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(54) **IMAGE FORMING APPARATUS, IMAGE FORMING SYSTEM, NON-TRANSITORY COMPUTER READABLE RECORDING MEDIUM, AND IMAGE FORMING METHOD**

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(57) **ABSTRACT**

Provided is an image forming apparatus including a display section that displays a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation and an image forming section that performs the image formation, when the first operation instruction of the operator is input through the first operating portion displayed by the display section, onto a recording medium, and displays, when the second operation instruction of the operator is input through the second operating portion displayed by the display section, the image data stored in the storage unit as a list and performs the image formation onto the recording medium for image data selected from the list by the operator.

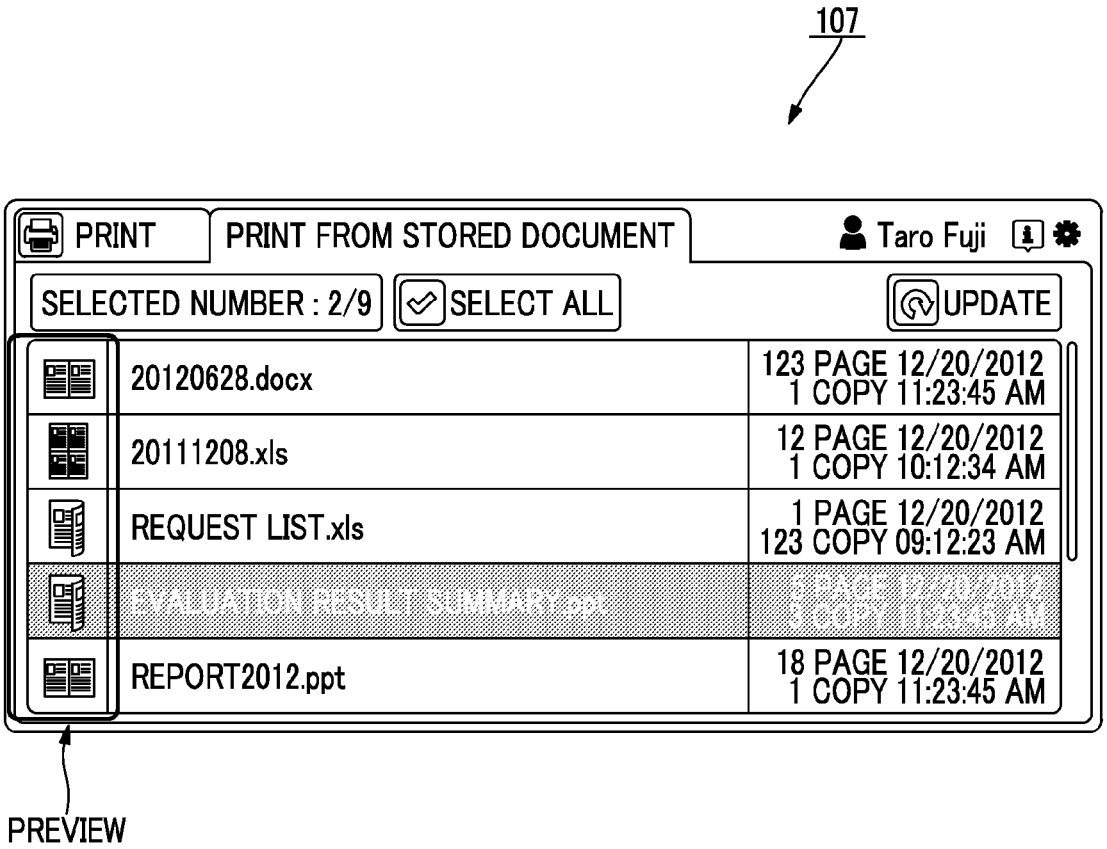


FIG. 1

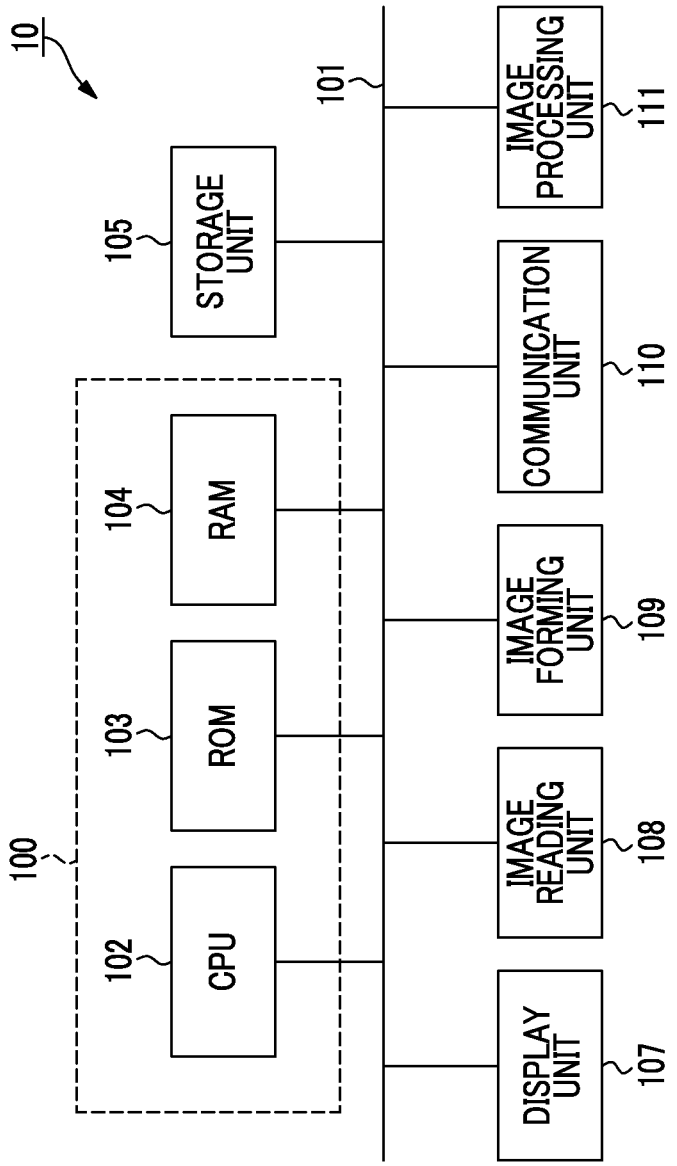

10
101
100
102
CPU
103
ROM
104
RAM
105
STORAGE UNIT
DISPLAY UNIT
107
IMAGE READING UNIT
108
IMAGE FORMING UNIT
109
COMMUNICATION UNIT
110
IMAGE PROCESSING UNIT
111

FIG. 2

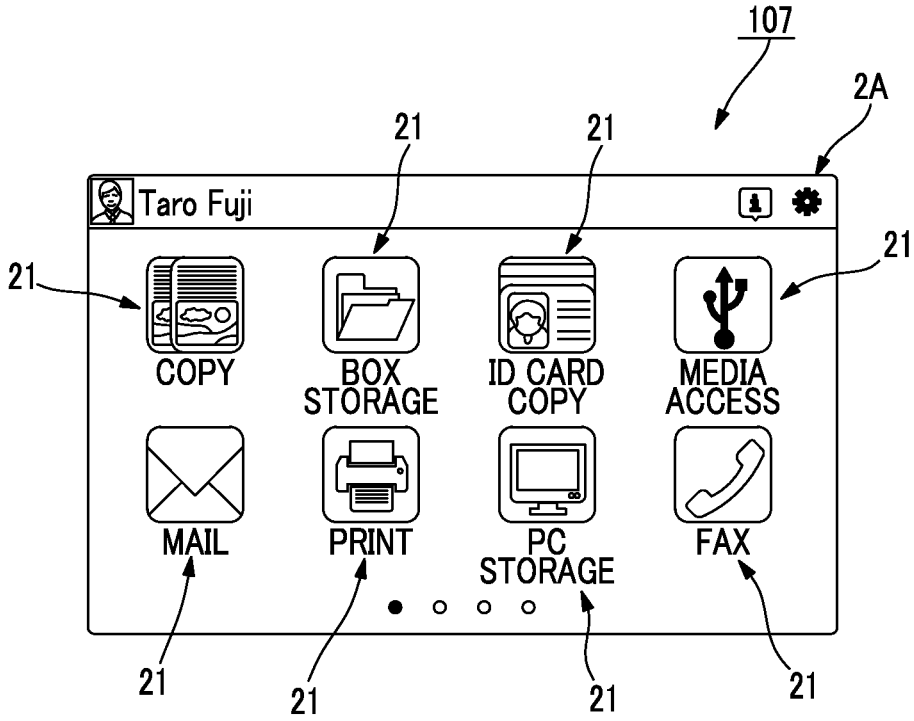

107
2A
21
21
21
21
Taro Fuji
COPY
BOX STORAGE
ID CARD COPY
MEDIA ACCESS
MAIL
PRINT
PC STORAGE
FAX
21
21
21
21

FIG. 3

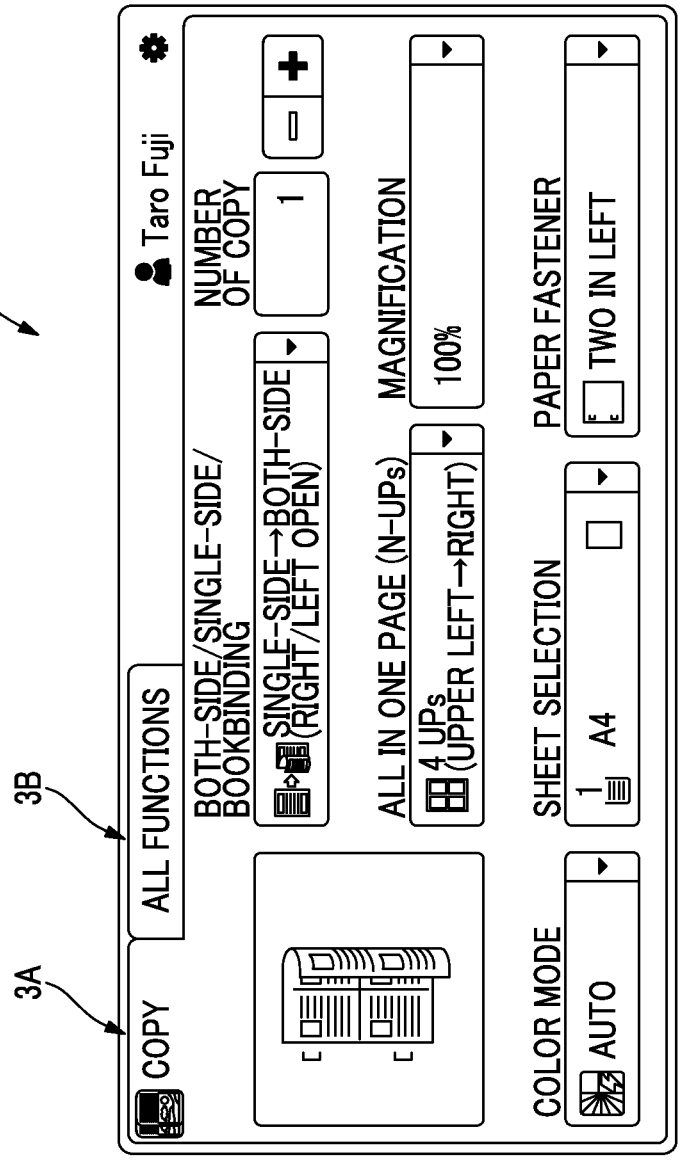

107
3A
3B
COPY
ALL FUNCTIONS
Taro Fuji
BOTH-SIDE/SINGLE-SIDE/
BOOKBINDING
SINGLE-SIDE→BOTH-SIDE
(RIGHT/LEFT OPEN)
NUMBER
OF COPY
1
ALL IN ONE PAGE (N-UPs)
4 UPs
(UPPER LEFT→RIGHT)
MAGNIFICATION
100%
COLOR MODE
AUTO
SHEET SELECTION
1 A4
PAPER FASTENER
TWO IN LEFT

FIG. 4

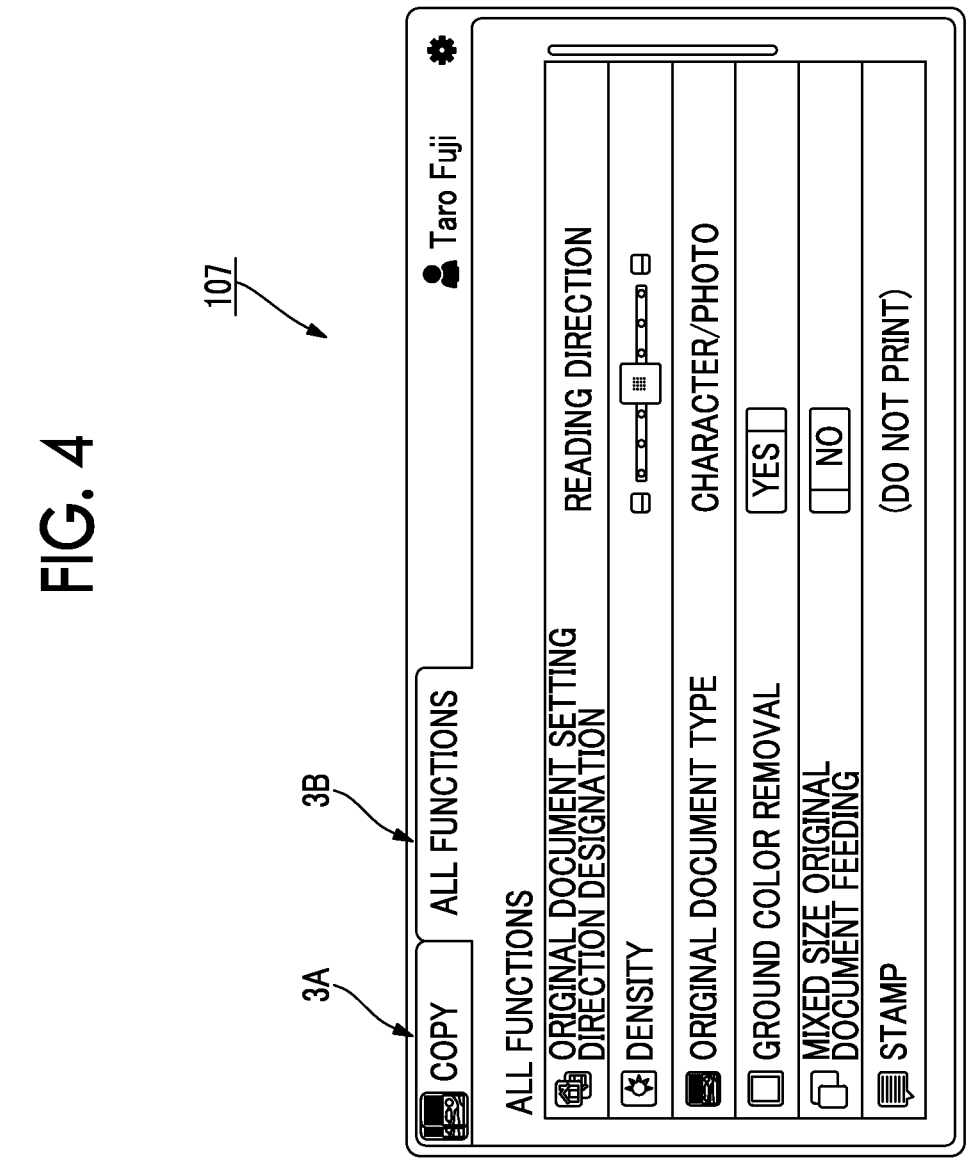

107
3A
3B
COPY
ALL FUNCTIONS
Taro Fuji
ALL FUNCTIONS
ORIGINAL DOCUMENT SETTING DIRECTION DESIGNATION
READING DIRECTION
DENSITY
ORIGINAL DOCUMENT TYPE
CHARACTER/PHOTO
GROUND COLOR REMOVAL
YES
MIXED SIZE ORIGINAL DOCUMENT FEEDING
NO
STAMP
(DO NOT PRINT)

FIG. 5

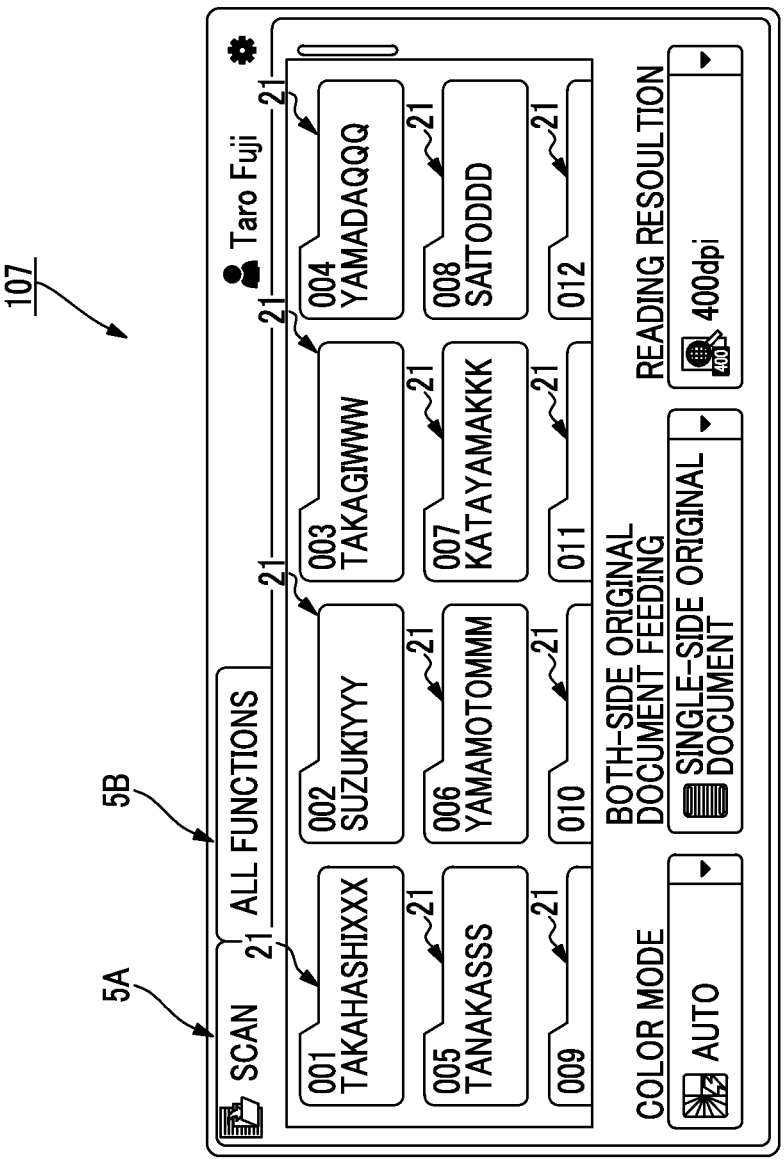

107
5A
5B
SCAN
ALL FUNCTIONS
Taro Fuji
21
001 TAKAHASHIXXX
002 SUZUKIYYY
003 TAKAGIWWW
004 YAMADAQQQ
005 TANAKASSS
006 YAMAMOTOMMM
007 KATAYAMAKKK
008 SAITODDD
009
010
011
012
COLOR MODE
AUTO
BOTH-SIDE ORIGINAL
DOCUMENT FEEDING
SINGLE-SIDE ORIGINAL
DOCUMENT
READING RESOULTION
400dpi

FIG. 6

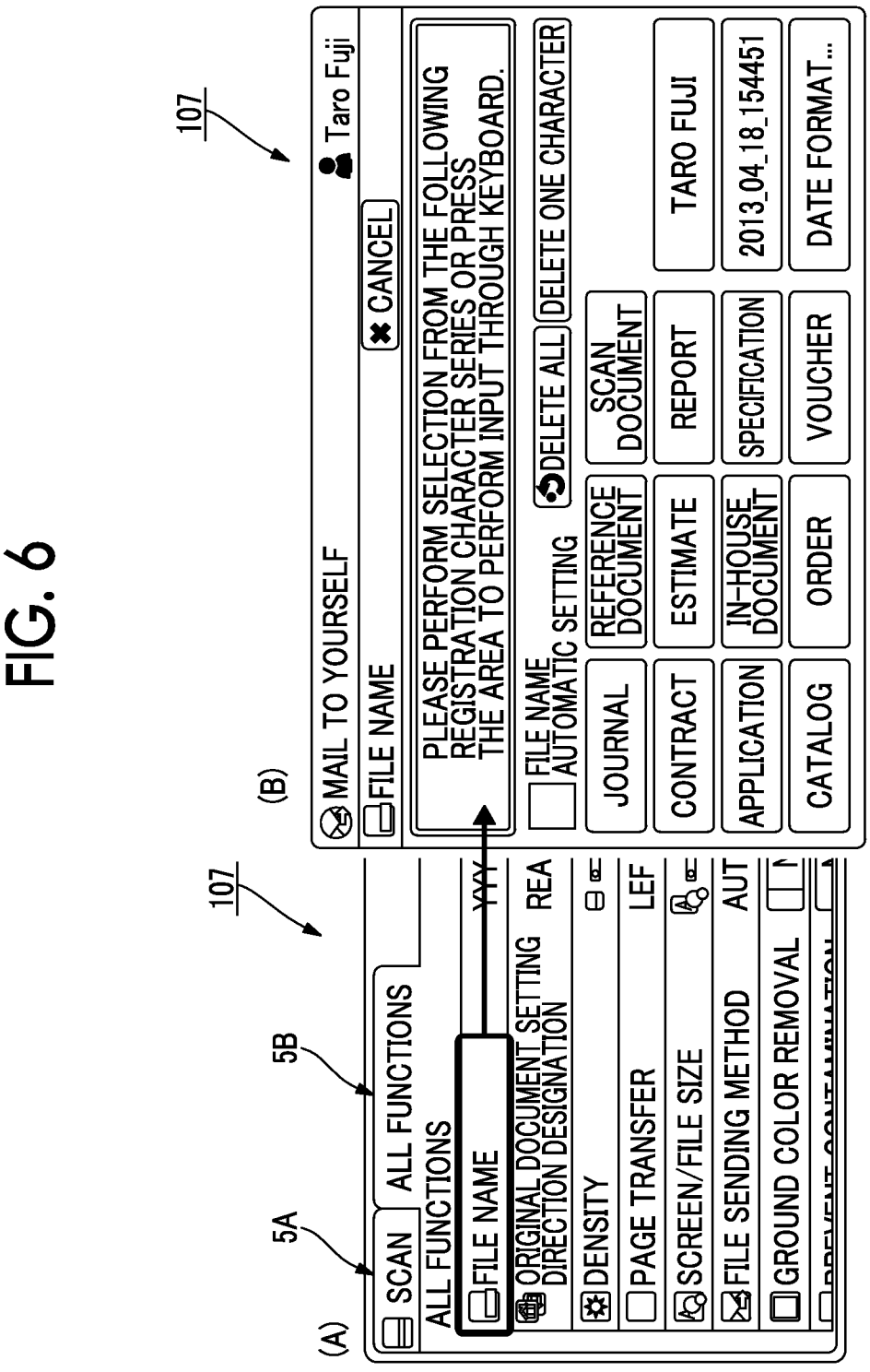

(A)
5A
5B
107
SCAN
ALL FUNCTIONS
ALL FUNCTIONS
FILE NAME
YYY
ORIGINAL DOCUMENT SETTING
DIRECTION DESIGNATION
REA
DENSITY
PAGE TRANSFER
LEF
SCREEN/FILE SIZE
FILE SENDING METHOD
AUT
GROUND COLOR REMOVAL
(B)
107
MAIL TO YOURSELF
Taro Fuji
FILE NAME
CANCEL
PLEASE PERFORM SELECTION FROM THE FOLLOWING
REGISTRATION CHARACTER SERIES OR PRESS
THE AREA TO PERFORM INPUT THROUGH KEYBOARD.
FILE NAME
AUTOMATIC SETTING
DELETE ALL
DELETE ONE CHARACTER
JOURNAL
REFERENCE DOCUMENT
SCAN DOCUMENT
CONTRACT
ESTIMATE
REPORT
TARO FUJI
APPLICATION
IN-HOUSE DOCUMENT
SPECIFICATION
2013_04_18_154451
CATALOG
ORDER
VOUCHER
DATE FORMAT...

FIG. 7

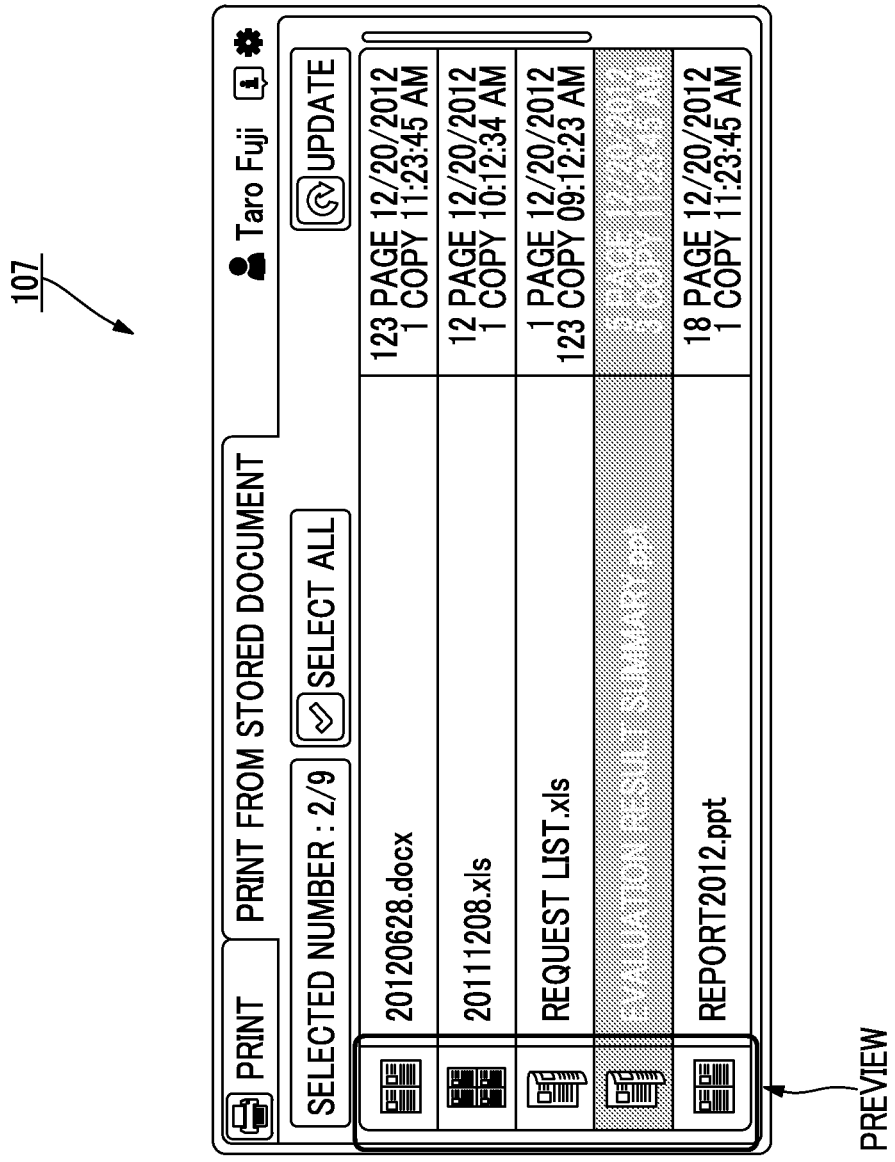

107
PRINT
PRINT FROM STORED DOCUMENT
Taro Fuji
SELECTED NUMBER : 2/9
SELECT ALL
UPDATE
20120628.docx
123 PAGE 12/20/2012
1 COPY 11:23:45 AM
20111208.xls
12 PAGE 12/20/2012
1 COPY 10:12:34 AM
REQUEST LIST.xls
1 PAGE 12/20/2012
123 COPY 09:12:23 AM
EVALUATION RESULT SUMMARY.ppt
3 PAGE 12/20/2012
3 COPY 11:23:45 AM
REPORT2012.ppt
18 PAGE 12/20/2012
1 COPY 11:23:45 AM
PREVIEW

FIG. 8

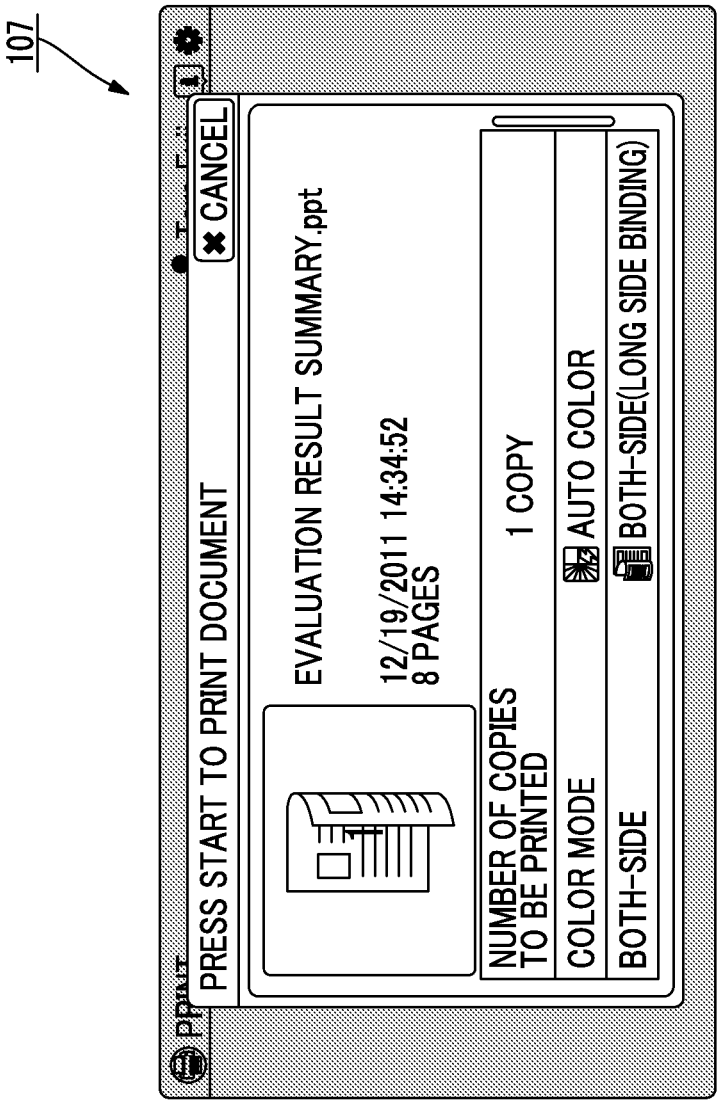

107
PRINT
PRESS START TO PRINT DOCUMENT
CANCEL
EVALUATION RESULT SUMMARY.ppt
12/19/2011 14:34:52
8 PAGES
NUMBER OF COPIES TO BE PRINTED
1 COPY
COLOR MODE
AUTO COLOR
BOTH-SIDE
BOTH-SIDE(LONG SIDE BINDING)

FIG. 9

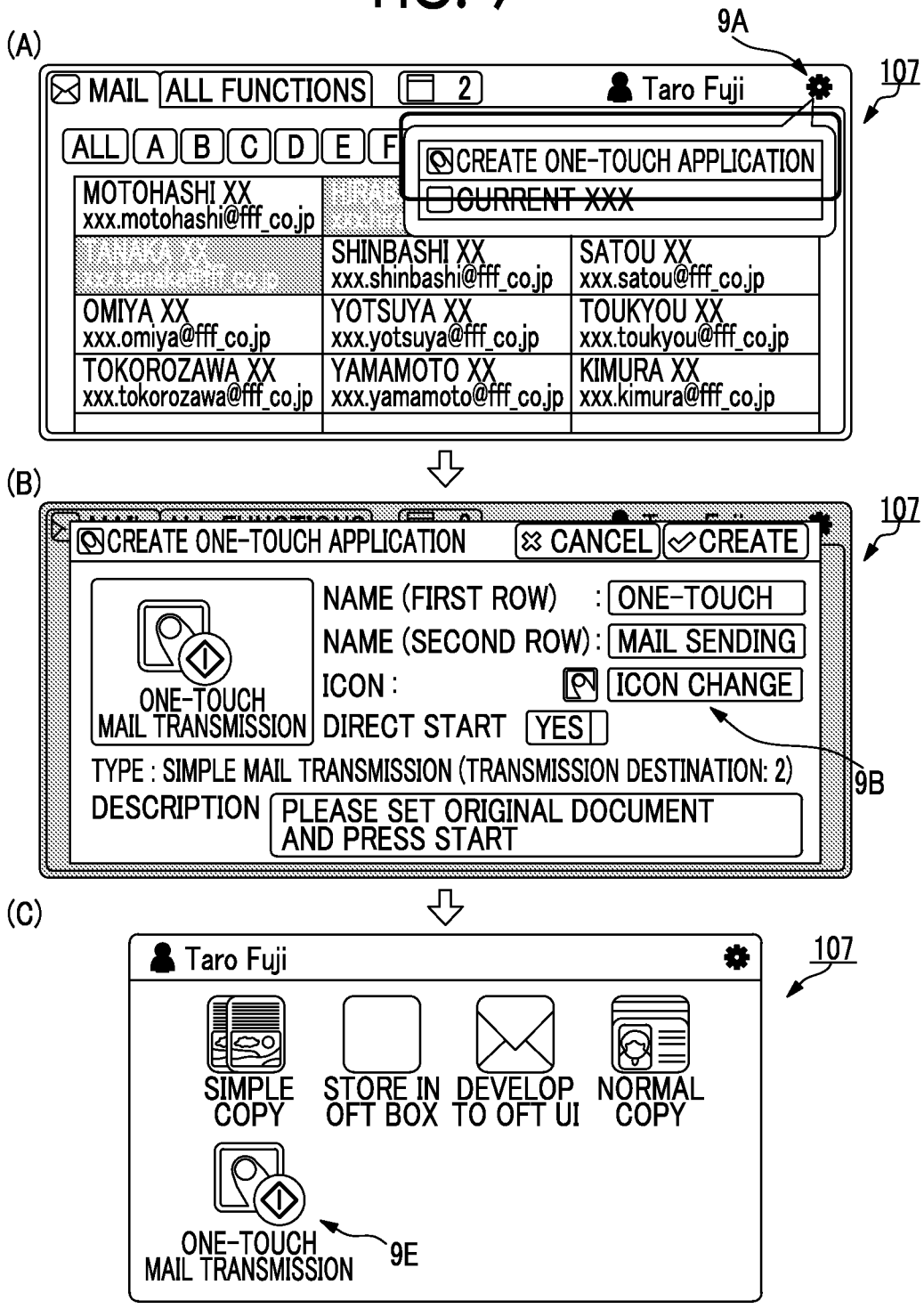

(A)
9A
107
MAIL
ALL FUNCTIONS
2
Taro Fuji
ALL
A
B
C
D
E
F
CREATE ONE-TOUCH APPLICATION
CURRENT XXX
MOTOHASHI XX
xxx.motohashi@fff_co.jp
SHINBASHI XX
xxx.shinbashi@fff_co.jp
SATOU XX
xxx.satou@fff_co.jp
OMIYA XX
xxx.omiya@fff_co.jp
YOTSUYA XX
xxx.yotsuya@fff_co.jp
TOUKYOU XX
xxx.toukyou@fff_co.jp
TOKOROZAWA XX
xxx.tokorozawa@fff_co.jp
YAMAMOTO XX
xxx.yamamoto@fff_co.jp
KIMURA XX
xxx.kimura@fff_co.jp
(B)
107
CREATE ONE-TOUCH APPLICATION
CANCEL
CREATE
ONE-TOUCH
MAIL TRANSMISSION
NAME (FIRST ROW) : ONE-TOUCH
NAME (SECOND ROW) : MAIL SENDING
ICON :
ICON CHANGE
DIRECT START
YES
TYPE : SIMPLE MAIL TRANSMISSION (TRANSMISSION DESTINATION: 2)
DESCRIPTION
PLEASE SET ORIGINAL DOCUMENT
AND PRESS START
9B
(C)
107
Taro Fuji
SIMPLE COPY
STORE IN OFT BOX
DEVELOP TO OFT UI
NORMAL COPY
ONE-TOUCH
MAIL TRANSMISSION
9E

FIG. 10

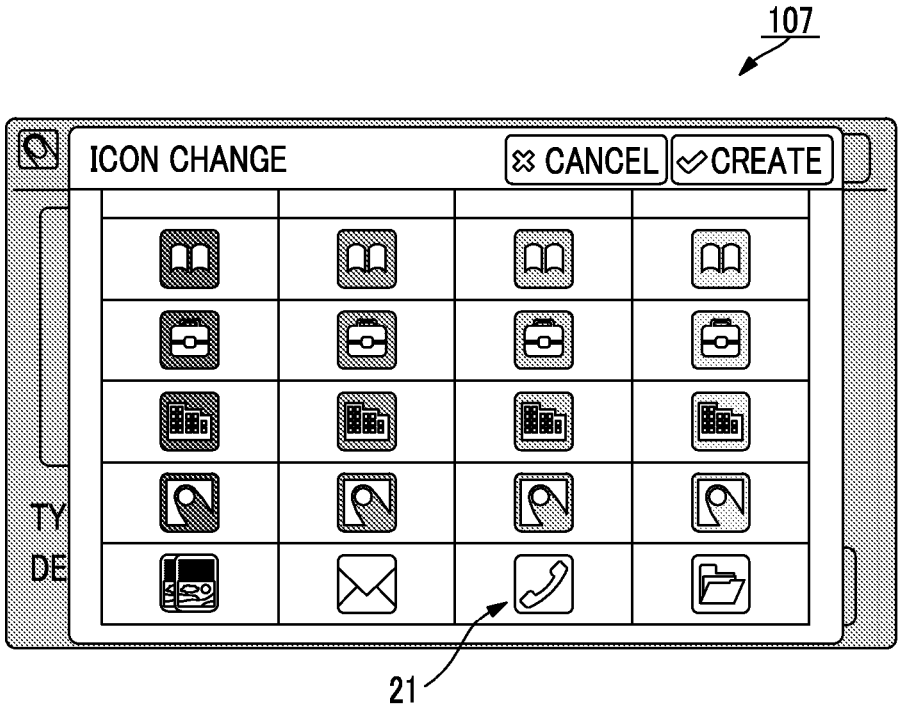
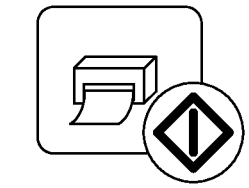
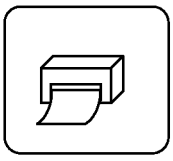


FIG. 11A



PERSONAL
BATCH PRINTING

FIG. 11B



PERSONAL PRINTING
(LIST DISPLAY)

FIG. 12

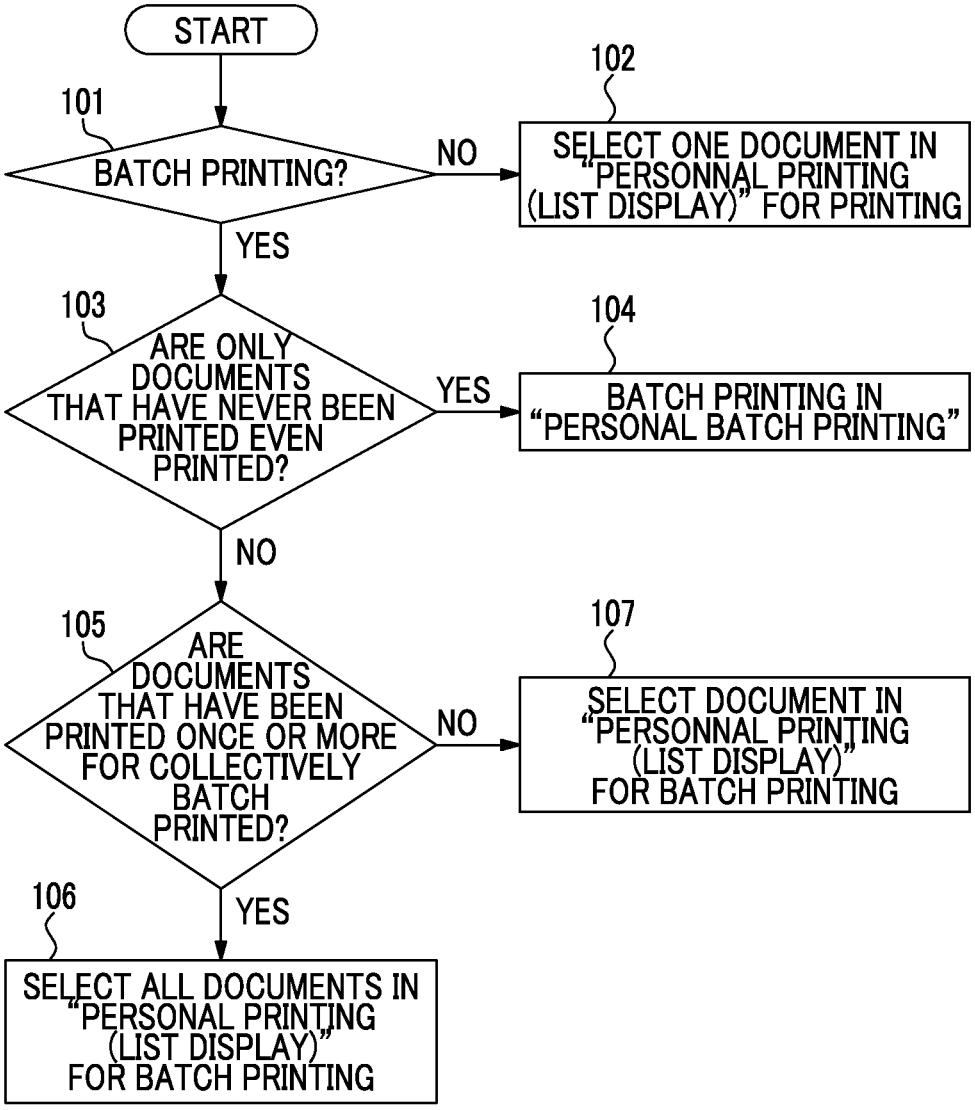

START
101
BATCH PRINTING?
NO
102
SELECT ONE DOCUMENT IN "PERSONNAL PRINTING (LIST DISPLAY)" FOR PRINTING
YES
103
ARE ONLY DOCUMENTS THAT HAVE NEVER BEEN PRINTED EVEN PRINTED?
YES
104
BATCH PRINTING IN "PERSONAL BATCH PRINTING"
NO
105
ARE DOCUMENTS THAT HAVE BEEN PRINTED ONCE OR MORE FOR COLLECTIVELY BATCH PRINTED?
NO
107
SELECT DOCUMENT IN "PERSONNAL PRINTING (LIST DISPLAY)" FOR BATCH PRINTING
YES
106
SELECT ALL DOCUMENTS IN "PERSONAL PRINTING (LIST DISPLAY)" FOR BATCH PRINTING

IMAGE FORMING APPARATUS, IMAGE FORMING SYSTEM, NON-TRANSITORY COMPUTER READABLE RECORDING MEDIUM, AND IMAGE FORMING METHOD

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on and claims priority under 35 USC 119 from Japanese Patent Application No. 2013-167135 filed Aug. 9, 2013.

BACKGROUND

Technical Field

[0002] The present invention relates to an image forming apparatus, an image forming system, a non-transitory computer readable recording medium, and an image forming method.

SUMMARY

[0003] According to an aspect of the invention, there is provided an image forming apparatus including:

[0004] a display section that displays a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation; and

[0005] an image forming section that performs the image formation, when the first operation instruction of the operator is input through the first operating portion displayed by the display section, onto a recording medium for plural pieces of image data in which the image formation has never been executed among image data stored in a storage unit provided in an own apparatus or an external device different from the own apparatus, and displays, when the second operation instruction of the operator is input through the second operating portion displayed by the display section, the image data stored in the storage unit as a list and performs the image formation onto the recording medium for image data selected from the list by the operator.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Exemplary embodiments of the present invention will be described in detail based on the following figures, wherein:

[0007] FIG. **1** is a block diagram illustrating a hardware configuration of an image forming apparatus according to an exemplary embodiment of the invention;

[0008] FIG. **2** is a diagram illustrating a display example in a display unit;

[0009] FIG. **3** is a diagram illustrating a display screen after a "copy" selection button shown in FIG. **2** is selected by a user;

[0010] FIG. **4** is a diagram illustrating a display example in the display unit;

[0011] FIG. **5** is a diagram illustrating a display screen when "box storage" on a home screen shown in FIG. **2** is selected;

[0012] (A) and (B) of FIG. **6** are diagrams illustrating display screens when a second tab is selected;

[0013] FIG. **7** is a diagram illustrating a display screen after "personal printing" is selected;

[0014] FIG. **8** is a diagram illustrating a display screen after a file is selected;

[0015] (A) to (C) of FIG. **9** are diagrams illustrating display screens when a user creates one-touch selection buttons;

[0016] FIG. **10** is a diagram illustrating a list of the one-touch selection buttons;

[0017] FIGS. **11**A and **11**B are diagrams illustrating selection buttons used in the personal printing; and

[0018] FIG. **12** is a flowchart illustrating an example of a printing procedure due to the personal printing.

DETAILED DESCRIPTION

[0019] Hereinafter, exemplary embodiments of the invention will be described with reference to the accompanying drawings.

[0020] FIG. **1** is a block diagram illustrating a hardware configuration of an image forming apparatus **10** according to an exemplary embodiment of the invention. The image forming apparatus **10** of the exemplary embodiment includes a control unit **100**, a storage unit **105**, a display unit **107**, an image reading unit **108**, an image forming unit **109**, a communication unit **110**, and an image processing unit **111**. The respective functional units are connected to a bus **101** to perform data exchange through the bus **101**.

[0021] The control unit **100** controls the respective functional units provided in the image forming apparatus **10**. Here, the control unit **100** includes a central processing unit (CPU) **102**, a read only memory (ROM) **103**, and a random access memory (RAM) **104**.

[0022] The ROM **103** stores a control program executed by the CPU **102**. The CPU **102** reads the control program stored in the ROM **103**, and executes the control program using the RAM **104** as an operating area. If the control program is executed by the CPU **102**, the respective functional units of the image forming apparatus **10** are controlled. Thus, for example, a predetermined display is performed in the display unit **107**, and image formation onto a sheet is performed. Further, reading of an original document set in the image reading unit **108**, or the like is performed.

[0023] The program executed by the CPU **102** may be provided in a state where the program is stored in a computer readable recording medium such as a magnetic recording medium (magnetic tape, magnetic disk or the like), an optical recording medium (optical disc or the like), a magneto-optical recording medium or a semiconductor memory. Further, the program may be downloaded to the image forming apparatus **10** using a communication unit such as the internet.

[0024] The display unit **107** is formed by a liquid crystal touch panel display, for example, and displays data relating to the image forming apparatus **10**, for example, under the control of the control unit **100**. Further, the display unit **107** displays a display screen for receiving an operation from a user, and receives the operation from the user through the display screen.

[0025] The image reading unit **108** includes an image reader (scanner) that reads a document to generate image data indicating an image of the document, and outputs the generated image data to the image processing unit **111**.

[0026] The image forming unit **109** has an image forming mechanism that forms a toner image based on the image data, for example, on a sheet that is a recording medium by an electrophotographic technique or the like.

[0027] The communication unit **110** is connected to a communication line (not shown), and functions as a communica-

tion interface that performs communication with a different device connected to the communication line.

[0028] The image processing unit **111** performs image processing such as color correction, gradation correction and the like for the input image data, and generates image data subjected to the image processing to output the image data to the image forming unit **109**.

[0029] The storage unit **105** includes a memory such as a hard disk drive, and for example, stores data received through the communication unit **110** or data generated in the image forming apparatus **10**.

[0030] FIG. **2** is a diagram illustrating a display example in the display unit **107**.

[0031] A home screen shown in FIG. **2** is normally displayed in the display unit **107**. On the home screen, plural selection buttons (icons) **21** are displayed. As any one button of the selection buttons **21** is selected (pressed) by a user, a function corresponding to the selected selection button **21** is executed.

[0032] Specifically, in the example shown in FIG. **2**, as the selection buttons **21**, selection buttons **21** for selecting any one of "copy", "box storage", "ID card copy", "media access", "mail", "print", "PC storage" and "fax" are displayed. Further, in the exemplary embodiment, if the user selects any one of these selection buttons **21**, a screen for performing detailed setting is then displayed. Then, if a predetermined button such as a start button is pressed by the user, a process such as copy is started.

[0033] The home screen of the exemplary embodiment is configured by plural pages, and is switched to another page by drawing a "ground" portion (background portion) on the display screen shown in FIG. **2** in a left direction in the figure while pressing the "ground" portion with a finger. Additionally, in the exemplary embodiment, the page switching is performed by a so-called flick operation. If the page switching is performed, different selection buttons **21** appear.

[0034] Further, in the display unit **107** of the exemplary embodiment, each of the selection buttons **21** is movable according to an operation. Specifically, by moving a finger in a state where the selection button **21** is pressed by the finger, it is possible to move the selection button **21**. In other words, in the exemplary embodiment, the movement of the selection button **21** is performed by drag-and-drop.

[0035] Further, in the exemplary embodiment, if the selection button **21** is continuously pressed for a predetermined time, or if a gear-shaped symbol (symbol indicated by reference numeral **2**A) positioned in an upper right part of the screen is pressed in a state where any one of the selection buttons **21** is selected, the screen is switched, so that detailed setting of functions associated with the selected selection button **21** may be performed.

[0036] FIG. **3** is a diagram illustrating a display screen after the "copy" selection button **21** shown in FIG. **2** is selected (pressed) by a user.

[0037] On this display screen, two tabs (hereinafter, referred to as a "first tab **3**A" and a "second tab **3**B") are provided as indicated by reference numerals **3**A and **3**B. If only two tabs are present in this way, a button (button to be operated) necessary for a user is present in any one tab. Then, if the tab is moved once, the necessarily necessary buttons are present, and thus, it is possible to reduce the number of times of the movement of the tab until the user selects a tab in which a necessary button (button to be operated) is present, compared with a case where there are three or more tabs, for example, four, five or the like.

[0038] In other words, if there are many tabs, it is difficult to recognize a matching relationship between the tabs and their functions. However, as in the exemplary embodiment, if only two tabs are present, it is easy to recognize the matching relationship between the tabs and their functions.

[0039] Here, in a state where the first tab **3**A is selected, as shown in FIG. **3**, setting items such as "both-side/single-side/bookbinding", "the number of copies", "the number of N-ups (the number of pages integrated in one page)", "magnification", "color mode", "sheet selection" and "paper fastener" are displayed. In other words, in the exemplary embodiment, on the display screen when the first tab **3**A is selected, setting items considered to have a relatively high frequency of change by the user are displayed.

[0040] On the other hand, in the exemplary embodiment, with respect to setting items considered to have a relatively low frequency of change by the user, as shown in FIG. **4** (illustrating a display example in the display unit **107**), the display is performed by a display screen when the second tab **3**B is selected.

[0041] Here, on the display screen shown in FIG. **4**, the respective setting items (respective items that are to be set by the user) are arranged in a longitudinal direction of the screen to be displayed. In other words, the setting items are displayed in a list form. On the display screen shown in FIG. **4**, hidden setting items are also displayed by performing scroll downward in the figure.

[0042] Here, on the display screen when the second tab **3**B is selected, other setting items are also displayed by performing scroll in one direction (downward in the figure). Thus, the user may easily find a setting item that the user is looking for.

[0043] Here, for example, it may be considered that the respective setting items are displayed in a button form and are arranged in a lattice form. In this case, the user should move the user's sight line in a longitudinal direction and in a transverse direction as necessary. In this case, it is difficult for the user to find the setting item that the user is looking for, compared with the case where the setting items are displayed by performing scroll in one direction as in the exemplary embodiment.

[0044] FIG. **5** is a diagram illustrating a display screen when the "box storage" on the home screen shown in FIG. **2** is selected.

[0045] If the "box storage" on the home screen is selected, as shown in FIG. **5**, the screen is switched to a display screen in which plural selection buttons **21** that are given user names are displayed. On this display screen, similarly to the previous display screen, two tabs (hereinafter, referred to as a "first tab **5**A" and a "second tab **5**B") are provided.

[0046] FIG. **5** shows a state where the first tab **5**A is selected. Further, in the exemplary embodiment, if the "box storage" is selected and the display screen is switched, first, the first tab **5**A is displayed. Further, in the exemplary embodiment, as the user separately selects the second tab **5**B, a display screen corresponding to the second tab **5**B is displayed.

[0047] Here, the box storage refers to a process of storing the image data generated by reading the original document using the image reading unit **108** (see FIG. **1**) in the storage unit **105**. Here, if any one of the selection buttons **21** shown in FIG. **5** is selected by the user, a storage destination is designated, and the image data is stored in the storage destination.

[0048] Until the storage destination is selected, all the respective selection buttons **21** shown in FIG. **5** enter an off state (of approximately the same color as the color of "ground"), and if the storage destination is selected, the buttons are switched to a different color to enter an on state (selected state).

[0049] Further, on the display screen shown in FIG. **5**, setting items ("color mode", "original document feeding mode" and "reading resolution") having a high change frequency from the user are displayed at the lowermost part of the screen. With respect to the setting items, the content thereof may be changed without performing screen switching (without selecting the second tab **5**B).

[0050] (A) and (B) of FIG. **6** are diagrams illustrating display screens when the second tab **5**B is selected.

[0051] As shown in (A) of FIG. **6**, when the second tab **5**B is selected, other setting items capable of being set in the box storage are displayed. In this case, the respective setting items may be displayed in a list form, similarly to the above description. Here, in the exemplary embodiment, a file name is given to each original document that is read by the image reading unit **108**. Further, in the exemplary embodiment, if the setting item of "filename" shown in (A) of FIG. **6** is selected, a file name input display screen is displayed as shown in (B) of FIG. **6**. In the exemplary embodiment, the user inputs a desired file name through the display screen.

[0052] Next, personal printing will be described.

[0053] In the personal printing, image data generated by a personal computer (PC) or the like of a user is transmitted to the image forming apparatus **10**, and is temporarily stored in the storage unit **105** (see FIG. **1**) of the image forming apparatus **10**. Further, as the user inputs a start instruction through the display unit **107**, image formation onto the sheet is started.

[0054] In the personal printing, since the image formation is performed in a state where the user is present in the vicinity of the image forming apparatus **10**, the user may obtain a printed matter immediately after the printed matter is output. In this case, it is difficult for a person other than the user to obtain the printed matter.

[0055] Here, when the personal printing is performed, the home screen shown in FIG. **2** is operated, and a "personal printing" selection button (not shown in FIG. **2**) is selected by the user. Then, if the "personal printing" selection button is selected, the screen is switched to a display screen shown in FIG. **7** (that is a diagram showing a display screen after the "personal printing" is selected).

[0056] Here, on the display screen after switching shown in FIG. **7**, file names of plural pieces of image data (printing jobs) stored in the storage unit **105** are displayed in a list form. In other words, the respective file names are displayed in a state of being arranged in the longitudinal direction. Further, on a left side of the file name in the figure, a preview screen indicating a state of a sheet after printing is displayed.

[0057] Here, if one of the plural files shown in FIG. **7** is selected, the screen is switched to a screen shown in FIG. **8** (that is a diagram showing a display screen after the file is selected). Here, on this display screen, setting items are displayed at a lower half part of the screen. Specifically, in this example, three setting items of "the number of copies", "color mode" and "both-side printing" are displayed.

[0058] Further, the file name is displayed at an upper right part of the display screen, and the preview screen indicating the state of the sheet after printing is displayed at an upper left part of the display screen. In the exemplary embodiment, each of the three setting items may be changed on the display screen shown in FIG. **8**. If any setting item is changed, the preview screen is also changed according to the change. That is, in the exemplary embodiment, the preview screen is dynamically changed according to the change of the setting item.

[0059] Here, in the exemplary embodiment, as described above, the files are displayed in the list form in this way, and then, the user selects a desired file to be printed. Then, the selected file is printed.

[0060] Although not shown, in the exemplary embodiment, a "personal batch printing" selection button **21** is also prepared on the home screen, and if this selection button **21** is pressed, accumulated documents that are not yet output are printed in a batch by one-touch (without performing a different input operation). In other words, in the exemplary embodiment, two types of selection buttons **21** of "personal printing (list display)" and "personal batch printing" are prepared with respect to the personal printing.

[0061] However, in the image forming apparatus **10** of the exemplary embodiment, in addition to the selection buttons **21** that are prepared in advance, a new selection button **21** may be created by the user. In other words, in the exemplary embodiment, it is possible to create the selection button **21** (hereinafter, referred to as a "one-touch selection button **21**") through which the process is started by performing selection of the selection button **21** once (by performing the input operation once instead of performing the input operation plural times). The "personal batch printing" selection button **21** corresponds to the one-touch selection button **21**.

[0062] Here, when the user creates the one-touch selection button **21**, a gear-shaped symbol (symbol indicated by reference numeral **9**A) positioned at an upper right part in (A) of FIG. **9** (that is a diagram illustrating a display screen when the user creates the one-touch selection button **21**) is pressed by the user. The display screen shown in (A) of FIG. **9** displays a screen in mail transmission. In other words, (A) of FIG. **9** shows a state after the "mail" selection button **21** shown in FIG. **2** is selected so that the display screen is switched.

[0063] Here, if the gear-shaped symbol is pressed, a display screen shown in (B) of FIG. **9** is displayed. Here, on this display screen, information necessary for the creation of the one-touch selection button **21** is input by the user. Specifically, a name (first row) and a name (second row) are input by the user. Here, in the one-touch selection button **21** (one-touch selection button **21** after creation) of the exemplary embodiment, the names are displayed in two stages. The "name (first row)" represents a name displayed in the upper stage among two stages, and the "name (second row)" represents a name displayed in the lower stage among two stages.

[0064] Further, on the display screen shown in (B) of FIG. **9**, a button (see reference numeral **9**B) to be pressed by the user when changing a symbol of the one-touch selection button **21** (icon) is also displayed. If this button is pressed by the user, a screen shown in FIG. **10** (that is a diagram illustrating a list of the one-touch selection buttons **21**) is displayed. Here, if the user selects one one-touch selection button **21** from the screen, the selected one one-touch selection button **21** is registered as a new one-touch selection button **21**. Further, in the exemplary embodiment, the user may register an explanation. When registration of the explanation is desired, the user inputs the explanation in a box positioned at a lower part of the display screen (display screen shown in (B) of FIG. **9**).

[0065] Here, if the user's input for the display screen shown in (B) of FIG. **9** is finished, the user presses a "create" button positioned at an upper right part in the figure. Thus, the display is switched into a display screen shown in (C) of FIG. **9**, and a "one-touch mail transmission" one-touch selection button **21** is added on the display screen (on the home screen).

[0066] Hereinbefore, the process of creating the one-touch selection button **21** is described. However, in the exemplary embodiment, the user may create the selection button **21** for displaying a confirmation screen after selecting the selection button **21** and for executing the process by inputting a start button. The one-touch selection button **21** and the normal selection button **21** are formed to be distinguished from each other on the display screen. As indicated by reference numeral **9**E in (C) of FIG. **9**, a diamond-shaped mark is added to the one-touch selection button **21**. In the exemplary embodiment, the start button for executing the process after the confirmation screen is displayed is disposed in a different place (not shown) of the image forming apparatus, instead of the display screen.

[0067] In the above description, the display process in the image forming apparatus **10** is described, but the display process may be similarly performed in a device (device such as a tablet terminal, for example) other than the image forming apparatus **10**.

[0068] Hereinafter, the personal printing will be described in detail.

[0069] In the personal printing, the image data generated by the PC or the like by the user is transmitted to the image forming apparatus **10**, and is temporarily stored in the storage unit **105** (see FIG. **1**) that is an example of a storage unit. Further, in the exemplary embodiment, identification information for identifying the user who generates the image data is associated with all image data stored in the storage unit **105**, and the image data and the identification information are stored in the storage unit **105** in association. Further, the user moves close to the image forming apparatus **10**, and for example, holds up a security card or inputs a password, so that user authentication is performed. Thus, the identification information is obtained by the image forming apparatus **10**, and then, the personal printing is performed using the identification information (details thereof will be described later).

[0070] Next, respective processes when the "personal printing (list display)" selection button **21** and the "personal batch printing" selection button **21** displayed on the display screen under the control of the control unit **100** that is an example of a display section are selected by the user will be described.

[0071] When the "personal printing (list display)" selection button **21** that is an example of a second operating portion is selected by the user, the control unit **100** obtains file names of all of the image data associated with the identification information of the user among the image data stored in the storage unit **105**. Further, as shown in FIG. **7**, the control unit **100** displays the obtained file names on the display screen in a list form. Here, if the user selects one or plural file names from the list, the control unit **100** obtains the image data corresponding to the one or plural selected file names from the storage unit **105**. Further, the printing is performed by the image forming unit **109** that is an example of an image forming section based on the obtained image data.

[0072] Further, when the user selects the button of "select all" on the display screen shown in FIG. **7** (select all), the control unit **100** obtains image data corresponding to all the file names of the list from the storage unit **105**. Further, the printing is performed based on the obtained image data. When the user selects the "select all", the printing is performed for the entire image data, regardless of whether the image data has been printed or not. Further, after the printing is finished based on the "personal printing (list display)", the control unit **100** gives a flag (hereinafter, referred to as a print flag) for recording the fact that the printing is finished to the image data of which the printing is finished.

[0073] On the other hand, when the "personal batch printing" selection button **21** that is an example of a first operating portion is selected by the user, the control unit **100** extracts image data associated with the identification information of the user from among the image data stored in the storage unit **105**. Further, the control unit **100** obtains all image data that has never been printed from among the extracted image data. Here, a print flag is given to image data that has been printed once or more among the image data stored in the storage unit **105**. Thus, the control unit **100** confirms the presence or absence of the print flag to obtain the image data that has never been printed. Then, the printing is performed based on the obtained image data. Further, in the "personal batch printing", after the printing, the printed image data is deleted from the storage unit **105** by the control unit **100** that is an example of a deleting section, different from the "personal printing (list display)".

[0074] If the "personal batch printing" selection button **21** is selected in this way, non-output accumulated documents that have never been printed are printed in a batch by one-touch. However, when the printing is performed by the "personal batch printing", after the printing, the printed image data is deleted. Thus, the print flag is not given to the image data printed by the "personal batch printing".

[0075] Next, the display of the selection button **21** used in the personal printing will be described.

[0076] In the personal printing, two types of selection buttons **21** of the "personal batch printing" and the "personal printing (list display)" are displayed on the home screen.

[0077] FIGS. **11**A and **11**B are diagrams illustrating the selection buttons **21** used in the personal printing. A button shown in FIG. **11**A corresponds to the "personal batch printing" selection button **21**, and a button shown in FIG. **11**B corresponds to the "personal printing (list display)" selection button **21**.

[0078] As shown in FIGS. **11**A and **11**B, in the exemplary embodiment, a symbol of the image forming apparatus is given to the "personal batch printing" selection button **21** and the "personal printing (list display)" selection button **21** as a common image. Thus, it is easy for the user to recognize that the process relating to image formation is performed by the two selection buttons **21**. Further, as shown in FIG. **11**A, in the "personal batch printing" selection button **21**, a diamond-shaped mark that is an example of another image indicating the one-touch selection button **21** is added to the symbol of the image forming apparatus. Thus, it is easy for the user to recognize by the diamond-shaped mark that the process that is partially different is performed between the "personal batch printing" selection button **21** and the "personal printing (list display)" selection button **21**.

[0079] Next, a procedure when the user performs printing by the personal printing will be described.

[0080] FIG. **12** is a flowchart illustrating an example of a printing procedure based on the personal printing. In the flow in FIG. **12**, as an initial state, it is assumed that plural pieces

of image data generated by the PC by the user are transmitted to the image forming apparatus **10** and are stored in the storage unit **105**.

[0081] First, the user selects whether to print plural documents in a batch (step **101**). If the printing is not performed in a batch (No in step **101**), the user may select the "personal printing (list display)" selection button **21**. If the "personal printing (list display)" selection button **21** is selected, file names of image data associated with identification information of the user are displayed in a list form. Further, the user selects one file name to be printed, and thus, the printing of the selected document is performed (step **102**).

[0082] On the other hand, if the printing is performed in a batch (Yes in step **101**), the user selects whether to print only documents that have never been printed in a batch (step **103**). Here, if only the documents that have never been printed are printed in a batch (Yes in step **103**), the user may select the "personal batch printing" selection button **21**. If the "personal batch printing" selection button **21** is selected, the documents that have never been printed are printed in a batch without a different input operation of the user (step **104**).

[0083] Further, if documents including the documents that have been printed once or more are printed in a batch (No in step **103**), the user selects whether to collectively print the documents that have been printed once or more and the documents that have never been printed (step **105**). If the collective printing is performed (Yes in step **105**), the user may select the "personal printing (list display)" selection button **21**, and then, may select all the file names that are list-displayed. If all the file names are selected by the "personal printing (list display)", all of the documents that have been printed once or more and the documents that have never been printed are printed (step **106**).

[0084] On the other hand, if the user prints in a batch any one of the documents that have been printed once or more and the documents that have never been printed (No in step **105**), the user may select the "personal printing (list display)" selection button **21**. Further, the user may select file names to be printed in a batch among the documents that have been printed once or more and the documents that have never been printed, from the displayed list of the file names. If the file names of the list are selected, the printing of the selected documents is performed (step **107**).

[0085] As described above, the personal printing includes the two types of selection buttons **21** of the "personal batch printing" and "personal printing (list display)". Further, when the user selects the "personal batch printing" selection button **21**, the non-output accumulated documents that have never been printed are printed in a batch without a different input operation. Further, after the printing, the printed image data is deleted.

[0086] On the other hand, when the user selects the "personal printing (list display)" selection button **21**, the file names of the documents that have been printed once or more and the documents that have never been printed are displayed in a list form. Further, as the user selects the file name on the display screen, the selected document is printed. Here, the printed image data is not deleted, and remains stored in the storage unit **105**.

[0087] In this way, since the two types of selection buttons **21** of the "personal batch printing" and the "personal printing (list display)" are prepared, the user may use the "personal printing (list display)" when selecting a document to be printed. Further, the user may use the "personal batch printing" when printing only the non-output accumulated documents in a batch, and thus, for example, it is possible to reduce the burden of the user, compared with a configuration in which the user selects file names to perform printing.

[0088] Further, for example, with respect to documents to be printed only once, if the user uses the "personal batch printing", since image data after printing is deleted, and thus, exhaustion of the storage capacity of the storage unit **105** is suppressed, so that the storage capacity is effectively used.

[0089] Further, for example, for the document to be printed again, if the user uses the "personal printing (list display)", since image data after printing is stored as it is, the user selects the same file name on the display screen so that the selected document may be printed again.

[0090] In this way, the user may determine which selection button **21** for the personal printing is to be selected according to the document to be printed, and thus, convenience in printing is improved.

[0091] Further, in the exemplary embodiment, the image data is transmitted to the image forming apparatus **10** to be stored in the storage unit **105**, but the invention is not limited this configuration. For example, the image data may be transmitted to an external device connected to the image forming apparatus **10** to be stored in a storage unit provided in the external device.

[0092] Further, in the exemplary embodiment, if the "personal printing (list display)" is selected by the user, as shown in FIG. **7**, the file names of all the image data associated with the identification information of the user among the image data stored in the storage unit **105** are displayed, but for example, the documents that have been printed once or more and the documents that have never been printed may be separately displayed.

[0093] In this case, for example, instead of or in addition to the tab of "printing from stored documents" on the display screen shown in FIG. **7**, two tabs of "printing from history" and "printing from non-output documents" may set. With such a configuration, if the user selects the tab of "printing from history", file names of documents that have been printed once or more, among the image data associated with the identification information of the user, in the image data stored in the storage unit **105** are displayed in a list form. Further, if the user selects the tab of "printing from non-output documents", file names of documents that have never been printed, among the image data associated with the identification information of the user, in the image data stored in the storage unit **105** are displayed in a list form. Further, the user may select a file name to be printed from the displayed list of the file names.

[0094] Further, if the user selects the tab of "printing from history" and selects a button of "select all" on the display screen, documents that have been printed once or more are selected in a batch to be collectively printed. Further, if the user selects the tab of "printing from non-output documents" and selects a button of "select all" on the display screen, documents that have never been printed are selected in a batch to be collectively printed.

[0095] The foregoing description of the exemplary embodiments of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obviously, many modifications and variations will be apparent to practitioners skilled in the art. The embodiments were chosen and described in order to best explain the

principles of the invention and its practical applications, thereby enabling others skilled in the art to understand the invention for various embodiments and with the various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims and their equivalents.

What is claimed is:

1. An image forming apparatus comprising:

a display section that displays a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation; and

an image forming section that performs the image formation, when the first operation instruction of the operator is input through the first operating portion displayed by the display section, onto a recording medium for a plurality of pieces of image data in which the image formation has never been executed among image data stored in a storage unit provided in an own apparatus or an external device different from the own apparatus, and displays, when the second operation instruction of the operator is input through the second operating portion displayed by the display section, the image data stored in the storage unit as a list and performs the image formation onto the recording medium for image data selected from the list by the operator.

2. The image forming apparatus according to claim **1**,

wherein the display section displays a third operating portion that displays, when the second operation instruction of the operator is input through the second operating portion displayed by the display section, the image data stored in the storage unit as the list to select the plurality of pieces of displayed image data in a batch.

3. The image forming apparatus according to claim **2**,

wherein the third operating portion selects in a batch the plurality of pieces of image data in which the image formation has been executed.

4. The image forming apparatus according to claim **2**,

wherein the third operating portion selects in a batch both of the plurality of pieces of image data in which the image formation has been executed and the image data in which the image formation has never been executed.

5. The image forming apparatus according to claim **1**, further comprising:

a deleting section that deletes, after the first operation instruction of the operator is input through the first operating portion and the image formation onto the recording medium is performed based on the image data in which the image formation has never been executed, the image data from the storage unit.

6. The image forming apparatus according to claim **1**,

wherein when the second operation instruction of the operator is input through the second operating portion, the image data selected by the operator is not deleted and is maintained in a state of being stored in the storage unit as the state is after the image formation is performed by the image forming section.

7. The image forming apparatus according to claim **1**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

8. The image forming apparatus according to claim **2**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

9. The image forming apparatus according to claim **3**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

10. The image forming apparatus according to claim **4**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

11. The image forming apparatus according to claim **5**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

12. The image forming apparatus according to claim **6**,

wherein the first operating portion and the second operating portion displayed by the display section respectively include a common image that is common to both of the first operating portion and the second operating portion, and

one of the first operating portion and the second operating portion additionally includes a separate image other than the common image.

13. An image forming system comprising:

a storage unit that stores input image data;

a display section that displays a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation; and

an image forming section that performs the image formation, when the first operation instruction of the operator is input through the first operating portion displayed by the display section, onto a recording medium for a plurality of pieces of image data in which the image forma-

tion has never been executed among image data stored in the storage unit, and displays, when the second operation instruction of the operator is input through the second operating portion displayed by the display section, the image data stored in the storage unit as a list and performs the image formation onto the recording medium for image data selected from the list by the operator.

14. A non-transitory computer readable recording medium storing a program that causes a computer to execute a process, the process comprising:

outputting data for displaying a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation; and

causing an image forming section to perform the image formation, when the first operation instruction of the operator is input through the displayed first operating portion, onto a recording medium for a plurality of pieces of image data in which the image formation has never been executed among image data stored in a storage unit, and to display, when the second operation instruction of the operator is input through the displayed second operating portion, the image data stored in the storage unit as a list and to perform the image formation onto the recording medium for image data selected from the list by the operator.

15. An image forming method comprising:

outputting data for displaying a first operating portion through which a first operation instruction of an operator is input and a second operating portion through which a second operation instruction different from the first operation instruction is input, on a display screen in image formation; and

causing an image forming section to perform the image formation, when the first operation instruction of the operator is input through the displayed first operating portion, onto a recording medium for a plurality of pieces of image data in which the image formation has never been executed among image data stored in a storage unit, and to display, when the second operation instruction of the operator is input through the displayed second operating portion, the image data stored in the storage unit as a list and to perform the image formation onto the recording medium for image data selected from the list by the operator.

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