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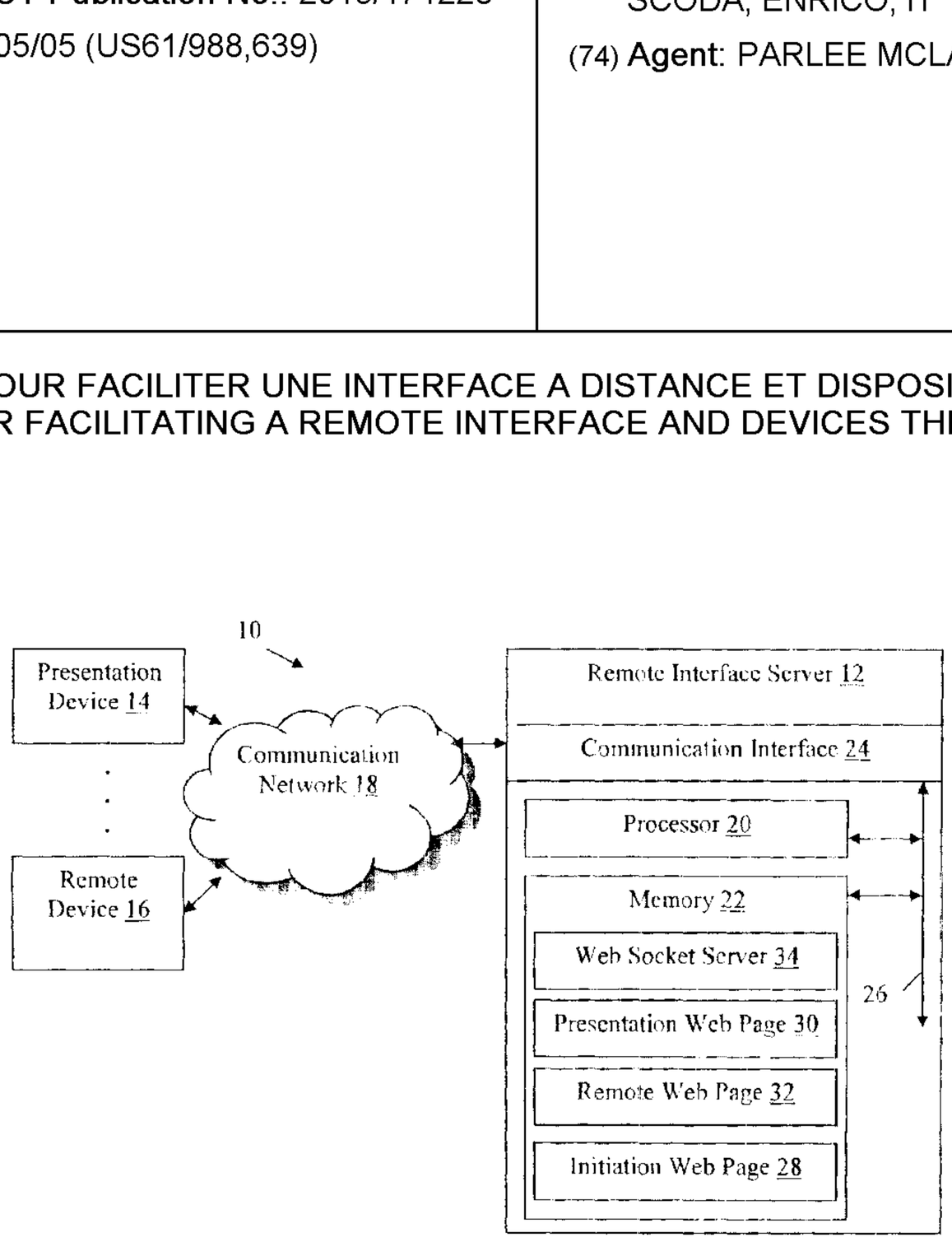

FIG. 1

(57) Abrégé/Abstract:
A method, non-transitory computer readable medium, remote interface server computing device, and system that provides a presentation web page to a presentation device and a remote web page to a remote device. The remote web page is configured to, when executed by the remote device, register the remote device as associated with the presentation device and render a swipe panel on a display of the remote device. A first message is received from the remote device in response to an interaction with the swipe panel. A second message is sent to the presentation device in response to receiving the first message. The second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

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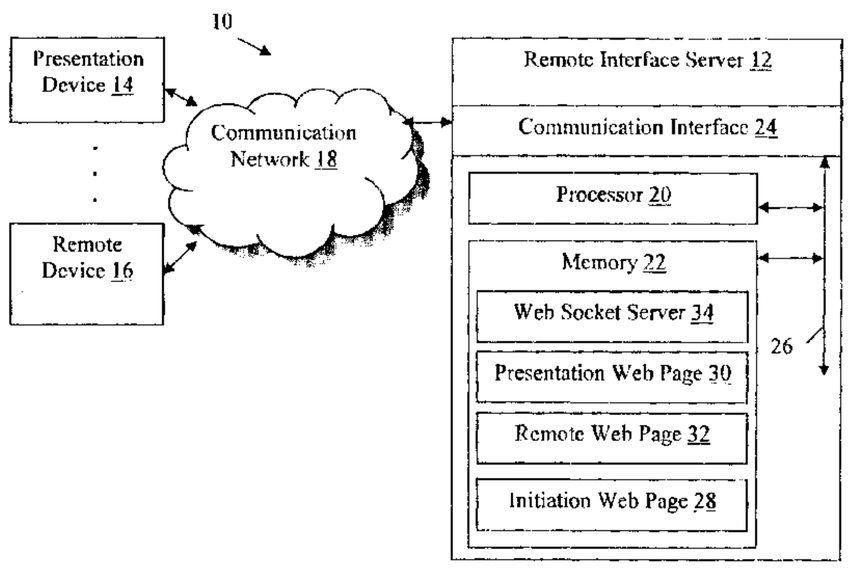

FIG. 1

(57) **Abstract**: A method, non-transitory computer readable medium, remote interface server computing device, and system that provides a presentation web page to a presentation device and a remote web page to a remote device. The remote web page is configured to, when executed by the remote device, register the remote device as associated with the presentation device and render a swipe panel on a display of the remote device. A first message is received from the remote device in response to an interaction with the swipe panel. A second message is sent to the presentation device in response to receiving the first message. The second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

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METHODS FOR FACILITATING A REMOTE INTERFACE AND DEVICES THEREOF

[0001] This application claims the benefit of U.S. Provisional Patent Application Serial No. 61/988,639 filed on May 5, 2014, which is hereby incorporated by reference in its entirety.

FIELD

[0002] This technology generally relates to kiosk and other presentation devices, and more particularly to methods and devices for facilitating a remote interface for interacting with such presentation devices.

BACKGROUND

[0003] Presentation devices, such as kiosks and other devices with relatively large screen sizes, are often available for interaction in commercial and other settings. Presentation devices can display product information associated with a catalog of available products for a retailer, for example, advertising information, or any other information directed to consumers or other members of the public.

[0004] The method of interaction with presentation devices is often through a multi-touch screen. However, such presentation devices are generally complex and have relatively high associated cost due to the multi-touch screens and required processing power. Additionally, presentation devices with relatively large screen sizes are currently unable to effectively present, and/or allow users to input, private information (e.g. personally identifiable information or credit card numbers) in a discreet manner.

SUMMARY

[0005] A method for facilitating a remote interface includes providing, by a remote interface server computing device, a presentation web page to a presentation device and a remote web page to a remote device. The remote web

page is configured to, when executed by the remote device, register the remote device as associated with the presentation device and render a swipe panel on a display of the remote device. A first message is received, by the remote interface server computing device, from the remote device in response to an interaction with the swipe panel. A second message is sent, by the remote interface server computing device, to the presentation device in response to receiving the first message. The second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

[0006] A non-transitory computer readable medium having stored thereon instructions for facilitating a remote interface comprising executable code which when executed by a processor, causes the processor to perform steps including providing a presentation web page to a presentation device and a remote web page to a remote device. The remote web page is configured to, when executed by the remote device, register the remote device as associated with the presentation device and render a swipe panel on a display of the remote device. A first message is received from the remote device in response to an interaction with the swipe panel. A second message is sent to the presentation device in response to receiving the first message. The second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

[0007] A remote interface server computing device including a processor and a memory coupled to the processor which is configured to be capable of executing programmed instructions comprising and stored in the memory to provide a presentation web page to a presentation device and a remote web page to a remote device. The remote web page is configured to, when executed by the remote device, register the remote device as associated with the presentation device and render a swipe panel on a display of the remote device. A first message is received from the remote device in response to an interaction with the swipe panel. A second message is sent to the presentation device in response to receiving the first message. The second message, when executed by the

presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

[0008] A system for facilitating a remote interface includes a remote interface server computing device including a first processor and a first memory coupled to the first processor. The first process is configured to be capable of executing programmed instructions comprising and stored in the first memory to provide a presentation web page to a presentation device and a remote web page to a remote device. The remote web page configured to, when executed by the remote device, register the remote device as associated with the presentation device and render at least a swipe panel on a display of the remote device. The system further includes a web socket server computing device including a second processor and a second memory coupled to the second processor. The second processor is configured to be capable of executing programmed instructions comprising and stored in the second memory to receive a first message from the remote device in response to a user interaction with the swipe panel. A second message is sent to the presentation device in response to receiving the first message. The second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

[0009] This technology provides a number of advantages including providing methods, non-transitory computer readable media, devices, and systems that facilitate remote interfaces for presentation devices. With this technology, presentation device (e.g., a kiosk) can be seamlessly controlled by a remote device (e.g., mobile phones) using messages exchanged based on the web socket protocol. By leveraging remote devices, this technology allows presentation devices to be less complex and less costly. Additionally, private information can be advantageously submitted without displaying the information in a visible format on the display of a presentation device

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a block diagram of a network environment with an exemplary remote interface server coupled to a presentation device and a remote device;

[0011] FIG. 2 is a block diagram of another network environment with an exemplary remote interface server coupled to a presentation device, a remote device, and a web socket server;

[0012] FIG. 3 is a flowchart of an exemplary method for facilitating a remote interface;

[0013] FIG. 4 is an exemplary initiation web page;

[0014] FIG. 5 is an exemplary presentation web page;

[0015] FIG. 6 is an exemplary remote web page;

[0016] FIG. 7 is an exemplary presentation web page;

[0017] FIG. 8 is an exemplary remote web page modified according to a horizontal swipe gesture with a swipe panel;

[0018] FIG. 9 is an exemplary presentation web page with input fields;

[0019] FIG. 10 is an exemplary remote web page with input fields;

[0020] FIG. 11 is an exemplary remote web page subsequent to user interaction with an edit button;

[0021] FIG. 12 is an exemplary remote web page with a virtual keyboard;

[0022] FIG. 13 is an exemplary presentation web page with input fields subsequent to a user editing content;

[0023] FIG. 14 is an exemplary presentation web page subsequent to user interaction with a play video button of a remote web page; and

[0024] FIG. 15 is an exemplary remote web page subsequent to user interaction with a play video button of the remote web page.

DETAILED DESCRIPTION

[0025] An exemplary network environment 10 with a remote interface server 12 coupled to a presentation device 14 and a remote device 16 is illustrated in FIG. 1. In this example, the remote interface server 12, presentation device 14, and remote device 16 are coupled together by at least one communication network 18, although other numbers and types of systems, devices, and/or elements in other configurations or network topologies can also be used. This technology provides a number of advantages including methods, non-transitory computer readable media, devices, and systems that facilitate a remote interfaces to effectively replicate, on the presentation device 14, user interactions with a web page rendered on the remote device 16 while maintaining information privacy.

[0026] The remote interface server 12 (also referred to herein as a remote interface server computing device) in this particular example is coupled to the presentation device 14 and the remote device 16 by the communication network 18 which can include one or more local area network(s) (LANs) and/or wide area network(s) (WANs). Other network devices configured to generate, send, and receive network communications and coupled together via other topologies can also be used. While not shown, the network environment 10 also may include additional network components, such as routers, switches and other devices, which are well known to those of ordinary skill in the art and thus will not be described here.

[0027] The remote interface server 12 may perform any number of functions including hosting and providing web content and facilitating communications between the presentation device 14 and the remote device 16 according to the web socket protocol, for example. In this example, the remote interface server 12 includes a processor 20, a memory 22, and a communication interface 24, which are coupled together by a bus 24 or other communication link,

although other numbers and types of components, parts, devices, systems, and elements in other configurations and locations can be used.

[0028] The processor 20 in the remote interface server 12 executes a program of stored instructions for one or more aspects of this technology, as described and illustrated by way of the embodiments herein, although the processor 20 could execute other numbers and types of programmed instructions. The processor 20 of the remote interface server 12 may include one or more central processing units or general purpose processors with one or more processing cores, for example.

[0029] The memory 24 in the remote interface server 12 stores these programmed instructions for one or more aspects of this technology, as described and illustrated herein, although some or all of the programmed instructions could be stored and/or executed elsewhere. Optionally, the memory 24 in this example stores a plurality of web pages including at least one initiation web page 28, presentation web page 30, and remote web page 32, as described and illustrated in more detail later. A variety of different types of memory storage devices, such as a random access memory (RAM), read only memory (ROM), hard disk drive(s), flash, solid state drive(s), or other computer readable medium which is read from and/or written to by a magnetic, optical, or other reading and/or writing system that is coupled to the processor, can be used for the memory 22 in the remote interface server 12.

[0030] In this particular example, the memory 24 also includes a web socket server 34. The web socket server 34 in this example is a software module that includes programmed instructions that, when executed by the processor, generate a web socket server configured to facilitate communications between the presentation device 14 and the remote device 16 according to the web socket protocol, as described and illustrated in more detail later.

[0031] The communication interface 24 in the remote interface server 12 is used to operatively couple and communicate between the remote interface server 12, the presentation device 14, and the remote device 16, which are all

coupled together via the communication network 18, although other types and numbers of communication networks or systems with other types and numbers of connections and configurations to other devices and elements can also be used. By way of example only, the communication network 18 can use TCP/IP over Ethernet and industry-standard protocols, including hypertext transfer protocol (HTTP), and/or secure HTTP (HTTPS), although other types and numbers of communication networks, such as a direct connection, modems and phone lines, e-mail, and wireless and hardwire communication technology, each having their own communications protocols, can be used.

[0032] The presentation device 14 and the remote device 16 in this particular example enable a user to request, receive, and interact with applications, web services, and content hosted by the remote interface server 12 using the communication network 18, although one or more of the presentation device 14 or remote device 16 could access content and utilize other types and numbers of applications from other sources and could provide a wide variety of other functions for the user.

[0033] Each of the presentation device 14 and remote device 16 in this example includes a processor, a memory, an input device, a display device, and a communication interface, which are coupled together by a bus or other communication link, although one or more of presentation device 14 or remote device 16 can include other numbers and types of components, parts, devices, systems, and elements in other configurations. The processor in each of the presentation device 14 and remote device 16 can execute a program of instructions stored in the memory the client device for one or more aspects of this technology, as described and illustrated herein, although the processor could execute other numbers and types of programmed instructions.

[0034] The input device in each of the presentation device 14 and remote device 16 can be used to input selections, such as a request for a particular web page or other content stored by the remote interface server 12 or another web content server, although the input device could be used to input other types of requests and data and interact with other elements. The input device can include

keypads, touch screens, and/or vocal input processing systems, although other types and numbers of input devices can also be used.

[0035] The display device in each of the presentation device 14 and remote device 16 can be used to show data and information to a user, such as web pages and other content retrieved from the remote interface server 12 or another web content server by way of example only. The display device in the presentation device 14 can be a television screen and the display device in the remote device 16 can be a mobile phone screen, for example, although other types and numbers of display devices could be used depending on the particular type of presentation device 14 and remote device 16. The communication interface in each of the presentation device 14 and remote device 16 can be used to operatively couple and communicate between the presentation device 14, remote device 16, and remote interface server 12 over the communication network 18.

[0036] By way of example only, the presentation device 14 can be relatively less mobile than the remote device 16 and can include a television, kiosk, or other device with a relatively large display as compared to that of the remote device 16, although other types of presentation devices can also be used. Accordingly, in some examples, the remote device 16 is relatively more mobile than the presentation device 14 and can be a smartphone, personal digital assistant, tablet, netbook, notebook, or other device with a relatively small display as compared to that of the presentation device 14, although other types of remote devices can also be used.

[0037] Referring more specifically to FIG. 2 another exemplary network environment 36 with a remote interface server 12 coupled to a presentation device 14, a remote device 16, and a web socket server 38 is illustrated. The remote interface server 12, presentation device 14, remote device 16, and communication network 18 in this example are the same as described and illustrated earlier with reference to FIG. 1 except that the remote interface server 12 does not includes the web socket server 24. Instead, in this particular example, the web socket server 38 is provided as a separate web socket server computing device in the environment 36 that is also configured to communicate with the presentation

device 14 and the remote device 16 via the communication network 18. Other network topologies and numbers of remote interface servers and/or web socket servers can also be provided in network environment 10 or 36.

[0038] The web socket server 38 in the particular example illustrated in FIG. 2 includes a processor 40, a memory 42, and a communication interface 44, which are coupled together by a bus 46 or other communication link, although other numbers and types of components, parts, devices, systems, and elements in other configurations and locations can be used. The processor 40 in the web socket server 38 executes a program of stored instructions one or more aspects of this technology, as described and illustrated by way of the embodiments herein, although the processor 40 could execute other numbers and types of programmed instructions. The processor 40 of the web socket server 38 may include one or more central processing units or general purpose processors with one or more processing cores, for example.

[0039] The memory 42 in the web socket server 38 stores these programmed instructions for one or more aspects of this technology, as described and illustrated herein, although some or all of the programmed instructions could be stored and/or executed elsewhere. A variety of different types of memory storage devices, such as a random access memory (RAM), read only memory (ROM), hard disk drive(s), flash, solid state drive(s), or other computer readable medium which is read from and/or written to by a magnetic, optical, or other reading and/or writing system that is coupled to the processor 40, can be used for the memory 42 in the web socket server 38.

[0040] The communication interface 44 in the web socket server 38 is used to operatively couple and communicate between the web socket server 38, the presentation device 14, and the remote device 16, which are all coupled together via the communication network 18, although other types and numbers of communication networks or systems with other types and numbers of connections and configurations to other devices and elements can also be used. By way of example only, the communication network 18 can use TCP/IP over Ethernet and industry-standard protocols, including hypertext transfer protocol (HTTP) and the

web socket protocol, although other types and numbers of communication networks, such as a direct connection, modems and phone lines, e-mail, and wireless and hardwire communication technology, each having their own communications protocols, can also be used.

[0041] The embodiments of the remote interface server 12, web socket server 38, presentation device 14, and remote device 16 are described and illustrated herein for exemplary purposes and many variations of the specific hardware and software used to implement the embodiments are possible, as will be appreciated by those skilled in the relevant art(s). Furthermore, each of the devices of the embodiments may be conveniently implemented using one or more general purpose computers, microprocessors, digital signal processors, and micro-controllers, programmed according to the teachings of the embodiments, as described and illustrated herein, and as will be appreciated by those ordinary skill in the art.

[0042] In addition, two or more computing apparatuses or devices can be substituted for any one of the devices in any embodiment described herein. Accordingly, principles and advantages of distributed processing, such as redundancy and replication also can be implemented, as desired, to increase the robustness and performance of the devices of the embodiments. The embodiments may also be implemented on computer apparatuses or devices that extend across any suitable network using any suitable interface mechanisms and communications technologies, including by way of example only telecommunications in any suitable form (e.g., voice and modem), wireless communications media, wireless communications networks, cellular communications networks, G3 communications networks, Public Switched Telephone Network (PSTNs), Packet Data Networks (PDNs), the Internet, intranets, and combinations thereof.

[0043] The embodiments may also be embodied as one or more non-transitory computer readable media having instructions stored thereon for one or more aspects of this technology as described and illustrated by way of the embodiments herein, as described herein, which when executed by a processor,

cause the processor to carry out the steps necessary to implement the methods of the embodiments, as described and illustrated herein.

[0044] An exemplary method for facilitating a remote interface will now be described with reference to FIGS. 1-15. Referring more specifically to FIG. 3, in step 300 in this example, the remote interface server 12 sends the initiation web page 28 to the presentation device 14 and registers the presentation device 14 with the web socket server 34 or 38. The remote interface server 12 can send the initiation web page 28 in response to a request for the initiation web page 28 received from the presentation device 14. In one example, the presentation device 14 is a smart television executing a web browser which facilitates the retrieval of the initiation web page 28 at the request of a user, although other types of presentation devices and other methods of providing the initiation web page 28 can also be used. Upon receipt of the initiation web page 28, the presentation device 14 executes JavaScript code included with the initiation web page 28, which is configured to communicate with the remote interface server 12 to register the presentation device 12 by establishing a connection between the presentation device and the web socket server 34 or 38.

[0045] In step 302, the remote interface server 12 sends a remote web page 32 to the remote device 16, registers the remote device 16 with the web socket server 34 or 38 as associated with the presentation device 14, and sends a presentation web page 30 to the presentation device 14. The remote web page 32 and presentation web page 30 can be sent by the remote interface server 12 in response to a request from the remote device 16 initiated based on an interaction by the remote device 16 with at least a portion of the initiation web page 28 rendered on the display of the presentation device 14.

[0046] Referring more specifically to FIG. 4, an exemplary initiation web page 28 is illustrated. In this example, the initiation web page 28 includes a portion with an interactive mode interface 400, which is a three dimensional bar code in this example, although other types of interactive mode interfaces and portions of the initiation web page 28 can also be used.

[0047] Accordingly, a user of the remote device 16 in this example can scan the interactive mode interface 400 which encodes at least a Uniform Resource Locator (URL) and causes a web browser executed by the remote device 16 to request the remote web page 32 located at the URL from the remote interface server 12, which sends the remote web page 32 to the remote device 16 in response. In this example, the remote web page 32 is configured to, when executed by the web browser of the remote device 16, register the remote device 16 with the web socket server 34 or 38 as associated with the presentation device 14.

[0048] Accordingly, the remote web page 32 can include JavaScript code executed by the remote device 16 that facilitates communication by the remote device 16 with the web socket server 34 or 38 to establish a connection between the remote device 16 and the web socket server 34 or 38, as well as an association with the presentation device 14. Optionally, the interactive mode interface 400 of the initiation web page 28 can further encode an identifier of the presentation device 14 which can be used to facilitate the association of the presentation device 14 and the remote device 16 with the web socket server 34 or 38. Other methods of initiating the association of the presentation device 14 and the remote device 16 with the web socket server 34 or 38 can also be used.

[0049] In response to receipt of the request from the remote device 16 for the remote web page 32, or in response to a subsequent communication to the remote interface server 12 by the remote device 16 executing the JavaScript code of the remote web page 32, the remote interface server 12 also sends the presentation web page 30 to the presentation device 14. The remote web page 32 and presentation web page 30 can be different versions of a same web page such that the remote web page 32 includes at least a portion of the content of the presentation web page 30, although other types of presentation and remote web pages can also be used.

[0050] Referring more specifically to FIG. 5, an exemplary presentation web page 30 is illustrated and referring more specifically to FIG. 6, an exemplary remote web page 32 is illustrated. In this example, the presentation web page 30

and remote web page 32 are different versions of the same web page as the presentation web page includes multiple panels that can be manipulated, as described and illustrated in more detail later, whereas the remote web page 32 is a mobile version of the web page which includes content of only one of the panels included in the presentation web page 30. The remote web page 32 is also configured to, when executed by the remote device 16, render a swipe panel 600, and optionally one or more buttons, on the display of the remote device 16. In this example, the swipe panel 600 includes the content of the panel corresponding to one of the panels of the presentation web page 30, although the swipe panel 600 can be located elsewhere in the web page and/or display of the remote device 16.

[0051] Referring back to FIG. 3, in step 304 the web socket server 34 or 38 receives a message from the remote device 16 in response to a user interaction with the remote web page 32. The message can comply with the web socket protocol and can be received by the web socket server 34 or 38 using the connection established with the remote device 16. Accordingly, the JavaScript code of the remote web page 32 executed by the remote device 16 can determine when a user has interacted with the remote web page 32 and send a message to the web socket server 34 or 38 corresponding to the interaction in response. The message can include information regarding the type of interaction and any other contextual information, for example.

[0052] In step 306, the web socket server 34 or 38 determines whether the user interaction corresponding to the message received in step 304 is a swipe panel interaction, and optionally whether the interaction was a horizontal or vertical swipe gesture, for example. If the web socket server 34 or 38 determines that the user interaction is a swipe panel interaction, then the Yes branch is taken to step 308. In step 308, the web socket server 34 or 38 sends a message to the presentation device 14 to cause the presentation device 14 to perform an action on the presentation web page 30 corresponding to the swipe panel interaction.

[0053] Referring more specifically to FIG. 7, a presentation web page 30 subsequent to performing an action corresponding to a horizontal swipe gesture with the swipe panel 600 of the remote web page 32 is illustrated. In this example,

the panel with a video illustrated in the foreground in FIG. 5 has been rotated to the left, such as by three dimensional rotation, for example, resulting in the modified presentation web page 30 illustrated in FIG. 7 in which a new panel has been rotated to the foreground.

[0054] Referring more specifically to FIG. 8, a remote web page 32 modified according to a horizontal swipe gesture with the swipe panel 600 of the remote web page 32 is illustrated. In this example, the panel with the video illustrated in the swipe panel 600 in FIG. 6 has been moved off screen, such as by two dimensional slide animation, for example, resulting in the modified remote web page 32 illustrated in FIG. 8 in which a new panel with different content has replaced the previous panel in the swipe panel 600.

[0055] In other examples, the user interaction can be a vertical swipe gesture and the action can be a vertical scroll. For example, a user can perform a vertical swipe gesture on the swipe panel 600 of the remote web page illustrated in FIG. 8 resulting in a vertical scroll action on the presentation web page 30 illustrated in FIG. 7. Other exemplary gestures and interactions with the swipe panel 600 and corresponding actions, as well as animations and rotations can also be used. Accordingly, in this example, a user of the remote device 16 can contemporaneously control the display of the presentation device 14, and in particular the presentation web page 30, without physically interacting with the presentation device 14 and using only the interface provided on the remote device 16 through the remote web page 32.

[0056] Referring back to FIG. 3, if the web socket server 34 or 38 determines that the user interaction is not a swipe panel interaction in step 306, then the No branch is taken to step 310. In step 310, the web socket server 34 or 38 determines whether the user interaction corresponding to the message received in step 304 is a save button interaction. If the web socket server 34 or 38 determines that the user interaction is a save button interaction, then the Yes branch is taken to step 312.

[0057] Optionally, the buttons of the remote web page 32 as rendered on the display of the remote device 16 can change based on functionality present in the remote web page 32 and/or presentation web page 30. For example, referring back to FIG. 6, the remote web page 32 includes play button 602 corresponding to the video content rendered in the swipe panel 600. Referring more specifically to FIG. 9, a presentation web page 30 with input fields 900 is illustrated and referring more specifically to FIG. 10, a remote web page 32 with the input fields 1000 is illustrated. In this example, the buttons are modified by the JavaScript code of the remote web page 32 to include an edit button 1002 corresponding to the content of the input fields 1000 of the remote web page 32.

[0058] Referring more specifically to FIG. 11, the remote web page 32 of FIG. 10 is illustrated subsequent to user interaction with the edit button 1002. Upon user interaction with the edit button 1002, the remote web page 32 is configured to render a save button 1100 in place of the edit button 1002 as well as editable input fields 1000 corresponding to the input fields 900 of the presentation web page 30 of FIG. 9. In this example, private information such as a credit card number is optionally obfuscated in the presentation web page 30 since the presentation web page 30 is rendered on a presentation device 14 which may have a relatively large display and/or may be visible to the environment or other members of the public. However, the editable input fields 1000 rendered by the remote web page 32 in response to the user interaction with the edit button 1002 are rendered without the obfuscation to allow user editing.

[0059] Referring more specifically to FIG. 12, optionally, the remote device 16 is configured to display a virtual keyboard 1200 upon user selection of one of the editable input fields 1000 allowing the user to edit the information. In this example, the user has edited the name, credit card number, and CVV fields. Upon entering the new information, the user can select the save button 1100 as illustrated in FIG. 11. In response to user selection of the save button 1100, the message received by the web socket server 34 or 38 in step 304 of FIG. 3 is sent by the remote device 16 and includes at least any information updated by the user.

[0060] In step 312, the web socket server 34 or 38 sends a message to the presentation device 14 including information included in the message received from the remote device 16 in step 304. Referring more specifically to FIG. 13, the presentation web page 30 with input fields 900 subsequent to user editing of the content is illustrated. In this example, any private information continues to be rendered in an obfuscated manner in the presentation web page 30 rendered on the display of the presentation device 14.

[0061] Referring back to FIG. 3, if the web socket server 34 or 38 determines in step 310 that the user interaction is not a save button interaction, then the No branch is taken to step 314. In step 314, the web socket server 34 or 38 determines whether the user interaction corresponding to the message received in step 304 is a video button interaction. If the web socket server 34 or 38 determines that the user interaction is a video button interaction, then the Yes branch is taken to step 316.

[0062] In step 316, the web socket server 34 or 38 sends a message to the presentation device 14 corresponding to the video button interacted with by the user of the remote device 16. Referring back to FIG. 6, user interaction with the play button 602, for example, can cause a message to be sent to the web socket server 34 or 38 which, in step 316 of FIG. 3, sends a message to the presentation device 16 to initiate the video of the presentation web page 30 in response. Referring more specifically to FIG. 14, the presentation web page 30 subsequent to user interaction with the play button 602 of the remote web page 32 is illustrated.

[0063] In FIG. 15, the remote web page 32 subsequent to user interaction with the play button 602 of the remote web page 32 is illustrated. Optionally, in this example, the remote web page 32 is configured to convert the swipe panel 600 to indicate that the video is playing and to render a pause button 1500 in place of the play button 602, although the remote web page 32 can be configured to provide other functionality in response to the user interaction with the play button 602. In another example, user interaction with the pause button 1500 of the remote web page 32 can be determined in step 316, which can cause a message to

be sent to the presentation device 14 to pause the video of the presentation web page 30 in response. In yet other examples, a stop button can be rendered on the remote web page 32 and any other type of button can also be used.

[0064] Referring back to FIG. 3, in step 318, the web socket server 34 or 38 optionally determines whether a message is received from the presentation device 14 in response to the message sent to the presentation device 14 in step 316 in examples in which the video button interaction is a user interaction with a play button 602. Optionally, one or more callbacks can be received by the web socket server 34 or 38 from the presentation device 14 after any of the messages sent in the after any of steps 308, 312, or 316. However, in this example, the message received from the presentation device 14 in step 318 optionally includes video information (e.g., elapsed time) and/or a URL. The URL can correspond with content displayed in the video. For example, if the video is of a model on a runway at a fashion show, the URL can point to content including information regarding an article of the clothing worn by the model including associated cost and purchase information.

[0065] Accordingly, if the web socket server 34 or 38 determines that a message is received from the presentation device 14 in step 318, then the Yes branch is taken to step 320. In step 320, the web socket server 34 or 38 sends a message to the remote device 16 in response to the message received from the presentation device 14 in step 316. The message sent by the web socket server 34 or 38 in step 320 can include the video information and/or the URL included in the message received from the presentation device 14 in step 318. In response, the remote web page 32 can be configured to render the video information and/or content located at the URL on the display of the remote device 16, such as on the swipe panel 600 for example.

[0066] Referring back to step 318, if the web socket server determines a message is not received from the presentation device 14, then the No branch is taken back to step 304 and the web socket server 34 or 38 receives another message from the remote device 16 in response to a subsequent user interaction with the remote web page 32. Referring back to step 314, if the web socket server

34 or 38 determines that the user interaction is not a video button interaction, then the No branch is taken to step 322. In step 322, the web socket server 34 or 38 sends a message to the presentation device 14, if necessary, to reproduce activity associated with the remote web page 32.

[0067] Accordingly, while the swipe panel, save button, and video button user interactions have been described and illustrated earlier by way of example only, other interactions with the remote web page 32 are possible. In response to the user interactions, the remote web page 32 is configured to send a message to the web socket server 34 or 38, if necessary, which is configured to identify the associated presentation device 14 and send a corresponding message to the presentation device 14 to modify the presentation web page 30 accordingly. Thereby, a user of the remote device 16 interacting with the remote web page 32 can effectively control the presentation web page 30 rendered on the display of the presentation device 14.

[0068] Accordingly, with this technology, presentation devices can be seamlessly controlled by remote devices using messages exchanged based on the web socket protocol. As the remote devices are used to facilitate an interface, using specially programmed web pages and without any dedicated hardware or software, the presentation devices can be less complex and less costly and do not require multi-touch displays or any other physical interfaces. Additionally, private information can be advantageously submitted, such as with respect to facilitating product purchases, without displaying the information in a visible format on the display of the presentation device, which is visible publicly in many environments.

[0069] Having thus described the basic concept of the invention, it will be rather apparent to those skilled in the art that the foregoing detailed disclosure is intended to be presented by way of example only, and is not limiting. Various alterations, improvements, and modifications will occur and are intended to those skilled in the art, though not expressly stated herein. These alterations, improvements, and modifications are intended to be suggested hereby, and are within the spirit and scope of the invention. Additionally, the recited order of

processing elements or sequences, or the use of numbers, letters, or other designations therefore, is not intended to limit the claimed processes to any order except as may be specified in the claims. Accordingly, the invention is limited only by the following claims and equivalents thereto.

CLAIMS

What is claimed is:

1. A method for facilitating a remote interface, the method comprising:

providing, by a remote interface server computing device, a presentation web page to a presentation device and a remote web page to a remote device, the remote web page configured to, when executed by the remote device, register the remote device as associated with the presentation device and render at least a swipe panel on a display of the remote device;

receiving, by the remote interface server computing device, a first message from the remote device in response to a received indication of a user interaction with the swipe panel; and

sending, by the remote interface server computing device, a second message to the presentation device in response to receiving the first message, wherein the second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

2. The method of claim 1, further comprising providing, by the remote interface server computing device, an initiation web page to the presentation device, the initiation web page configured to register the presentation device and to establish a first connection with a web socket server, wherein:

the remote web page is further configured to register the remote device as associated with the presentation device and to establish a second connection with the web socket server;

the first and second messages comply with a web socket protocol; and

the presentation and remote web pages are provided to the presentation and remote devices, respectively, in response to a received indication of an interaction by the remote device with at least a portion of the initiation web page.

3. The method of claim 1, wherein the received indication of the user interaction further comprises a received indication of at least one of:

a horizontal swipe gesture resulting in a first panel transition on the remote device and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a second panel transition; or

a vertical swipe gesture and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a vertical scroll.

4. The method of claim 1, wherein:

the remote web page is further configured to, when executed by the remote device, render an edit button on the display of the remote device;

the presentation web page further comprises a first input field with obfuscated sensitive information; and

the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the edit button, render an editable second input field with the sensitive information visible on the display of the remote device.

5. The method of claim 1, wherein the remote web page is further configured to, when executed by the remote device, render a play button on the display of the remote device, the presentation web page and the remote web page comprise a video, the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the play button, modify the swipe panel to display information retrieved using a uniform resource locator (URL), and the method further comprises:

receiving, by the remote interface server computing device, a third message from the remote device in response to a user selection of the play button;

sending, by the remote interface server computing device, a fourth message to the presentation device in response to the third message, the

fourth message indicating to the presentation device that the video has been initiated;

receiving, by the remote interface server computing device, a fifth message from the presentation device, the fifth message including the URL; and

sending, by the remote interface server computing device, a sixth message to the remote device in response to the fifth message, the sixth message including the URL.

6. A remote interface server computing device, comprising a processor and a memory coupled to the processor which is configured to be capable of executing programmed instructions comprising and stored in the memory to:

provide a presentation web page to a presentation device and a remote web page to a remote device, the remote web page configured to, when executed by the remote device, register the remote device as associated with the presentation device and render at least a swipe panel on a display of the remote device;

receive a first message from the remote device in response to a received indication of a user interaction with the swipe panel; and

send a second message to the presentation device in response to receiving the first message, wherein the second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

7. The remote interface server computing device of claim 6, wherein the processor is further configured to be capable of executing at least one additional programmed instruction comprising and stored in the memory to provide an initiation web page to the presentation device, the initiation web page configured to register the presentation device and to establish a first connection with a web socket server, wherein:

the remote web page is further configured to register the remote device as associated with the presentation device and to establish a second connection with the web socket server;

the first and second messages comply with a web socket protocol; and

the presentation and remote web pages are provided to the presentation and remote devices, respectively, in response to a received indication of an interaction by the remote device with at least a portion of the initiation web page.

8. The remote interface server computing device of claim 6, wherein the received indication of the user interaction further comprises a received indication of at least one of:

a horizontal swipe gesture resulting in a first panel transition on the remote device and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a second panel transition; or

a vertical swipe gesture and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a vertical scroll.

9. The remote interface server computing device of claim 6, wherein:

the remote web page is further configured to, when executed by the remote device, render an edit button on the display of the remote device;

the presentation web page further comprises a first input field with obfuscated sensitive information; and

the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the edit button, render an editable second input field with the sensitive information visible on the display of the remote device.

10. The remote interface server computing device of claim 6, wherein the remote web page is further configured to, when executed by the remote device, render a play button on the display of the remote device, the presentation web page and the remote web page comprise a video, the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the play button, modify the swipe panel to display information retrieved using a uniform resource locator (URL), and the processor is further configured to be capable of executing at least one additional programmed instruction comprising and stored in the memory to:

receive a third message from the remote device in response to a user selection of the play button;

send a fourth message to the presentation device in response to the third message, the fourth message indicating to the presentation device that the video has been initiated;

receive a fifth message from the presentation device, the fifth message including the URL; and

send a sixth message to the remote device in response to the fifth message, the sixth message including the URL.

11. A non-transitory computer readable medium having stored thereon instructions for facilitating a remote interface comprising executable code which when executed by a processor, causes the processor to perform steps comprising:

providing a presentation web page to a presentation device and a remote web page to a remote device, the remote web page configured to, when executed by the remote device, register the remote device as associated with the presentation device and render at least a swipe panel on a display of the remote device;

receiving a first message from the remote device in response to a received indication of a user interaction with the swipe panel; and

sending a second message to the presentation device in response to receiving the first message, wherein the second message, when executed by the presentation device, is configured to cause the presentation device

to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

12. The non-transitory computer readable medium of claim 11, wherein the executable code when executed by the processor further causes the processor to perform at least one additional step comprising providing an initiation web page to the presentation device, the initiation web page configured to register the presentation device and to establish a first connection with a web socket server, wherein:

the remote web page is further configured to register the remote device as associated with the presentation device and to establish a second connection with the web socket server;

the first and second messages comply with a web socket protocol; and

the presentation and remote web pages are provided to the presentation and remote devices, respectively, in response to a received indication of an interaction by the remote device with at least a portion of the initiation web page.

13. The non-transitory computer readable medium of claim 11, wherein the received indication of the user interaction further comprises a received indication of at least one of:

a horizontal swipe gesture resulting in a first panel transition on the remote device and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a second panel transition; or

a vertical swipe gesture and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a vertical scroll.

14. The non-transitory computer readable medium of claim 11, wherein:

the remote web page is further configured to, when executed by the remote device, render an edit button on the display of the remote device;

the presentation web page further comprises a first input field with obfuscated sensitive information; and

the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the edit button, render an editable second input field with the sensitive information visible on the display of the remote device.

15. The non-transitory computer readable medium of claim 11, wherein the remote web page is further configured to, when executed by the remote device, render a play button on the display of the remote device, the presentation web page and the remote web page comprise a video, the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the play button, modify the swipe panel to display information retrieved using a uniform resource locator (URL), and the executable code when executed by the processor further causes the processor to perform at least one additional step comprising:

receiving a third message from the remote device in response to a user selection of the play button;

sending a fourth message to the presentation device in response to the third message, the fourth message indicating to the presentation device that the video has been initiated;

receiving a fifth message from the presentation device, the fifth message including the URL; and

sending a sixth message to the remote device in response to the fifth message, the sixth message including the URL.

16. A system for facilitating a remote interface, the system comprising:

a remote interface server computing device comprising a first processor and a first memory coupled to the first processor which is

configured to be capable of executing programmed instructions comprising and stored in the first memory to:

provide a presentation web page to a presentation device and a remote web page to a remote device, the remote web page configured to, when executed by the remote device, register the remote device as associated with the presentation device and render at least a swipe panel on a display of the remote device; and

a web socket server computing device comprising a second processor and a second memory coupled to the second processor which is configured to be capable of executing programmed instructions comprising and stored in the second memory to:

receive a first message from the remote device in response to a user interaction with the swipe panel; and

send a second message to the presentation device in response to receiving the first message, wherein the second message, when executed by the presentation device, is configured to cause the presentation device to perform an action on the presentation web page corresponding to the user interaction with the swipe panel.

17. The system of claim 16, wherein the first processor is further configured to be capable of executing at least one additional programmed instruction comprising and stored in the first memory to provide an initiation web page to the presentation device, the initiation web page configured to register the presentation device and to establish a first connection with the web socket server computing device, wherein:

the remote web page is further configured to register the remote device as associated with the presentation device and to establish a second connection with the web socket server computing device;

the first and second messages comply with a web socket protocol; and

the presentation and remote web pages are provided to the presentation and remote devices, respectively, in response to a received indication

of an interaction by the remote device with at least a portion of the initiation web page.

18. The system of claim 16, wherein the received indication of the user interaction further comprises a received indication of at least one of:

a horizontal swipe gesture resulting in a first panel transition on the remote device and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a second panel transition; or

a vertical swipe gesture and the second message, when executed by the presentation device, is configured to cause the presentation device to execute a vertical scroll.

19. The system of claim 16, wherein:

the remote web page is further configured to, when executed by the remote device, render an edit button on the display of the remote device;

the presentation web page further comprises a first input field with obfuscated sensitive information; and

the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the edit button, render an editable second input field with the sensitive information visible on the display of the remote device.

20. The system of claim 16, wherein the remote web page is further configured to, when executed by the remote device, render a play button on the display of the remote device, the presentation web page and the remote web page comprise a video, the remote web page is further configured to, when executed by the remote device and in response to receiving a user selection of the play button, modify the swipe panel to display information retrieved using a uniform resource locator (URL), and the second processor is further configured to be capable of executing at least one additional programmed instruction comprising and stored in the second memory to:

receive a third message from the remote device in response to a user selection of the play button;

send a fourth message to the presentation device in response to the third message, the fourth message indicating to the presentation device that the video has been initiated;

receive a fifth message from the presentation device, the fifth message including the URL; and

send a sixth message to the remote device in response to the fifth message, the sixth message including the URL.

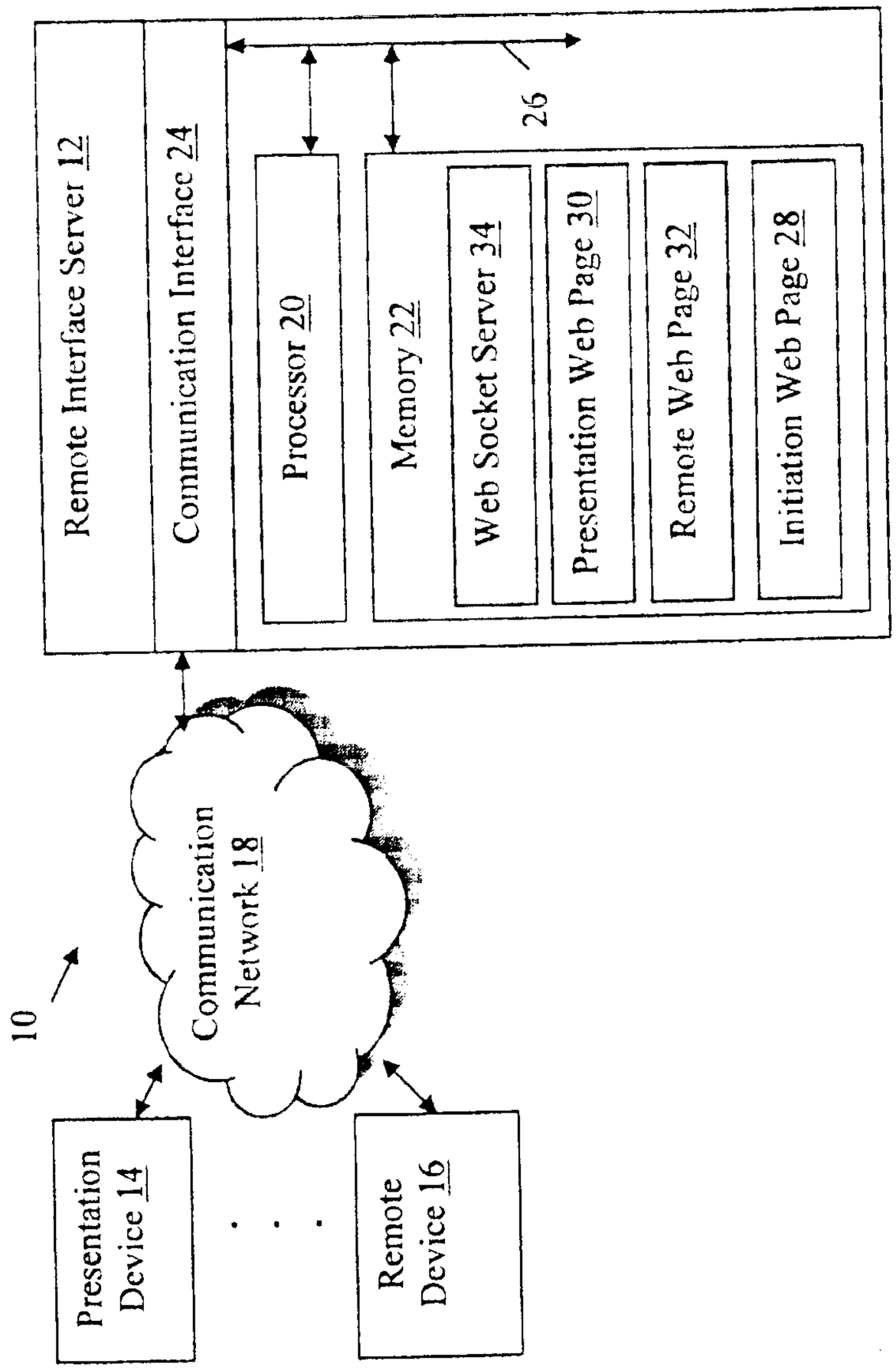
Remote Interface Server 12
Communication Interface 24
Processor 20
Memory 22
Web Socket Server 34
Presentation Web Page 30
Remote Web Page 32
Initiation Web Page 28
26
10
Communication Network 18
Presentation Device 14
Remote Device 16

FIG. 1

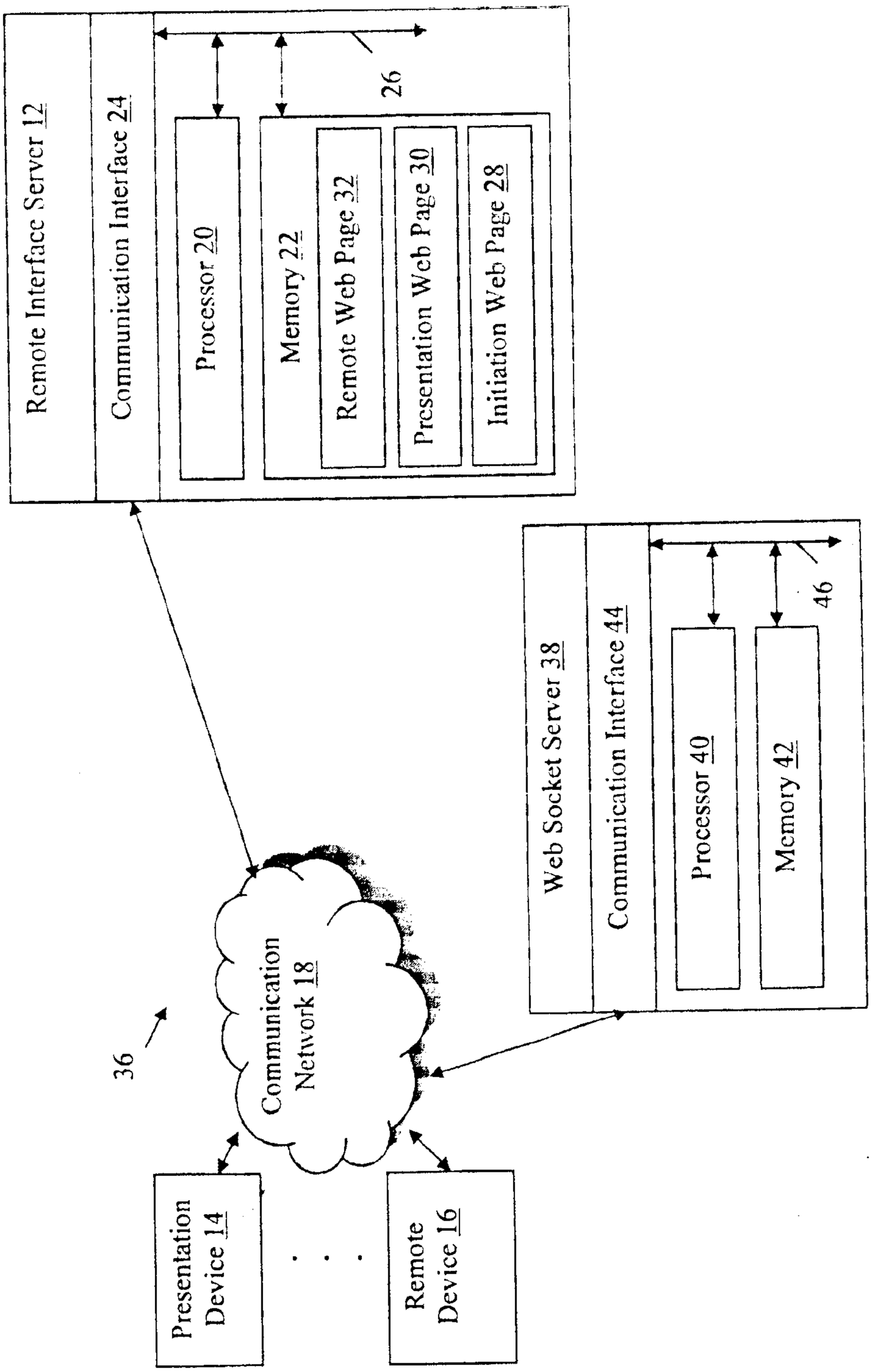
Remote Interface Server 12
Communication Interface 24
Processor 20
Memory 22
Remote Web Page 32
Presentation Web Page 30
Initiation Web Page 28
26
Communication Network 18
36
Web Socket Server 38
Communication Interface 44
Processor 40
Memory 42
46
Presentation Device 14
Remote Device 16

FIG. 2

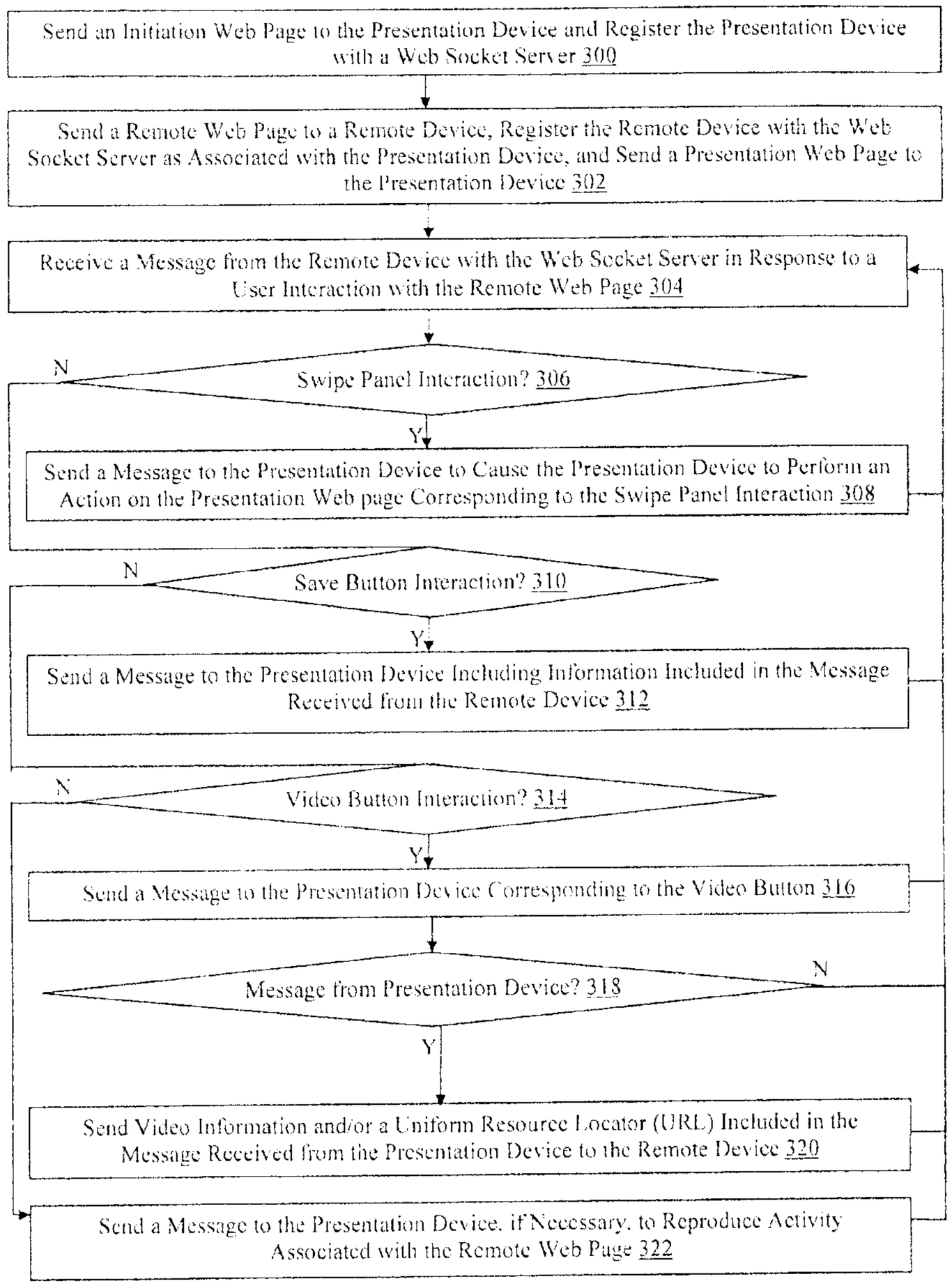
Send an Initiation Web Page to the Presentation Device and Register the Presentation Device with a Web Socket Server 300
Send a Remote Web Page to a Remote Device, Register the Remote Device with the Web Socket Server as Associated with the Presentation Device, and Send a Presentation Web Page to the Presentation Device 302
Receive a Message from the Remote Device with the Web Socket Server in Response to a User Interaction with the Remote Web Page 304
Swipe Panel Interaction? 306
N
Y
Send a Message to the Presentation Device to Cause the Presentation Device to Perform an Action on the Presentation Web page Corresponding to the Swipe Panel Interaction 308
Save Button Interaction? 310
N
Y
Send a Message to the Presentation Device Including Information Included in the Message Received from the Remote Device 312
Video Button Interaction? 314
N
Y
Send a Message to the Presentation Device Corresponding to the Video Button 316
Message from Presentation Device? 318
N
Y
Send Video Information and/or a Uniform Resource Locator (URL) Included in the Message Received from the Presentation Device to the Remote Device 320
Send a Message to the Presentation Device, if Necessary, to Reproduce Activity Associated with the Remote Web Page 322

FIG. 3

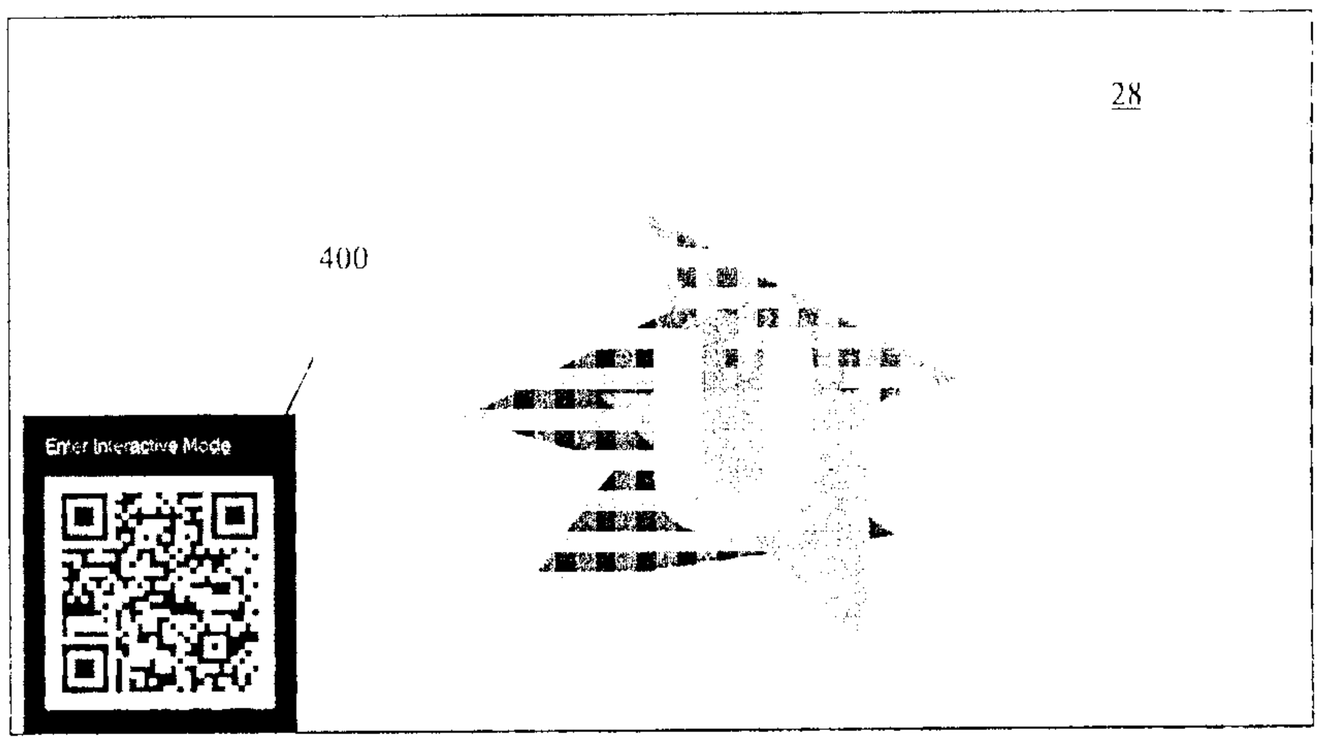

FIG. 4

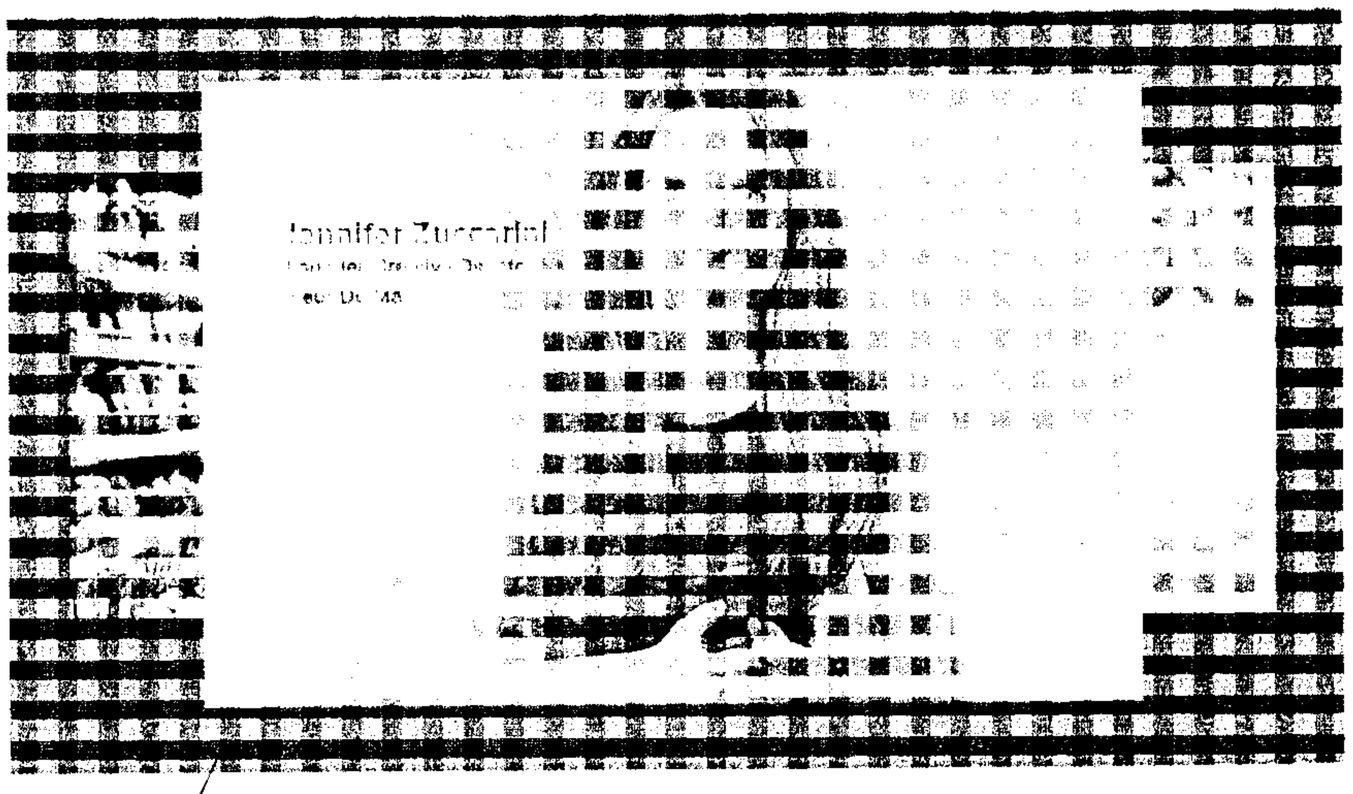

FIG. 5

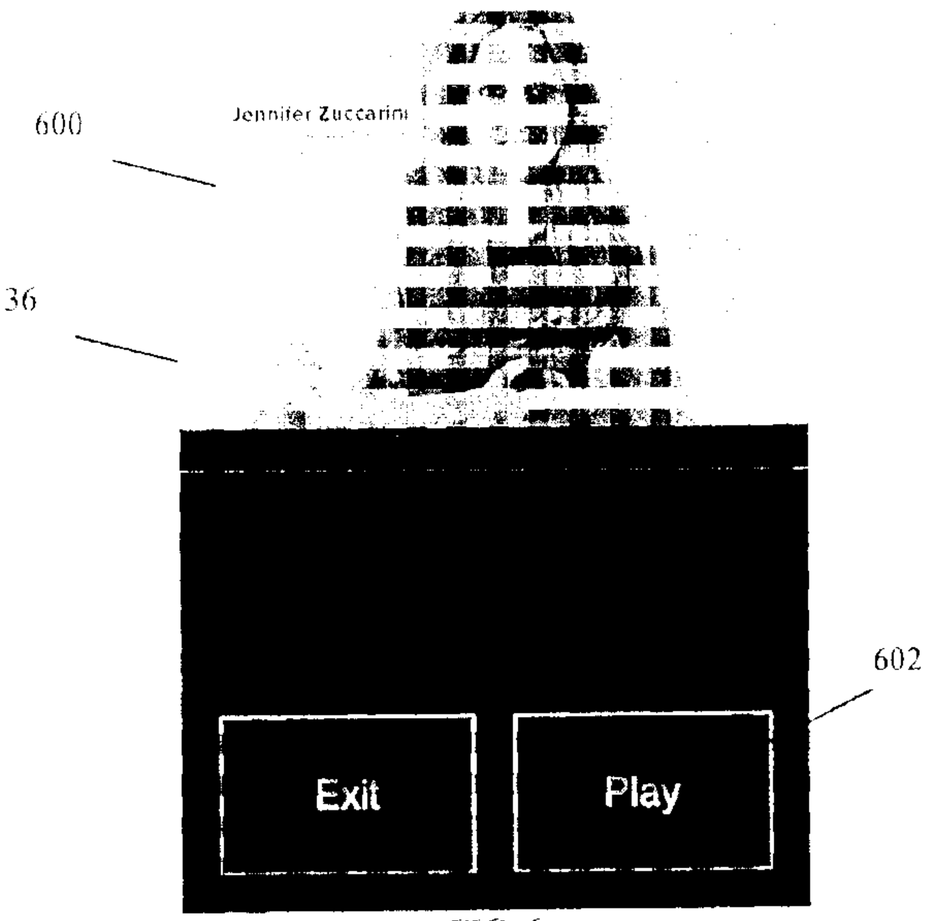
600
Jennifer Zuccarini
36
602
Exit
Play

FIG. 6

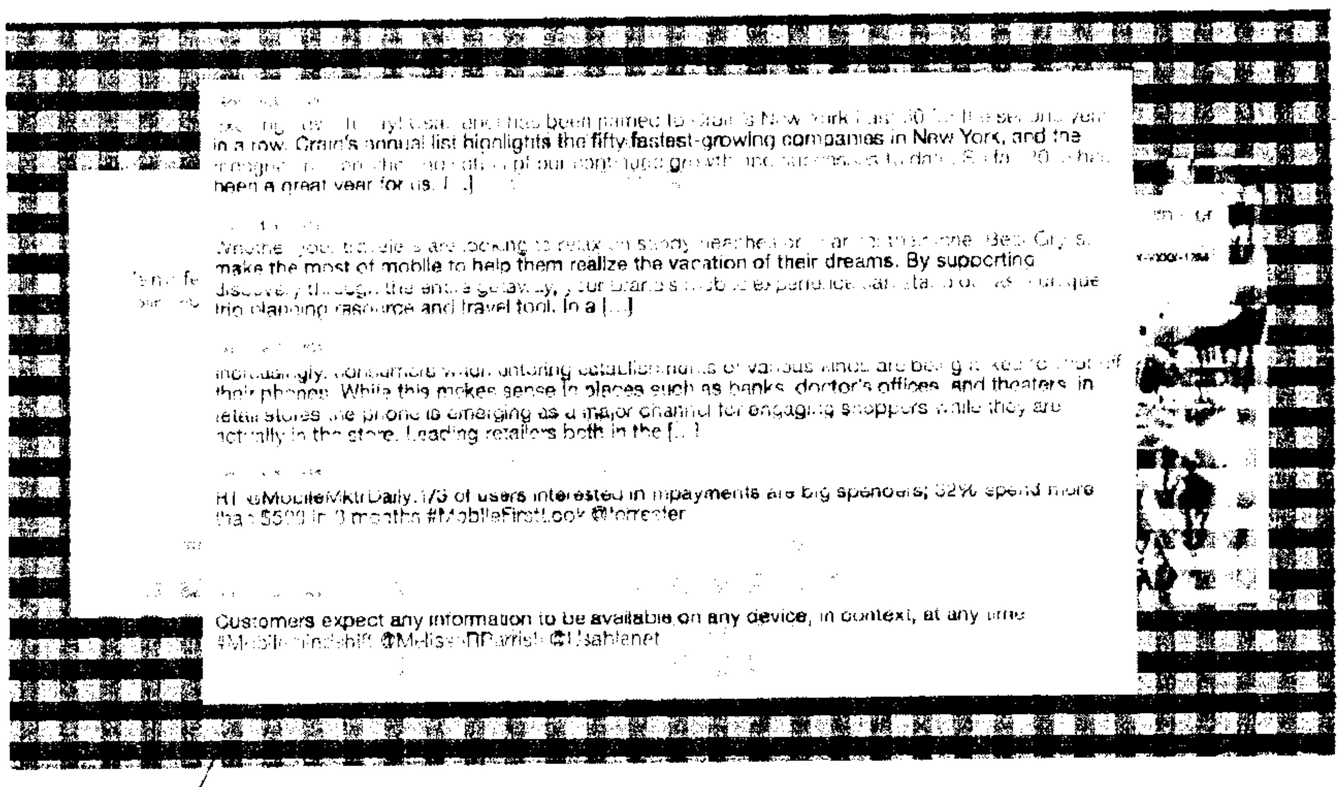
in a row. Crain's annual list highlights the fifty fastest-growing companies in New York, and the
been a great year for us. [...]
make the most of mobile to help them realize the vacation of their dreams. By supporting
trip planning resource and travel tool. In a [...]
their phones. While this makes sense in places such as banks, doctor's offices, and theaters, in
actually in the store. Leading retailers both in the [...]
RT @MobileMktDaily: 1/3 of users interested in mpayments are big spenders; 32% spend more
than $500 in 3 months #MobileFirstLook @forrester
Customers expect any information to be available on any device, in context, at any time
30

FIG. 7

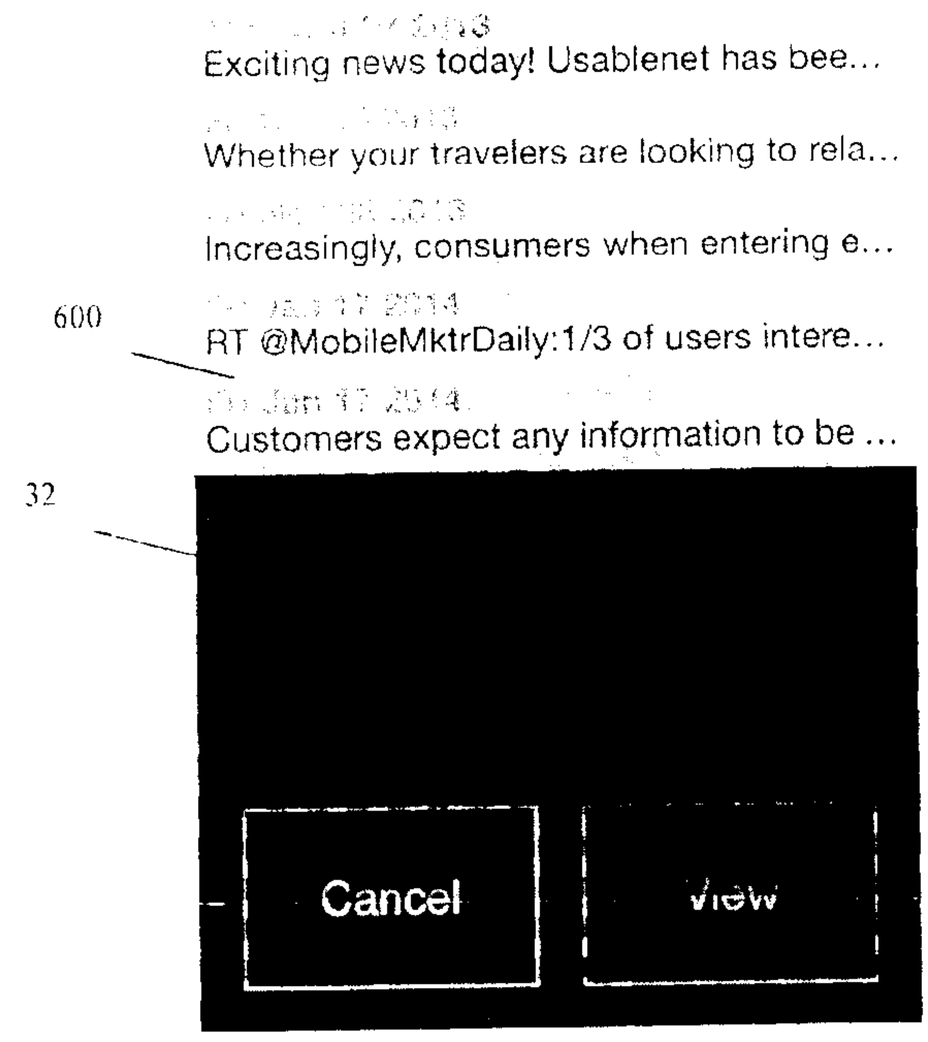
Exciting news today! Usablenet has bee...
Whether your travelers are looking to rela...
Increasingly, consumers when entering e...
600
RT @MobileMktrDaily:1/3 of users intere...
Customers expect any information to be ...
32
Cancel
View

FIG. 8

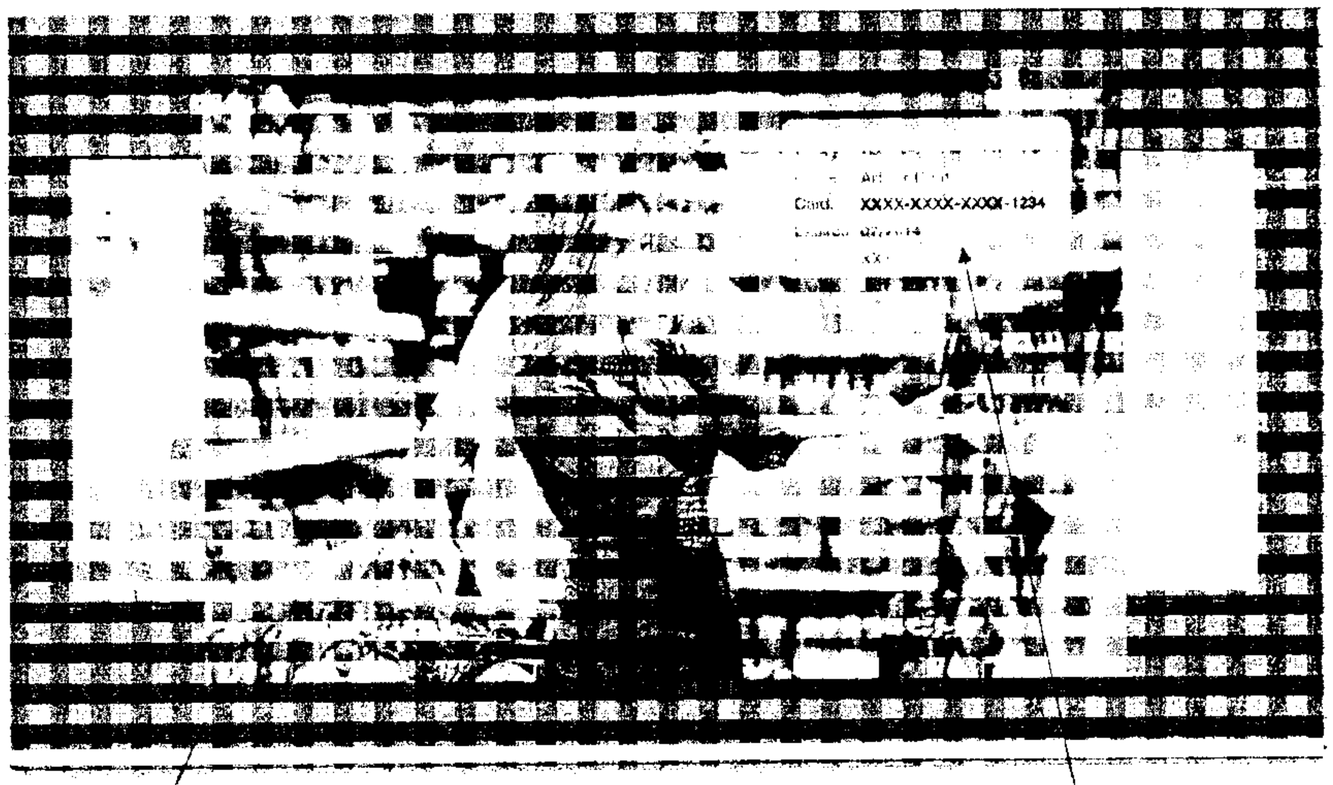
Card XXXX-XXXX-XXXX-1234
900

FIG. 9

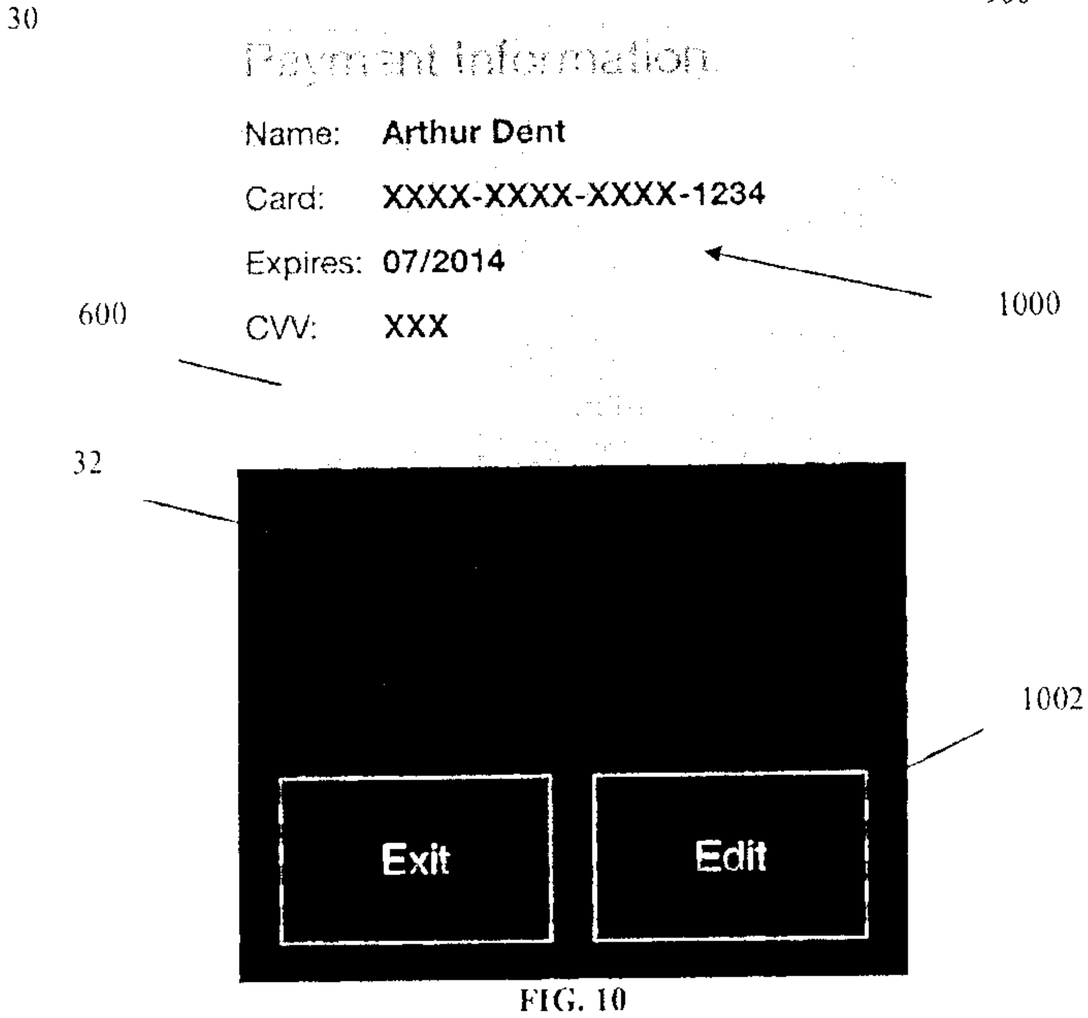
30
Payment Information
Name: Arthur Dent
Card: XXXX-XXXX-XXXX-1234
Expires: 07/2014
CVV: XXX
600
1000
32
Exit
Edit
1002

FIG. 10

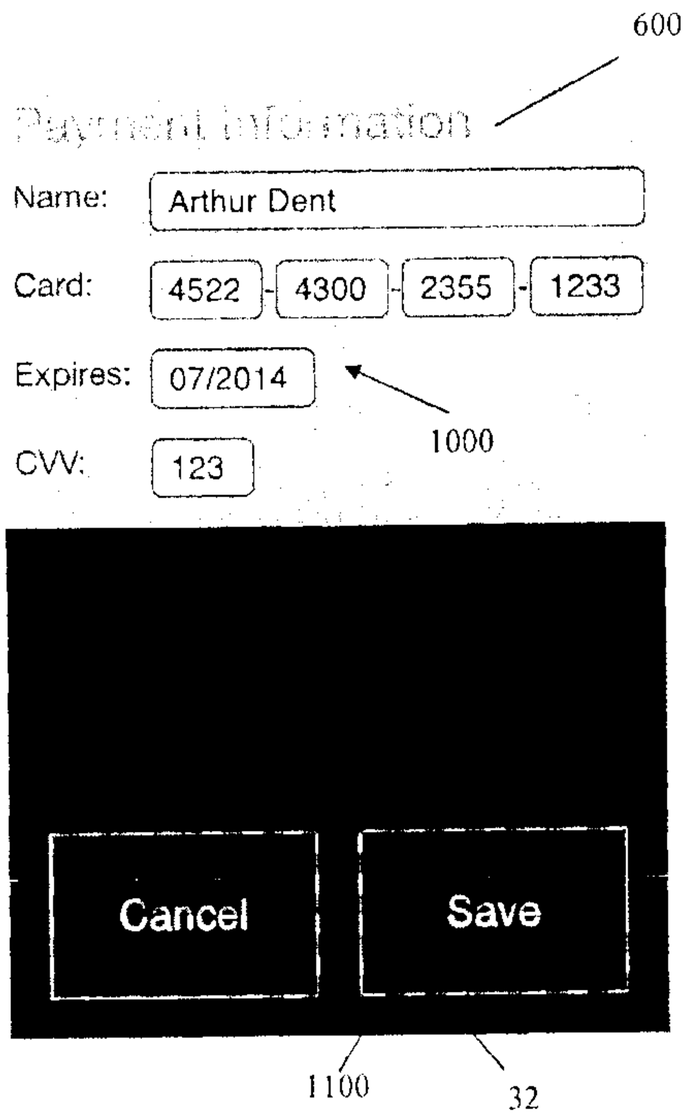
600
Payment Information
Name: Arthur Dent
Card: 4522 4300 2355 1233
Expires: 07/2014
CVV: 123
1000
Cancel
Save
1100
32

FIG. 11

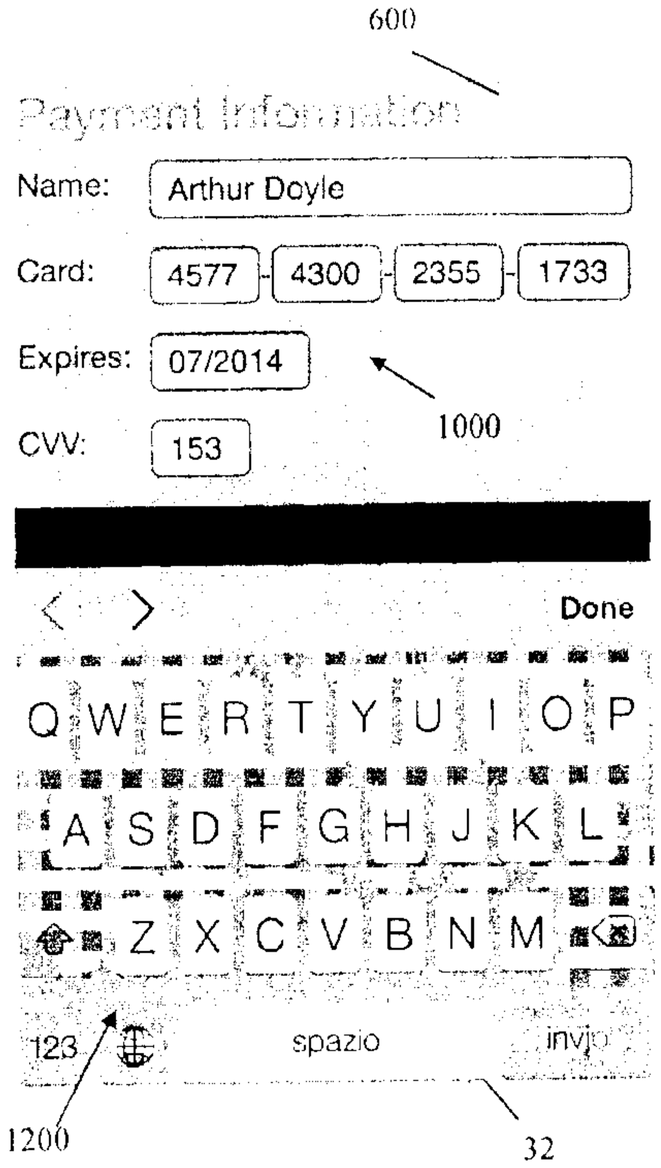
600
Payment Information
Name: Arthur Doyle
Card: 4577 4300 2355 1733
Expires: 07/2014
CVV: 153
1000
Done
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
spazio
invio
1200
32

FIG. 12

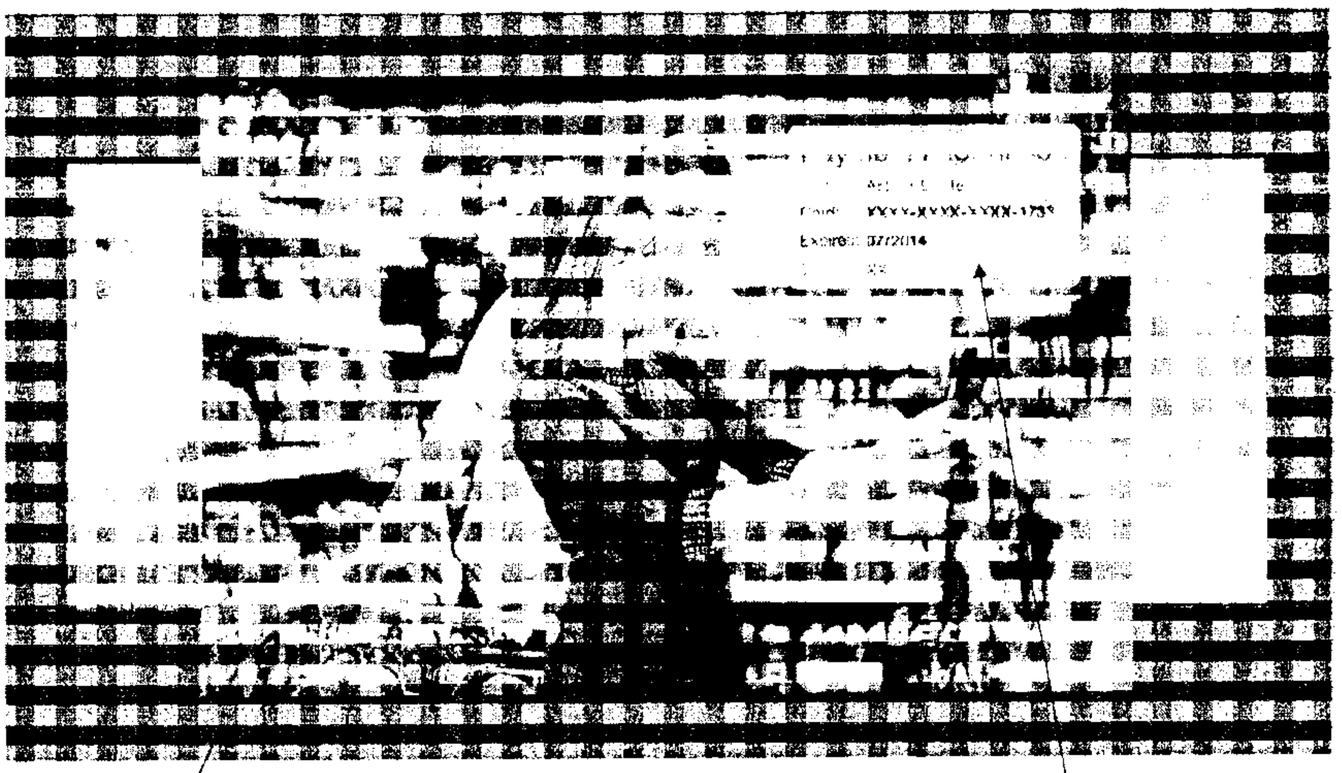

FIG. 13

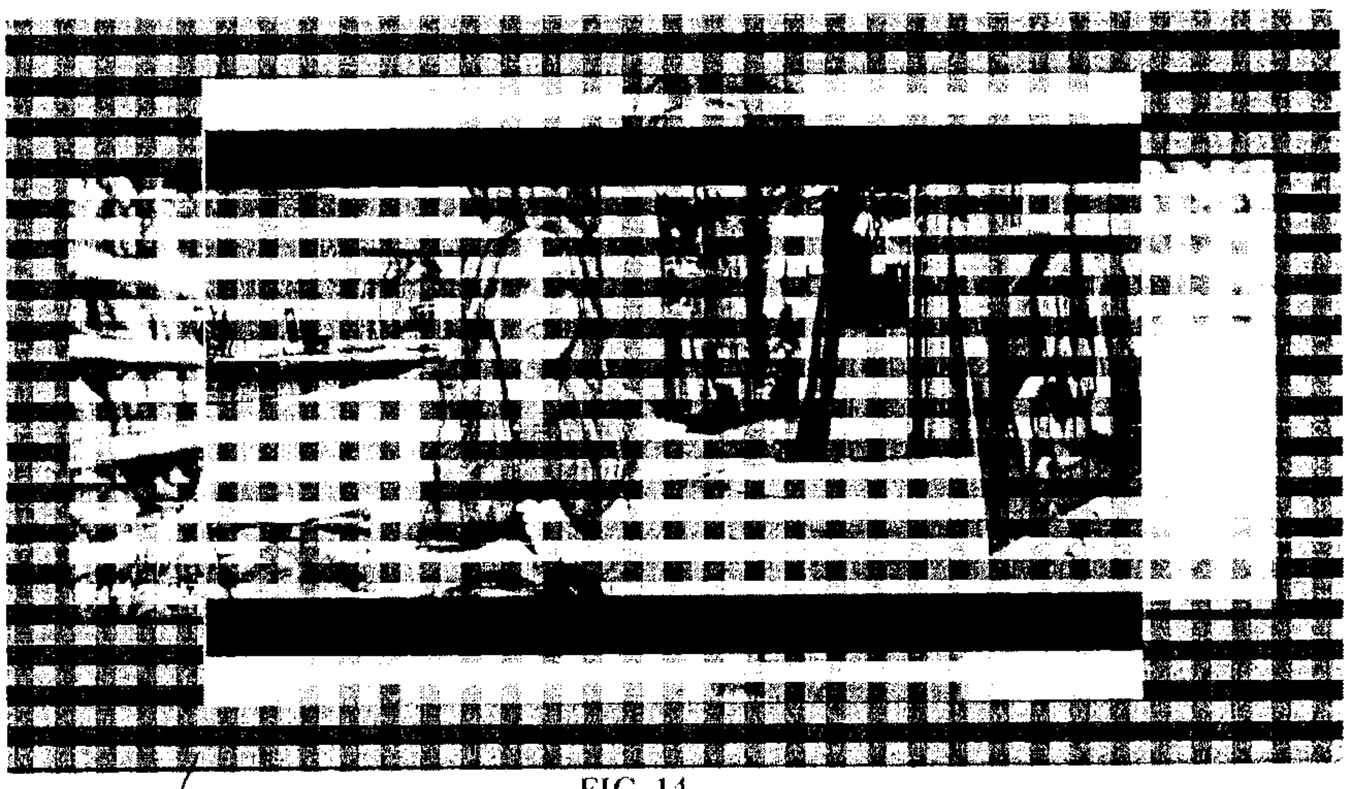

FIG. 14

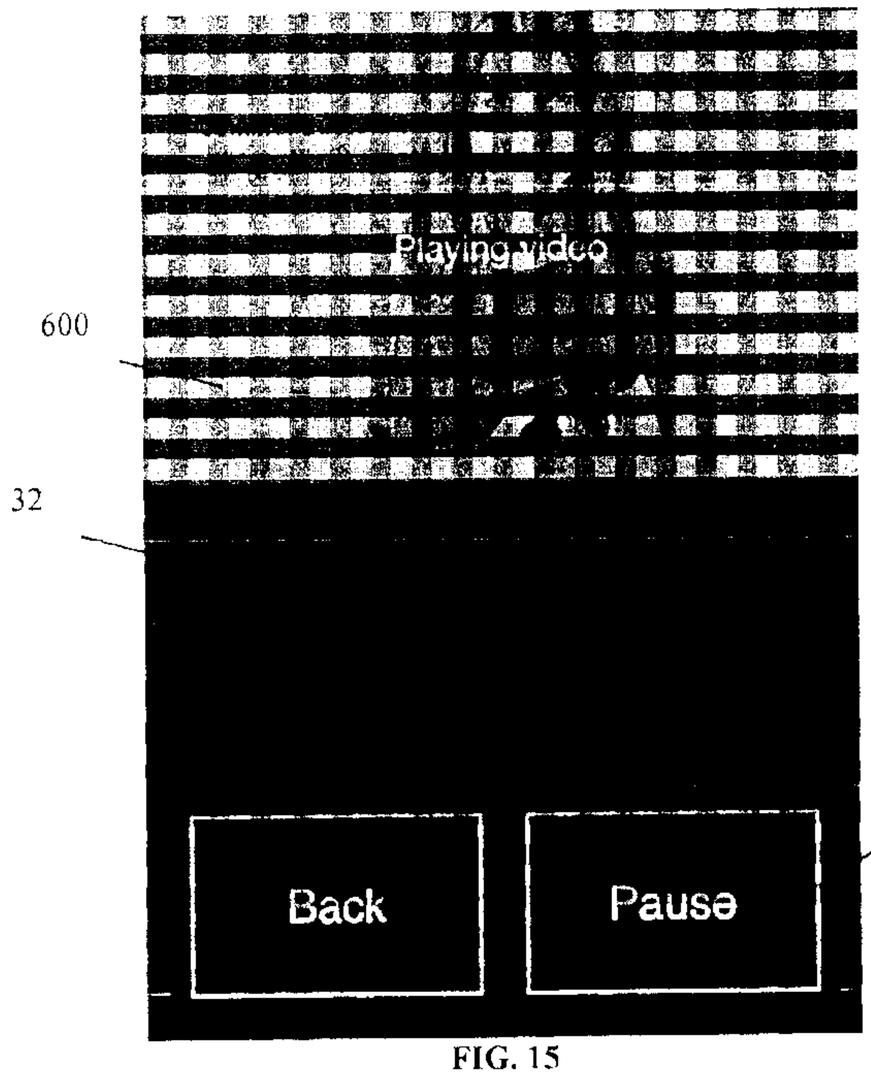

FIG. 15

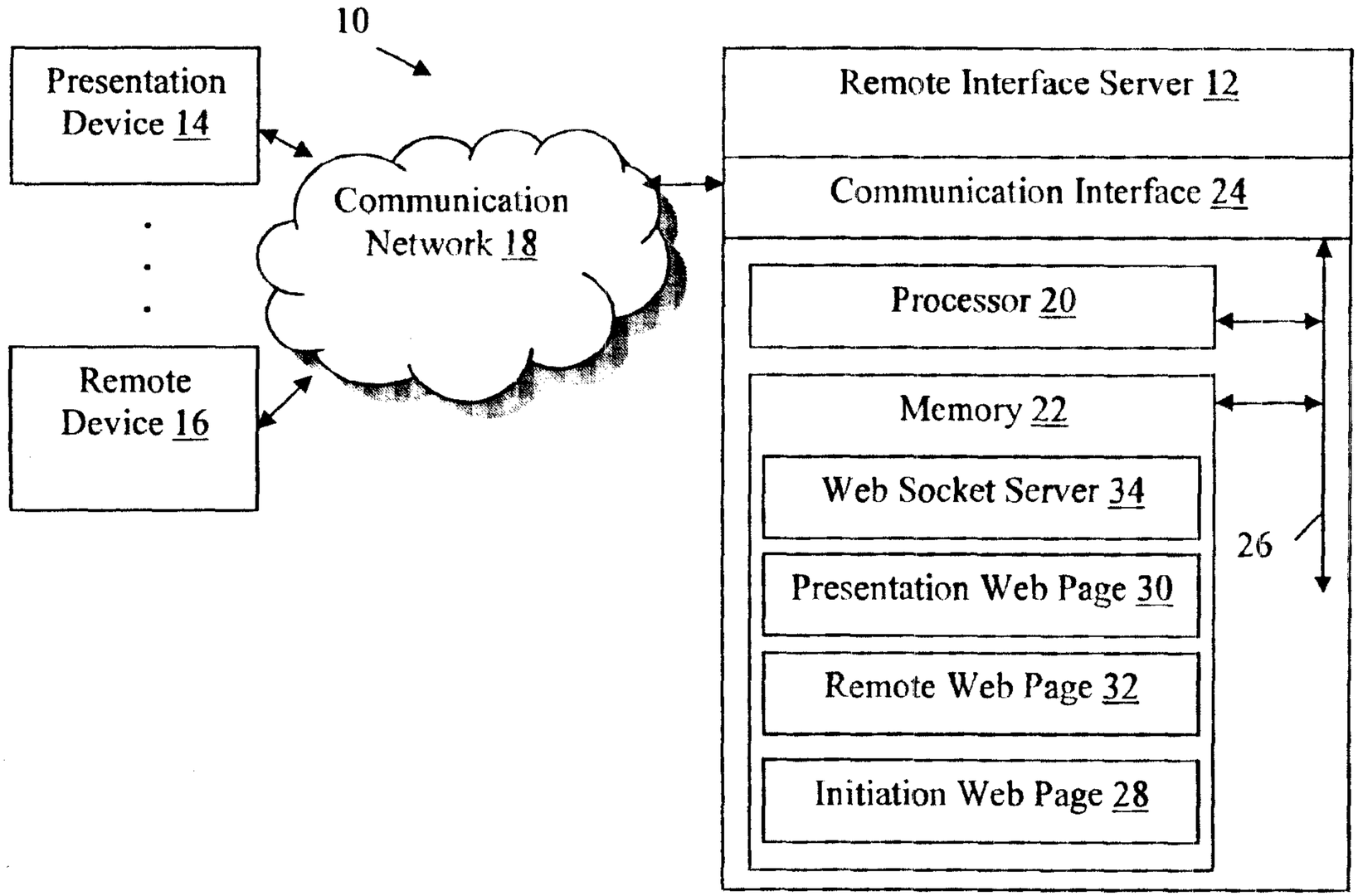
10
Presentation Device 14
Remote Device 16
Communication Network 18
Remote Interface Server 12
Communication Interface 24
Processor 20
Memory 22
Web Socket Server 34
Presentation Web Page 30
Remote Web Page 32
Initiation Web Page 28
26

FIG. 1