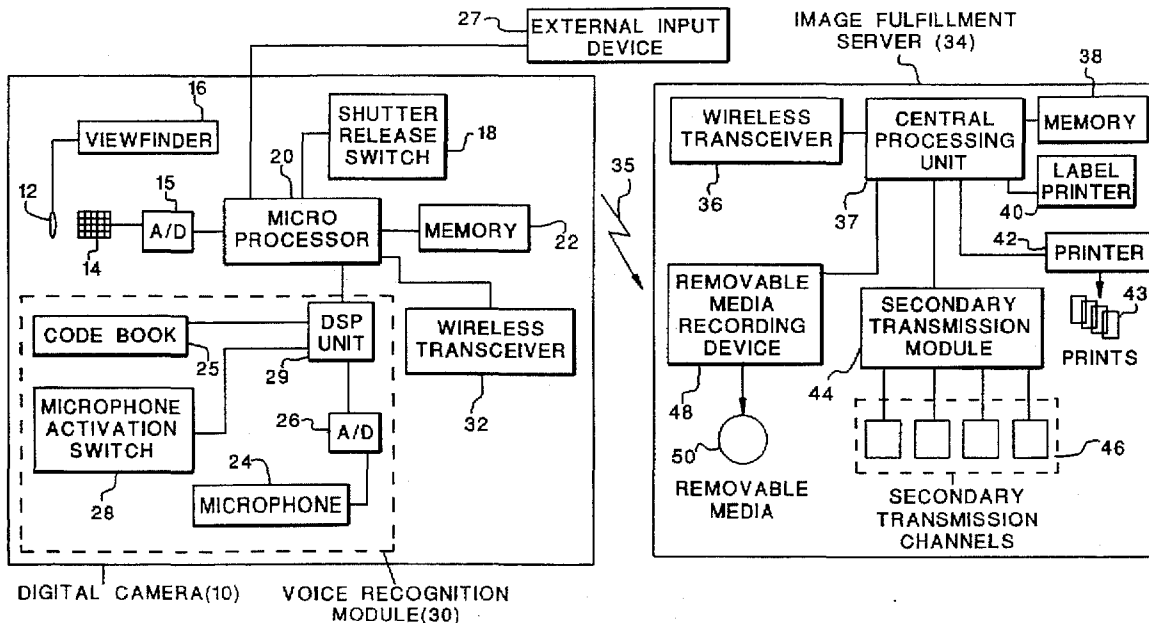
[58] Field of Search 395/2.79, 2.81, 395/2.84; 396/283, 287; 348/211, 223

[56] References Cited

U.S. PATENT DOCUMENTS

Table with 4 columns: Patent No., Date, Inventor, and Reference No. Includes entries for Katsuma et al., Froessl, Beadles, Lemelson, Gerson et al., Hoshino et al., and Hong.

7 Claims, 3 Drawing Sheets



Petition for Inter Partes Review of U.S. Pat. No. 7,477,284 IPR2013-00219 EXHIBIT

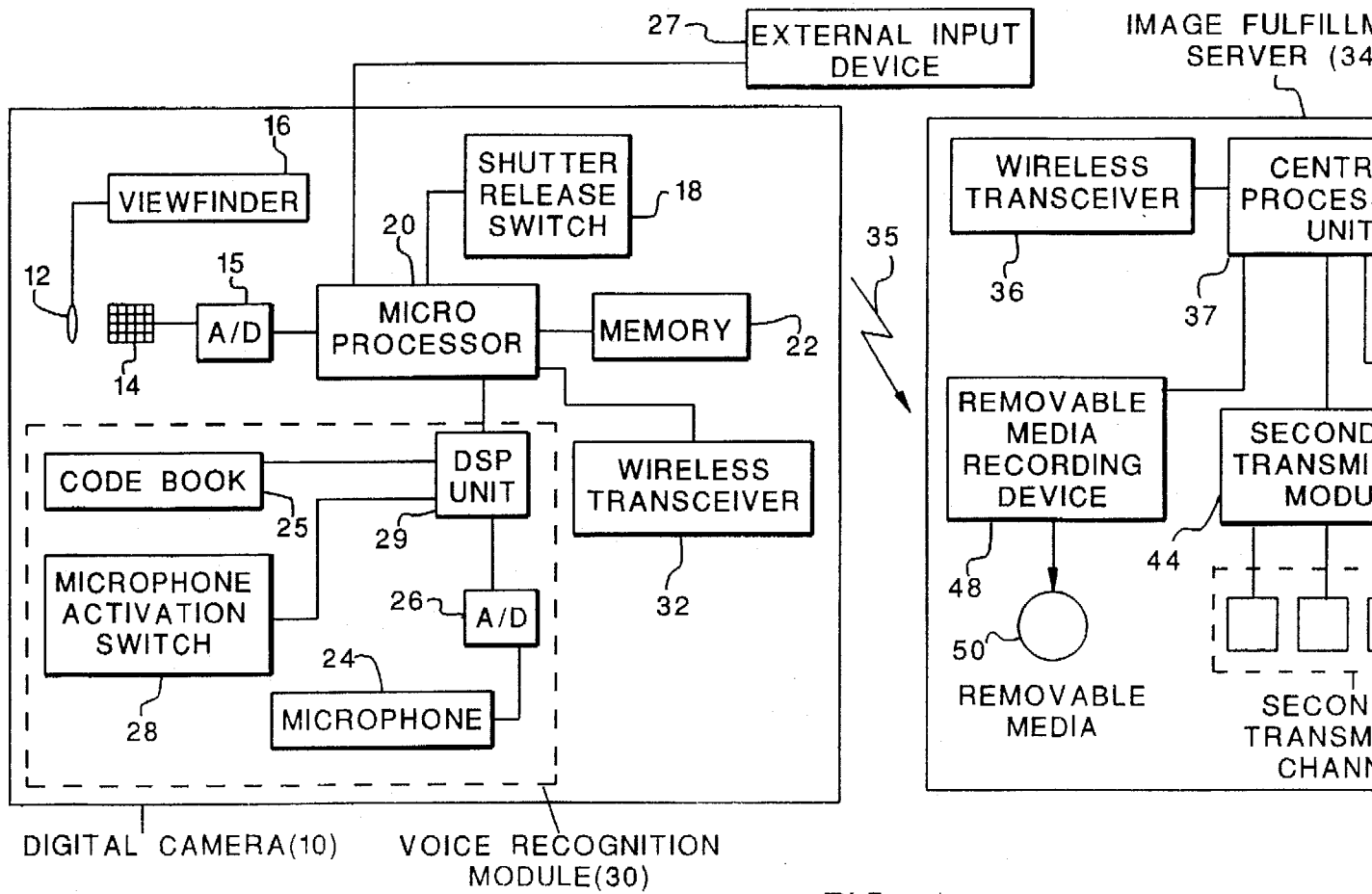


FIG. 1

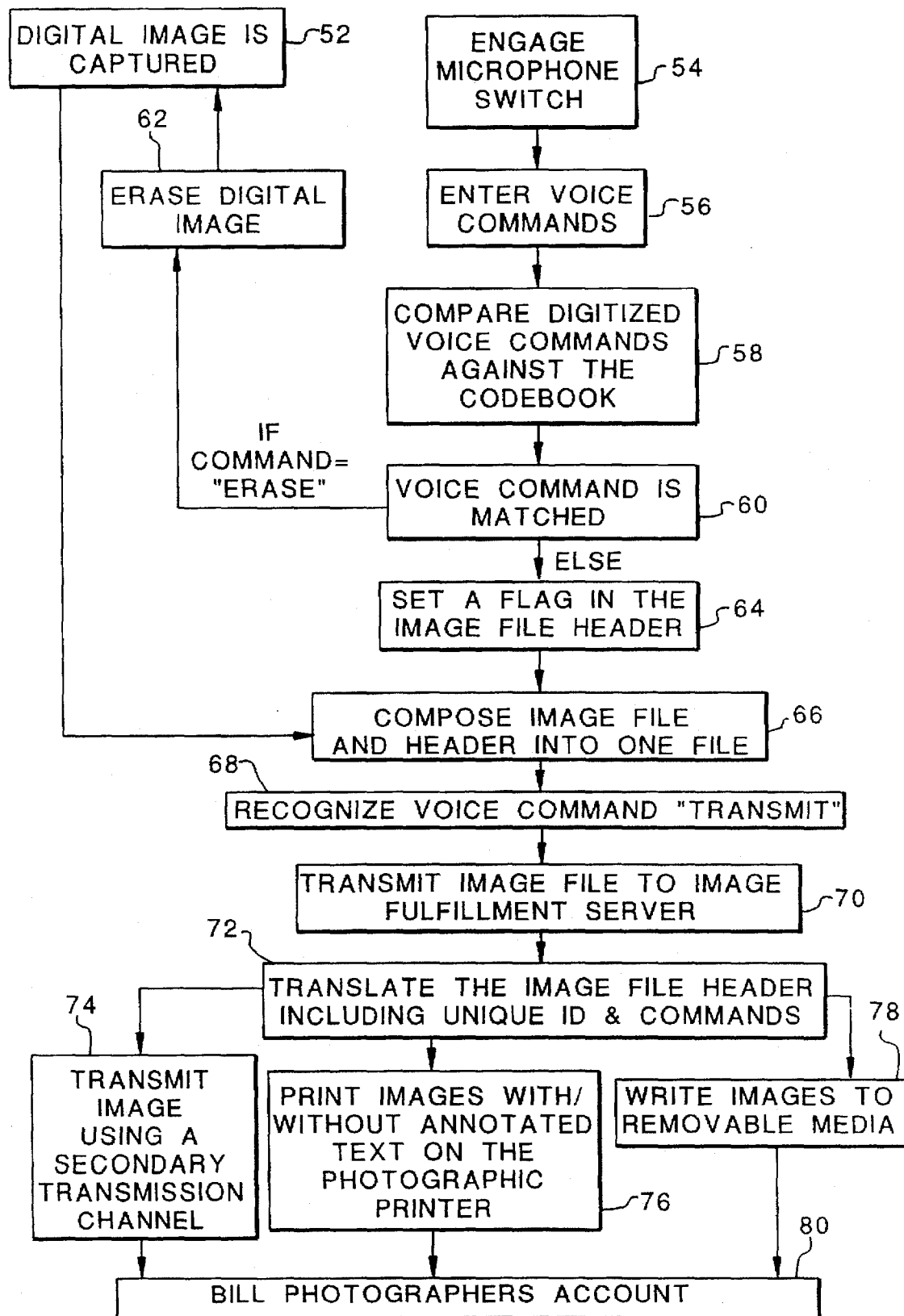


FIG. 2

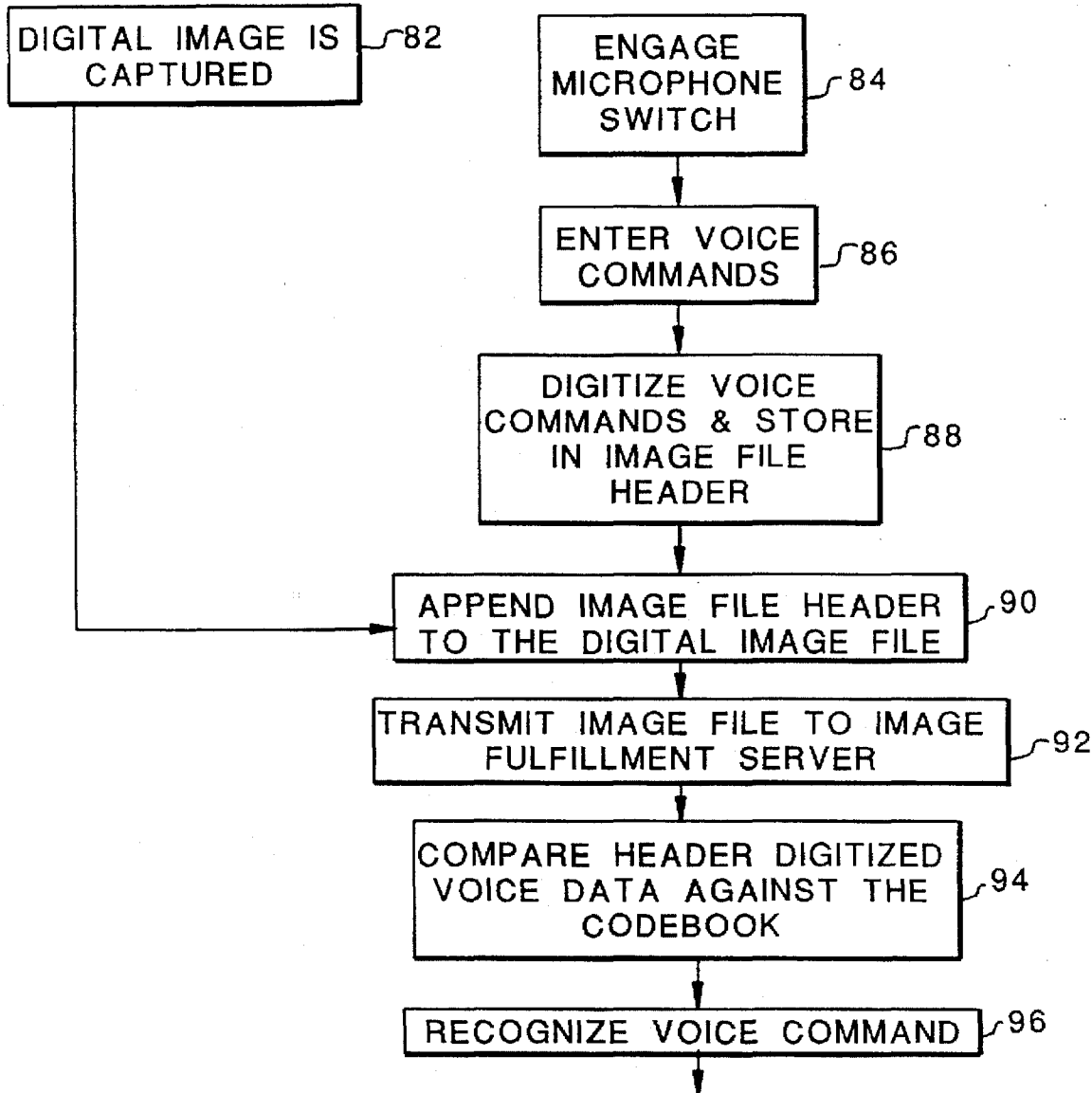


FIG. 3

# ELECTRONIC IMAGING SYSTEM CAPABLE OF IMAGE CAPTURE, LOCAL WIRELESS TRANSMISSION AND VOICE RECOGNITION

## FIELD OF THE INVENTION

The present invention relates in general to the field of electronic photography, and in particular to an electronic image capture and transmission system capable of wireless transmission and voice recognition.

## BACKGROUND OF THE INVENTION

In the field of professional photography especially in the field of photo journalism and sports photography, speedy delivery of photographs of an event to the photo editor is an important factor. In many instances today, the film is shipped directly to the news photo editor via courier. Another method is to use a digital camera such as the Kodak DCS 420 or Kodak DC50 which are capable of capturing images by using a CCD sensor and storing them in a digital file. The digital images are stored in solid state memory, a hard drive on the camera or a removable solid state memory card such as a PCMCIA memory card. These files can then be downloaded to a portable computer and transmitted to a remote computer via a telecommunication connection such as a modem. Although this solution offers the photojournalist and his editor a faster turnaround time than the traditional route of a courier delivering film and prints, it still means that he must leave the scene to find a phone.

## SUMMARY OF THE INVENTION

The present invention is directed to overcoming one or more of the problems set forth above. Briefly summarized, according to one aspect of the present invention, a system for digital image capture and transmission, includes a digital camera that has an electronic image sensor for sensing an image and producing a digital image; a memory for storing digital images produced by the image sensor in digital image files, the digital image files having associated information for controlling a remote image fulfillment server; a voice recorder for digitizing voice commands relating to control of the image fulfillment server; and a transceiver for transmitting the digital image file to the image fulfillment server. Either the camera or the fulfillment server includes a voice recognition module responsive to the digitized voice commands for producing control signals for the image fulfillment server. The image fulfillment server includes a transceiver for receiving the digital image file and control signals; a memory for storing the received digital image file; and a file manager for managing the digital image file in response to the control signals.

## ADVANTAGEOUS EFFECT OF THE INVENTION

The system of the present invention has the advantage of providing for easy control over fast delivery of digital images in the field that allows a choice of different communication relay services. For example a sports photographer can transmit his digital images locally via wireless transmission to a local image fulfillment server at the stadium with instructions to make prints and transmit images via an ISDN connection to his magazine's photo editor or to a remote image fulfillment server computer.

Using the present invention, an amateur photographer can capture an electronic image at a special event or scenic

vacation spot. The image may be transmitted via a wireless connection such as a cellular phone service to a fulfillment server where the images are printed according to the photographers voice instructions and the printed images are forwarded to a desired address. The digital images may also be stored for future access by the photographer, or further transmitted to designated e-mail addresses.

These and other aspects, objects, features and advantages of the present invention will be more clearly understood and appreciated from a review of the following detailed description of the preferred embodiments and appended claims, and by reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram illustrating a digital wireless photography and image transmission system with speech recognition capabilities according to the present invention;

FIG. 2 is a flow chart illustrating the method of image capture, storage and transmission according to an embodiment of the present invention, with the speech recognition subsystem in the camera; and

FIG. 3 is a flow chart illustrating the method of image capture, storage and transmission according to an embodiment of the present invention with the speech recognition subsystem in the image fulfillment server.

To facilitate understanding, identical reference numerals have been used, where possible, to designate identical sections that are common to the figures.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a digital camera generally designated 10, includes a lens 12, an image sensor 14 located behind the lens 12, a viewfinder 16, a shutter release 18, a microprocessor 20 for controlling the camera, a temporary memory 22 for storing digital images produced by the image sensor 14 and digitized sound signals and spoken commands sensed by a microphone 24. The microphone 24, an analog to digital converter 26 for digitizing the sounds sensed by the microphone 24, and a sound recording microphone activation switch 28 for activating the sound recording function of the camera, are all included in a voice recognition module 30.

The voice recognition module 30 recognizes voice commands and produces control signals for use by an image fulfillment server 34 as described below. The digital camera 10 also includes a transceiver 32 for transmitting the digital images, and control signals to the image fulfillment server 34.

The voice recognition module 30 includes a code book 25 provided by the camera manufacturer and customized by the photographer and a digital signal processing unit (DSP) 29 for comparing the photographer's digitized voice commands to digital voice templates stored in code book 25 and generating control signals to be appended to the digital image file. The DSP 29 may comprise, for example, a TMS3477 digital signal processing chip, manufactured by Texas Instruments Inc., Dallas, Tex., or an RSC-164 digital signal processing chip manufactured by Sensory Circuits Inc., San Jose, Calif.

The camera 10 includes an interface, such as a SCSI port, for connecting to an external input device 27 such as a keyboard or LCD touch screen. The external input device 27 may be used to enter information such as text annotation, electronic addresses or file names that are to be associated

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