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(54) Title: SERVICE MANAGEMENT SYSTEM FOR PROVIDING SERVICE RELATED MESSAGE PRIORITIZATION IN A MOBILE CLIENT

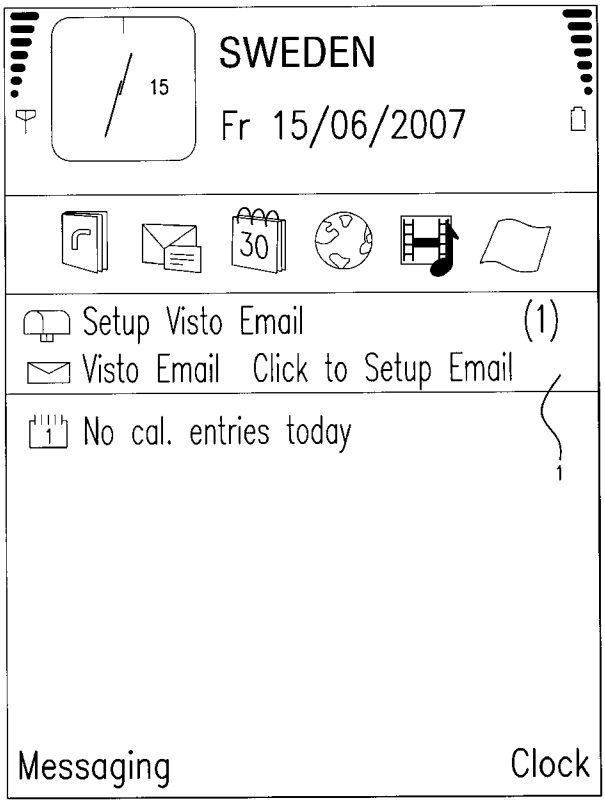

FIG.1

(57) Abstract: A method for managing service messages on a mobile device, the method including receiving at least one service message, assigning a priority to the at least one service message, arranging a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message, the at least one service message having a higher priority than the plurality of messages, and displaying the plurality of messages and the at least one service message in the electronic mail inbox in order of their priority.

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TITLE

A SERVICE MANAGEMENT SYSTEM & ASSOCIATED METHODOLOGY OF PROVIDING SERVICE RELATED MESSAGE PRIORITIZATION IN A MOBILE CLIENT

CROSS REFERENCE TO RELATED APPLICATIONS

The present application claims the benefit of U.S. provisional application serial number 60/985,354, entitled Service Management System and Associated Methodology of Providing Service Related Message Prioritization in a Mobile Client, filed on November 5, 2007, the entire contents of which is incorporated herein by reference.

BACKGROUND

The present advancements in the art relate to the field of mobile communications and, more particularly, a service management system and associated method of providing service related message prioritization in a mobile client. Mobile clients are known in the art. However, in the current state of the art, when there is a service interruption with the mobile client, a user does not have notice of the service interruption and only discovers the interruption upon making a phone call or trying to use the mobile client. A service management system and method does not exist in which a user can receive service related messages on their mobile client, in which the user can easily view service interruptions and take necessary steps to correct the service interruptions in a fast and easy manner.

SUMMARY OF EXEMPLARY ASPECTS OF THE ADVANCEMENTS

A method for managing service messages on a mobile device. The method includes receiving at least one service message and assigning a priority to the at least one service message. The method also includes arranging a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message. The at least one service message has a higher priority than the plurality of messages. The method also includes displaying the plurality of messages and the at least one service message in the electronic mail inbox in order of their priority.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

A more complete appreciation of the advancement and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Figure 1 is a screen shot of an active idle screen of an embodiment of the present advancement;

Figures 2-4 are screen shots of a setup menu of an embodiment of the present advancement;

Figures 5 and 6 are screen shots of menus in which software applications can be downloaded;

Figure 7 is a screen shot of a setup menu for an embodiment of the present advancement;

Figure 8 is a screen shot of a subscription menu for an embodiment of the present advancement;

Figure 9 is a screen shot of a terms and conditions menu for an embodiment of the present advancement;

Figure 10 is a screen shot of an email setup menu for an embodiment of the present advancement;

Figure 11 is a screen shot of a login menu for an embodiment of the present advancement;

Figure 12 is a screen shot of a login status screen for an embodiment of the present advancement;

Figure 13 is a screen shot of a connection status screen for an embodiment of the present advancement;

Figure 14 is a screen shot of a text message containing a web password for an embodiment of the present advancement;

Figure 15 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 16 is a screen shot of a message displayed on an embodiment of the present advancement;

Figure 17 is a screen shot of an options menu for an embodiment of the present advancement;

Figures 18-20 are screen shots of an attachment selection menu for an embodiment of the present advancement;

Figure 21 is a screen shot of a map displayed on an embodiment of the present advancement;

Figures 22 and 23 are screen shots of documents displayed on an embodiment of the present advancement;

Figures 24 and 25 are screen shots of a message displayed on an embodiment of the present advancement;

Figure 26 is a screen shot of an options menu for an embodiment of the present advancement;

Figure 27 is a screen shot of an embodiment of the present advancement;

Figure 28 is a screen shot of an options menu for an embodiment of the present advancement;

Figure 29 is a screen shot of an attachment selection menu for an embodiment of the present advancement;

Figure 30 is a screen shot of an attachment removal menu for an embodiment of the present advancement;

Figure 31 is a screen shot of an attachment selection menu for an embodiment of the present advancement;

Figure 32 is a screen shot of a contact selection menu for an embodiment of the present advancement;

Figures 33 is a screen shot of a message displayed on an embodiment of the present advancement;

Figure 34 is a screen shot of a contact information screen for an embodiment of the present advancement;

Figure 35 is a screen shot of a call status screen for an embodiment of the present advancement;

Figure 36 is a screen shot of an options menu for an embodiment of the present advancement;

Figure 37 is a screen shot of a create new contact menu for an embodiment of the present advancement;

Figure 38 is a screen shot of a contact information screen for an embodiment of the present advancement;

Figure 39 is a screen shot of a contact selection menu for an embodiment of the present advancement;

Figure 40 is a screen shot of a multimedia menu for an embodiment of the present advancement;

Figure 41-43 are screen shots of sound clip screens for an embodiment of the present advancement;

Figure 44 is a screen shot of an options menu for an embodiment of the present advancement;

Figure 45 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 46 is a screen shot of an email displayed on an embodiment of the present advancement;

Figure 47 is a screen shot of an options menu for an embodiment of the present advancement;

Figure 48 is a screen shot of a webpage displayed on an embodiment of the present advancement;

Figure 49 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 50 is a screen shot of an active idle screen of an embodiment of the present advancement;

Figure 51 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 52 is a screen shot of a settings menu for an embodiment of the present advancement;

Figure 53 is a screen shot of a subscription status notification screen for an embodiment of the present advancement;

Figure 54 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 55 is a screen shot of a roaming status notification screen for an embodiment of the present advancement;

Figure 56 is a screen shot of a message inbox for an embodiment of the present advancement;

Figure 57 is a screen shot of a upgrade notification screen for an embodiment of the present advancement;

Figures 58 and 59 are screen shots of an active idle screen of an embodiment of the present advancement;

Figure 60 is block diagram of a system of an embodiment of the present advancement; and

Figure 61 is a flow chart of an exemplary method of the present advancement.

DETAILED DESCRIPTION

Certain terminology used in the following description is for convenience only and is not limiting. The term "click" as used herein refers to the usual manner of selecting and accessing textual and graphical based computer information. The term does not limit the

present advancement to mouse-based peripherals or like interface devices, but is simply utilized as a shorthand term for describing known computer functionality and processes. An embodiment of the present advancement includes an application for managing service messages. The application is loaded/installed on a user device (e.g. Personal Digital Assistant, smart phone, laptop).

Referring now to the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views.

Figure 60 depicts a high level block diagram of an exemplary hardware embodiment of the present advancement. The communication device 101 shown in Figure 60 can include a receiving unit 103, an assigning unit 105, an arranging unit 107, a display unit 109, a central processing unit (CPU) 111, and a memory 113. The exemplary communication device 101 is configured to access a public network, such as the Internet for connecting to the server 15. Description of routine HTTP protocol handshaking and DNS query processing is omitted here for sake of brevity. The exemplary communication device 101 may also employ other wireless protocols, such as Bluetooth® and I.E.E.E. 802.11x wireless Ethernet, and in smart phone embodiments, employ cellular protocols including 3G and 4G technologies.

In the exemplary embodiment, units 103, 105, 107 and 109 may be implemented as separate threads of in a single computer executable instruction set of CPU 111, implemented separately as independent instruction sets. The instruction ses may be provided as a utility application, background daemon, or component of an operating system, or combination thereof executing in conjunction with CPU 11 and an operating system. In more robust devices, the operating system may Microsoft VISTA®, Unix, Solaris, Linux, Apple MAC-OS and other PC/workstation based systems known to those skilled in the art.

Exemplary memory 113 is a semiconductor based memory. Of course those skilled in the art will recognize that other memory mediums are applicable such as optical discs, smart

phone SIM cards and the like. Memory required for supporting the registries and like features of the device 101 Figure 1 is omitted as well known. Likewise a description of the general features of the device 101 such as volatile and/or non-volatile memory, I/O capabilities, etc as well as corresponding functionality have been omitted for brevity. The specific coding and porting of the algorithms described herein is within the ability of one skilled in the art upon review of the specification, flowcharts and drawings.

The receiving unit 103 can receive at least one service message. This service message can be a notification that service is interrupted or that a service update is available.

The assigning unit 105 can assign a priority to at least one service message.

The arranging unit 107 can arrange a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message.

The display unit 109 displays several menus to the user and can display a plurality of messages and at least one service message in an electronic mail inbox in order of their priority. The display unit 109 could be, for example, a liquid crystal display having a touch screen interface for actuating and managing the methodology discussed herein. The CPU 111 executes instructions stored in the memory 113 and controls the overall functionality of the communication device 101, and the hardware components associated with the communication device 101. In the exemplary communication device 101 a graphical user interface (GUI) based operating system is described. Preferably, the operating system is based upon commercially available systems such as Symbian®, Android® or Windows Mobile® products. The communication device 101 communicates with a server 115 over a network, e.g. a wireless network. A further exemplary platform on which the methodology described herein may be implemented is described in U.S. Patent No. 6,085,192 to Visto Corporation

entitled "System and method for securely synchronizing multiple copies of a workspace element in a network," the entire contents of which is hereby incorporated by reference.

Various menus and screens that are displayed by the display unit 109 of the communication device 101 will now be described with reference to Figures 1-59. A user can discover an application to be run on the communication device 101 through a call to action on the communication device 101. This call to action may, for example, be a link 1 to set up a mailbox from an Active Idle Screen, as shown in Figure 1. Also, from the messaging menu shown in Figure 2, a link 3 to a predefined mailbox item may be displayed prompting the user to setup the application. Figure 3 similarly shows a setup menu in which a user can set up the application. By clicking on the application logo 5 on the program menu, shown in Figure 4, the user can launch the setup process of the application. A user may click on the predefined mailbox to launch the setup process. Figures 5 and 6 show a link displayed within a text message in which a user can download the application. Figure 7 is a screen shot of a setup menu in which a user can setup email and synchronize contacts.

The application may not initially be stored on a user's device, but is installed on the user's device after the user purchases the device. For example, if the application is not pre-installed on the user's device, service discovery can still be triggered by customer care or by a recommendation from a friend. The invitation 7 (shown in Figure 6) to use the application could come from, for example, a customer service representative or sent over the network to the device. If a recommendation to use the application comes from a current subscriber, the new user could click on a link 9 displayed in a graphical user interface to start an automatic download of the designated application, followed by installation on the device.

Once the application is installed on the user's device, the setup process is configured to be launched, for example, from a special email, an application icon in the main menu, or automatically after full installation of the client application. The setup process triggers a

subscription selection process shown in Figures 8 and 9, where the user is prompted to select an appropriate subscription 11 for the service and different payment plans can be selected. The available payment plans may be retrieved from a server. Server components may include a windows based operating system, however alternative operating systems may include, but are not limited to Unix, Solaris, Linux, as well as Apple MAC-OS. Thus, the web server provides the front end for connection to the network such as the Internet. In the exemplary embodiment, a web server would employ Microsoft® Windows Server 2008, Active Directory, and FTP.

The user can then select an appropriate subscription and corresponding fee from a list displayed on the graphical user interface of the user's device. The subscription selection process activates the application and registers the commercial arrangement (i.e. terms and conditions) between the user and the operator (i.e. manufacturer of the application).

Once the service has been activated, the user is asked to configure a first mailbox for the application. First, as shown in Figure 10, the user is asked to select a service provider from a list of service providers 13 or create a standard ISP account. The domain will be pre-filled with the default settings of the service provider. The user is only required to enter a username 15 and password 17 as shown in Figure 11. While the login is in progress, a login status screen as shown in Figure 12 is displayed. The account is then added to a mailbox view of the GUI, shown in Figure 13, and a first synchronization process is performed. In addition, the user has the ability to manage their settings and update their contacts from a self-care website which is configured to be accessed by the user's device or via the internet from a personal computer. The user is sent the link 19 and password to the self-care website, as shown in Figure 14. Also, personal information management (PIM) data on the device is configured to be automatically backed up via a mobile PIM service.

Next, the process for receiving email and viewing attachments will be described. The present advancement makes new email messages instantly visible on the device and permits easy viewing of text and attachments. Mail can be viewed from a mail inbox which displays the user's email messages. The email messages may be arranged in a plurality of ways (e.g. by sender, by date, by subject, etc.). In the mail inbox screen 21, shown in Figure 15, attachments are visible as paper clips 23 in the margin to the right of the sender's name 25. Once the user has selected a particular email, the email is displayed as in Figure 16, and the user has several options available to them, such as, for example, replying to the email, forwarding the email, calling the sender of the email, deleting the mail, selecting/deleting attachments, and viewing the details of the particular email. Figure 17 shows a menu in which these options may be selected. Further, as shown in Figures 18-20, attachments may be downloaded selectively one by one. Once the attachments are downloaded (this is indicated by the application icon), attachments may be opened for viewing or saved to the file system. When the application is displaying an attachment, details of the attachment can be displayed, such as, for example, the title of the attachment, file type extension, and the file size of the attachment. Figure 21 shows a map that is an attachment, with the name and file type displayed. Figures 22 and 23 show attachments displayed that are in Adobe® Acrobat format and Microsoft® Excel format.

Next, a process will be described by which a user can retrieve the full text of an email message. As shown in Figures 24 and 25, long email messages may be restricted to initial text 27 only. However, when viewing the text of the message, the user can request to download the entire email message to permit viewing of the message in its entirety. In one embodiment of the present advancement, the body of text may be truncated if the email is larger than a certain size, e.g. 2KB. If the body of the text is truncated, the full body of text is immediately retrieved and appended to the email message. Further, a message 29 is

displayed at the bottom of the truncated message telling the user that more text is available (shown in Figure 25). The user can then download or view the rest of the message by navigating through an options menu shown in Figures 26 and 27.

Next, the process of forwarding an email message will be described. In an embodiment of the present advancement, the user may forward an email message with or without attachments. If the original message contained attachments, these do not have to be submitted from the device (instead, they are appended to the outgoing message by a NOC, i.e. Smart Forwarding). Individual attachments can also be added or deleted, as shown in Figures 28-31. This allows the user to selectively choose which attachments they want to send with a particular email. As shown in Figure 31, the size of the attachments can also be displayed when the user is selecting which attachments to forward with the email. The user can select the recipient of the email or text message by selecting the recipient's name in the contact selection menu shown in Figure 32.

Another function available to a user when viewing email is that the user can call the sender of the email. In Figure 33, displayed below the text of an email is an options tab 31. Once the user selects the options tab 31 several quick actions may be taken when viewing the message. Figure 17 shows several actions which may be taken when viewing an email. One option is that the user may respond to the email by calling the sender of the email. The sender is mapped to the corresponding entry in the address book. Further, the user can select the appropriate phone number from a menu, as shown in Figure 34, before initiating the call. Once the user selects the appropriate phone number, a call status screen as shown in Figure 35 is displayed, in which the name of the person being called is indicated.

Another function available to a user when viewing email is that the user can save the sender of an email to the address book of the device. Another action that may be performed is saving the sender's address details to the address book of the device. The email address

may be used to create a new contact or it may be added to an existing contact. As shown in Figures 36-39, the address book on the device is configured to be immediately updated when a contact is saved.

Another function available to a user when viewing email is that the user can send a media clip to another individual. The present advancement makes it easy to send or share individual media files or documents. In Figures 40-42, the user first selects the media clip they would like to send. Next, in Figure 43, the user selects the method that they would like to use to send the media clip (e.g. via multimedia, Bluetooth, infrared, web upload, or Visto Mobile Mail). Next, in Figure 44, the user selects a send tab 44 displayed in the GUI and the media file is sent to the recipient. No file size or format restrictions are imposed on the media files.

Another advantageous feature of the present advancement is that it is simple to select a contact from the address book because the address book is configured to be kept continuously up-to-date with a mobile personal information management (PIM) service. Another function available to a user when viewing email is that the user can browse a hyperlink 33 embedded in the text of an email (shown in Figure 46). While reading an email, a user can open a hyperlink 33 in the body text and immediately browse the corresponding web site, as shown in Figures 47 and 48.

Contacts may be managed from the mobile device or from a self-care website. Any changes are synchronized in the background, keeping PIM on the mobile device safe and up-to-date. For example, contacts may be added, updated or deleted via the self-care website. Further, the device is configured to be quickly updated via the synchronization process. Similarly, any updates on the device may be accessible via the self-care website. Updates to the system can be displayed via email in a message inbox as shown in Figure 45.

Next the desktop synchronization process will be described. Computer software allows PIM data to be synchronized from Microsoft Outlook on a user's personal computer or the mobile device. The application is configured to synchronize desktop data according to a connection time schedule or may be manually initiated by the user. The mobile device can synchronize with only one source, a self-care website, or more than one source. The self-care website may be controlled and branded by the operator of the mobile device (i.e. service provider). In addition, the computer synchronization software application may be minimized to the system tray of the user's computer.

An embodiment of the present advancement also includes a service message and service status framework (SSF) that provides status alerts, as shown in Figures 49-51, to users of the application.

An embodiment of the present advancement can use a set of defined service states which define the state of both the account and the client. Some of these service states have an associated user interface which is to inform the user of the state and solicit required actions from them. The service state messages may be, for example, informational, the connection status of the device (disconnected, no signal, voice call, etc.), a call to action, the subscription status (subscription suspended, requires renewal, etc.), upgrade availability information, roaming information, and service unavailability information (may be per mailbox).

Service state messages are "special" or high priority emails that remain at the top of the email inbox, and when opened provide a user with further information and options to take necessary actions to resolve the service interruption. An example of a service message 35 is shown in Figures 49-51. In addition, the application is closely integrated with an Idle Screen (shown in Figure 50) in order to provide a true push user experience and good visibility of relevant messages. Messages from the inbox appear on the Idle Screen. The latest or highest

priority message will be displayed. The displayed message may either be a service message or a regular email (service messages take precedence over regular email messages).

Some service messages are connection states and are therefore shown in a connection state item of an Application tab. Other service messages are independent of the connection state and are shown elsewhere, such as in a list of data channels. Service messages can also be shown in an email inbox. These service messages are very similar to connection state messages. Opening the message would then launch a service message user interface. This type of message is always marked as unread. As with the connection state emails, it is preferable that the mail does not exist to the mail viewer; selecting next/previous message in the viewer would not launch a service message user interface. Also, commands to "reply", "forward", "delete", "Mark as read" or "move" the email may be removed or disabled.

Further, it is possible that multiple service messages will be active simultaneously. Message priorities determine how to deal with multiple active service messages. In the individual service state messages, each is given a priority. Further, the inbox will display all service messages. If it is possible to keep all service messages at the top of the inbox, then they will first be ordered by priority, and then ordered by creation date.

After the expiration of the trial/subscription period for the application, there will be a subscription alert 37 displayed in the user's inbox, as shown in Figure 59. Alternatively, the user may change their subscription status manually, as shown in Figure 52. The subscription prompt is visible in the inbox and on the Idle Screen. The user can also change their subscription from the main menu of the application, as seen in Figure 52. Once the user has renewed their subscription, the subscription message is removed from the user's inbox and service is resumed. As shown in Figure 53, service is temporarily suspended until the user renews their subscription. Available payment plans for the subscription are retrieved from a server and displayed in a menu as shown in Figure 10.

The application can also automatically detect when the user's device is in a roaming mode. Initially, the service is temporarily suspended for use when roaming until the user accepts roaming data rates, or returns to the domestic network. The application alerts the user that they are roaming by an alert email 39 being sent to the user's inbox (shown in Figure 54) notifying the user that they are roaming and that their service has been disconnected. Once the user selects the user alert message, a message as shown in Figure 55 is displayed. Figure 55 shows that a user can select a link 41 to find out more details about the roaming data rates they will incur if they stay connected in the roaming region. Once the user reads the message and accepts the roaming rates, the message is removed from the user's inbox (shown in Figure 56) and service is resumed.

In some situations, it may be necessary to disconnect the client remotely and prompt the user to agree to terms & conditions before their service may be resumed. This can happen if the user's subscription has been changed out of band by a customer service representative. The message is removed only when the user agrees to the terms and conditions of the subscription.

In an embodiment of the present advancement, new updates for the application are configured to be automatically downloaded and the user may be informed when an upgrade is available. The user then has the option to install the upgrade immediately or to defer installation of the upgrade until a later time. The upgrade notification message will remain visible in the inbox for as long as the user has not acted on the upgrade. The user is prompted to accept the upgrade when the user selects the upgrade notification message 43 displayed in their inbox. Once the user accepts the upgrade, the upgrade is installed automatically. As shown in Figure 57, if the user dismisses the upgrade notification message 43 by clicking on the "Later" tab 45, the "Upgrade Available" prompt will return again the next day. Further,

the Idle Screen, as shown in Figure 58, will display the upgrade notification as long as it is available in the inbox.

In an embodiment of the present advancement, a message may be displayed by the application that signals to the user that a previously unavailable data channel for a premium account has become available and that data preparation must be performed. A service message will be created for each newly available data channel. Further, the application may be set to always display a connection state to the user. A disconnected state is communicated to the user in all display locations. Further, a "connected" state is the default message for the idle screen plug-in, which is displayed if there are no other messages.

Figure 61 is a flow chart describing the high level algorithm of managing service messages on a mobile device. In step S1, at least one service message is received. In step S2, a priority to the at least one service message that is received is assigned. In step S3, a plurality of messages and the at least one service message in an electronic mail inbox are arranged based on a priority of the plurality of messages and the priority of the at least one service message. The at least one service message has a higher priority than the plurality of messages, and thus greater importance is imparted on this message when it is arranged relative to other types of messages. Lastly, in step S4, the plurality of messages and at least one service message in the electronic mail inbox are displayed in order of their priority. The service message may be maintained in a position at the top of an inbox to alert a user of a service condition. In this way, especially active email users will not miss an important service condition.

Obviously, readily discernible modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein. For example, while described in terms of both software and hardware

components interactively cooperating, it is contemplated that the system described herein may be practiced entirely in software.

CLAIMS:

Claim 1. A method for managing service messages on a mobile device, the method comprising:

receiving at least one service message;

assigning a priority to the at least one service message;

arranging a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message, the at least one service message having a higher priority than the plurality of messages; and

displaying the plurality of messages and the at least one service message in the electronic mail inbox in order of their priority.

Claim 2. The method of Claim 1, wherein the service message includes information informing a user of a service interruption with the mobile device.

Claim 3. The method of Claim 1, wherein the service message includes information informing a user that a service subscription has expired.

Claim 4. The method of Claim 1, wherein the service message includes information informing a user that the mobile device is in a roaming region.

Claim 5. The method of Claim 1, wherein the service message includes information informing a user that an upgrade for the mobile device is available.

Claim 6. The method of Claim 2, wherein the service message further includes information including steps that can be performed to correct the service interruption.

Claim 7. The method of Claim 3, wherein the service message includes information including steps that can be performed to renew the service subscription.

Claim 8. The method of Claim 7, wherein the service message further includes payment plan information and subscription duration information.

Claim 9. The method of Claim 4, wherein the mobile device is configured to go into a disconnected state when the roaming service message is received by the mobile device, and the mobile device is configured to go into a connected state when the roaming subscription is selected.

Claim 10. A computer readable storage medium encoded with instructions which when executed by a computer cause the computer to cause a processor to execute a method for managing service messages on a mobile device, the method comprising:

receiving at least one service message;

assigning a priority to the at least one service message;

arranging a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message, the at least one service message having a higher priority than the plurality of messages; and

displaying the plurality of messages and the at least one service message in the electronic mail inbox in order of their priority.

Claim 11. The computer readable storage medium of Claim 10, wherein the service message includes information informing a user of a service interruption with the mobile device.

Claim 12. The computer readable storage medium of Claim 10, wherein the service message includes information informing a user that a service subscription has expired.

Claim 13. The computer readable storage medium of Claim 10, wherein the service message includes information informing a user that the mobile device is in a roaming region.

Claim 14. The computer readable storage medium of Claim 10, wherein the service message includes information informing a user that an upgrade for the mobile device is available.

Claim 15. The computer readable storage medium of Claim 11, wherein the service message further includes information including steps that can be performed to correct the service interruption.

Claim 16. The computer readable storage medium of Claim 12, wherein the service message includes information including steps that can be performed to renew the service subscription.

Claim 17. The computer readable storage medium of Claim 16, wherein the service message further includes payment plan information and subscription duration information.

Claim 18. The computer readable storage medium of Claim 17, wherein the mobile device is configured to go into a disconnected state when the roaming service message is received by the mobile device, and the mobile device is configured to go into a connected state when the roaming subscription is selected.

Claim 19. A communications device, comprising:

a receiving unit configured to receive at least one service message;

an assigning unit configured to assign priority to the at least one service message;

an arranging unit configured to arrange a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message, the at least one service message having a higher priority than the plurality of messages; and

a display unit configured to display the plurality of messages and the at least one service message in the electronic mail inbox in order of their priority.

Claim 20. The method of Claim 19, wherein the service message includes information informing a user of a service interruption with the mobile device.

Claim 21. The method of Claim 19, wherein the service message includes information informing a user that a service subscription has expired.

Claim 22. The method of Claim 19, wherein the service message includes information informing a user that the mobile device is in a roaming region.

Claim 23. The method of Claim 19, wherein the service message includes information informing a user that an upgrade for the mobile device is available.

Claim 24. The method of Claim 20, wherein the service message further includes information including steps that can be performed to correct the service interruption.

Claim 25. The method of Claim 21, wherein the service message includes information including steps that can be performed to renew the service subscription.

Claim 26. The method of Claim 25, wherein the service message further includes payment plan information and subscription duration information.

Claim 27. The method of Claim 22, wherein the mobile device is configured to go into a disconnected state when the roaming service message is received by the mobile device, and the mobile device is configured to go into a connected state when the roaming subscription is selected.

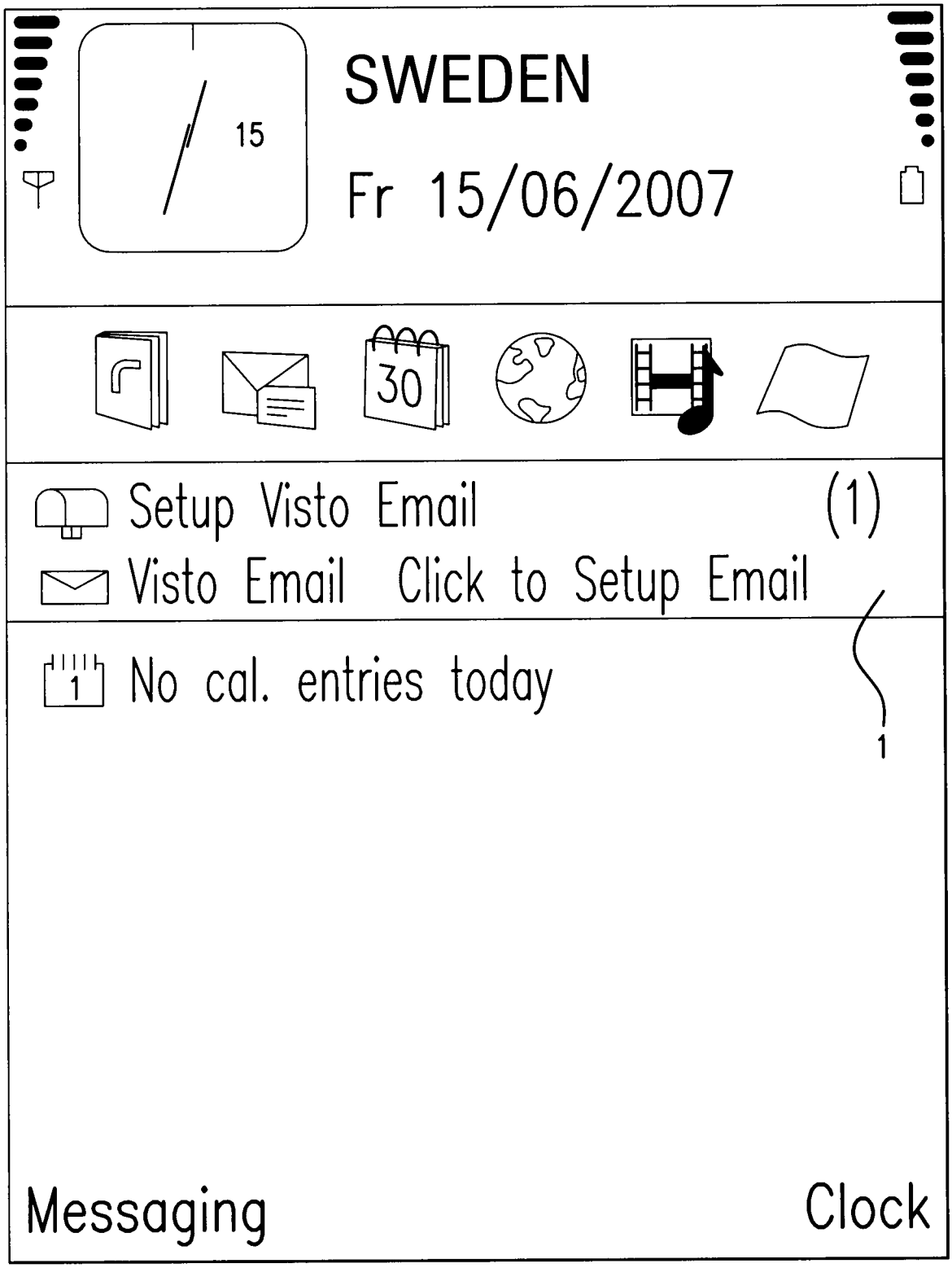
15
SWEDEN
Fr 15/06/2007
30
Setup Visto Email
(1)
Visto Email Click to Setup Email
1
No cal. entries today
1
Messaging
Clock

FIG. 1

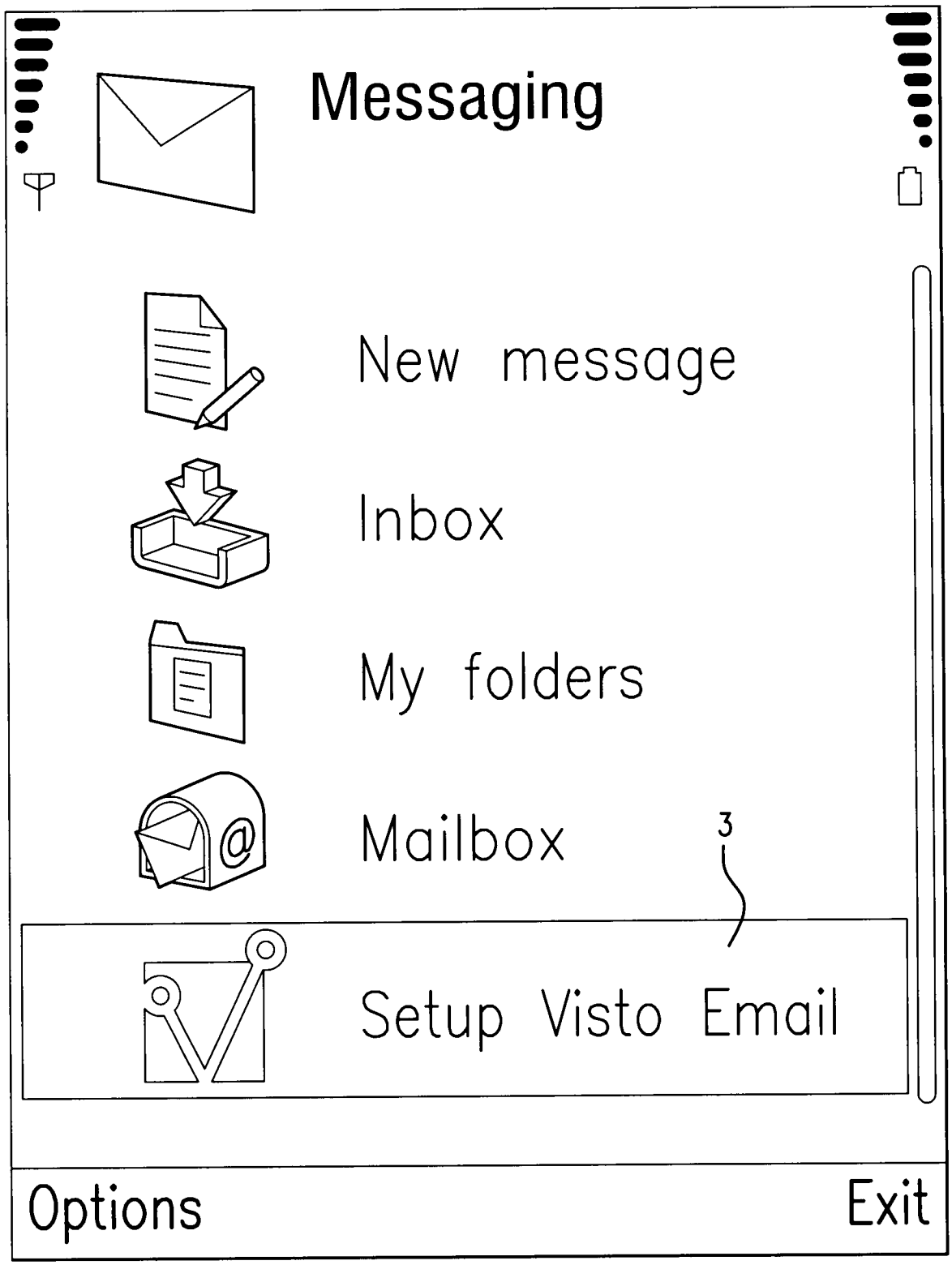
Messaging
New message
Inbox
My folders
Mailbox
3
Setup Visto Email
Options
Exit

FIG.2

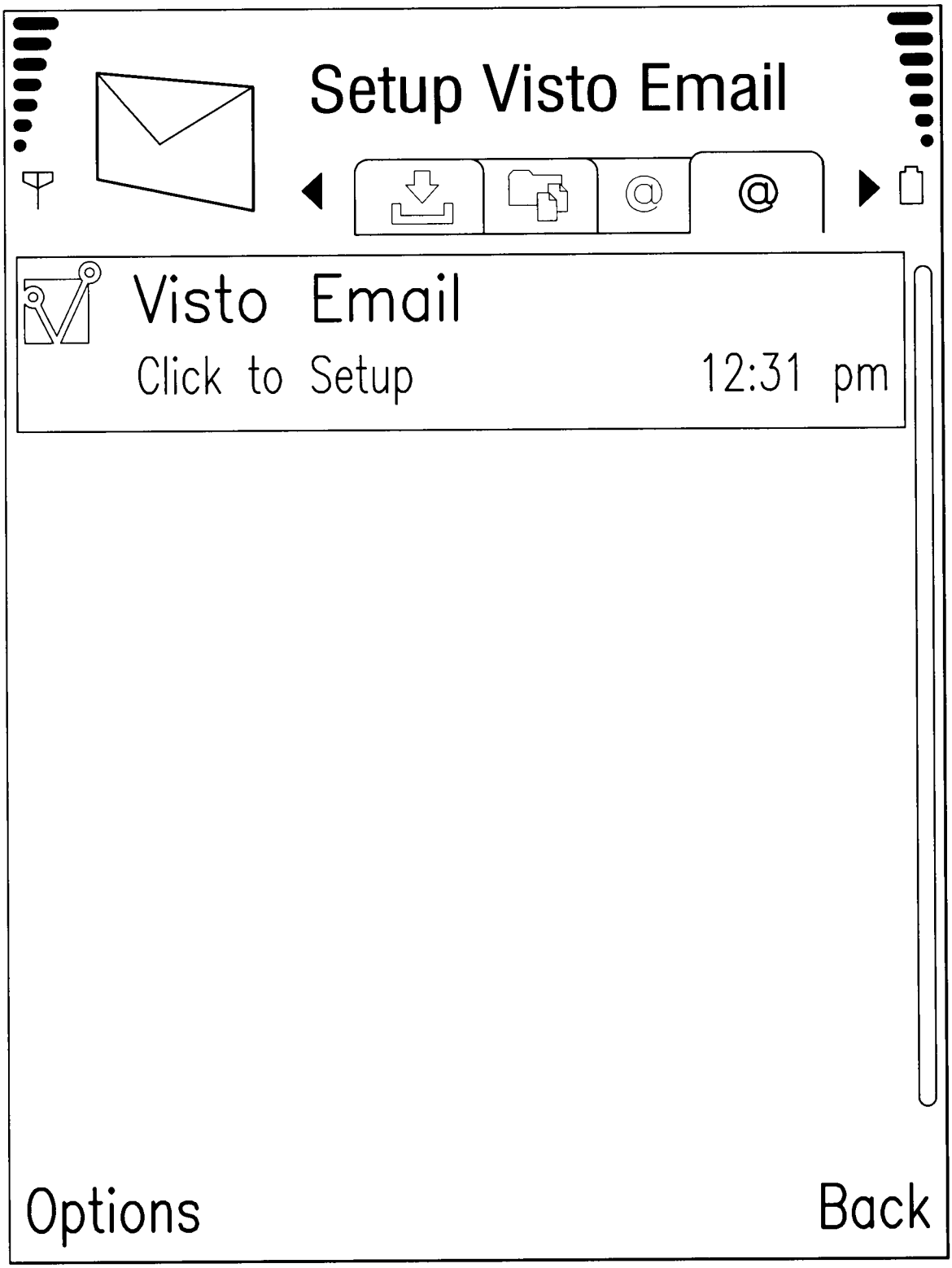
Setup Visto Email
@
@
Visto Email
Click to Setup
12:31 pm
Options
Back

FIG.3

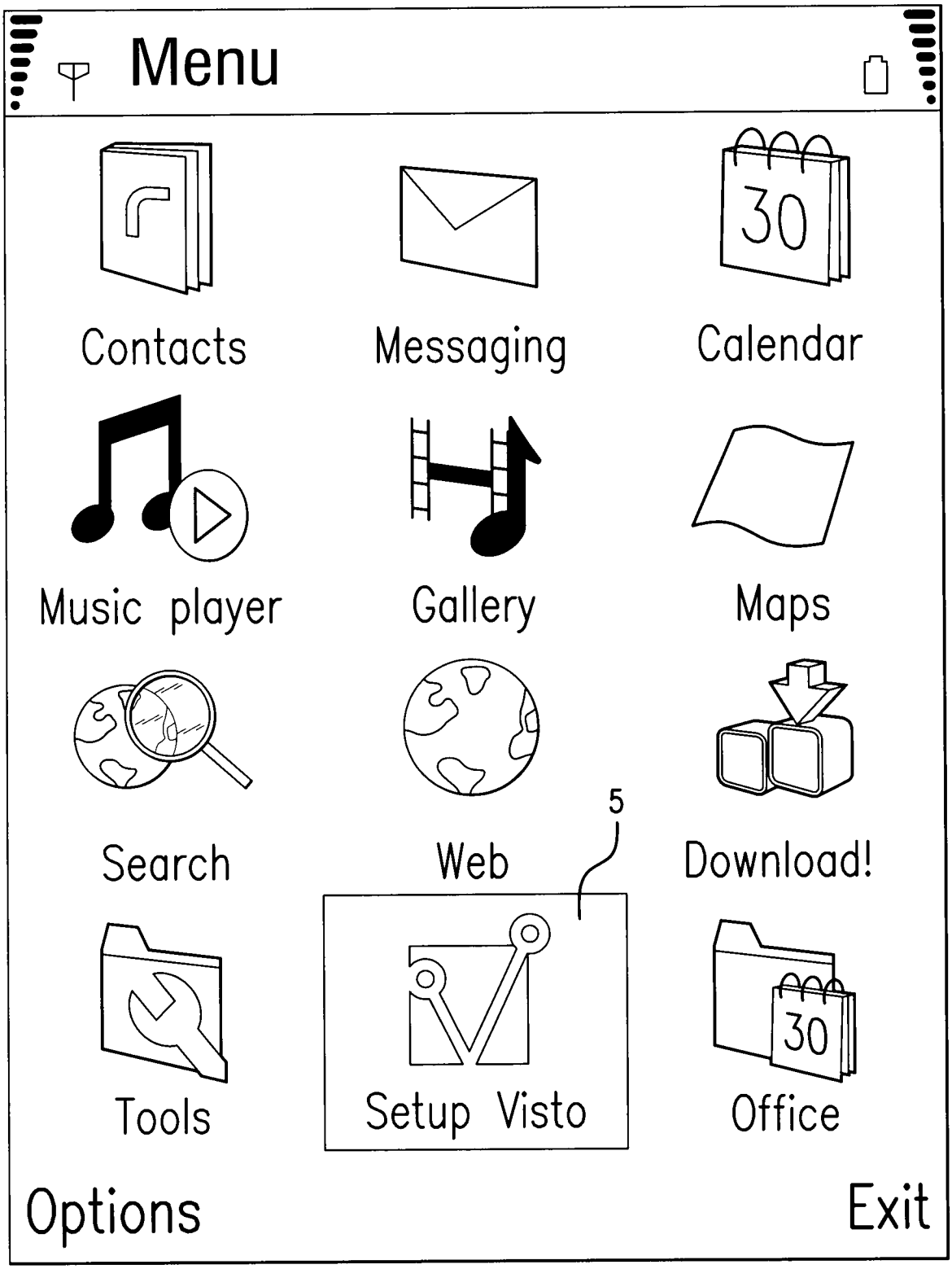
Menu
Contacts
Messaging
Calendar
Music player
Gallery
Maps
Search
Web
Download!
5
Tools
Setup Visto
Office
Options
Exit

FIG.4


Text message
1/14
From Visto Mobile
Welcome to Visto Mobile Email. Click on the link to download the application (the download is free of charge).
http://vistomobile/download
Options
Back

FIG.5

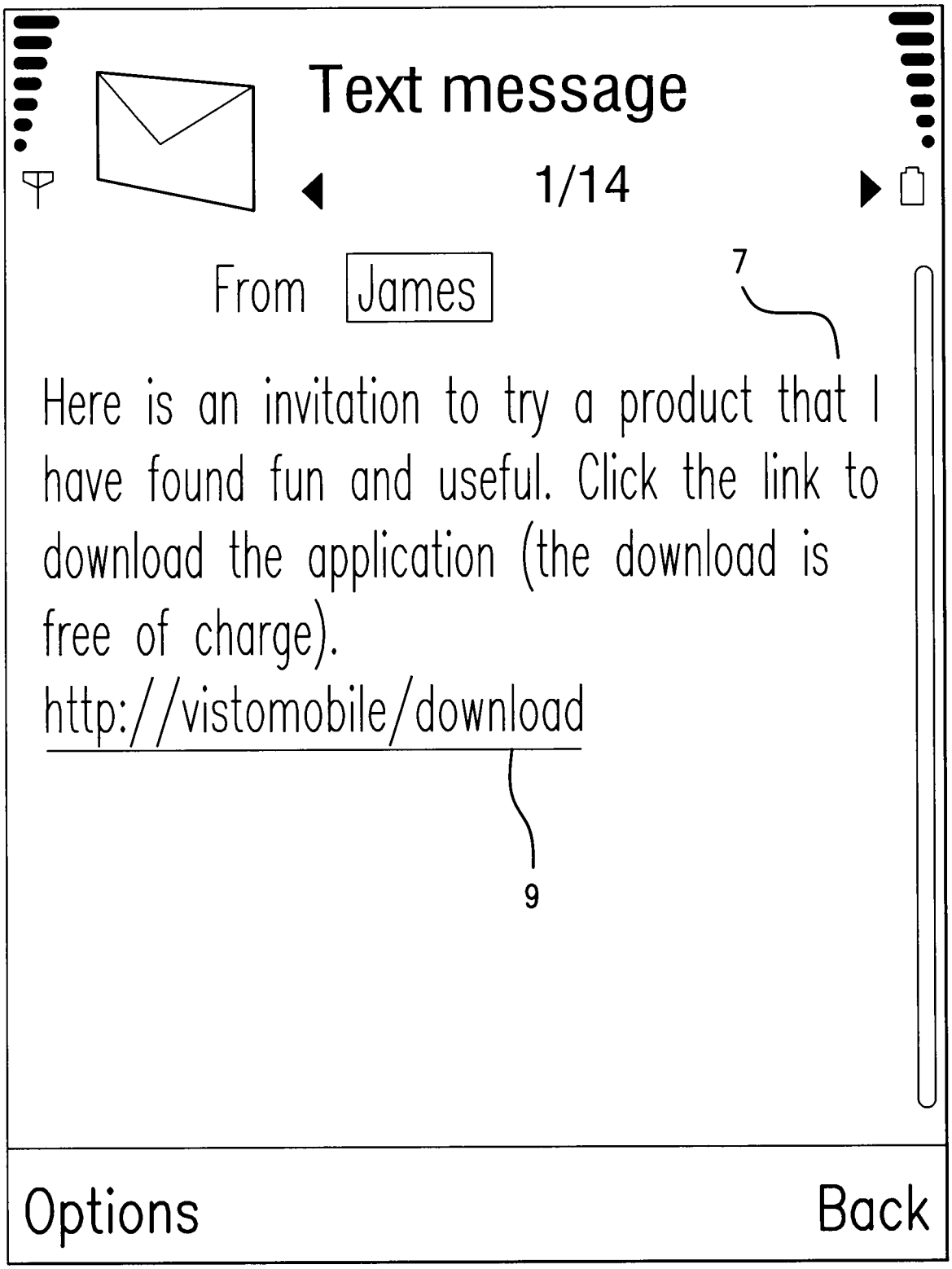
Text message
1/14
From James
7
Here is an invitation to try a product that I have found fun and useful. Click the link to download the application (the download is free of charge).
http://vistomobile/download
9
Options
Back

FIG.6

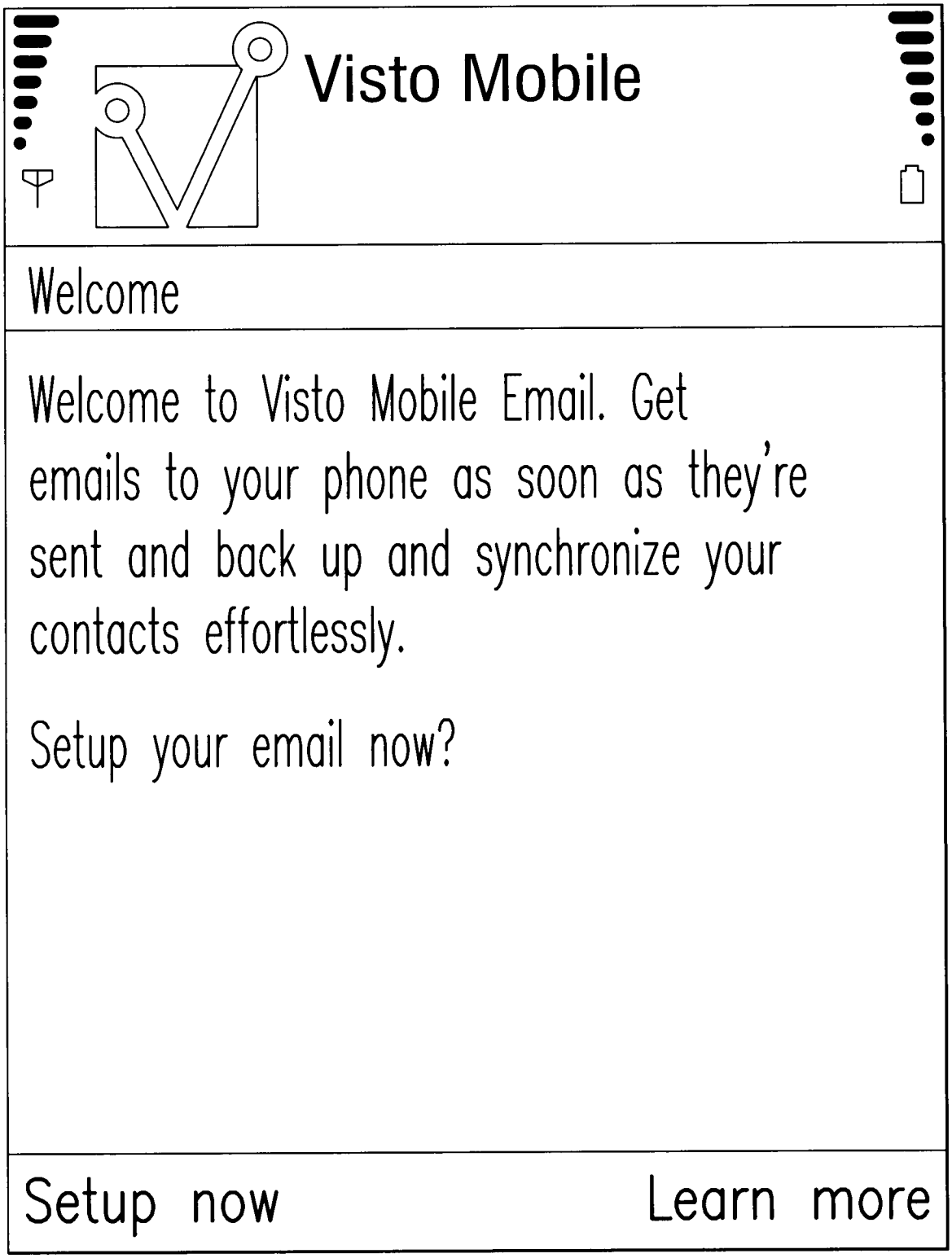
Visto Mobile
Welcome
Welcome to Visto Mobile Email. Get emails to your phone as soon as they're sent and back up and synchronize your contacts effortlessly.
Setup your email now?
Setup now
Learn more

FIG.7

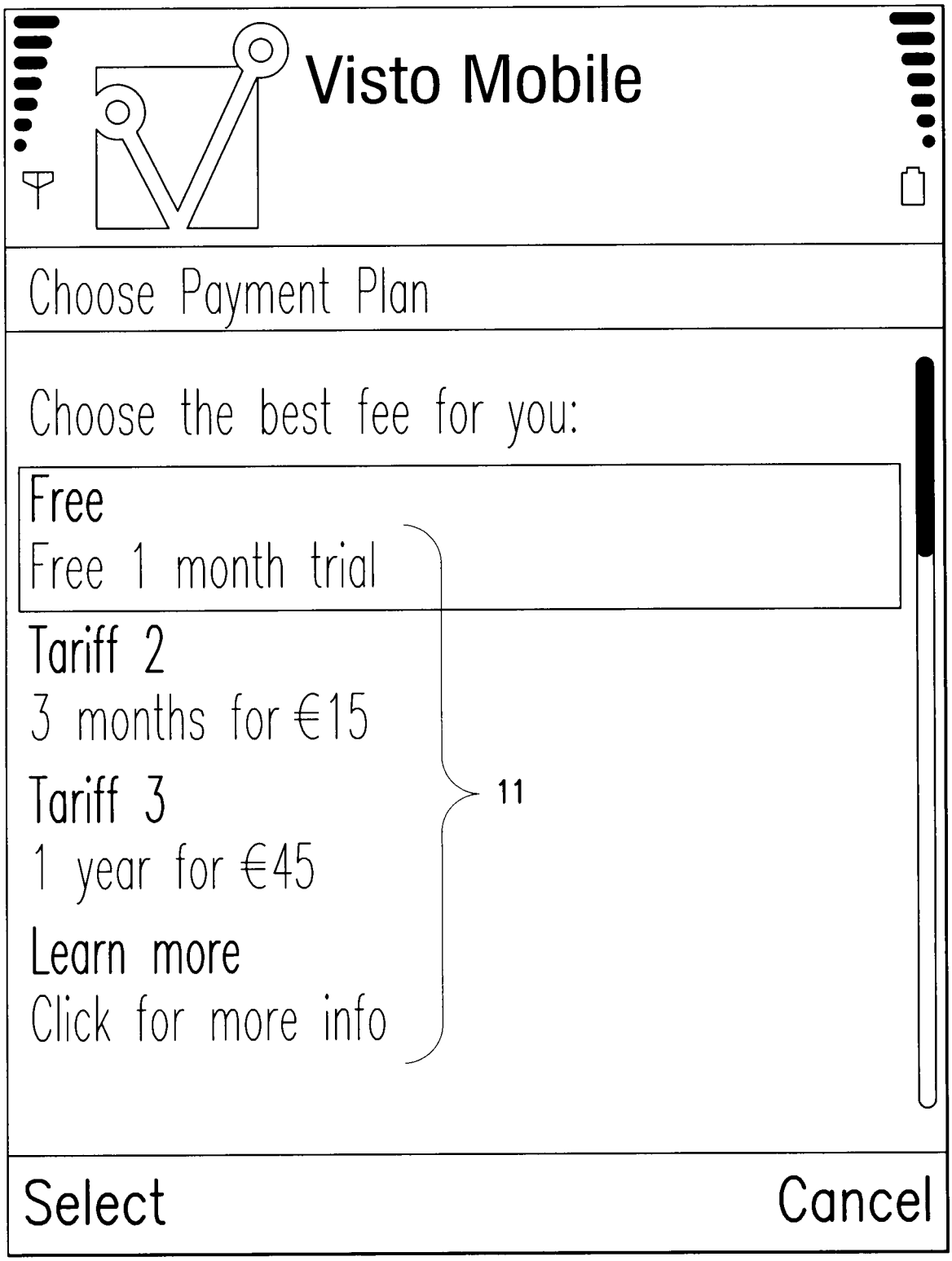
Visto Mobile
Choose Payment Plan
Choose the best fee for you:
Free
Free 1 month trial
Tariff 2
3 months for €15
Tariff 3
1 year for €45
Learn more
Click for more info
11
Select
Cancel

FIG.8

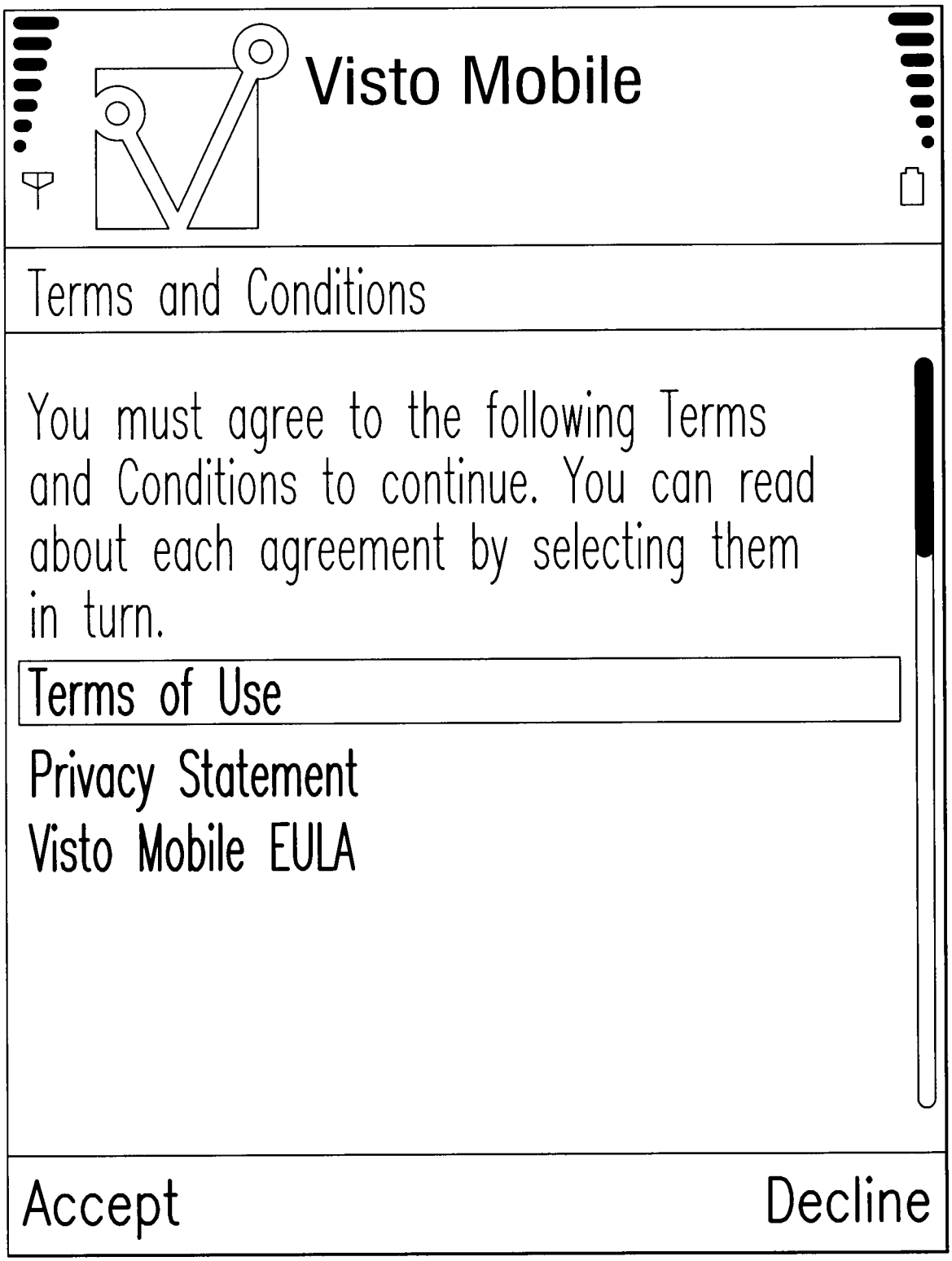
Visto Mobile
Terms and Conditions
You must agree to the following Terms and Conditions to continue. You can read about each agreement by selecting them in turn.
Terms of Use
Privacy Statement
Visto Mobile EULA
Accept
Decline

FIG.9

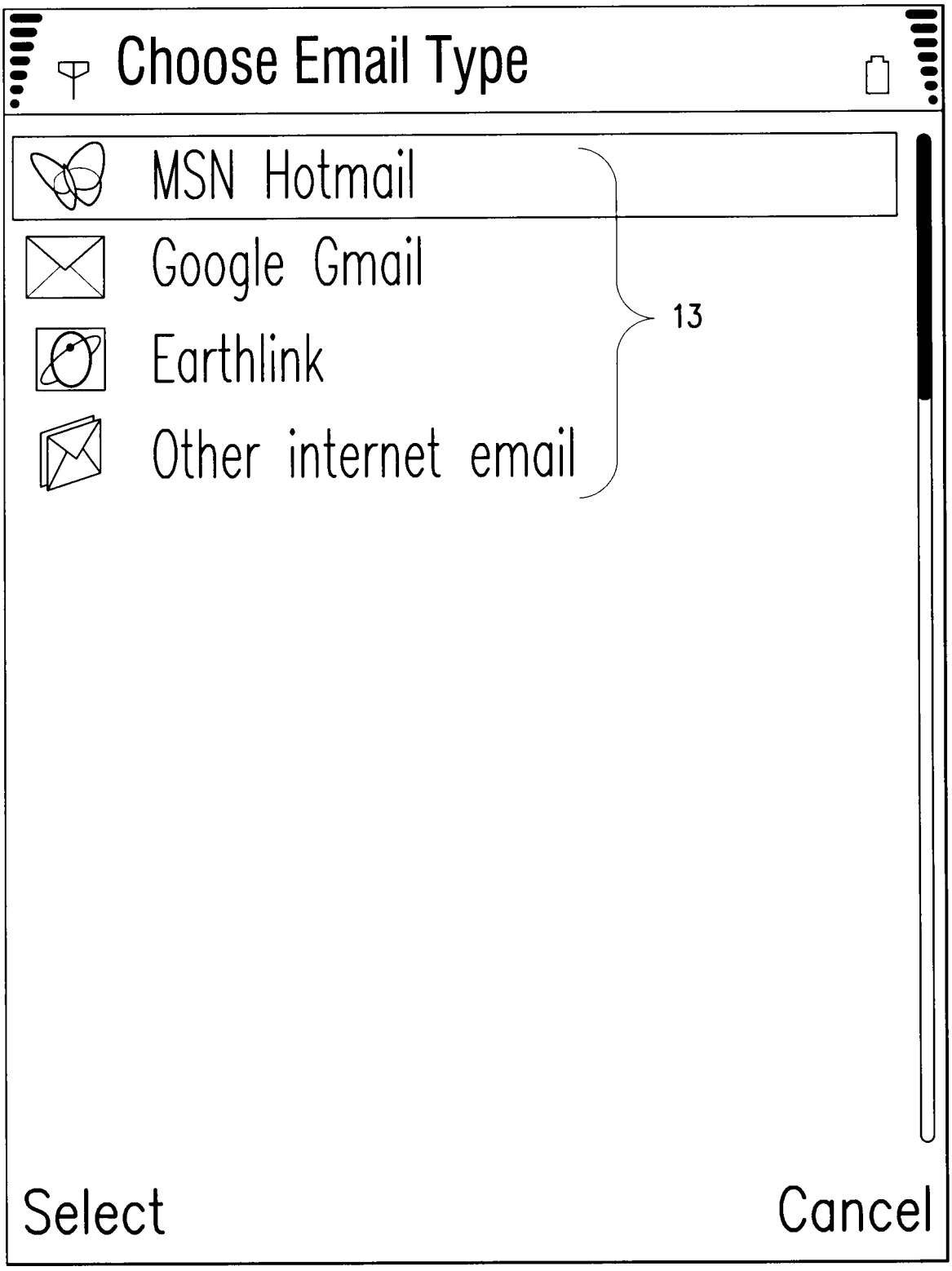
Choose Email Type
MSN Hotmail
Google Gmail
Earthlink
Other internet email
13
Select
Cancel

FIG.10

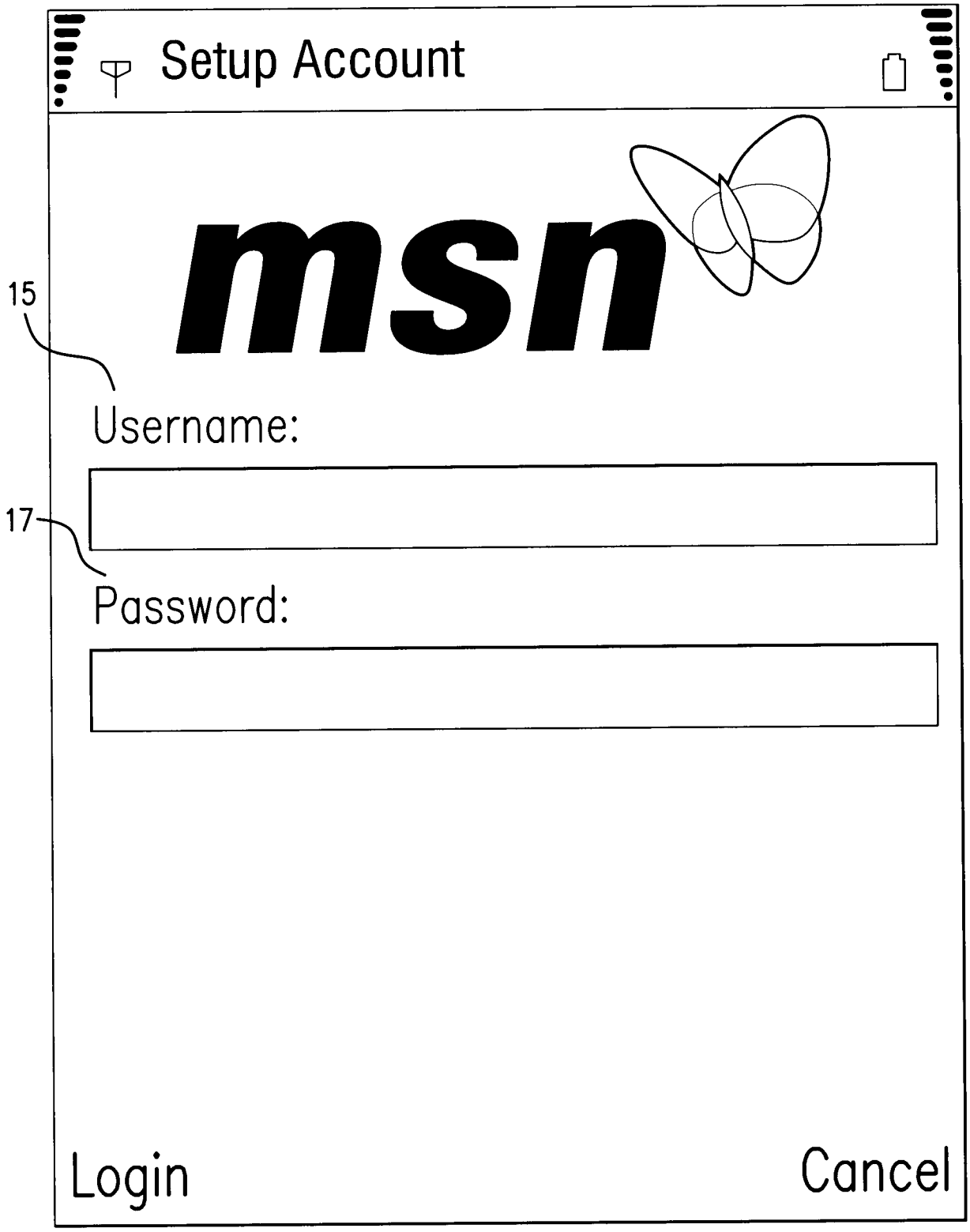

FIG. 11

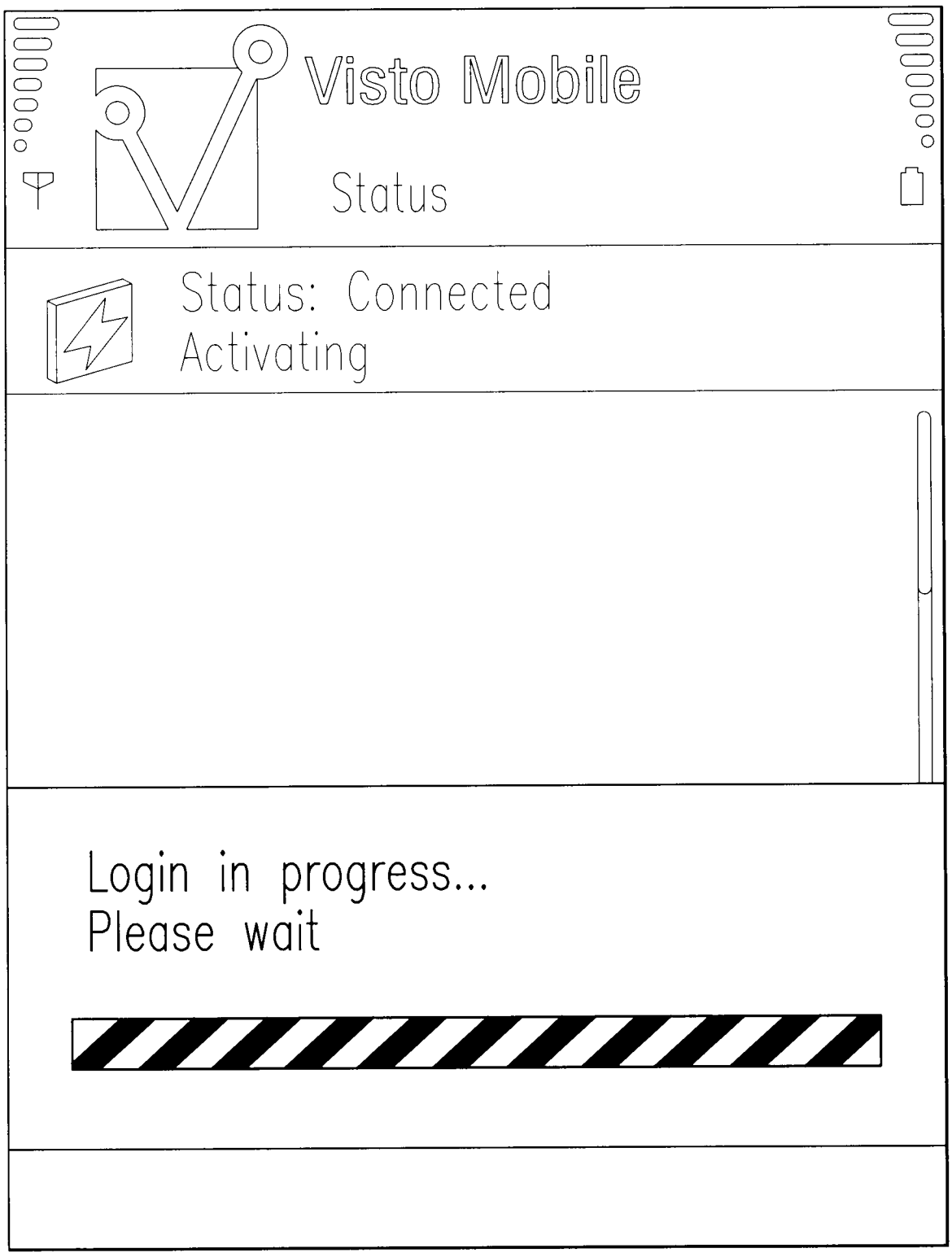
Visto Mobile
Status
Status: Connected
Activating
Login in progress...
Please wait

FIG.12

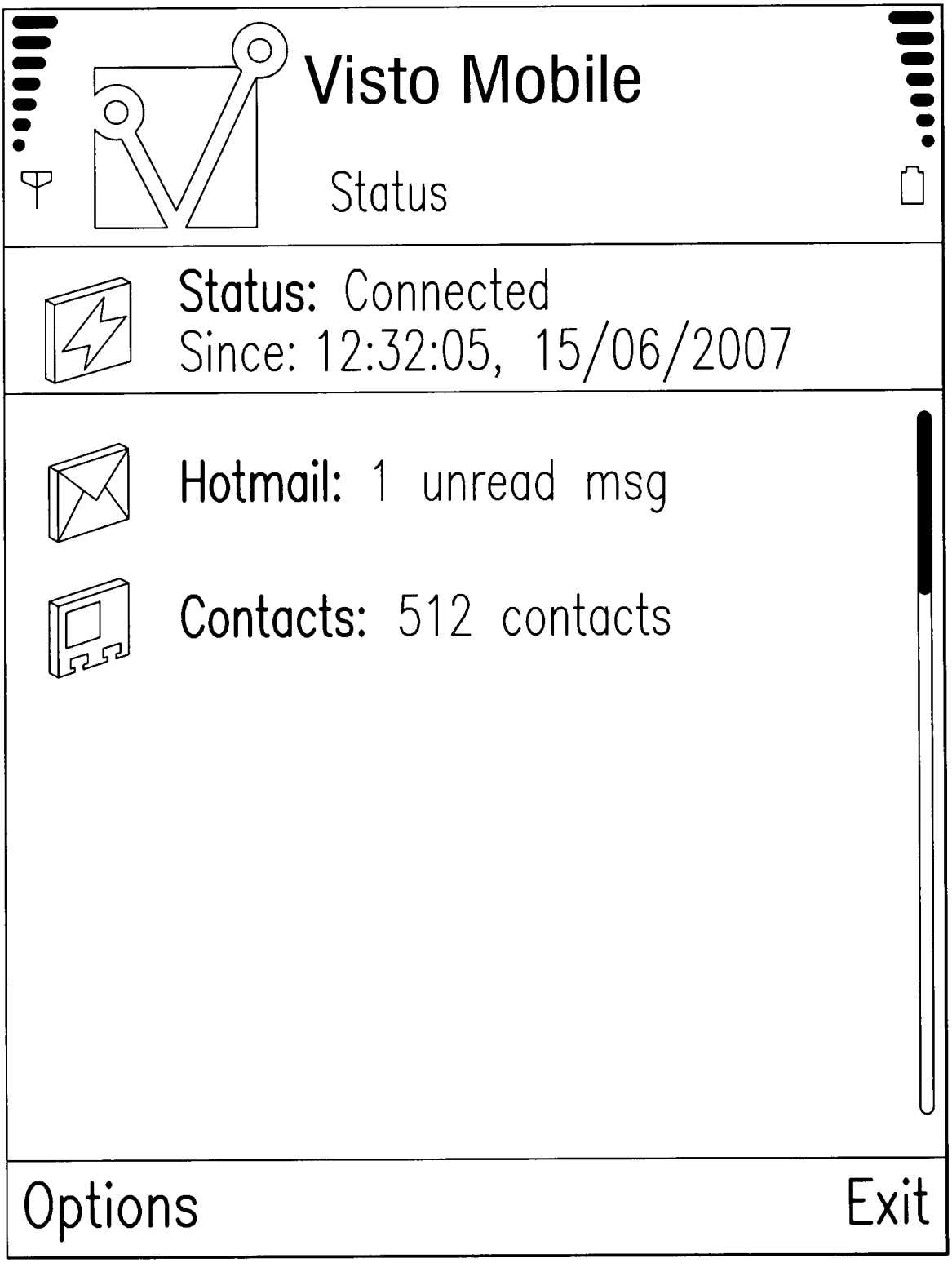
Visto Mobile
Status
Status: Connected
Since: 12:32:05, 15/06/2007
Hotmail: 1 unread msg
Contacts: 512 contacts
Options
Exit

FIG.13


Text message
1/14
From Visto Mobile
Welcome to Visto Mobile Email. Your unique web password is XYZ123. To login, manage settings or update contacts, use the following link:
http://www.vistomobileemail.com/myselfcare
19
Options
Back

FIG.14

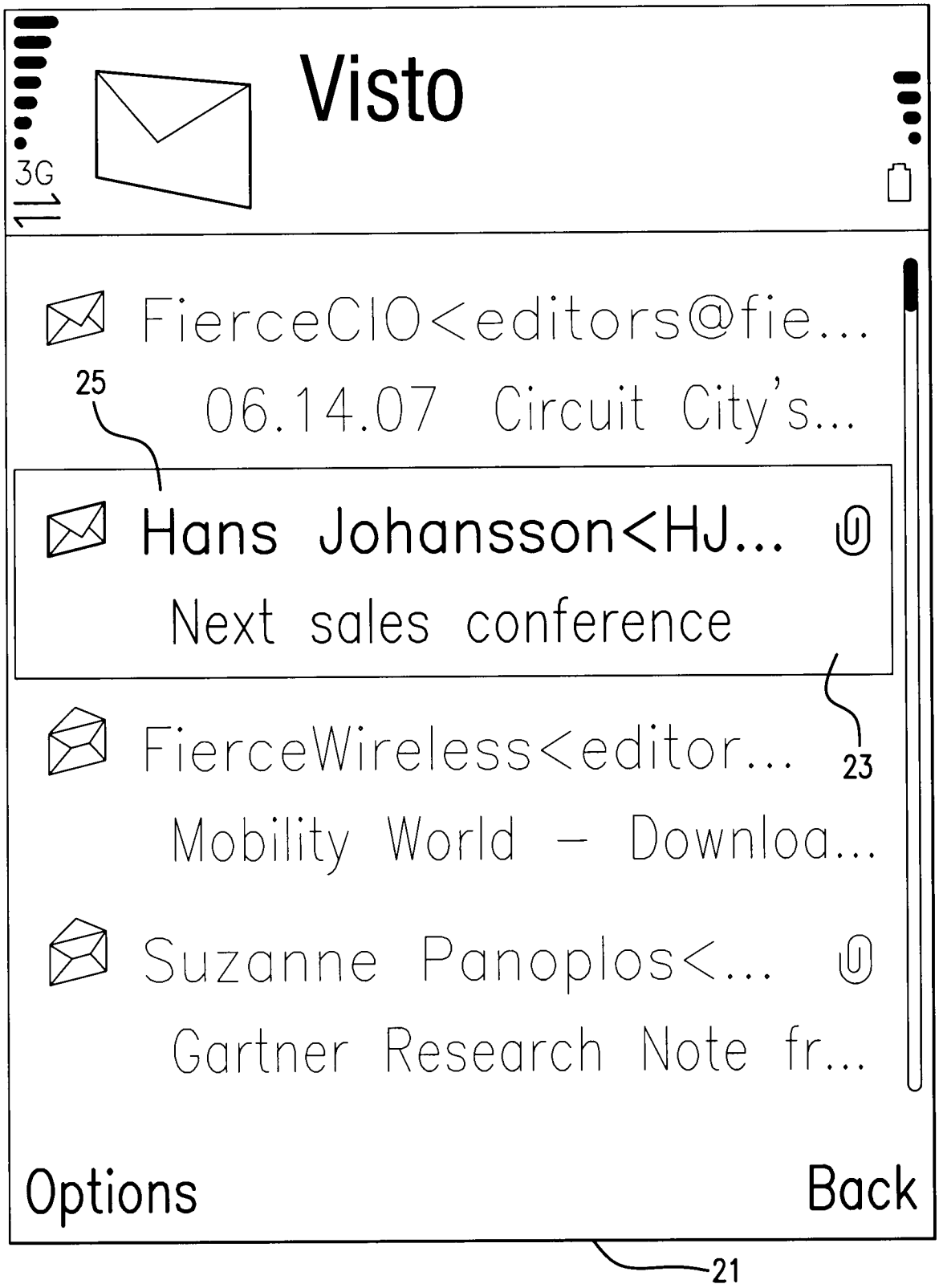
3G
Visto
FierceCIO<editors@fie...
06.14.07 Circuit City's...
25
Hans Johansson<HJ...
Next sales conference
FierceWireless<editor...
23
Mobility World – Downloa...
Suzanne Panoplos<...
Gartner Research Note fr...
Options
Back
21

FIG.15

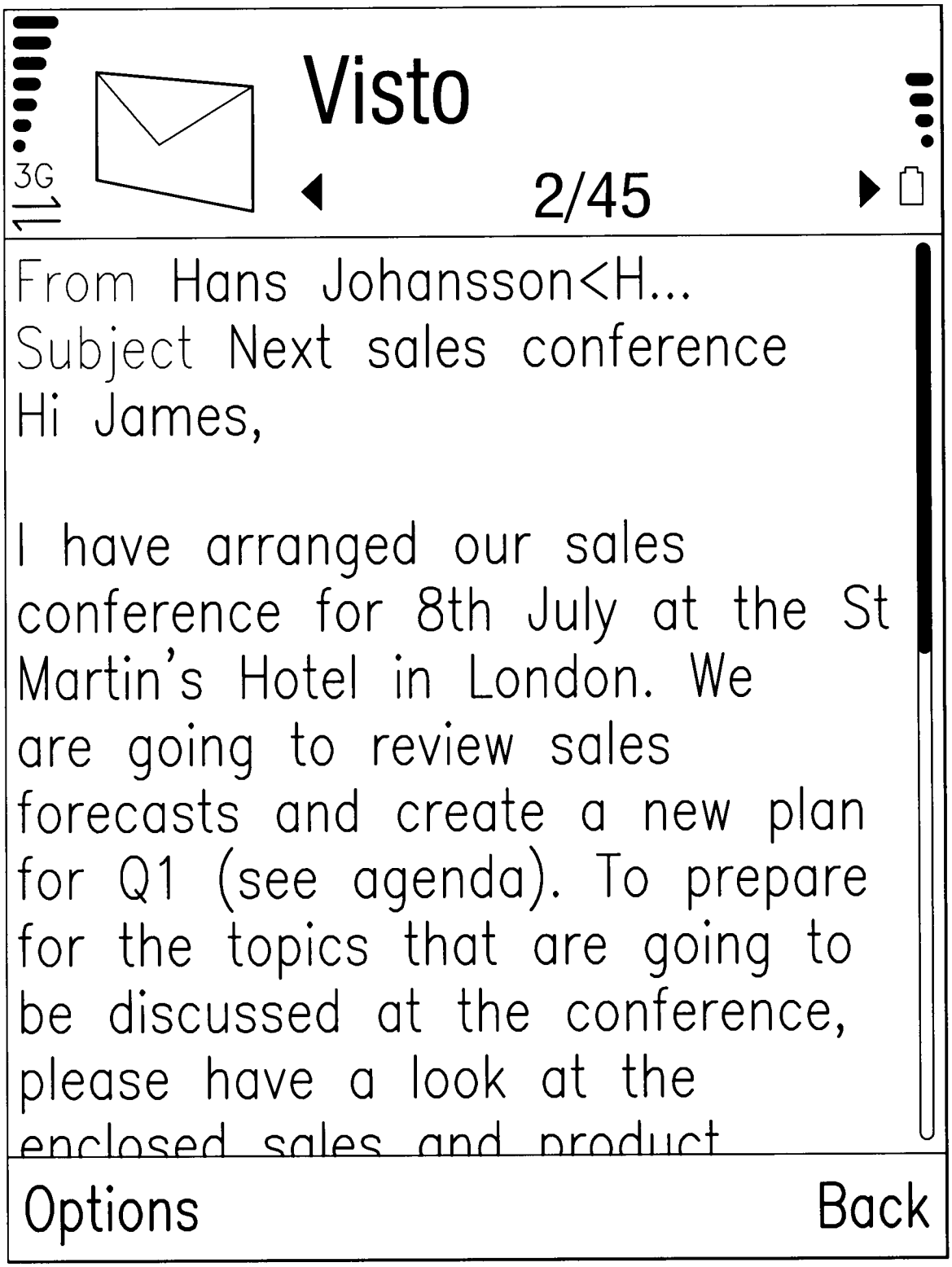
3G
Visto
2/45
From Hans Johansson<H...
Subject Next sales conference
Hi James,
I have arranged our sales conference for 8th July at the St Martin's Hotel in London. We are going to review sales forecasts and create a new plan for Q1 (see agenda). To prepare for the topics that are going to be discussed at the conference, please have a look at the
Options
Back

FIG.16


3G
Visto
2/45
We will meet the entire team at 4pm in the hotel lobby. The
Reply
Forward
Call Sender
Delete
Attachments
Message details
Select
Cancel

FIG.17


Attachments
3G
27
Meeting Agend...
33K
Map Leicester S...
236K
12 Month Sales...
35K
Venezia Produc...
702K
Options
Back

FIG.18

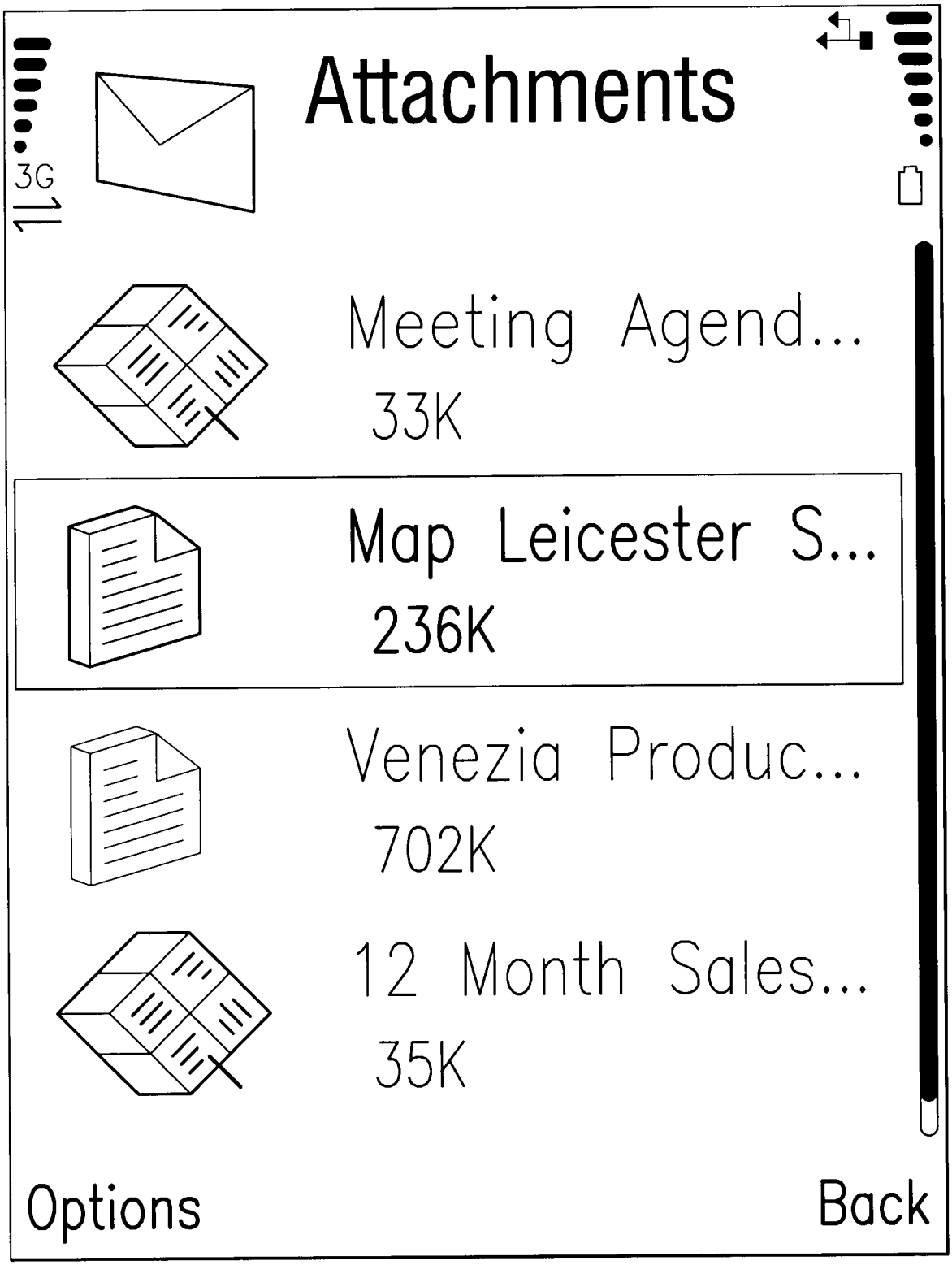
3G
Attachments
Meeting Agend...
33K
Map Leicester S...
236K
Venezia Produc...
702K
12 Month Sales...
35K
Options
Back

FIG.19

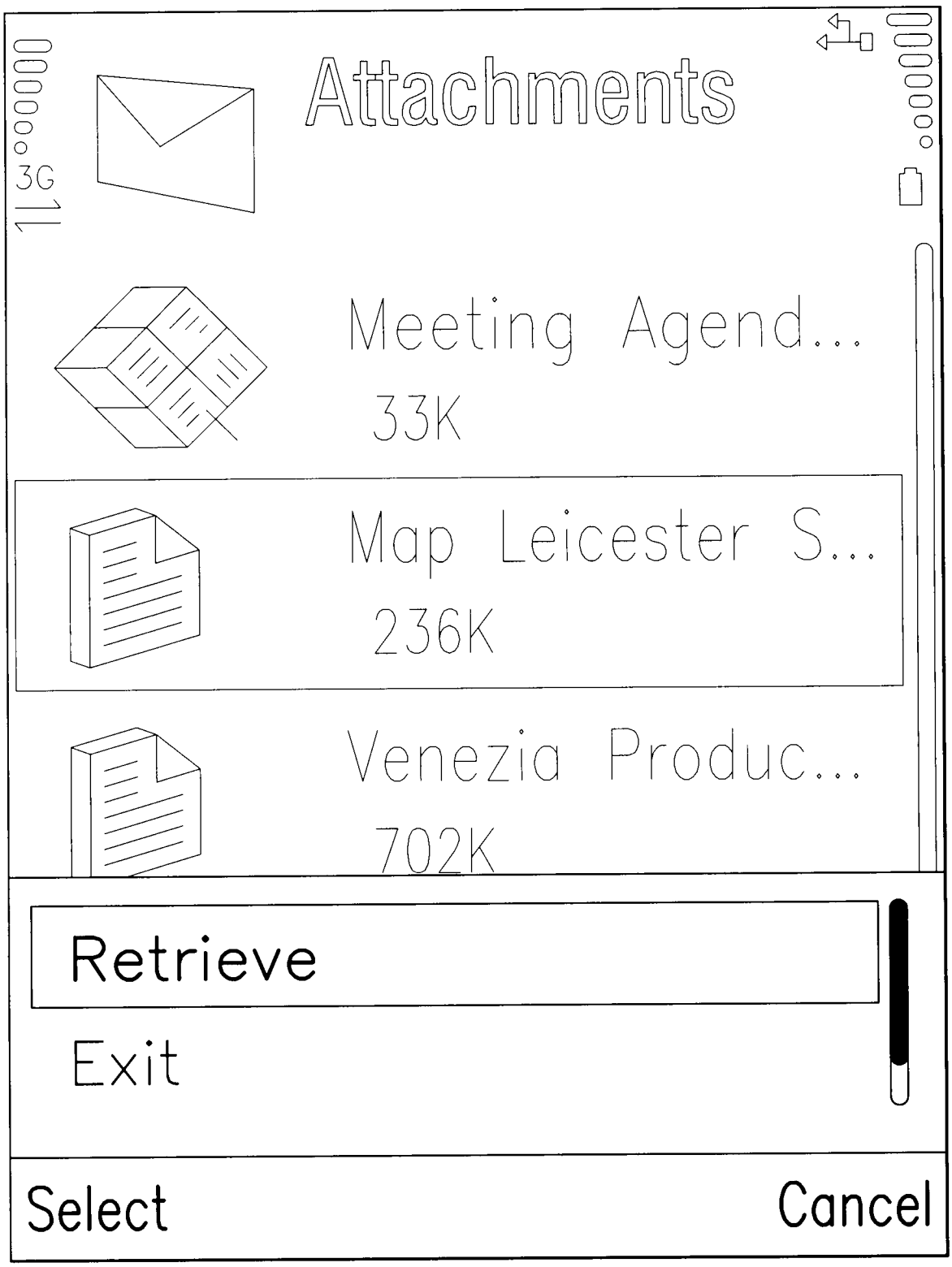
3G
Attachments
Meeting Agend...
33K
Map Leicester S...
236K
Venezia Produc...
702K
Retrieve
Exit
Select
Cancel

FIG.20

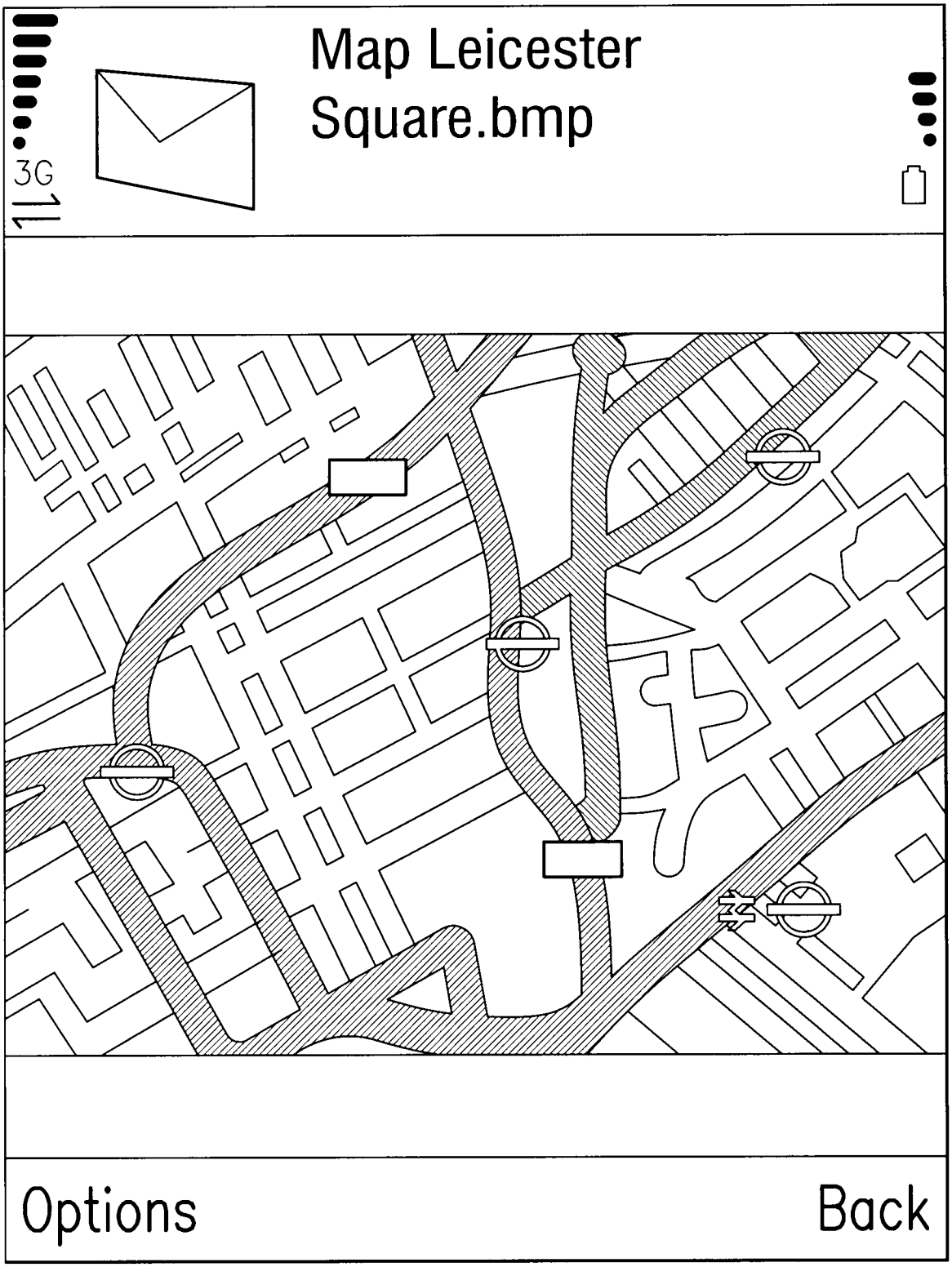

FIG.21

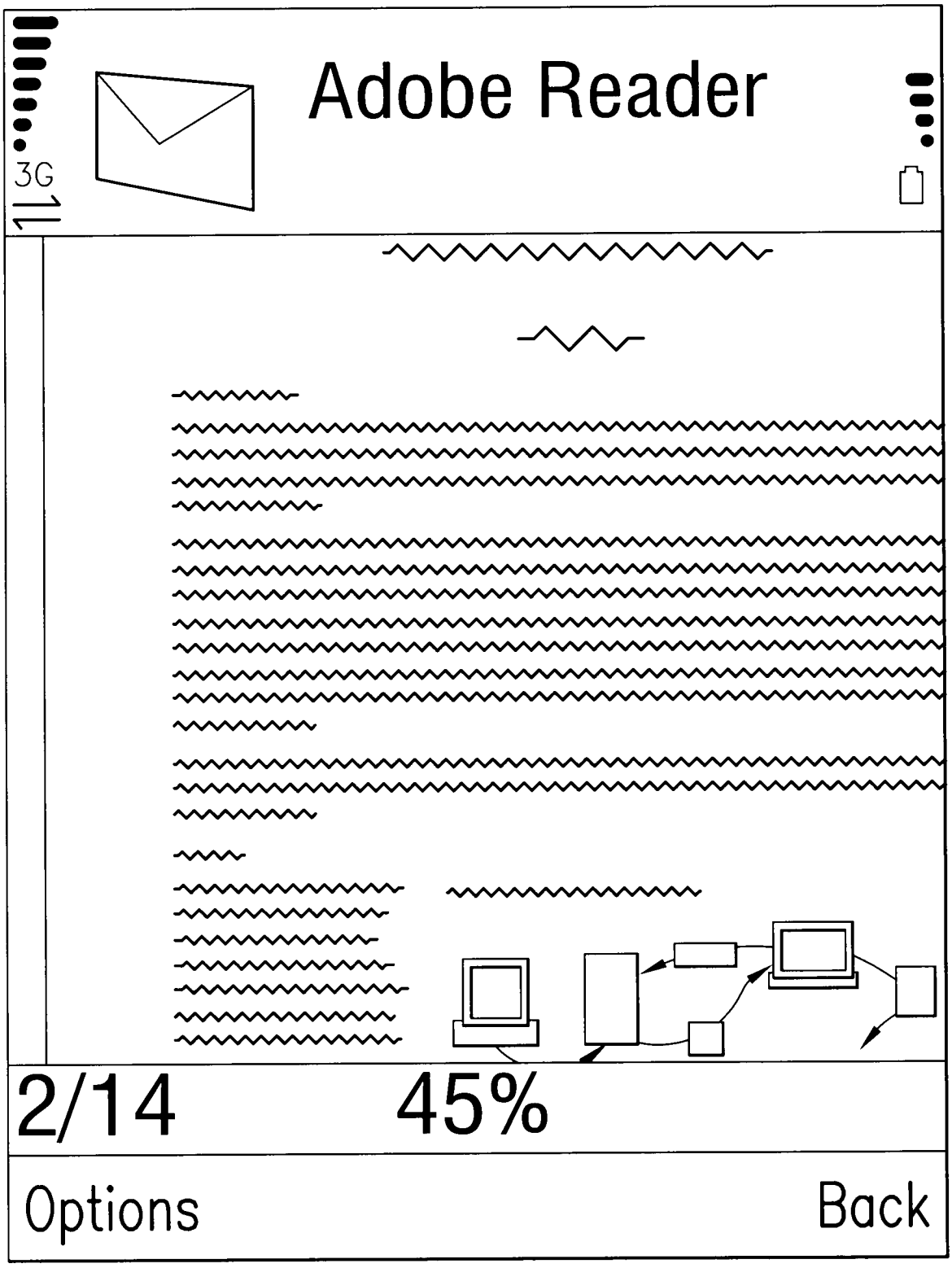

FIG.22

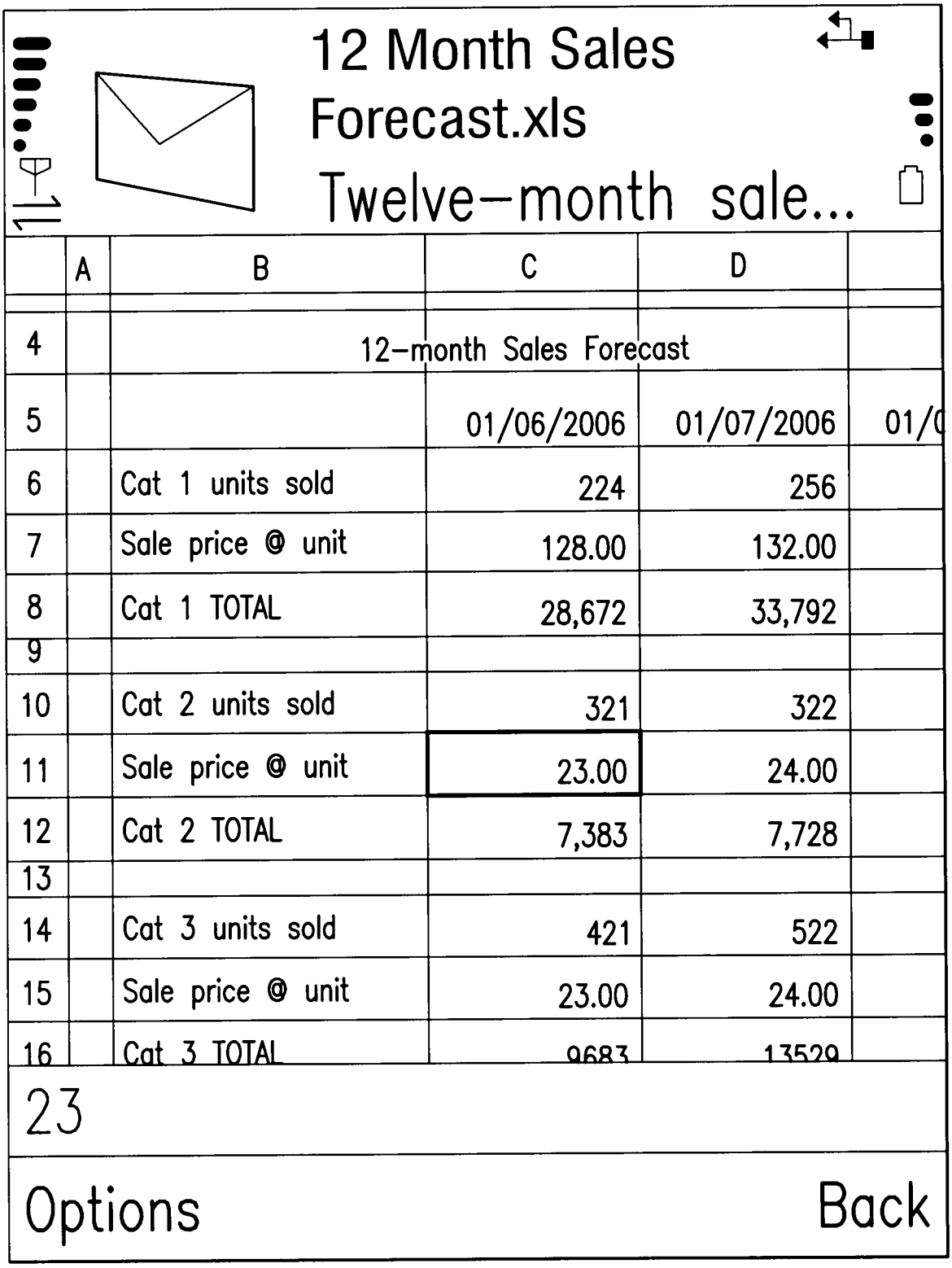
12 Month Sales Forecast.xls
Twelve-month sale...
12-month Sales Forecast
01/06/2006
01/07/2006
Cat 1 units sold
224
256
Sale price @ unit
128.00
132.00
Cat 1 TOTAL
28,672
33,792
Cat 2 units sold
321
322
Sale price @ unit
23.00
24.00
Cat 2 TOTAL
7,383
7,728
Cat 3 units sold
421
522
Sale price @ unit
23.00
24.00
Cat 3 TOTAL
9683
13529
23
Options
Back

FIG.23

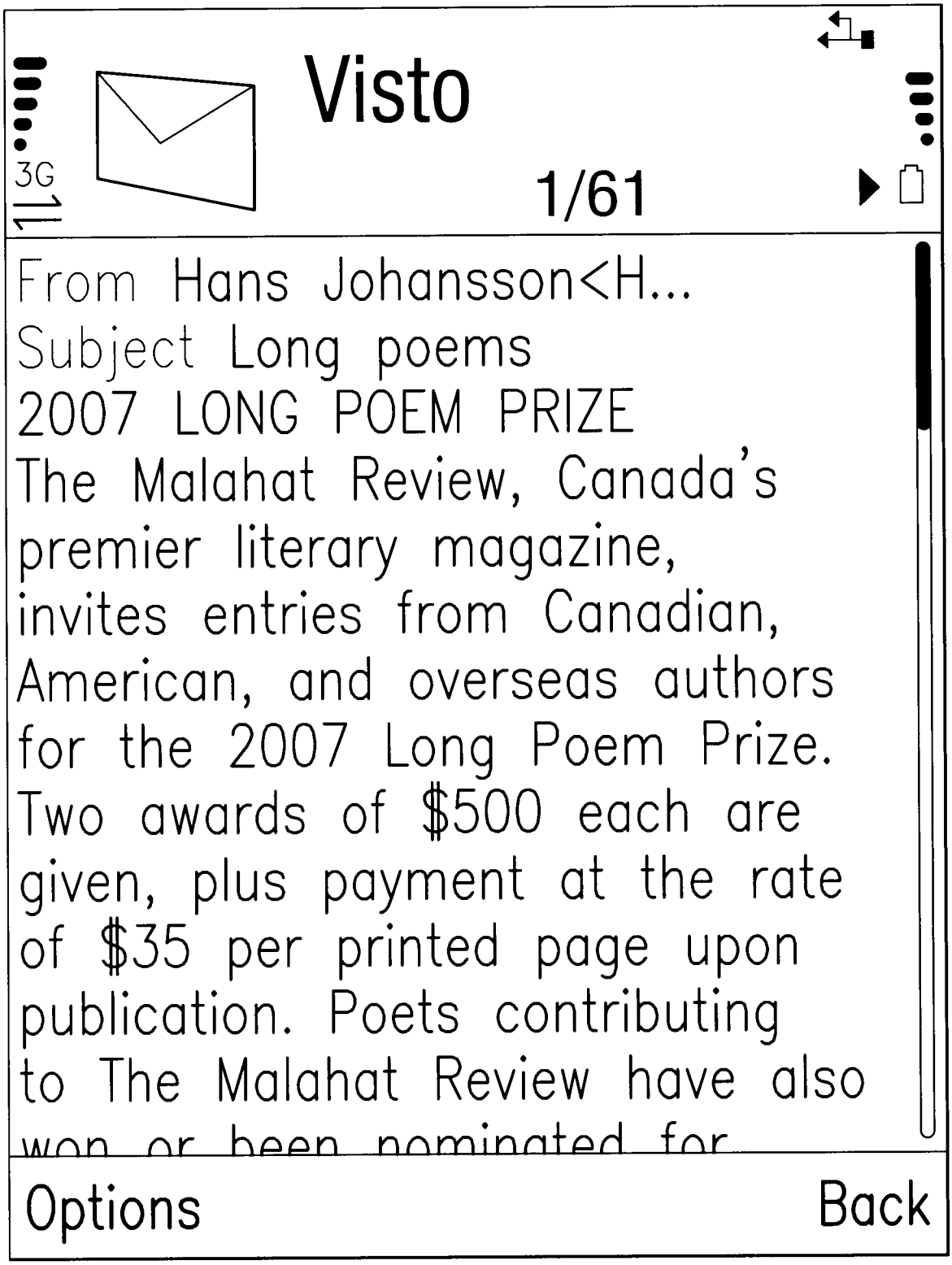
Visto
1/61
3G
From Hans Johansson<H...
Subject Long poems
2007 LONG POEM PRIZE
The Malahat Review, Canada's premier literary magazine, invites entries from Canadian, American, and overseas authors for the 2007 Long Poem Prize. Two awards of $500 each are given, plus payment at the rate of $35 per printed page upon publication. Poets contributing to The Malahat Review have also won or been nominated for
Options
Back

FIG.24

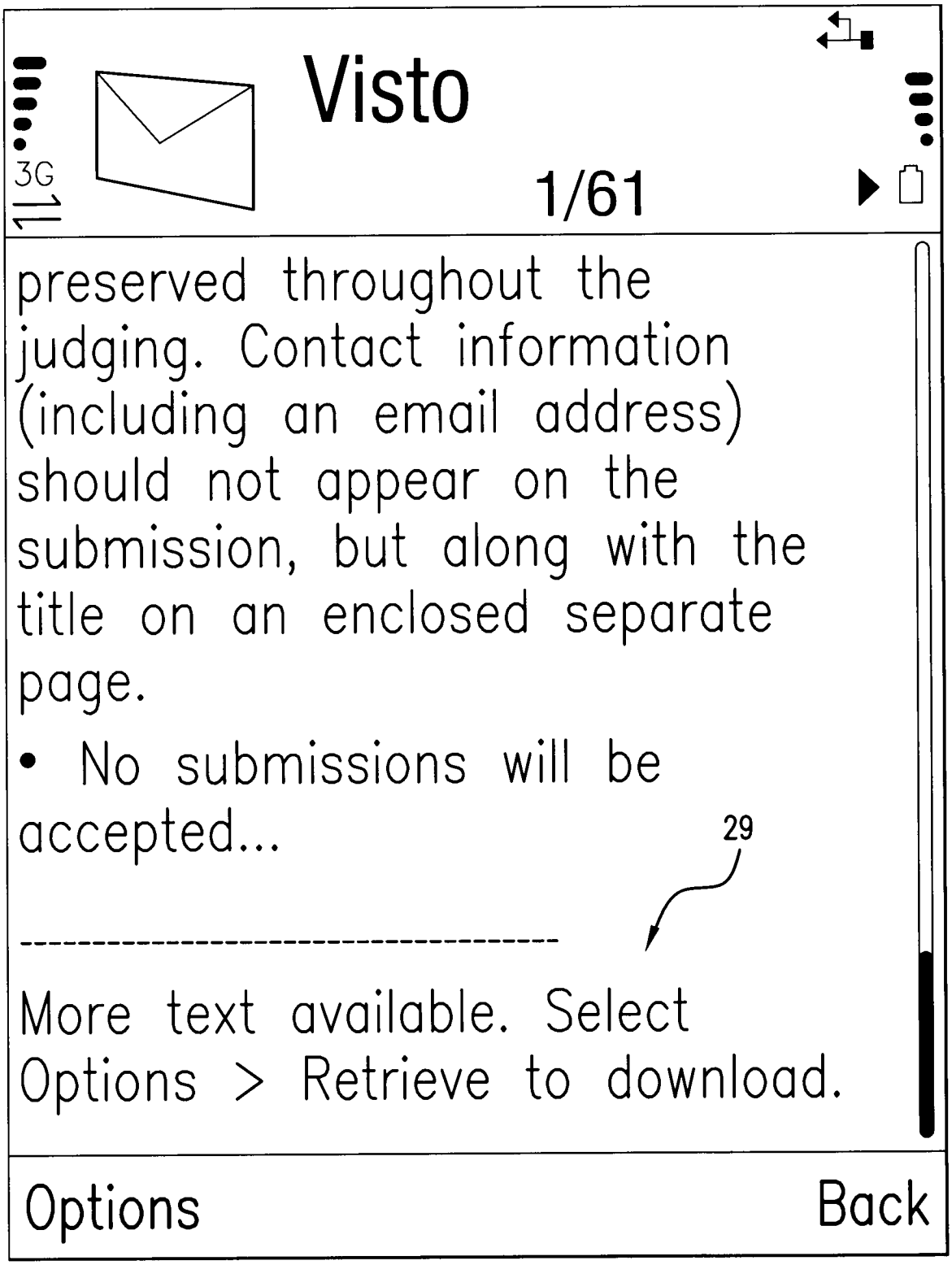
3G
Visto
1/61
preserved throughout the judging. Contact information (including an email address) should not appear on the submission, but along with the title on an enclosed separate page.
• No submissions will be accepted...
29
More text available. Select Options > Retrieve to download.
Options
Back

FIG.25

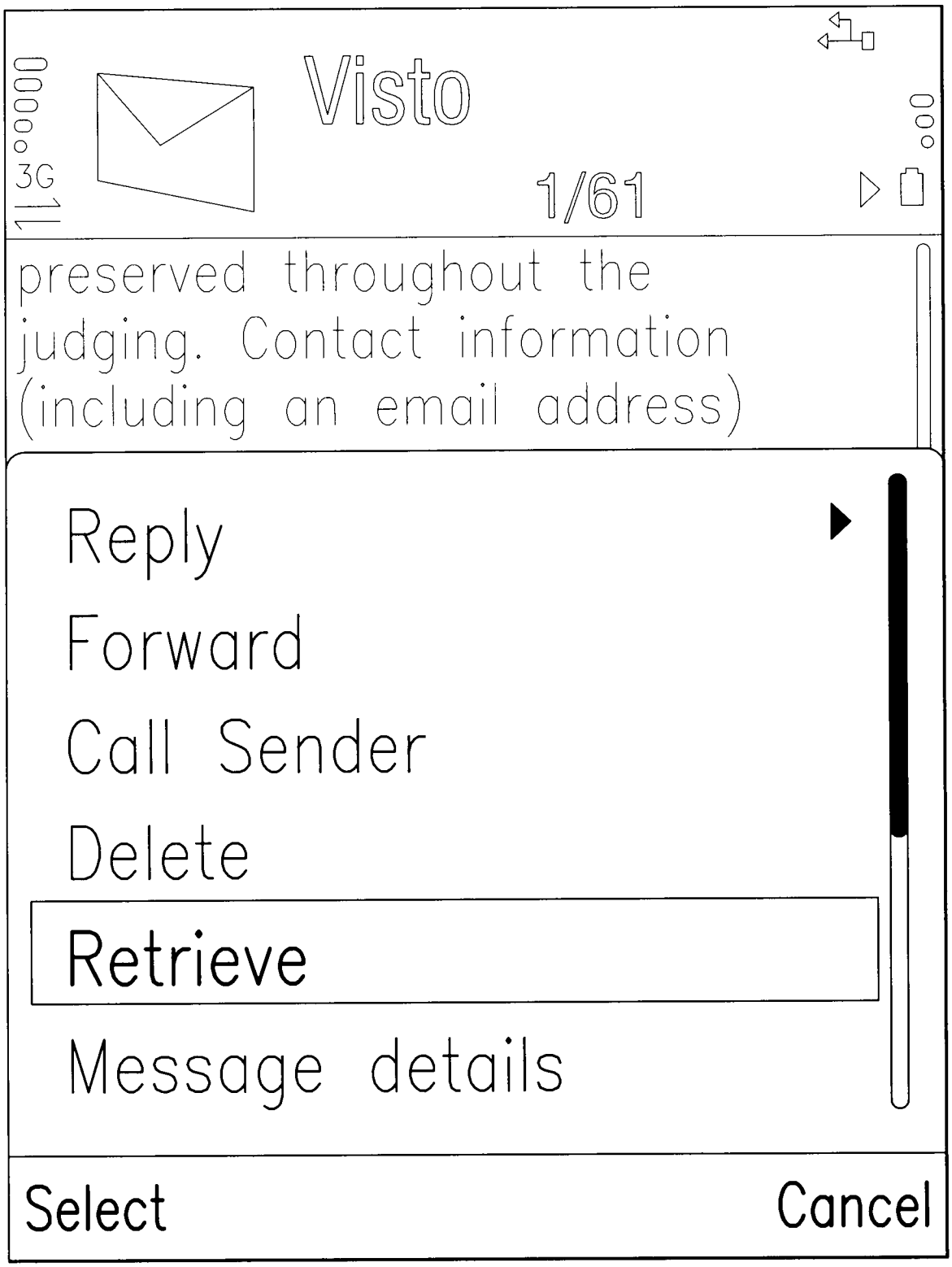
3G
Visto
1/61
preserved throughout the judging. Contact information (including an email address)
Reply
Forward
Call Sender
Delete
Retrieve
Message details
Select
Cancel

FIG.26

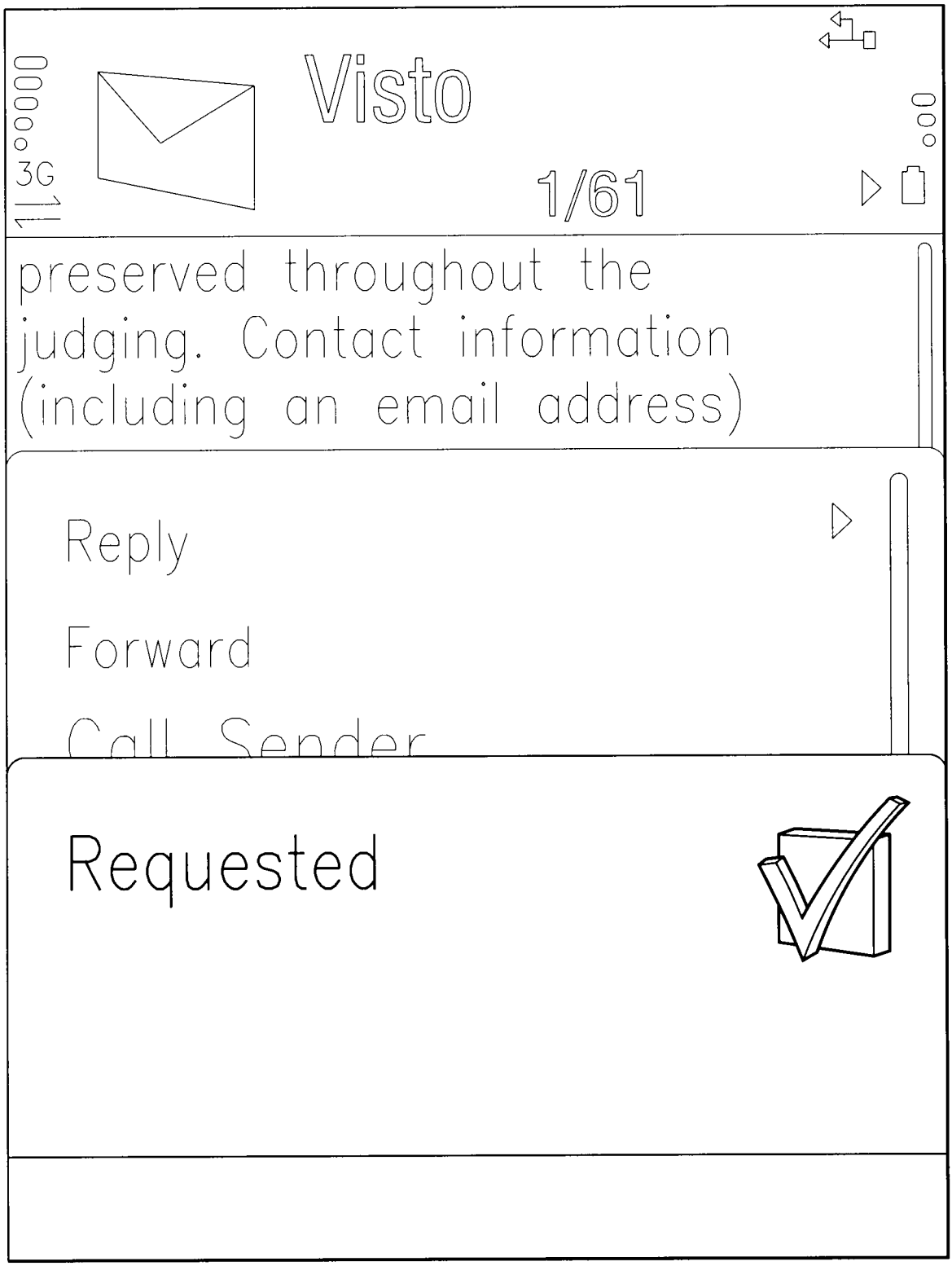
3G
Visto
1/61
preserved throughout the judging. Contact information (including an email address)
Reply
Forward
Call Sender
Requested

FIG.27


3G
Visto
abc
To:
Add recipient
Lookup
Attachments
Delete
Message details
Exit
Select
Cancel

FIG.28

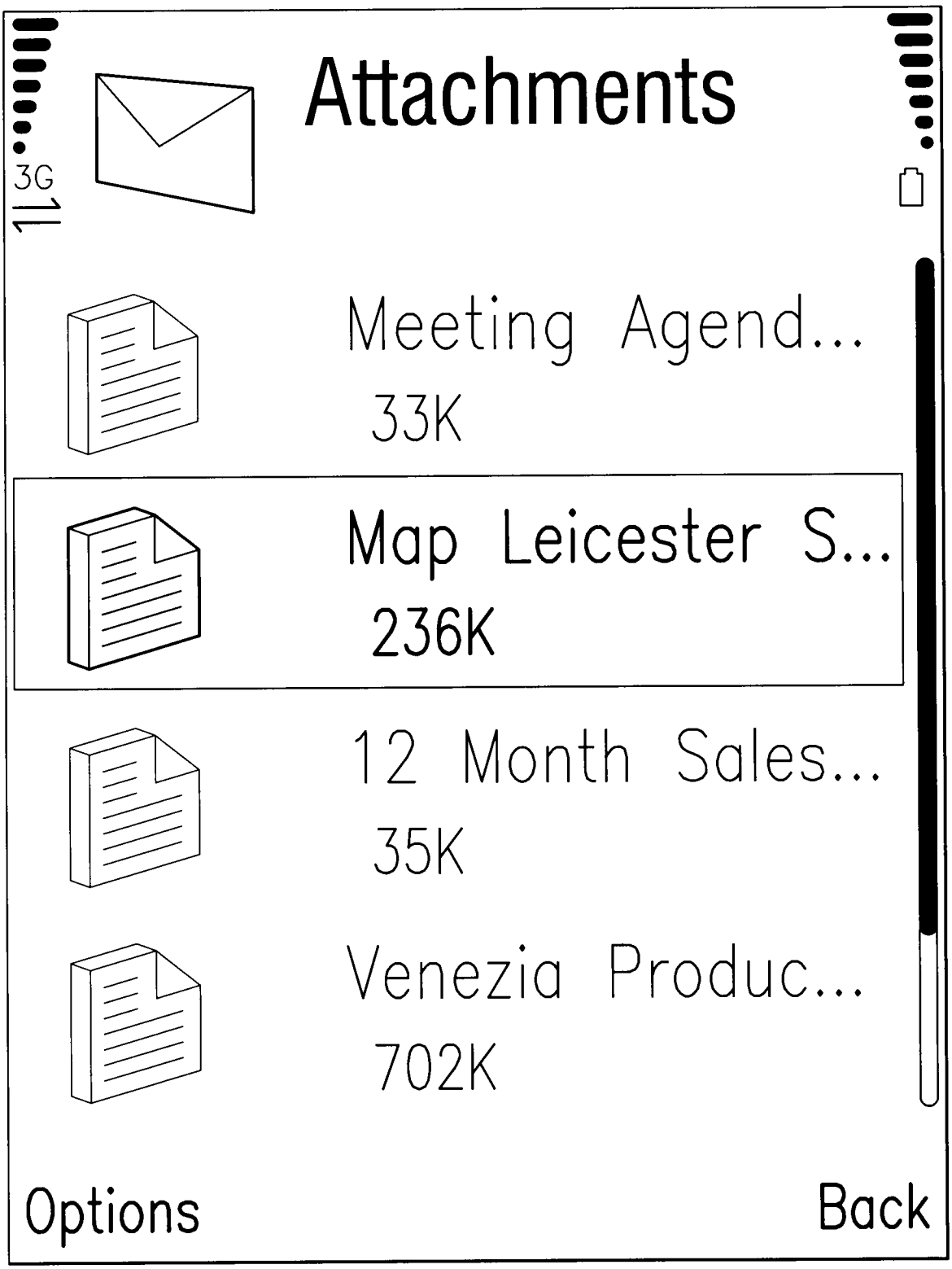
3G
Attachments
Meeting Agend...
33K
Map Leicester S...
236K
12 Month Sales...
35K
Venezia Produc...
702K
Options
Back

FIG.29

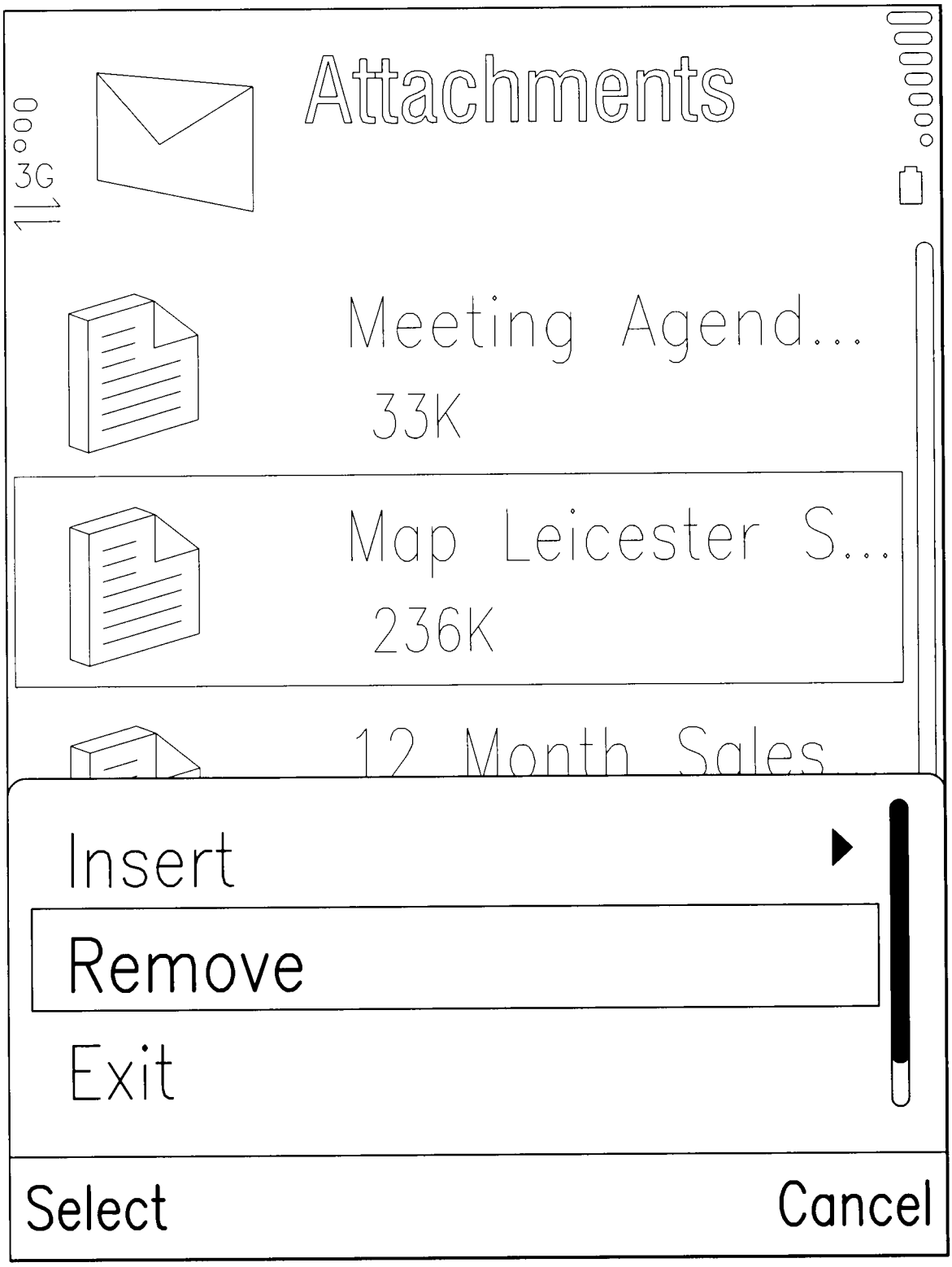
Attachments
3G
Meeting Agend...
33K
Map Leicester S...
236K
12 Month Sales
Insert
Remove
Exit
Select
Cancel

FIG.30

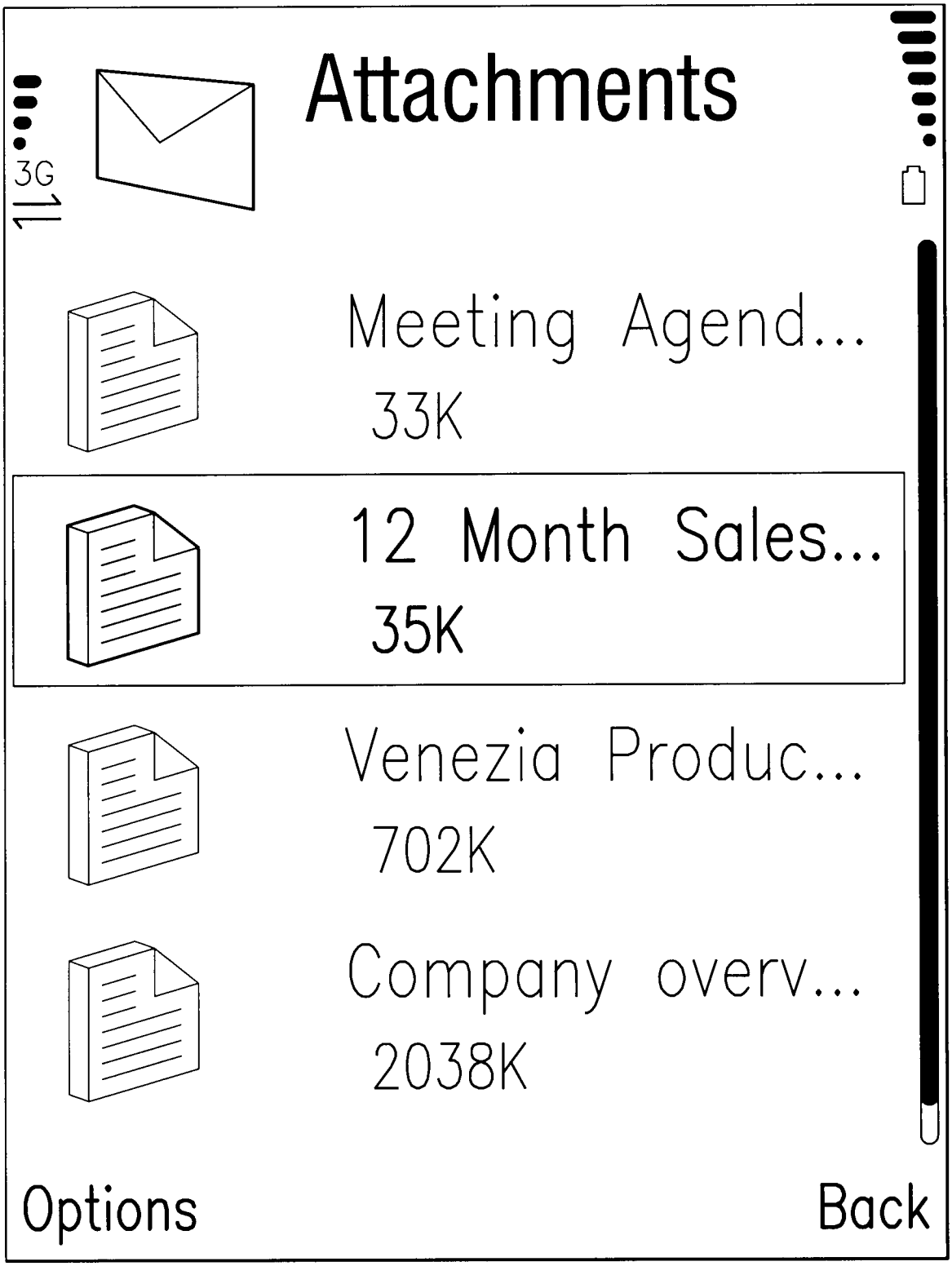
Attachments
3G
Meeting Agend...
33K
12 Month Sales...
35K
Venezia Produc...
702K
Company overv...
2038K
Options
Back

FIG.31

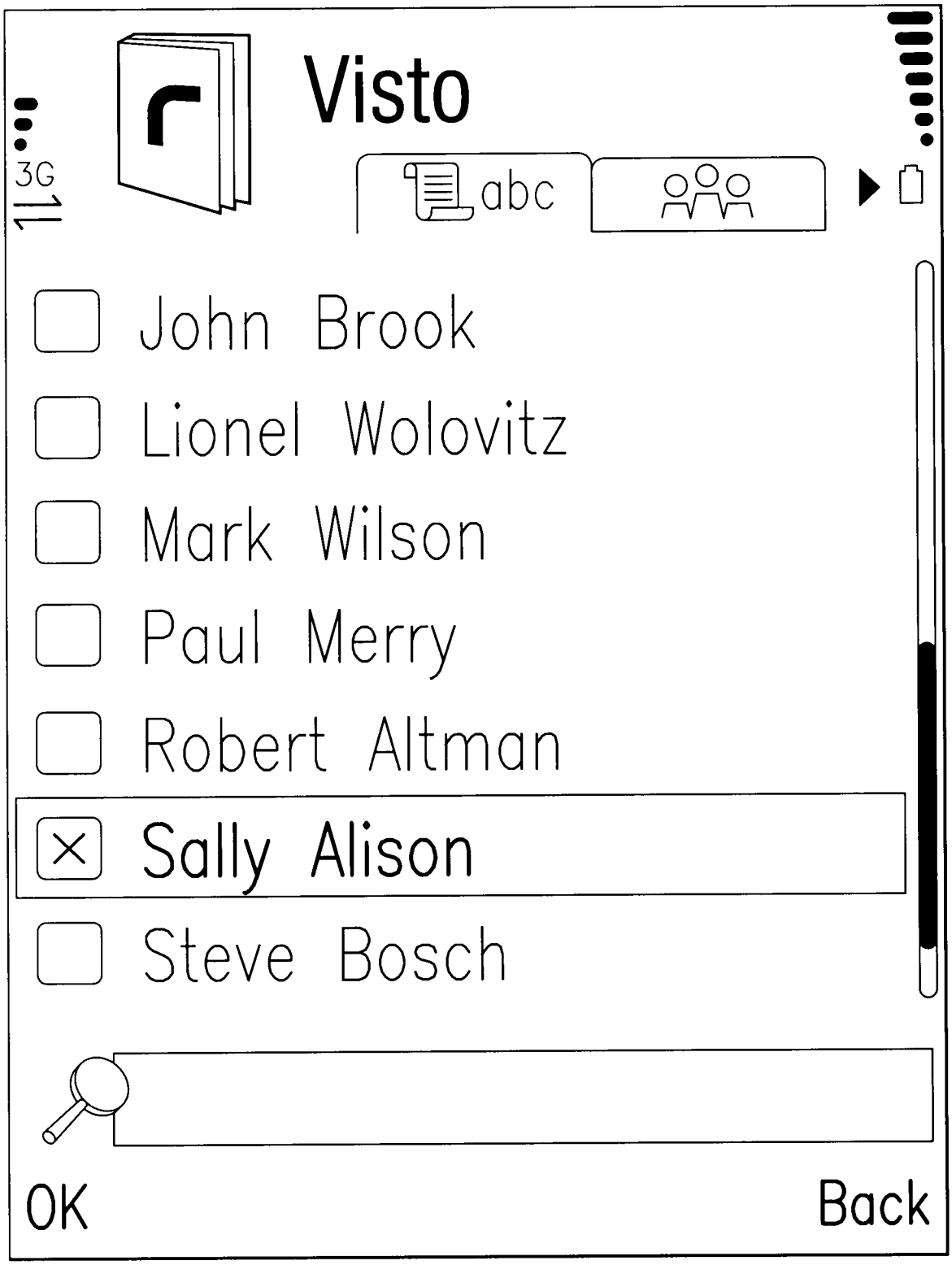
Visto
3G
abc
John Brook
Lionel Wolovitz
Mark Wilson
Paul Merry
Robert Altman
Sally Alison
Steve Bosch
OK
Back

FIG.32

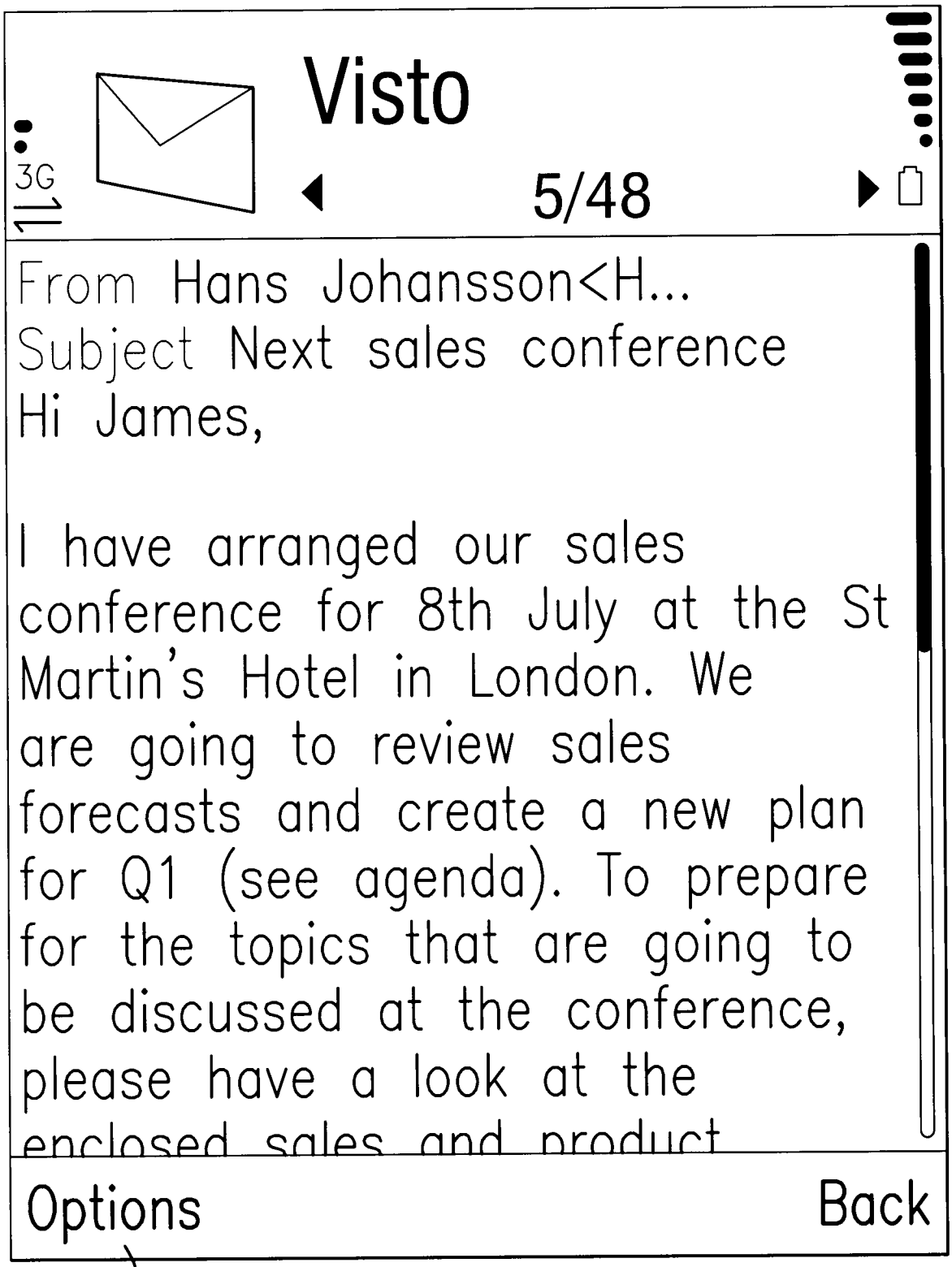
Visto
3G
5/48
From Hans Johansson<H...
Subject Next sales conference
Hi James,
I have arranged our sales conference for 8th July at the St Martin's Hotel in London. We are going to review sales forecasts and create a new plan for Q1 (see agenda). To prepare for the topics that are going to be discussed at the conference, please have a look at the enclosed sales and product
Options
Back
31

FIG.33

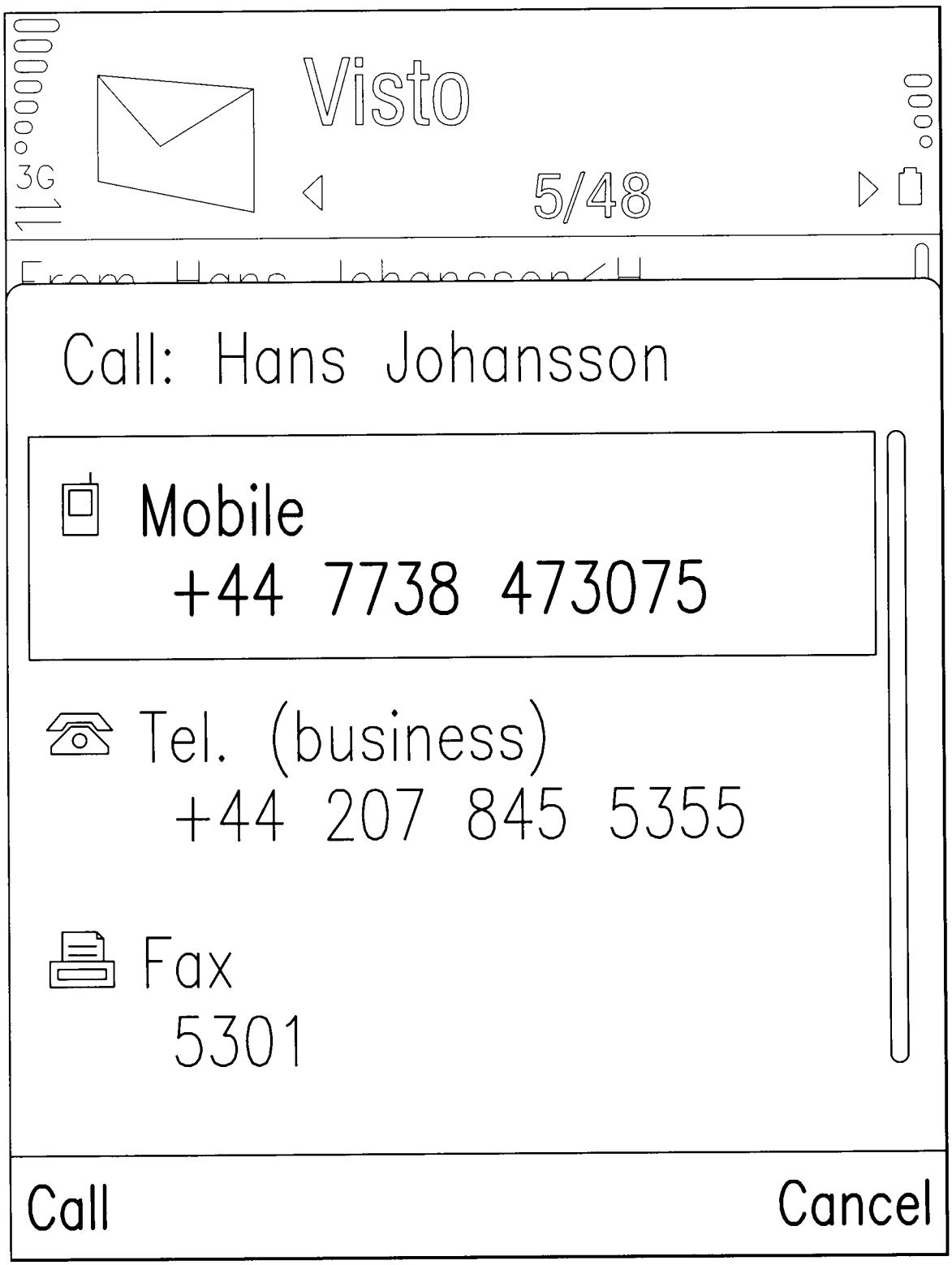
3G
Visto
5/48
Call: Hans Johansson
Mobile
+44 7738 473075
Tel. (business)
+44 207 845 5355
Fax
5301
Call
Cancel

FIG.34

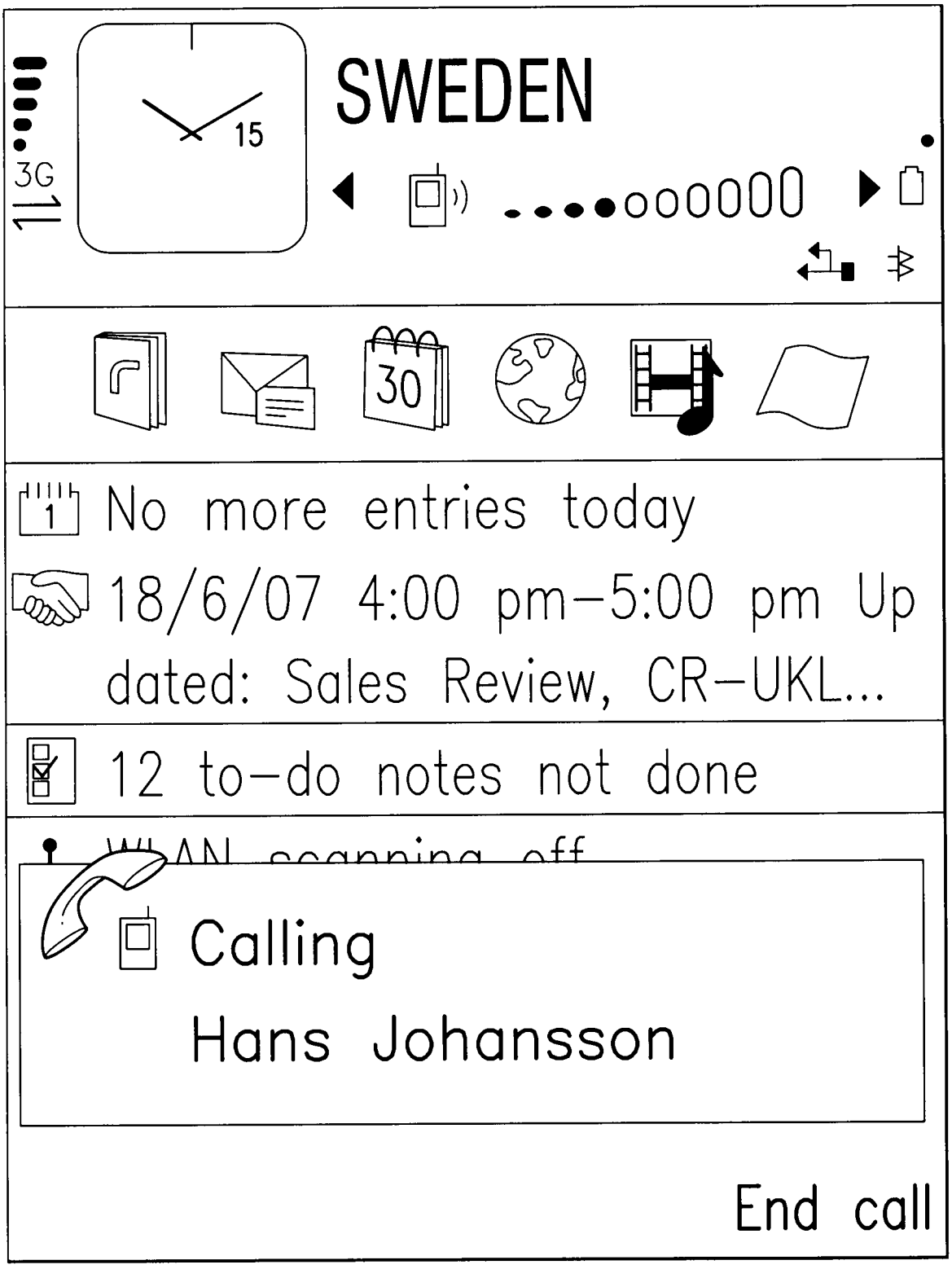
3G
15
SWEDEN
30
No more entries today
18/6/07 4:00 pm–5:00 pm Up
dated: Sales Review, CR–UKL...
12 to–do notes not done
Calling
Hans Johansson
End call

FIG.35


3G
Visto
42/47
From Paul Merry<mail....
Subject New Report: Fixed
Mobile Convergence
Delete
Retrieve
Message details
Home
End
Add to Contacts
Select
Cancel

FIG.36

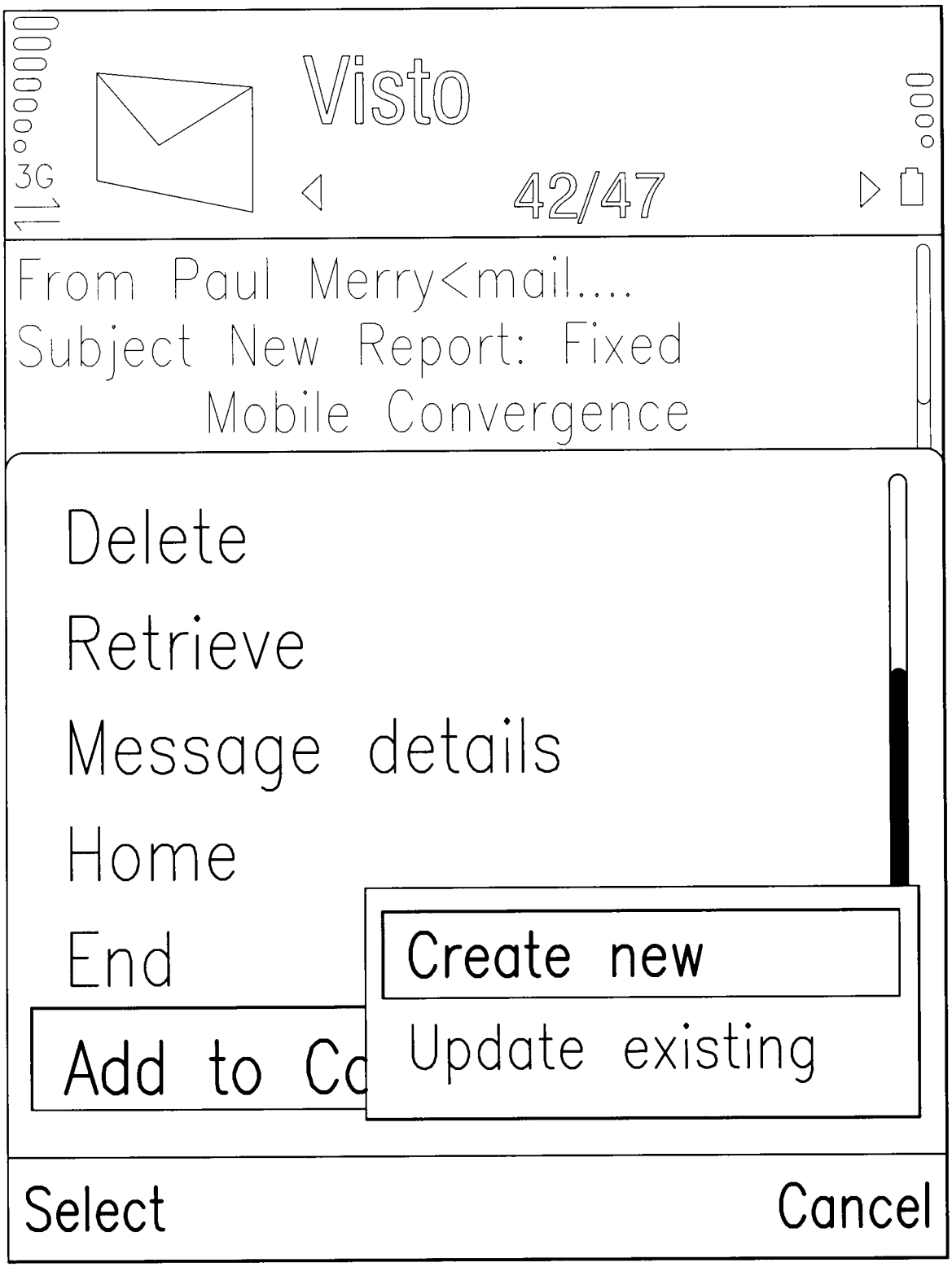
3G
Visto
42/47
From Paul Merry<mail....
Subject New Report: Fixed
Mobile Convergence
Delete
Retrieve
Message details
Home
End
Add to Cc
Create new
Update existing
Select
Cancel

FIG.37

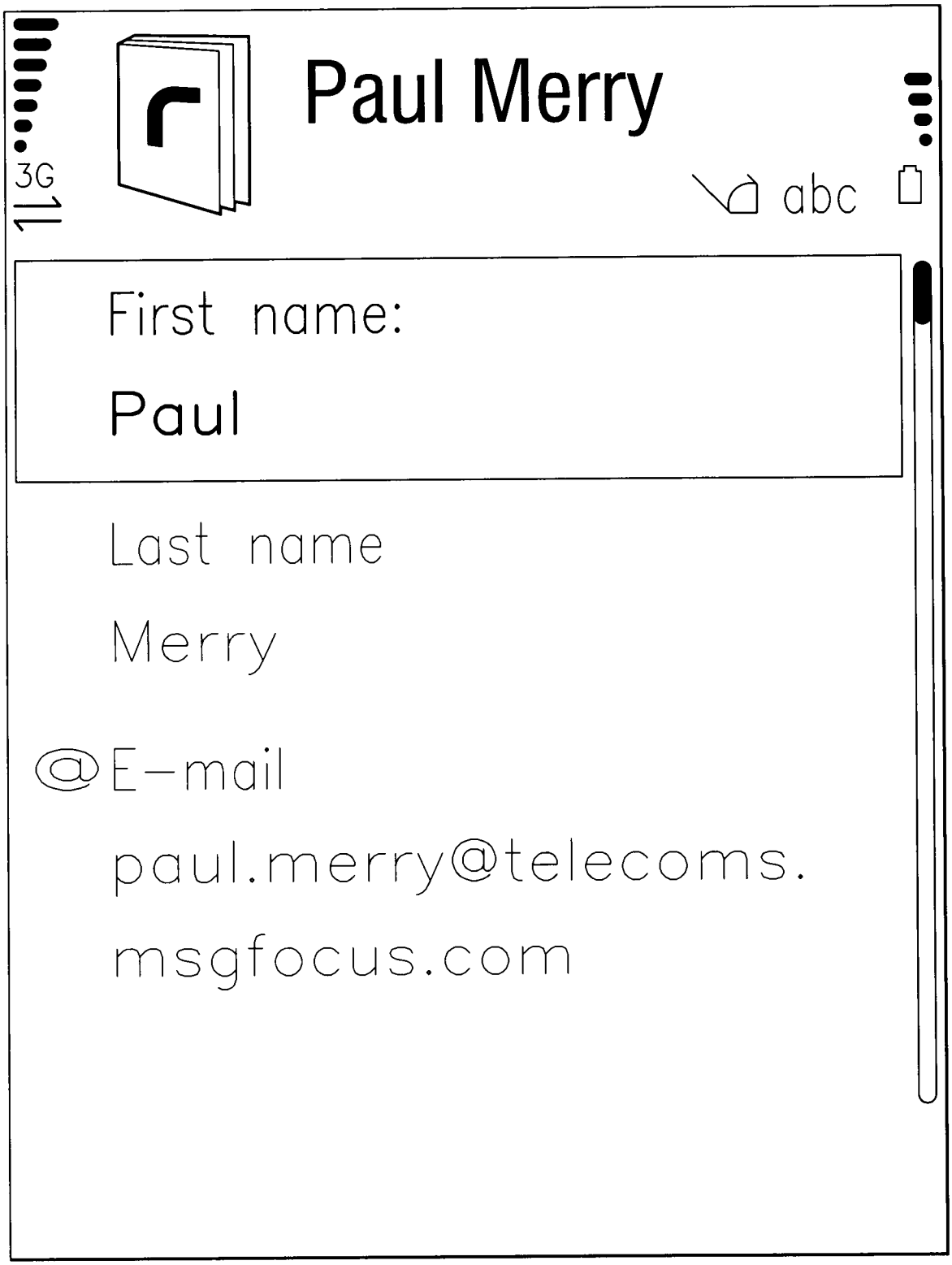
3G
Paul Merry
abc
First name:
Paul
Last name
Merry
@E-mail
paul.merry@telecoms.
msgfocus.com

FIG.38


Visto
abc
John Brook
Lionel Wolovitz
Mark Wilson
Paul Merry
Robert Altman
Sally Alison
Steve Bosch
OK
Back

FIG.39

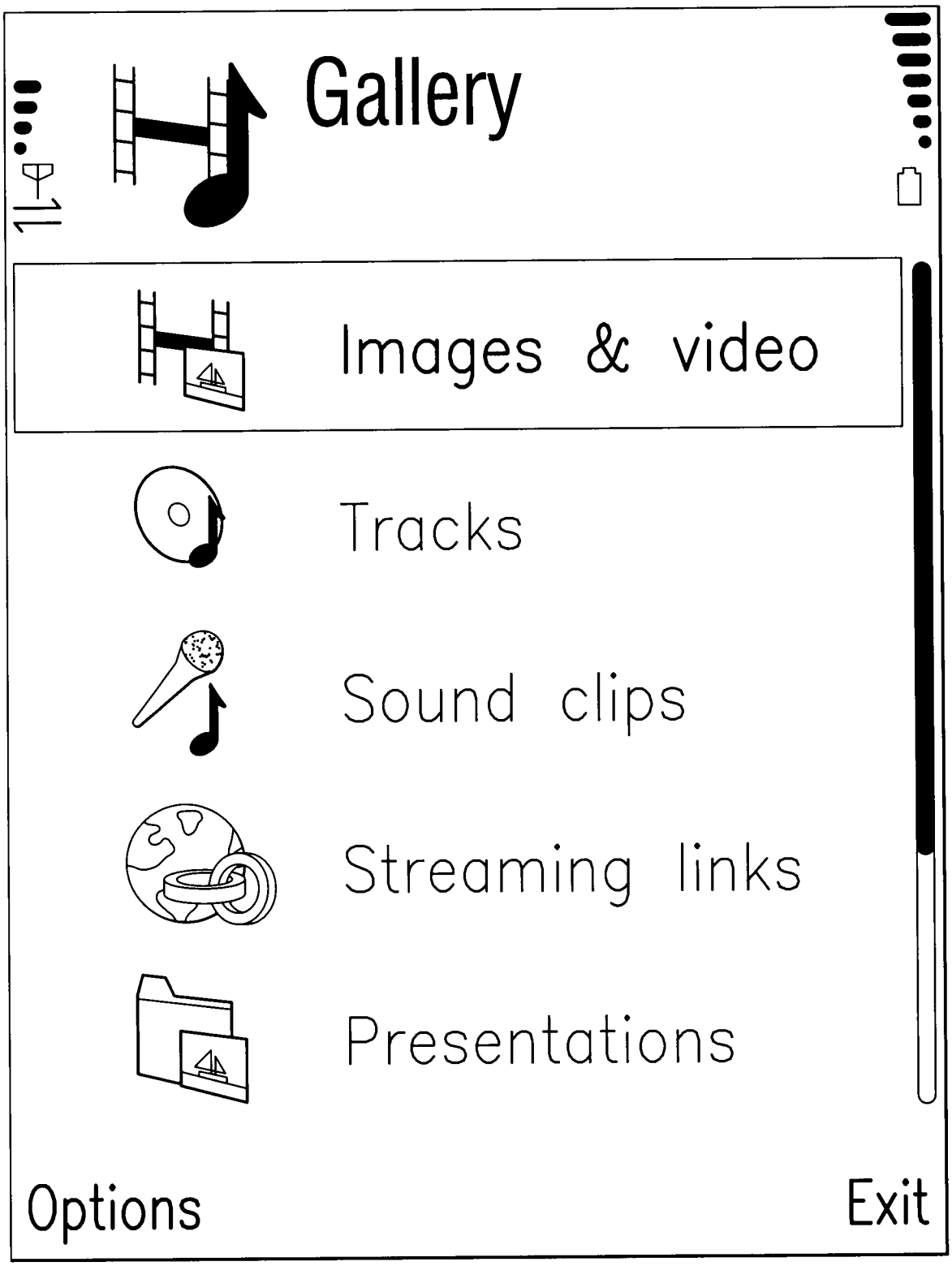
Gallery
Images & video
Tracks
Sound clips
Streaming links
Presentations
Options
Exit

FIG.40

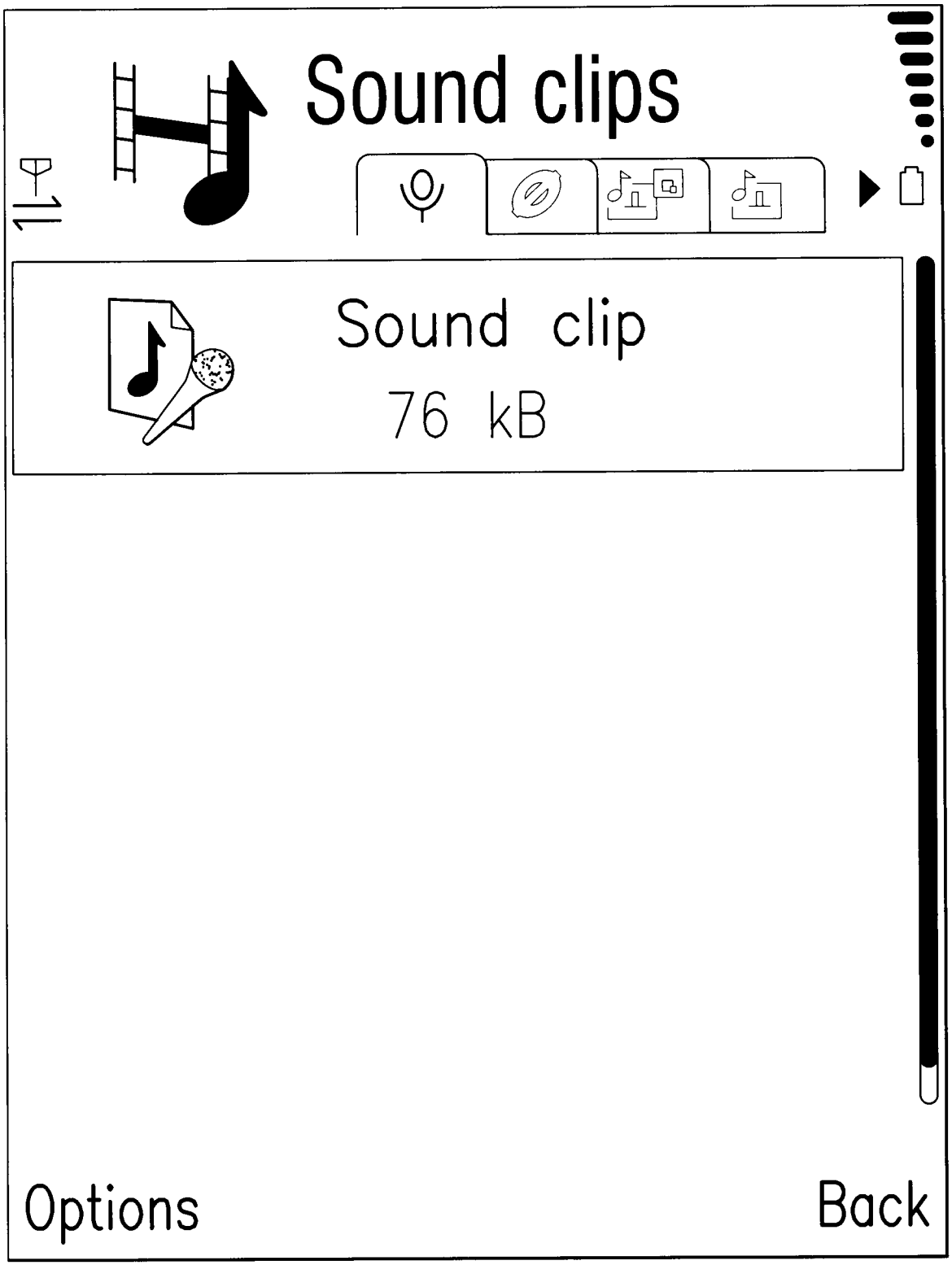

FIG.41

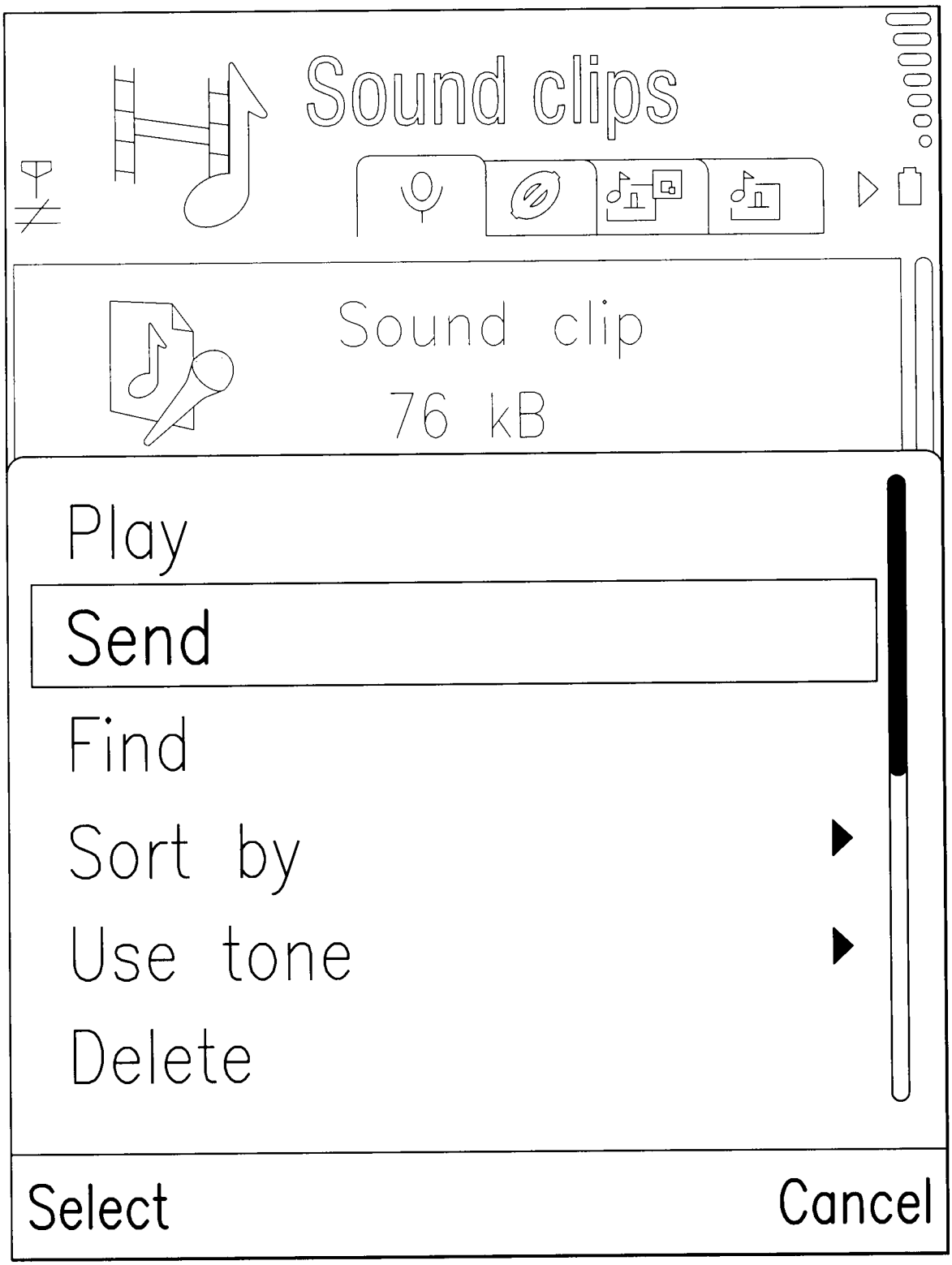
Sound clips
Sound clip
76 kB
Play
Send
Find
Sort by
Use tone
Delete
Select
Cancel

FIG.42

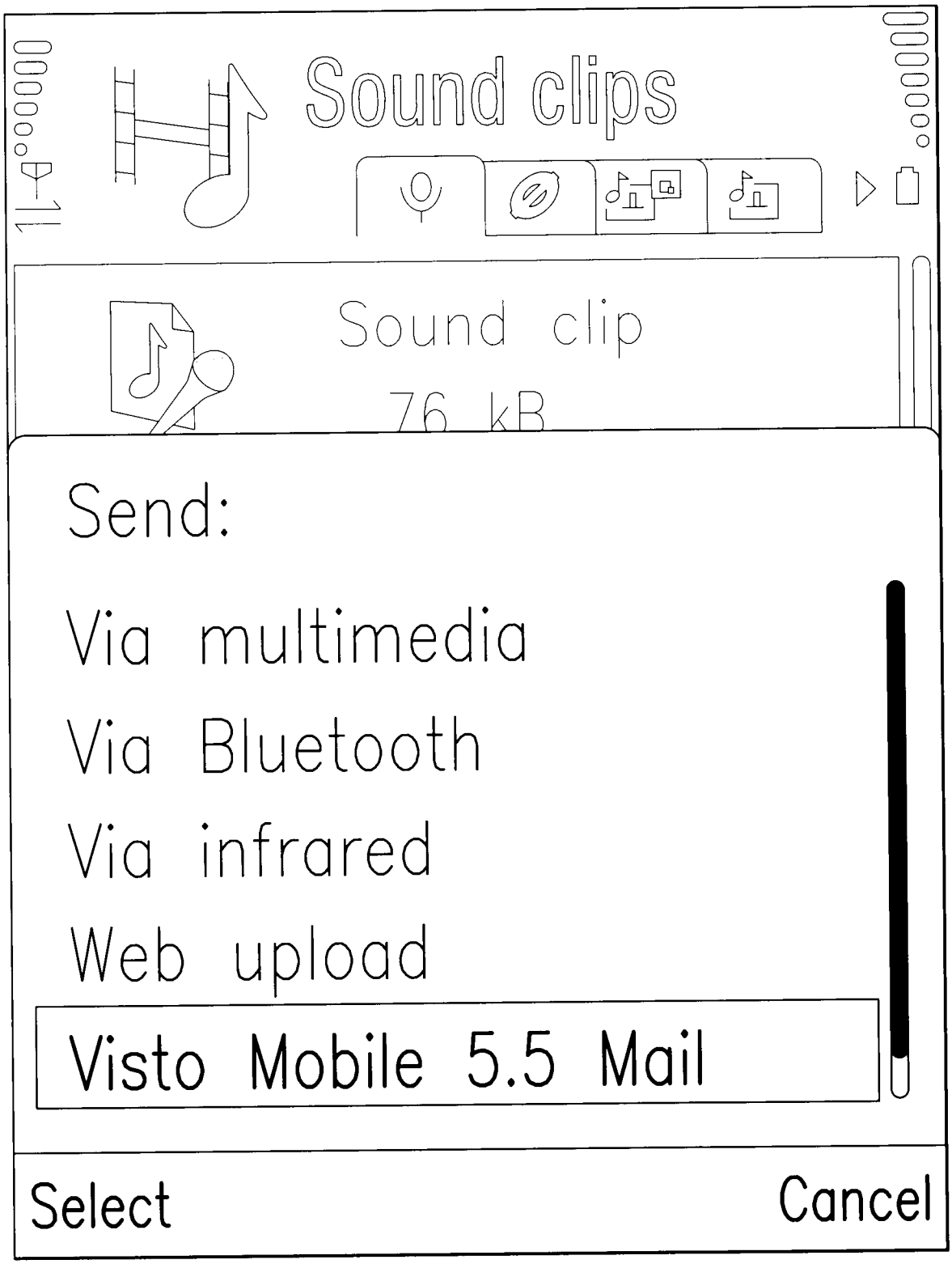
Sound clips
Sound clip
76 kB
Send:
Via multimedia
Via Bluetooth
Via infrared
Web upload
Visto Mobile 5.5 Mail
Select
Cancel

FIG.43


Visto
abc
altman@film.com>
Send:
Add recipient
Lookup
Attachments
Delete
Message details
Select
Cancel

FIG.44

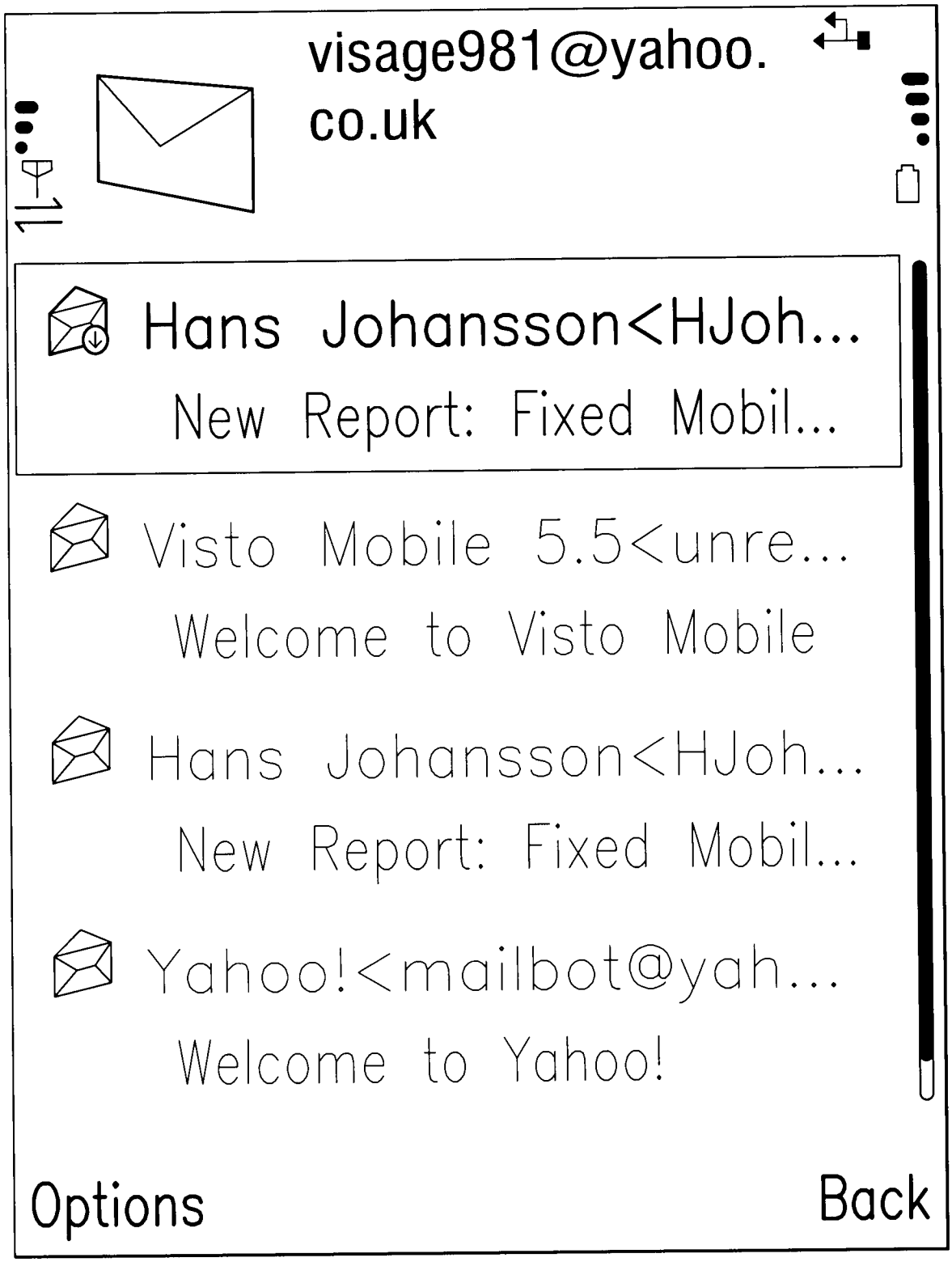
visage981@yahoo.
co.uk
Hans Johansson<HJoh...
New Report: Fixed Mobil...
Visto Mobile 5.5<unre...
Welcome to Visto Mobile
Hans Johansson<HJoh...
New Report: Fixed Mobil...
Yahoo!<mailbot@yah...
Welcome to Yahoo!
Options
Back

FIG.45


E-mail
3G
1/4
Click here to view in your browser
Fixed Mobile Convergence: Evolving business opportunities and challenges for operators
33
www.informatm.com/fixedmobileconvergence
Options
Back

FIG.46

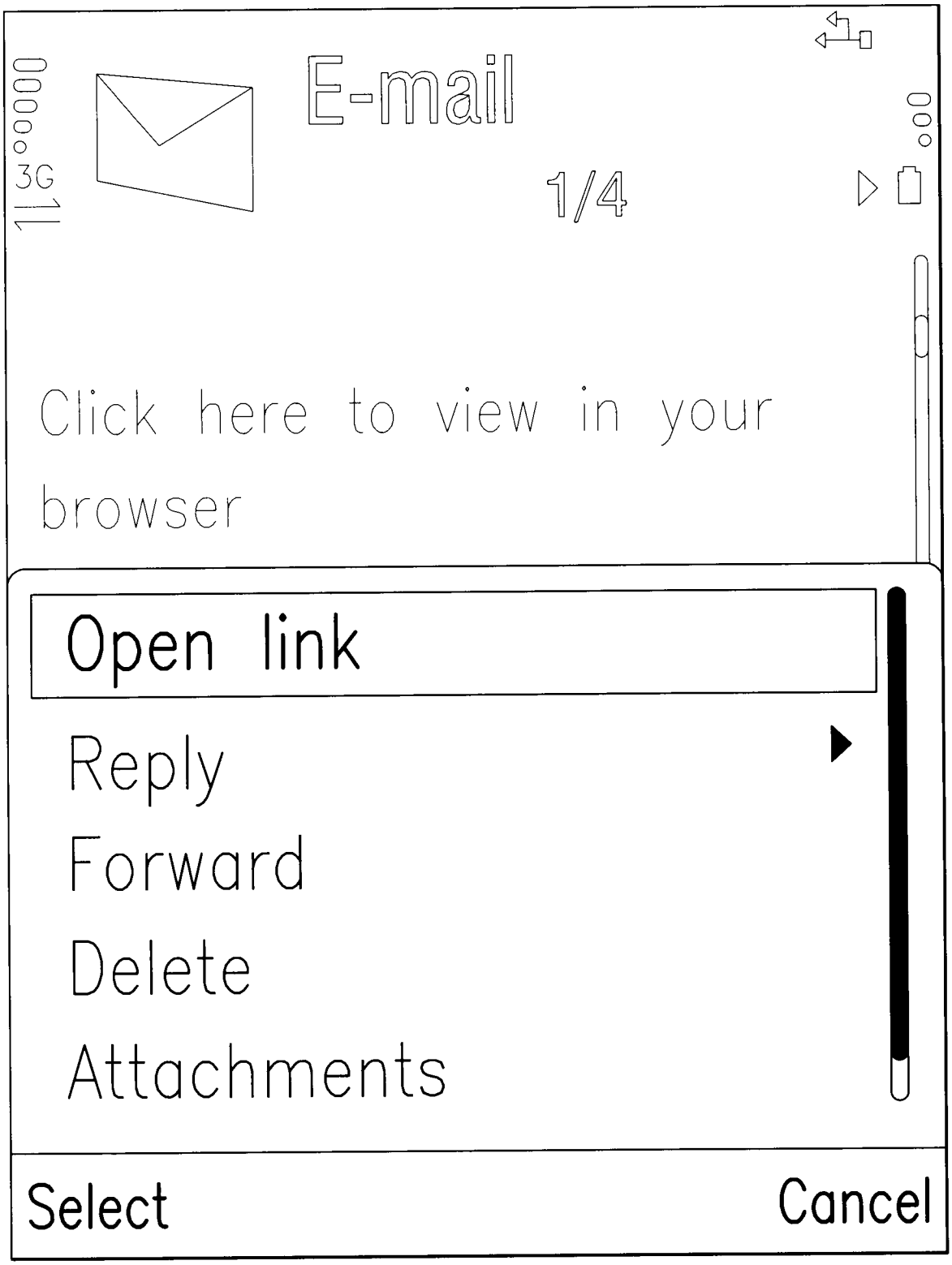
E-mail
1/4
3G
Click here to view in your browser
Open link
Reply
Forward
Delete
Attachments
Select
Cancel

FIG.47


3G
Informa Telecoms & Media Shop - Fi...
My Cart
informa
telecoms & media
shop
Sectors
About Us
Broadband & Fixed
Handsets & Devices
Media & Entertainment
Mobile Content & Apps
Mobile Markets
Mobile Strategies
Networks & Infrastructure
Formats
Fixed Mo
Converge
edition
Worldwide Mark
Outlook & Fore
Published: June 2
Options
Back

FIG.48

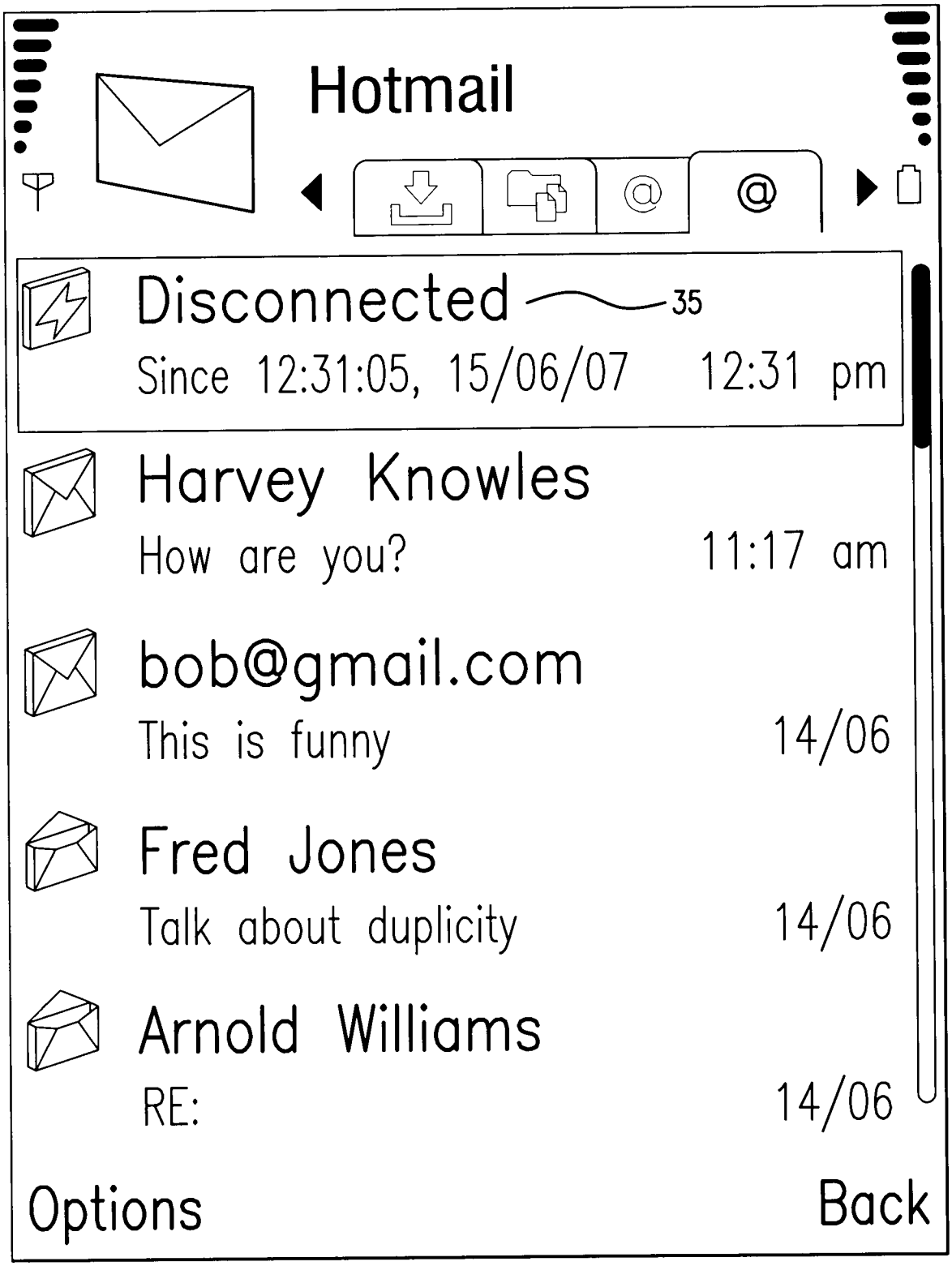
Hotmail
Disconnected
35
Since 12:31:05, 15/06/07 12:31 pm
Harvey Knowles
How are you? 11:17 am
bob@gmail.com
This is funny 14/06
Fred Jones
Talk about duplicity 14/06
Arnold Williams
RE: 14/06
Options
Back

FIG.49

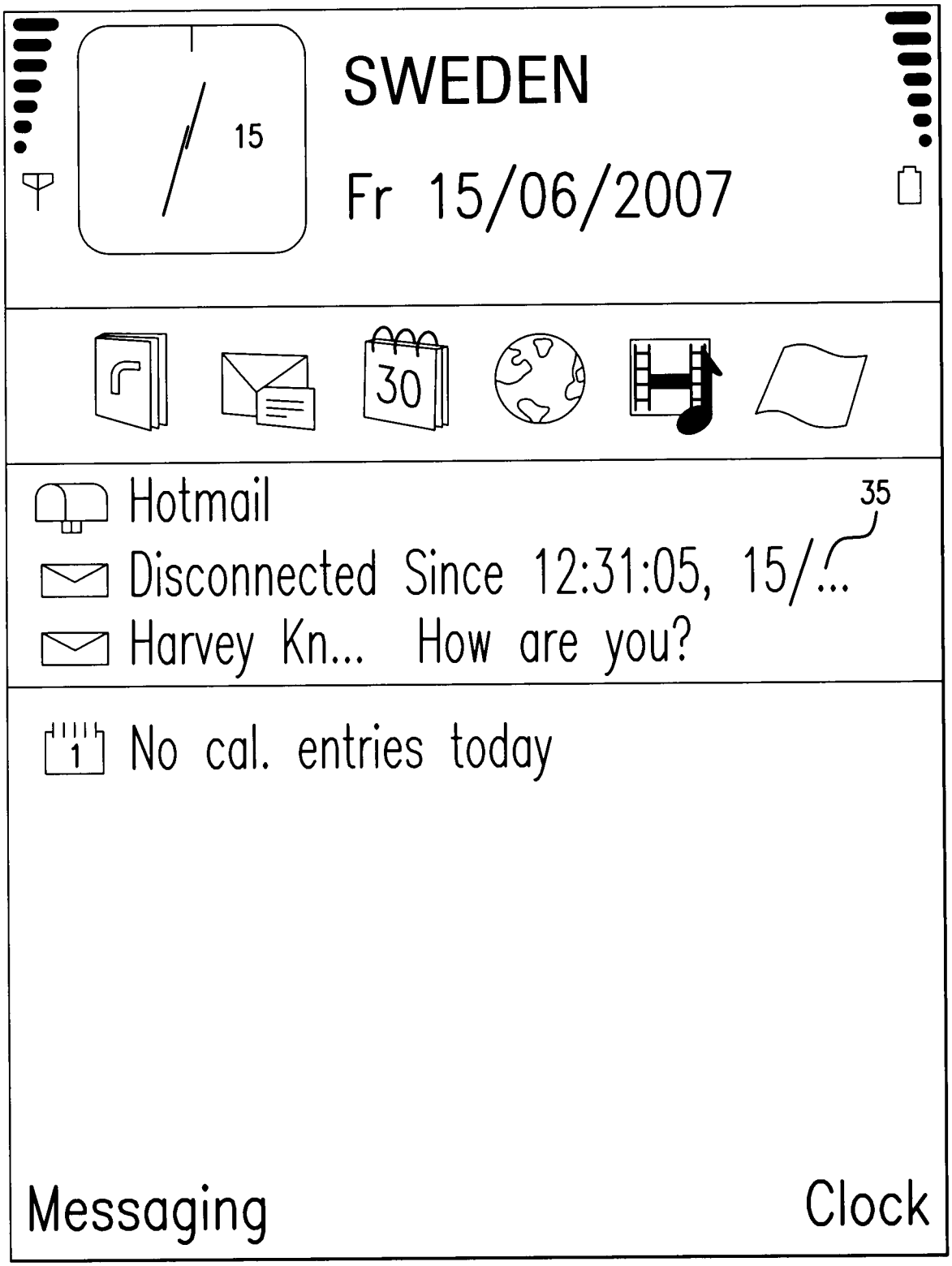
15
SWEDEN
Fr 15/06/2007
30
Hotmail
35
Disconnected Since 12:31:05, 15/...
Harvey Kn... How are you?
1
No cal. entries today
Messaging
Clock

FIG.50

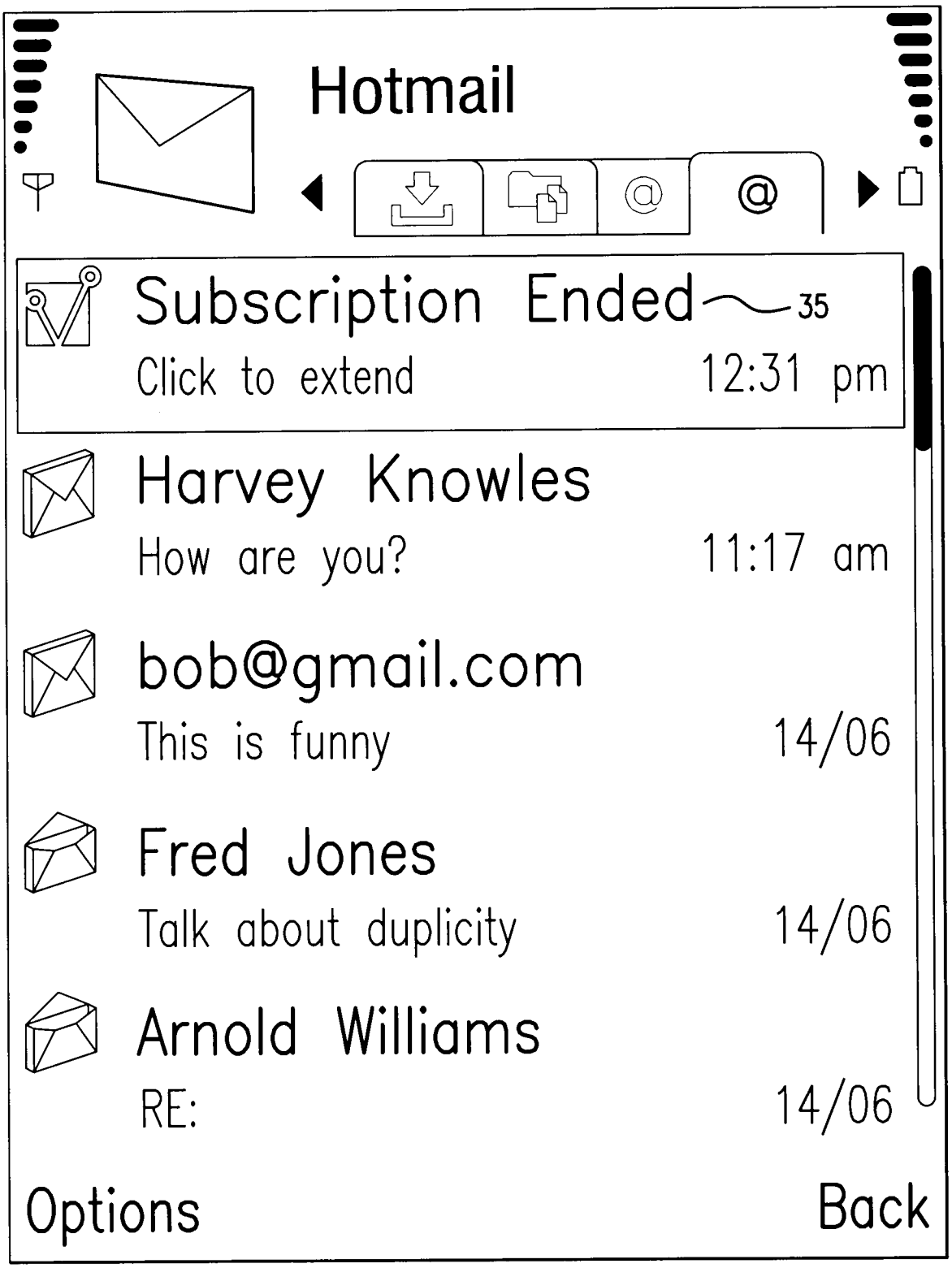
Hotmail
Subscription Ended
35
Click to extend
12:31 pm
Harvey Knowles
How are you?
11:17 am
bob@gmail.com
This is funny
14/06
Fred Jones
Talk about duplicity
14/06
Arnold Williams
RE:
14/06
Options
Back

FIG.51

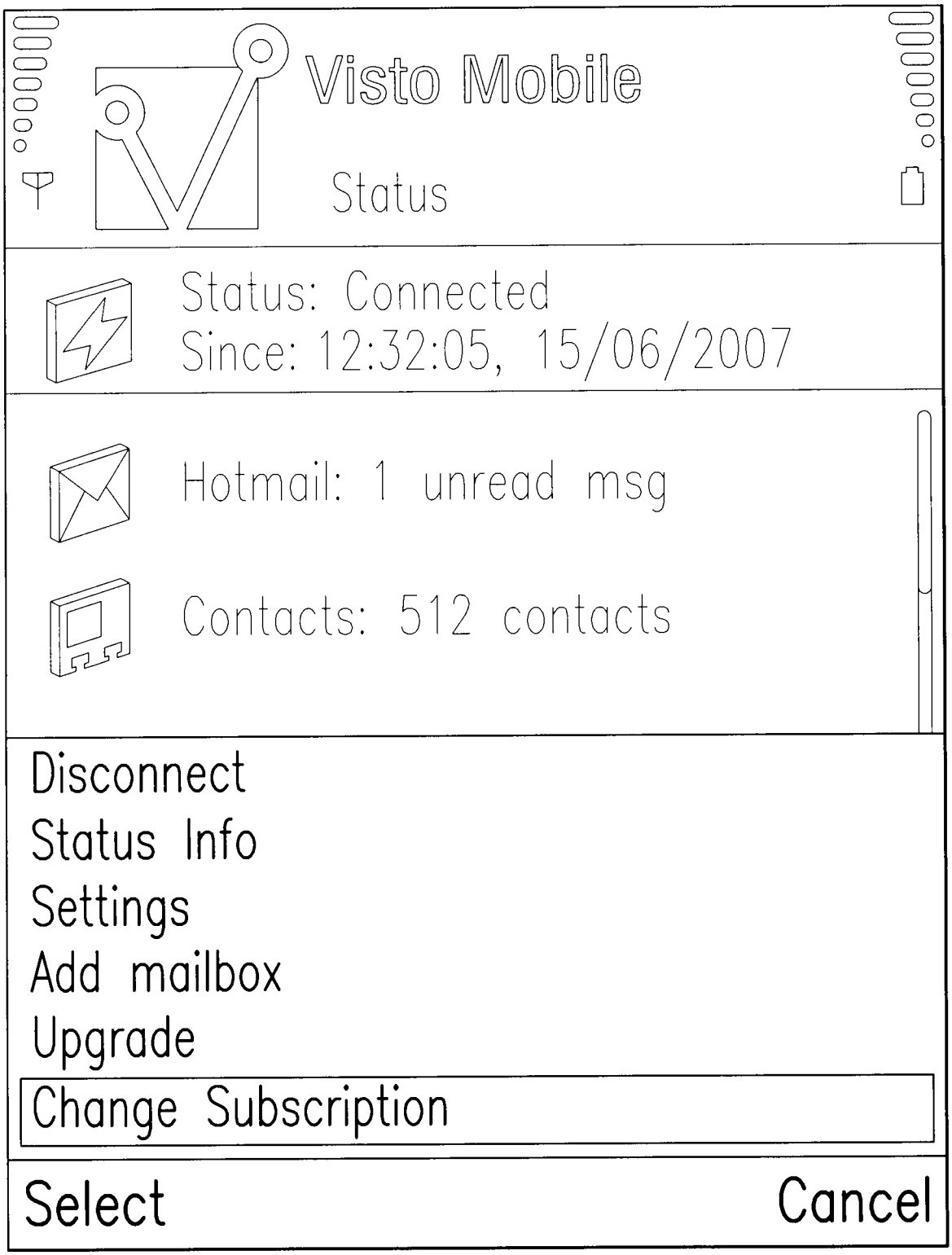
Visto Mobile
Status
Status: Connected
Since: 12:32:05, 15/06/2007
Hotmail: 1 unread msg
Contacts: 512 contacts
Disconnect
Status Info
Settings
Add mailbox
Upgrade
Change Subscription
Select
Cancel

FIG.52

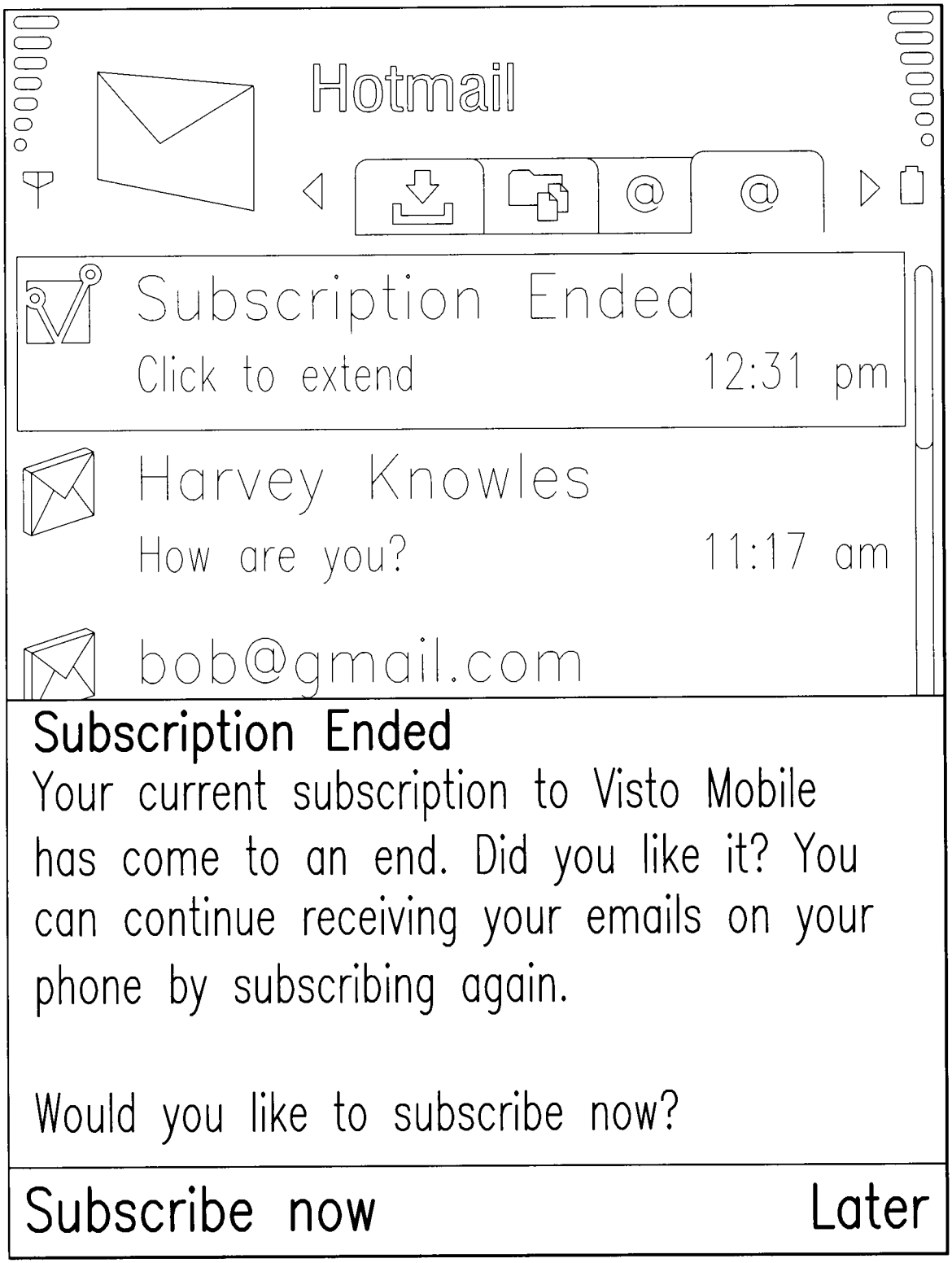
Hotmail
Subscription Ended
Click to extend
12:31 pm
Harvey Knowles
How are you?
11:17 am
bob@gmail.com
Subscription Ended
Your current subscription to Visto Mobile has come to an end. Did you like it? You can continue receiving your emails on your phone by subscribing again.
Would you like to subscribe now?
Subscribe now
Later

FIG.53

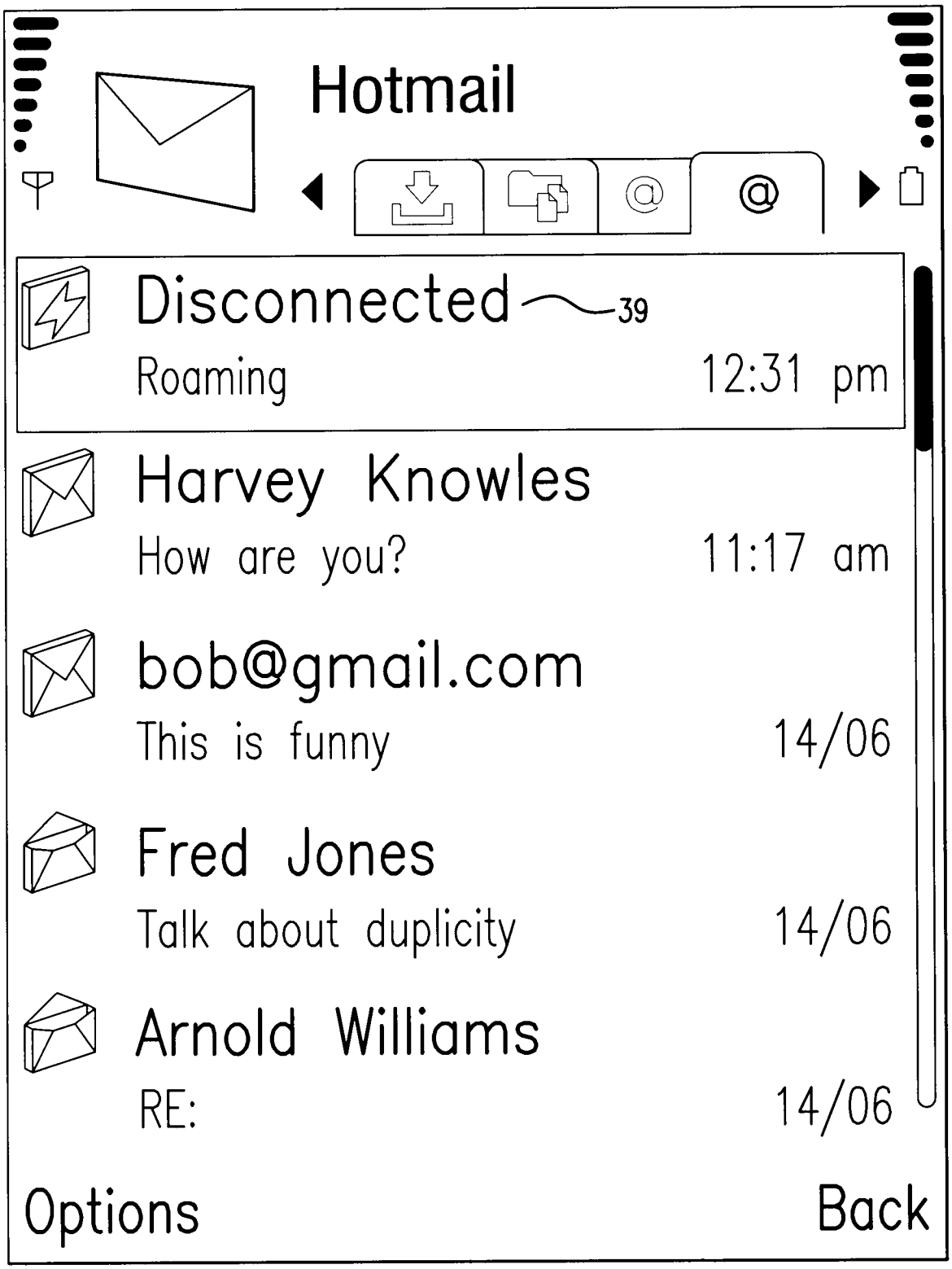
Hotmail
Disconnected
39
Roaming
12:31 pm
Harvey Knowles
How are you?
11:17 am
bob@gmail.com
This is funny
14/06
Fred Jones
Talk about duplicity
14/06
Arnold Williams
RE:
14/06
Options
Back

FIG.54

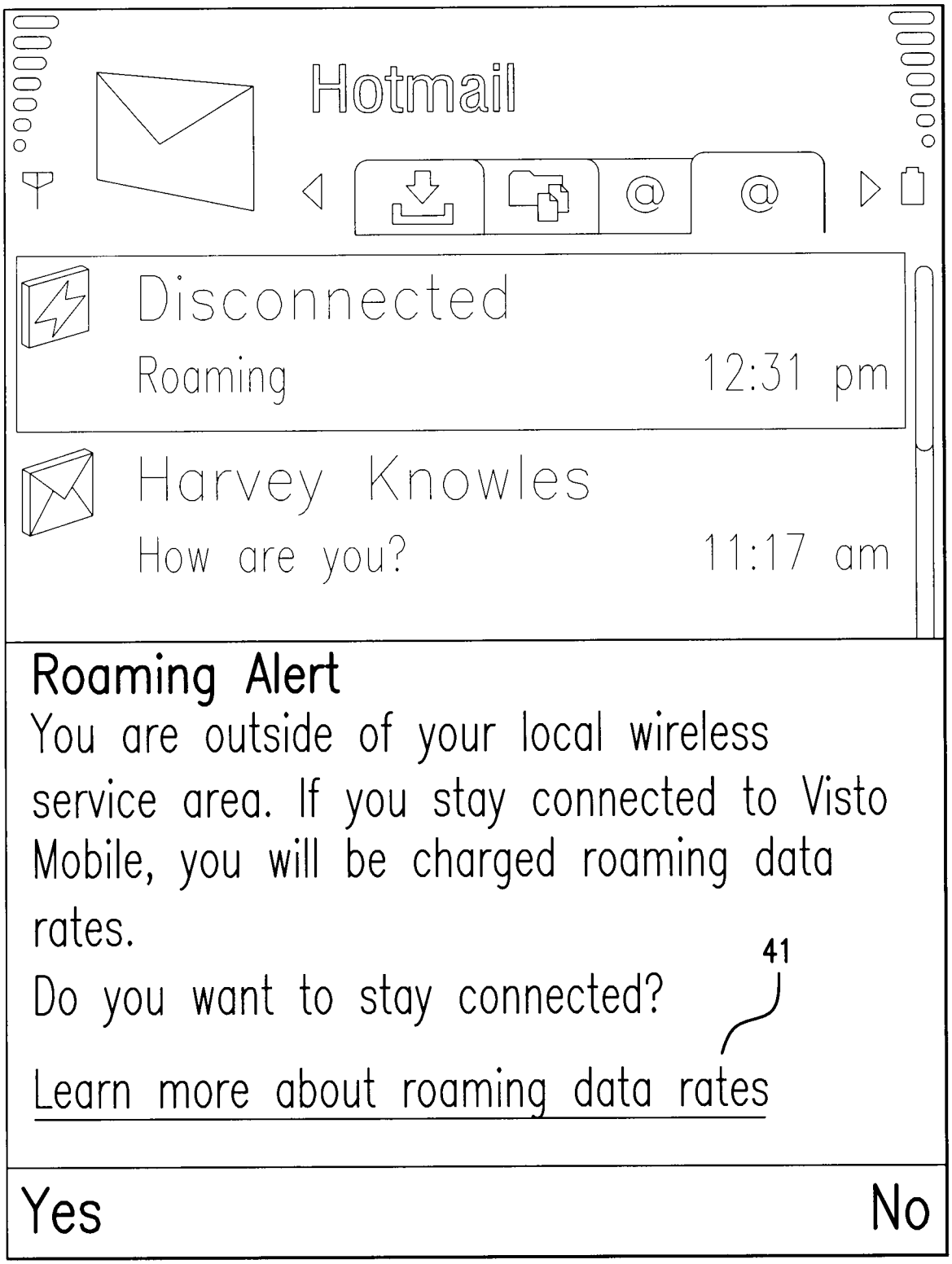
Hotmail
Disconnected
Roaming
12:31 pm
Harvey Knowles
How are you?
11:17 am
Roaming Alert
You are outside of your local wireless service area. If you stay connected to Visto Mobile, you will be charged roaming data rates.
Do you want to stay connected?
41
Learn more about roaming data rates
Yes
No

FIG.55

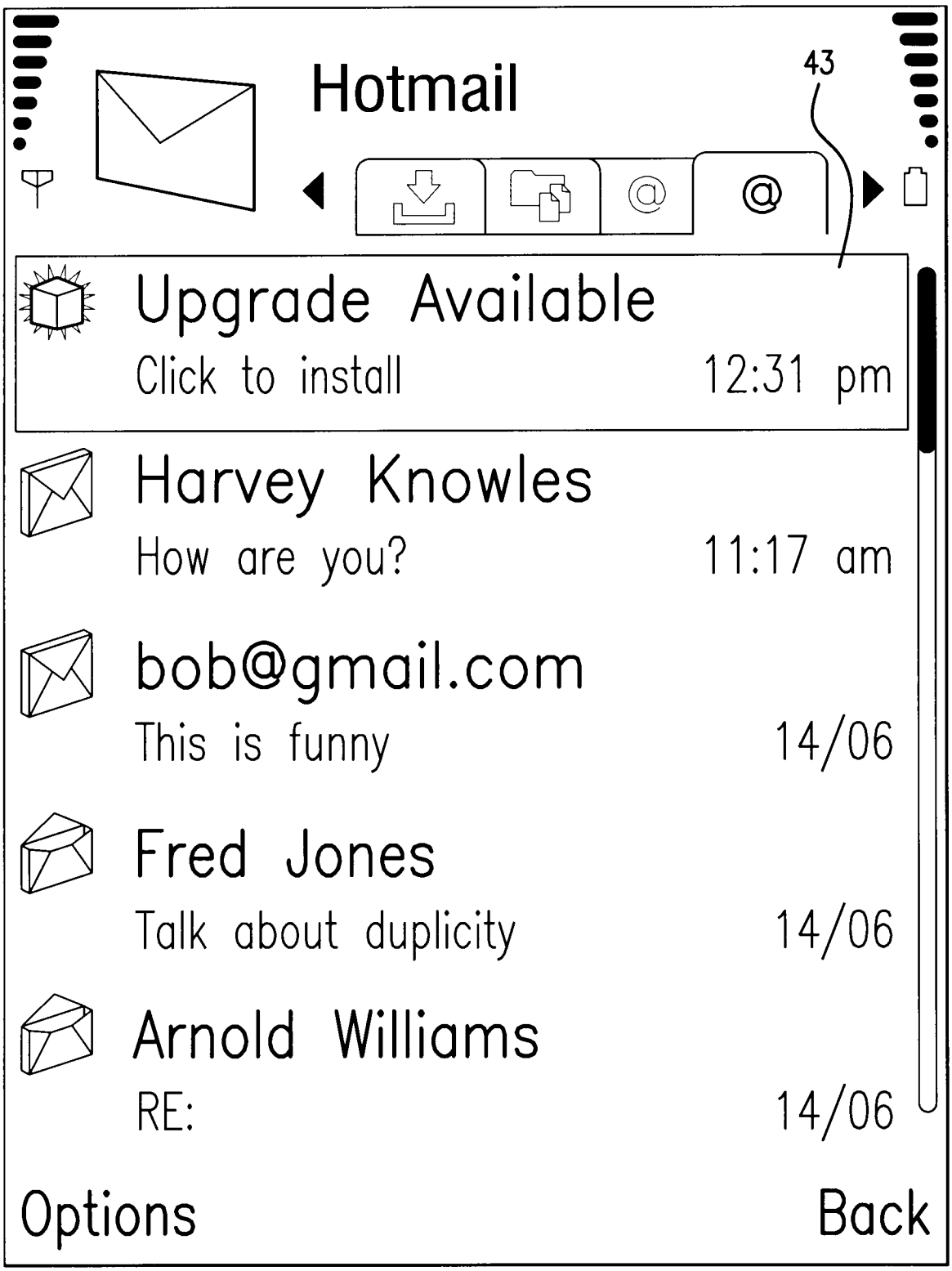
Hotmail
43
Upgrade Available
Click to install
12:31 pm
Harvey Knowles
How are you?
11:17 am
bob@gmail.com
This is funny
14/06
Fred Jones
Talk about duplicity
14/06
Arnold Williams
RE:
14/06
Options
Back

FIG.56

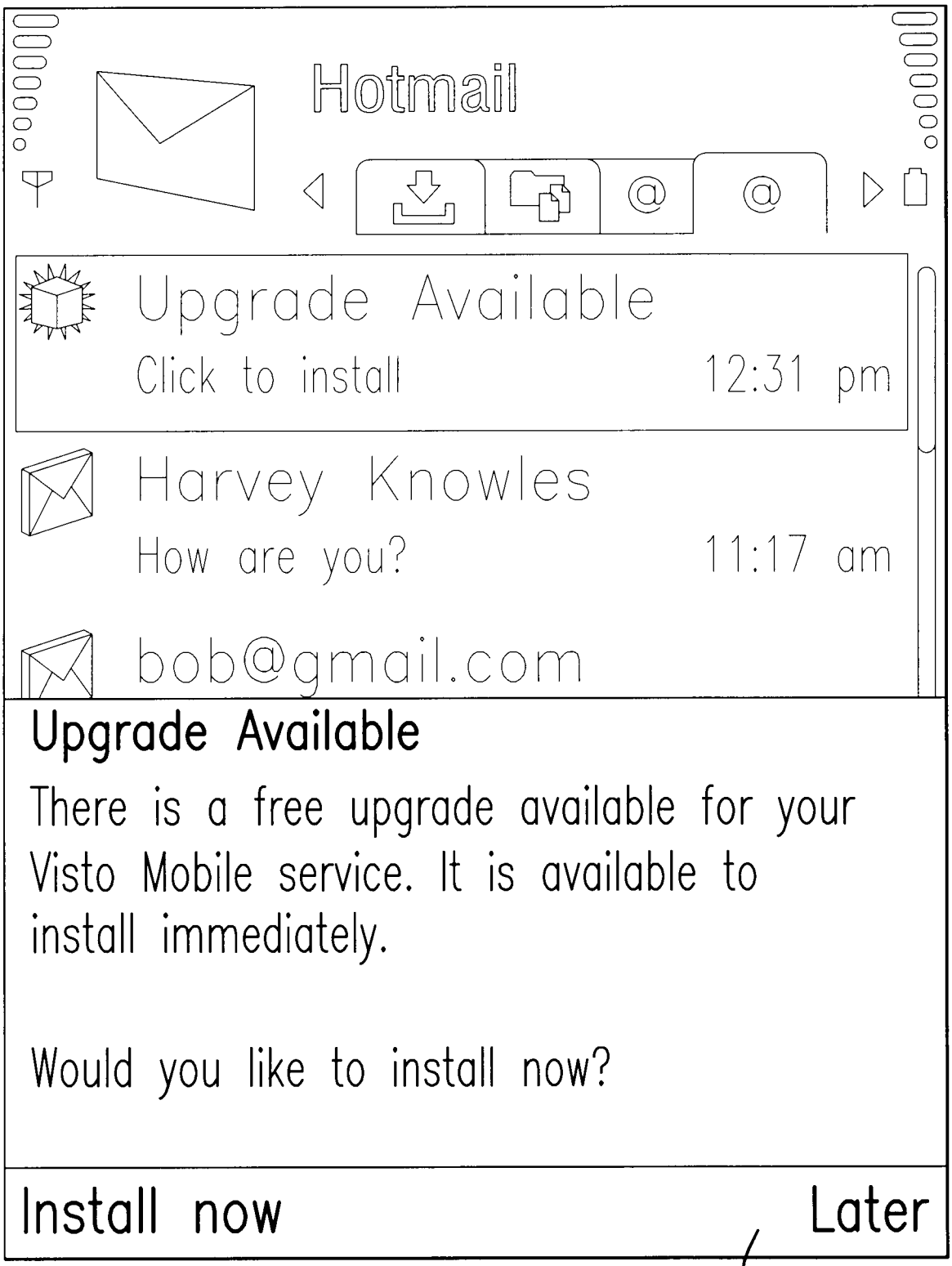
Hotmail
Upgrade Available
Click to install
12:31 pm
Harvey Knowles
How are you?
11:17 am
bob@gmail.com
Upgrade Available
There is a free upgrade available for your Visto Mobile service. It is available to install immediately.
Would you like to install now?
Install now
Later
45

FIG.57

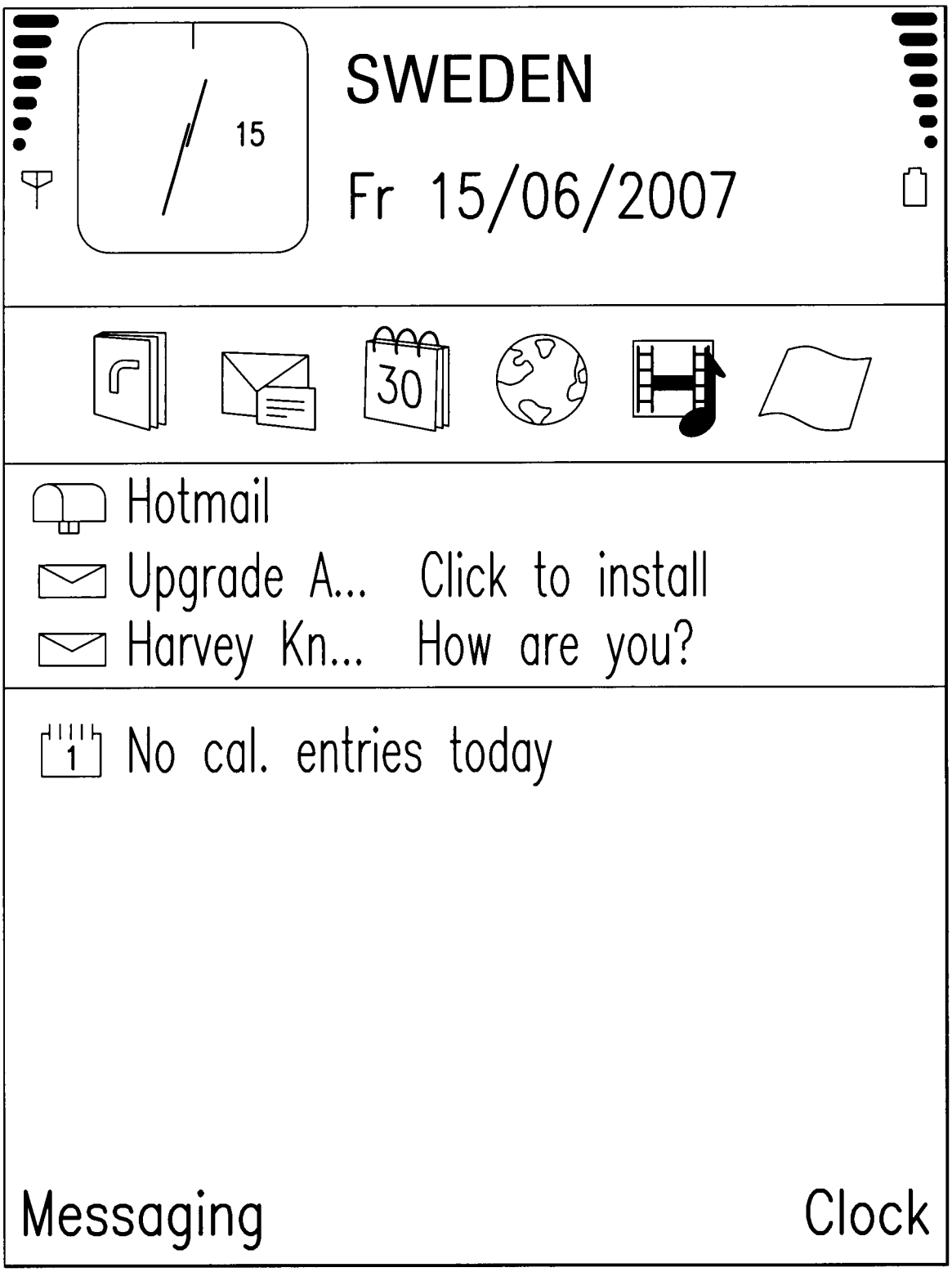
15
SWEDEN
Fr 15/06/2007
30
Hotmail
Upgrade A... Click to install
Harvey Kn... How are you?
1
No cal. entries today
Messaging
Clock

FIG.58

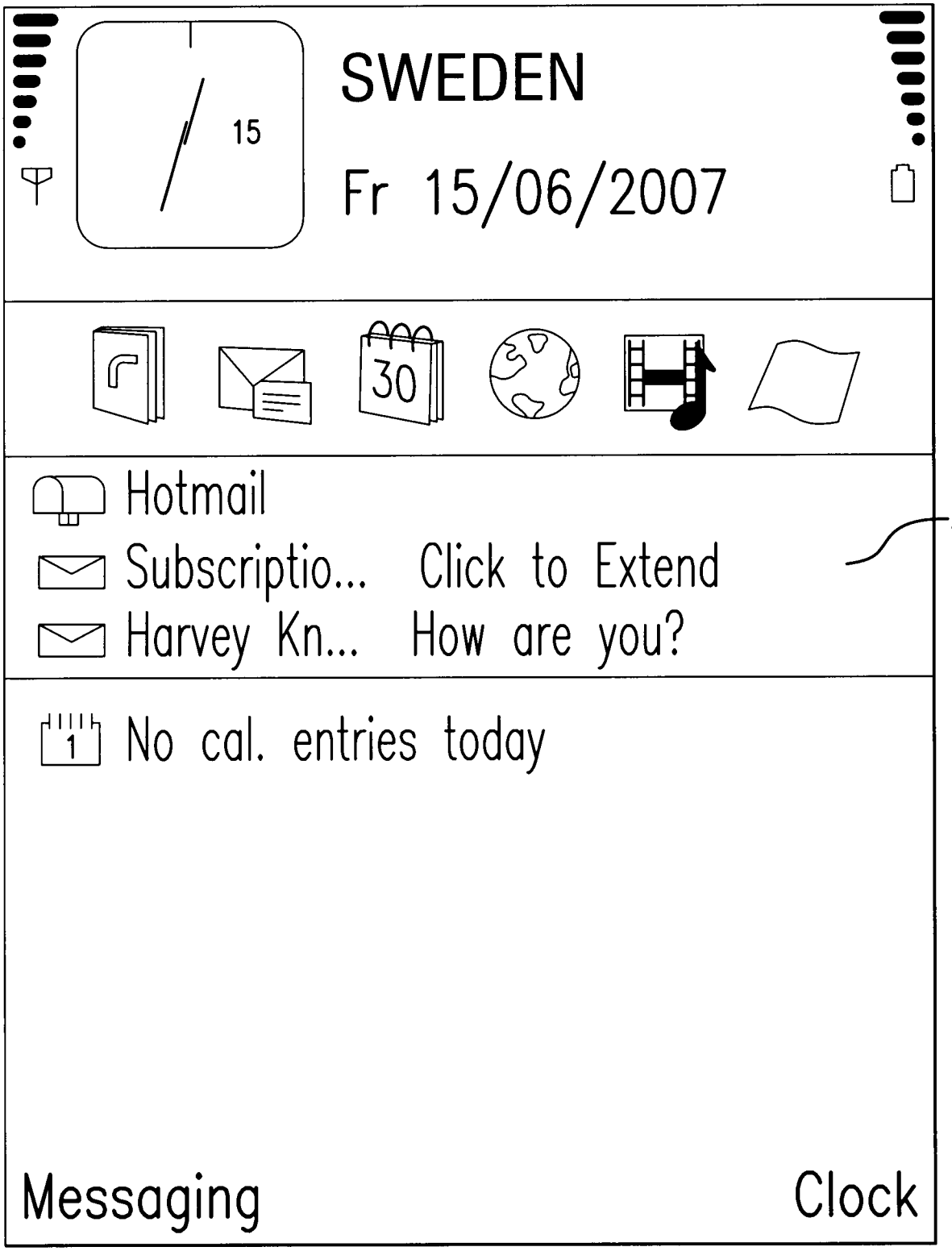
15
SWEDEN
Fr 15/06/2007
30
Hotmail
Subscriptio... Click to Extend
Harvey Kn... How are you?
37
1
No cal. entries today
Messaging
Clock

FIG.59

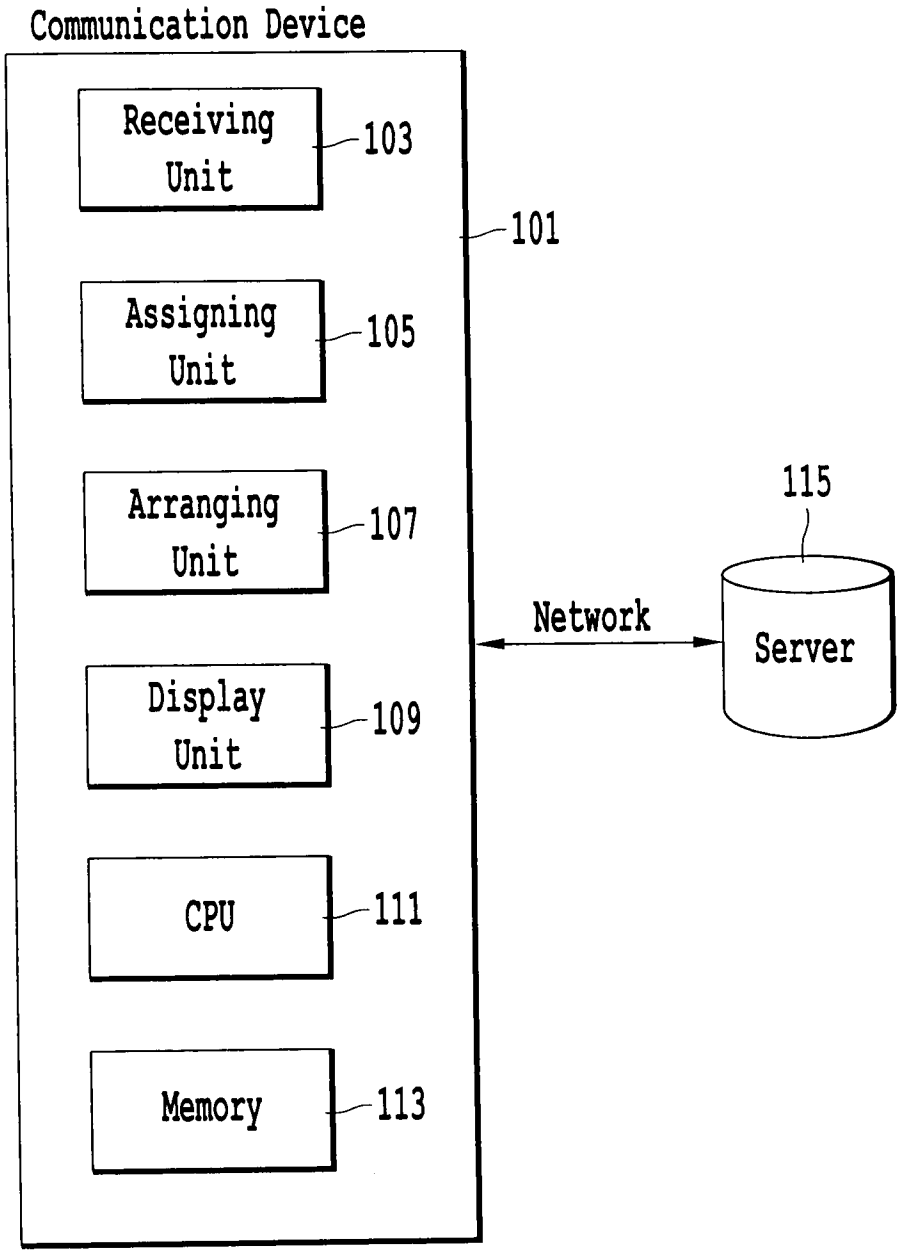
Communication Device
Receiving Unit
103
101
Assigning Unit
105
Arranging Unit
107
115
Network
Server
Display Unit
109
CPU
111
Memory
113

Fig. 60

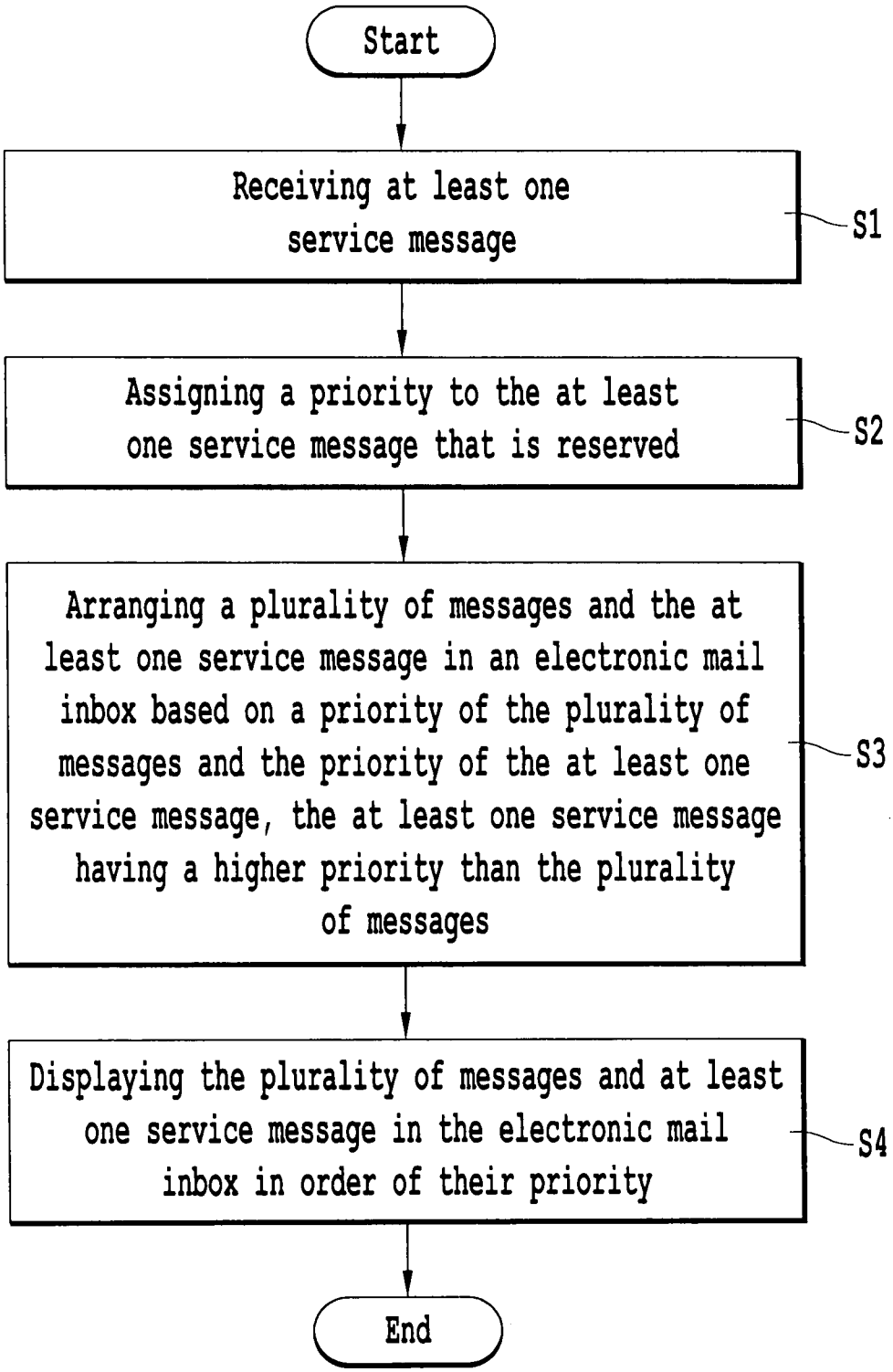
Start
Receiving at least one service message
S1
Assigning a priority to the at least one service message that is reserved
S2
Arranging a plurality of messages and the at least one service message in an electronic mail inbox based on a priority of the plurality of messages and the priority of the at least one service message, the at least one service message having a higher priority than the plurality of messages
S3
Displaying the plurality of messages and at least one service message in the electronic mail inbox in order of their priority
S4
End

Fig. 61

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/82450

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 15/16 (2008.04)
USPC - 709/203
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): G06F 15/16 (2008.04)
USPC: 709/203

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 709/201, 227, 230, 242 (keyword limited - see terms below)
IPC(8): G06F 15/16 (2008.04) (keyword limited - see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB,USPT,EPAB,JPAB); Google Scholar
Search Terms: messag, text, instant, IM, manag, administ, service, receiv, priorit, precedence, assign, set, arrang, organiz, display, mailbox, inbox, interrupt, rank, subscript, expir, roam, upgrad, correct, restor, renew, updat, pay, duration, mobile, disconnect

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 2006/0168074 A1 (Gardner et al.) 27 July 2006 (27.07.2006), entire document, especially; Fig. 1, 4A-1, 4A-2, 9, 13, 16A, 16B, 20A, 20B, para [0058], [0078], [0105], [0108], [0136], [0303]-[0304], [0330], [0331]	1-3, 5-8, 10-12, 14-17, 19-21, 23-26 ---------- 4, 9, 13, 18, 22, 27
Y	US 2007/0177584 A1 (Kubler et al.) 02 August 2007 (02.08.2007), Fig. 16A, 16B, para [0341], [0342]	4, 9, 13, 18, 22, 27
A	US 2005/0216421 A1 (Barry et al.) 29 September 2005 (29.09.2005), entire document	1 - 27
A	US 2003/0182383 A1 (He) 25 September 2003 (25.09.2003), entire document	1 - 27

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
05 December 2008 (05.12.2008)	22 DEC 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)