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Method and computer-readable medium for navigating between attachments to electronic mail messages

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ABSTRACT OF THE DISCLOSURE

5 A method and computer-readable medium are provided for navigation
between attachments to electronic mail messages. According to the method, a list of e-
mail messages is displayed that includes header information associated with each of the
messages. When one of the messages in the list is selected, a determination is made as to
whether the selected message has attachments. If the selected message has attachments,
10 an identifier is displayed adjacent to the header information for each attachment. The
identifier indicates that the attachment is associated with the selected message and may
provide other information such as the type and size of the attachment. The identifiers are
displayed in a manner to indicate clearly to a user that the attachments are associated with
the selected e-mail message. The identifiers may be selected to preview the
15 corresponding attachment.

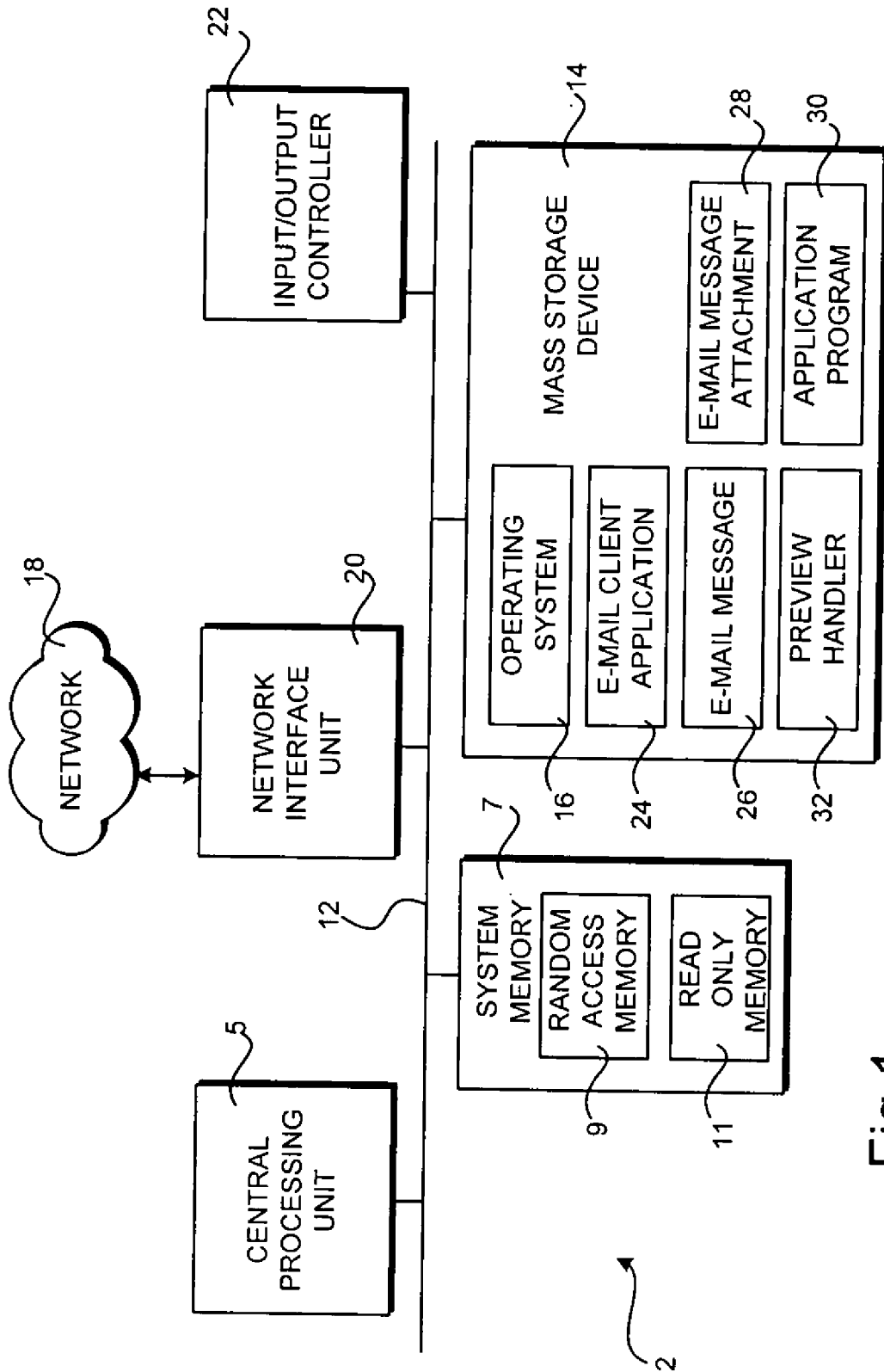


Fig.1.

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PATENTS ACT 1990
COMPLETE SPECIFICATION

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INVENTION TITLE:

Method and computer-readable medium for navigating between attachments to electronic mail messages

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

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BACKGROUND OF THE INVENTION

Users of electronic mail ("e-mail") client application programs are commonly frustrated by the number of steps that must be taken by a user to view the contents of a document that has been attached to an e-mail message. In many cases, a user only wants to see a preview of the attachment. A preview is a read-only rendering of a document that mimics what a user would have seen if the document was opened with an application program associated with the document. However, in the typical case, the user is required to select the attachment and then launch the application program associated with the attachment to view its contents.

When this traditional process for viewing the contents of an e-mail attachment is performed, the user is required to change application contexts between the e-mail client application and the application utilized to view the attachment. When the user has finished viewing the attachment, the user must again switch application contexts by closing the application program and returning to the e-mail client application. Switching application contexts in this manner to view a preview of an email attachment can be both time consuming and frustrating for a user.

Because prior application programs have not provided a mechanism for allowing users to view the contents of an e-mail attachment without switching application contexts, these application programs have also not provided a convenient mechanism to navigate among the attachments to an e-mail message. In particular, these application programs have not provided a user interface mechanism through which a user can easily view the available attachments to an e-mail message and select one of the attachments for previewing.

It is with respect to these considerations and others that the various embodiments of the present invention have been made.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a method for navigating between one or more attachments to one or more electronic mail messages, the method comprising:

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5 displaying a user interface for an electronic mail application on a computing device, the user interface for the electronic mail application having a list pane for navigating among unopened electronic mail messages and a reading pane for previewing an unopened electronic mail message and one or more attachments associated with the unopened electronic mail message;

displaying a list of the electronic mail messages in the list pane, the list comprising header information associated with the one or more electronic mail messages;

receiving a selection of one of the electronic mail messages in the list, the selected electronic mail message having one or more attachments; and

10 displaying a selectable identifier for the selected electronic mail message and for each of the one or more attachments associated with the selected electronic mail message, the displayed identifiers for navigating among the electronic mail message and the one or more attachments and for selecting to preview the electronic mail message or an attachment in the reading pane without switching context of the electronic mail application,

15 wherein selection of the electronic mail message in the list selects the identifier for the selected electronic mail message and displays in the reading pane:

a preview of the selected electronic mail message without opening the selected electronic mail message,

20 the selected identifier for the selected electronic mail message, and

a selectable identifier for each of the one or more attachments associated with the selected electronic mail message for navigating to and displaying a preview of the one or more attachments in the reading pane without opening the one or more attachments, and

25 wherein selection of a selectable identifier corresponding to an attachment associated with the selected electronic mail message, while the preview of the selected electronic mail message is being displayed in the reading pane, deselects the selected identifier for the selected electronic mail message and displays in the reading pane:

30 a preview of the corresponding attachment replacing the preview of the selected electronic mail message in the reading pane without opening the corresponding attachment,

the selected identifier for the corresponding attachment, and

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a selectable identifier for the selected electronic mail message for navigating to and displaying a preview of the selected electronic mail message in the reading pane without opening the selected electronic mail message.

5 The present invention also provides a computer-readable storage medium having computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

display a first window pane of a user interface for an electronic mail application identifying one or more unopened electronic mail messages, the first window pane for navigating among unopened electronic mail messages;

10 receive a selection of one of the unopened electronic mail messages;

determine whether the selected electronic mail message has one or more attachments;

15 in response to determining that the selected electronic mail message has one or more attachments, to display a selectable identifier for the selected electronic mail message and for each of the one or more attachments associated with the selected electronic mail message, the displayed identifiers for navigating among the electronic mail message and the one or more attachments and for selecting to preview the electronic mail message or an attachment;

20 display a second window pane of the user interface for previewing the selected electronic mail message including the one or more attachments, wherein selection of the electronic mail message in the first window pane selects the identifier for the selected electronic mail message and displays in the second window pane:

a preview of the selected electronic mail message without opening the selected electronic mail message,

25 the selected identifier for the selected electronic mail message, and

a selectable identifier for each of the one or more attachments associated with the selected electronic mail message for navigating to and displaying a preview of the one or more attachments in the second window pane without opening the one or more attachments;

30 receive a selection of a selectable identifier for an attachment while the preview of the selected electronic mail message is being displayed in the second window pane; and

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in response to the selection of the selectable identifier for the attachment, to deselect the selected identifier for the electronic mail message and to display in the second window pane:

5 a preview of the attachment replacing the preview of the selected electronic mail message in the reading pane without opening the attachment and without switching context of the electronic mail application,

the selected identifier for the attachment, and

10 a selectable identifier for the selected electronic mail message for navigating to and displaying a preview of the selected electronic mail message in the second window pane without opening the selected electronic mail message.

The present invention further provides a computer-readable storage medium having computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

15 receive a request in an electronic mail application to open an electronic mail message for viewing, the electronic mail message having one or more attachments;

display an opened electronic message including header information associated with the electronic mail message and contents of the electronic mail message; and

20 display adjacent to the header information a user interface for navigating between the contents of the electronic mail message and the one or more attachments to the electronic mail message, the user interface including a selectable identifier for the contents of the electronic mail message and for each of the one or more attachments to the electronic mail message, the displayed identifiers for navigating among the contents of the electronic mail message and attachments to the selected electronic mail message and for selecting to view the contents of the electronic mail message or to preview an attachment
25 associated with the electronic mail message in the opened electronic mail message without switching context of the electronic mail application,

wherein receiving the request to open the electronic mail message selects the identifier for the selected electronic mail message and displays:

30 the contents of the selected electronic mail message in the opened electronic mail message,

the selected identifier for the selected electronic mail message, and

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a selectable identifier for each of the one or more attachments for navigating to and displaying a preview of the one or more attachments in the opened electronic mail message without opening the one or more attachments, and

5 wherein selection of a selectable identifier corresponding to an attachment, while the contents of the selected electronic mail message are being displayed in the opened electronic mail message, deselects the selected identifier for the selected electronic mail message and displays:

10 a preview of the corresponding attachment replacing the contents of the selected electronic mail message in the opened electronic mail message without opening the corresponding attachment,

the selected identifier for the corresponding attachment, and

a selectable identifier for the selected electronic mail message for navigating to and displaying the contents of the selected electronic mail message.

15 In accordance with the embodiments of the present invention, there is provided a method and computer-readable medium for navigating between attachments to electronic mail messages. The various embodiments of the invention allow a user to quickly identify and select an attachment to an electronic mail message from any number of attachments. The embodiments of the invention also allow a user to quickly preview the contents of e-mail attachments without switching application contexts.

20 According to one embodiment of the invention, a method is provided for navigating between attachments to e-mail messages. According to the method, a list of e-mail messages is displayed that includes header information associated with each of the messages. For instance, the list may include header information that identifies a sender of each e-mail message, a subject for each e-mail message, and a received time for each e-mail message. Other information may also be displayed. When one of the messages in the
25 list is selected, a determination is made as to whether the selected message has attachments. If the selected message has attachments, an identifier is displayed adjacent to the header information for each attachment. The identifier indicates that the attachment is associated with the selected message and may provide other information such as the type
30 and size of the attachment. The identifiers are displayed in a manner to indicate clearly to a user that the attachments are associated with the selected e-mail message.

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According to other embodiments of the invention, one of the identifiers corresponding to an attachment may be selected. In response to such a selection, the selected e-mail message is deselected and a preview is generated and displayed for the attachment corresponding to the selected identifier. If another identifier corresponding to another attachment is selected, a preview is then generated and displayed for that attachment. If another e-mail messages in the list is selected, identifiers for the first selected e-mail message are removed and any identifiers for the newly selected e-mail message are displayed.

According to another embodiment of the invention, a selection may be received of one of the e-mail messages in the list. A request may also be received to open the selected message for viewing. This may occur, for instance, through a double mouse click of an e-mail message in the list. In response to such a request, the selected e-mail message is opened for viewing and the contents of the selected mail message are displayed. A user interface is also displayed for navigating between attachments to the displayed e-mail message. The user interface includes an identifier for each of the attachments to the selected message and may be displayed adjacent to the display of the contents of the selected mail message.

According to other embodiments, a selection may be received of one of the identifiers within the user interface for navigating between attachments. In response to such a selection, a preview is generated for the attachment corresponding to the selected identifier and the preview is displayed. The preview may be displayed adjacent to the display of the contents of the selected mail message. In this manner, a user may easily view both the contents of the selected e-mail message and the preview of the selected attachment.

Embodiments of the invention may be implemented as a computer process, a computing system, or as an article of manufacture such as a computer program product or computer readable media. The computer program product may be a computer storage media readable by a computer system and encoding a computer program of instructions for executing a computer process. The computer program product may also be a propagated signal on a carrier readable by a computing system and encoding a computer program of instructions for executing a computer process.

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These and various other features, as well as advantages, which characterize the present invention, will be apparent from a reading of the following detailed description and a review of the associated drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

5 Embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

FIGURE 1 is a computer system architecture diagram illustrating a computer system utilized in and provided by the various embodiments of the invention;

10 FIGURES 2A-2C and 3 are screen display diagrams illustrating several screen displays provided by the various embodiments of the invention; and

FIGURES 4-6 are flow diagrams illustrating various processes provided by the several embodiments of the invention.

DETAILED DESCRIPTION OF THE INVENTION

15 Referring now to the drawings, in which like numerals represent like elements, various aspects of the present invention will be described. In particular, FIGURE 1 and the corresponding discussion are intended to provide a brief, general description of a suitable computing environment in which embodiments of the invention may be implemented. While the invention will be described in the general context of program modules that execute in conjunction with program modules that run on an operating system on a
20 personal computer, those skilled in the art will recognize that the invention may also be implemented in combination with other types of computer systems and program modules.

Generally, program modules include routines, programs, components, data structures, and other types of structures that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the
25 invention may be practiced with other computer system configurations, including handheld devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, minicomputers, mainframe computers, and the like. The

invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

Referring now to FIGURE 1, an illustrative computer architecture for a computer 2 utilized in the various embodiments of the invention will be described. The computer architecture shown in FIGURE 1 illustrates a conventional desktop or laptop computer, including a central processing unit 5 ("CPU"), a system memory 7, including a random access memory 9 ("RAM") and a read-only memory ("ROM") 11, and a system bus 12 that couples the memory to the CPU 5. A basic input/output system containing the basic routines that help to transfer information between elements within the computer, such as during startup, is stored in the ROM 11. The computer 2 further includes a mass storage device 14 for storing an operating system 16, application programs, and other program modules, which will be described in greater detail below.

The mass storage device 14 is connected to the CPU 5 through a mass storage controller (not shown) connected to the bus 12. The mass storage device 14 and its associated computer-readable media provide non-volatile storage for the computer 2. Although the description of computer-readable media contained herein refers to a mass storage device, such as a hard disk or CD-ROM drive, it should be appreciated by those skilled in the art that computer-readable media can be any available media that can be accessed by the computer 2.

By way of example, and not limitation, computer-readable media may comprise computer storage media and communication media. Computer storage media includes volatile and non-volatile, removable and non-removable media implemented in any method or technology for storage of information such as computer-readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EPROM, EEPROM, flash memory or other solid state memory technology, CD-ROM, digital versatile disks ("DVD"), or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other

magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by the computer 2.

According to various embodiments of the invention, the computer 2 may operate in a networked environment using logical connections to remote computers through a network 18, such as the Internet. The computer 2 may connect to the network 18 through a network interface unit 20 connected to the bus 12. It should be appreciated that the network interface unit 20 may also be utilized to connect to other types of networks and remote computer systems. The computer 2 may also include an input/output controller 22 for receiving and processing input from a number of other devices, including a keyboard, mouse, or electronic stylus (not shown in FIGURE 1). Similarly, an input/output controller 22 may provide output to a display screen, a printer, or other type of output device.

As mentioned briefly above, a number of program modules and data files may be stored in the mass storage device 14 and RAM 9 of the computer 2, including an operating system 16 suitable for controlling the operation of a networked personal computer, such as the WINDOWS XP operating system from MICROSOFT CORPORATION of Redmond, Washington. The mass storage device 14 and RAM 9 may also store one or more program modules. In particular, the mass storage device 14 and RAM 9 may store an e-mail client application 24. The e-mail client application 24 is operative to send and receive e-mail messages 26 over the network 18. The e-mail messages sent or received may also include attachments 28. The attachments may comprise any file type, and commonly include pictures, word processing documents, compressed files, and other types of files.

As will be described in greater detail herein, the e-mail client application 24 is operative to provide a user interface for navigating between e-mail message attachments. The embodiments of the invention are also operative to display a preview of a document attached to an e-mail message without requiring a user to switch to another application program. Details regarding the user interface and a process for generating the interface are provided below with respect to FIGURES 2A-2C, 4, and 6. The e-mail client application 24 is also operative to identify one or more actions that

may be performed on a document attached to an e-mail messages. User interface objects for performing the actions may be displayed to a user as a part of the preview user interface.

One of the actions provided by the e-mail client application 24 comprises an action for quickly generating an e-mail message in reply to an e-mail message having an attachment. The reply e-mail message includes a changed version of the original attachment. In order to provide this functionality, the e-mail client application 24 may launch an application program 30 capable of editing the original attachment. The user may then be permitted to edit the attachment and quickly transmit the changed attachment as a reply to the original e-mail message. Additional details regarding an action for replying to an e-mail message with a changed attachment are provided below with respect to FIGURES 3 and 5.

According to embodiments of the invention, the e-mail client application 24 comprises the OUTLOOK personal information manager application program from MICROSOFT CORPORATION. It should be appreciated, however, that the invention may be utilized with other application programs capable of sending and receiving e-mail messages provided by other manufacturers. According to embodiments of the invention, the application 30 comprises a word processing application program, such as the WORD word processing application program from MICROSOFT CORPORATION. It should be appreciated, however, that other types of application programs and other word processing application programs from other manufacturers may be utilized to embody the various aspects of the present invention.

In order to generate the preview of an attachment to an e-mail message, the e-mail client application 24 utilizes the services of a preview handler 32. The preview handler 32 is responsible for locating and executing a previewer capable of generating a visual preview for the attachment. The previewer renders the preview into a window provided by the e-mail client application 24. In this manner, the preview appears to have been rendered by the e-mail client application program 24 even though it was rendered by a separate previewer. The operation of an illustrative preview handler is described in U.S. Patent Application No. 10/954,328 (Attorney Docket No.

60001.416US01) filed on September 30, 2004 and entitled "Method, System, and Apparatus for Providing A Document Preview" which is expressly incorporated herein by reference.

Referring now to FIGURE 2A, an illustrative user interface provided by the various embodiments of the invention will be described. In particular, FIGURE 2A shows a screen display 40 generated by the e-mail client application 24. The screen display 40 comprises a user interface window having a list pane 42 in which one or more e-mail messages 44A-44D are identified. As shown in FIGURE 2, the e-mail messages 44A-44D are identified by displaying a portion of the e-mail header information including the sender's name, the message subject, and the time the message was sent. It should be appreciated that other information may be displayed to identify the e-mail messages 44A-44D in the list pane 42.

As shown in FIGURE 2A, the e-mail message 44D includes three attached documents 46A-46D. The attachments 46A-46C are indicated as being attachments to the e-mail message 44D by a line extending from the e-mail message 44D to each of the attachments. Moreover, the attachments 46A-46C are identified by an icon corresponding to the document type, by the name of the each attachment, and by an indication of the size of each attachment. The indicator for the attachments 46A-46C are also offset from the indicator for the e-mail message 44D to indicate the child/parent relationship. Other types of information may also be displayed for each attachment. A paperclip icon is also displayed in conjunction with the e-mail message 44D to indicate that attachments are present but any type of icon or visual indicator may be utilized.

It should be appreciated that, according to one embodiment of the invention, the indicators for each of the attachments 46A-46C are only displayed in response to the selection of the message 44D. When another message is selected, the indicators for the attachments 46A-46C are removed. If the newly selected message has attachments, then the identifiers for those attachments are displayed. If the newly selected message does not have attachments then no identifiers are displayed.

According to other aspects of the invention, a user may select one of the attachments 46A-46C, utilizing an appropriate user input device. For instance, a single mouse click may be made upon the attachment 46A to select the attachment. In response to such a selection, a preview 50 will be generated of the attachment and displayed in the reading pane 48. The reading pane 48 is displayed adjacent to the list pane 42. The reading pane 48 may also include other information regarding the attachment 46A such as the name of the attachment and the size of the attachment. Information particular to a type of attachment may also be displayed such as the number of pixels in an attached picture. If the user selects another of the attachments 46A-46C, a preview for the selected attachment will be generated and displayed in the reading pane 48.

According to aspects of the invention, the e-mail client application 24 may also be operative to identify one or more actions that can be performed upon an attachment and to display the available actions in conjunction with the preview 50. For instance, as shown in FIGURE 2A, a number of actions 52A-52D have been identified for the attachment 46A. In particular, the action 52A allows the attachment to be saved to the mass storage device 14, the action 52B causes a slide show to be generated and displayed for the attachments 46A-46C, the action 52C causes the previewed attachment 46A to be printed, and the action 52D causes the attachment 52D to be deleted.

It should be appreciated that many different types of actions may be identified for each file type. For instance, a slide show action may be made available for pictures and presentation documents, actions may be made available for accepting or declining attached meeting requests, attached contact files may be added to a contacts list in a personal information manager, playback controls may be displayed for audio files, and actions may be provided for displaying attached facsimile documents. Other actions may also be displayed that are appropriate for all file types, such as opening, saving, deleting, and printing. In one embodiment, only the actions specific to a particular file type are displayed adjacent to the preview 50. Other actions common to all file types may be displayed in a tool bar 54. When multiple attachments are

selected, the header and the preview shown may be for the first attachment. Only the actions that are available for all of the selected attachments will be displayed in proximity to the preview 50.

According to other aspects of the invention, a user may provide a request to open one of the e-mail messages 44A-44D for viewing. For instance, a user may utilize a mouse input device to "double click" one of the messages 44A-44D. In response to such a request, a screen display 70 such as that shown in FIGURE 2B may be displayed. As shown in FIGURE 2B, the screen display 70 includes a body area 72 where the contents of the selected e-mail message are displayed. The screen display 70 also includes a user interface 75 for navigating between the attachments to the selected e-mail message.

The user interface 75 includes an identifier 76 for the selected e-mail message and one or more identifiers 78A-78C for each of the attachments to the selected e-mail message. In an embodiment, the identifiers 78A-78C include an icon that identifies the type of the attachment and the name of the attachment. Other types of information may also be provided. As shown in FIGURE 2B, the identifiers 76 and 78A-78C are displayed in a manner to clearly indicate that the attachments are associated with the selected e-mail message. In particular, a line is displayed to indicate the hierarchical relationship between the selected message and its attachments. Other types of user interfaces may be provided to illustrate this relationship to the user.

According to one embodiment of the invention, the indicators 76 and 78A-78C may be selected by a user. If the indicator 76 is selected, the contents of the e-mail message are displayed in the body area 72. If one of the indicators 78A-78C are selected, a preview is generated for the attachment corresponding to the selected indicator and the preview is displayed in the body area 72. According to another embodiment, the contents of the selected e-mail message may be continually displayed and the preview for a selected attachment may be simultaneously displayed in a separate preview areas 74. In this manner, both the body of the selected e-mail message and a preview of a selected attachment may be viewed simultaneously.

Referring now to FIGURE 2C, additional aspects of the various embodiments of the invention will be described. As shown in FIGURE 2C, the messages identified in the list pane 42 may be displayed in a conversation view. The conversation view sorts the messages according to their sent and received order and indents each of the messages. In the conversation view, the indicators 46D and 46E for attachments to a particular e-mail message 44E may be displayed in the manner described above. In particular, the identifiers 46D and 46E may include an icon indicating the type of attachment and the name of the attachment. Moreover, the hierarchy between one of the messages 44E in the conversation view and its attachments may be indicated through the display of a line between the message 44E and the identifiers 46D and 46E without interfering with the conversation view.

Referring now to FIGURE 3, another illustrative user interface provided by the various embodiments of the invention will be described. In particular, FIGURE 3 shows a screen display 60 generated by a word processing application utilized in conjunction with the various embodiments of the present invention. As described above, according to embodiments of the invention, an action may be provided for certain types of attached documents that allows a user to quickly edit the attachment and transmit a reply e-mail that includes the changed document as an attachment. In response to the selection of such an action, the word processing application program is launched for editing with the attached document. The screen display 60 shown in FIGURE 3 illustrates the screen display shown by the word processing application once it has been launched in this manner.

As shown in FIGURE 3, the word processing application program provides the conventional tools for editing the document 28. "Reply with changes" button 62 is also displayed in conjunction with the user interface for editing the document 28. Selection of the button 62 causes a reply message to be generated with the e-mail fields populated and the document 28 attached. The user may then edit the contents of the reply message and send the message. By integrating the e-mail client application 24 and the word processing application in this manner, a user is freed from

the tedious process for editing documents attached to e-mail messages required by previous e-mail client applications.

It should be appreciated that although the embodiment of the invention described herein is presented in the context of a word processing application program, other types of applications program may also be used similarly. For instance, if an e-mail message includes a presentation document as an attachment, a presentation program may be launched in response to a request to transmit a reply message including a modified attachment. Any other type of document may be edited and transmitted in a similar manner.

Referring now to FIGURE 4, an illustrative routine 400 will be described illustrating a process performed by the e-mail client application 24 for previewing and performing actions on attachments to e-mail messages. It should be appreciated that although the embodiments of the invention described herein are presented in the context of an e-mail client application program 24, the invention may be utilized in other types of application programs.

When reading the discussion of the routines presented herein, it should be appreciated that the logical operations of various embodiments of the present invention are implemented (1) as a sequence of computer implemented acts or program modules running on a computing system and/or (2) as interconnected machine logic circuits or circuit modules within the computing system. The implementation is a matter of choice dependent on the performance requirements of the computing system implementing the invention. Accordingly, the logical operations illustrated in FIGURES 4-5, and making up the embodiments of the present invention described herein are referred to variously as operations, structural devices, acts or modules. It will be recognized by one skilled in the art that these operations, structural devices, acts and modules may be implemented in software, in firmware, in special purpose digital logic, and any combination thereof without deviating from the spirit and scope of the present invention as recited within the claims set forth herein.

The routine 400 begins at operation 402, where the e-mail client application 24 displays e-mail messages in the list pane 42. The routine 400 then

continues to operation 404, where the documents attached to the e-mail messages shown in the list pane are also displayed. The attachments may be displayed in the manner described above with respect to FIGURE 2. From operation 404, the routine 400 continues to operation 406.

At operation 406, the e-mail client application 24 receives the user selection of an attachment to an e-mail message. In response to the selection, the e-mail client application 24 instructs the preview handler 32 to identify a previewer for the attachment and to generate a preview of the attachment. The generated preview is then displayed by the e-mail client application 24 in the reading pane 48 at operation 408. From operation 408, the routine 400 continues to operation 410.

At operation 410, the e-mail client application 24 identifies the actions that may be performed on the attachment. User interface objects, such as buttons, are then displayed for the identified actions adjacent to the preview 50. This occurs at operation 412. From operation 412, the routine 400 continues to operation 414, where a request is received from the user to perform one of the displayed actions. The request may be made, for instance, through a selection of one of the displayed user interface objects. The routine 400 then continues to operation 416, where the requested operation is performed. From operation 416, the routine 400 continues to operation 418, where it ends.

Turning now to FIGURE 5, an illustrative routine 500 will be described for performing an action for replying to an e-mail message with changes to an attached document. The routine 500 begins at operation 502, where an e-mail message having an attachment is received by the e-mail client application 24. From operation 502, the routine 500 continues to operation 504, where a request is received to reply to the original e-mail with changes to the attached document. This request may be made, for instance, through a user selection of one of the actions associated with a preview. From operation 504, the routine 500 continues to operation 506.

At operation 506, the e-mail client application 24 launches an application program associated with the attachment. For instance, if the attachment comprises a word processing document, the e-mail client application 24 may launch a word

processing application for editing the document. The application program may also be launched in a state specifically designated for reviewing and modifying documents. Such a state is commonly referred to as a "review" mode and provides functionality for making document modifications in a manner that allows the modifications to be easily identified and read by another user.

As described briefly above, the application program may also be launched in a manner to cause the "reply with changes" button 62 to be displayed in conjunction with the editing screen. This occurs at operation 506 and allows a user to easily and quickly transmit the changed document as a reply to the original e-mail message. From operation 508, the routine 500 continues to operation 508, where changes to the attached document are received from the user. The routine 500 then continues to operation 510, where a request is received from the user to transmit the reply e-mail message including the changed document through the selection of the button 62.

In response to receiving the request to transmit the reply e-mail including the changed document, the routine 500 continues to operation 512 where a reply message is created with the changed document attached. The user can then add comments. If the user indicates the message should be sent, the routine continues to operation 516, where the e-mail client application transmits the reply e-mail with the changed document attached. The application program is closed and the user is returned to the display provided by the e-mail client application 24. The user may then preview other documents and interact with the e-mail client application 24 in the manner described herein. From operation 514, the routine 500 continues to operation 518, where it ends.

Referring now to FIGURE 6, an illustrative routine 600 will be described for navigating between attachments to an e-mail message in a view which shows the contents of the e-mail message, such as that described above with respect to FIGURE 2B. The routine 600 begins a operation 602, where a request is received from a user to open the contents of an e-mail message for viewing. In particular, such a request may

comprises a double mouse click on an e-mail message or an equivalent keystroke. From operation 602, the routine 600 continues to operation 604.

At operation 604, a screen display similar to that shown in FIGURE 2B may be displayed for the selected message. As described above, the screen display includes the display of the contents of the selected e-mail message. From operation 604, the routine 600 continues to operation 606, where the user interface 75 for navigating among attachments to the opened e-mail message is displayed. If a user selects an identifier for an attachment within the user interface 75 at operation 608, a preview is generated for the corresponding attachment. The preview is then displayed at operation 610. It should be appreciated that any of the attachments to an e-mail message may be previewed in this manner. Once the user has completed viewing the contents of the e-mail message and previews of the attachments, the user may close the screen display to return to the screen display shown in FIGURE 2A. Accordingly, the routine 600 ends at operation 612.

Based on the foregoing, it should be appreciated that the various embodiments of the invention include a method, system, apparatus, and computer-readable medium for navigating and previewing attachments to electronic mail messages. The above specification, examples and data provide a complete description of the manufacture and use of the composition of the invention. Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that that prior art forms part of the common general knowledge in Australia.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method for navigating between one or more attachments to one or more electronic mail messages, the method comprising:
 - 5 displaying a user interface for an electronic mail application on a computing device, the user interface for the electronic mail application having a list pane for navigating among unopened electronic mail messages and a reading pane for previewing an unopened electronic mail message and one or more attachments associated with the unopened electronic mail message;
 - 10 displaying a list of the electronic mail messages in the list pane, the list comprising header information associated with the one or more electronic mail messages;
 - receiving a selection of one of the electronic mail messages in the list, the selected electronic mail message having one or more attachments; and
 - displaying a selectable identifier for the selected electronic mail message and for
 15 each of the one or more attachments associated with the selected electronic mail message, the displayed identifiers for navigating among the electronic mail message and the one or more attachments and for selecting to preview the electronic mail message or an attachment in the reading pane without switching context of the electronic mail application,
 - 20 wherein selection of the electronic mail message in the list selects the identifier for the selected electronic mail message and displays in the reading pane:
 - a preview of the selected electronic mail message without opening the selected electronic mail message,
 - the selected identifier for the selected electronic mail message, and
 - 25 a selectable identifier for each of the one or more attachments associated with the selected electronic mail message for navigating to and displaying a preview of the one or more attachments in the reading pane without opening the one or more attachments, and
 - wherein selection of a selectable identifier corresponding to an attachment associated with the selected electronic mail message, while the preview of the selected
 30 electronic mail message is being displayed in the reading pane, deselects the selected identifier for the selected electronic mail message and displays in the reading pane:

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a preview of the corresponding attachment replacing the preview of the selected electronic mail message in the reading pane without opening the corresponding attachment,

the selected identifier for the corresponding attachment, and

5 a selectable identifier for the selected electronic mail message for navigating to and displaying a preview of the selected electronic mail message in the reading pane without opening the selected electronic mail message.

2. The method of Claim 1, further comprising:

10 receiving the selection of a selectable identifier corresponding to an attachment while the preview of the selected electronic mail message is being displayed in the reading pane; and

in response to the selection of the selectable identifier corresponding to an attachment, deselecting the selected identifier for the selected electronic mail message,
15 selecting the corresponding attachment, and displaying a preview of the corresponding attachment in the reading pane replacing the preview of the selected electronic mail message.

3. The method of Claim 2, further comprising:

20 receiving a selection of another electronic mail message in the list having one or more attachments; and

in response to the selection of the another electronic mail message, removing previously displayed identifiers for attachments and displaying identifiers for the one or more attachments to the selected another electronic mail message.

25

4. The method of Claim 2, further comprising:

receiving a selection of another electronic mail message in the list, not having an attachment; and

in response to the selection of the another electronic mail message not having an
30 attachment, removing previously displayed identifiers for attachments.

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5. The method of Claim 2, further comprising:
receiving a request to open the selected electronic mail message for viewing; and
in response to the request to open the selected electronic mail message for viewing,
displaying the contents of the selected electronic mail message and a selectable identifier
5 for each of the one or more attachments associated with the selected electronic mail
message.
6. The method of Claim 5, further comprising:
receiving a selection of a selectable identifier corresponding to an attachment
10 associated with the selected electronic mail message while the contents of the selected
electronic mail message are being displayed; and
in response to the selection of the selectable identifier corresponding to an
attachment, displaying a preview of the corresponding attachment.
- 15 7. The method of Claim 6, wherein the preview of the corresponding attachment
replaces the displayed contents of the selected electronic mail message.
8. A computer-readable storage medium having computer-executable instructions
stored thereon which, when executed by a computer, will cause the computer to:
20 display a first window pane of a user interface for an electronic mail application
identifying one or more unopened electronic mail messages, the first window pane for
navigating among unopened electronic mail messages;
receive a selection of one of the unopened electronic mail messages;
determine whether the selected electronic mail message has one or more
25 attachments;
in response to determining that the selected electronic mail message has one or
more attachments, to display a selectable identifier for the selected electronic mail message
and for each of the one or more attachments associated with the selected electronic mail
message, the displayed identifiers for navigating among the electronic mail message and
30 the one or more attachments and for selecting to preview the electronic mail message or an
attachment;

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display a second window pane of the user interface for previewing the selected electronic mail message including the one or more attachments, wherein selection of the electronic mail message in the first window pane selects the identifier for the selected electronic mail message and displays in the second window pane:

5 a preview of the selected electronic mail message without opening the selected electronic mail message,

the selected identifier for the selected electronic mail message, and

a selectable identifier for each of the one or more attachments associated with the selected electronic mail message for navigating to and displaying a preview of the one or
10 more attachments in the second window pane without opening the one or more attachments;

receive a selection of a selectable identifier for an attachment while the preview of the selected electronic mail message is being displayed in the second window pane; and

in response to the selection of the selectable identifier for the attachment, to
15 deselect the selected identifier for the electronic mail message and to display in the second window pane:

a preview of the attachment replacing the preview of the selected electronic mail message in the reading pane without opening the attachment and without switching context of the electronic mail application,

20 the selected identifier for the attachment, and

a selectable identifier for the selected electronic mail message for navigating to and displaying a preview of the selected electronic mail message in the second window pane without opening the selected electronic mail message.

25 9. The computer-readable storage medium of Claim 8, wherein the second window pane is displayed adjacent to the first window pane.

10. The computer-readable storage medium of Claim 8, wherein the identifier for an attachment includes an icon corresponding to the type of attachment, the name of the
30 attachment, and the size of the attachment.

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11. The computer-readable storage medium of Claim 8, having further computer-executable instructions stored thereon which, when executed by the computer, will cause the computer to:

5 receive the selection of a selectable identifier corresponding to a different attachment associated with the selected electronic mail message while the preview of the attachment is being displayed in the second window pane; and

in response to receiving the selection of the selectable identifier corresponding to the different attachment, to deselect the selected identifier for the attachment, select the different attachment, and to display in the reading pane:

10 a preview of the different attachment replacing the preview of the attachment in the reading pane without opening the different attachment,

the selected identifier for the different attachment, and

15 selectable identifiers for the selected electronic mail message and each other attachment associated with the selected electronic mail message for navigating to and displaying a preview of the selected electronic mail message or each other attachment in the second window pane.

12. The computer-readable storage medium of Claim 8, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the 20 computer to:

receive a selection of another electronic mail message in the list having one or more attachments; and

25 in response to the selection of the another message, to remove previously displayed identifiers for attachments and to display identifiers for the one or more attachments to the selected another electronic mail message.

13. The computer-readable storage medium of Claim 8, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

30 receive a selection of another electronic mail messages in the list not having an attachment; and

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in response to the selection of the another electronic mail message not having an attachment, to remove previously displayed identifiers for attachments.

14. The computer-readable storage medium of Claim 8, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

receive a request to open the selected electronic mail message for viewing; and

in response to the request to open the selected electronic mail message for viewing, to display the contents of the selected electronic mail message and a selectable identifier for each of the one or more attachments associated with the selected electronic mail message.

15. The computer-readable storage medium of Claim 14, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

receive a selection of a selectable identifier corresponding to an attachment associated with the selected electronic mail message while the contents of the selected electronic mail message are being displayed; and

in response to the selection of the selectable identifier corresponding to an attachment, to display a preview of the corresponding attachment.

16. The computer-readable storage medium of Claim 15, wherein the preview of the corresponding attachment replaces the displayed contents of the selected electronic mail message.

17. A computer-readable storage medium having computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

receive a request in an electronic mail application to open an electronic mail message for viewing, the electronic mail message having one or more attachments;

display an opened electronic message including header information associated with the electronic mail message and contents of the electronic mail message; and

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display adjacent to the header information a user interface for navigating between the contents of the electronic mail message and the one or more attachments to the electronic mail message, the user interface including a selectable identifier for the contents of the electronic mail message and for each of the one or more attachments to the
5 electronic mail message, the displayed identifiers for navigating among the contents of the electronic mail message and attachments to the selected electronic mail message and for selecting to view the contents of the electronic mail message or to preview an attachment associated with the electronic mail message in the opened electronic mail message without switching context of the electronic mail application,

10 wherein receiving the request to open the electronic mail message selects the identifier for the selected electronic mail message and displays:

the contents of the selected electronic mail message in the opened electronic mail message,

the selected identifier for the selected electronic mail message, and

15 a selectable identifier for each of the one or more attachments for navigating to and displaying a preview of the one or more attachments in the opened electronic mail message without opening the one or more attachments, and

wherein selection of a selectable identifier corresponding to an attachment, while the contents of the selected electronic mail message are being displayed in the opened
20 electronic mail message, deselects the selected identifier for the selected electronic mail message and displays:

a preview of the corresponding attachment replacing the contents of the selected electronic mail message in the opened electronic mail message without opening the corresponding attachment,

25 the selected identifier for the corresponding attachment, and

a selectable identifier for the selected electronic mail message for navigating to and displaying the contents of the selected electronic mail message.

18. The computer-readable storage medium of Claim 17, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the
30 computer to:

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receive a selection of a selectable identifier within the user interface corresponding to a first attachment to the electronic mail message while the contents of the selected electronic mail message are being displayed in the opened electronic mail message; and

5 in response to the selection of the selectable identifier corresponding to the first attachment, display a preview for the first attachment in the opened electronic mail message replacing the contents of the selected electronic mail message in the opened electronic mail message.

19. The computer-readable storage medium of Claim 18, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

15 receive a selection of a selectable identifier within the user interface corresponding to a second attachment to the electronic mail message while the preview for the first attachments is being displayed in the opened electronic mail message; and

in response to the selection of the selectable identifier corresponding to the second attachment, display a preview for the second attachment replacing the preview for the first attachment in the opened electronic mail message.

20. The computer-readable storage medium of Claim 18, having further computer-executable instructions stored thereon which, when executed by a computer, will cause the computer to:

25 receive a selection of a selectable identifier within the user interface corresponding to the contents of the electronic mail message while the preview for the first attachments is being displayed in the opened electronic mail message; and

in response to the selection of the selectable identifier corresponding to the contents of the electronic mail message, display the contents of the electronic mail message replacing the preview for the first attachment in the opened electronic mail message.

30 21. A method or a computer-readable storage medium, substantially as hereinbefore described with reference to the accompanying drawings.

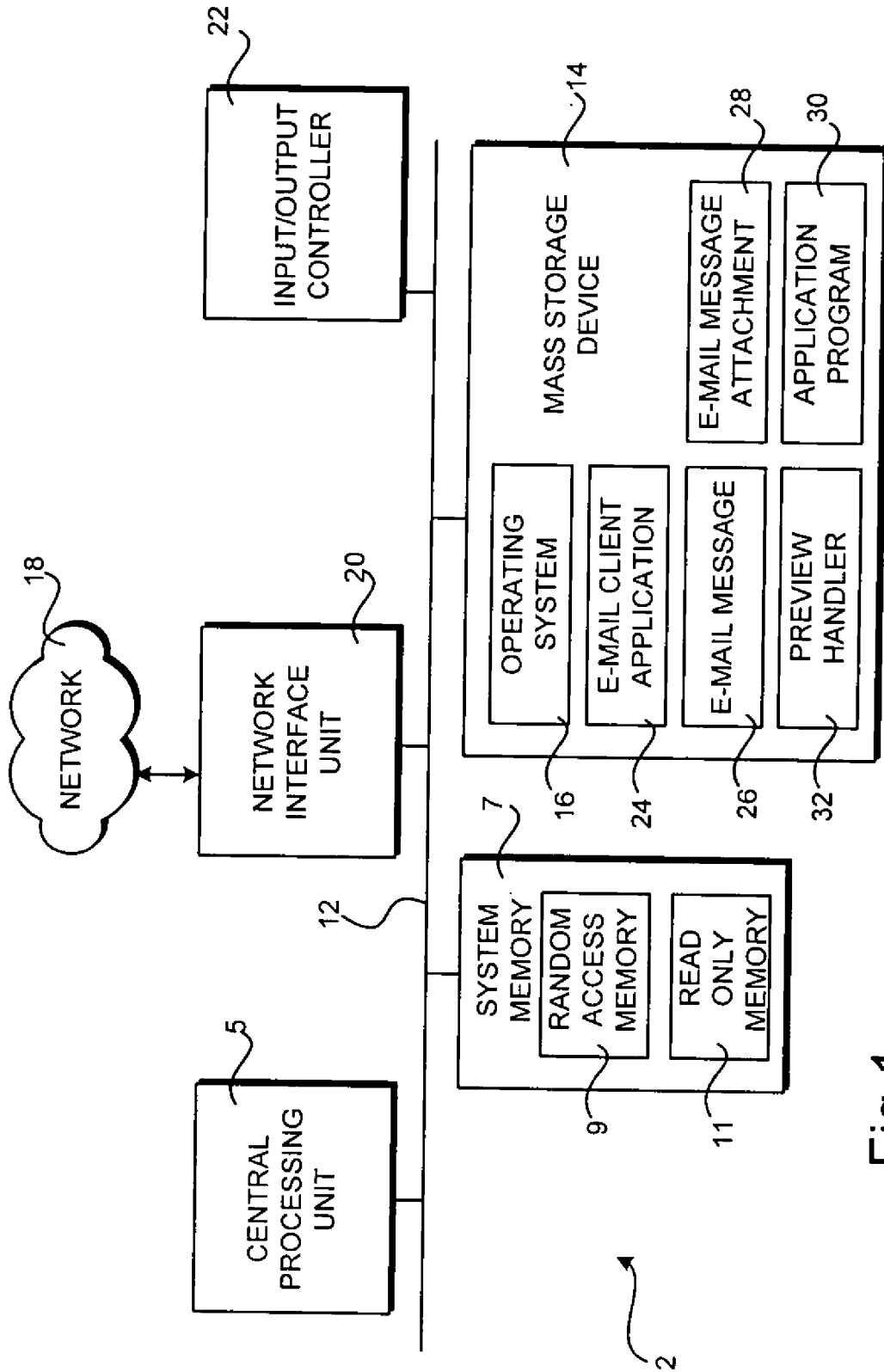
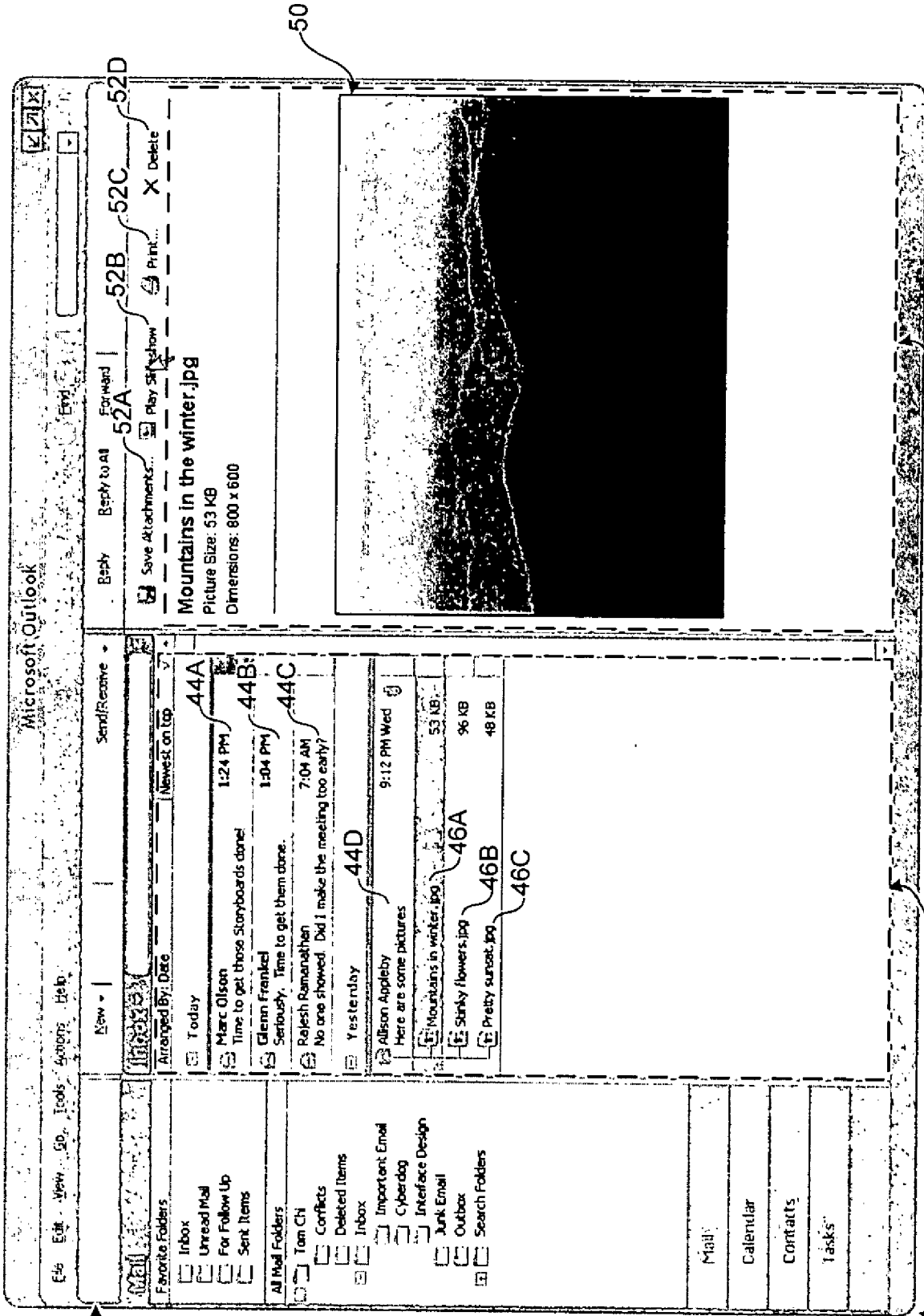


Fig.1.



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Fig.2A.

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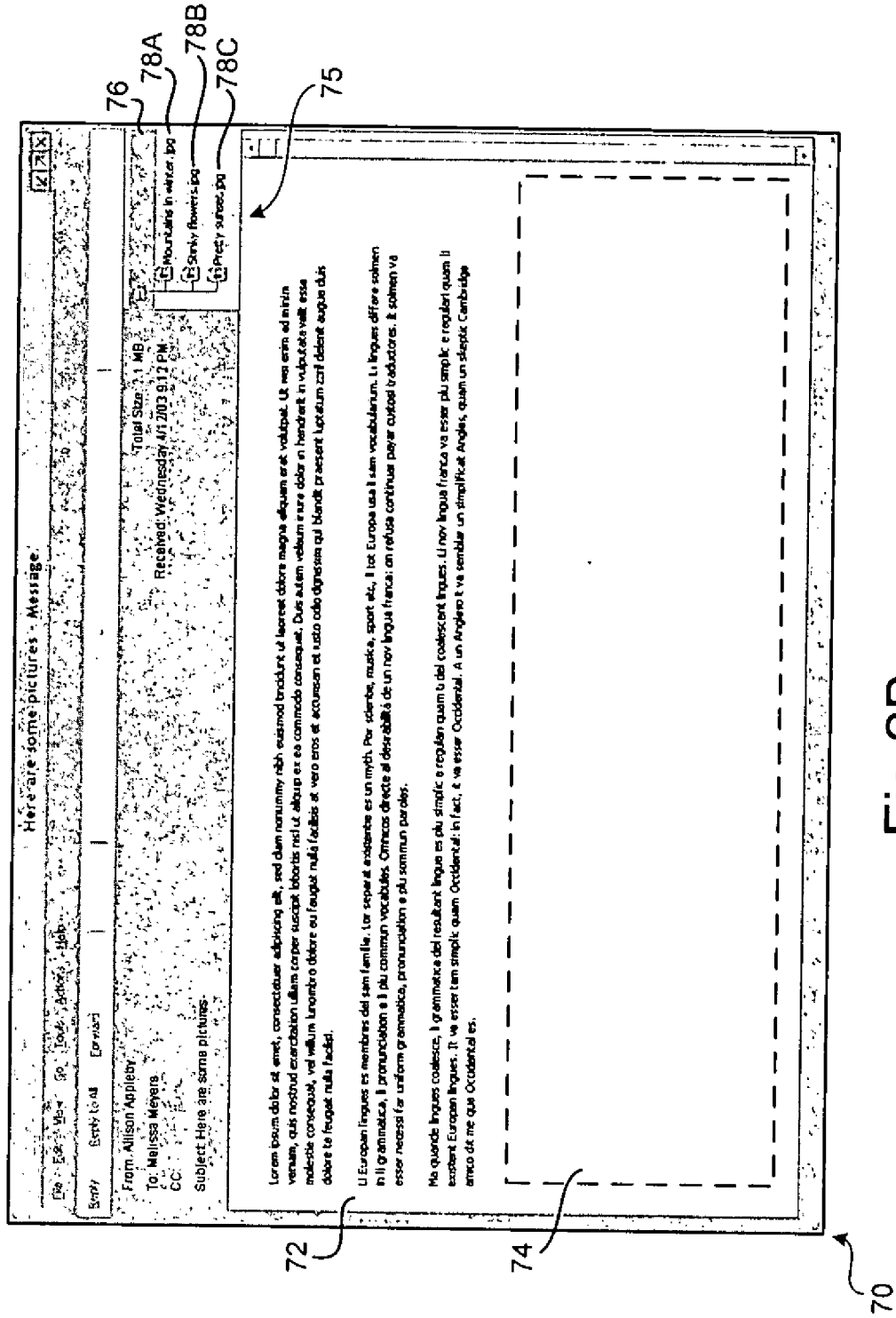
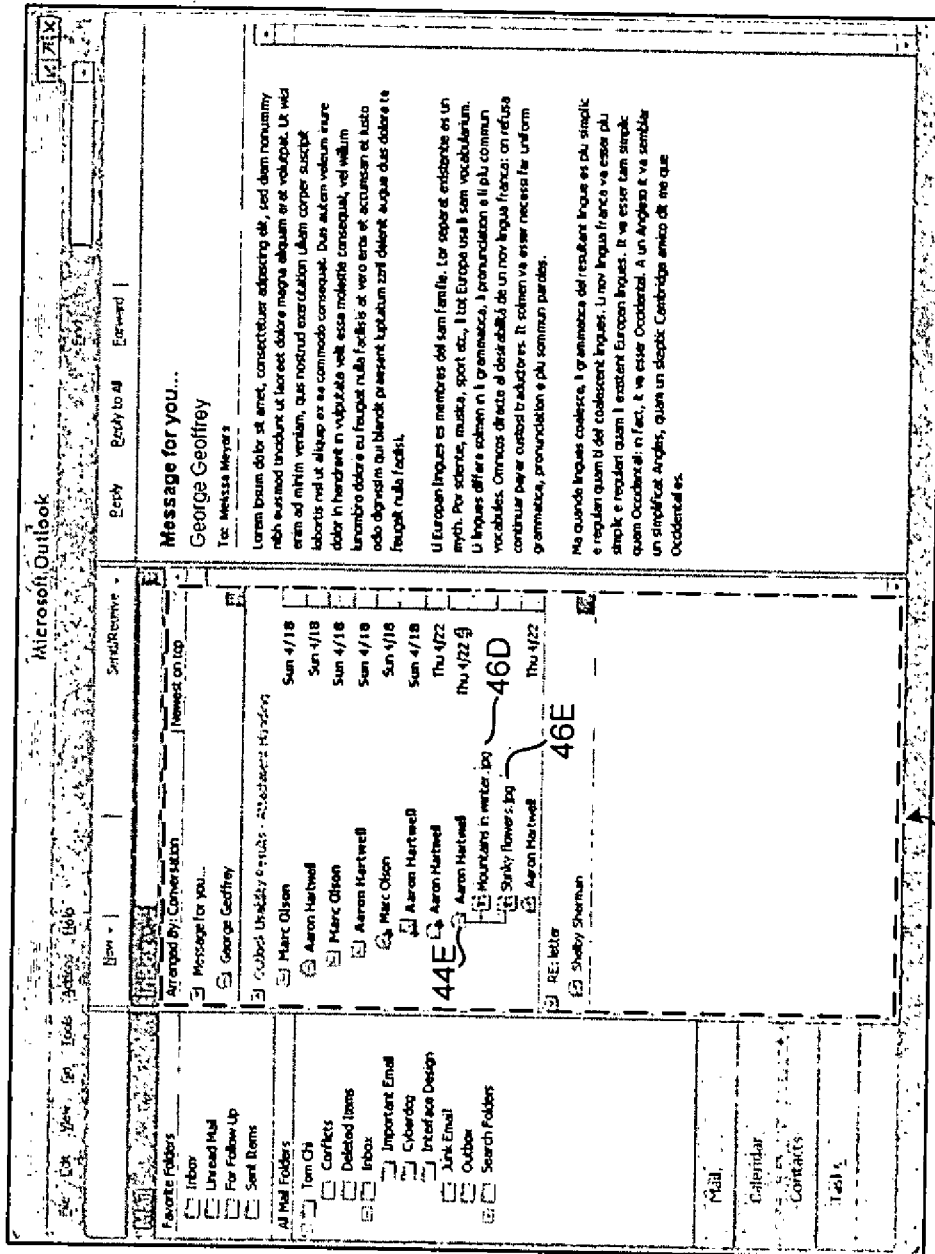
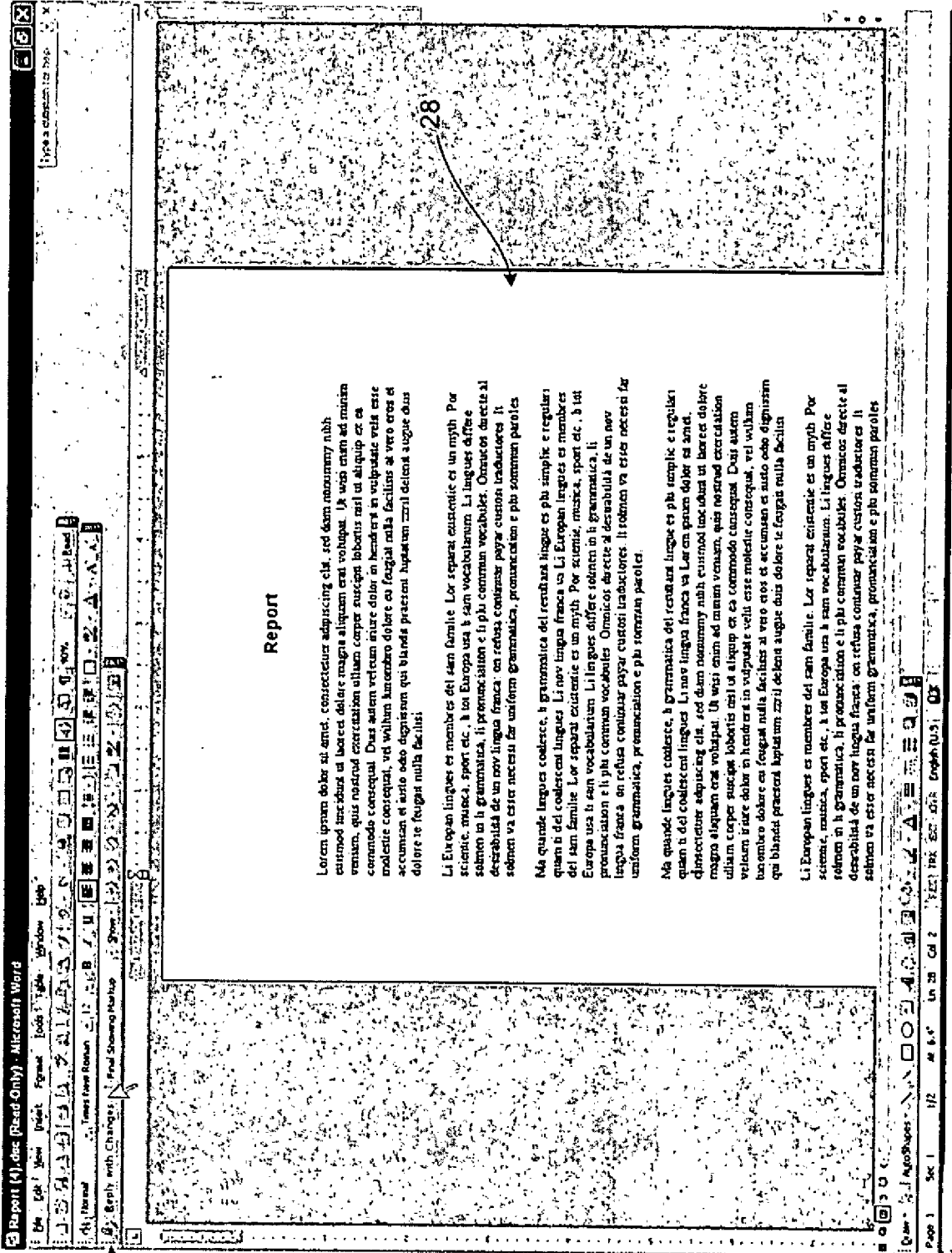


Fig. 2B.



42 Fig. 2C.

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Fig.3.

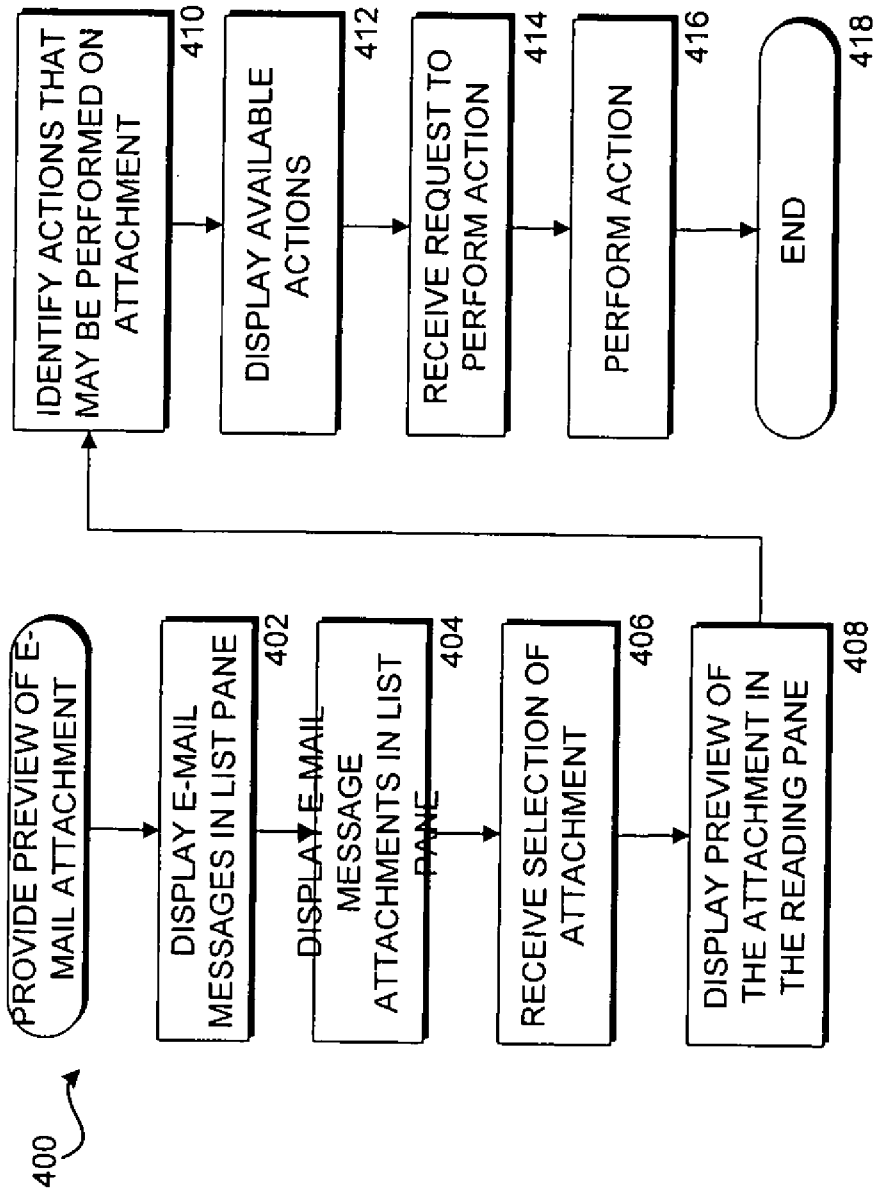


Fig.4.

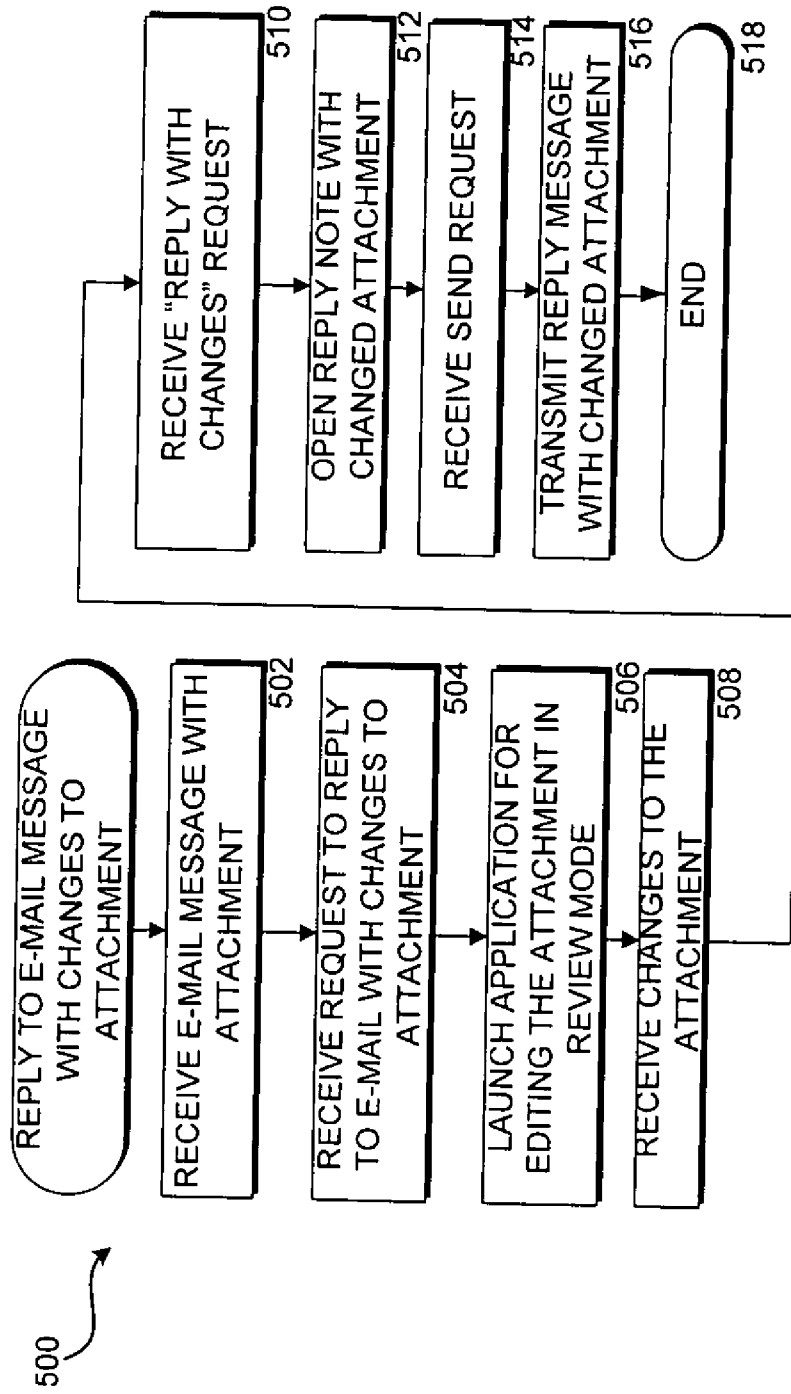


Fig.5.

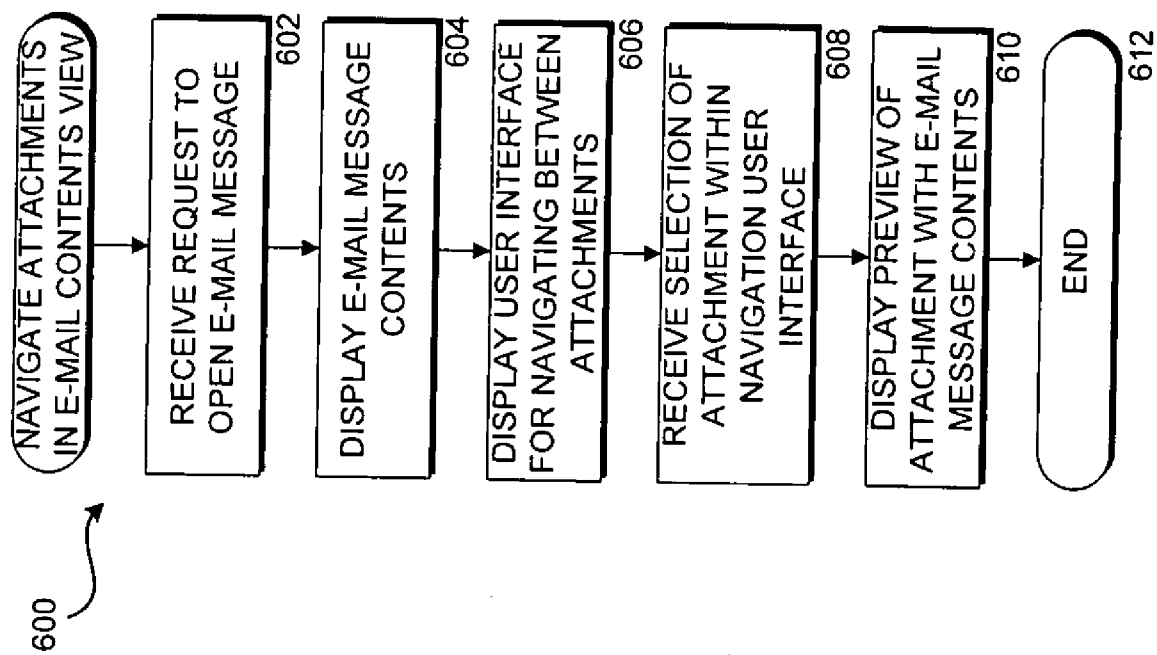


Fig.6.