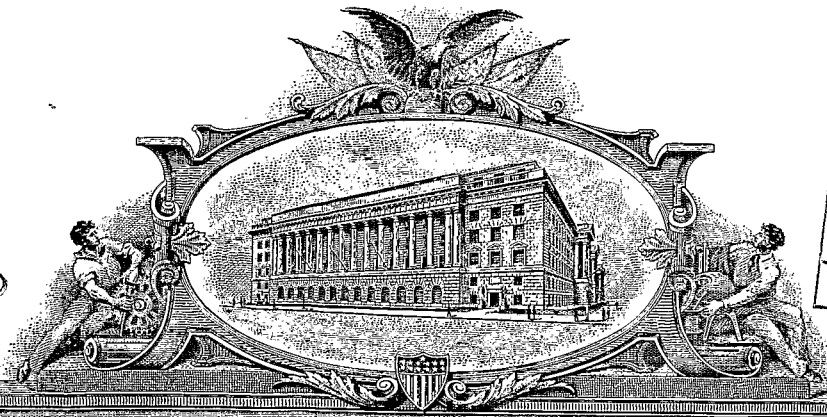


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**APPLICATION NUMBER: 60/169,559  
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jc662 U.S. PTO

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12/08/99

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<input type="checkbox"/> Additional inventors are being named on the ___ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
APPARATUS AND METHOD FOR PRODUCING ENHANCED VIDEO IMAGES AND/OR VIDEO FILES					
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ENCLOSED APPLICATION PARTS (check all that apply)					
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Respectfully submitted,

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Date 12 8 1999  
REGISTRATION NO. 35,907  
(if appropriate)  
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12-09-99

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Attorney Docket No.: 5865-8

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Eliot I. Bernstein  
Serial No.: Please assign  
Filed on: Concurrently herewith  
Title: APPARATUS AND METHOD FOR PRODUCING ENHANCED  
VIDEO IMAGES AND/OR VIDEO FILES

Box Provisional Application  
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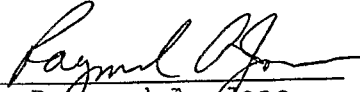
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Respectfully submitted,  
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By:   
Raymond A. Joao  
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December 8, 1999

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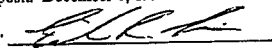
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APPARATUS AND METHOD FOR PRODUCING ENHANCED VIDEO IMAGES  
AND/OR VIDEO FILES

FIELD OF THE INVENTION

The present invention is directed to an apparatus and a method for producing enhanced images and/or video files and, in particular, to an apparatus and a method for producing enhanced resolution digital images and/or digital video files obtained via digital and/or film video cameras and/or recording devices.

BACKGROUND OF THE INVENTION

The fields of telecommunications, multimedia, and related areas, are growing at increasing rates. With this continued growth, the need for high resolution digital imagery, for utilization in conjunction with the corresponding technologies, is becoming greater. Current technologies utilize film cameras and recorders as well as digital cameras and recorders.

Conventional print film, negative and digital, technologies typically have very low zoom quality and low image size restrictions or limitations associated therewith. Generally speaking, enlarged images produce a higher resolution image, and an associated higher resolution scanning quality, which further facilitates an improved enlargement or reduction of the image for

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different sizes and different depths, without pixel distortion. Photographs, negatives, and associated images, utilize pixels which typically have a certain size. When enlarged or reduced, these pixels of the image become distorted, a feature which typically results in the image being fixed to an original size, or being available at very low magnifications, such as, for example, magnifications of from 200 times to 300 times. These images are also difficult to enlarge to a full screen size without a tremendous amount of distortion present in the end product without expanding the file size proportionately.

Currently, panoramic imaging techniques utilize non-enlarged images as their starting point. With such associated limitations, the ability to provide enhanced resolution digital images and, especially, an enhanced resolution digital panoramic image, such as those utilized on, or over, the Internet and/or the World Wide Web, has been greatly compromised.

Another major drawback in the current technology lies in the fact that conventional processes often utilize panoramic lenses in order to capture an image. This practice has been criticized as creating distortions in the image immediately upon the image's enlargement or reduction. The conventional techniques associated with the use of panoramic lenses are known to result in image "bending", which further curtails one's ability to obtain

realistic views, especially upon performing any associated cropping and/or editing processes. In such instances, the upper end and the lower end of the image must be either erased, or covered, in order to prevent the flaw from being exposed. This typically results in the resulting image having a "fishbowl-type" distortion.

In some instances, 32 mm lenses have been utilized in order to obtain enhanced floor to ceiling images without experiencing image bending. In these applications, however, the ability of the lens to capture optimal images varies depending upon the scene or image being photographed.

Images have typically been over-compressed prior to transmission over a communication network. This over compression has typically resulted in lack of image quality.

As a result, the ability to obtain enhanced video images and/or video files from film cameras and film recorders, from negatives and from digital cameras and recorders, has been limited.

#### SUMMARY OF THE INVENTION

The present invention provides an apparatus and a method for



providing enhanced digital video images and/or digital video files which overcomes the shortcomings of the prior art. The digital images and/or digital files produced by utilizing the present invention can be easily managed, when displayed, projected, and/or posted on any viewing device and/or entity such as, but not limited to, an Internet Web server, Web site or Web page, television, intranet computers and/or servers, and/or computers and/or servers which are utilized in wireless environments, etc.

The present invention provides for the processing, production and/or transmission of streaming video which can be transmitted on, or over, a communication network, the Internet, the World Wide Web, and/or any other communication network and/or medium. The streaming video obtained and/or transmitted via the present invention can provide for a video transmission which, once commenced, need not be stopped. The streaming video which is facilitated via the present invention can be played on demand while maintaining its streaming video nature.

The present invention provides an apparatus and a method for producing enhanced digital video images and video files from video which may be recorded as print film image or file, a negative image or file, a digital magnetic representation of a video image, an analog representation of a video image, and/or a

digital video image and/or file. The video images and/or files may be obtained via a digital camera, a digital recording device, a digital recorder, a digital camcorder, a film video camera, a recorder, and/or camcorder, a motion picture camera, a VHS video camera, recorder, and/or camcorder, a beta video camera, recorder, and/or camcorder, and/or any other suitable video recording device. The camera or recorder can be a conventional device and/or a solid state device which may contain a solid state storage medium.

THE PRESENT INVENTION

The video images and/or video files which are produced by the apparatus and method of the present invention have improved and enhanced resolution and require far less effort in the associated maintenance and management of same. The video images and/or files, which are produced by the apparatus and method of the present invention, can be utilized and displayed on computers, projection devices, televisions, and, as noted above, can be posted to an Internet Web server, a Web site, and/or a Web page, an intranet computer and/or server, and/or computers and/or servers utilized in wireless environments. The video images and/or files can be transmitted over a communication network and/or in computer-to-computer applications. The video images and/or files obtained may also be stored in an appropriate storage medium, such as, but not limited to, a compact disk, a digital video disk, and/or any other appropriate digital and/or

analog storage medium.

The present invention, in a preferred embodiment, is utilized to produce enhanced video images and/or files for posting and/or for downloading, to a digital display medium, which in the preferred embodiment, is an Internet and/or a World Wide Web server, a Web site, and/or Web page, and/or an intranet computer and/or server, and/or computers and/or servers which are utilized in a wireless environment, and/or a compact disk, a digital video disk, and/or other suitable storage medium. In this manner, enhanced video images and/or video files can be produced from video images and/or video files which can be recorded using any video recording device and recording medium such as, but not limited to, digital cameras, digital recorders, film cameras, film recorders, motion picture cameras, photographic film recorders, and/or magnetic film or disk film recorders, etc. The video images and/or files obtained are thereafter processed in accordance with the apparatus and method of the present invention in order to produce enhanced video images and/or video files.

These resulting video images and/or video files have enhanced resolution which is unaffected by the typical resolution limiting and degrading parameters and phenomena which are associated with conventional digital and/or film video cameras,

recorders and corresponding processing equipment, methods and/or techniques.

The apparatus can include a video camera or recorder which can be any one of an analog camera and/or a digital camera, an analog and/or digital recording device, an analog and/or digital camcorder, a film camera, a film recording device, and/or a film camcorder. For full motion video, a 3CCD chip, and/or any other appropriate and/or suitable motion video capture recording device, can be utilized in conjunction with the present invention. A suitable audio capture device for digitizing any audio which accompanies and/or which corresponds to the video can also be utilized. The camera or recording device can be a hand-held camera, a fixed camera, and/or a camera which is mountable, such as on a tripod or on a stand. The camera can be utilized to obtain the video image and/or video file which will be processed in accordance with the present invention. The camera can also be a video recording device for recording both video and audio.

The present invention preserves image and/or video integrity, as well preserves the integrity of any audio, from the point of capture of the image through and including any final compression or compressions of same. The apparatus can also include a developing device, which can be utilized for developing video images and/or files which are obtained on film. In the

case of video images and/or files which are obtained digitally, no developing device would be needed. The apparatus can also include an enlarging device which can be utilized to enlarge the video images obtained. An enlarger can be utilized for enlarging either film images and/or digital images.

The apparatus can also include a computer, for performing the various processing routines during operation of the apparatus and method of the present invention. The computer may be a personal computer, a laptop computer, a mini-computer, a microcomputer, a mainframe computer, a network computer, a server computer, and/or any other suitable computer or computer system, television system, either of the conventional, digital, and/or high definition variety.

The computer can include a central processing unit (CPU), a read only memory (ROM), a random access memory (RAM), a display device, an input device and an output device. The input device may include a keyboard, a mouse, or other pointing device, and/or any other data and/or command input device, for allowing for data and/or command input by a user. The output device may include a printer and, in the preferred embodiment, the printer may be a color laser printer or a color inkjet printer, a compact disk recorder, a digital video disk recorder, and/or any other suitable storage medium recorder. The computer can also include

a receiver for receiving data and/or information over a communication network and a transmitter for transmitting data and/or information over the communication network.

The computer can also include a video capture device, which may or may not be an integral component of the computer. The computer can also include an audio capture device which may or may not be an integral component of the computer. The video capture can also be an external peripheral device. Video data and/or information, as well as any audio data and/or information, is utilized, can be fed into, and/or played through, the respective video capture device and audio capture device, thereby digitizing the respective video data and/or information and audio data and/or information. The present invention preserves the integrity of any and/or all data and/or information upon conversion to digital formats. If full motion video is captured, any conversion can utilize full motion capture software and/or hardware. The video data and/or information can be fed into, and/or through, the video capture device, in real-time, thereby facilitating real-time video transmissions. In a similar fashion, the audio data and/or information can be fed into, and/or through, the audio capture device, in real-time, thereby facilitating real-time audio transmissions.

The computer can also include any other hardware device or

peripheral device and/or software which is, or which may be, needed and/or desired in order to perform any of the functions and/or operation described herein. The computer can also include a video data capture device, for capturing and processing the video images and/or files processed by the present invention, as well as an audio data capture device, for capturing and processing the audio files processed by the present invention.

The apparatus can also include a scanning device, for scanning video images or files, if needed, whether they be of a digital or of a print film type, in order to obtain a digital image representation of same.

The apparatus and method of the present invention provides video images and/or files, as well as any accompanying audio files, which have enhanced resolution and quality while requiring less file management efforts.

The resulting video images and/or files, and any accompanying audio files, which are obtained via the apparatus and method of the present invention are characterized by a high definition resolution and are suitable for high definition television, Web television, and large, full screen, panoramic Internet applications, including video playback and/or video transmission, along with any accompanying audio, while preserving

resolution upon image and/or video file magnification or reduction.

The present invention also facilitates high speed file transfers of high resolution video images and/or video files, and any accompanying audio files, thereby dispensing with the need to engage in long and slow conventional file downloads and/or file transfers in order to maintain viewing quality.

The apparatus and method of the present invention can also be utilized in conjunction with three-dimensional images and video files in order to produce high resolution, three-dimensional video images and/or video files.

Accordingly, it is an object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files from files obtained via digital and/or film video cameras and/or a recording devices.

It is another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files from files obtained via digital and/or film video cameras and/or a recording devices, which have improved and enhanced resolution.



It is still another object of the present invention to provide an apparatus and a method for processing, producing, and/or transmitting streaming video for use on, or over, a communication network.

It is another object of the present invention to provide an apparatus and a method for producing streaming video which, once commenced, need not be stopped and/or halted during the subsequent transmission of same.

It is another object of the present invention to provide an apparatus and a method for producing streaming video which can be played continuously and on-demand.

It is yet another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, and accompanying audio files, from files obtained via digital and/or film video cameras and/or a recording devices, which have improved and enhanced resolution.

It is still another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording

devices digital images, which are suitable for display and/or for downloading to a digital computer, a television, and/or any other communication device utilized in a telecommunication environment and/or communications environment.

It is still another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording devices, which are characterized by image compression and/or minimal image compression thereby avoiding any dramatic loss in image quality.

It is another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording devices, which may dispense with the need to compress the image data.

It is yet another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording devices, which are characterized by high definition resolution, and which are suitable for high definition television, Web television and

large, full screen, panoramic internet applications, without loss of resolution upon image magnification or reduction.

It is another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording devices, which can be transmitted in a network environment.

It is still another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, from files obtained via digital and/or film video cameras and/or a recording devices, which facilitates high speed file transfer in a network environment and/or in a computer environment.

It is another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, which preserves image integrity from the point of capture of the image through and including final compression or compressions.

It is still another object of the present invention to provide an apparatus and a method for producing enhanced resolution digital images and/or digital video files, which

preserves the integrity of any and/or all data and/or information upon conversion to digital formats.

Other objects and advantages of the present invention will be apparent to those skilled in the art upon a review of the Description of the Preferred Embodiment taken in conjunction with the Drawings which follow.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the Drawings:

Figure 1 illustrates the apparatus of the present invention, in block diagram form; and

Figures 2 illustrates a method of the present invention, in flow diagram form; and

Figures 3a, 3B and 3C illustrate another method of the present invention, in flow diagram form.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention provides an apparatus and a method for providing enhanced digital video images and/or digital video, as

well as any accompanying audio, files which can be utilized and which can be easily managed, when displayed, projected, and/or posted on any viewing device and/or entity such as, but not limited to, an Internet Web server, Web site or Web page, television, etc. In particular, the present invention provides an apparatus and a method for producing enhanced digital video images and video files from video, as well as any accompanying audio files, which may be recorded as a digital video image and/or files and/or as a film video image and/or file a print film image.

The present invention provides for the processing, production and/or transmission of streaming video which can be transmitted on, or over, a communication network, the Internet, the World Wide Web, and/or any other communication network and/or medium. The streaming video obtained and/or transmitted via the present invention can provide for a video transmission which, once commenced, need not be stopped. The streaming video which is facilitated via the present invention can be played on demand while maintaining its streaming video nature.

The video images and/or files, and any accompanying audio files, may be obtained via a digital camera, a digital recording device, a digital recorder, a digital camcorder, a film video camera, recorder, and/or camcorder, a VHS video camera, recorder,

and/or camcorder, a beta video camera, recorder, and/or camcorder, and/or any other suitable video recording device. The video images and/or video files and any accompanying audio files, which are produced by the apparatus and method of the present invention have improved and enhanced resolution and require far less effort in the associated maintenance and management of same. The video images and/or files, and any accompanying audio files, which are produced by the apparatus and method of the present invention, can be utilized, displayed, and/or played, whichever the case may be, on computers, projection devices, televisions, and, as noted above, can be posted to an Internet Web server, a Web site, and/or a Web page. The video images and/or files, and any accompanying audio files, can be transmitted over a communication network and/or in computer-to-computer applications.

The present invention, in a preferred embodiment, is utilized to produce enhanced video images and/or files, and any accompanying audio files, for posting and/or for downloading, to a digital display medium, which in the preferred embodiment, is an Internet and/or a World Wide Web server, a Web site, and/or Web page. In this manner, enhanced video images and/or video files, and any accompanying audio files, can be produced from video images and/or video files, and accompanying audio files, which can be recorded using any video recording device and

recording medium such as, but not limited to, digital cameras, digital recorders, film cameras, film recorders, etc. The video images and/or files, and any accompanying audio files, obtained are thereafter processed in accordance with the apparatus and method of the present invention in order to produce enhanced video images and/or video files.

These resulting video images and/or video files, and any accompanying audio files, have enhanced resolution which is unaffected by the typical resolution limiting parameters and phenomena which are associated with conventional digital and film video cameras, recorders and corresponding processing equipment, methods and/or techniques.

Figure 1 illustrates the apparatus of the present invention which is denoted generally by the reference numeral 100, in block diagram form. With reference to Figure 1, the apparatus 100 includes a video camera or recorder 105 which, in the preferred embodiment, can be any one of a digital camera, a digital recording device, digital camcorder, a film camera, a film recording device, and/or a film camcorder. The camera or recorder can be a conventional device and/or a solid state device which may contain a solid state storage medium.

The camera or recording device can record video as well as

audio data and/or information. In the preferred embodiment, the camera 105 may be a hand-held camera, a fixed camera, and/or a camera which is mountable, such as on a tripod or on a stand. The camera 105 is utilized to obtain the video image and/or video file, as well as any audio files, which will be processed as described herein.

For full motion video, a 3CCD chip, and/or any other appropriate and/or suitable motion and/or video capture recording device, can be utilized in conjunction with the present invention. A suitable audio capture recording device can also be utilized in conjunction with the present invention.

The present invention can also be utilized in conjunction with any imaging and/or any video recording device, and/or audio recording device, and/or equipment, such as, but not limited to, those devices and equipment utilized in, or in conjunction with, medical imaging equipment, devices and/or instruments, motion picture production equipment, devices and/or instruments and/or in any other equipment, device, and/or instrument, which is, or which can be, utilized in conjunction with imaging and/or video and/or audio applications and/or uses.

The apparatus 100 also includes a developing device 115, which could be utilized for developing video images and/or files



which are obtained on film. In the case of video images and/or files which are obtained digitally, no developing device may be needed. The apparatus also includes an enlarging device which can be utilized to enlarge the video images obtained. The apparatus can include an enlarger for both film images as well as for digital images.

The apparatus 100 also includes a computer 120, for performing the various processing routines during operation of the apparatus and method of the present invention. The computer 120 may be a personal computer, a laptop computer, a mini-computer, a microcomputer, a mainframe computer, a network computer, a server computer, and/or any other suitable computer or computer system.

The computer 120 includes a central processing unit (CPU), a read only memory (ROM), a random access memory (RAM), a display device, an input device and an output device. The input device may include a keyboard, a mouse, or other pointing device, and/or any other data and/or command input device, for allowing for data and/or command input by a user. The output device may include a printer and, in the preferred embodiment, the printer may be a color laser printer or a color inkjet printer. The computer 120 also includes a receiver for receiving data and/or information over a communication network and a transmitter for transmitting

data and/or information over the communication network.

The computer 120 also includes a video capture device 121A and an audio capture device 121B, which, in the preferred embodiment, are integral components of the computer 120. The video capture device 121A, in the preferred embodiment, can be a video capture card 121A which is located internal to the computer 120. The video capture device 121A may also be an external peripheral device. As described herein, the video data and/or information is fed into, and/or played through, the video capture device 121A, thereby digitizing the video data and/or information. The video data and/or information can be fed into, and/or through, the video capture card 121A, in real-time, thereby facilitating real-time video transmissions.

In a similar manner, the audio capture device 121B, in the preferred embodiment, can be an audio capture card 121B which is located internal to the computer 120. The audio capture device 121 may also be an external peripheral device. As described herein, the audio data and/or information is fed into, and/or played through, the audio capture device 121B, thereby digitizing the audio data and/or information. The audio data and/or information can be fed into, and/or through, the audio capture card 121B, in real-time, thereby facilitating real-time audio transmissions.

The computer 120 may also include any other hardware device or peripheral device and/or software which is, or which may be needed and/or desired in order to perform any of the functions and/or operation described herein. In particular, the computer 120 will also include a video data capture device for capturing and processing the video images and/or files processed by the present invention. The computer 120 can also include an audio capture device for capturing and processing the audio files processed by the present invention.

The computer 120 also includes a transmitter (not shown) and a receiver (not shown) for facilitating operation in a network environment and/or as a server computer.

The apparatus 100 also includes a scanning device 125, for scanning video images or files, if needed, whether they be digital or of a print film type, in order to obtain a digital image representation of same. Any suitable computer or scanner, and any suitable scanning software, may be utilized in conjunction with the present invention. In a preferred embodiment, any suitable scanning device can be utilized in conjunction with any appropriate software.

Figure 2 illustrates a preferred embodiment method of the present invention, in flow diagram form. With reference to

Figure 2, the method of the present invention commences at step 200. The method described herein can be utilized to process both video and audio files as well as files which contain only video information. For the sake of explaining the present invention in a preferred embodiment, the processing of video files along with corresponding audio files is described below. At step 201, the video images or files, and corresponding audio files, are recorded with any appropriate or suitable recording device such as, but not limited to, the video recording camera 105. The video and corresponding audio can be recorded and/or otherwise obtained in any suitable format, such as, but not limited to, for example, beta, VHS, digital, and/or any other standard formats, including, but not limited to, NTSC, PAL, or SECAM. The video and corresponding audio files can also be obtained in other standard digital formats such as, but not limited to, IEEE1834, \*.AVI, \*.MOV, \*.MPEG, etc., by utilizing an appropriately equipped video recording device. The video recording device 105 may also be a reel-to-reel recording device and/or a live video recording device.

At step 202, the respective digital files and corresponding audio files, are converted to digital files, if necessary, by utilizing respective digitizing and/or scanning hardware and/or software and/or devices. In the case of the video files, the video is digitized by utilizing digitizing hardware and/or software and/or any other necessary and/or appropriate driver

software or programs in conjunction with a video capture device. In the preferred embodiment, hardware such as Pinnacle DC10<sub>00</sub> or other equivalent and/or similar hardware and/or software and/or associated drivers can be utilized to perform the video digitizing operation. The video digitizing step can be performed, in the preferred embodiment, at a minimum frames per second (fps) or at least a television standard and/or 30fps and with frame sizes of at least 320 X 240 pixels.

It is understood that the herein-described video digitizing step is not limited to the settings and/or parameters described herein. Rather, any appropriate settings and/or parameters may be utilized in order to obtain digital video data and/or information which is consistent with the digital data and/or information described herein.

In an analogous manner, at step 201, the audio files are also digitized by utilizing appropriate digitizing or capture hardware and/or software and any other necessary and/or appropriate driver software or programs. In the preferred embodiment, hardware such as produced by Turtle Beach Montego<sub>00</sub> or other equivalent and/or similar hardware and/or software, and any associated drivers, if needed, are utilized in order to perform the audio digitizing operation. The audio digitizing step can be performed, in the preferred embodiment, by utilizing PCM or an

equivalent and/or similar technique and at a sampling rate of at least 44 to 48 kilohertz (Khz), 16-bit stereo, and an audio resolution of at least 16-bits.

The video and/or audio files which are obtained via the processing routines at step 201, are digital files which can be in any standard digital format such as, but not limited to, \*.AVI, \*.MOV, or \*.MPEG, and/or any other suitable digital file format. While video information can be obtained for any frame setting, in a preferred embodiment, frames settings of 320 x 240, 480 x 320 and/or 640 x 480 can be utilized.

At step 202, if desired the digitized video and audio files can be processed in conjunction with video editing software, such as, for example Adobe Premiere 5.1 and/or any other equivalent and/or similar editing software. The processing which is performed at step 202 is optional and need not be performed on the digital video and audio files. The processing which is performed on the digital video and audio files, at step 202, can be performed in order to facilitating the editing of the respective digital video and audio files if such may be desired.

The processing at step 202 also serves to convert the digital video and audio to respective digital formats which are amenable to various editing procedures. For example, a \*.MOV formatted file is converted to a .RM file format, a \*.AVI

formatted file is converted to a .ASF file format, and a \*.MPEG formatted file is converted to a .RM file format. The processing step which is performed at the optional step 202 can be performed with the following processing parameters.

At step 203, the digital video and audio file is processed and/or encoded in order to generate the respective files for presentation from a player or server computer. The processing which occurs at step 203 is accomplished with Windows Media Encoder/Reel Producer Plus software in order to create digital files for both video and audio which are in an appropriate digital file format, such as, but not limited to .RM and .ASF, or other suitable and/or similar digital file formats. Thereafter, the digital video and audio files will be available for transmission to appropriate computers and/or communication devices, and/or for storage onto an appropriate storage medium.

The digital video and audio file, which is processed and encoded at step 203, can be transmitted at a data rate having a range of between 35Kbps to 750Kbps and can have a frame rate range of between 24 to 29.97 fps.

At step 204, the video and audio file can be transmitted from the sever computer 120 to a client computer or communication device. In the preferred embodiment, and in order to facilitate the presentation of the video and audio file at the client

computer or communication device, the presentation of the video and audio file can be accomplished in conjunction with video software such as, but not limited to, RealPlayer<sup>®</sup>, MediaPlayer<sup>®</sup>, and/or any other appropriate software. The transmission of the video and audio will take place with a data rate range of between 35 Kbps to 750 Kbps at with a frame rate range of between 24fps - 29.97fps.

The obtained video and audio file or files can then be posted to the computer 120 and/or to another hosting computer. If the posting is to a computer other than the computer 120, the posting is performed by transmitting the video file or files over a communication network to the hosting computer. In the preferred embodiment, the video and audio file or files are posted via the Internet, and/or the World Wide Web, and can be posted to a Web Page, a Web site, and/or any other network device. The posting operation is performed by utilizing any suitable posting software. The video and audio file or video file can also be stored on a compact disk, a digital video disk and/or any other appropriate storage medium.

The above-describe processing routine facilitates the processing of digital video and audio files in such a manner that any compression, if performed, is maintained at minimum levels.



The respective video and audio files are digitized at an optimal level and thereafter encoded at an optimal level, thereby preserving the highest quality of video and audio content.

Transmission of the video and audio files to a client computer (not shown) can thereafter commence at step 205.

Typically, the various rates of transmission for the above transmission parameters will be dependent upon the type and specifications of the receiver or modem associated with the client computer or communication device. In another preferred embodiment, the server computer 120 can ascertain the receiver or modem specifications. Thereafter, the server 120 can process the information obtained regarding the client computer or communication device and determine the appropriate transmission rates and/or other parameters and commence transmission to the client computer or communication device at step 205.

Operation of the apparatus will then cease at step 206.

Figures 3A, 3B and 3C illustrate another preferred embodiment method of the present invention, in flow diagram form.

With reference to Figures 3A, 3B and 3C, the method of the present invention commences at step 300. At step 301, the video images and/or files are recorded with the video camera 105. The video can be recorded in any format, such as, but not limited to,

i.e., beta, VHS, digital, and/or any of the standard file formats, including, but not limited to, \*.AVI, \*.MOV, \*.MPEG, etc., by utilizing the video recording device 105. The video recording device 105 may also be a reel-to-reel recording device and/or a live video recording device.

At step 302, the video images and/or files are converted to a converted to digital files, if necessary, by utilizing the scanner 110. At step 303, digital video image files are loaded into the computer 120 for processing. At step 304, the video image files are fed into, or through, the capture device 121A of the computer 120. The video capture operation, which is performed by the video capture device 121A, in the preferred embodiment, can be performed with minimum compression and/or encoding operations being performed on the video image files and/or with only minimal compression and/or encoding operations being performed on the video image files.

The video capture device 121A, in the preferred embodiment, can be any suitable video capture device or card and/or any other appropriate and/or suitable video capture hardware. The capture software utilized can be any appropriate and/or suitable video capture software.

At step 305, the video images and/or files are edited, if

necessary, by using any standard video editing tools, such as, for example, any editing software. At step 306, the video image files are then converted to any suitable real video format such as, for example, a \*.RM format. At step 307, the size of the video within the file code is set either manually or automatically. In the preferred embodiment, the size of the video is set within the file code, which may or may not be the HTML file code to a 640 x 480 frame resolution, or any other suitable resolution, such as, but not limited to, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200 or other sizes.

At step 308, the obtained video image file or files is then posted to the computer 120 and/or to another hosting computer. If the posting is to a computer other than the computer 120, the posting is performed by transmitting the video file or files over a communication network to the hosting computer. In the preferred embodiment, the video file or files are posted via the Internet, and/or the World Wide Web, and can posted to a Web Page, a Web site, and/or any other network device. The posting operation is performed by utilizing any suitable posting software. The video image file or video file can also be stored on a compact disk, a digital video disk and/or any other appropriate storage medium.

At step 309, the computer 120 or other hosting computer

generates or writes a file or script, such as an ASCII file which calls the video to stream or to download. This results in video which will stream or "streaming" video for a full screen application which will be characterized by a good clarity and quality. At step 309, the video file can then be transmitted to a client computer (not shown). At step 309, a separate file or script, such as an ASCII file is written and saved to an appropriately formatted file, such as an \*.RPM file, or other suitable file format, which will call the original video file. This script can be typically included in any suitable code, such as an HTML code.

In the case of MPEG videos, Steps 301 through 303 are followed as described above. At step 304, however, the video file is converted, if not previously converted, to an MPEG format. Thereafter, the video is inserted into the appropriate file which may contain suitable coding, such as HTML codes. Thereafter, the file can be sized to any of herein-described resolutions. Thereafter, the video file is uploaded to the hosting computer, if utilized. Thereafter, the MPEG file is played from the computer 120 or the hosting computer, the Web page, and/or the Web site, depending upon the application, by first downloading a small portion of the file and by playing the file through a suitable device such as a player which supports any suitable video formats, such as AVI, MPEG-type, etc., and/or

other suitable formats.

Thereafter, operation of the apparatus ceases at step 310.

The processing steps described herein provide for the production of video images and/or video files which have enhanced resolution and which can be easily and effectively managed in applications involving the display of same, the posting of same, to a host computer, a Web server, a Web site, a Web page, a computer display, a full screen projection display and/or a video presentation and/or playback of same, respectively. Further, the method of the present invention provides for image processing, including various image and/or file processing techniques, which may or may not include image compression and/or encoding operations.

The apparatus and method of the present invention provides video images and/or files which have enhanced resolution and quality while requiring less file management efforts.

The resulting video images and/or files, and any accompanying audio files, which are obtained via the apparatus and method of the present invention are characterized by a high definition resolution and are suitable for high definition television, Web television, and large, full screen, panoramic

Internet applications, including video playback and/or video transmission, which preserving resolution upon image and/or video file magnification or reduction. The present invention also facilitates high speed file transfers of high resolution video images and/or video files, and any accompanying audio files, thereby dispensing with the need to engage in long and slow conventional file downloads and/or file transfers.

The apparatus and method of the present invention can also be utilized in conjunction with three-dimensional images and video files in order to produce high resolution, three-dimensional video images and/or video files.

The present invention preserves image integrity from the point of capture of the image through, and including, any final compression or compressions of same.

The resulting video images and/or files, and any accompanying audio files, which are obtained via the apparatus and method of the present invention, can be utilized, in any and/or all of the embodiments described herein, in conjunction with data and/or information which can be provided by any other and/or any external information source. The data and/or information may contain, but is not limited to, data and/or information of and for sound and/or audio files, text files,

video files, image files, and/or graphics files, and/or any other information source, data, information and/or file, which can be, and/or which may be linked to or with, and/or which can be operated and/or utilized in conjunction with, any video and/or image data and/or information. For example, any image and/or video data, information, or file, obtained via the present invention, can be utilized in conjunction with any sound file, audio file, text file, video file, image file, and/or graphics file, and/or any other data, information and/or file utilized in a multimedia environment, thereby providing for the utilization of enhanced images and/or video in conjunction with the respective file.

As noted above, the present invention provides for the processing, production and/or transmission of streaming video which can be transmitted on, or over, a communication network, the Internet, the World Wide Web, and/or any other communication network and/or medium. The streaming video obtained and/or transmitted via the present invention can provide for a video transmission which, once commenced, need not be stopped. The streaming video which is facilitated via the present invention can be played on demand while maintaining its streaming video nature.

While the present invention has been described and

illustrated in various preferred embodiments, such descriptions are merely illustrative of the present invention and are not to be construed to be limitations thereof. In this regard, the present invention encompasses any and all modifications, variations, and/or alternate embodiments, with the scope of the present invention being limited only by the claims which follow.

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CLAIMS

What Is Claimed Is:

1. An apparatus for producing a digital image, comprising:
  - a device for generating a digital signal file from an image; and
  - a processor for processing said digital signal file and for generating an image file,
    - wherein said processor generates a first signal file from said digital signal file, and further wherein said processor processes said first signal file and generates said image file.
2. The apparatus of claim 1, further comprising:
  - one of a camera and a recording device for obtaining one of a photographic representation of an image, a film image, a negative image and a digital image.
3. The apparatus of claim 2, further comprising:
  - a developing device for developing one of said photographic representation of an image, a film image and a negative image.
4. The apparatus of claim 3, further comprising:

an enlarging device for enlarging said image.

5. The apparatus of claim 4, further comprising:
  - a scanning device for generating said digital signal file from said one of photographic representation of an image, a film image and a negative image.
6. The apparatus of claim 1, further comprising:
  - a video capture device for one capturing and processing said digital signal file.
7. The apparatus of claim 1, wherein said first signal file is an image file.
8. An apparatus for producing a digital image, comprising:
  - means for generating a digital signal file from an image file; and
  - means for processing said digital signal file and for generating an image file,
  - wherein said processing means generates a first signal file from said digital signal file, and further wherein said processing means processes said first signal file and generates said image file.
9. The apparatus of claim 8, further comprising:

means for obtaining said one of a photographic representation of an image, a film image, a negative image and a digital image.

10. The apparatus of claim 8, further comprising:

means for developing said one of photographic representation of an image, a film image and a negative image.

11. The apparatus of claim 8, further comprising:

means for enlarging said image.

12. The apparatus of claim 8, further comprising:

means for generating said digital signal file from said image.

13. The apparatus of claim 8, further comprising:

means for one of capturing and processing said digital signal file.

14. A method for producing a digital image, comprising:

generating a digital signal file from an image;  
processing said digital signal file; and  
generating an image file, wherein said processing operation further comprises:

generating a first signal file from said digital signal file; and

processing said first signal file and generating said image file.

15. The method of claim 14, further comprising:

obtaining one of a photographic representation of an image, a film image, a negative image and a digital image.

16. The method of claim 14, further comprising:

developing said one of photographic representation of an image, a film image, and a negative image; and generating said image.

17. The method of claim 14, further comprising:

enlarging said image.

19. The method of claim 14, further comprising:

generating said digital signal file from said image.

20. The method of claim 14, further comprising:

one of capturing and processing said digital signal file.

21. The apparatus of any one of claims 1 to 13, wherein said

image file is utilized in conjunction with at least one of a sound file, an audio file, a text file, a video file, an image file, and a graphics file.

22. The method of any one of claims 14 to 20, wherein said image file is utilized in conjunction with at least one of an audio file, a text file, a video file, an image file, and a graphics file.

23. An apparatus for producing a streaming video file, comprising:

a device for generating a digital signal file from a first video file; and

a processor for processing said digital signal file and for generating a second video file,

wherein said processor generates a first signal file from said digital signal file, and further wherein said processor processes said first signal file and generates said second video file, and further wherein said second video file is a streaming video file.

24. The apparatus of claim 23, further comprising:

one of a camera and a recording device for obtaining one of a photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion

picture.

25. The apparatus of claim 24, further comprising:

a developing device for developing one of said photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

26. The apparatus of claim 25, further comprising:

an enlarging device for enlarging said photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion picture video file.

27. The apparatus of claim 24, further comprising:

a scanning device for generating said digital signal file from said one of photographic representation of an image, a film image, a negative image photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

28. The apparatus of claim 23, further comprising:

a video capture device for one capturing and processing at least one of said video file and said digital signal file.

29. The apparatus of claim 23, wherein said first signal file is

a video image file.

30. The apparatus of claim 23, wherein said streaming video file is one of posted to a host computer and stored on a storage medium.

31. The apparatus of claim 30, wherein said storage medium is at least one of a compact disk, a digital video disk, a floppy disk, and solid state device.

32. The apparatus of claim 23, wherein said streaming video file can be transmitted at least one of on demand and continuously.

33. An apparatus for producing a streaming video file, comprising:

means for generating a digital signal file from a first video file; and

means for processing said digital signal file and for generating a second video file,

wherein said processing means generates a first signal file from said digital signal file, and further wherein said processing means processes said first signal file and generates said second video file, and further wherein said second video file is a streaming video file.

34. The apparatus of claim 33, further comprising:

means for obtaining one of a photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion picture.

35. The apparatus of claim 34, further comprising:

means for developing one of said photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

36. The apparatus of claim 35, further comprising:

means for enlarging said photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion picture video file.

37. The apparatus of claim 33, further comprising:

means for generating said digital signal file from said one of photographic representation of an image, a film image, a negative image photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

38. The apparatus of claim 33, further comprising:

means for one capturing and processing at least one of said video file and said digital signal file.



39. The apparatus of claim 33, wherein said first signal file is a video image file.

40. The apparatus of claim 33, wherein said streaming video file is one of posted to a host computer and stored on a storage medium.

41. The apparatus of claim 40, wherein said storage medium is at least one of a compact disk, a digital video disk, a floppy disk, and solid state device.

42. The apparatus of claim 33, wherein said streaming video file can be transmitted at least one of on demand and continuously.

43. A method for producing a streaming video file, comprising:  
generating a digital signal file from a first video file; and

processing said digital signal file and generating a second video file,

wherein said first signal file is generated from said digital signal file, and further wherein said first signal file is utilized to generate said second video file, and further wherein said second video file is a streaming video file.

44. The method of claim 43, further comprising:

obtaining one of a photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion picture.

45. The method of claim 44, further comprising:

developing one of said photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

46. The method of claim 45, further comprising:

enlarging said photographic representation of an image, a film image, a negative image, a digital image, a video file, and a motion picture video file.

47. The method of claim 43, further comprising:

generating said digital signal file from said one of photographic representation of an image, a film image, a negative image photographic representation of an image, a film image and a negative image, a digital image, a video file, and a motion picture.

48. The method of claim 43, further comprising:

one capturing and processing at least one of said video file and said digital signal file.

49. The method of claim 43, wherein said first signal file is a video image file.

50. The method of claim 43, wherein said streaming video file is one of posted to a host computer and stored on a storage medium.

51. The method of claim 50, wherein said storage medium is at least one of a compact disk, a digital video disk, a floppy disk, and solid state device.

52. The apparatus of claim 43, wherein said streaming video file can be transmitted at least one of on demand and continuously.

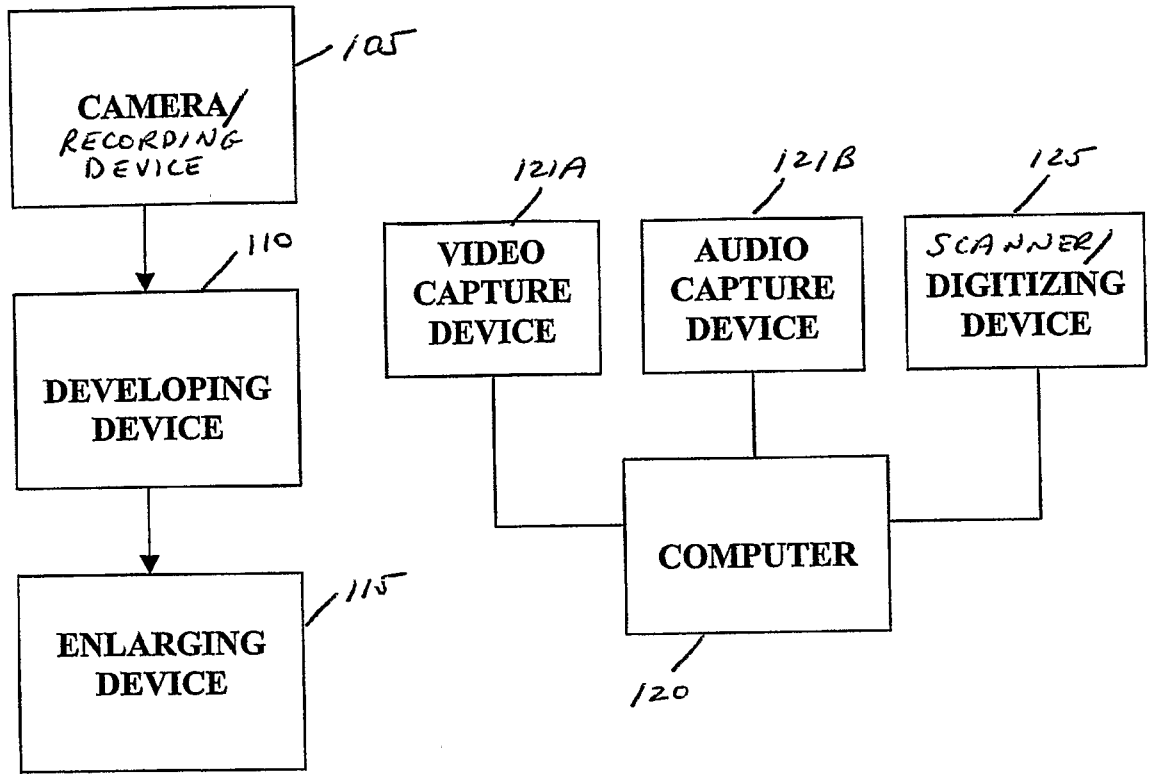
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ABSTRACT OF THE DISCLOSURE

An apparatus and method for producing a digital image, including a device for generating a digital signal file from an image and a processor for processing said digital signal file and for generating an image file. The processor generates a first signal file from the digital signal file. The processor processes the first signal file and generates the image file. An apparatus for producing a streaming video file, including a device for generating a digital signal file from a first video file and a processor for processing the digital signal file and for generating a second video file. The processor generates a first signal file from the digital signal file. The processor processes the first signal file and generates the second video, wherein the second video file is a streaming video file.

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FIG. 1

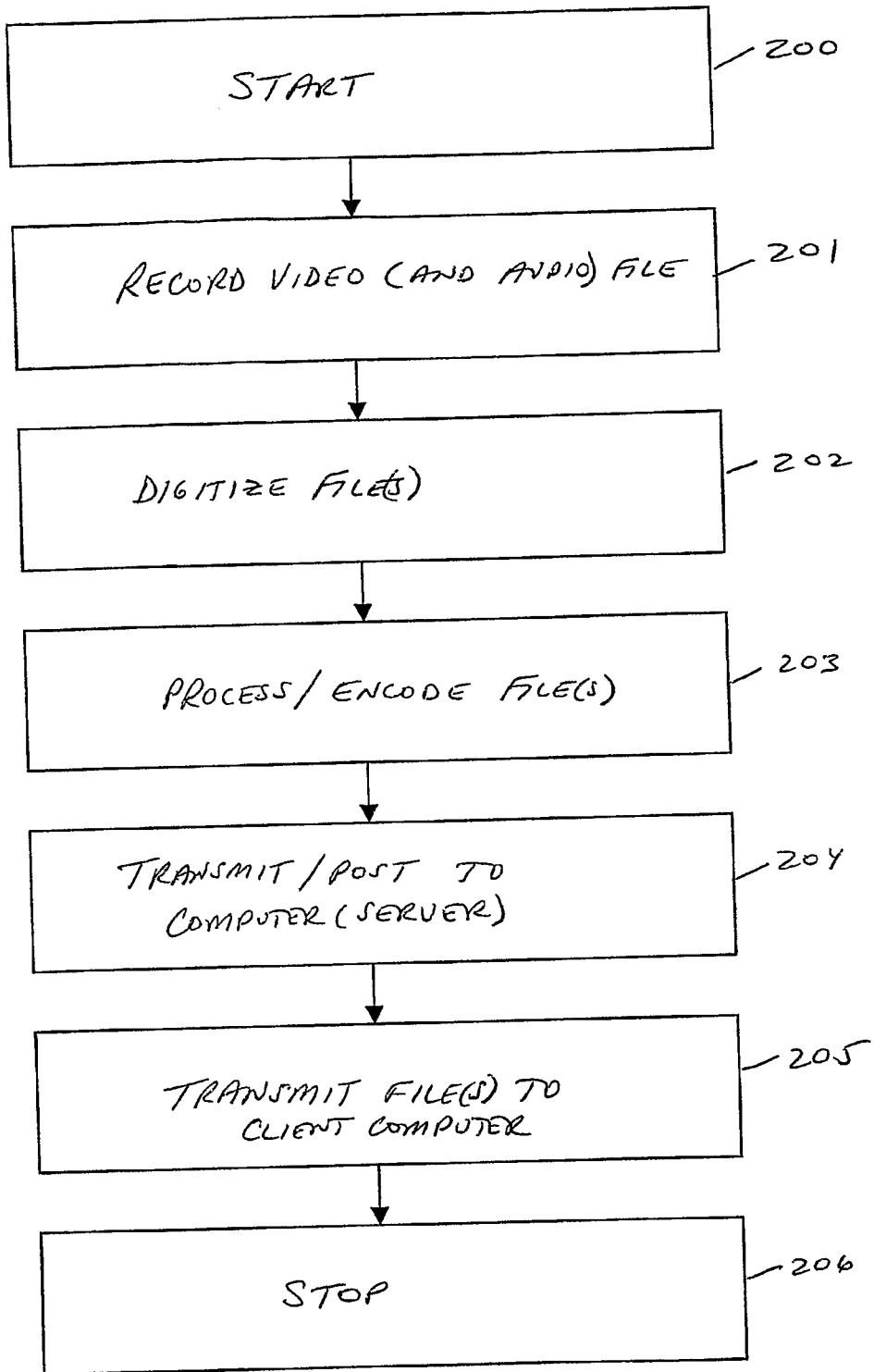


FIG. 2

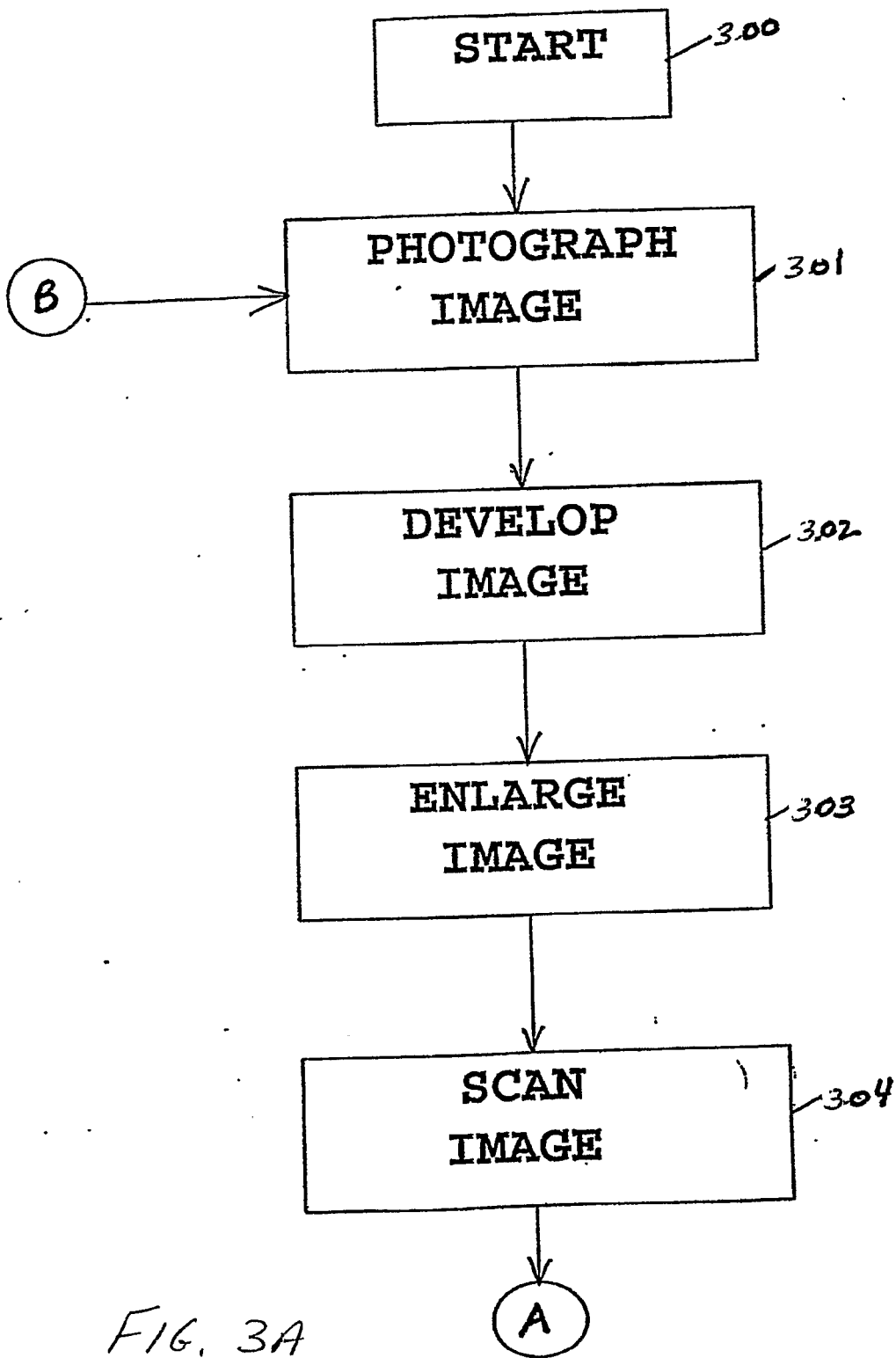


FIG. 3A

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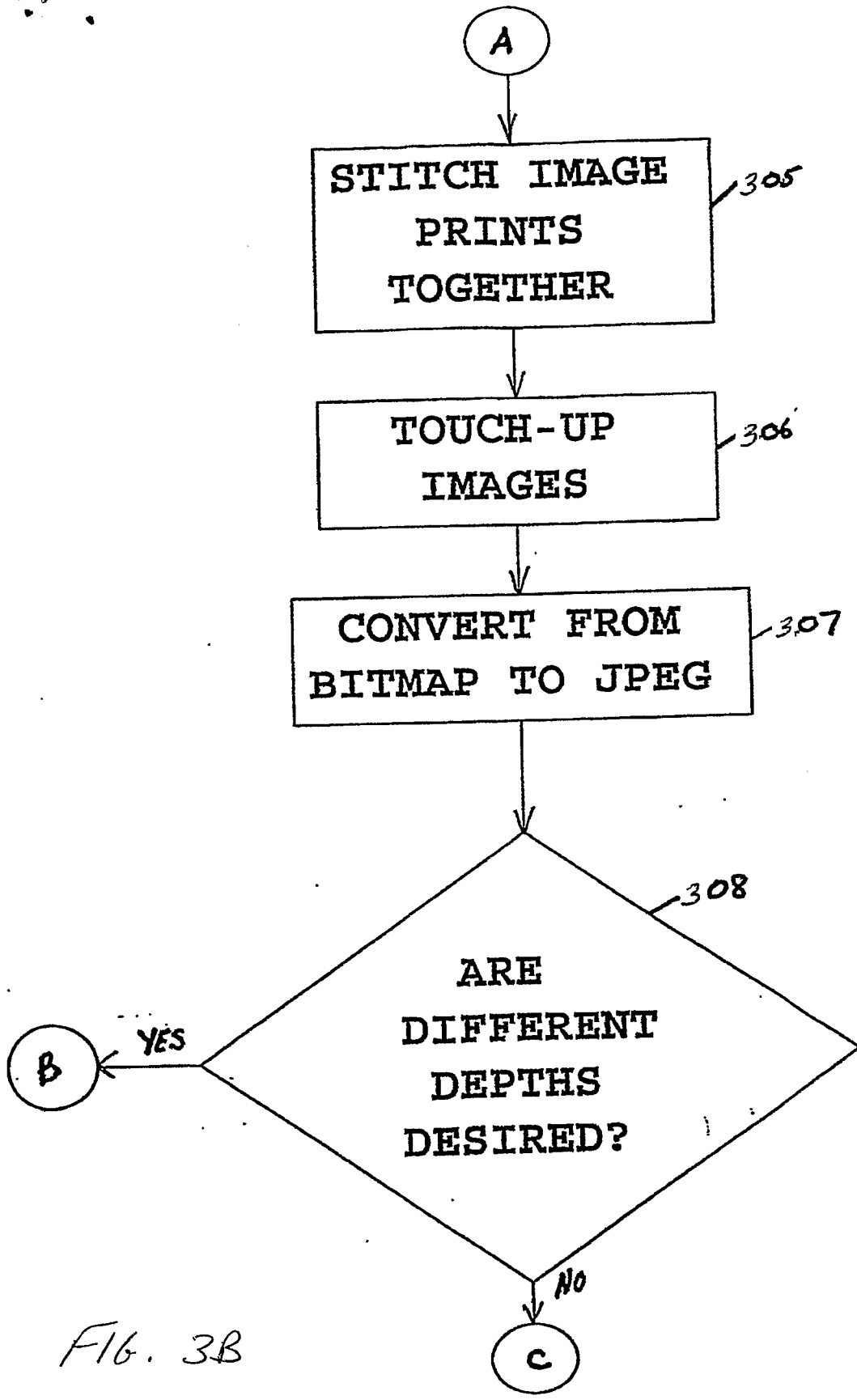


FIG. 3B



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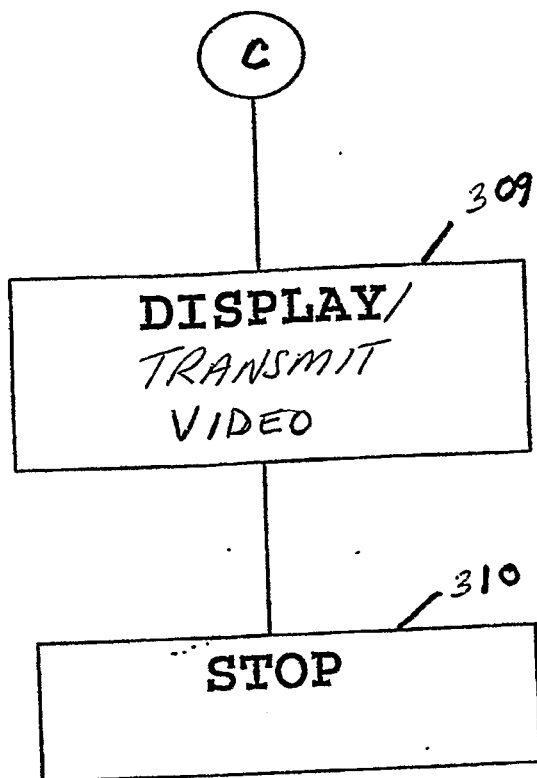


FIG. 3C