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Anderson

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(54) **METHOD AND SYSTEM FOR SORTING IMAGES IN AN IMAGE CAPTURE UNIT TO EASE BROWSING ACCESS**

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(52) **U.S. Cl.** **348/333.05**; 348/333.02; 348/231.2; 345/778; 345/786; 345/830

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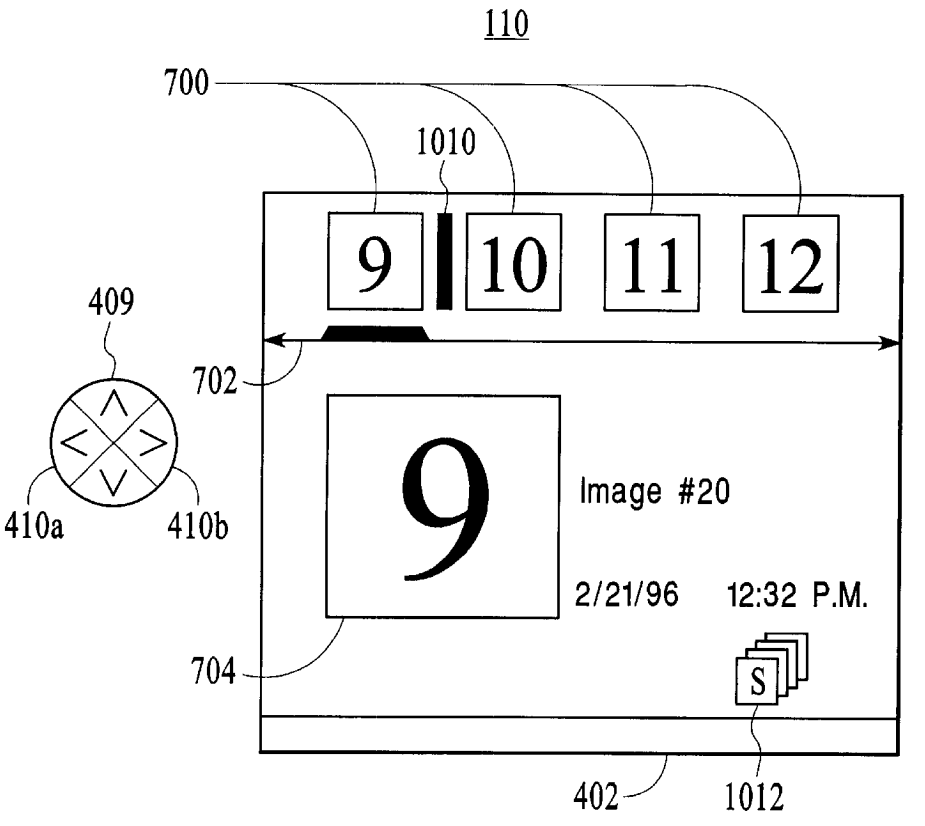
(57) **ABSTRACT**

Method and system aspects for locating a desired image from a plurality of images stored in an image capture unit are described. In an exemplary method aspect, the method includes sorting the plurality of images in the image capture unit according to a sort criteria. The method further includes displaying the sorted images as one or more image groups on a display interface of the image capture unit. Additionally included is providing browsing access of the displayed, sorted images by group, wherein locating of a desired image occurs.

12 Claims, 13 Drawing Sheets



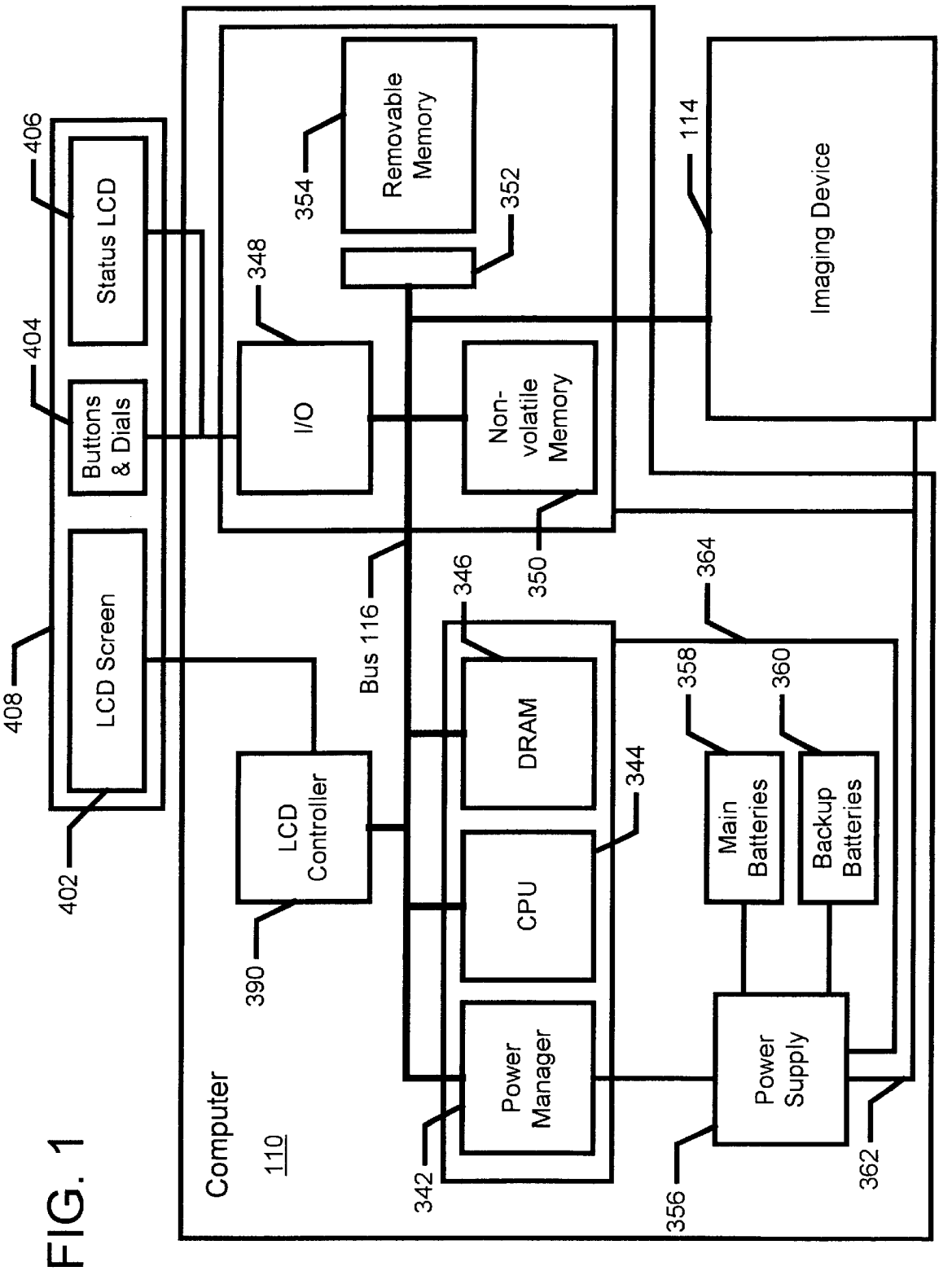

Computer
110
Status LCD
406
Buttons & Dials
404
LCD Screen
408
402
LCD Controller
390
I/O
348
Removable Memory
354
352
Non-volatile Memory
350
Bus 116
346
DRAM
344
CPU
Power Manager
342
Imaging Device
114
364
358
Main Batteries
360
Backup Batteries
Power Supply
356
362

FIG. 1

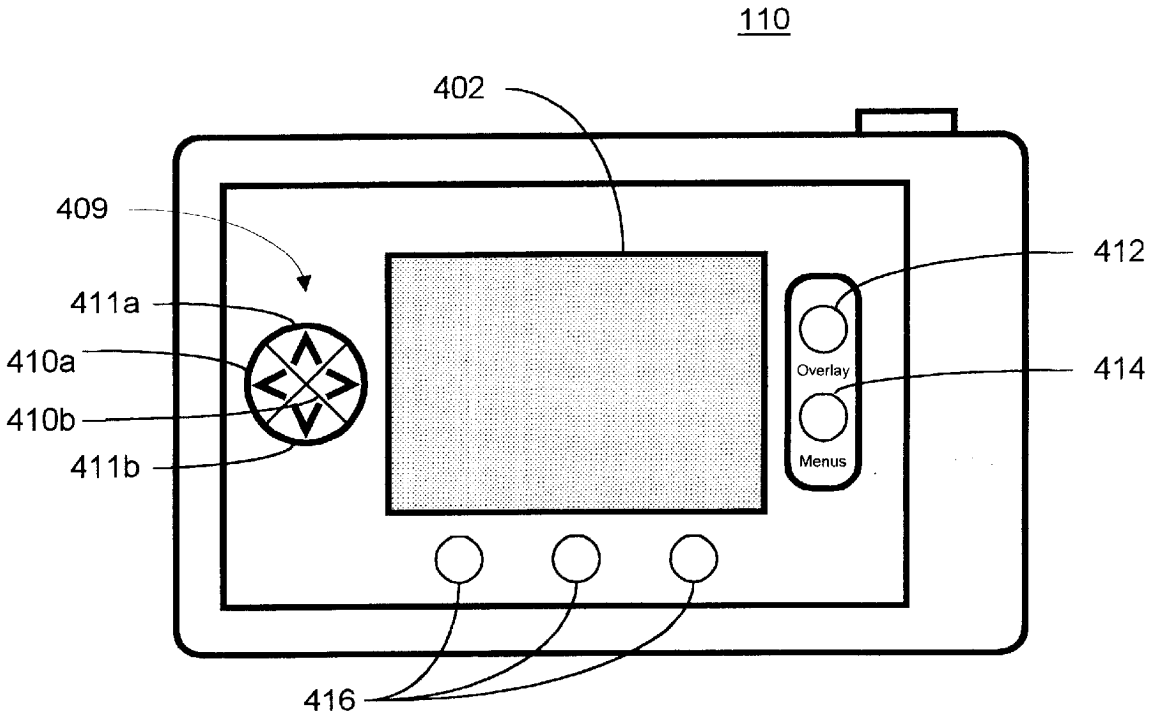

110
402
409
411a
410a
410b
411b
412
414
Overlay
Menus
416

FIG. 2A

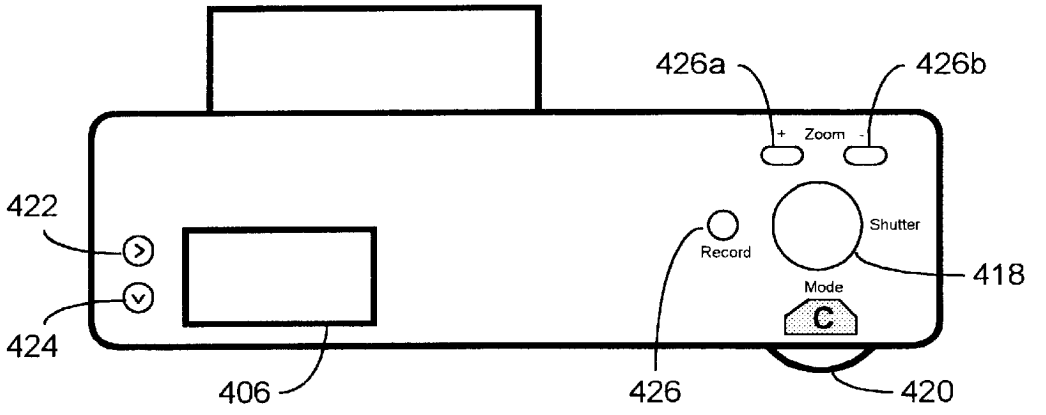

426a
426b
+ Zoom -
422
Record
Shutter
418
Mode
C
424
406
426
420

FIG. 2B

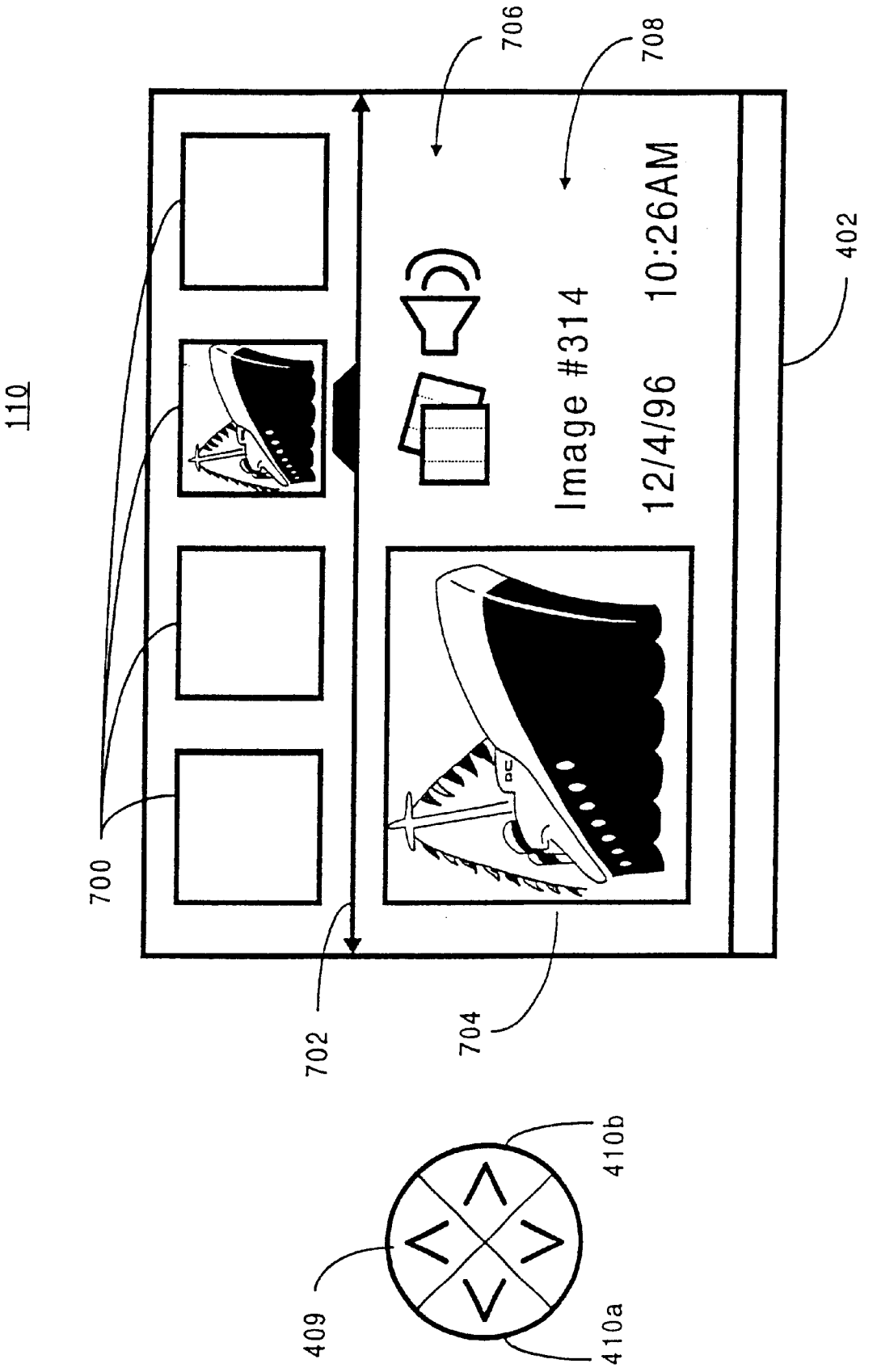

110
700
702
704
706
708
402
Image #314
12/4/96
10:26AM
409
410a
410b

FIG. 3

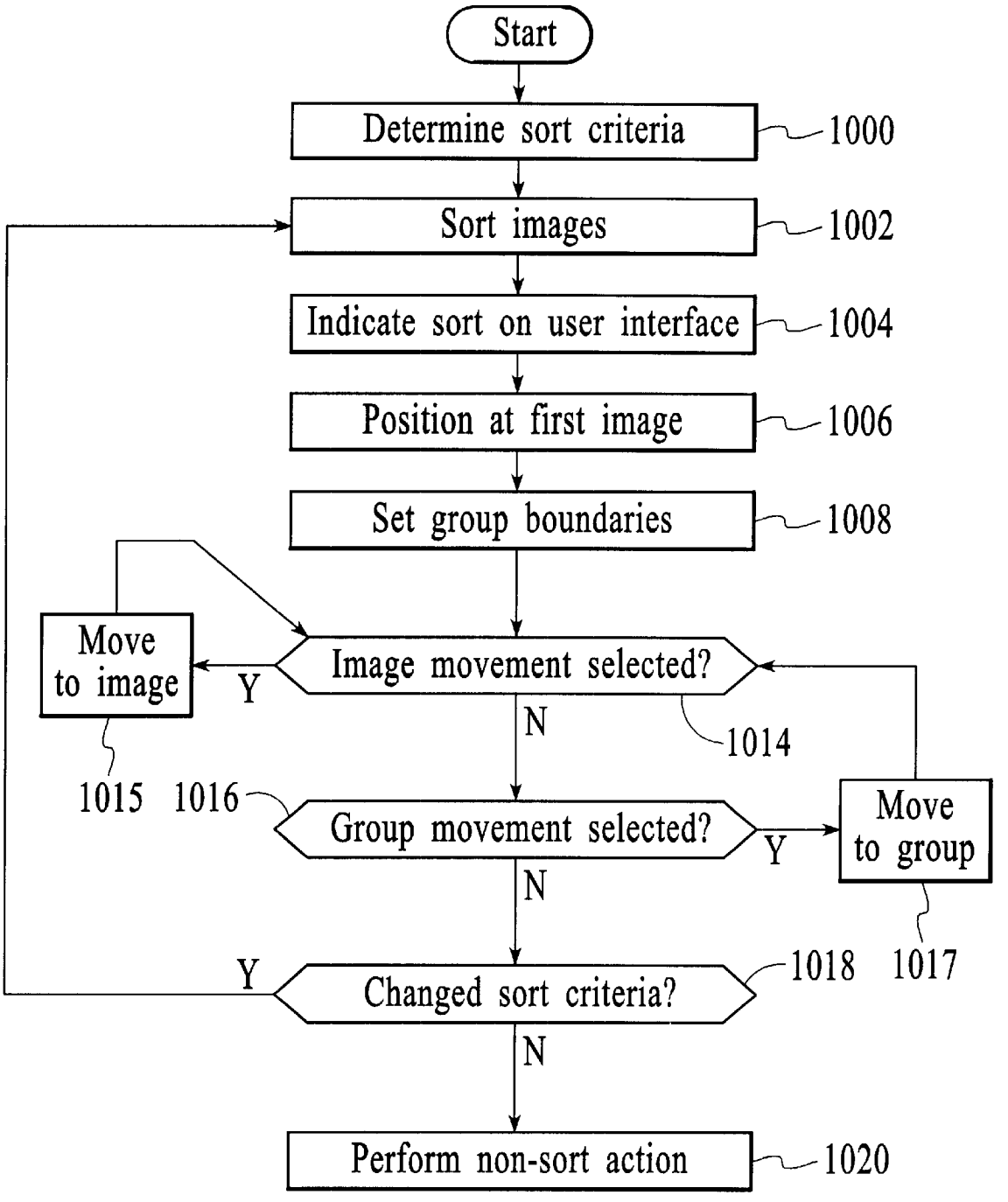

Start
Determine sort criteria
1000
Sort images
1002
Indicate sort on user interface
1004
Position at first image
1006
Set group boundaries
1008
Move to image
Y
Image movement selected?
N
1014
1015
1016
Group movement selected?
Y
Move to group
N
1017
Y
1018
Changed sort criteria?
N
Perform non-sort action
1020

FIG. 4

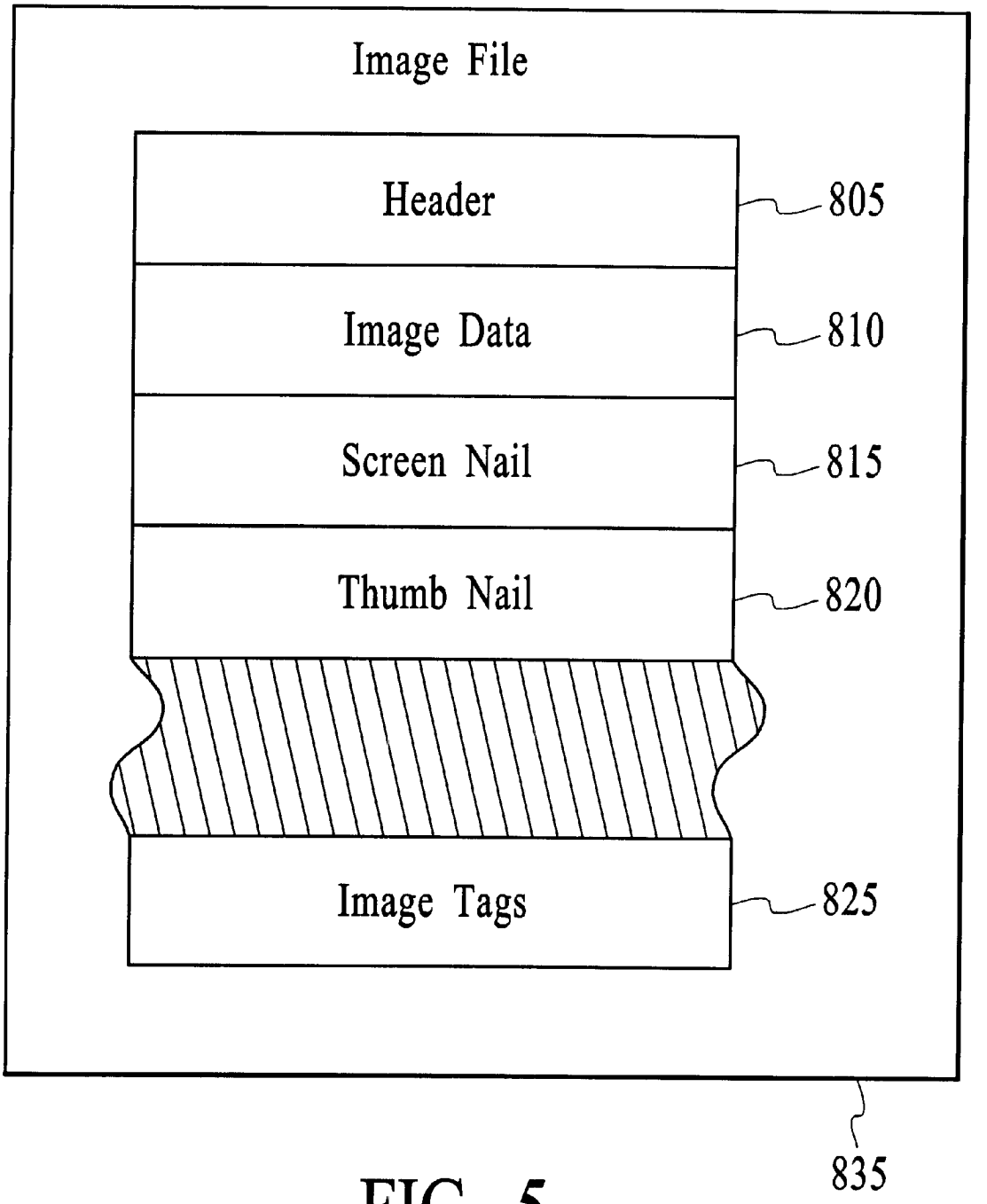


Image File
Header
805
Image Data
810
Screen Nail
815
Thumb Nail
820
Image Tags
825
835

FIG. 5

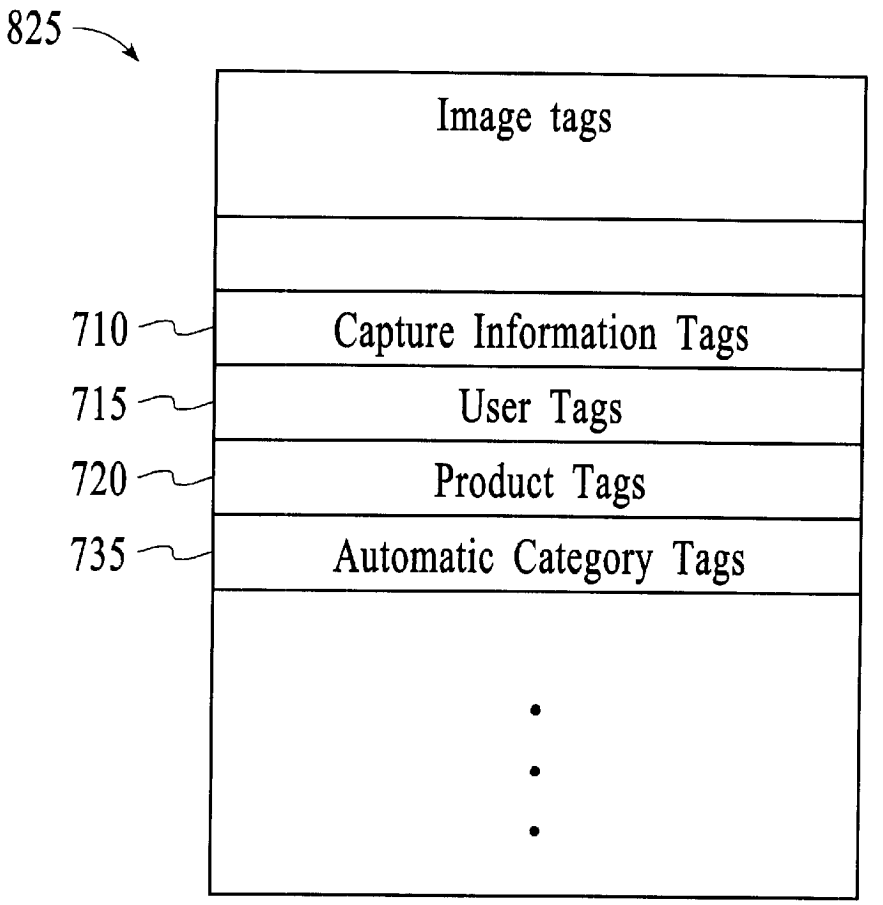

825
Image tags
710
Capture Information Tags
715
User Tags
720
Product Tags
735
Automatic Category Tags

FIG. 6

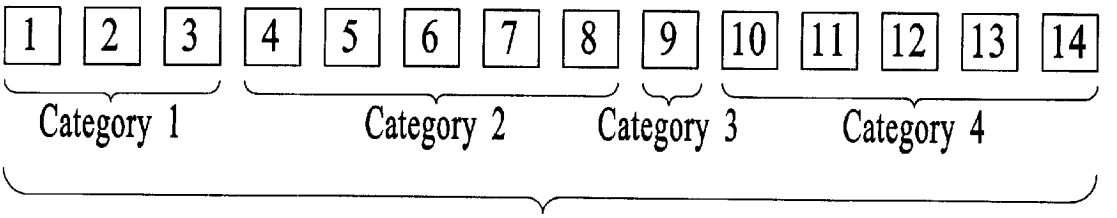

1
2
3
4
5
6
7
8
9
10
11
12
13
14
Category 1
Category 2
Category 3
Category 4

FIG. 7

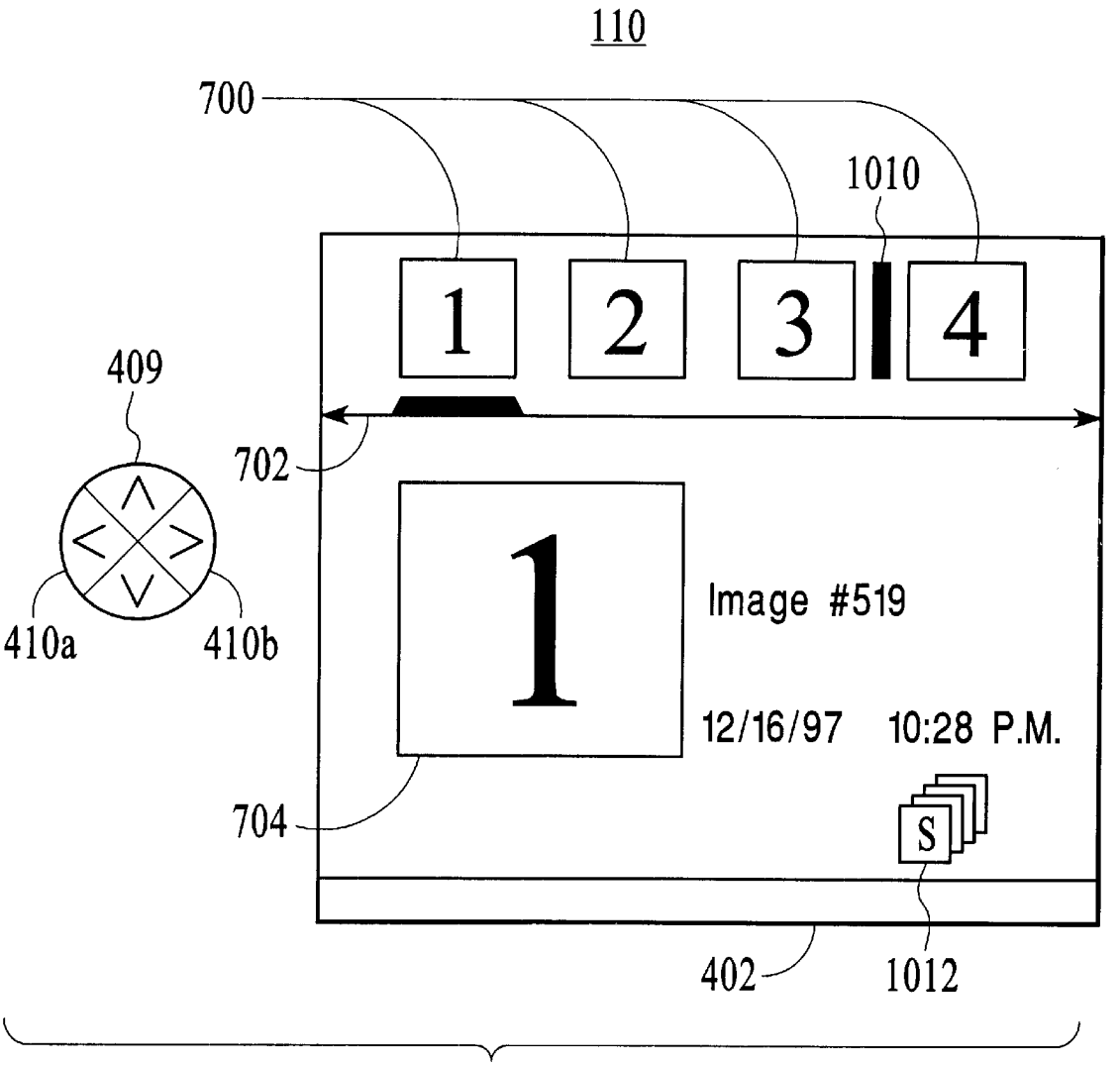

110
700
1010
1
2
3
4
409
702
1
Image #519
12/16/97 10:28 P.M.
410a
410b
704
S
402
1012

FIG. 8A

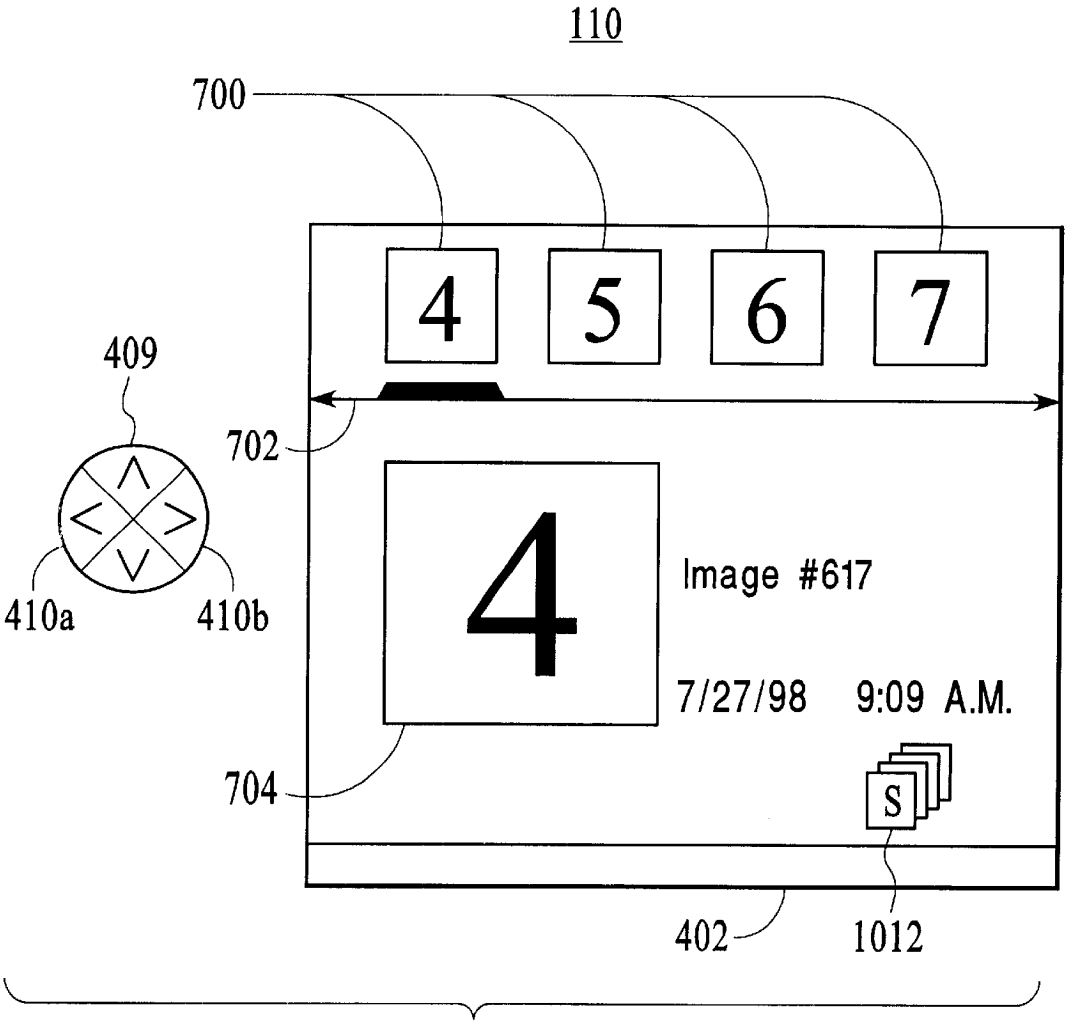

110
700
4
5
6
7
409
702
4
Image #617
7/27/98 9:09 A.M.
410a
410b
704
S
402
1012

FIG. 8B

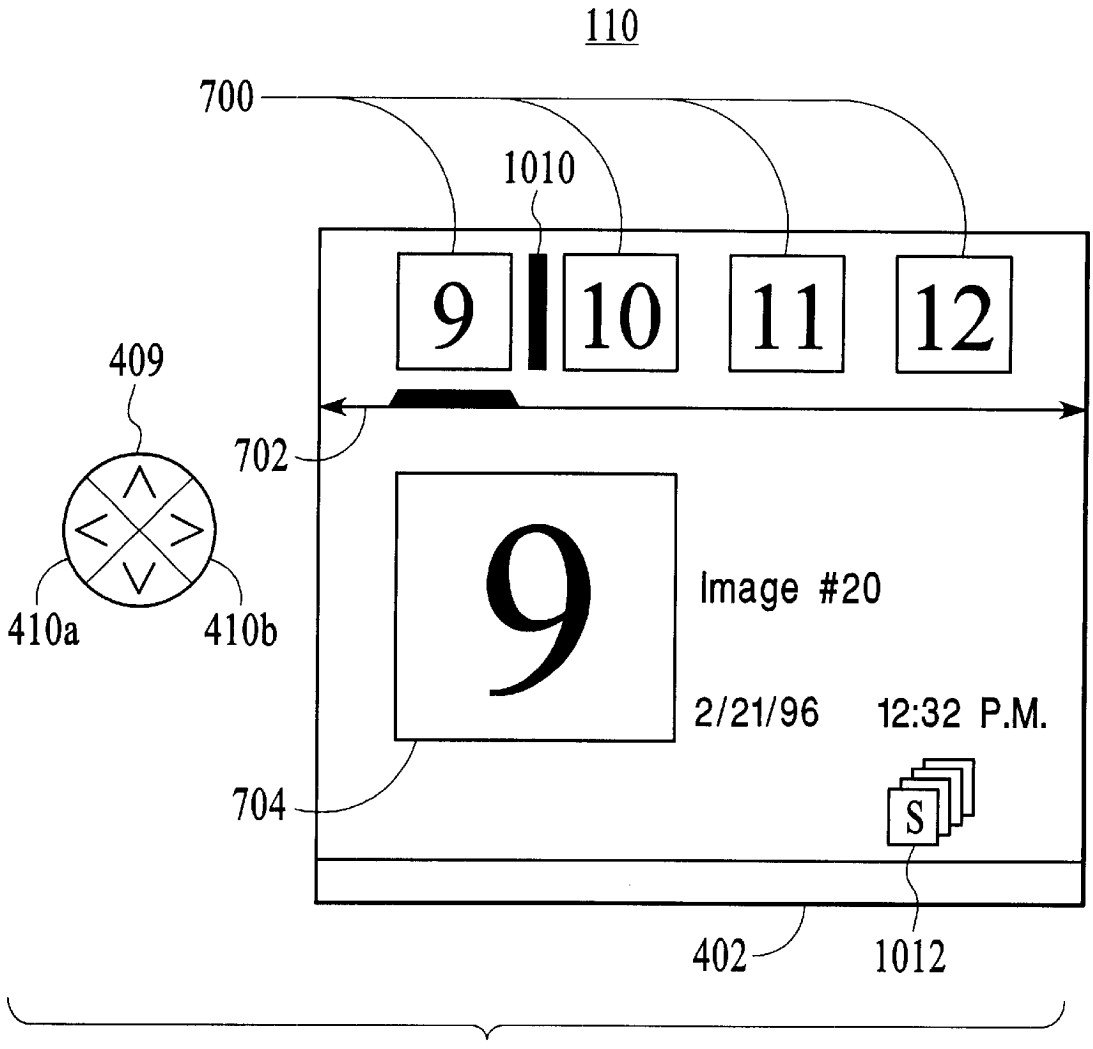
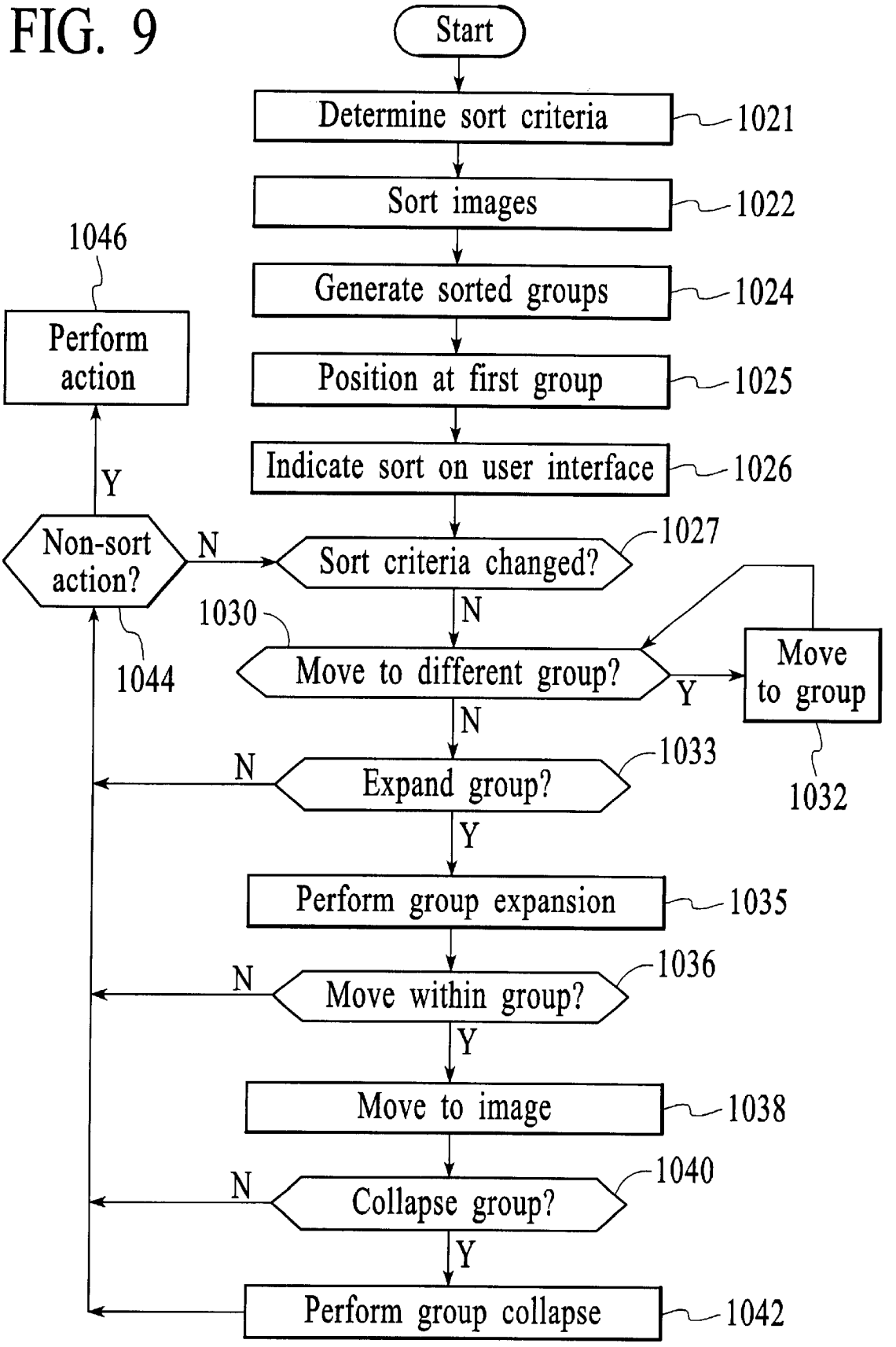

110
700
1010
9
10
11
12
409
702
9
Image #20
2/21/96
12:32 P.M.
410a
410b
704
S
402
1012

FIG. 8C

FIG. 9


Start
Determine sort criteria
1021
Sort images
1022
Generate sorted groups
1024
Position at first group
1025
Indicate sort on user interface
1026
Sort criteria changed?
1027
N
Move to different group?
1030
Y
Move to group
1032
N
Expand group?
1033
N
Y
Perform group expansion
1035
Move within group?
1036
N
Y
Move to image
1038
Collapse group?
1040
N
Y
Perform group collapse
1042
Non-sort action?
N
1044
Y
Perform action
1046

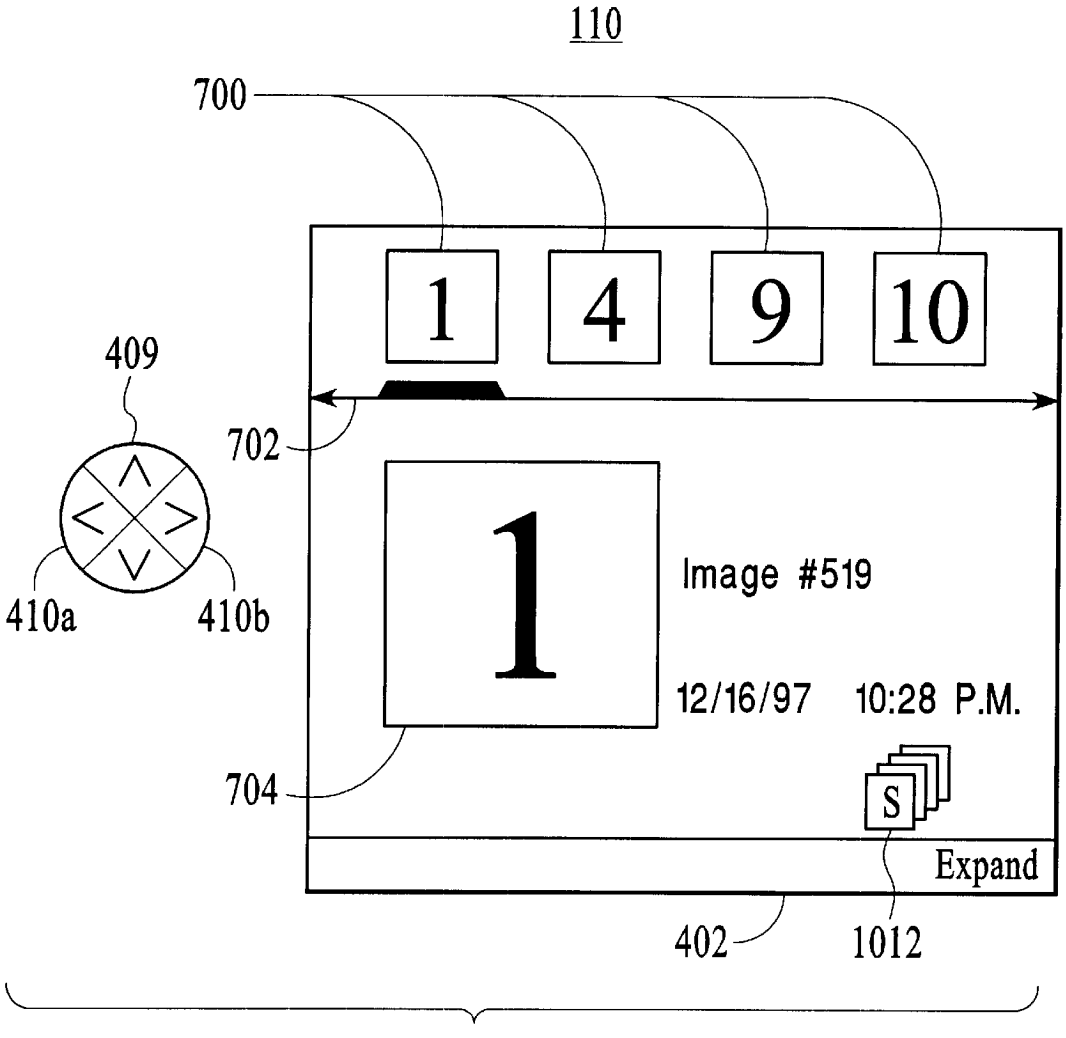

110
700
1
4
9
10
409
702
410a
410b
1
Image #519
12/16/97 10:28 P.M.
704
S
Expand
402
1012

FIG. 10

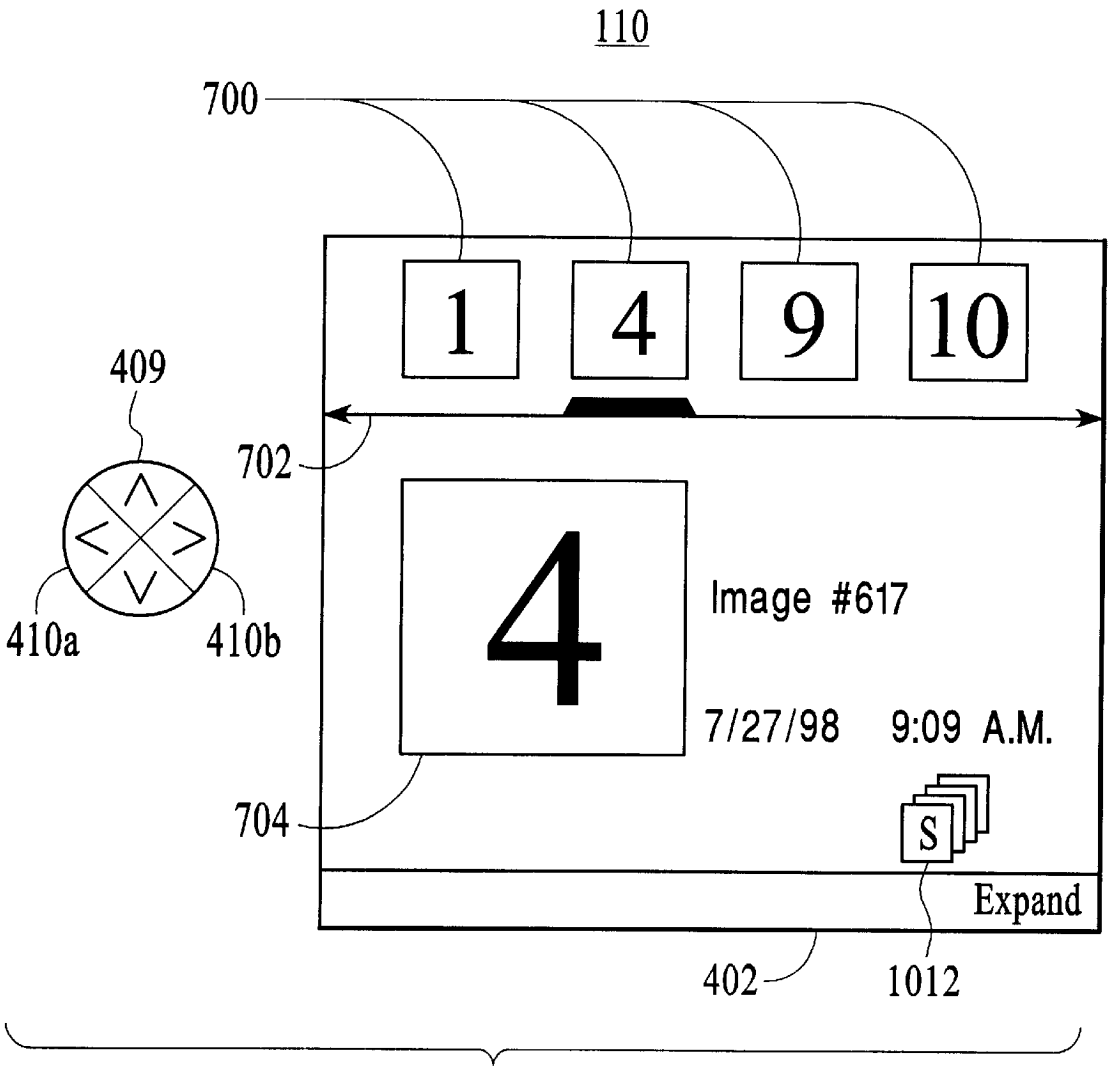

110
700
1
4
9
10
409
702
4
Image #617
7/27/98 9:09 A.M.
410a
410b
704
S
Expand
402
1012

FIG. 11A

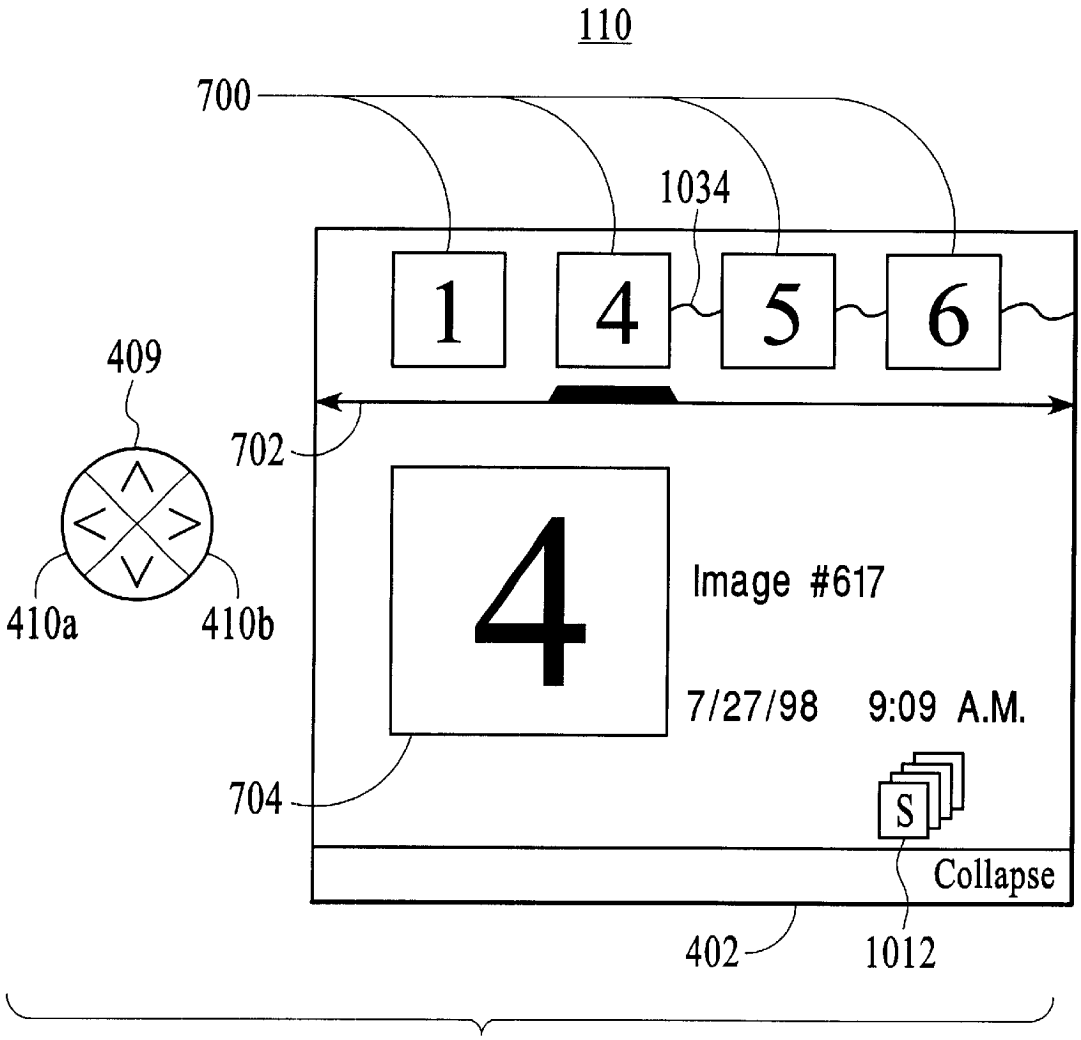

110
700
1034
1
4
5
6
409
702
4
Image #617
7/27/98 9:09 A.M.
410a
410b
704
S
Collapse
402
1012

FIG. 11B

METHOD AND SYSTEM FOR SORTING IMAGES IN AN IMAGE CAPTURE UNIT TO EASE BROWSING ACCESS

FIELD OF THE INVENTION

The present invention relates generally to an image capture unit and more particularly to a method and system for sorting and browsing captured images in an image capture unit.

BACKGROUND OF THE INVENTION

In general, modern digital cameras for taking pictures of scenes and the like typically include an imaging device which is controlled by a computer running a single threaded process. When an image is captured, the imaging device is exposed to light and generates raw image data representing the image. The raw image data is typically stored in a single image buffer where it is then processed and compressed by the processor. Many types of compression schemes are used to compress the image data, with the joint photographic expert group (JPEG,) standard being the most popular. After the processor processes and compresses the raw image data into JPEG image files, the processor stores the JPEG image files into an internal memory or on an external memory card.

Some digital cameras are also equipped with a liquid-crystal display (LCD) or other type of display screen on the back of the camera. Through the use of the LCD, the processor can cause the digital camera to operate in one of two modes, record and play, although some cameras only have a record mode. In record mode, the LCD is used as a viewfinder in which the user may view an object or scene before taking a picture. In play mode, the LCD is used a playback screen for allowing the user to review previously captured images either individually or in arrays of four, nine, or sixteen images.

In reviewing images, most cameras merely store images in an order corresponding to the order with which the images are captured. Thus, most recently taken images are usually the ones displayed. To locate a previously taken image, a user is required to move from image to image until the desired image is found. Since the storage capacity of most cameras is limited and thus allows only a limited number of images among which to search, moving through images to find a particular image is straightforward and simple. But, as the storage capacity increases, greater and greater numbers of images may be held within the camera, e.g., from several hundred to a thousand or more. Finding a particular image among the large number of stored images thus becomes more difficult and time-consuming.

Parulski, et al., U.S. Pat. No. 5,633,678, describes a camera that allows manual selection of a category for a group of pictures prior to capture of the images. To utilize the images by category, a user is required to connect to a host computer, with the host computer downloading the images into file folders based on the categories. The required use of an external, host computer severely restricts a user's ability to find a particular image stored within the camera itself based on the categories. Further, the mere utilization of user-specified categories limits flexibility in the types of categories and associations available for locating images. Parulski, et al. further fails to allow groups of sorted images to be represented in a single image format.

Accordingly, a need exists for a convenient and efficient manner of browsing images to ease access to stored images in an image capture unit. The present invention addresses such a need.

SUMMARY OF THE INVENTION

The present invention provides aspects for locating a desired image from a plurality of images stored in an image capture unit. In an exemplary method aspect, the method includes sorting the plurality of images in the image capture unit according to a sort criteria. The method further includes displaying the sorted images as one or more image groups on a display interface of the image capture unit. Additionally included is providing browsing access of the displayed, sorted images by group, wherein locating of a desired image occurs.

Through the present invention, finding a particular image or image type is more readily achieved in an image capture unit. The present invention provides sorting capabilities within the image capture unit that allow browsing of images by category groups. The organized images reduce the burden of searching and provide a more easily examined image set. These and other advantages of the aspects of the present invention will be more fully understood in conjunction with the following detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a block diagram of one preferred embodiment of a digital camera is shown for use in accordance with the present invention.

FIGS. **2**A and **2**B are diagrams depicting exemplary hardware components of the camera's user interface.

FIG. **3** is a diagram illustrating the operation and appearance of the user interface when the camera is placed into review mode.

FIG. **4** illustrates a flow diagram for a process of sorting in accordance with one embodiment of the present invention.

FIG. **5** illustrates a diagram of one embodiment for an image file.

FIG. **6** illustrates a diagram of one embodiment for the image tags.

FIG. **7** represents an example of a stream of images ordered in accordance with four chosen categories.

FIGS. **8**A, **8**B, and **8**C illustrate examples of the user interface with a display of the images as single images in accordance with one embodiment of the present invention.

FIG. **9** illustrates a flow diagram for a process for sorting in accordance with one embodiment of the present invention utilizing a hierarchical stream of composite, sorted images.

FIG. **10** illustrates an example of separate, composite images on the user interface in accordance with the embodiment of FIG. **9**.

FIGS. **11**A and **11**B illustrate examples of user interface depictions following movement among the sorted groups of FIG. **10**.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a method and system for sorting digital images stored in an image capture unit for easing browsing access of the stored images. The following description is presented to enable one of ordinary skill in the art to make and use the invention and is provided in the context of a patent application and its requirements. Although the present invention will be described in the context of a still digital camera, various modifications to the preferred embodiment will be readily apparent to those

skilled in the art and the generic principles herein may be applied to other embodiments. That is, any digital imaging capture device which captures, stores, or displays digital images, could incorporate the features described hereinbelow and that device would be within the spirit and scope of the present invention. Thus, the present invention is not intended to be limited to the embodiment shown but is to be accorded the widest scope consistent with the principles and features described herein.

Referring now to FIG. **1**, a block diagram of one preferred embodiment of a digital camera **110** is shown for use in accordance with the present invention. Camera **110** preferably comprises an imaging device **114**, a system bus **116** and a computer **118**. Imaging device **114** includes an image sensor, such as a charged coupled device (CCD) or a CMOS sensor, for generating a set of raw image data representing a captured image. In a preferred embodiment, system bus **116** provides connection paths between imaging device **114**, an optional power manager **342**, central processing unit (CPU) **344**, dynamic random-access memory (DRAM) **346**, input/output interface (I/O) **348**, non-volatile memory **350**, and buffers/connector **352** that connect an optional removable memory **354** to system bus **116**.

CPU **344** may include a conventional microprocessor device for controlling the operation of camera **110**. In the preferred embodiment, CPU **344** is capable of concurrently running multiple software routines to control the various processes of camera **110** within a multithreaded environment. For example, images may be captured at the same time that previously captured images are processed in the background to effectively increase the capture rate of the camera. In a preferred embodiment, CPU **344** runs an operating system that includes a menu-driven GUI and provides image processing through software, rather than hardware. An example of such software is the Digita™ Operating Environment by FlashPoint Technology of San Jose, Calif. Although CPU **344** is preferably a microprocessor, one or more DSPs (digital signal processor) or ASICs (Application Specific Integrated Circuit) could also be used. I/O **348** is an interface device allowing communications to and from computer **118**. For example, I/O **348** permits an external host computer (not shown) to connect to and communicate with computer **118**. I/O **348** also interfaces with a plurality of buttons and/or dials **404**, and an optional status LCD **406**, which in addition to the LCD screen **402**, are the hardware elements of the camera's user interface **408**.

Non-volatile memory **350**, which may typically comprise a conventional read-only memory or flash memory, stores a set of computer-readable program instructions to control the operation of camera **110**. Removable memory **354** serves as an additional image data storage area and is preferably a non-volatile device, such a flash disk, readily removable and replaceable by a camera **110** user via buffers/connector **352**.

Power supply **356** supplies operating power to the various components of camera **110**. Power manager **342** communicates via line **366** with power supply **356** and coordinates power management operations for camera **110**. In the preferred embodiment, power supply **356** provides operating power to a main power bus **362** and also to a secondary power bus **364**. The main power bus **362** provides power to imaging device **114**, I/O **348**, non-volatile memory **350** and removable memory **354**. The secondary power bus **364** provides power to power manager **342**, CPU **344** and DRAM **346**.

Power supply **356** is connected to main batteries **358** and also to backup batteries **360**. In the preferred embodiment, a camera **110** user may also connect power supply **356** to an external power source. During normal operation of power supply **356**, the main batteries **358** provide operating power to power supply **356** which then provides the operating power to camera **110** via both main power bus **362** and secondary power bus **364**. During a power failure mode in which the main batteries **358** have failed (when their output voltage has fallen below a minimum operational voltage level) the backup batteries **360** provide operating power to power supply **356** which then provides the operating power only to the secondary power bus **364** of camera **110**.

Dynamic Random-Access-Memory (DRAM) **346** is a contiguous block of dynamic memory that may be selectively allocated for various storage functions. DRAM **346** stores both raw and compressed image data and is also used by CPU **344** while executing the software routines used within computer **118**. The raw image data received from imaging device **114** is temporarily stored in several input buffers (not shown) within DRAM **346**. Once the raw image data is processed, it is stored in a frame buffer (not shown) for display on the LCD screen **402**. In a preferred embodiment, the input buffers and the frame buffer are split into two ping-pong buffers to improve the display speed of the digital camera and to prevent the tearing of the image in the display **402**. After processed image data has been stored in DRAM **346**, LCD controller **390** transfers the image data to LCD screen **402** for display.

FIGS. **2**A and **2**B are diagrams depicting exemplary hardware components of the camera's user interface **408**. FIG. **2**A is back view of the camera **110** showing the LCD screen **402**, a four-way navigation control button **409**, an overlay button **412**, a menu button **414**, and a set of programmable soft keys **416**. FIG. **2**B is a top view of the camera **110** showing a shutter button **418**, and a mode dial **420**. The camera may optionally include status LCD **406**, status LCD scroll and select buttons **422** and **424**, a sound record button **426**, and zoom-in, zoom-out buttons **426***a* and **426***b*.

The camera operates in at least two modes, capture mode for capturing images, and play mode for playing back the captured images on the LCD screen **402**. Further preferably included is a review mode.

Referring now to FIG. **3**, a diagram illustrating the operation and appearance of the user interface when the camera is placed into review mode is shown. The review mode enables the user to view all the images in the camera along with specific attributes associated with each of the images.

The review screen layout is based on a filmstrip metaphor which allows users to quickly move forward and backward among pictures chronologically. In a preferred embodiment, several small-sized versions of the captured images, called thumbnails **700**, are displayed in a row across the LCD screen **402**. The user may scroll through the series of displayed thumbnails **700** in the LCD screen **402** using the four-way navigation control button **409**. The direction of scrolling is capably mapped to the horizontal left/right buttons **410***a* and **410***b*. When the user presses the left/right buttons **410**, the thumbnails **700** are scrolled-off the LCD screen **402** and replaced by new thumbnails **700** representing other captured images.

A stationary selection arrow line **702** is used as both a navigational aid and to indicate which thumbnail is the currently selected image. When there are more than four images in the camera, the selection arrow line **702** displays arrow heads to indicate movement in that direction is

possible with the left/right navigation buttons **410**. As the user presses the navigation buttons **410** and the thumbnails **700** scroll across the LCD screen **402**, the thumbnail **700** that is positioned over a notch in the selection arrow line **702** is considered the selected image.

When a thumbnail **700** becomes the selected image, additional information corresponding to that image is automatically displayed. In a preferred embodiment, the additional information includes a large thumbnail **704** showing a larger view of the selected thumbnail, and image information comprising an icon bar **706** and text **708**. The icon bar may display several icons indicating the media types associated with the active image, such as whether the image is a still, a time lapse, or a burst image, whether sound is attached to the image, and a category for the image. The displayed text **708** may include a specification of the name or number of the image, and the date and time the image was captured. The ability to review images through thumbnail images **700** assists in finding a particular image. However, as the number of stored images increases, the scrolling of images becomes an inefficient method to locate a particular image. In accordance with the present invention, a method and system are provided for sorting images to ease browsing access for more efficient locating of an image or group of images with filtering out of those images not fitting a sort criteria, as described more fully hereinbelow. A first embodiment utilizes an image stream of single, sorted images, while an alternate embodiment utilizes a hierarchical stream of composite, sorted images.

In accordance with the first embodiment, as illustrated by the flow diagram of FIG. **4**, a process for sorting initiates with a determination of preferred sort conditions (step **1000**). In setting the sort conditions, such as through a sort menu, categories associated with individual images are suitably utilized as sort selection criteria. More particularly, image tags included in the image files associated with the images are utilized. FIG. **5** illustrates a diagram of one embodiment for an image file **835**. Image file **835** includes a header **805**, image data **810**, a screennail **815**, a thumbnail **820**, and image tags **825**.

Header **805** preferably includes information that identifies and describes the various contents of image file **835**. Image data **810** contains actual captured image data. Image data **810** exists in whichever format that is appropriate for the current location of image file **835** within the image processing chain of the camera **110**. Screennail **815** and thumbnail **820** are each different versions of image data **810** that have varying degrees of reduced resolution for a number of special viewing applications.

Image tags **825** include various types of information that correspond and relate to particular captured image data **810**, as discussed in conjunction with FIG. **6**.

Referring to FIG. **6**, a diagram of one embodiment for the image tags **825** is shown. In the FIG. **6** embodiment, image tags **825** include capture information tags, user tags **715**, product tags **720**, and automatic category tags **735**. Capture information tags **710** preferably include various types of information that correlate with the capture image data **810**. For example, capture information tags **710** may indicate focus setting, aperture setting, and other relevant information that may be used for effectively processing or analyzing the corresponding image data. User tags **715** include those labels a user specifies for a given image, often referred to as 'stamps', such as 'birthday' or 'vacation', etc., that aid in personal categorization of the images. Product tags **720** typically contain various other information, such as camera **110** manufacturer.

Automatic category tags **735** result from analysis of the image data, such as described in co-pending U.S. patent application, Ser. No. (09/121,760), entitled "System and Method for Automatic Analysis and Categorization of Images in an Electronic Imaging Device", assigned to the assignee of the present invention, and filed Jul. 23, 1998. For example, individual image analysis may generate automatic category tags **735** based on detection of a person or groups of persons according to characteristics, like substantial amounts of flesh tones within the image. Category tags resulting from detection of nature scenes from characteristics, like substantial green content in the image combined with the relative lack of hard edges, are also possibly automatically generated. Similarly, categories like city images, water images, or indoor images may be detected by characteristic features contained in those images.

For sorting, in addition to specifying the categories, an order for the sort is set. For example, a default sort order may be set as from most recently taken to least recently taken or alphabetical by category name. Of course, other orders may be used as desired. Additionally, a multiple sort order may also be specified, such that there is a primary level sort order and one or more sub-level sort orders. By way of example, a primary sort order may be chosen as category name, with a sub-level sort order by date of capture within each category.

Once the sort criteria are specified, the images are sorted (step **1002**). FIG. **7** represents an example of a stream of images ordered in accordance with four chosen categories, category one, category two, category three, and category four. For example, successive weeks may be the chosen category criteria, or specific categories, such as animal images, family images, office images, and vacation images. When an image falls into more than one sort category, such as family and vacation, multiple copies of the image may be included in the stream, one for each category the image matches. Alternatively, only one copy of the image is included in the first category group to which it belongs. With the sorting, preferably an indicator is provided in the user interface, such as an icon, that indicates that the images have been ordered by a sort action (step **1004**), and the displayed images are positioned at a first image of the sorted images (step **1006**). Group boundaries are also set upon sorting (step **1008**). The group boundaries are capably set by the separate categories chosen, and may be indicated, if desired, visually in the user interface, such as with a vertical line, to separate the groups. FIG. **8**A illustrates the user interface on LCD screen **402** with a display of the sorted images of FIG. **7** as single images with the separation among a display of single images by categories visually indicated, e.g., by a vertical bar symbol **1010**, while the fact that the images are sorted is suitably represented by another visual indicator, such as an icon **1012**. In an alternate embodiment, the group boundaries may be automatically generated by determining a reasonable number of images for a grouping, e.g., 15 images per group. By way of example, if the only criteria is to sort by date, a determination can be made as to whether a monthly, weekly, daily, or even yearly grouping arrangement would best group the images based on the number of images falling into those categories. Thus, if a user takes images somewhat sparingly each month, the number of stored images per month should fall within a reasonable number to arrange the sorted images as groups by month.

With the group boundaries set, a determination of whether a user has moved among the images is made. Thus, if a selection is to move forward or backward among single images occurs, e.g., by 'single-clicking' (a single press of)

the horizontal left/right buttons **410***a* and **410***b* (step **1014**), the next or previous image is selected (step **1015**). If not, the system determines if the user has moved forward or backward one group, e.g., by 'double-clicking' (two successive presses of) the horizontal left/right button **410***a* and **410***b*, (step **1016**). A next or previous group is then selected (step **1017**). By way of example, FIGS. **8**B and **8**C illustrate the manner in which the user interface on LCD **402** changes as a user moves among the sorted images by group. Thus, FIG. **8**B illustrates a change corresponding to selection of the group for category two, while FIG. **8**C illustrates a change corresponding to selection of the group for category three.

Referring back to FIG. **4**, the process further includes determining whether the user has changed the sort criteria, via step **1018**, and returning to step **1002** to sort the images when there is changed criteria. Of course, when another action occurs, that action is suitably performed (step **1020**), and may cause the sort to be nullified, such as an action to take a picture, or turn the camera off.

Referring now to FIG. **9**, for the alternate embodiment utilizing a hierarchical stream of composite, sorted images, determining of sort criteria and performing the sort, steps **1022** and **1024**, occur as described above with reference to steps **1000** and **1002** FIG. **4**. In addition, sorted groups are generated and displayed as separate, composite images on the user interface (step **1024**), with positioning at a first group (step **1025**), as illustrated by the example in FIG. **10**. Suitably, a first image in each category group is displayed as a single image, thus the first image, image **1**, from category one, the first image, image **4**, from category two, the first image, image **9**, from category three, and the first image, image **10**, from category four are displayed. Since each 'image' as a composite image represents a group of images, the user interface preferably includes an 'Expand' indicator on LCD screen **402** so that a user is aware of the compound nature of the displayed image. The sort indicator **1012** is also provided (step **1026**). Unless the sort criteria is changed, as determined via step **1027**, the process determines if a user moves among the groups (step **1030**). The position then shifts in accordance with the movement (step **1032**). To move between groups, a single selection of the horizontal left/right button **410***a* and **410***b* is suitable, since each unexpanded composite image represents a separate group. For example, result of a move from category one to category two is shown by FIG. **11**A.

When at a desired group, a determination of whether an expansion of the group is performed (step **1033**), e.g. by selecting a soft key **416** (FIG. **2**A) corresponding to the 'Expand' indicator. When the expand control is selected, all the images in the group may be seen, as shown by the illustration of the user interface in FIG. **11**B. The connectedness of the images is suitably visually indicated, such as by a link indicator **1034**. Of course, a group separation indicator, such as the aforementioned vertical bar symbol, may also be visually indicated, if desired. If expanded (step **1035**), a determination of whether a movement is performed among the images of the group is made (step **1036**). If so, the position shifts forward or backward in accordance with the direction of the movement (step **1038**). Collapsing the group may then occur, such as by selecting a soft key **416** (FIG. **2**A) corresponding to a 'Collapse' indicator, as determined via step **1040** and performed via step **1042**. Note, the soft-key indicators change in accordance with the selection, e.g., to 'Collapse' once 'Expand' is selected and vice versa. For a single image, suitably the soft-key indicator is blank, since no expand/collapse action can occur. The process continues from step **1044** to determine if a non-sorting action occurs, such as previously described with reference to step **1020** FIG. **4**, which is then performed appropriately (step **1046**).

In summary, a method and system for sorting images to ease browse access have been disclosed. Although the present invention has been described in accordance with the embodiments shown, one of ordinary skill in the art will readily recognize that there could be variations to the embodiments and those variations would be within the spirit and scope of the present invention. In addition, software written according to the present invention may be stored on a computer-readable medium, such as a removable memory, or transmitted over a network, and loaded into the digital camera for execution. Accordingly, many modifications may be made by one of ordinary skill in the art without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A method for locating a desired image from a plurality of images stored in an image capture unit, the method comprising:

sorting the plurality of images in the image capture unit according to a sort criteria;

displaying the sorted images as one or more image groups on a display interface of the image capture unit as a stream of single, sorted images with a separation indicator between images of different groups of the one or more image groups;

providing browsing access of the displayed, sorted images by group, wherein locating of a desired image occurs by supporting movement from one image to a next image in response to a single selection of a movement control and from one group to a next group in response to a double select,ion of the movement control.

2. The method of claim **1** wherein displaying the sorted images as one or more image groups further comprises displaying the sorted images as composite images.

3. The method of claim **2** wherein providing browsing access further comprises supporting movement from one group to a next group by moving from one composite image to a next composite image.

4. The method of claim **3** further comprising providing expansion of a composite image to display a linked set of sorted images for the group represented by the composite image.

5. The method of claim **1** wherein the sort criteria further comprises category designations.

6. The method of claim **5** wherein the category designations further comprise automatic category tags.

7. The method of claim **6** wherein the category designations further comprise capture tags.

8. The method of claim **7** wherein the category designations further comprise user tags.

9. The method of claim.**7** wherein sorting further arranges the images in a chosen order according to the category designations.

10. A system for sorting images to ease browsing access to the images in an image capture unit, the system comprising:

a memory means for storing image data including associated image tags for a plurality of captured images, the associated image tags comprising automatic category tags, capture tags, and user tags;

processing means coupled to the memory means for sorting the image data into category groups according to a chosen sort criteria based on the associated image tags;

a selector means coupled to the processing means for selecting forward/backward movement among the category groups, wherein a single selection of the selector means selects a different image, and a double selection of the selector means selects a different group; and

display means coupled to the processing means and memory means for displaying the sorted image data, wherein browsing of the sorted image data by category groups is achieved.

11. The system of claim **10** wherein the display means displays the category groups as separate composite images.

12. The system of claim **10** wherein the display means displays the category groups as a single stream of images visually separated into category groups by a group separation indicator.

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