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Tanaka

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(54) **IMAGE DISPLAY CONTROL DEVICE, AND IMAGE DISPLAY CONTROL METHOD**

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(Continued)

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CPC ***G06F 3/04817*** (2013.01); ***G06F 3/0482*** (2013.01); ***G06F 3/0483*** (2013.01); ***G06F 3/04842*** (2013.01); *G06F 2203/04804* (2013.01)

(58) **Field of Classification Search**
CPC ... G06F 3/0481; G06F 3/0483; G06F 3/04817
See application file for complete search history.

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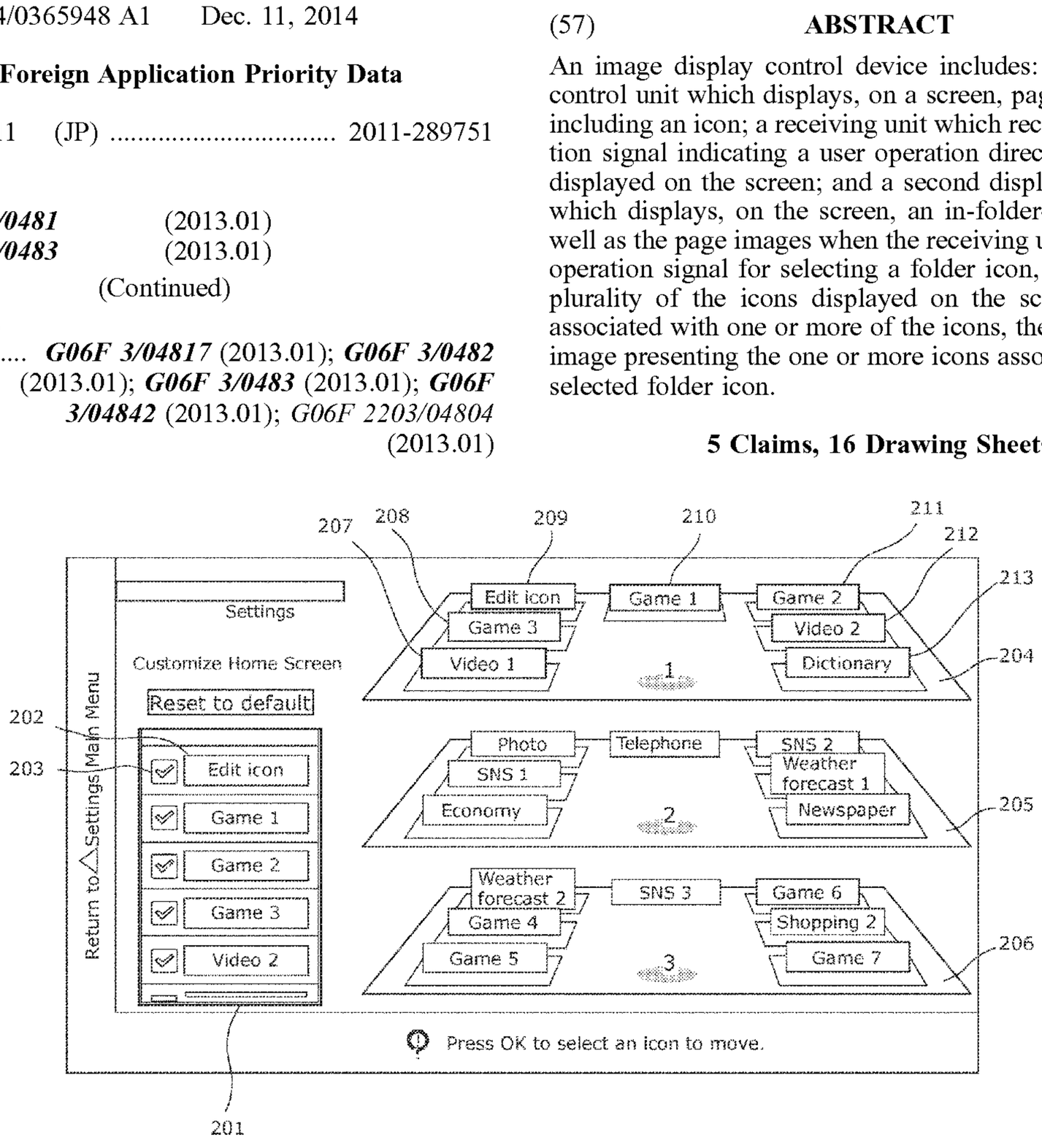
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Primary Examiner — Phenuel S Salomon
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(57) **ABSTRACT**

An image display control device includes: a first display control unit which displays, on a screen, page images each including an icon; a receiving unit which receives an operation signal indicating a user operation directed to the icon displayed on the screen; and a second display control unit which displays, on the screen, an in-folder-icon image as well as the page images when the receiving unit receives an operation signal for selecting a folder icon, from among a plurality of the icons displayed on the screen, which is associated with one or more of the icons, the in-folder-icon image presenting the one or more icons associated with the selected folder icon.

5 Claims, 16 Drawing Sheets



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G06F 3/0482 (2013.01)

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FIG. 1

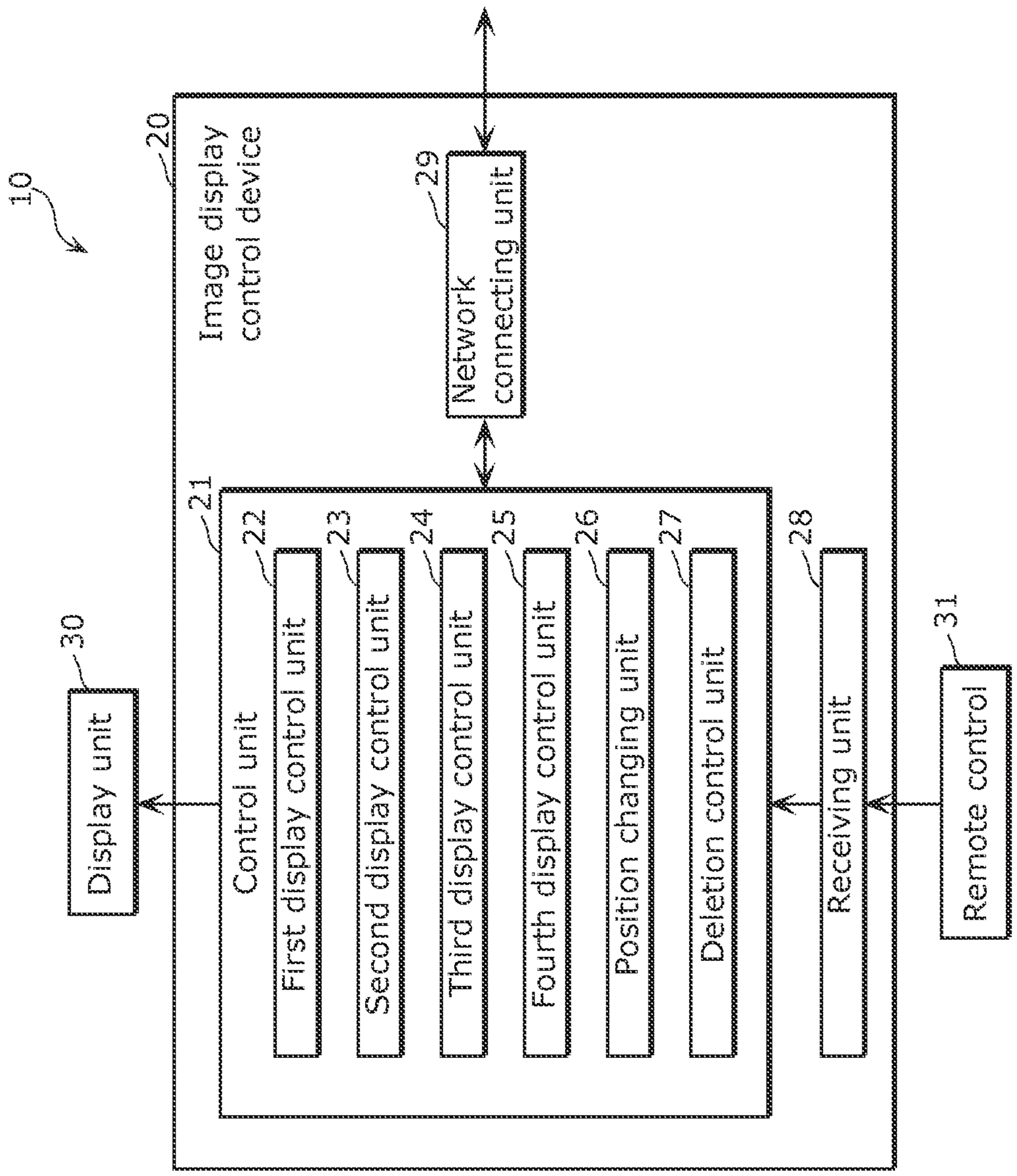

10
20
Image display control device
29
Network connecting unit
21
Control unit
22
First display control unit
23
Second display control unit
24
Third display control unit
25
Fourth display control unit
26
Position changing unit
27
Deletion control unit
28
Receiving unit
30
Display unit
31
Remote control

FIG. 2

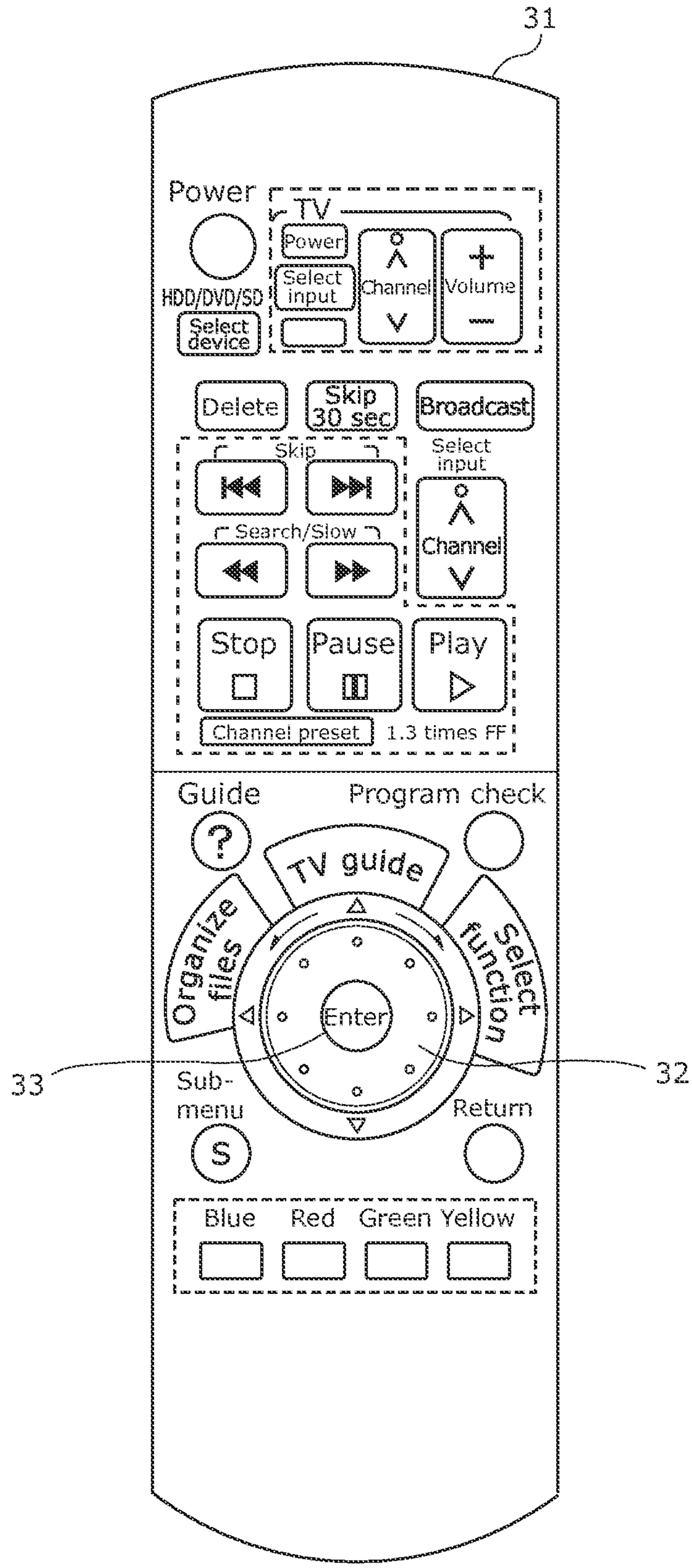

31
Power
TV
Power
Select input
Channel
Volume
HDD/DVD/SD
Select device
Delete
Skip 30 sec
Broadcast
Skip
Search/Slow
Select input
Channel
Stop
Pause
Play
Channel preset
1.3 times FF
Guide
Program check
TV guide
Organize files
Select function
Enter
Sub-menu
Return
S
Blue
Red
Green
Yellow
33
32

FIG. 3

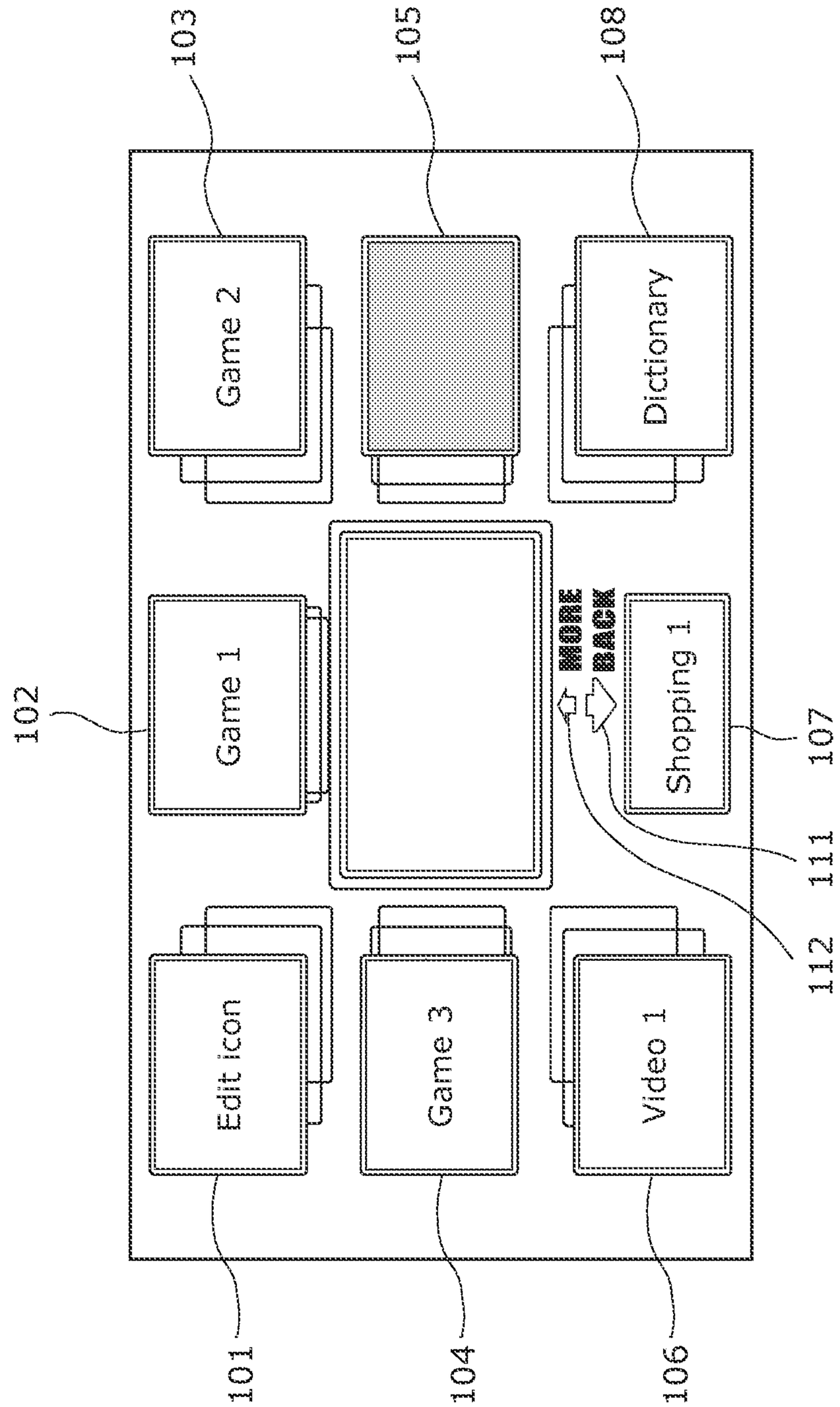

103
105
108
Game 2
Dictionary
102
Game 1
MORE
BACK
Shopping 1
107
111
112
Edit icon
Game 3
Video 1
101
104
106

FIG. 4

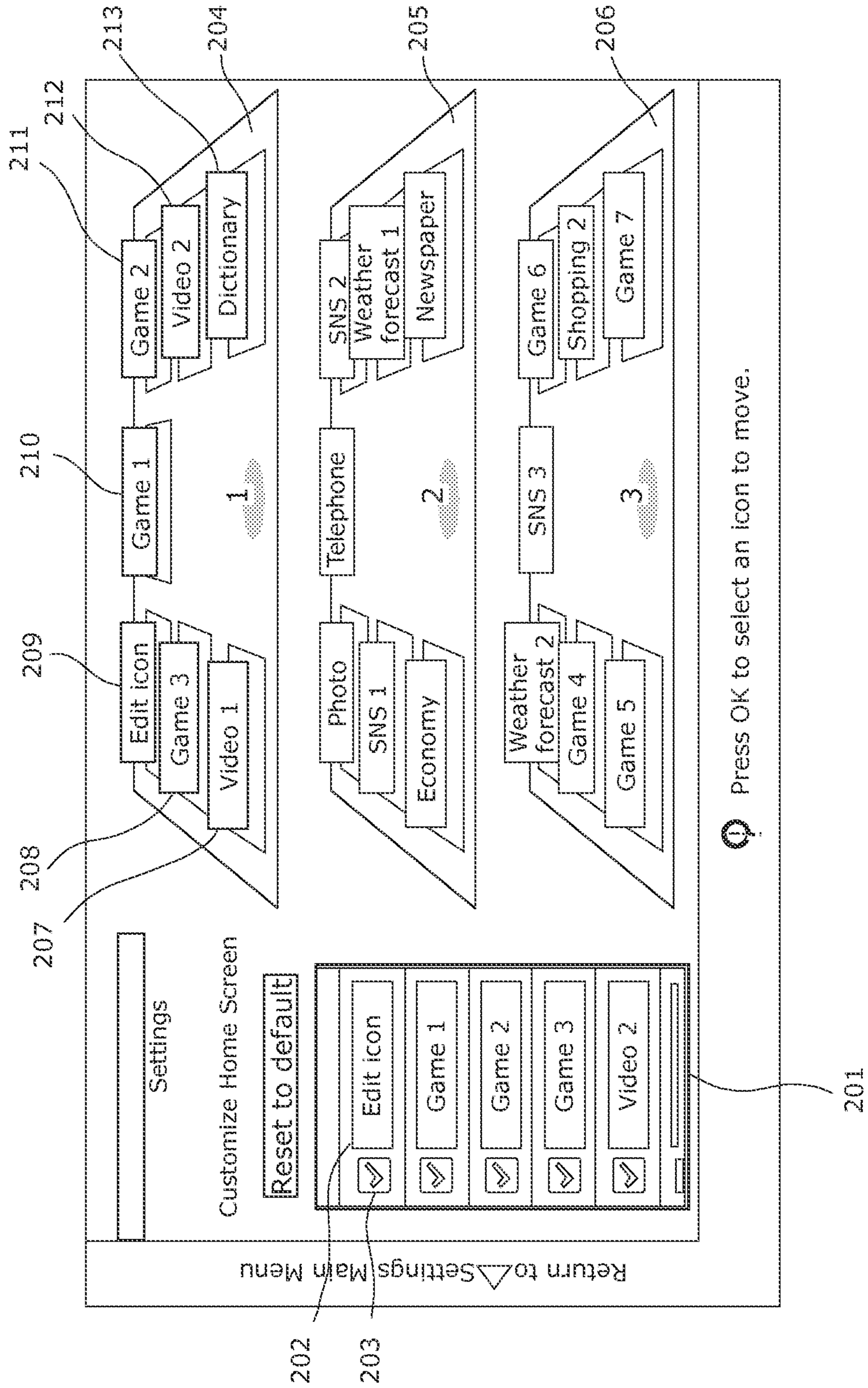

211
212
213
204
205
206
Game 2
Video 2
Dictionary
SNS 2
Weather forecast 1
Newspaper
Game 6
Shopping 2
Game 7
210
Game 1
1
209
Edit icon
Game 3
Video 1
Photo
Telephone
SNS 1
Economy
2
208
Weather forecast 2
SNS 3
Game 4
Game 5
3
207
Settings
Customize Home Screen
Reset to default
Edit icon
Game 1
Game 2
Game 3
Video 2
Press OK to select an icon to move.
Return to Settings Main Menu
201
202
203

FIG. 5A

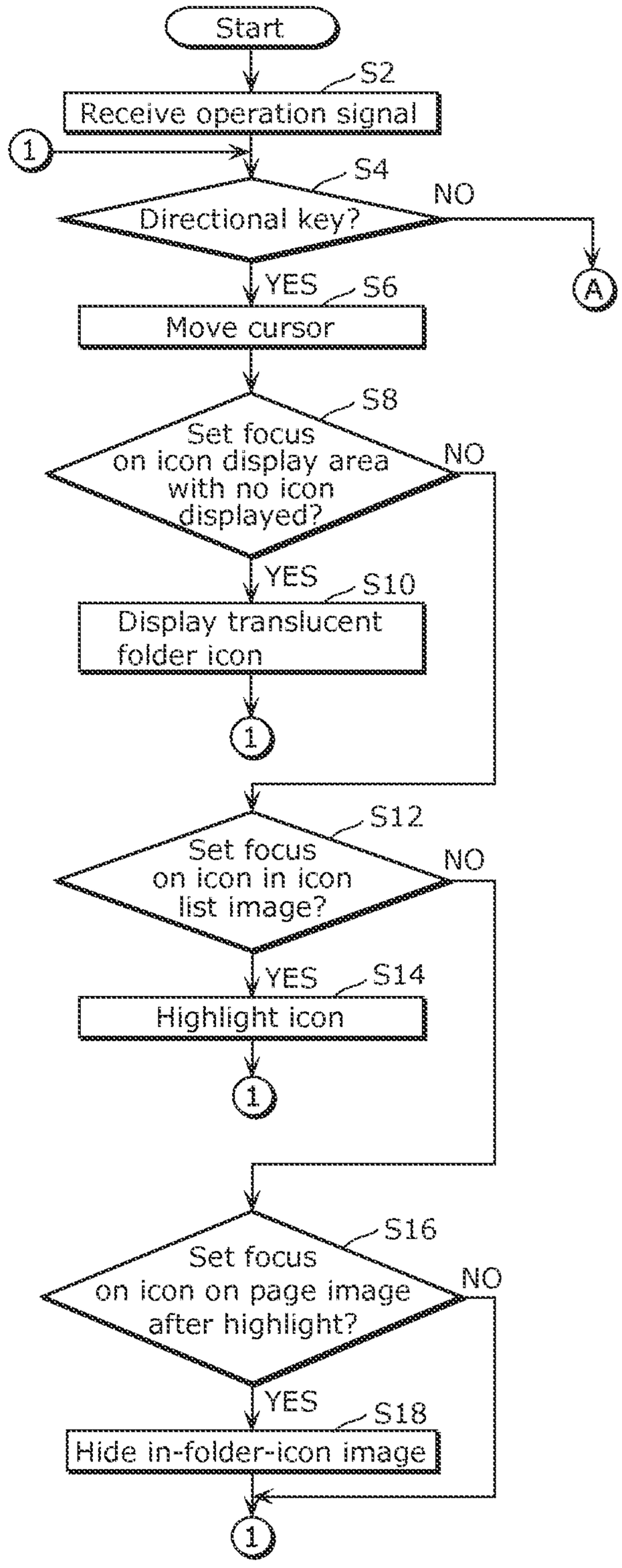

Start
S2
Receive operation signal
1
S4
Directional key?
NO
A
YES
S6
Move cursor
S8
Set focus on icon display area with no icon displayed?
NO
YES
S10
Display translucent folder icon
1
S12
Set focus on icon in icon list image?
NO
YES
S14
Highlight icon
1
S16
Set focus on icon on page image after highlight?
NO
YES
S18
Hide in-folder-icon image
1

FIG. 5B

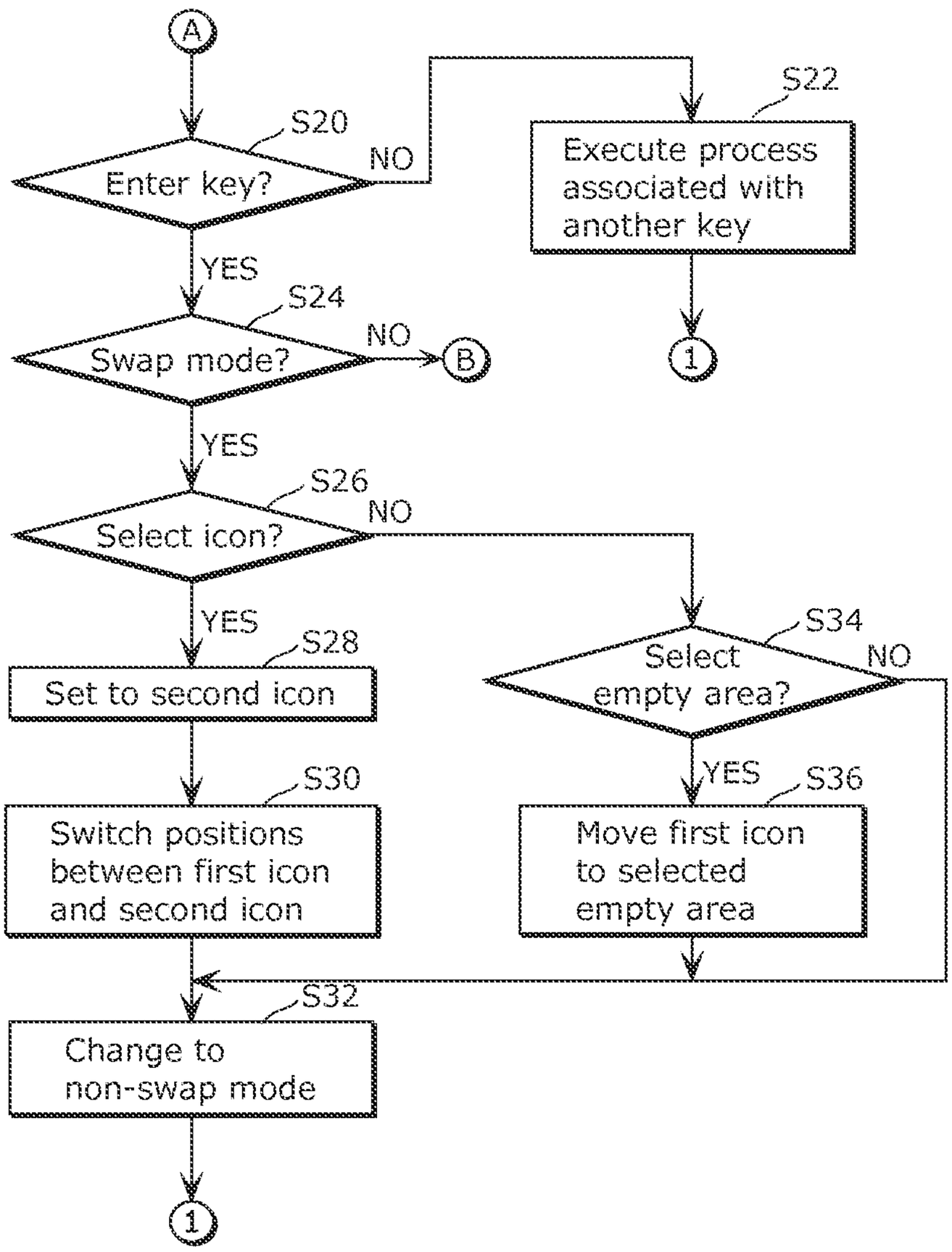

A
S20
Enter key?
NO
S22
Execute process associated with another key
1
YES
S24
Swap mode?
NO
B
YES
S26
Select icon?
NO
YES
S28
Set to second icon
S34
Select empty area?
NO
YES
S36
Move first icon to selected empty area
S30
Switch positions between first icon and second icon
S32
Change to non-swap mode
1

FIG. 5C

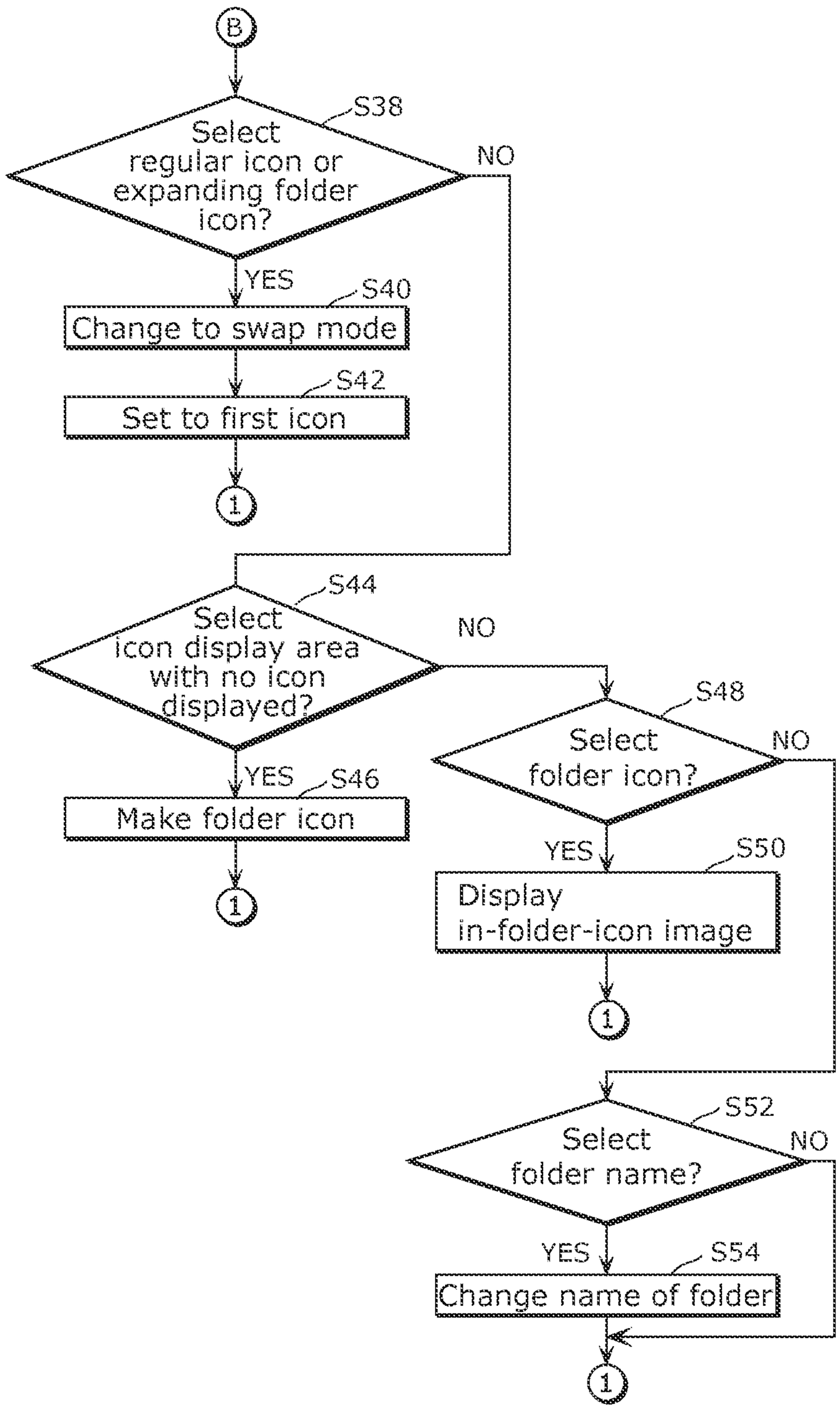

B
S38
Select regular icon or expanding folder icon?
NO
YES
S40
Change to swap mode
S42
Set to first icon
1
S44
Select icon display area with no icon displayed?
NO
YES
S46
Make folder icon
1
S48
Select folder icon?
NO
YES
S50
Display in-folder-icon image
1
S52
Select folder name?
NO
YES
S54
Change name of folder
1

FIG. 6

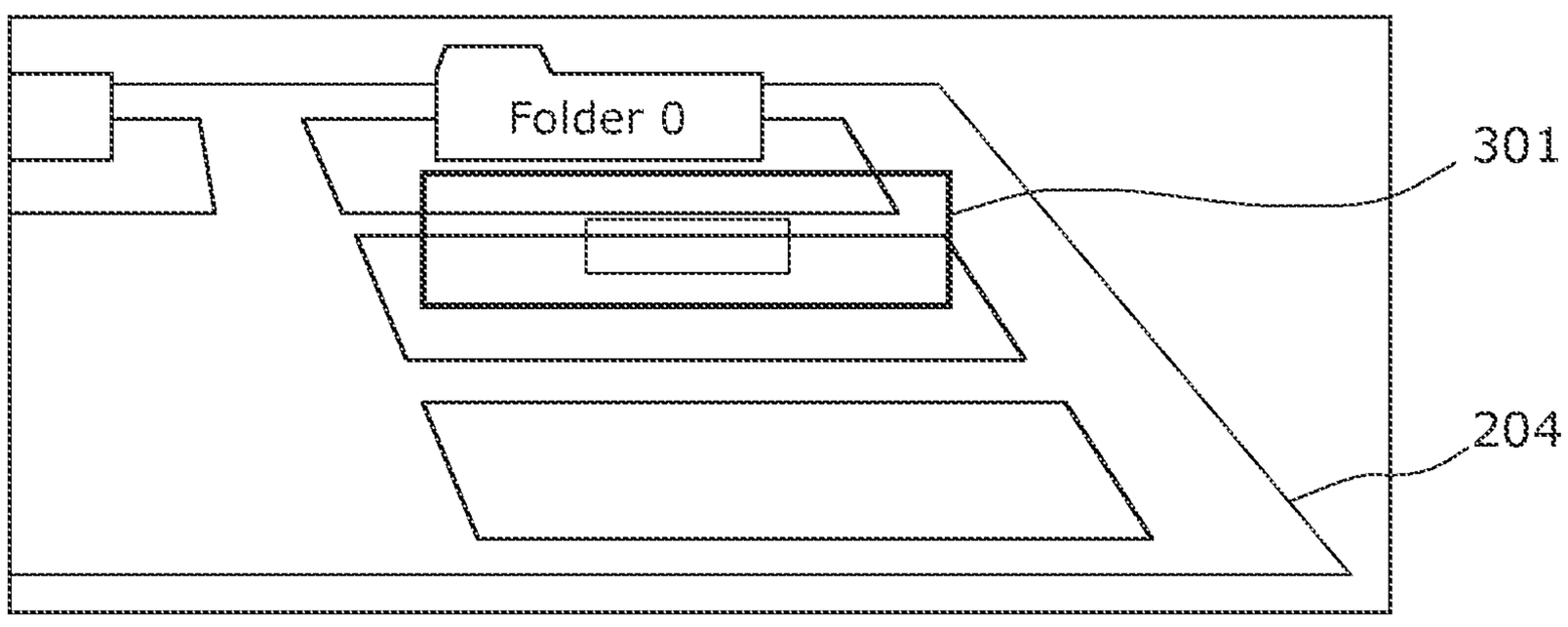


FIG. 7

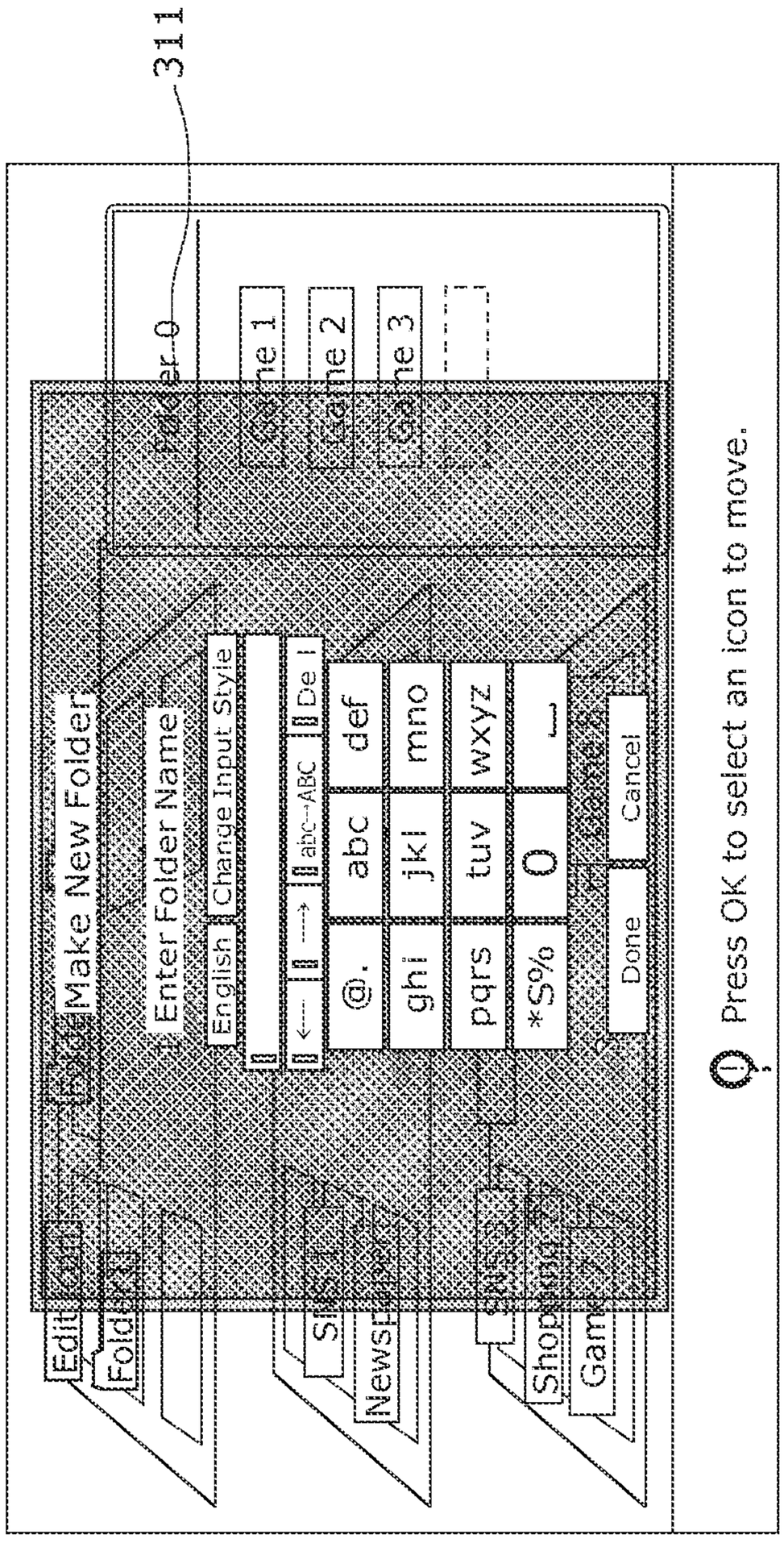

311
Make New Folder
Enter Folder Name
English
Change Input Style
abc→ABC
De
@.
abc
def
ghi
jkl
mno
pqrs
tuv
wxyz
*S%
0
Done
Cancel
Press OK to select an icon to move.

FIG. 8

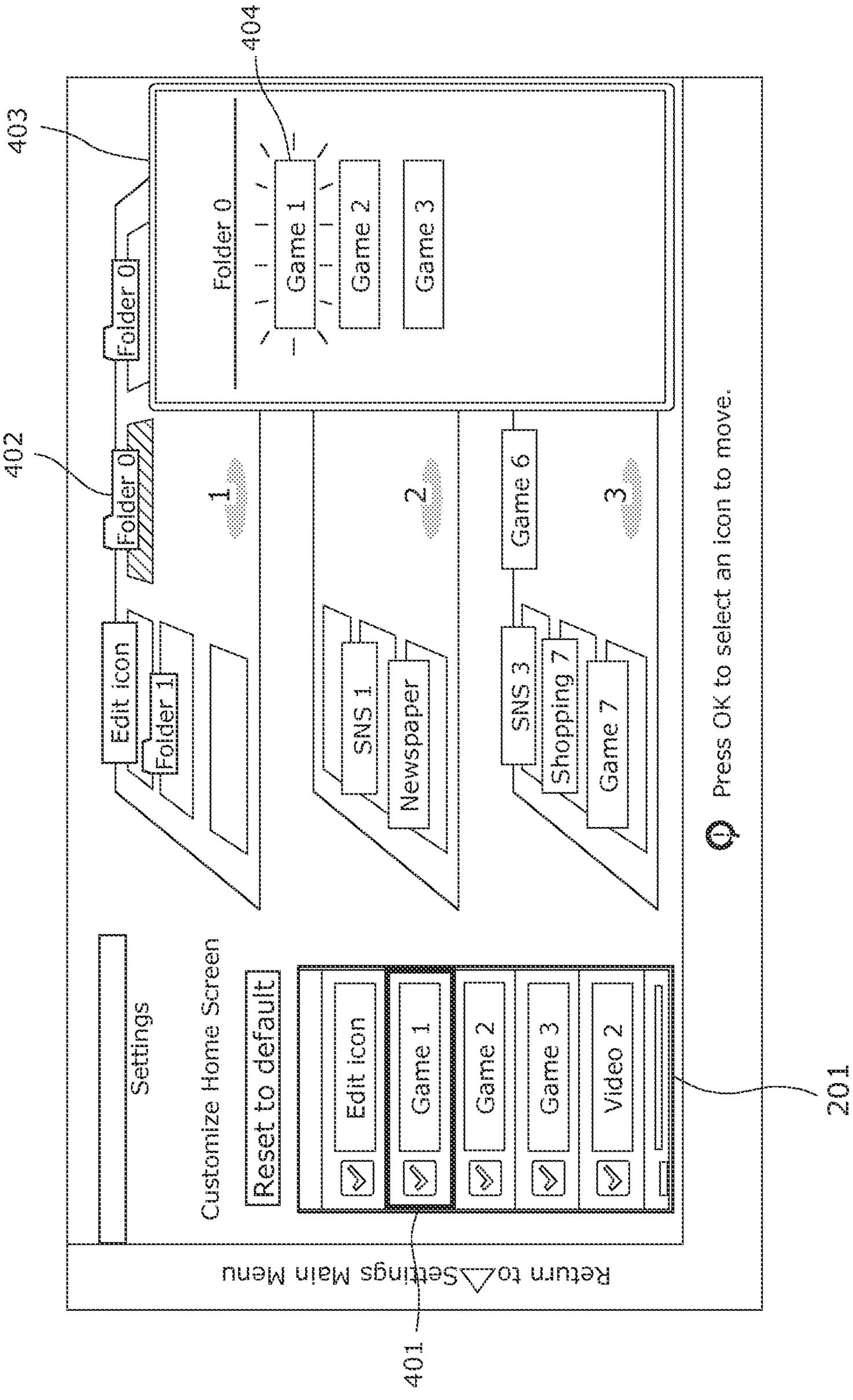

403
404
Folder 0
Game 1
Game 2
Game 3
Folder 0
402
Edit icon
Folder 1
1
SNS 1
Newspaper
2
Game 6
SNS 3
Shopping 7
Game 7
3
Press OK to select an icon to move.
Settings
Customize Home Screen
Reset to default
Edit icon
Game 1
Game 2
Game 3
Video 2
201
Return to Settings Main Menu
401

FIG. 9

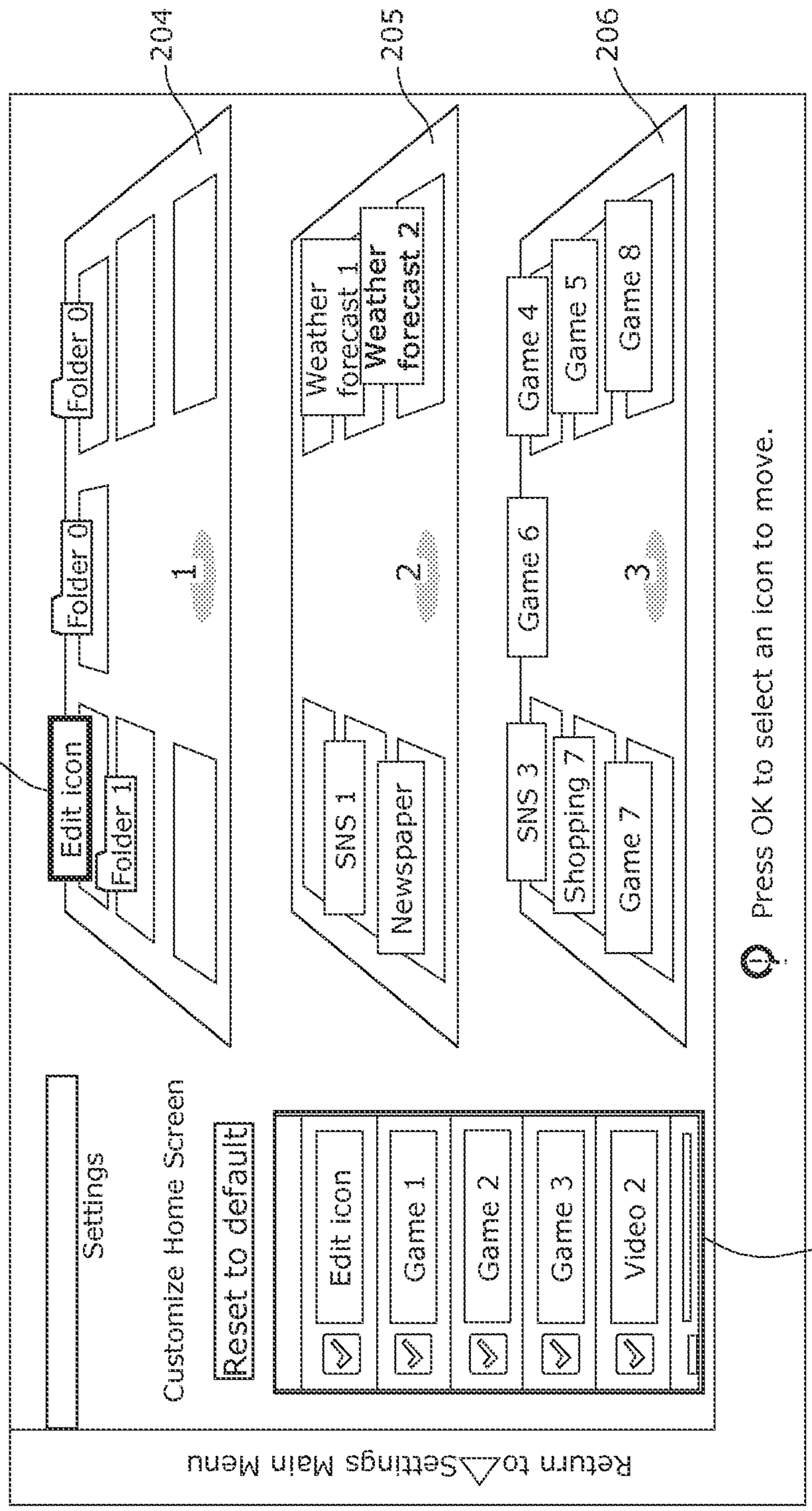

204
205
206
Folder 0
Folder 0
Edit icon
Folder 1
1
Weather forecast 1
Weather forecast 2
SNS 1
Newspaper
2
Game 4
Game 5
Game 8
Game 6
SNS 3
Shopping 7
Game 7
3
405
Press OK to select an icon to move.
Settings
Customize Home Screen
Reset to default
Edit icon
Game 1
Game 2
Game 3
Video 2
201
Return to Settings Main Menu

FIG. 10

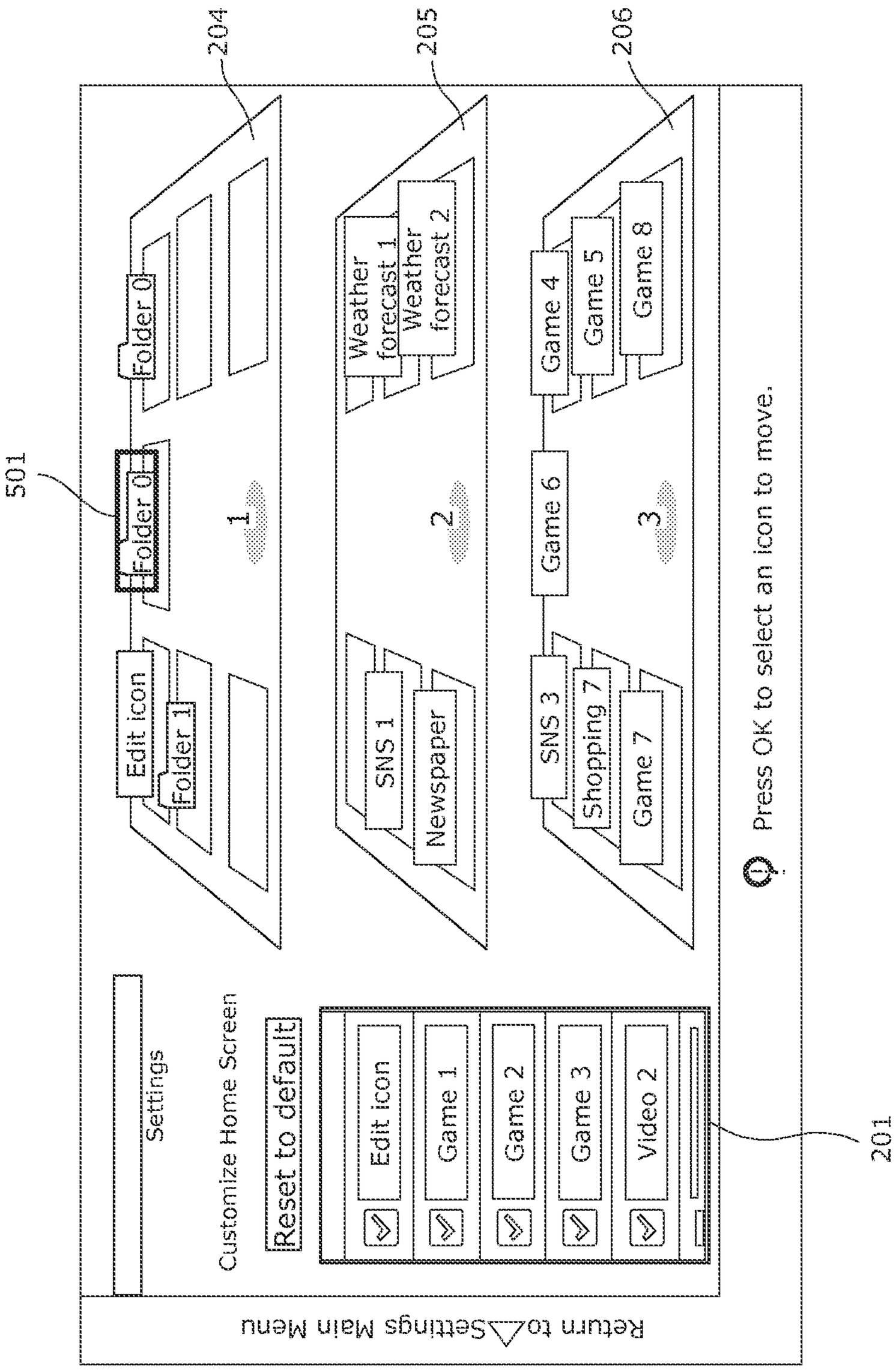

204
205
206
Folder 0
Weather forecast 1
Weather forecast 2
Game 4
Game 5
Game 8
501
Folder 0
Edit icon
Folder 1
1
SNS 1
Newspaper
2
Game 6
SNS 3
Shopping 7
Game 7
3
Press OK to select an icon to move.
Settings
Customize Home Screen
Reset to default
Edit icon
Game 1
Game 2
Game 3
Video 2
201
Return to Settings Main Menu

FIG. 11

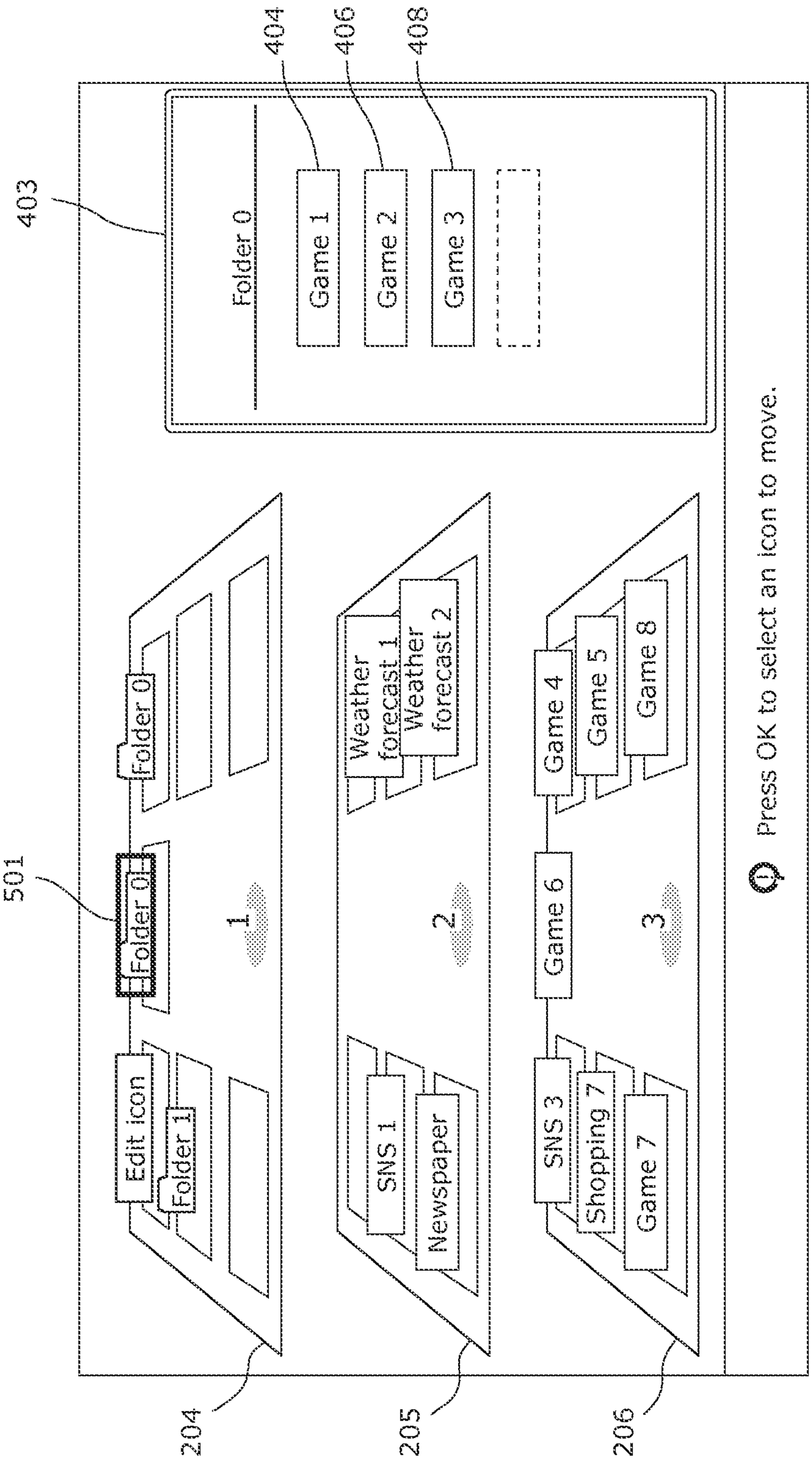

403
404
406
408
Folder 0
Game 1
Game 2
Game 3
501
Folder 0
Folder 1
Edit icon
Folder 1
1
Weather forecast 1
Weather forecast 2
SNS 1
Newspaper
2
Game 4
Game 5
Game 8
Game 6
SNS 3
Shopping 7
Game 7
3
Press OK to select an icon to move.
204
205
206

FIG. 12

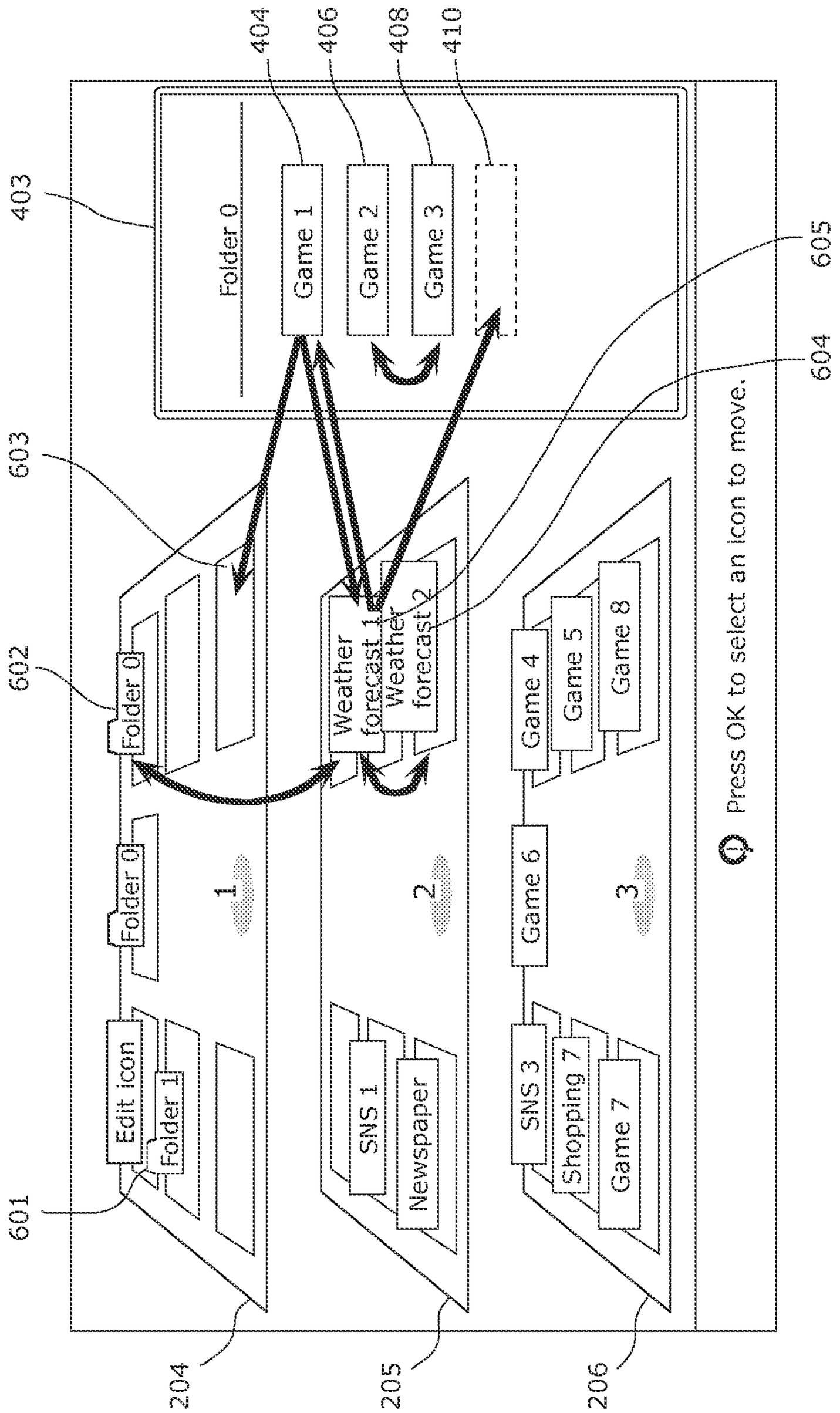

403
404
406
408
410
605
603
602
604
601
204
205
206
Folder 0
Game 1
Game 2
Game 3
Weather forecast 1
Weather forecast 2
Game 4
Game 5
Game 8
Game 6
Edit icon
Folder 1
SNS 1
Newspaper
SNS 3
Shopping 7
Game 7
1
2
3
Press OK to select an icon to move.

FIG. 13

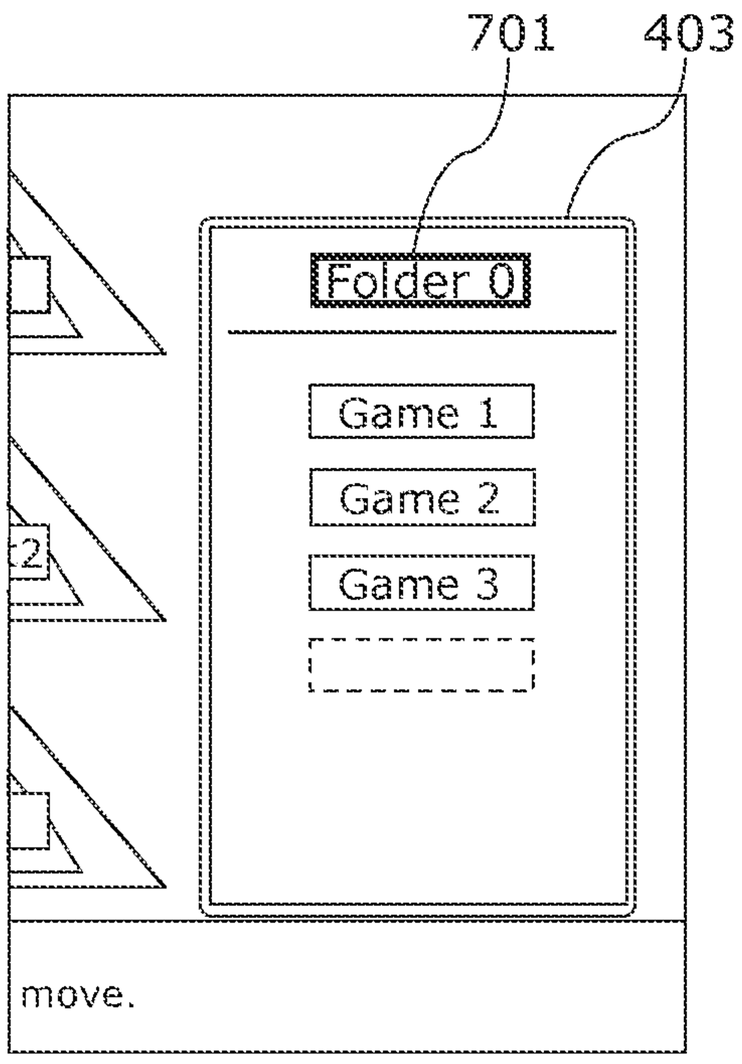


FIG. 14

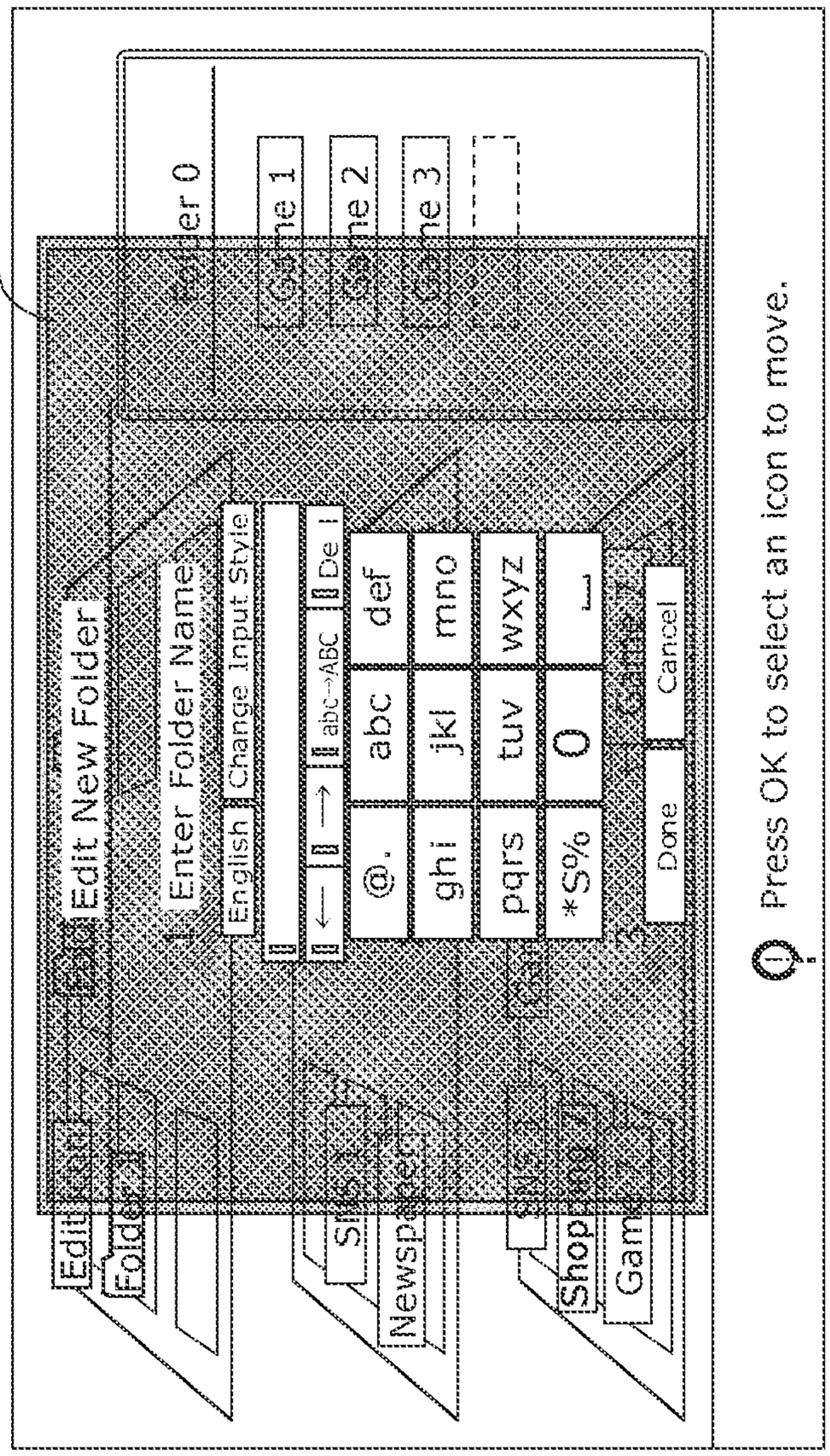

702
Edit New Folder
Enter Folder Name
English
Change Input Style
abc→ABC
@.
abc
def
ghi
jkl
mno
pqrs
tuv
wxyz
*S%
0
Done
Cancel
Press OK to select an icon to move.

IMAGE DISPLAY CONTROL DEVICE, AND IMAGE DISPLAY CONTROL METHOD

TECHNICAL FIELD

The disclosure relates to an image display control device which controls how to display an icon on a screen.

BACKGROUND ART

One type of conventional information providing device displays an icon and a group icon including multiple icons on a single first screen (see Patent Literature 1, for example). When a user selects a group icon, the information providing device switches a first screen to a second screen and multiple icons included in the group icon are displayed on the second screen. The group icon can manage and organize icons in a hierarchy.

CITATION LIST

Patent Literature

[PTL 1]
WO 2000/033571

SUMMARY OF INVENTION

Technical Problem

The present disclosure provides an image display control device which allows a user to efficiently edit an icon.

Solution to Problem

An image display control device according to the present disclosure includes: a first display control unit which displays, on a screen, page images each including an icon; a receiving unit which receives an operation signal indicating a user operation directed to the icon displayed on the screen; and a second display control unit which displays, on the screen, an in-folder-icon image as well as the page images when the receiving unit receives an operation signal for selecting a folder icon, from among a plurality of the icons displayed on the screen, which is associated with one or more of the icons, the in-folder-icon image presenting the one or more icons associated with the selected folder icon.

It is noted that the present disclosure may be implemented not only as the image display control device that includes the above-described characteristic processing units but also as an image display control method including processes executed by the characteristic processing units, included in the image display control device, as steps. Furthermore, the present disclosure may be implemented as a program to cause a computer to either function as the characteristic processing units included in the image display control device, or execute the characteristic steps included in the image display control method. As a matter of course, the program may be distributed via a non-transitory computer-readable recording medium including a compact disc-read only memory (CD-ROM), and a communications network such as the Internet.

Advantageous Effects of Invention

The present disclosure can provide an image display control device which allows a user to efficiently carry out an icon editing task.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** represents a block diagram illustrating a structure of an image display system according to an embodiment.

FIG. **2** represents an appearance diagram of a remote control.

FIG. **3** represents an example of an operating screen displayed on a display unit in an initial state.

FIG. **4** represents an example of an editing screen which is a screen for an icon editing task.

FIG. **5**A represents a flowchart depicting processes executed by the image display control device when the editing screen is displayed.

FIG. **5**B represents a flowchart depicting processes executed by the image display control device when the editing screen is displayed.

FIG. **5**C represents a flowchart depicting processes executed by the image display control device when the editing screen is displayed.

FIG. **6** represents a portion of a page image.

FIG. **7** represents an example of a name entering image.

FIG. **8** represents an example of how to highlight an icon.

FIG. **9** represents an example of the editing screen when no in-folder-icon image is displayed.

FIG. **10** represents an example of a screen when a cursor is placed on a folder icon.

FIG. **11** represents an example of a screen when the in-folder-icon image is displayed.

FIG. **12** represents how to move an icon.

FIG. **13** represents an example of a screen when a cursor is placed on the name of a folder icon included in the in-folder-icon image.

FIG. **14** represents an example of the name entering image.

DESCRIPTION OF EMBODIMENT

An image display control device according to the present disclosure includes: a first display control unit which displays, on a screen, page images each including an icon; a receiving unit which receives an operation signal indicating a user operation directed to the icon displayed on the screen; and a second display control unit which displays, on the screen, an in-folder-icon image as well as the page images when the receiving unit receives an operation signal for selecting a folder icon, from among a plurality of the icons displayed on the screen, which is associated with one or more of the icons, the in-folder-icon image presenting the one or more icons associated with the selected folder icon.

Thanks to the features, multiple page images and an in-folder-icon image are displayed on the screen. This makes it possible to display icons in different hierarchies on the same screen. Hence, the user can efficiently carry out an icon editing task.

For example, the page images each include icon display areas capable of displaying the icons, and the image display control device further includes a third display control unit which, when the receiving unit receives an operation signal for selecting an icon display area which displays no icon, displays a folder icon in the selected icon display area.

Thanks to the features, the user can make a folder icon by simply operating a directional key to move a cursor to an icon display area with no icon displayed and pressing an enter key. Hence, the user can efficiently carry out an icon editing task using an input apparatus such as a remote control equipped with limited keys.

Moreover, the third display control unit may further display, on the screen, an image for entering a name by a user, and designate a name, which is entered by the user and identified by an operation signal received by the receiving unit, as a name of the folder icon displayed in the selected icon display area.

Thanks to the features, the user can name a folder icon.

For example, the above image display control device includes a fourth display control unit which displays, on the screen, an icon list image presenting a list of the icons displayable on the screen.

In addition, when the receiving unit receives an operation signal for selecting an icon from among the icons in the icon list image and the selected icon is associated with a folder icon, (i) the first display control unit may further highlight the folder icon associated with the selected icon and included in the page images, and (ii) the second display control unit may further display the in-folder-icon image of the highlighted folder icon.

When the user selects an icon included in the icon list image, such features allow the folder icon including the selected icon to be highlighted. Hence, the user can easily find out that the icon is included in which folder icon on which page image.

For example, the above image display control device further includes a position changing unit which switches display positions between two of the icons on the screen when the receiving unit receives an operation signal for selecting one of the two icons and then an other one icon, the icons being displayed in the page images and in the icon list image.

Thanks to the features, the user can switch the display positions of two icons through a simple operation to successively select the two icons. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

Moreover, the position changing unit may further move, on the screen, one of the icons to one of the icon display areas which displays no icon, when the receiving unit receives an operation signal for selecting the one icon and then the one icon display area, the icons being displayed in the page images and in the icon list image, and the icon display areas being capable of displaying the icons in the page images and in the icon list image.

Thanks to the features, the user can move an icon through a simple operation to select the icon and then an empty area. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

In addition, the position changing unit may further move, on the screen, one of the icons to the in-folder-icon image, when the receiving unit receives an operation signal indicating an operation which keeps selecting the one icon for a certain period of time or longer, the icons being displayed in the page images while the in-folder-icon image is displayed.

Thanks to the features, the user can move an icon to the in-folder-icon image by operating a directional key to move a cursor to the icon in a page image and then holding an enter key pressed. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

Moreover, the position changing unit may further move, on the screen, one of the icons to one of the icon display areas which displays no icon, when the receiving unit receives an operation signal indicating an operation which keeps selecting the one icon in the in-folder-icon image for a certain period of time or longer, the icon display areas being capable of displaying the icons in the page images.

Thanks to the features, the user can move an icon to an empty area in a page image by operating a directional key to move a cursor to the icon in an in-folder-icon image and then holding an enter key pressed. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

Moreover, when the receiving unit receives an operation signal for selecting a name of a folder icon included in the in-folder-icon image, the second display control unit may further display, on the screen, an image for entering a name by a user, and designate a name, which is entered by the user and identified by an operation signal received by the receiving unit, as a name of the folder icon.

Thanks to the features, the user can change the name of a folder icon.

In addition, the image display control device further may include a deletion control unit which deletes from the screen a folder icon displayed on the screen, when the receiving unit receives an operation signal for indicating an operation which keeps selecting the one folder icon for a certain period of time or longer.

Thanks to the features, the user can delete a folder icon by operating a directional key to move a cursor to the folder icon and then holding an enter key pressed. Hence, the user can efficiently delete a folder icon using an input apparatus such as a remote control equipped with limited keys.

Described hereinafter is an embodiment, with reference to the drawings as necessary. It is noted that undue details may be omitted. Exemplary details to be omitted include already-known issues and overlapping details between substantially the same features. This is to avoid unnecessary redundancy in the description below and facilitate understanding of persons skilled in the art.

It is noted that the inventor has provided the drawings and the description below, so that persons skilled in the art will thoroughly understand the present disclosure. The drawings and the description shall not limit the subject-matter recited in the claims.

[1-1 Structure]

FIG. **1** represents a block diagram illustrating a structure of an image display system **10** according to an embodiment.

The image display system **10** is used for displaying an image including an icon and editing the icon. The image display system **10** includes a display unit **30**, an image display control device **20**, and a remote control **31**.

The display unit **30** includes a display and so on, and displays an image on a screen.

The image display control device **20** executes control for displaying on the display unit **30** an image including an icon. More specifically, the image display control device **20** downloads through a network connecting unit **29** application software (hereinafter simply referred to as "application") to be executed on the image display control device **20**. The image display control device **20** then executes control for displaying, on the screen of the display unit **30**, an icon indicating the downloaded application. The image display control device **20** carries out an icon editing task including

creating an icon and moving the position of an icon, by following a user operation via the remote control **31**. Specifically, the image display control device **20** is one of the following application-executable devices: a recording appliance such as a hard-disk drive recorder, a TV, and a personal digital assistance.

The remote control **31** wirelessly transmits the image display control device **20** an operation signal indicating a user operation.

FIG. **2** represents an appearance diagram of the remote control **31**.

The remote control **31** includes a directional key **32** for moving a cursor and an enter key **33** for determining an operation, as well as a button for operating the channels on the TV and a button for operating the recording appliance.

The image display control device **20** includes the network connecting unit **29**, a receiving unit **28**, and a control unit **21**.

The network connecting unit **29** is a communications appliance including a network interface card and so on for connecting the image display control device **20** to networks such as the Internet and a local area network (LAN).

The receiving unit **28** receives an operation signal to be transmitted from the remote control **31**. Specifically, the receiving unit **28** receives from the remote control **31** an operation signal indicating a user operation directed to an icon displayed on the screen of the display unit **30**.

The control unit **21** displays on the display unit **30** an icon indicating the application downloaded by the network connecting unit **29**, and carries out an icon editing task in response to the operation signal received by the receiving unit **28**.

The control unit **21** includes a first display control unit **22**, a second display control unit **23**, a third display control unit **24**, a fourth display control unit **25**, a position changing unit **26**, and a deletion control unit **27**.

The first display control unit **22** displays, on the screen of the display unit **30**, multiple page images each including an icon.

The second display control unit **23** displays, on the screen of the display unit **30**, an in-folder-icon image presenting at least one icon associated with a folder icon which is a kind of icon.

When the receiving unit **28** receives an operation signal for selecting an icon display area which displays no icon, the third display control unit **24** displays a folder icon in the selected icon display area. It is noted that, the icon display area is capable of displaying an icon included in each of the page images.

The fourth display control unit **25** displays, on the screen of the display unit **30**, an icon list image presenting a list of icons displayable on the screen.

The position changing unit **26** changes the display position of an icon on the screen of the display unit **30**.

The deletion control unit **27** deletes, from the screen of the display unit **30**, an icon displayed on the screen.

Detailed hereinafter are operations of the image display control device **20**, with reference to the drawings.

FIG. **3** represents an example of a screen (hereinafter referred to as "operating screen") displayed in the initial state by the control unit **21** on the display unit **30**. The operating screen displays icons **101** to **108** included in a given page. Each of the icons is associated with an application. For example, each of the icons **102** to **104** is associated with a game application. The icon **101** is associated with an application for icon editing tasks.

In order to switch the page displayed on the operating screen, the user operates the directional key **32** on the remote control **31** to move the cursor to a button **111** or a button **112**, and presses the enter key **33**. In response to an operation signal transmitted via such an operation, the control unit **21** switches pages and displays on the display unit **30** an icon included in the page switched to. In other words, the user can look for a desired icon while switching pages, and execute a desired application.

When the user executes the application indicated by the icon **101**, the control unit **21** displays, on the display unit **30**, a screen (hereinafter referred to as "editing screen") for icon editing tasks as represented in FIG. **4**. In other words, the first display control unit **22** displays page images **204** to **206** on the editing screen. The fourth display control unit **25** displays an icon list image **201** on the editing screen. The page image **204** includes icons **207** to **213**. Similar to the page image **204**, each of the page images **205** and **206** includes multiple icons. FIG. **4** shows three page images alone. In order to display the fourth page image and after, the user operates the directional key **32** of the remote control **31** downward. When the user operates the directional key **32** downward while the cursor is pointing to a bottom icon on the page image **206**, the first display control unit **22** scrolls down to a succeeding page image. Such an operation makes it possible to display the fourth page image and after. It is noted that when the user scrolls images to redisplay a page image disappeared from the editing screen, the user can scroll up to a preceding page image by operating the directional key **32** upward.

The icon list image **201** includes an icon **202** and a check box **203** for selecting whether or not the icon **202** is to be displayed on the page image. The icon list image **201** displays all the icons registered in the image display control device **20**. When the user checks the check box **203**, the icon **202** that is associated with the check box **203** is displayed on a given page image. When the user checks the check box **203** for the icon **202**, for example, the icon **209** is displayed on the page image **204**. Selection and deselection of the check box **203** are made as described below. When the user operates the directional key **32** of the remote control **31** to move the cursor to the positions of the check box **203** and the icon **202** and presses the enter key **33**, the user makes a binary selection between on and off as a toggle. It is noted that when the user displays an undisplayed icon on the icon list image **201**, the user may operate the directional key **32** upward or downward as does so for page images. Such a feature allows the user to scroll and display an icon within the icon list image **201**.

[1-2. Operations]

FIGS. **5**A to **5**C represent flowcharts depicting processes executed by the image display control device **20** when the editing screen is displayed.

Described next is how to edit a folder, with reference to the flowcharts in FIGS. **5**A to **5**C and exemplary editing screens.

It is noted that the image display control device **20** is to be set to one of a swap mode and a non-swap mode. The swap mode and the non-swap mode shall be described later. In the initial state, the image display control device **20** is in the non-swap mode.

The receiving unit **28** receives an operation signal from the remote control **31** (S**2**).

If the received operation signal is the operation signal transmitted from the remote control **31** by the user pressing the directional key **32** (S**4**: YES), the control unit **21** moves the cursor on the editing screen in a direction in which the directional key is pressed (S**6**).

[1. Creating a Folder]

FIG. **6** represents a portion of the page image **204**. For example, if a cursor **301** moves to an icon display area with no icon displayed and sets focus on the position (S**8**: YES), the third display control unit **24** displays a translucent folder icon in the focused icon display area (S**10**).

Here, if the user presses the enter key **33** of the remote control **31** (S**20**: YES, S**24**: NO, S**38**: NO, and S**44**: YES), the third display control unit **24** displays, on the screen, a name entering image **311** represented in FIG. **7**. The user operates the directional key **32** and the enter key **33** on the name entering image **311** in order to name the folder icon, and the third display control unit **24** displays the named folder icon on the focused icon display area (S**46**). Such processes make a new folder icon.

[Highlighting an Icon]

FIG. **8** represents an example of how to highlight an icon. For example, if the user operates the directional key **32** of the remote control **31** to move a cursor **401** to an icon in the icon list image **201** so that the cursor **401** sets focus on the position (S**12**: YES), the first display control unit **22** highlights a folder icon **402** including the focused icon. For example, the first display control unit **22** presents the background of the folder icon **402** brighter than that of another icon. In addition, the second display control unit **23** displays an in-folder-icon image **403** to display therein icons included in the folder icon **402**. Then, the second display control unit **23** highlights an icon **404** which is the same as the icon that the cursor **401** locates (S**14**). For example, the second display control unit **23** presents the background of the icon **404** brighter than that of another icon. It is noted that when a target folder icon **402** to be highlighted is not displayed on the screen, the first display control unit **22** scrolls page images and highlights a target folder icon **402** on the screen. In the case where the icon **404** is not displayed on the in-folder-icon image **403**, as well, the second display control unit **23** scrolls icons and highlights the target icon **404** on the in-folder-icon image **403**.

In the state of FIG. **8**, when the user operates leftward the directional key **32** of the remote control **31** (S**4**: YES), a cursor **405** moves to the position of the top-left icon on the page image **204** as represented in FIG. **9** (S**6**). In addition, the second display control unit **23** hides the in-folder-icon image **403** (S**8**: NO, S**12**: NO, S**16**: YES, and S**18**).

[3. Expanding a Folder Icon]

FIG. **10** represents a case where a cursor **501** is positioned on a folder icon. In the state of FIG. **9**, for example, when the user operates rightward the directional key **32** of the remote control **31** (S**4**: YES), a cursor **501** moves right as represented in FIG. **10** (S**6**). Here, if the user presses the enter key **33** of the remote control **31** (S**20**: YES, S**24**: NO, S**38**: NO, S**44**: NO, and S**48**: YES), the second display control unit **23** displays the in-folder-icon image **403** on the screen as represented in FIG. **11** (S**50**). The in-folder-icon image **403** includes icons **404** to **408** included in a folder icon which the cursor **501** locates. The first display control unit **22** shifts leftward the display positions of the page images **204** to **206** by the predetermined number of pixels, in order to secure the display area of the in-folder-icon image **403**.

[4. Moving an Icon]

FIG. **12** represents how to move an icon.

Described first is how to switch display positions between two icons. Two icons switch their display positions when one of the icons is selected and then the other icon is selected. Exemplified is how to switch display positions between an icon **604** and an icon **605** on the page image **205**. The user operates the directional key **32** of the remote control **31** to move a cursor onto an icon **604**, and presses the enter key **33** (S**20**: YES, S**24**: NO, and S**38**: YES). Then, the image display control device **20** changes to the swap mode (S**40**). The swap mode is the state where an icon to move is selected. The image display control device **20** can be set to the other mode—that is the non-swap mode. The non-swap mode is the state where an icon to move is not selected. After changing to the swap mode, the position changing unit **26** designates a selected icon **604** as a first icon (S**42**). Next, the user operates the directional key **32** of the remote control **31** to move a cursor onto an icon **605**, and presses the enter key **33** (S**20**: YES, S**24**: YES, and S**26**: YES). Then, the position changing unit **26** designates the selected icon **605** as a second icon (S**28**), and switches, on the screen, the display positions of the selected icon **604** designated as the first icon and the icon **605** designated as the second icon (S**30**). Then, the image display control device **20** changes to the non-swap mode (S**32**). Such operations make it possible to switch display positions of two icons. It is noted that icons to be switched shall not be limited to regular icons; instead, those icons may be folder icons.

Described below is how to switch display positions between a folder icon **602** and the icon **605**. Exemplified here is a case where a folder icon **602** is selected and then the icon **605** is selected so that the display positions of the two icons switch. If the user operates the remote control **31** to move a cursor onto a folder icon **602** and presses the enter key **33** when the in-folder-icon image **403** is not displayed (S**20**: YES, S**24**: NO, S**38**: NO, S**44**: NO, and S**48**: YES), the second display control unit **23** displays the in-folder-icon image **403** as represented in FIG. **12** (S**50**). Here, if the user presses the enter key **33** of the remote control **31** again (S**20**: YES, S**24**: NO, and S**38**: YES), the image display control device **20** changes to the swap mode (S**40**). After changing to the swap mode, the position changing unit **26** designates the selected folder icon **602** as the first icon (S**42**). Next, the user operates the directional key **32** of the remote control **31** to move the cursor onto the icon **605**, and presses the enter key **33** (S**20**: YES, S**24**: YES, and S**26**: YES). Then, the position changing unit **26** designates the selected icon **605** as the second icon (S**28**), and switches, on the screen, the display positions of the folder icon **602** designated as the first icon and the icon **605** designated as the second icon (S**30**). After that, the image display control device **20** changes to the non-swap mode (S**32**). Such operations make it possible to switch the display positions between the folder icon **602** and the icon **605**. The display positions can be switched when the icon **605** is selected first, followed by the folder icon **602**.

Icons whose positions are switchable shall not be limited to two of the icons on a page image; instead, the switchable icons may be two of the icons in the in-folder-icon image **403** and may be an icon on a page image and another icon in the in-folder-icon image **403**. For example, the user can switch the icon **406** and the icon **408** both included in the in-folder-icon image **403**. Furthermore, the user can switch the icon **605** on the page image **205** and the icon **404** in the in-folder-icon image **403**. In other words, as soon as either a regular icon or a folder icon displayed in the in-folder-icon image **403** is selected (S**38**: YES), the image display control device **20** changes to the swap mode (S**40**). The selected icon is designated as the first icon (S**42**). The icon selected next is designated as the second icon (S**26**: YES, and S**28**). The display positions between the first and the second icons switch (S**30**). The image display control device **20** changes

to the non-swap mode (S32). Such operations make it possible to switch the display positions of two icons.

Described next is how to move an icon to an empty area. An icon moves to an empty area when the user selects the icon and then selects the empty area with no icon located. Exemplified here is a case where the icon **404** is moved to an icon display area **603** found on the page image **204** and displaying no icon. The user operates the directional key **32** of the remote control **31** to move a cursor onto the icon **404**, and presses the enter key **33** (S**20**: YES, S**24**: NO, and S**38**: YES). Then, the image display control device **20** changes to the swap mode (S**40**). After changing to the swap mode, the position changing unit **26** designates the selected icon **404** as the first icon (S**42**). Next, the user operates the directional key **32** of the remote control **31** to move the cursor onto an icon display area **603**, and presses the enter key **33** (S**20**: YES, S**24**: YES, S**26**: NO, and S**34**: YES). Hence, the position changing unit **26** moves, on the screen, the icon **404** designated as the first icon to the icon display area **603** (S**36**). After that, the image display control device **20** changes to the non-swap mode (S**32**). Such operations make it possible to move the icon to the empty area. It is noted that switchable icons shall not be limited to regular icons; instead, the switchable icons may be folder icons. In addition, an empty area shall not be limited to an icon display area on a page image; instead, the empty area may be the icon display area **410** found on the in-folder-icon image **403** and displaying no icon. For example, the icon **605** on the page image **205** can be moved to the icon display area **410** on the in-folder-icon image **403**. Moreover, an icon can be moved within the page image **205**, as well as within the in-folder-icon image **403**.

[5. Changing the Name of a Folder Icon]

A folder is named when the folder is made (FIG. **7** and S**46** in FIG. **5**C). For example, the user originally named a folder icon "Game" since the folder icon included multiple game-related icons. Then, the user might desire to change the name of the folder icon to "News" when the user changed the content of the folder icon from the game-related icons to a news-related icon. As FIG. **13** represents, when the user changes the name of a folder icon, the user operates the directional key **32** of the remote control **31** to move a cursor **701** to the name of the folder icon in the in-folder-icon image **403** (S**2**, S**4**: YES, and S**6** in FIG. **5**A). While the cursor **701** is on the name, the user presses the enter key **33** (S**20**: YES, S**24**: NO, S**38**: NO, S**44**: NO, S**48**: NO, and S**52**: YES). Then, the second display control unit **23** displays a name entering image **702** as represented in FIG. **14**. The user can enter a name by operating the directional key **32** and the enter key **33** on the name entering image **702**. The second display control unit **23** changes the name of the folder icon to the entered name (S**54**).

On the screen represented in FIG. **12**, suppose the user operates the directional key **32** of the remote control **31** to move a cursor to the folder icon **602**, and, while the cursor is on the folder icon **602**, holds pressed the enter key **33** of the remote control **31** for a certain period of time or longer. Then, the deletion control unit **27** deletes the folder icon **602** and all the icons included in the folder icon **602** from the page image **204** and the in-folder-icon image **403**.

It is noted that if the operation signal from the remote control **31** to the receiving unit **28** is the operation signal transmitted when the user presses a key other than the enter key **33** or the directional key **32** (S**20**: NO), executed is a process associated with a key which the user has pressed (S**22**). For example, if the user presses a TV program listing key of the remote control **31**, the icon editing task is canceled and the screen displays a TV program listing.

[1-3. Effects Etc.]

As described above, in the embodiment, multiple page images and an in-folder-icon image are displayed on the screen. Such a feature makes it possible to display icons in different hierarchies on the same screen. Hence, the user can efficiently carry out an icon editing task.

In addition, the user can make a folder icon by simply operating a directional key to move a cursor to an icon display area with no icon displayed and pressing an enter key. Hence, the user can efficiently carry out an icon editing task using an input apparatus such as a remote control equipped with limited keys.

Furthermore, when the user selects an icon included in the icon list image, the folder icon including the selected icon is highlighted. Hence, the user can easily find out that the icon is included in which folder icon on which page image. Especially, in the case where a folder icon is not displayed on the screen of the display unit **30**, such a feature saves the user the trouble of looking for the folder icon.

In addition, the user can switch the display positions of two icons through a simple operation to successively select the two icons. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

In addition, the user can move an icon through a simple operation to select an icon and then an empty area. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

Furthermore, the user can delete a folder icon by operating a directional key to move a cursor to the folder icon and then holding an enter key pressed. Hence, the user can efficiently delete a folder icon using an input apparatus such as a remote control equipped with limited keys.

Another Embodiment

The above-described embodiment exemplifies the art disclosed in the present application. The art in the present disclosure, however, shall not be limited to the embodiment. The art is applicable to another embodiment—that is the embodiment with appropriate change, replacement, addition, and omission made thereto. A new embodiment may also be implemented by a combination of each of the constituent elements described in the embodiment.

Exemplified below are other embodiments.

When the in-folder-icon image **403** is displayed as represented in FIG. **12**, for example, suppose the user operates the directional key **32** of the remote control **31** to move a cursor to an icon in the page image, and, while the cursor is on the icon, holds pressed the enter key **33** of the remote control **31** for a certain period of time or longer. When the icon is the selected icon **604**, the remote control **31** transmits an operation signal indicating an operation which keeps selecting the selected icon **604** for a certain period of time or longer. When the receiving unit **28** receives the operation signal, the position changing unit **26** may move the selected icon **604** to an icon display area **410** in the in-folder-icon image **403**. Such features make it possible for the user to efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

As represented in FIG. **12**, suppose the user operates the directional key **32** of the remote control **31** to move a cursor to the icon **404** in the in-folder-icon image **403**, and, while

the cursor is on the icon **404**, holds pressed the enter key **33** of the remote control **31** for a certain period of time or longer. The remote control **31** transmits an operation signal indicating an operation which keeps selecting the icon **404** for a certain period of time or longer. When the receiving unit **28** receives the operation signal, the position changing unit **26** may move the icon **404** to an icon display area (for example, the icon display area **603**) found on any given page image and displaying no icon. Hence, the user can efficiently change the display position of an icon using an input apparatus such as a remote control equipped with limited keys.

In the above description, examples of the operation that holds pressed the enter key **33** for a certain period of time or longer may include an operation which double-taps the enter key **33**.

In addition, a folder icon may include another folder icon. Here, when the user selects a folder icon in the in-folder-icon image **403**, for example, the second display control unit **23** further displays on the screen another in-folder-icon image **403** for displaying an icon included in the selected folder icon. In other words, two in-folder-icon images **403** may be displayed on the screen. Such a feature allows the user to switch the display positions of icons and move an icon over three or more hierarchies.

When icons significantly increase in number, the user has to press the directional key **32** very frequently to move a cursor to a desired icon, which could be greatly troublesome to the user. Hence, the image display control device **20** may predict an icon to be chosen next as soon as the image display control device **20** changes to the swap mode, scroll and display a page image or an in-folder-icon image, and automatically move a cursor to the predicted icon. If the prediction is right, such a feature allows the user to switch positions of icons by simply pressing the enter key **33** of the remote control **31**. For example, as soon as a game-related icon in the in-folder-icon image is selected, the image display control device **20** may move the cursor to an icon of any given game in the page image including the most game-related icons. Such a feature contributes to eliminating troubles relating to scrolling by the user if the prediction is right.

Moreover, the position changing unit **26** may automatically rearrange icons based on the attributes of icons. For example, the position changing unit **26** may automatically rearrange icons as much as possible so that game-related icons are placed on the same page or pages close to each other.

In the above embodiment, the image display control device **20** may include, but not be limited to, one of the following application-executable devices: a recording appliance such as a hard-disk drive recorder, a TV, and a personal digital assistance. For example, the image display control device **20** may be one of the following devices that are capable of reproducing content such as recorded video: a recording appliance such as a hard-disk drive recorder, a TV, and a personal digital assistance. Here, each of the icons is associated with a corresponding one of content files.

In the above embodiment, an exemplary icon displayed on the screen of the display unit **30** indicates a downloaded application; instead, the exemplary icon may indicate an application previously stored in the image display control device **20**.

Specifically, the image display control device **20** may be a computer system including a microprocessor, a ROM, a RAM, a hard disk drive, a display unit, a keyboard, a mouse. The RAM or hard disk drive stores a computer program. The image display control device **20** achieves its functions through the microprocessor's operation according to the computer program. Here, the computer program is configured by combining instruction codes indicating instructions to the computer.

A part or all of the constituent elements constituting the image display control device **20** may be configured from a single System-LSI (Large-Scale Integration). The System-LSI is a super-multi-function LSI manufactured by integrating constituent units on one chip. Specifically, the System-LSI is a computer system including a microprocessor, a ROM, and a RAM. The RAM stores a computer program. The System-LSI performs its functions through the microprocessor's operation according to the computer program.

A part or all of the constituent elements included in the image display control device **20** may be configured as an IC card which can be attached to and detached from the image display control device **20** or as a stand-alone module. The IC card or the module is a computer system configured from a microprocessor, a ROM, and a RAM. The IC card or the module achieves its function through the microprocessor's operation according to the computer program. The IC card or the module achieves its function through the microprocessor's operation according to the computer program. The IC card or the module may also be tamper-resistant.

The present disclosure may be implemented in the form of the above-described method. The present disclosure may be a computer program for implementing the above method on a computer, and may also be a digital signal including the computer program.

The present disclosure may also be implemented in the form of the computer program or the digital signal stored in a non-transitory computer-readable recording medium such as a flexible disc, a hard disk, a CD-ROM, an MO, a DVD, a DVD-ROM, a DVD-RAM, a BD (Blu-ray Disc®), and semiconductor memory. The present disclosure may be the above digital signal recorded on the computer non-transitory computer-readable recording medium.

The present disclosure may also be implemented in the form of the aforementioned computer program or digital signal transmitted via a telecommunication line, a wireless or wired communication line, a network represented by the Internet, data broadcast, and so on.

The disclosure may also be a computer system including a microprocessor and a memory, in which the memory stores the aforementioned computer program and the microprocessor operates according to the computer program.

The above program or the above digital signal may be recorded on the above non-transitory computer-readable recording media for their transportation or transmitted via the above network and so on in order to be utilized on another independent computer system.

It is noted that the essential constituent elements for an image display control device according to the present disclosure are the first display control unit **22**, the receiving unit **28**, and the second display control unit **23** included in the image display control device **20** represented in FIG. **1**. The other constituent elements do not have to be included in the image display control device.

As described above, an embodiment has been described as an exemplary technique disclosed in the present disclosure. The embodiment is supported by the attached drawings and the detailed descriptions.

Hence, the constituent elements disclosed in the attached drawings and the detailed description include not only mandatory constituent elements for solutions to the problems, but also merely optional constituent elements for

solutions to the problems to exemplify the above technique. Thus, persons skilled in the art shall not determine that the merely optional constituent elements in the attached drawings and the detailed description are essential.

The embodiment exemplifies the technique in the present disclosure, and shall include various kinds of modifications, replacements, additions, and omissions which are equivalent to and within the scope of the claims.

INDUSTRIAL APPLICABILITY

The present disclosure is applicable to one of the following application-executable or content-reproducible devices: a recording appliance such as a hard-disk drive recorder, a TV, and a personal digital assistance. In particular, the present disclosure is applicable to an image display control device which user operates using an input apparatus equipped with limited keys.

REFERENCE SIGNS LIST

10 Image display system
20 Image display control device
21 Control unit
22 First display control unit
23 Second display control unit
24 Third display control unit
25 Fourth display control unit
26 Position changing unit **26**
27 Deletion control unit
28 Receiving unit
29 Network connecting unit
30 Display unit
31 Remote control
32 Directional key
33 Enter key
101 to **108**, **202**, **207** to **213**, **404**, **406**, **408**, **604**, and **605** Icon
111 and **112** Button
201 Icon list image
203 Check box
204 to **206** Page image
301, **401**, **405**, **501**, and **701** Cursor
311 and **702** Name entering image
402 and **602** Folder icon
403 In-folder-icon image
410 and **603** Icon display area

The invention claimed is:

1. An image display control device comprising:

a processor that executes instructions contained in a memory for causing the image display device to operate at least as:

a first display control unit configured to display, on a screen, page images on each of which an icon is displayed;

a receiving unit configured to receive an operation signal indicating a user operation directed to one of the icons displayed on the screen;

a second display control unit configured to display, on one screen, both an in-folder-icon image and a plurality of the page images at the same time when the receiving unit receives an operation signal for selecting a folder icon, from among a plurality of the icons displayed on the page images, including one or more of the icons lower in hierarchy than the folder icon, the in-folder-icon image presenting the one or more icons included in the selected folder icon, the page images including a page image on which the selected folder icon is displayed; and

a position changing unit configured to

switch a first display position of a first icon on the screen with a second display position of a second icon on the screen when the receiving unit successively receives (i) a first operation signal for selecting the first icon, the first operation signal causing the image display control device to change from a non-swap mode, in which the icons displayed on the screen cannot be switched, to a swap mode, in which the icons displayed on the screen can be switched, and (ii) a second operation signal for selecting the second icon after receiving the first operation signal for selecting the first icon, and

display, after receiving the second operation signal, (i) the first icon at the second display position at which the second icon is displayed immediately before the first operation signal is received and (ii) the second icon at the first display position at which the first icon is displayed immediately before the first operation signal is received,

wherein the first display position of the first icon is fixed during a period of time from (i) when the receiving unit receives the first operation signal to (ii) when the receiving unit receives the second operation signal.

2. The image display control device according to claim **1**, wherein the page images each include icon display areas for displaying the icons, the position changing unit is further configured to move, on the screen, one of the icons to one of the icon display areas which displays no icon, when the receiving unit receives an operation signal for selecting the one icon and then the one icon display area.

3. The image display control device according to claim **1**, wherein the position changing unit is further configured to move, on the screen, one of the icons to the in-folder-icon image, when the receiving unit receives an operation signal indicating an operation which keeps selecting the one icon for a certain period of time or longer, the icons being displayed in the page images while the in-folder-icon image is displayed.

4. The image display control device according to claim **1**, wherein the position changing unit is further configured to move, on the screen, one of the icons to one of the icon display areas which displays no icon, when the receiving unit receives an operation signal indicating an operation which keeps selecting the one icon in the in-folder-icon image for a certain period of time or longer.

5. The image display control device according to claim **1**, further comprising:

a third display control unit configured to display, on the screen, an icon list image presenting a list of the icons displayable on the screen and including icons identical to the plurality of icons displayed in the page images, the first icon and the second icon being displayed in the page images and in the icon list image.

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