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(54) PRINTING APPARATUS AND ITS CONTROL METHOD, JOB PROCESSING METHOD, AND PRINTING SYSTEM

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G06K 15/00 (2006.01)

(52) **U.S. Cl.** **358/1.14**

(57) **ABSTRACT**

When authentication data input before execution of print processing based on a secure print job is authenticated, a copy is printed based on the secure print job (S**1909**). When print processing for the designated number of copies is to be executed after the print processing, the control prompts the user to input authentication data (S**1914**) before the print processing. When the authentication data is authenticated, print processing is executed based on the secure print job for the designated number of copies (S**1916**).

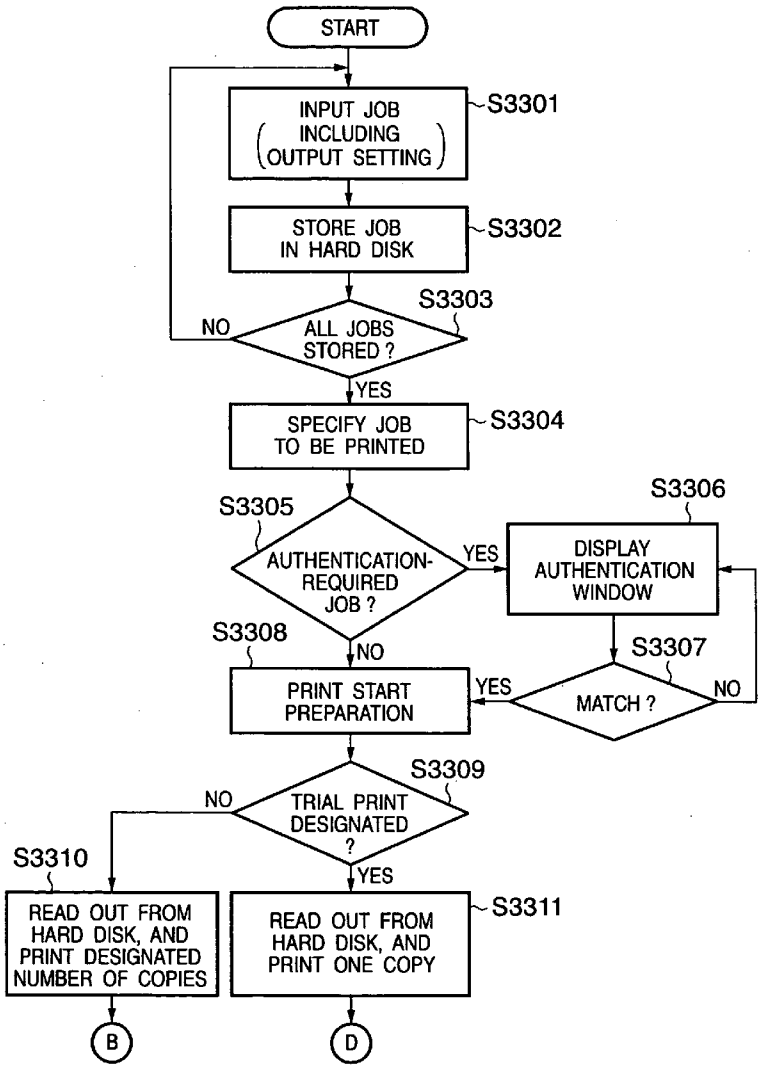


FIG. 1

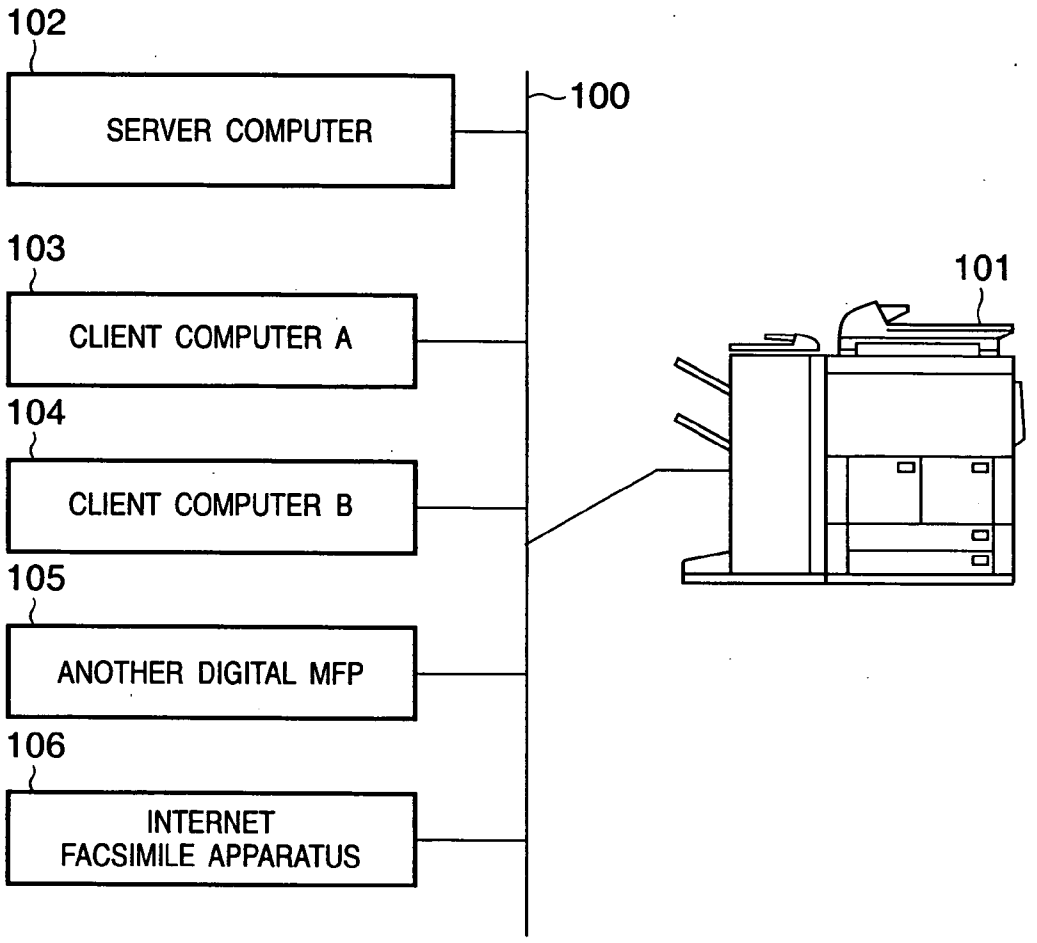

102
SERVER COMPUTER
100
103
CLIENT COMPUTER A
101
104
CLIENT COMPUTER B
105
ANOTHER DIGITAL MFP
106
INTERNET
FACSIMILE APPARATUS

FIG. 2

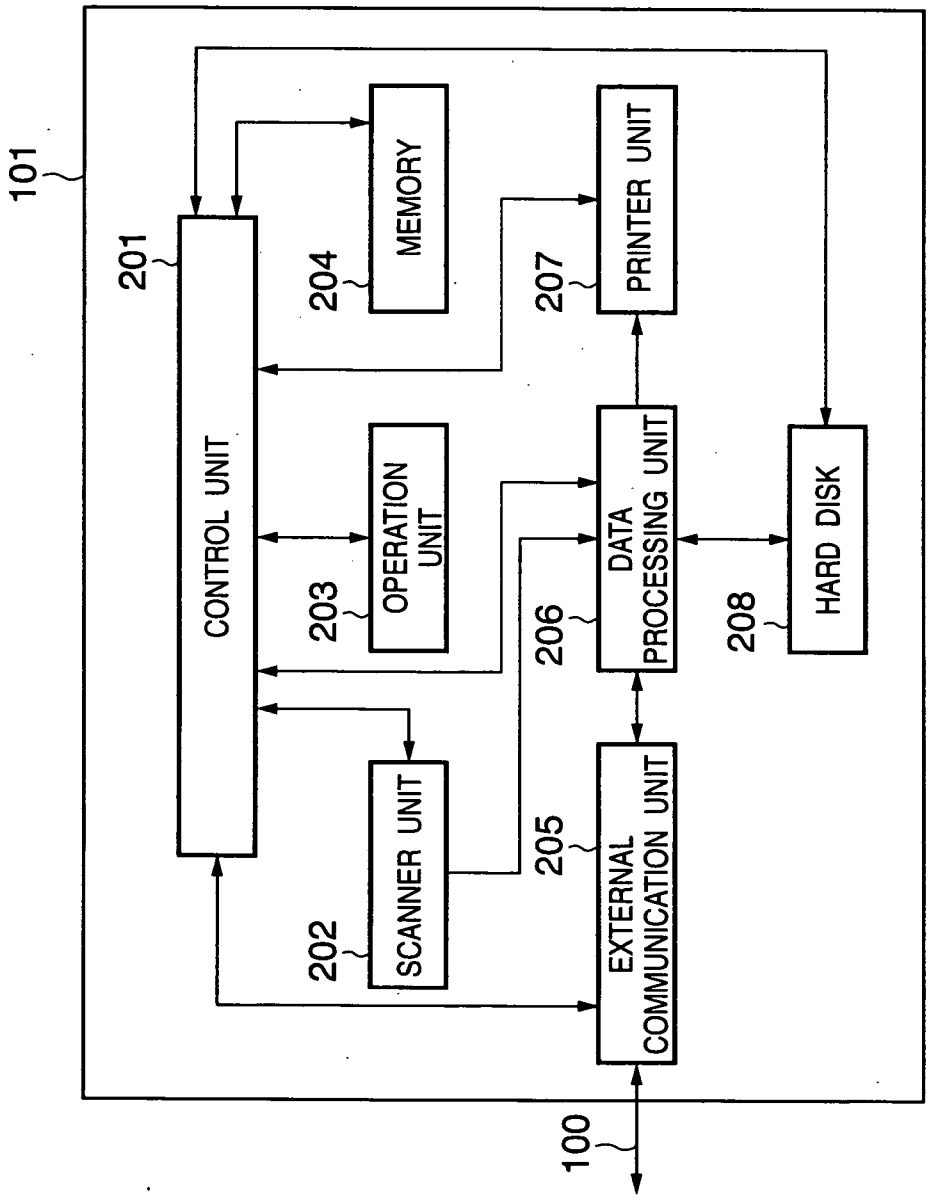

101
201
CONTROL UNIT
204
MEMORY
207
PRINTER UNIT
203
OPERATION UNIT
206
DATA PROCESSING UNIT
208
HARD DISK
202
SCANNER UNIT
205
EXTERNAL COMMUNICATION UNIT
100

FIG. 3

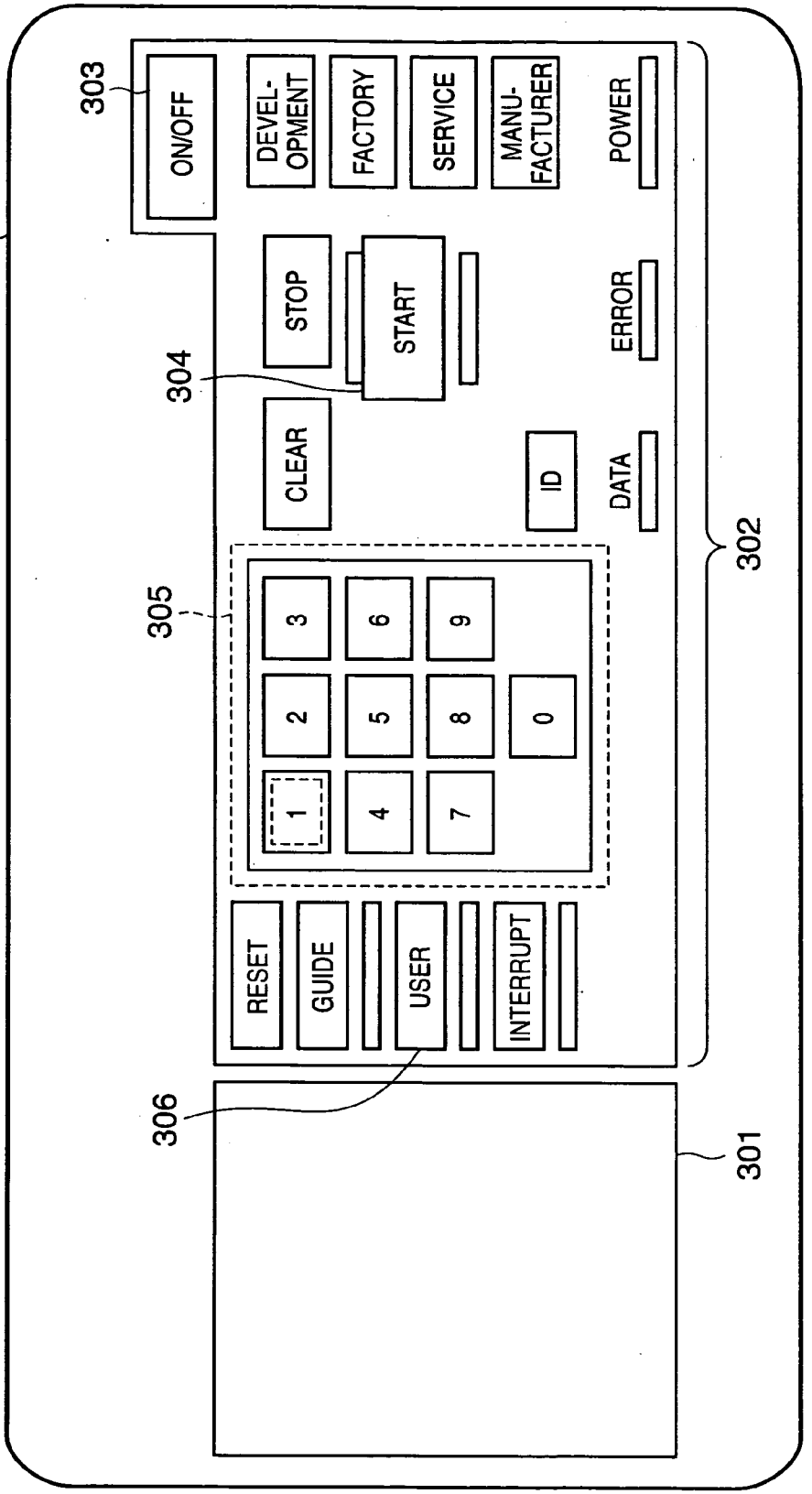

203
303
ON/OFF
DEVEL-OPMENT
FACTORY
SERVICE
MANU-FACTURER
POWER
304
STOP
START
ERROR
CLEAR
ID
DATA
302
305
3
6
9
2
5
8
0
1
4
7
RESET
GUIDE
USER
INTERRUPT
306
301

FIG. 4

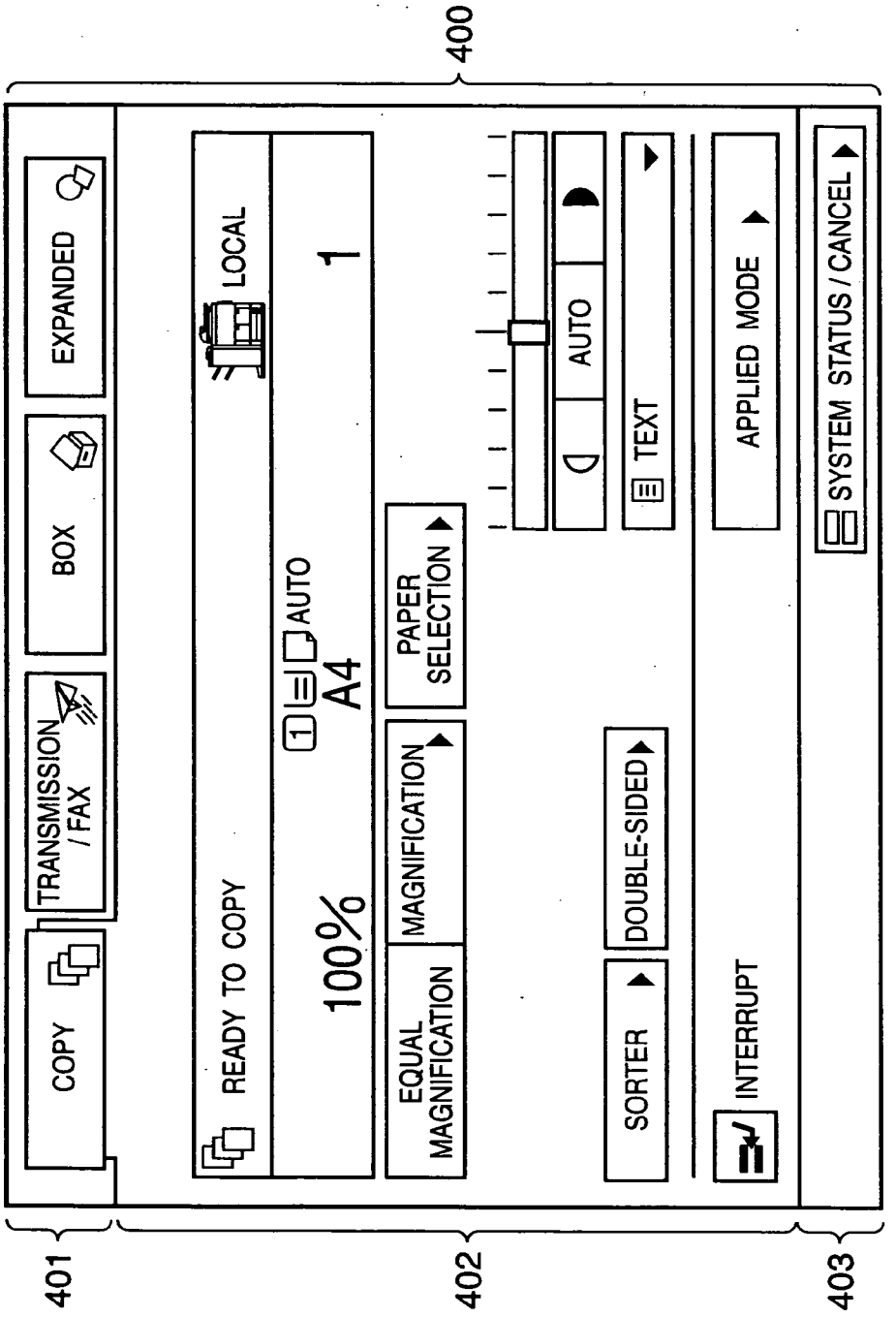

301
400
COPY
TRANSMISSION / FAX
BOX
EXPANDED
READY TO COPY
LOCAL
AUTO
A4
100%
1
EQUAL MAGNIFICATION
MAGNIFICATION
PAPER SELECTION
AUTO
TEXT
SORTER
DOUBLE-SIDED
APPLIED MODE
INTERRUPT
SYSTEM STATUS / CANCEL
401
402
403

FIG. 5

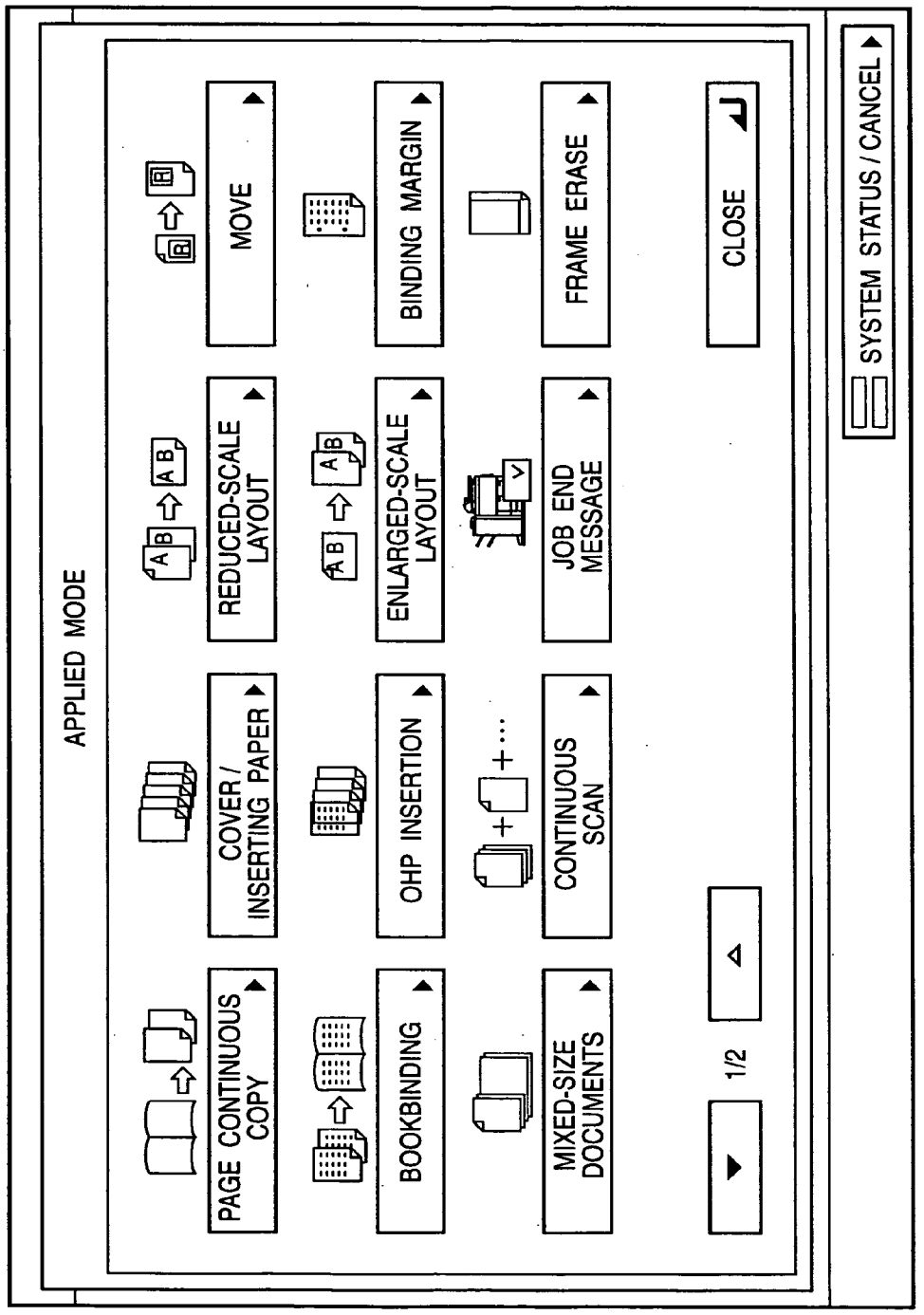

APPLIED MODE
PAGE CONTINUOUS COPY
COVER / INSERTING PAPER
REDUCED-SCALE LAYOUT
MOVE
BOOKBINDING
OHP INSERTION
ENLARGED-SCALE LAYOUT
BINDING MARGIN
MIXED-SIZE DOCUMENTS
CONTINUOUS SCAN
JOB END MESSAGE
FRAME ERASE
1/2
CLOSE
SYSTEM STATUS / CANCEL

FIG. 6

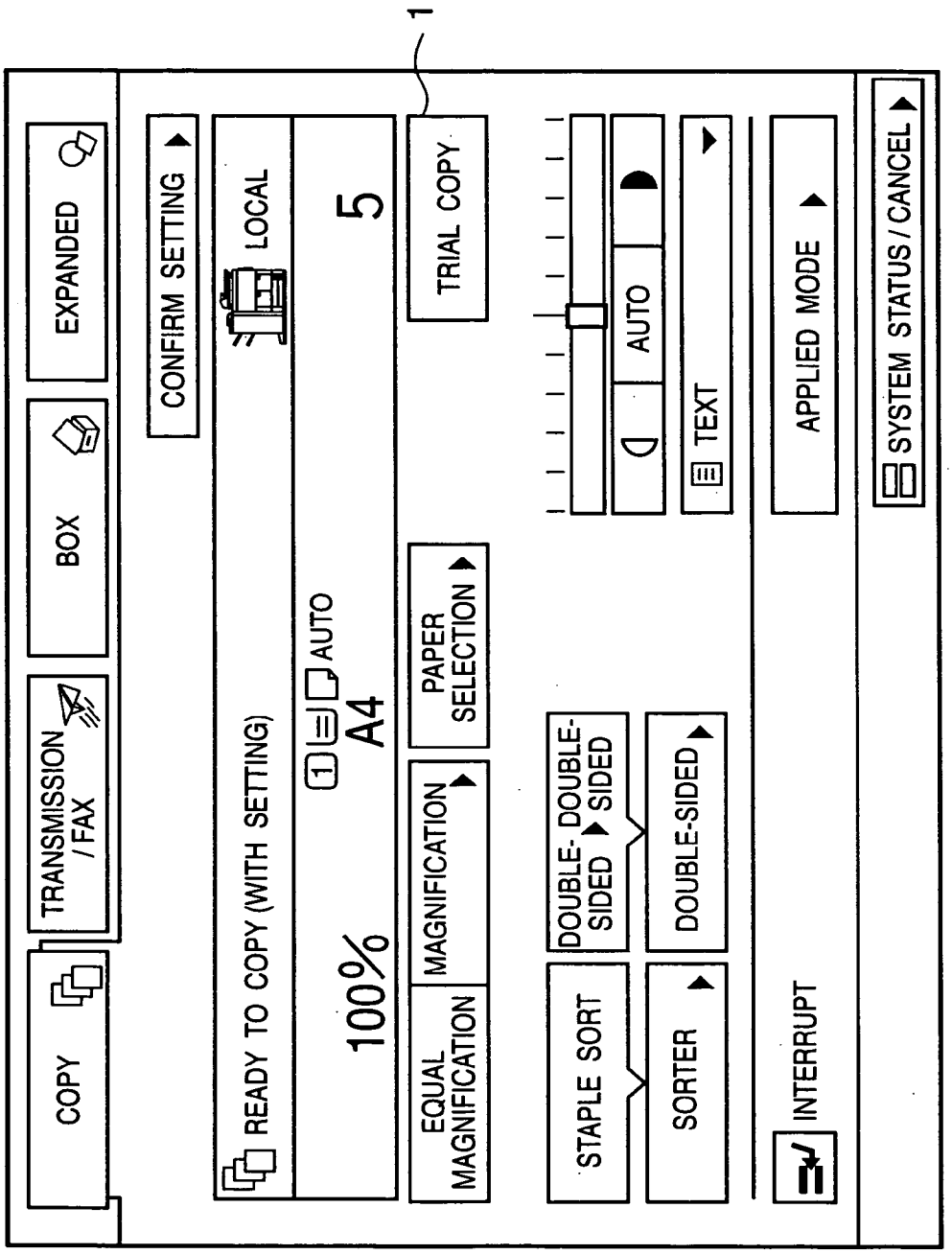

1
COPY
TRANSMISSION /FAX
BOX
EXPANDED
CONFIRM SETTING
READY TO COPY (WITH SETTING)
LOCAL
AUTO
A4
100%
5
TRIAL COPY
EQUAL MAGNIFICATION
MAGNIFICATION
PAPER SELECTION
STAPLE SORT
SORTER
DOUBLE-SIDED
DOUBLE-SIDED
DOUBLE-SIDED
AUTO
TEXT
APPLIED MODE
INTERRUPT
SYSTEM STATUS / CANCEL

FIG. 7

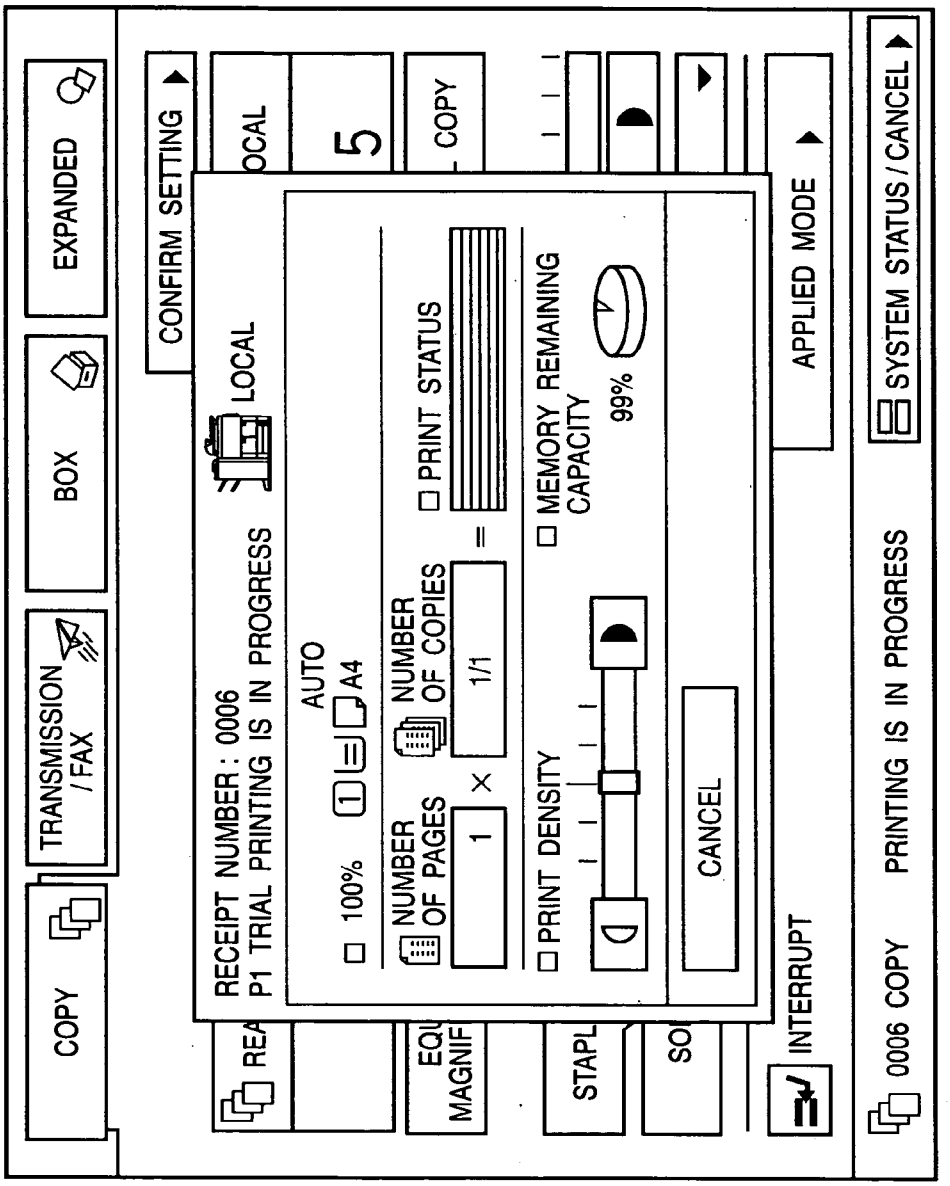

COPY
TRANSMISSION / FAX
BOX
EXPANDED
CONFIRM SETTING
RECEIPT NUMBER : 0006
P1 TRIAL PRINTING IS IN PROGRESS
LOCAL
AUTO
100%
A4
NUMBER OF PAGES
1
NUMBER OF COPIES
1/1
PRINT STATUS
PRINT DENSITY
MEMORY REMAINING CAPACITY
99%
CANCEL
APPLIED MODE
INTERRUPT
0006 COPY PRINTING IS IN PROGRESS
SYSTEM STATUS / CANCEL
COPY
5

FIG. 8

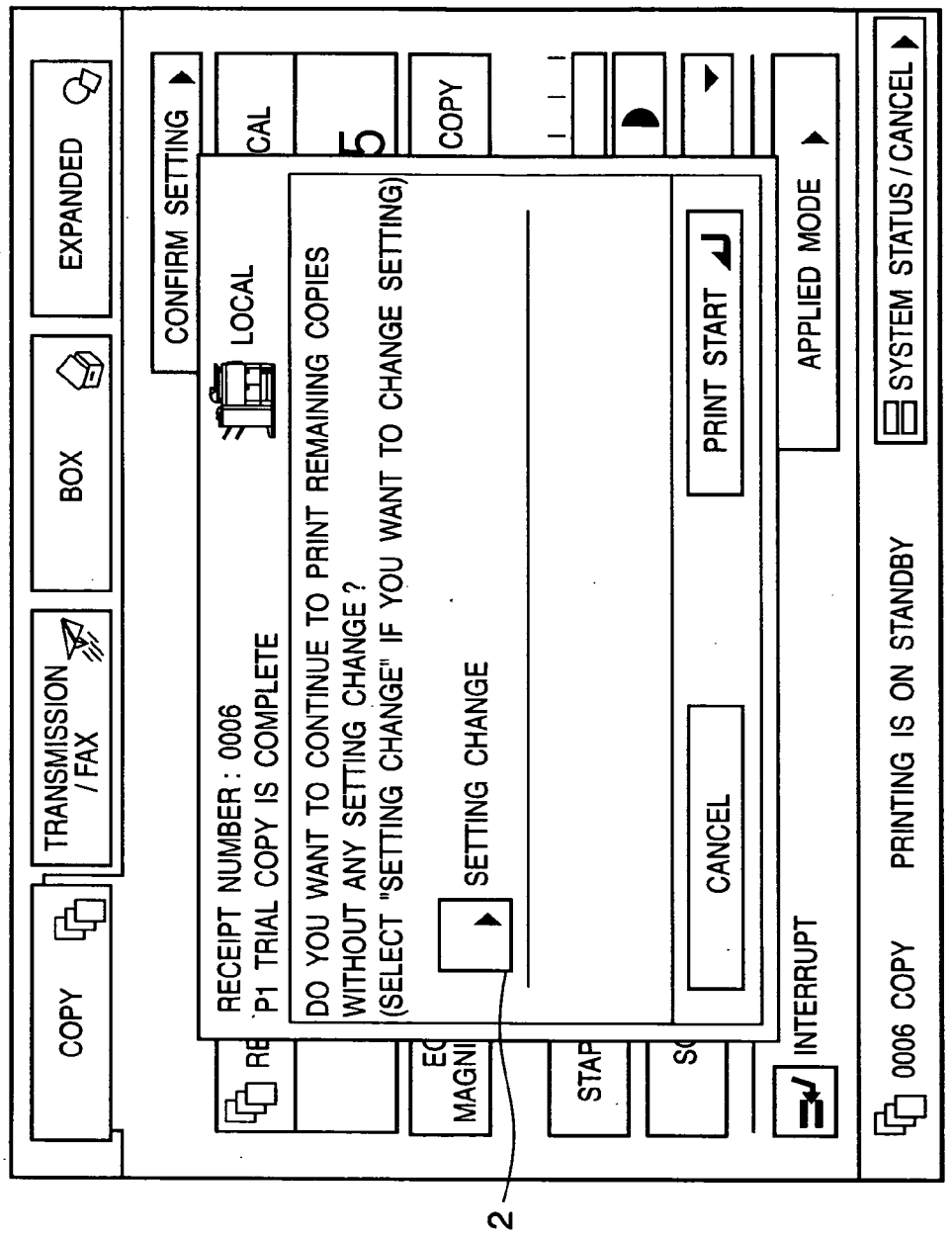

COPY
TRANSMISSION / FAX
BOX
EXPANDED
CONFIRM SETTING
LOCAL
CAL
5
COPY
RECEIPT NUMBER : 0006
P1 TRIAL COPY IS COMPLETE
DO YOU WANT TO CONTINUE TO PRINT REMAINING COPIES WITHOUT ANY SETTING CHANGE ?
(SELECT "SETTING CHANGE" IF YOU WANT TO CHANGE SETTING)
SETTING CHANGE
CANCEL
PRINT START
APPLIED MODE
INTERRUPT
SYSTEM STATUS / CANCEL
0006 COPY
PRINTING IS ON STANDBY
2

FIG. 9

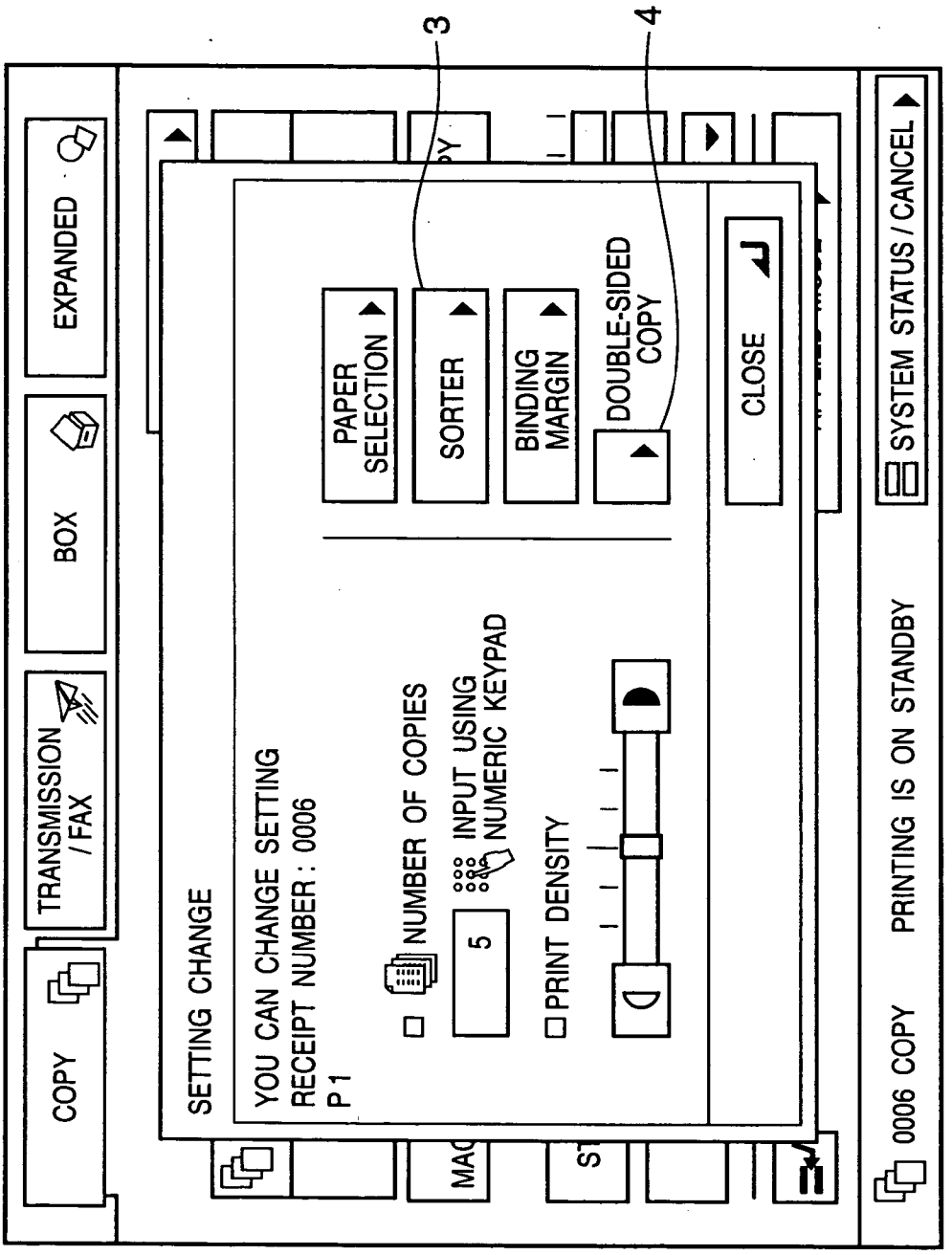

3
4
COPY
TRANSMISSION /FAX
BOX
EXPANDED
SETTING CHANGE
YOU CAN CHANGE SETTING
RECEIPT NUMBER : 0006
P 1
NUMBER OF COPIES
5
INPUT USING NUMERIC KEYPAD
PRINT DENSITY
PAPER SELECTION
SORTER
BINDING MARGIN
DOUBLE-SIDED COPY
CLOSE
SYSTEM STATUS / CANCEL
0006 COPY
PRINTING IS ON STANDBY

FIG. 10

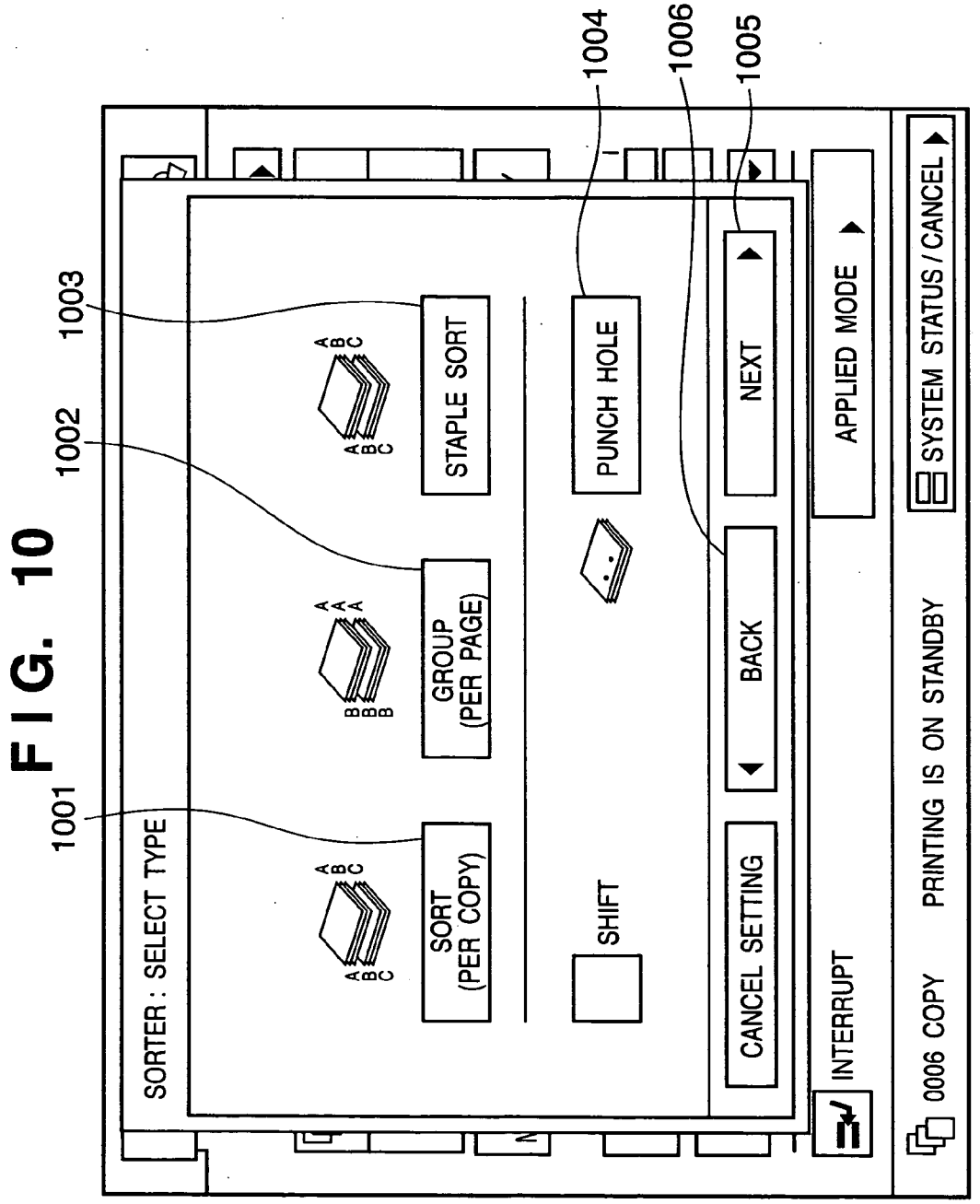

1001
1002
1003
1004
1005
1006
SORTER : SELECT TYPE
SORT (PER COPY)
GROUP (PER PAGE)
STAPLE SORT
SHIFT
PUNCH HOLE
CANCEL SETTING
BACK
NEXT
APPLIED MODE
INTERRUPT
SYSTEM STATUS / CANCEL
0006 COPY
PRINTING IS ON STANDBY

FIG. 11

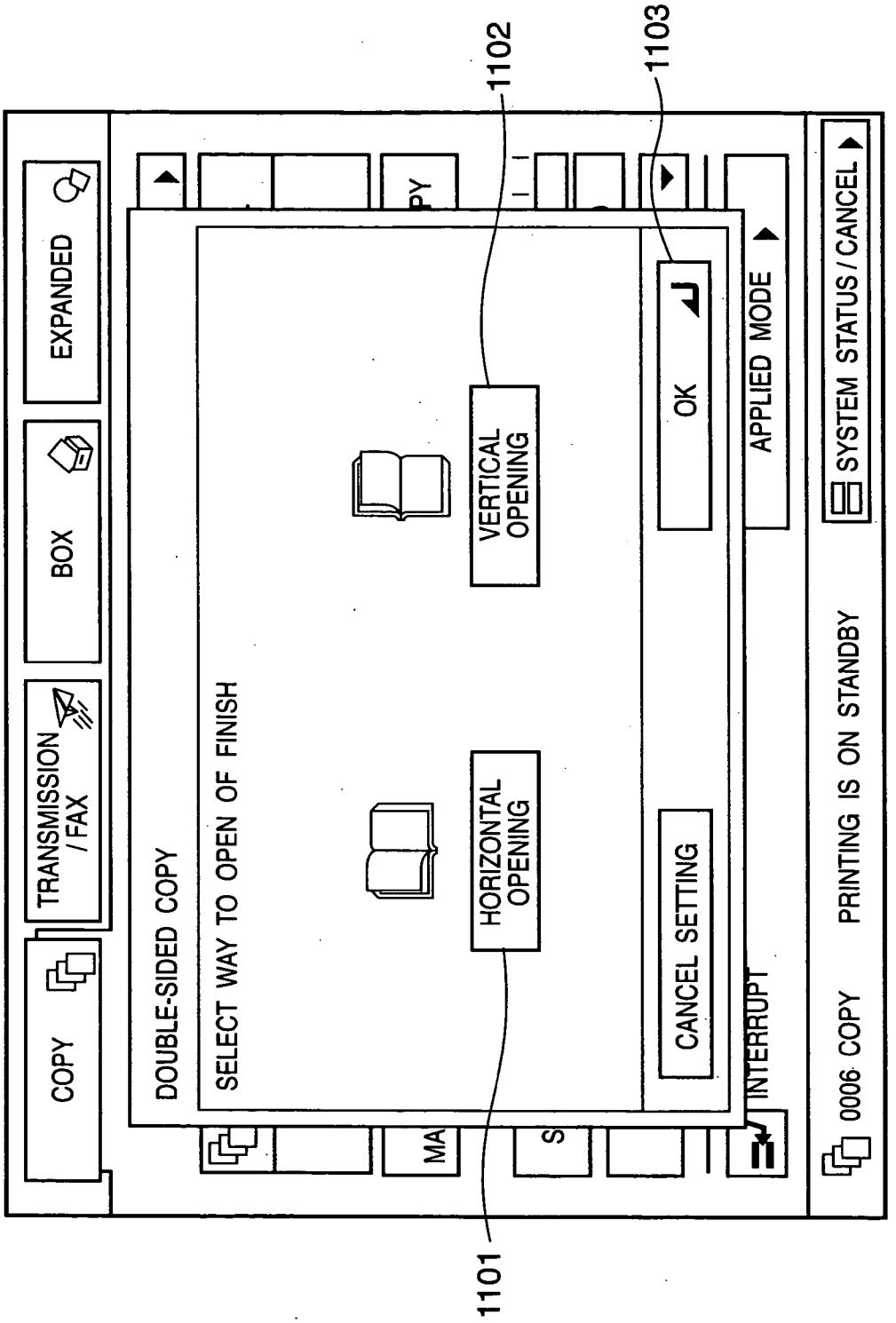

1102
1103
EXPANDED
BOX
TRANSMISSION /FAX
COPY
DOUBLE-SIDED COPY
SELECT WAY TO OPEN OF FINISH
VERTICAL OPENING
HORIZONTAL OPENING
OK
CANCEL SETTING
APPLIED MODE
SYSTEM STATUS / CANCEL
INTERRUPT
0006 COPY
PRINTING IS ON STANDBY
1101

FIG. 12

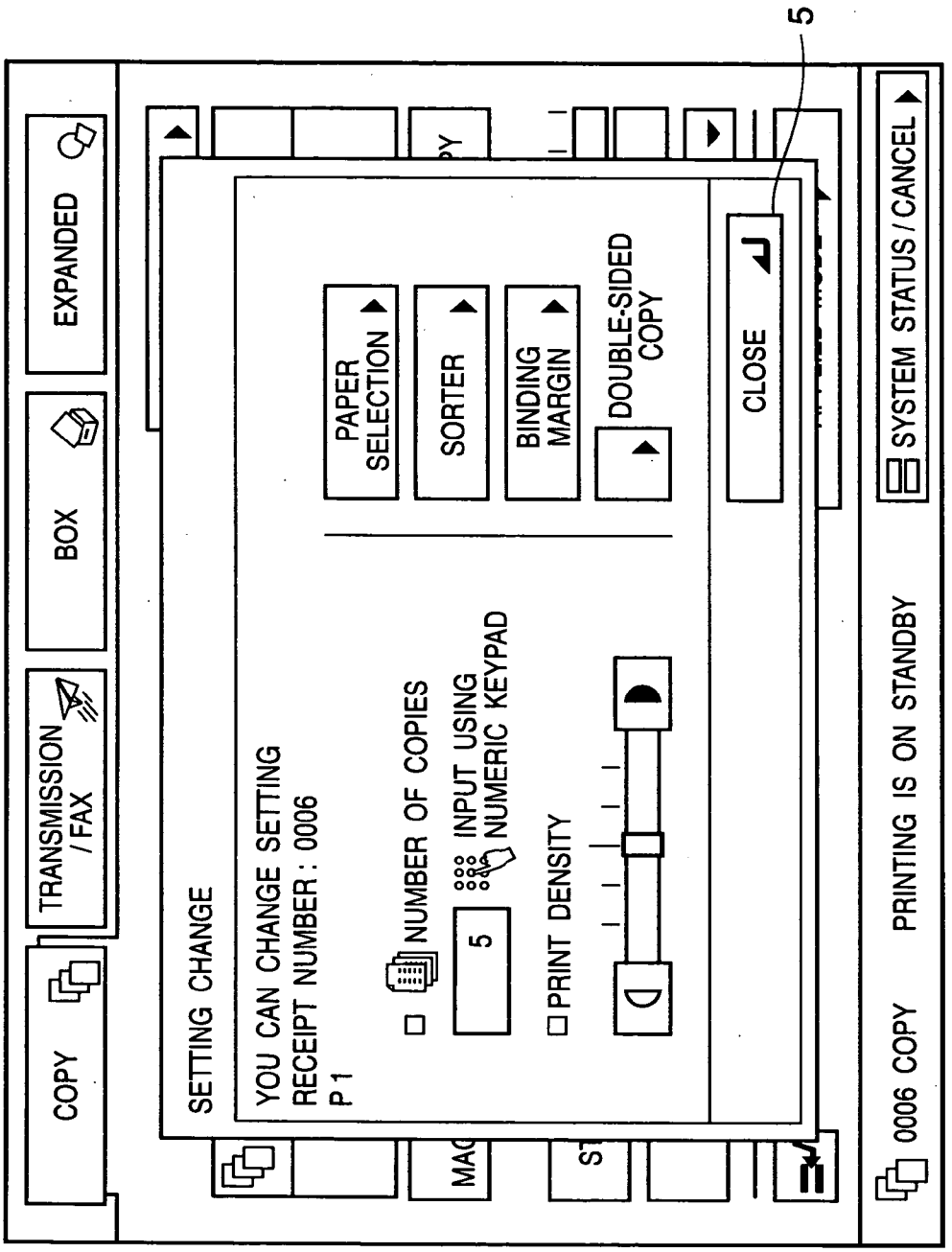

COPY
TRANSMISSION / FAX
BOX
EXPANDED
SETTING CHANGE
YOU CAN CHANGE SETTING
RECEIPT NUMBER : 0006
P 1
NUMBER OF COPIES
5
INPUT USING NUMERIC KEYPAD
PRINT DENSITY
PAPER SELECTION
SORTER
BINDING MARGIN
DOUBLE-SIDED COPY
CLOSE
5
SYSTEM STATUS / CANCEL
0006 COPY
PRINTING IS ON STANDBY

FIG. 13

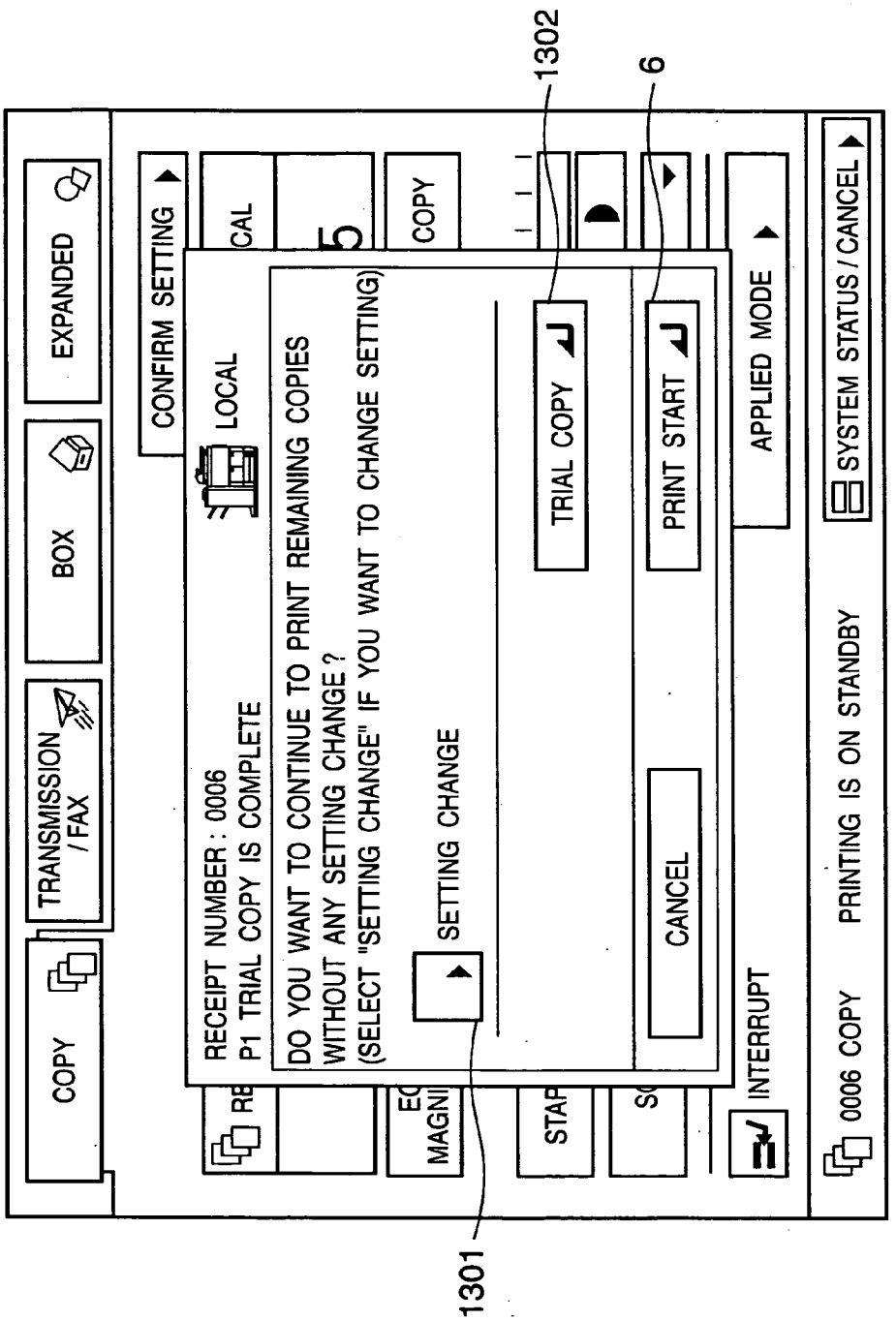

COPY
TRANSMISSION / FAX
BOX
EXPANDED
CONFIRM SETTING
LOCAL
CAL
5
COPY
RECEIPT NUMBER : 0006
P1 TRIAL COPY IS COMPLETE
DO YOU WANT TO CONTINUE TO PRINT REMAINING COPIES WITHOUT ANY SETTING CHANGE ?
(SELECT "SETTING CHANGE" IF YOU WANT TO CHANGE SETTING)
SETTING CHANGE
TRIAL COPY
PRINT START
CANCEL
APPLIED MODE
SYSTEM STATUS / CANCEL
INTERRUPT
0006 COPY
PRINTING IS ON STANDBY
1301
1302
6

FIG. 14

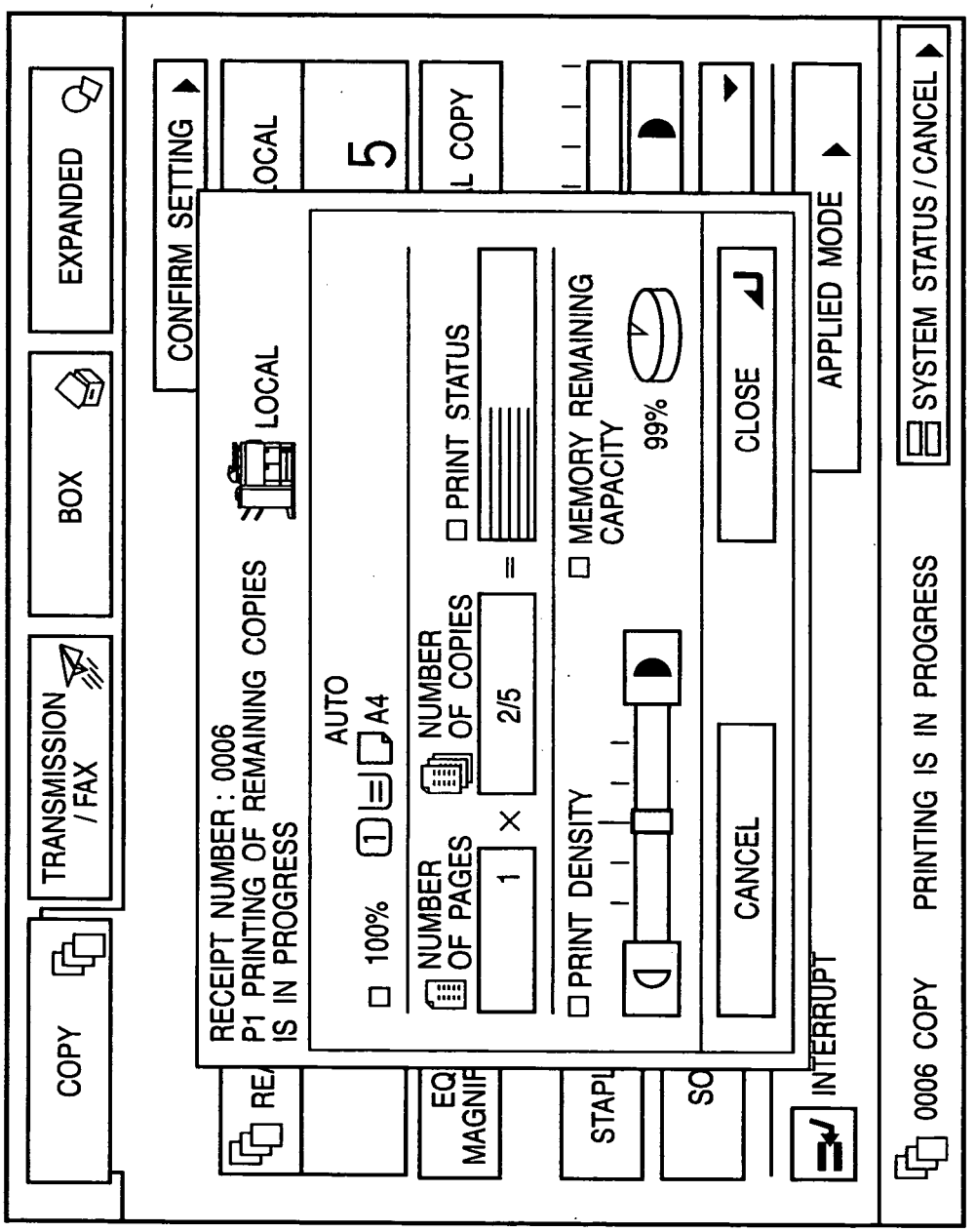

COPY
TRANSMISSION / FAX
BOX
EXPANDED
CONFIRM SETTING
LOCAL
5
L COPY
RECEIPT NUMBER : 0006
P1 PRINTING OF REMAINING COPIES
IS IN PROGRESS
LOCAL
AUTO
100%
A4
NUMBER OF PAGES
1
×
NUMBER OF COPIES
2/5
=
PRINT STATUS
PRINT DENSITY
MEMORY REMAINING CAPACITY
99%
CANCEL
CLOSE
APPLIED MODE
INTERRUPT
0006 COPY
PRINTING IS IN PROGRESS
SYSTEM STATUS / CANCEL

FIG. 15

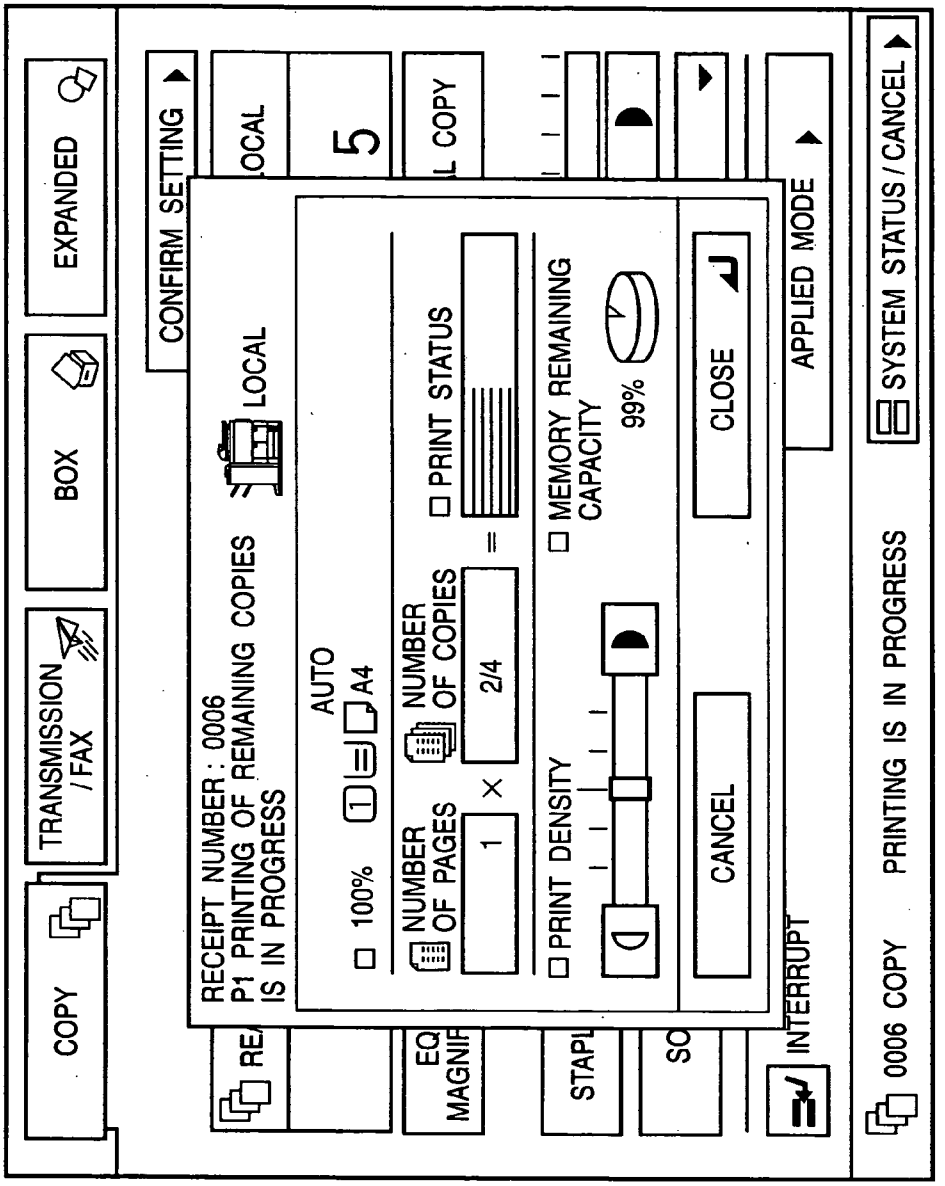

COPY
TRANSMISSION / FAX
BOX
EXPANDED
CONFIRM SETTING
RECEIPT NUMBER : 0006
P1 PRINTING OF REMAINING COPIES IS IN PROGRESS
LOCAL
AUTO
100%
A4
NUMBER OF PAGES
1
NUMBER OF COPIES
2/4
PRINT STATUS
PRINT DENSITY
MEMORY REMAINING CAPACITY
99%
CANCEL
CLOSE
APPLIED MODE
INTERRUPT
0006 COPY PRINTING IS IN PROGRESS
SYSTEM STATUS / CANCEL

FIG. 16

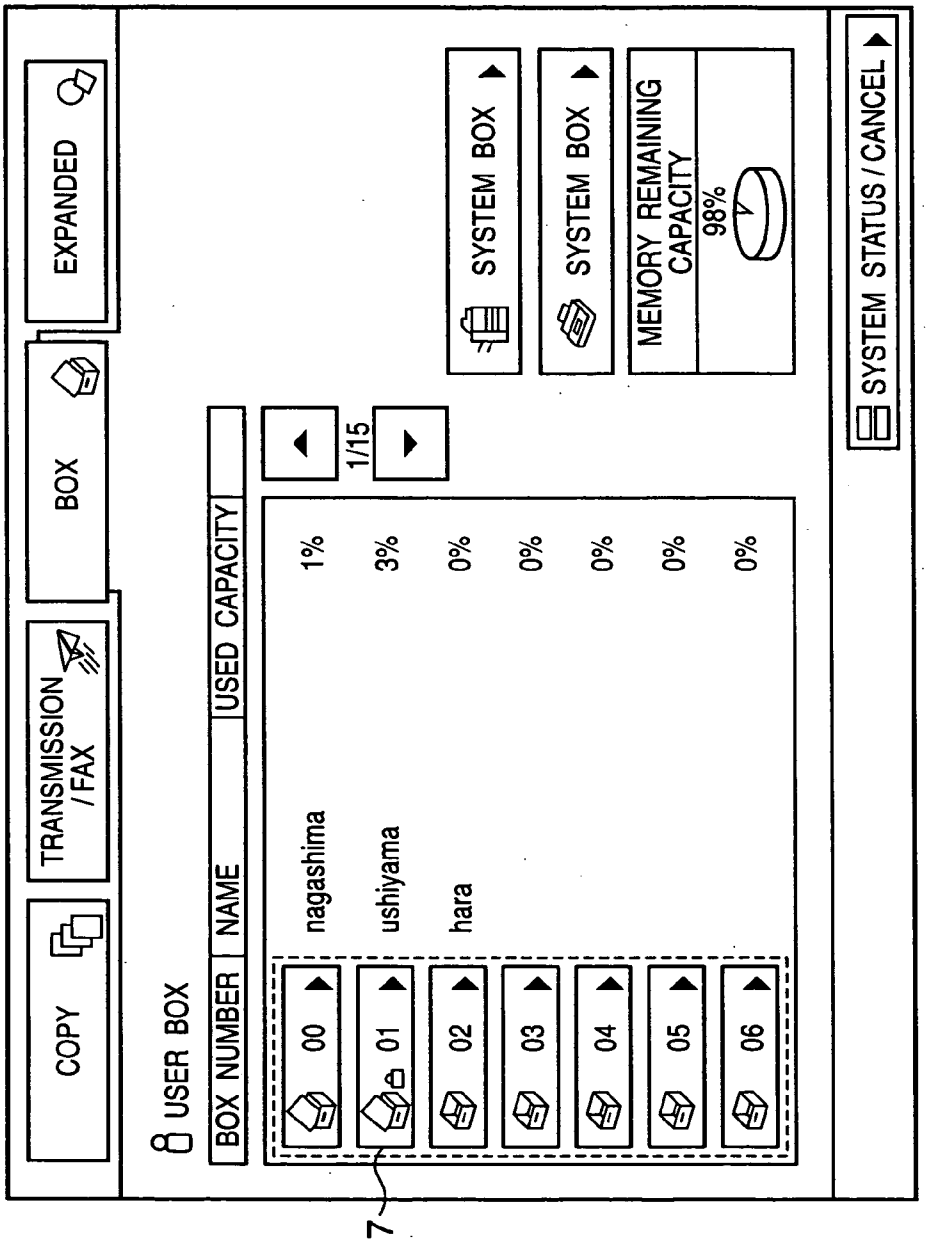

COPY
TRANSMISSION /FAX
BOX
EXPANDED
USER BOX
BOX NUMBER
NAME
USED CAPACITY
00
01
02
03
04
05
06
nagashima
ushiyama
hara
1%
3%
0%
0%
0%
0%
0%
1/15
SYSTEM BOX
SYSTEM BOX
MEMORY REMAINING CAPACITY
98%
SYSTEM STATUS / CANCEL
7

FIG. 17

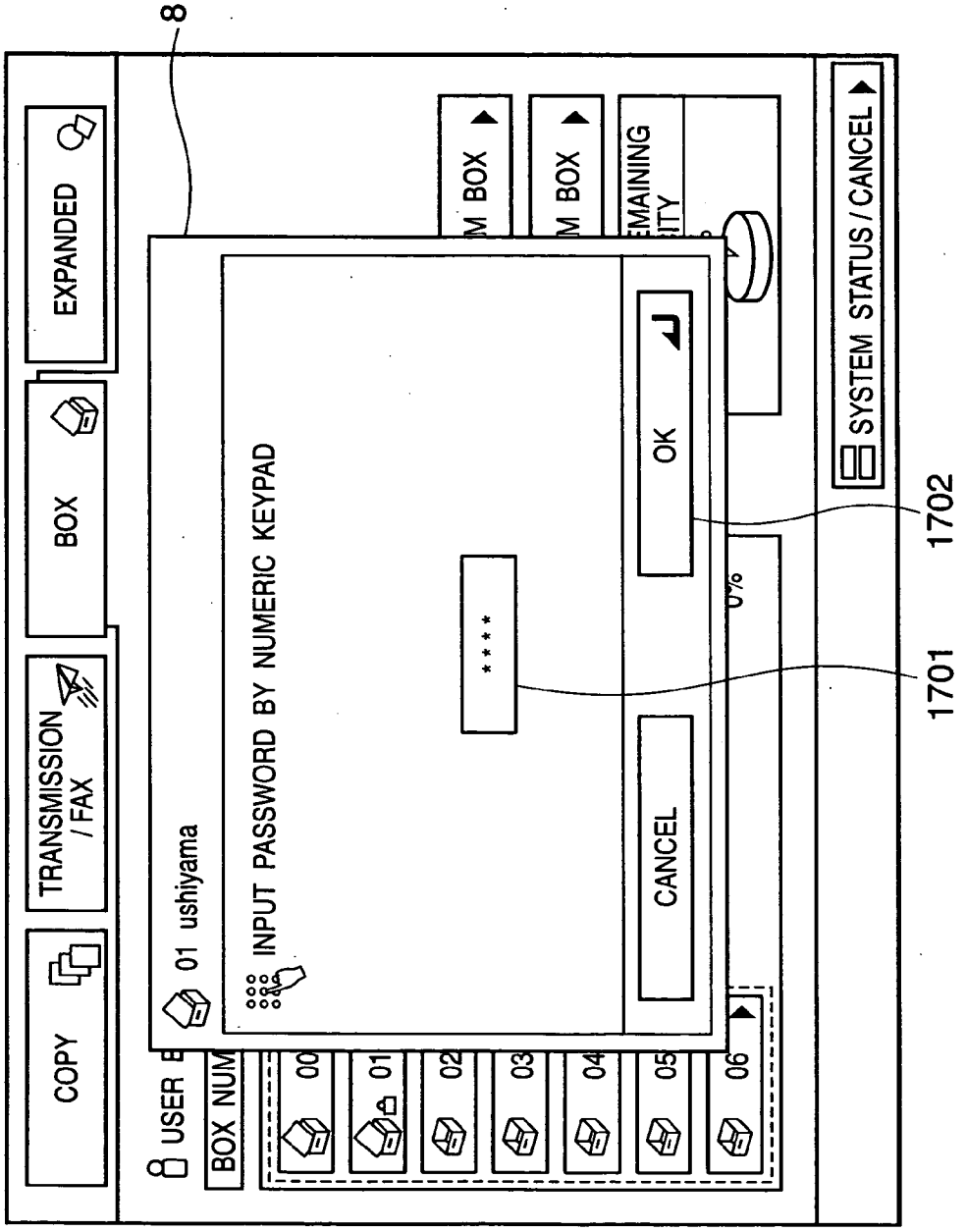

8
COPY
TRANSMISSION / FAX
BOX
EXPANDED
SYSTEM STATUS / CANCEL
USER
01 ushiyama
BOX NUM
INPUT PASSWORD BY NUMERIC KEYPAD
****
OK
CANCEL
00
01
02
03
04
05
06
1701
1702

FIG. 18

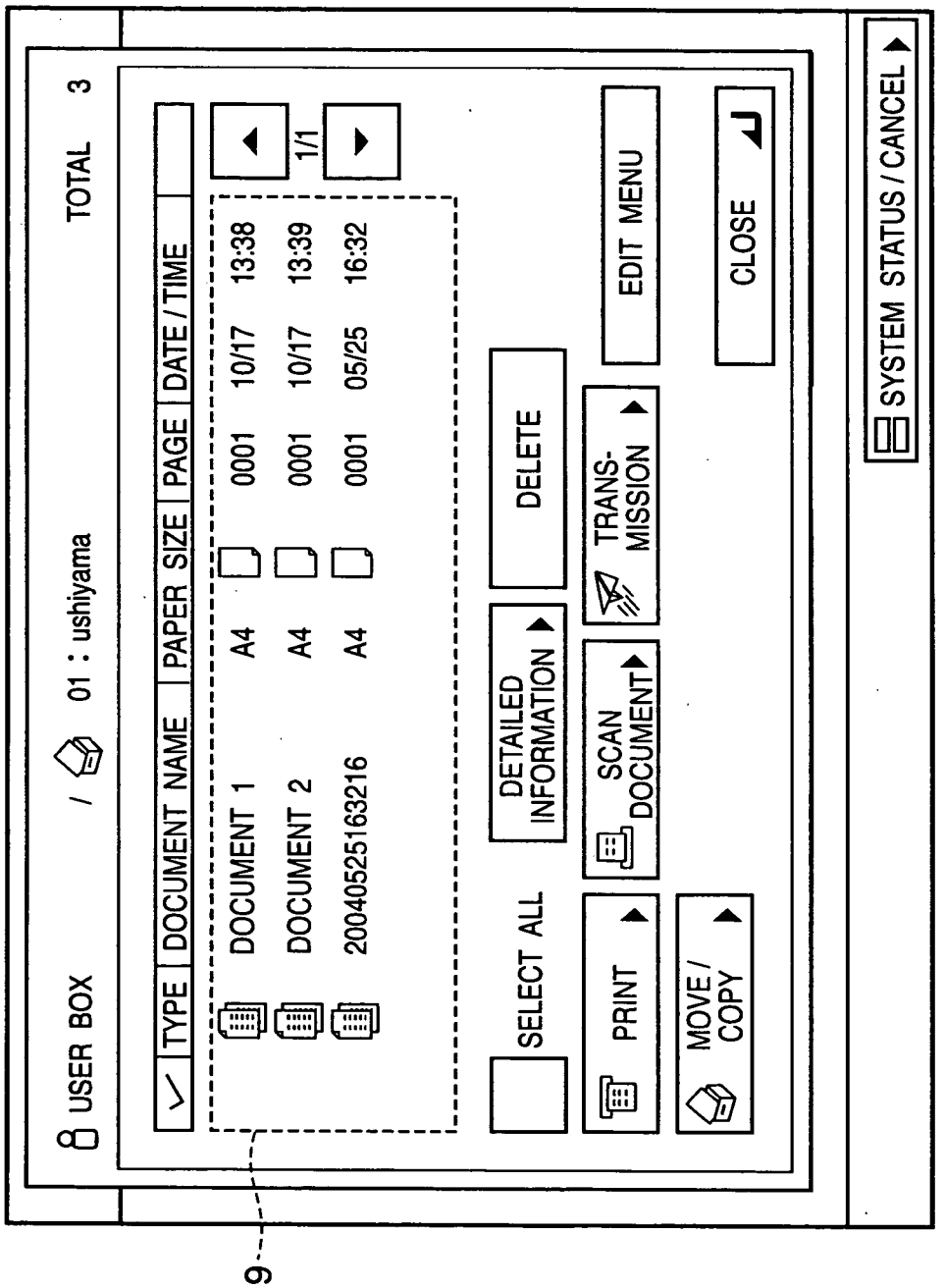

USER BOX
01 : ushiyama
TOTAL 3
TYPE
DOCUMENT NAME
PAPER SIZE
PAGE
DATE / TIME
DOCUMENT 1
A4
0001
10/17
13:38
DOCUMENT 2
A4
0001
10/17
13:39
20040525163216
A4
0001
05/25
16:32
1/1
SELECT ALL
DETAILED INFORMATION
DELETE
PRINT
SCAN DOCUMENT
TRANS-MISSION
EDIT MENU
MOVE / COPY
CLOSE
SYSTEM STATUS / CANCEL
9

FIG. 19

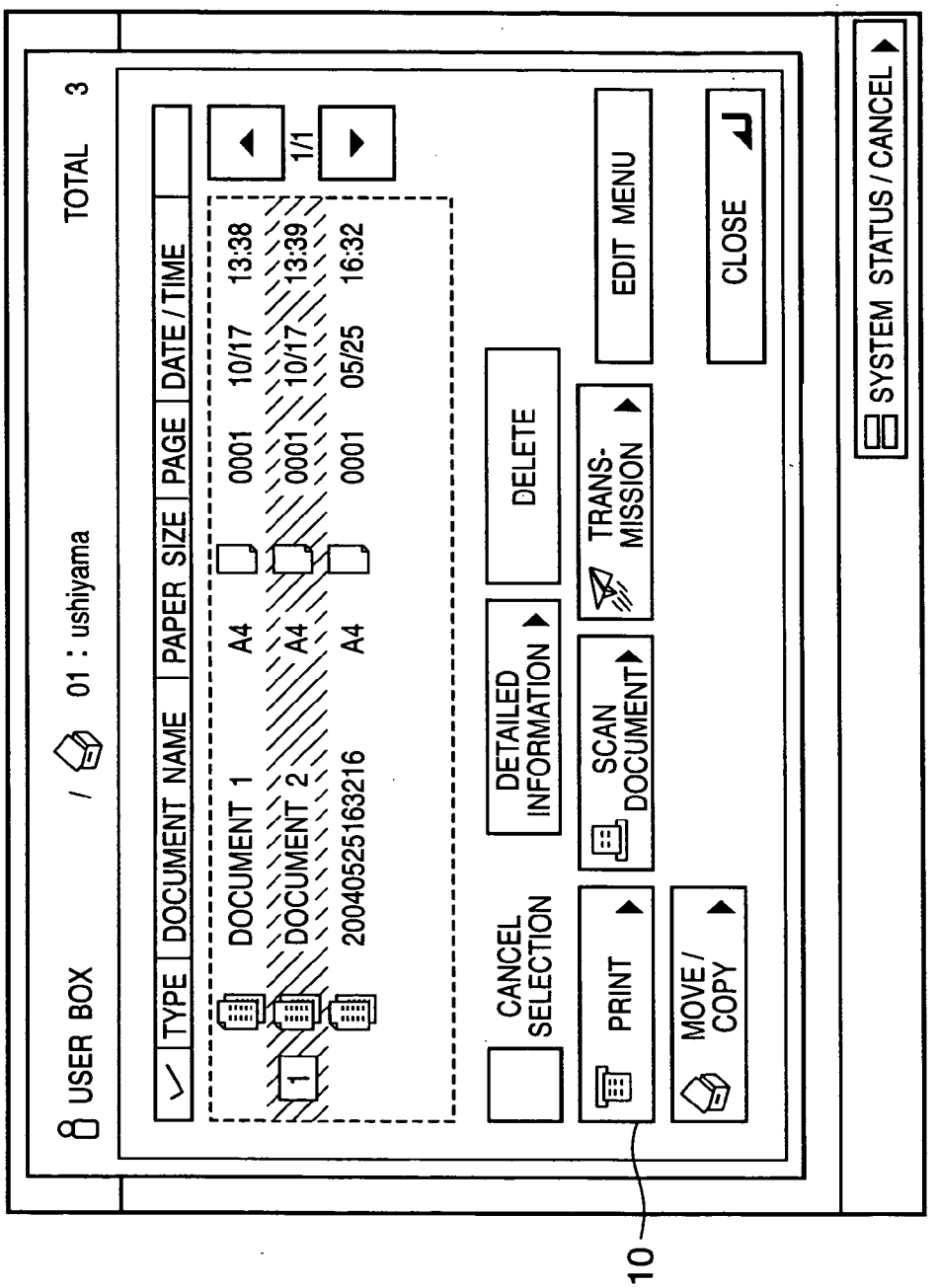

USER BOX
01 : ushiyama
TOTAL 3
TYPE
DOCUMENT NAME
PAPER SIZE
PAGE
DATE / TIME
DOCUMENT 1
A4
0001
10/17
13:38
DOCUMENT 2
A4
0001
10/17
13:39
2004052516321 6
A4
0001
05/25
16:32
1/1
CANCEL SELECTION
DETAILED INFORMATION
DELETE
EDIT MENU
CLOSE
PRINT
SCAN DOCUMENT
TRANS-MISSION
MOVE / COPY
SYSTEM STATUS / CANCEL
10

FIG. 20

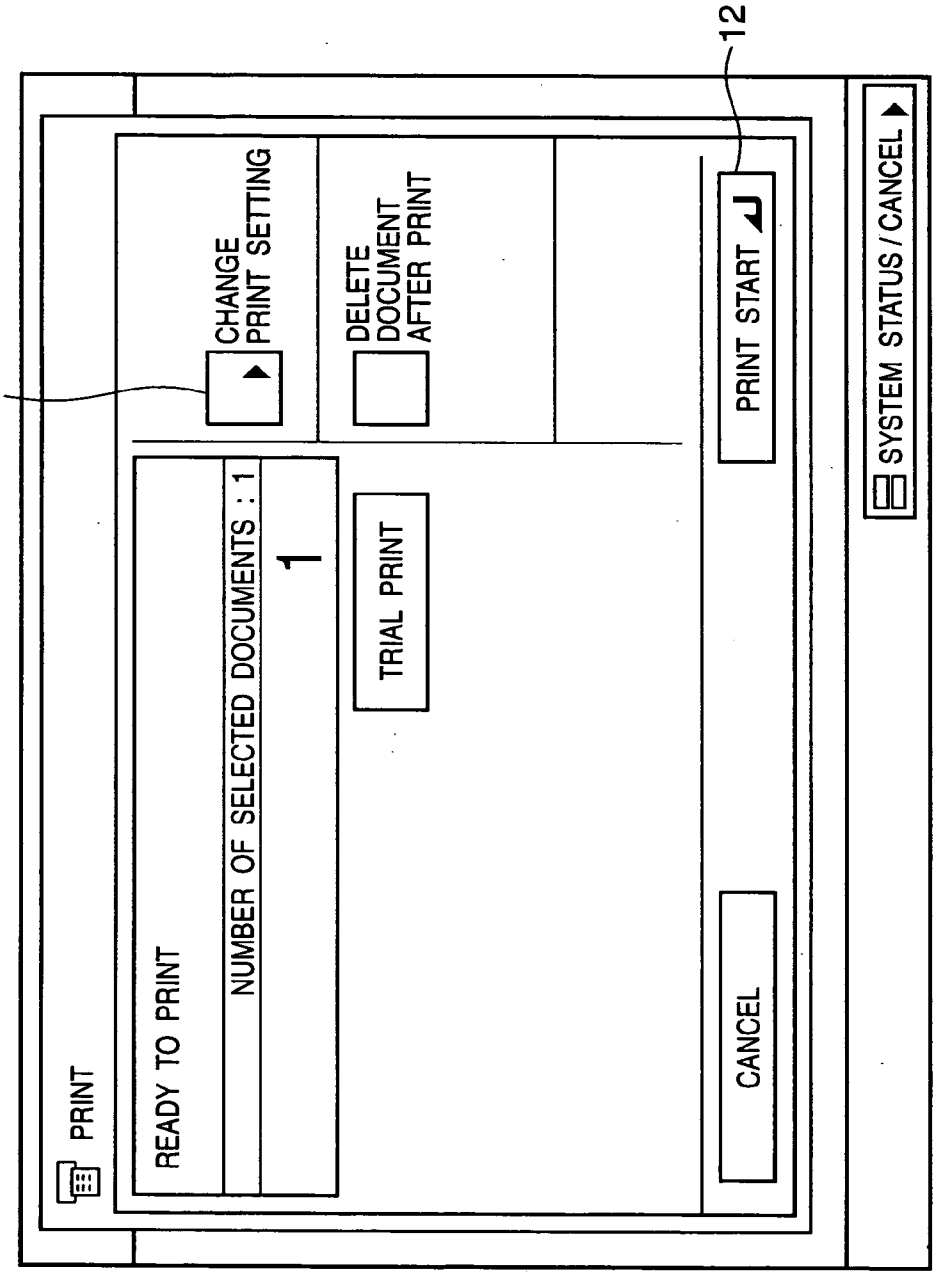

11
12
PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
1
CHANGE PRINT SETTING
DELETE DOCUMENT AFTER PRINT
TRIAL PRINT
PRINT START
CANCEL
SYSTEM STATUS / CANCEL

FIG. 21

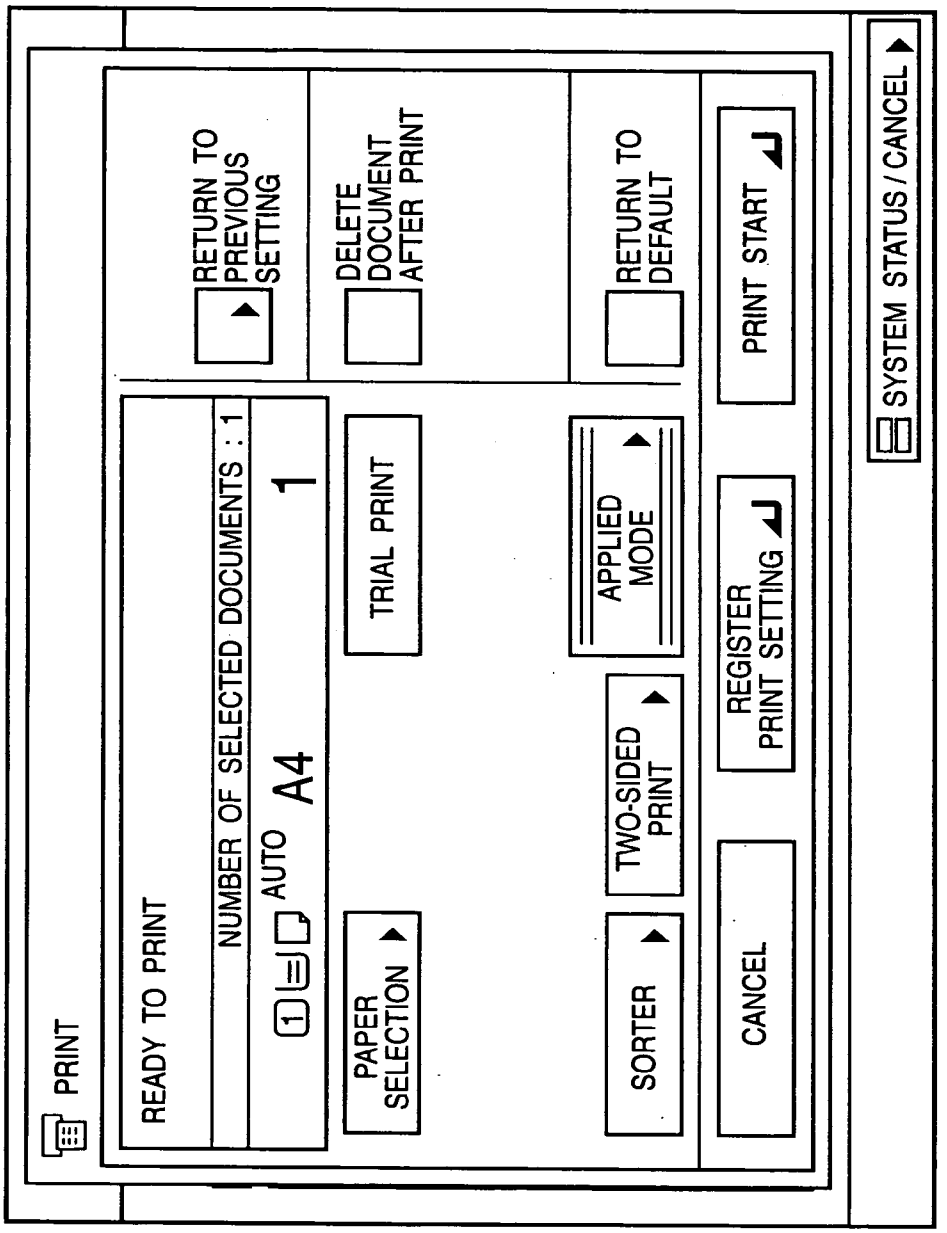

PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
AUTO
A4
1
PAPER SELECTION
TRIAL PRINT
RETURN TO PREVIOUS SETTING
DELETE DOCUMENT AFTER PRINT
RETURN TO DEFAULT
PRINT START
APPLIED MODE
TWO-SIDED PRINT
SORTER
REGISTER PRINT SETTING
CANCEL
SYSTEM STATUS / CANCEL

FIG. 22

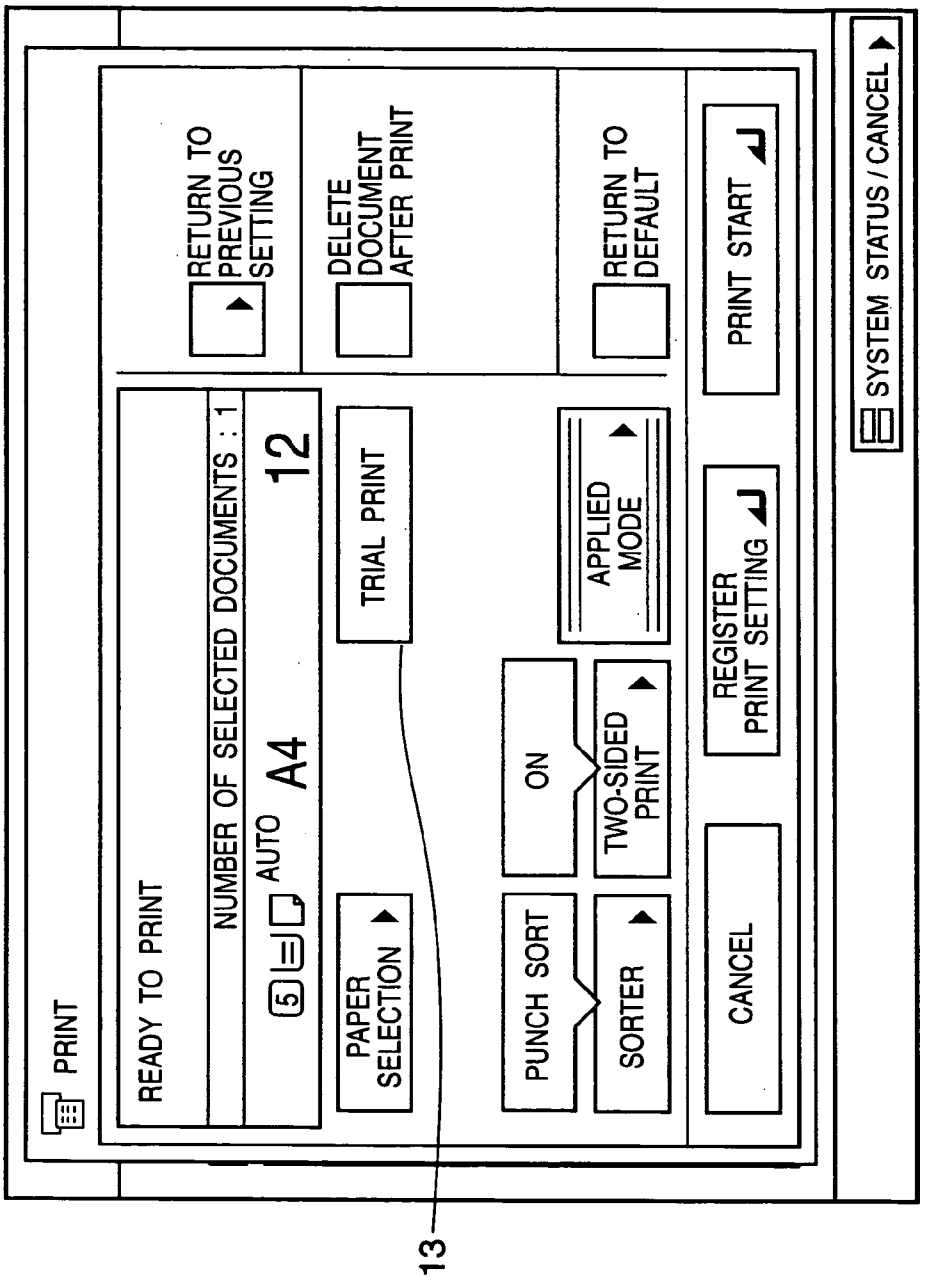

PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
AUTO
A4
12
PAPER SELECTION
TRIAL PRINT
RETURN TO PREVIOUS SETTING
DELETE DOCUMENT AFTER PRINT
RETURN TO DEFAULT
PRINT START
PUNCH SORT
ON
SORTER
TWO-SIDED PRINT
APPLIED MODE
CANCEL
REGISTER PRINT SETTING
SYSTEM STATUS / CANCEL
13

FIG. 23

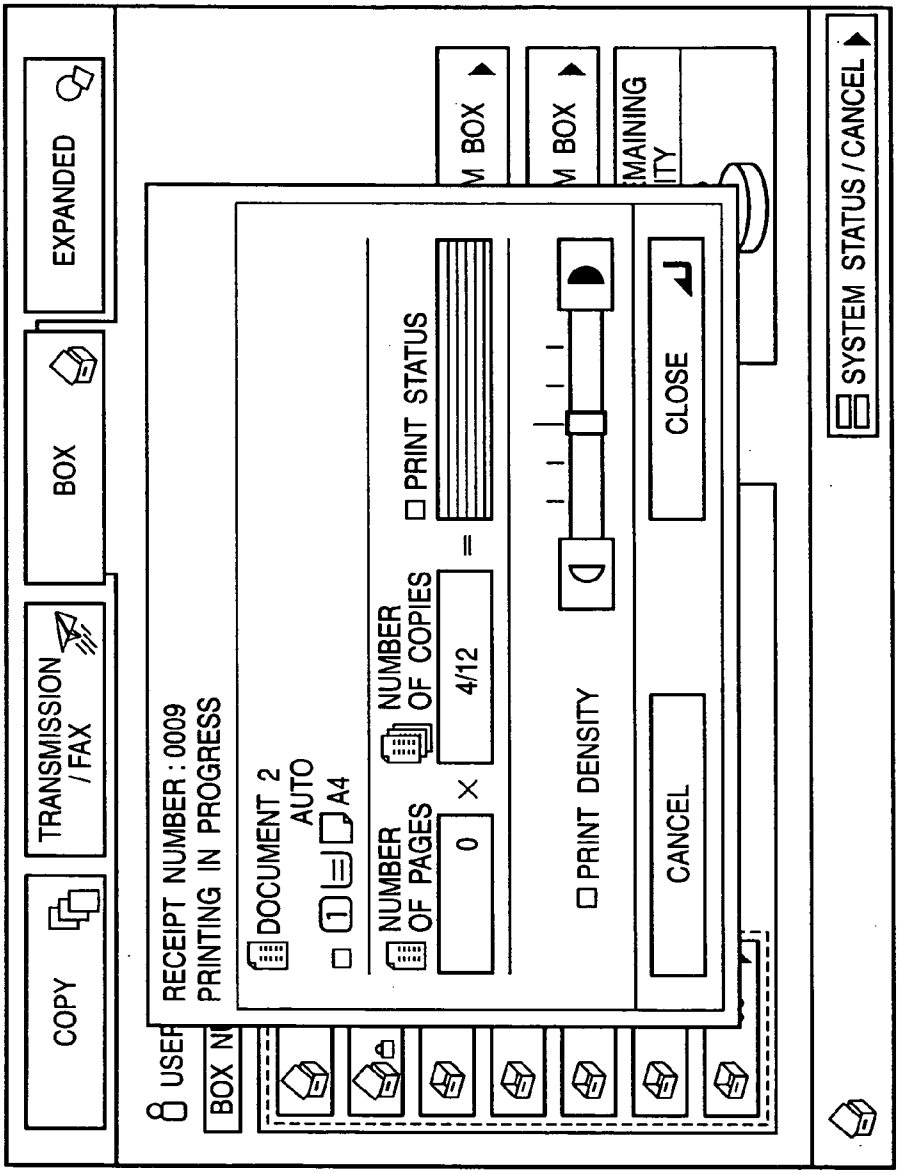

COPY
TRANSMISSION / FAX
BOX
EXPANDED
USER
BOX NO.
RECEIPT NUMBER : 0009
PRINTING IN PROGRESS
DOCUMENT 2
AUTO
A4
NUMBER OF PAGES
0
×
NUMBER OF COPIES
4/12
=
PRINT STATUS
PRINT DENSITY
CANCEL
CLOSE
M BOX
M BOX
MAINING
ITY
SYSTEM STATUS / CANCEL

FIG. 24

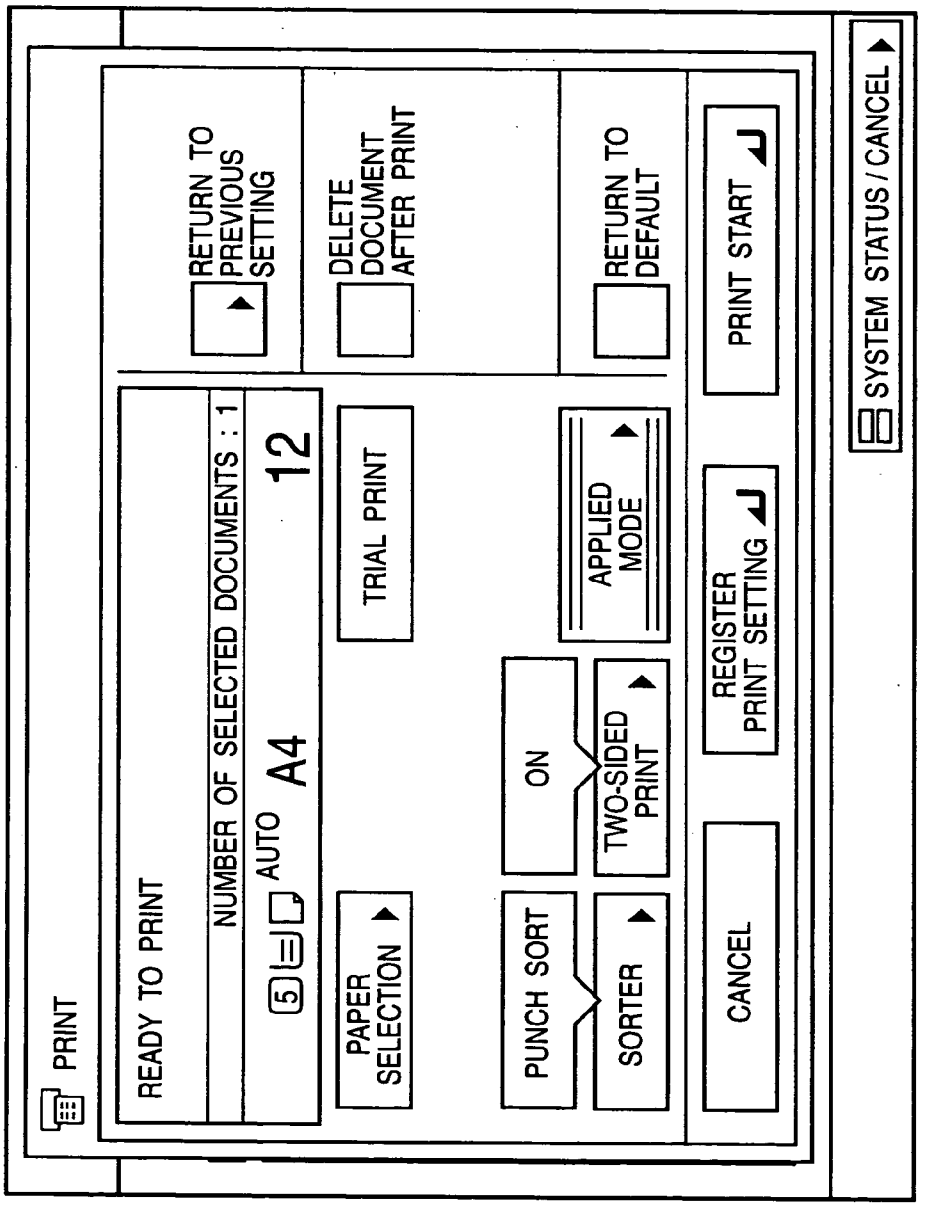

PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
AUTO
A4
12
PAPER SELECTION
TRIAL PRINT
PUNCH SORT
ON
SORTER
TWO-SIDED PRINT
APPLIED MODE
CANCEL
REGISTER PRINT SETTING
PRINT START
RETURN TO PREVIOUS SETTING
DELETE DOCUMENT AFTER PRINT
RETURN TO DEFAULT
SYSTEM STATUS / CANCEL

FIG. 25

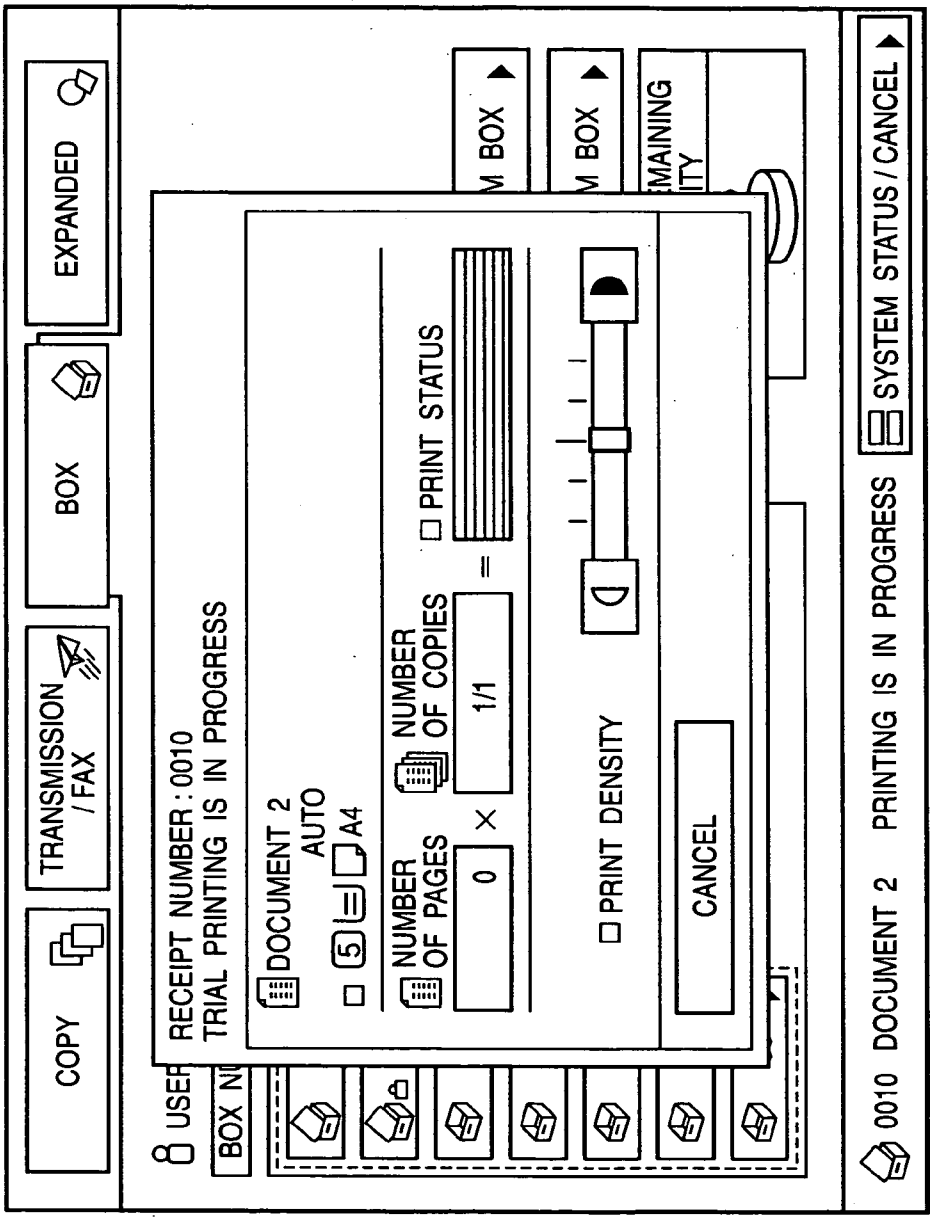

COPY
TRANSMISSION / FAX
BOX
EXPANDED
RECEIPT NUMBER : 0010
TRIAL PRINTING IS IN PROGRESS
DOCUMENT 2
AUTO
A4
NUMBER OF PAGES
0
NUMBER OF COPIES
1/1
PRINT STATUS
PRINT DENSITY
CANCEL
BOX
BOX
0010 DOCUMENT 2 PRINTING IS IN PROGRESS
SYSTEM STATUS / CANCEL

FIG. 26

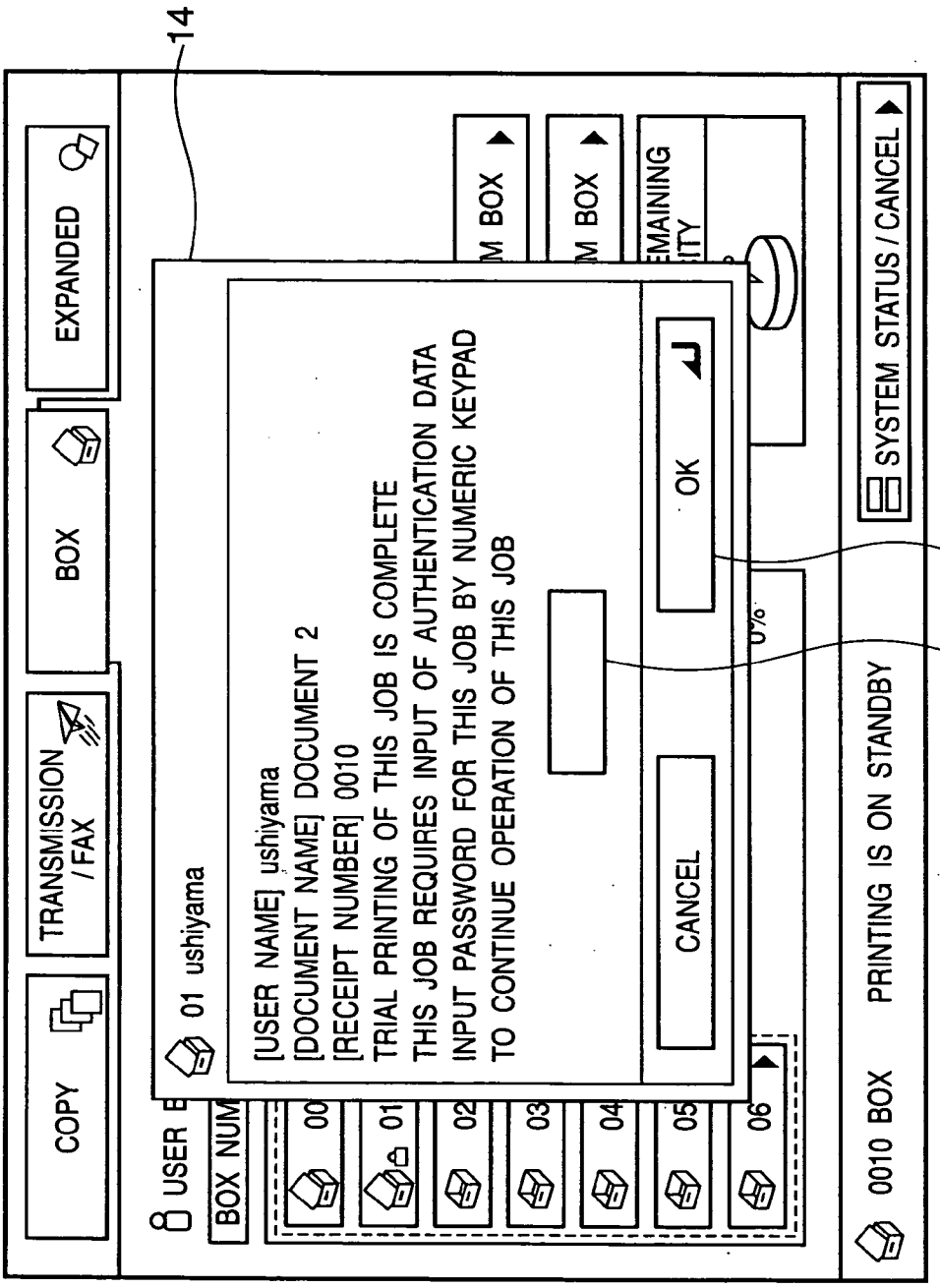

14
COPY
TRANSMISSION / FAX
BOX
EXPANDED
01 ushiyama
[USER NAME] ushiyama
[DOCUMENT NAME] DOCUMENT 2
[RECEIPT NUMBER] 0010
TRIAL PRINTING OF THIS JOB IS COMPLETE
THIS JOB REQUIRES INPUT OF AUTHENTICATION DATA
INPUT PASSWORD FOR THIS JOB BY NUMERIC KEYPAD
TO CONTINUE OPERATION OF THIS JOB
CANCEL
OK
SYSTEM STATUS / CANCEL
0010 BOX
PRINTING IS ON STANDBY
2601
2602

FIG. 27

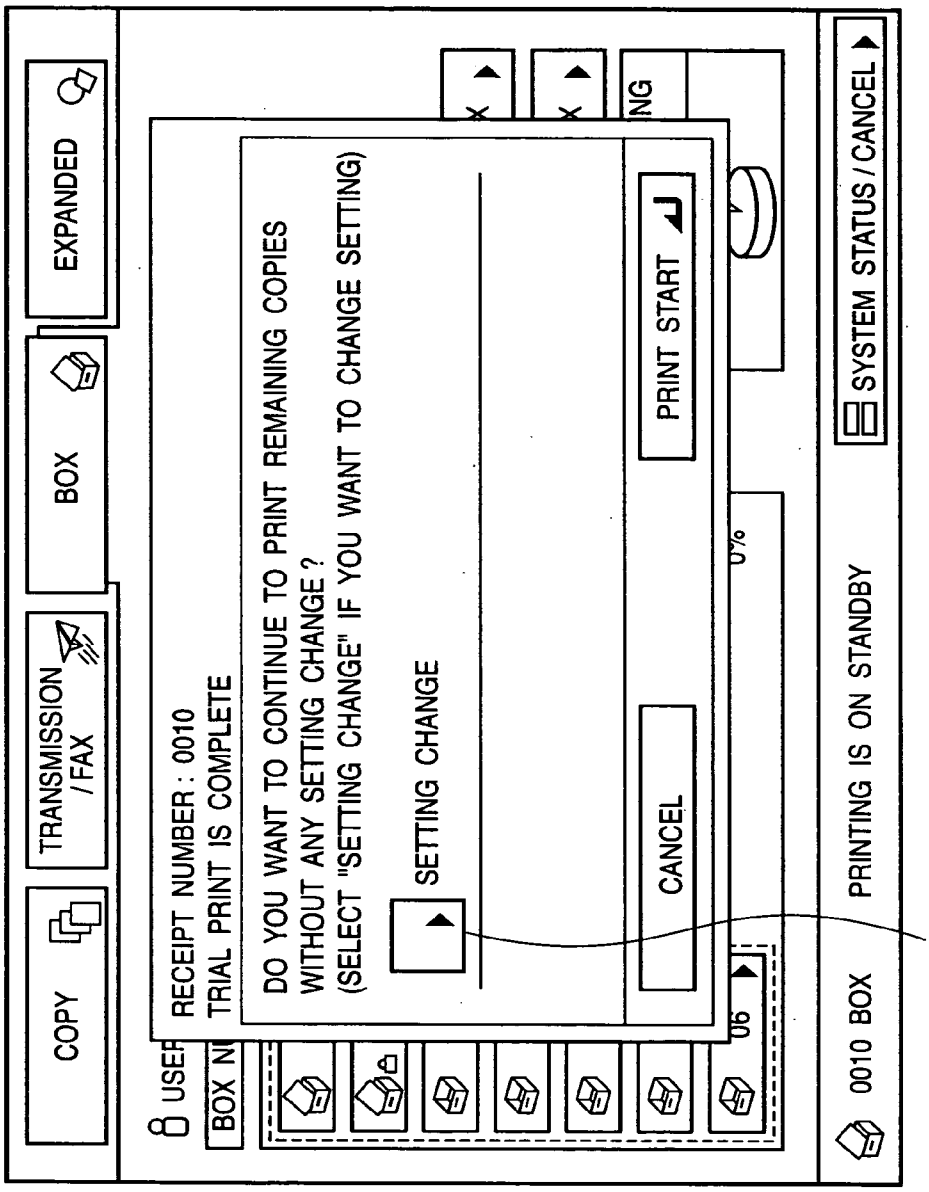

COPY
TRANSMISSION / FAX
BOX
EXPANDED
RECEIPT NUMBER : 0010
TRIAL PRINT IS COMPLETE
DO YOU WANT TO CONTINUE TO PRINT REMAINING COPIES WITHOUT ANY SETTING CHANGE ?
(SELECT "SETTING CHANGE" IF YOU WANT TO CHANGE SETTING)
SETTING CHANGE
CANCEL
PRINT START
SYSTEM STATUS / CANCEL
0010 BOX
PRINTING IS ON STANDBY
15

FIG. 28

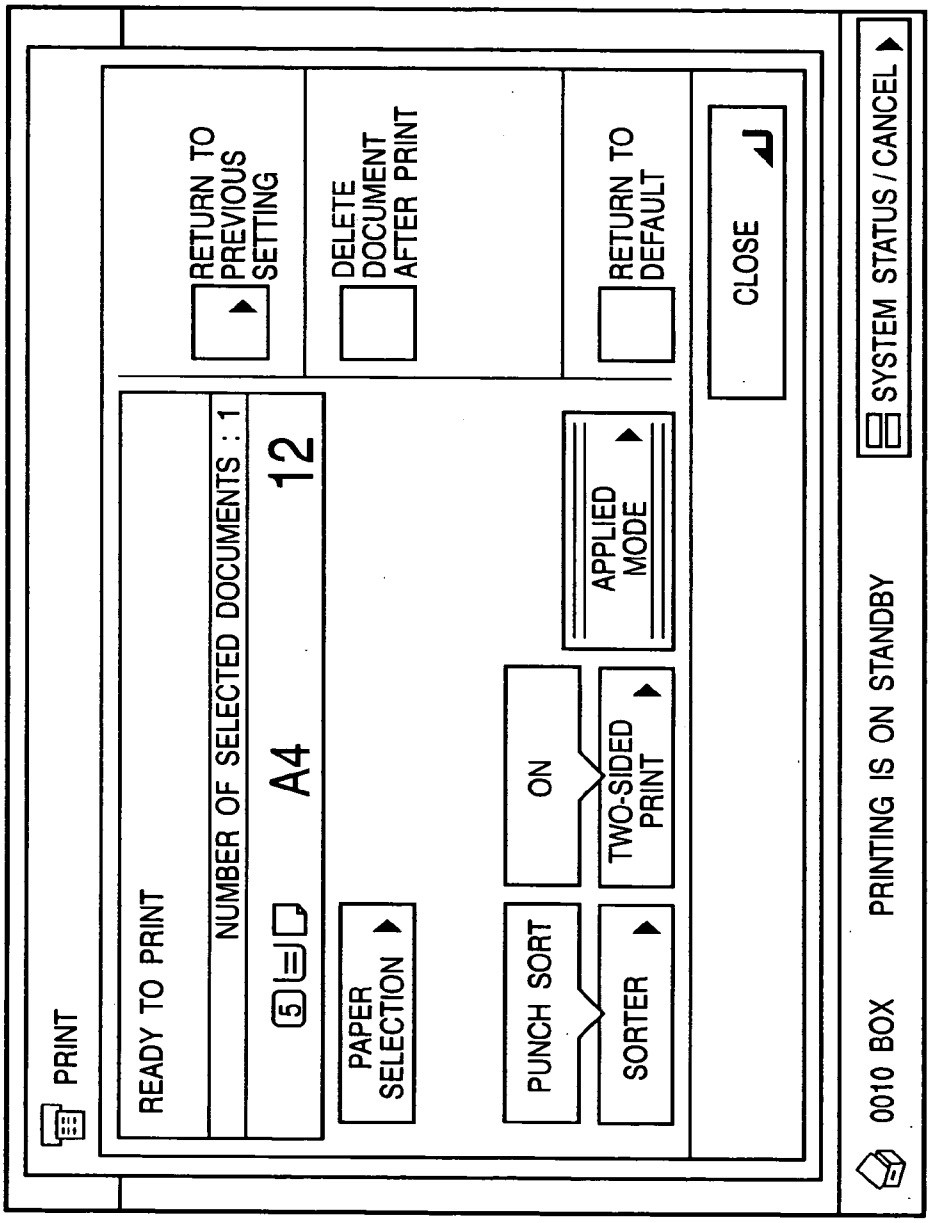

PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
A4
12
PAPER SELECTION
PUNCH SORT
SORTER
ON
TWO-SIDED PRINT
APPLIED MODE
RETURN TO PREVIOUS SETTING
DELETE DOCUMENT AFTER PRINT
RETURN TO DEFAULT
CLOSE
0010 BOX
PRINTING IS ON STANDBY
SYSTEM STATUS / CANCEL

FIG. 29

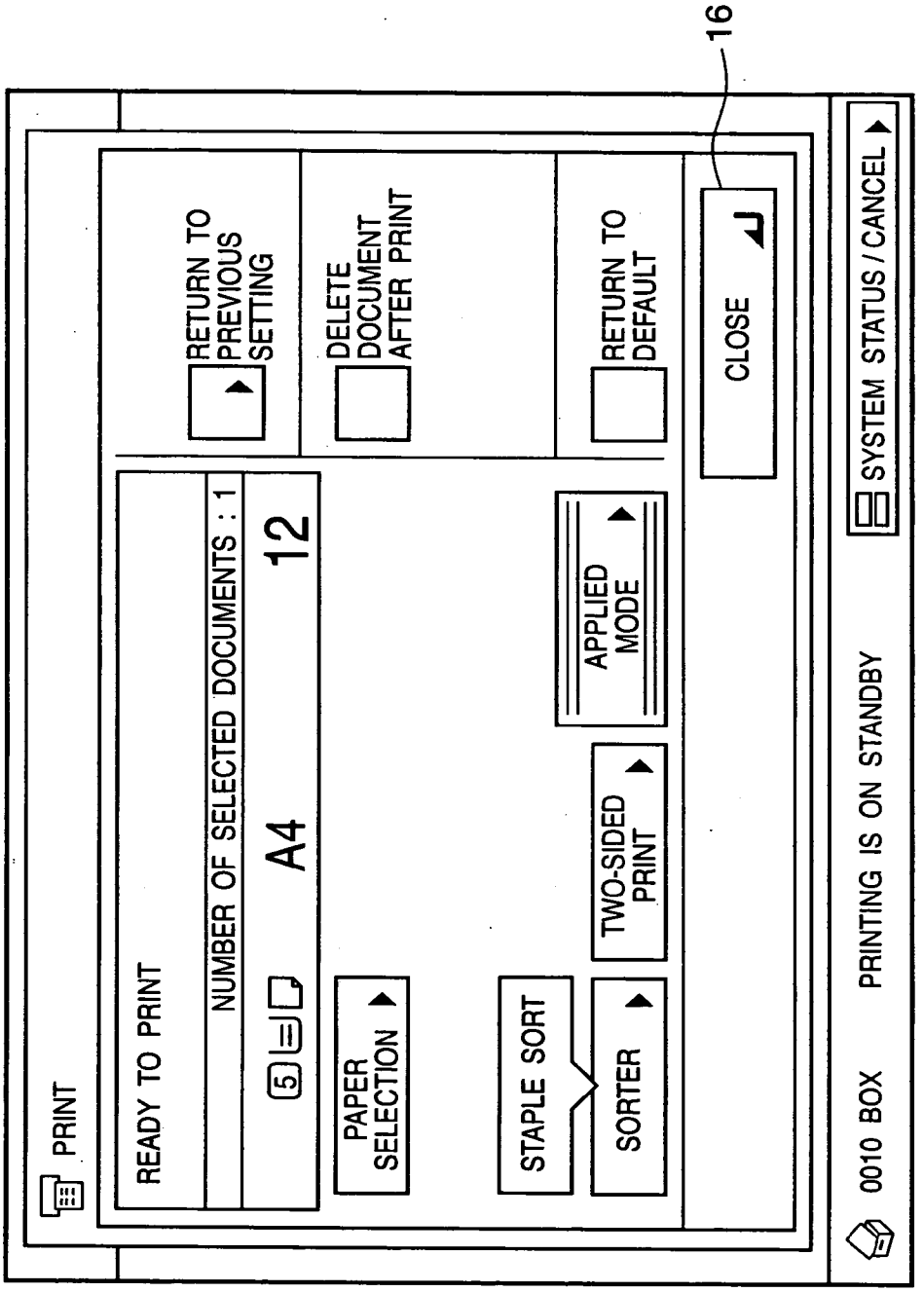

16
PRINT
READY TO PRINT
NUMBER OF SELECTED DOCUMENTS : 1
A4
12
PAPER SELECTION
STAPLE SORT
SORTER
TWO-SIDED PRINT
APPLIED MODE
RETURN TO PREVIOUS SETTING
DELETE DOCUMENT AFTER PRINT
RETURN TO DEFAULT
CLOSE
0010 BOX
PRINTING IS ON STANDBY
SYSTEM STATUS / CANCEL

FIG. 30

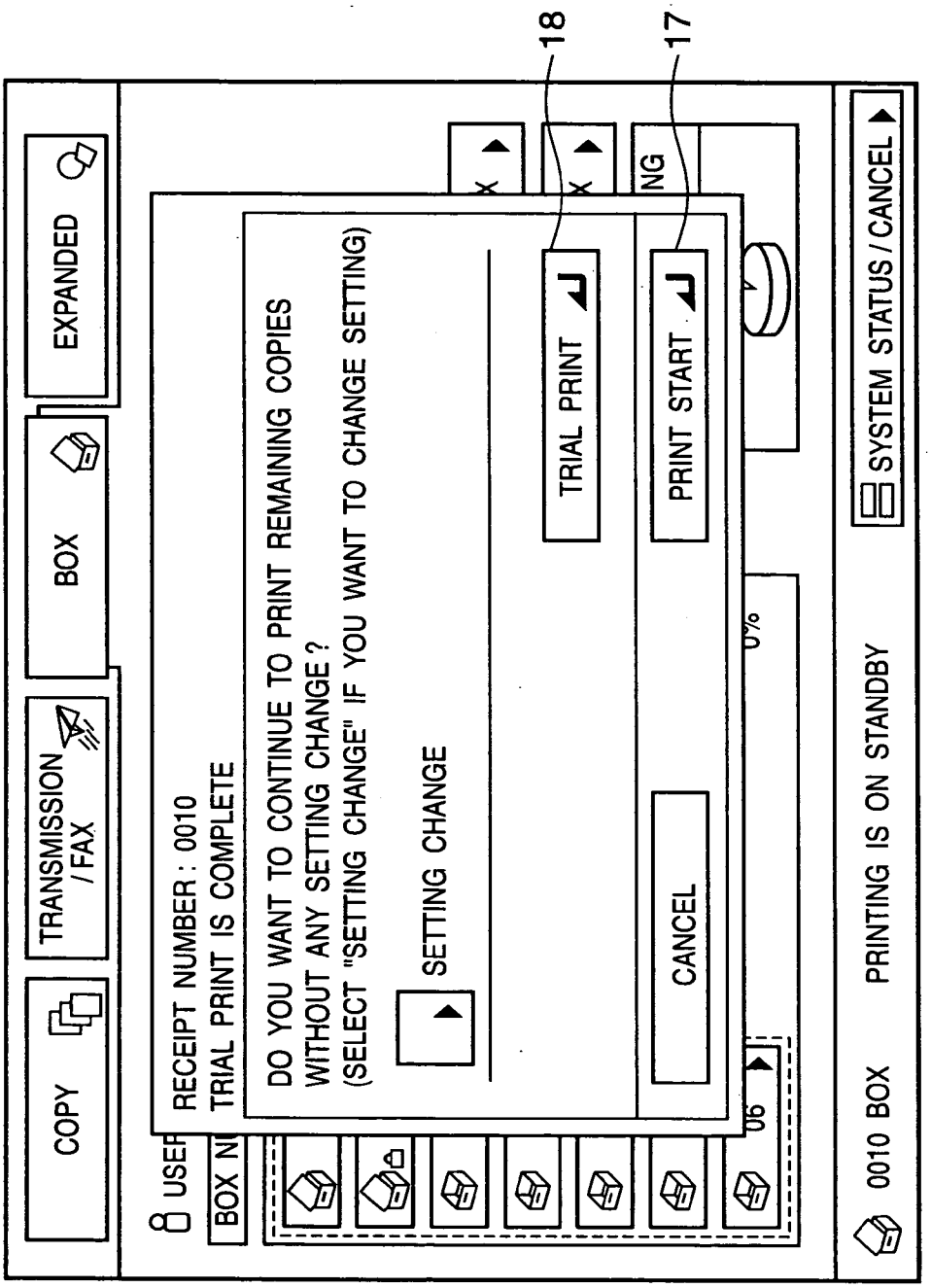

18
17
COPY
TRANSMISSION / FAX
BOX
EXPANDED
USER
BOX N
RECEIPT NUMBER : 0010
TRIAL PRINT IS COMPLETE
DO YOU WANT TO CONTINUE TO PRINT REMAINING COPIES WITHOUT ANY SETTING CHANGE ?
(SELECT "SETTING CHANGE" IF YOU WANT TO CHANGE SETTING)
SETTING CHANGE
TRIAL PRINT
PRINT START
CANCEL
NG
0%
06
0010 BOX
PRINTING IS ON STANDBY
SYSTEM STATUS / CANCEL

FIG. 31

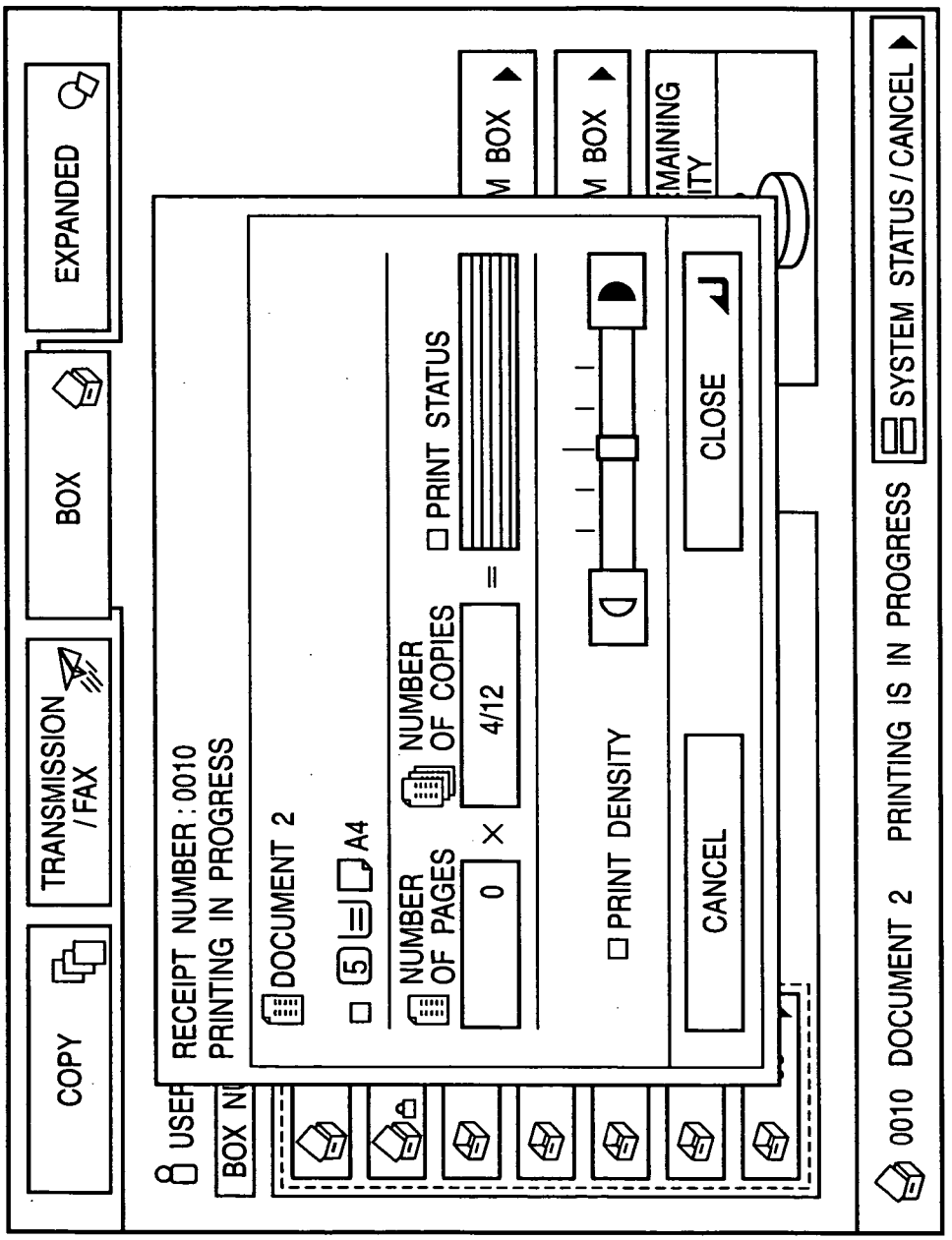

COPY
TRANSMISSION / FAX
BOX
EXPANDED
RECEIPT NUMBER : 0010
PRINTING IN PROGRESS
DOCUMENT 2
A4
NUMBER OF COPIES
4/12
NUMBER OF PAGES
0
PRINT STATUS
PRINT DENSITY
CANCEL
CLOSE
SYSTEM STATUS / CANCEL
0010 DOCUMENT 2 PRINTING IS IN PROGRESS

FIG. 32

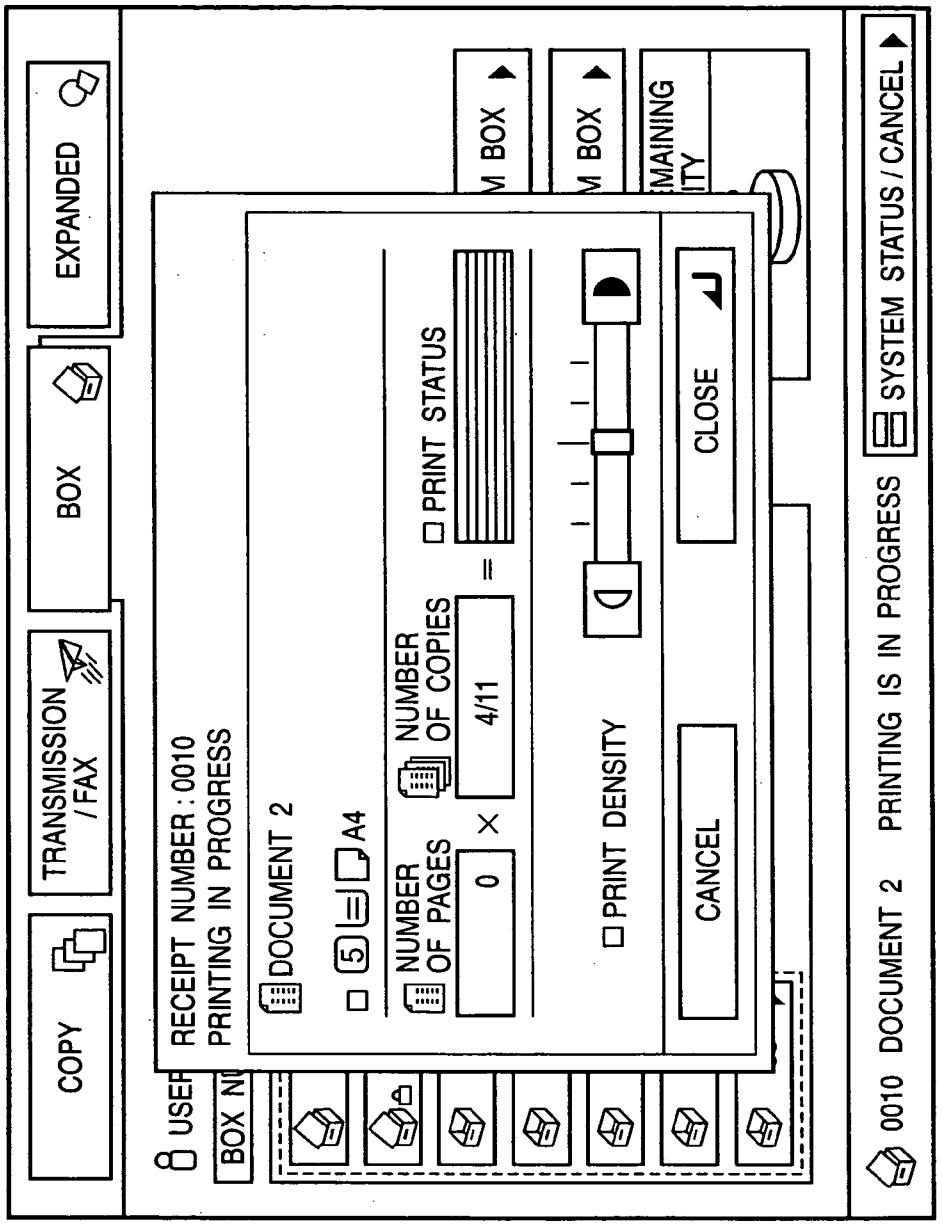

COPY
TRANSMISSION / FAX
BOX
EXPANDED
USER
BOX N
RECEIPT NUMBER : 0010
PRINTING IN PROGRESS
DOCUMENT 2
A4
NUMBER OF PAGES
0
NUMBER OF COPIES
4/11
PRINT STATUS
PRINT DENSITY
CANCEL
CLOSE
M BOX
M BOX
MAINING ITY
0010 DOCUMENT 2 PRINTING IS IN PROGRESS
SYSTEM STATUS / CANCEL

FIG. 33A

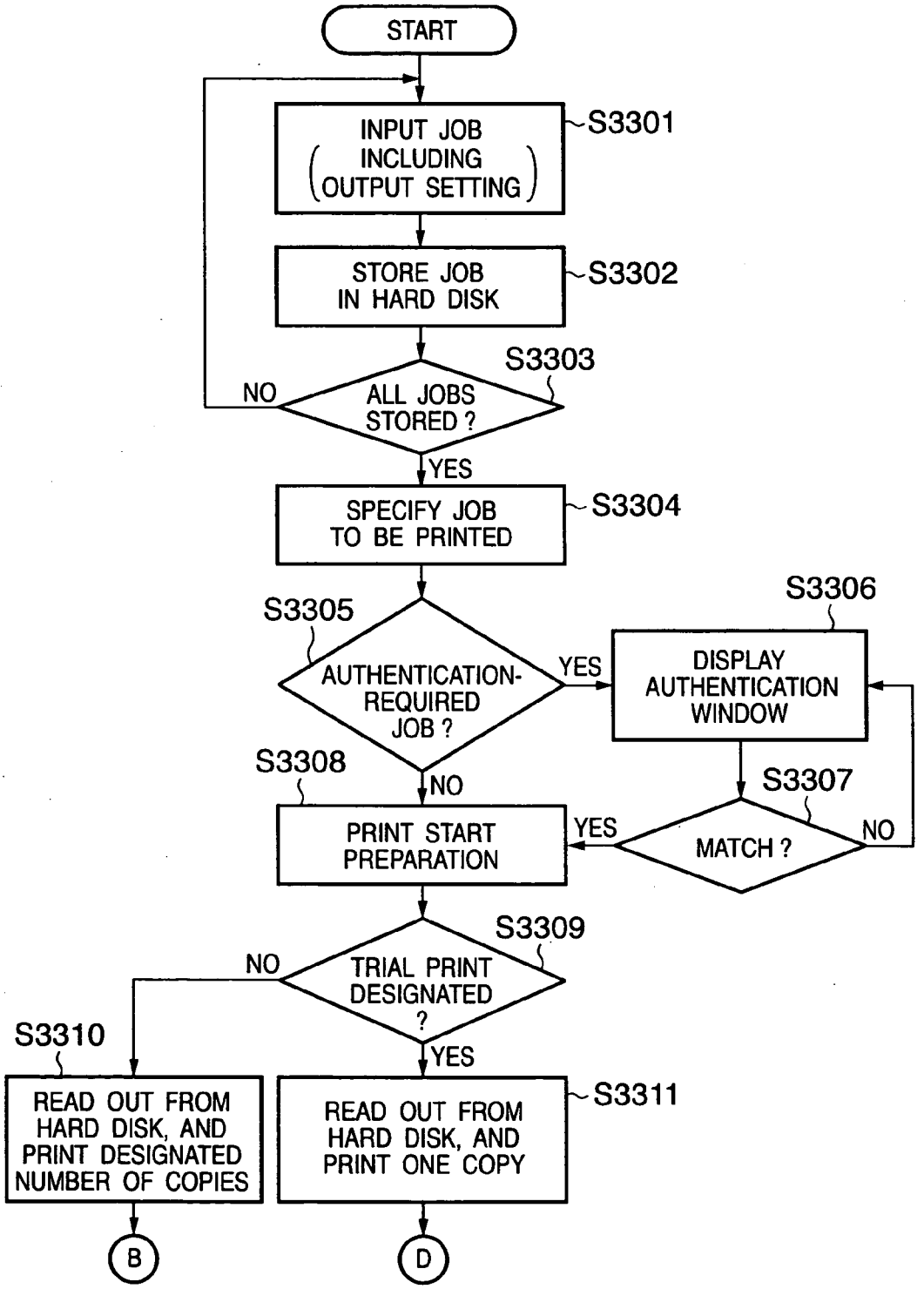

START
INPUT JOB INCLUDING OUTPUT SETTING
S3301
STORE JOB IN HARD DISK
S3302
S3303
NO
ALL JOBS STORED ?
YES
SPECIFY JOB TO BE PRINTED
S3304
S3305
AUTHENTICATION-REQUIRED JOB ?
YES
S3306
DISPLAY AUTHENTICATION WINDOW
S3307
MATCH ?
NO
S3308
NO
PRINT START PREPARATION
YES
S3309
NO
TRIAL PRINT DESIGNATED ?
YES
S3310
READ OUT FROM HARD DISK, AND PRINT DESIGNATED NUMBER OF COPIES
S3311
READ OUT FROM HARD DISK, AND PRINT ONE COPY
B
D

FIG. 33B

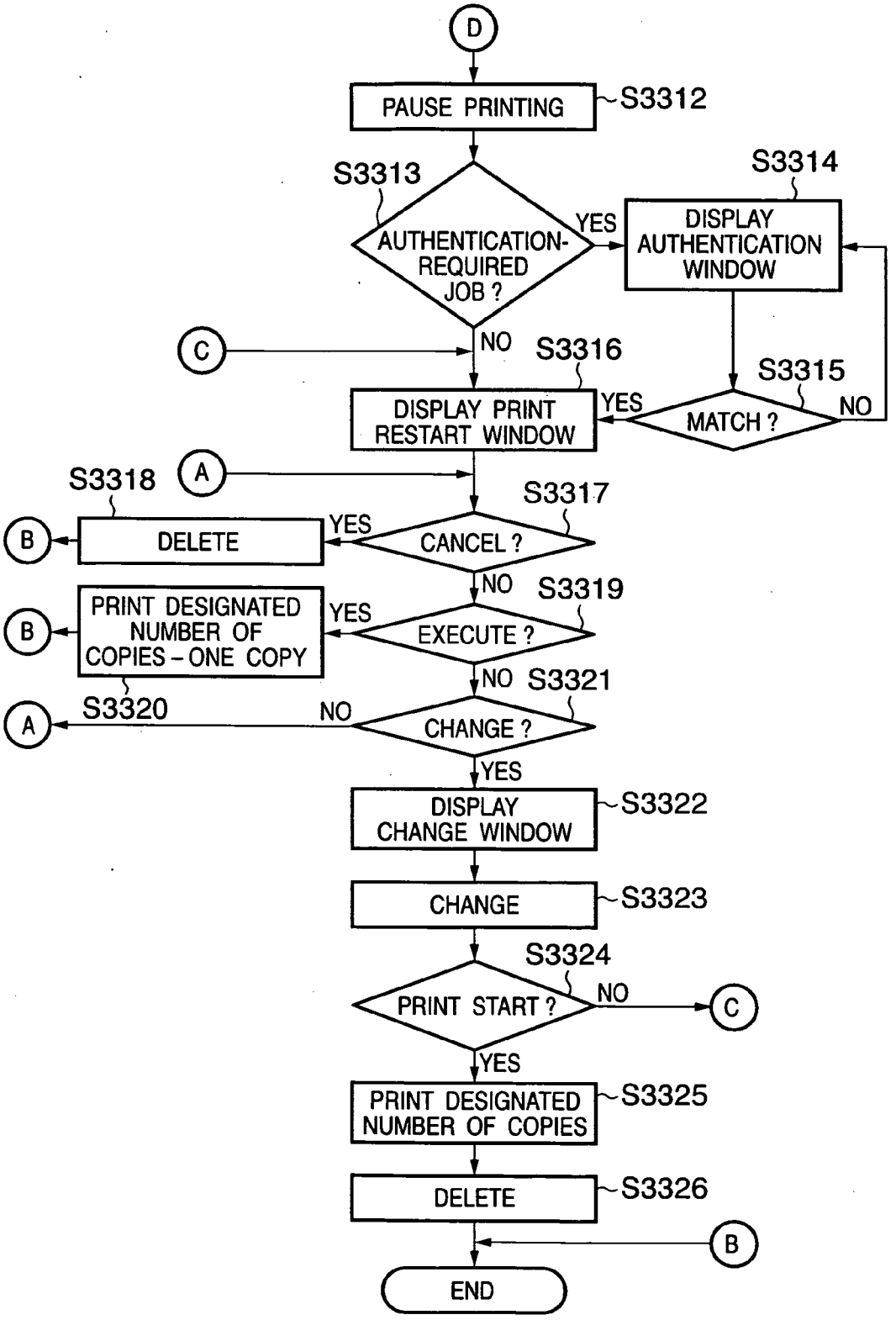

D
PAUSE PRINTING
S3312
S3313
AUTHENTICATION-REQUIRED JOB ?
YES
S3314
DISPLAY AUTHENTICATION WINDOW
C
NO
S3316
DISPLAY PRINT RESTART WINDOW
YES
S3315
MATCH ?
NO
A
S3318
S3317
B
DELETE
YES
CANCEL ?
NO
S3319
B
PRINT DESIGNATED NUMBER OF COPIES - ONE COPY
YES
EXECUTE ?
NO
S3321
A
S3320
NO
CHANGE ?
YES
DISPLAY CHANGE WINDOW
S3322
CHANGE
S3323
S3324
PRINT START ?
NO
C
YES
PRINT DESIGNATED NUMBER OF COPIES
S3325
DELETE
S3326
B
END

FIG. 34A

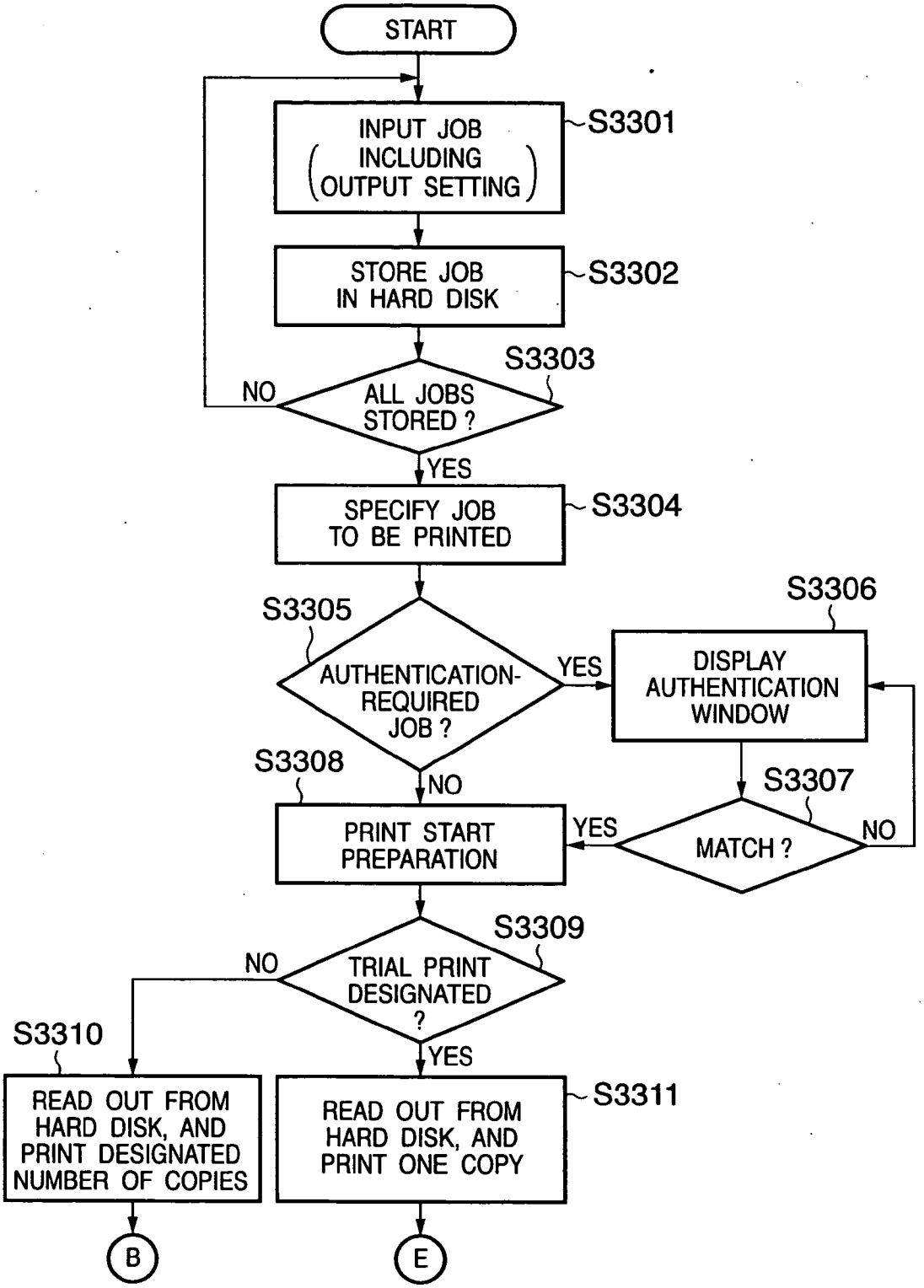

START
INPUT JOB INCLUDING OUTPUT SETTING
S3301
STORE JOB IN HARD DISK
S3302
S3303
NO
ALL JOBS STORED ?
YES
SPECIFY JOB TO BE PRINTED
S3304
S3305
AUTHENTICATION-REQUIRED JOB ?
YES
S3306
DISPLAY AUTHENTICATION WINDOW
S3308
NO
S3307
PRINT START PREPARATION
YES
MATCH ?
NO
S3309
NO
TRIAL PRINT DESIGNATED ?
YES
S3310
READ OUT FROM HARD DISK, AND PRINT DESIGNATED NUMBER OF COPIES
READ OUT FROM HARD DISK, AND PRINT ONE COPY
S3311
B
E

FIG. 34B

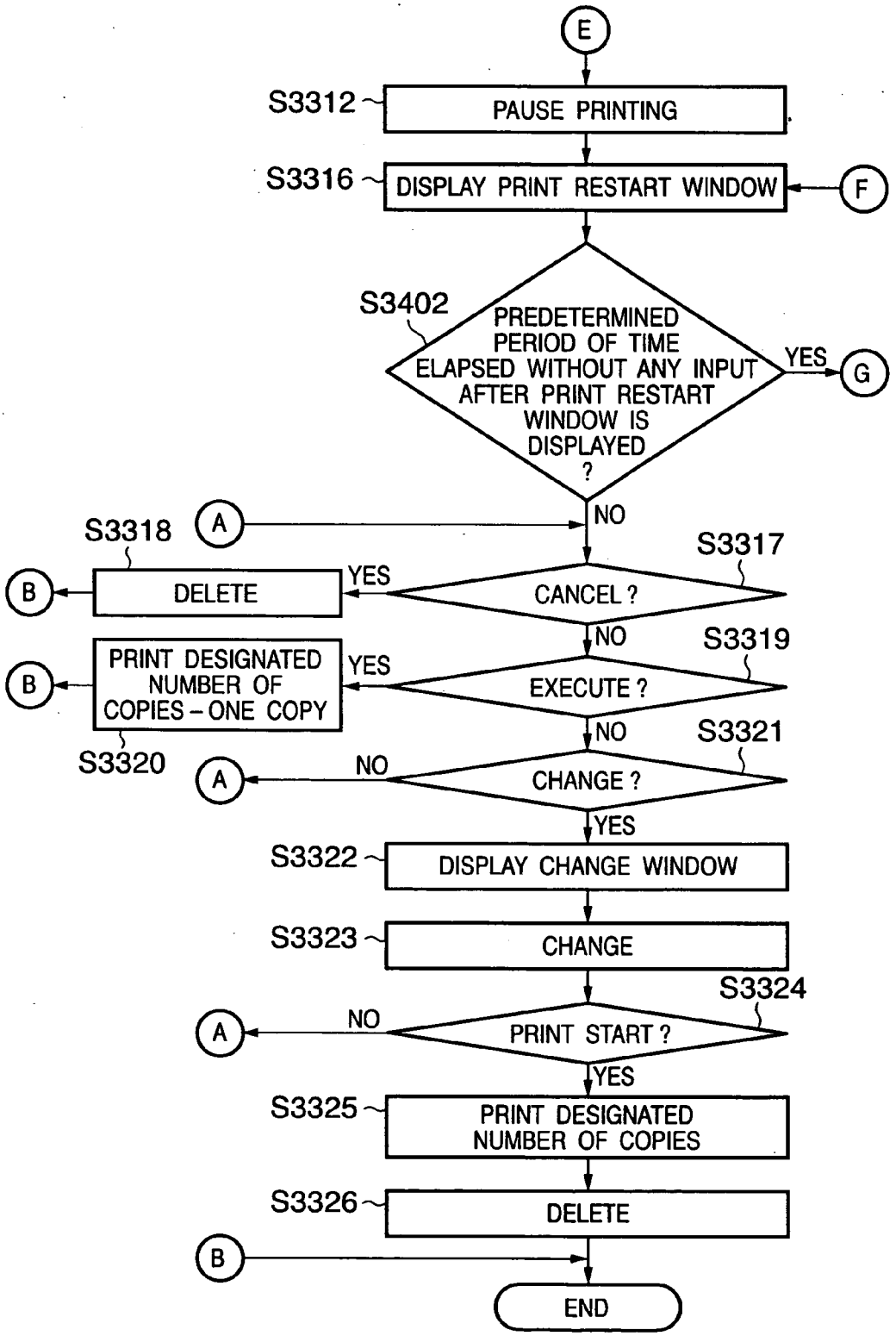

E
S3312
PAUSE PRINTING
S3316
DISPLAY PRINT RESTART WINDOW
F
S3402
PREDETERMINED PERIOD OF TIME ELAPSED WITHOUT ANY INPUT AFTER PRINT RESTART WINDOW IS DISPLAYED ?
YES
G
NO
A
S3318
S3317
B
DELETE
YES
CANCEL ?
NO
S3319
PRINT DESIGNATED NUMBER OF COPIES – ONE COPY
YES
EXECUTE ?
NO
S3320
S3321
A
NO
CHANGE ?
YES
S3322
DISPLAY CHANGE WINDOW
S3323
CHANGE
S3324
A
NO
PRINT START ?
YES
S3325
PRINT DESIGNATED NUMBER OF COPIES
S3326
DELETE
B
END

FIG. 34C

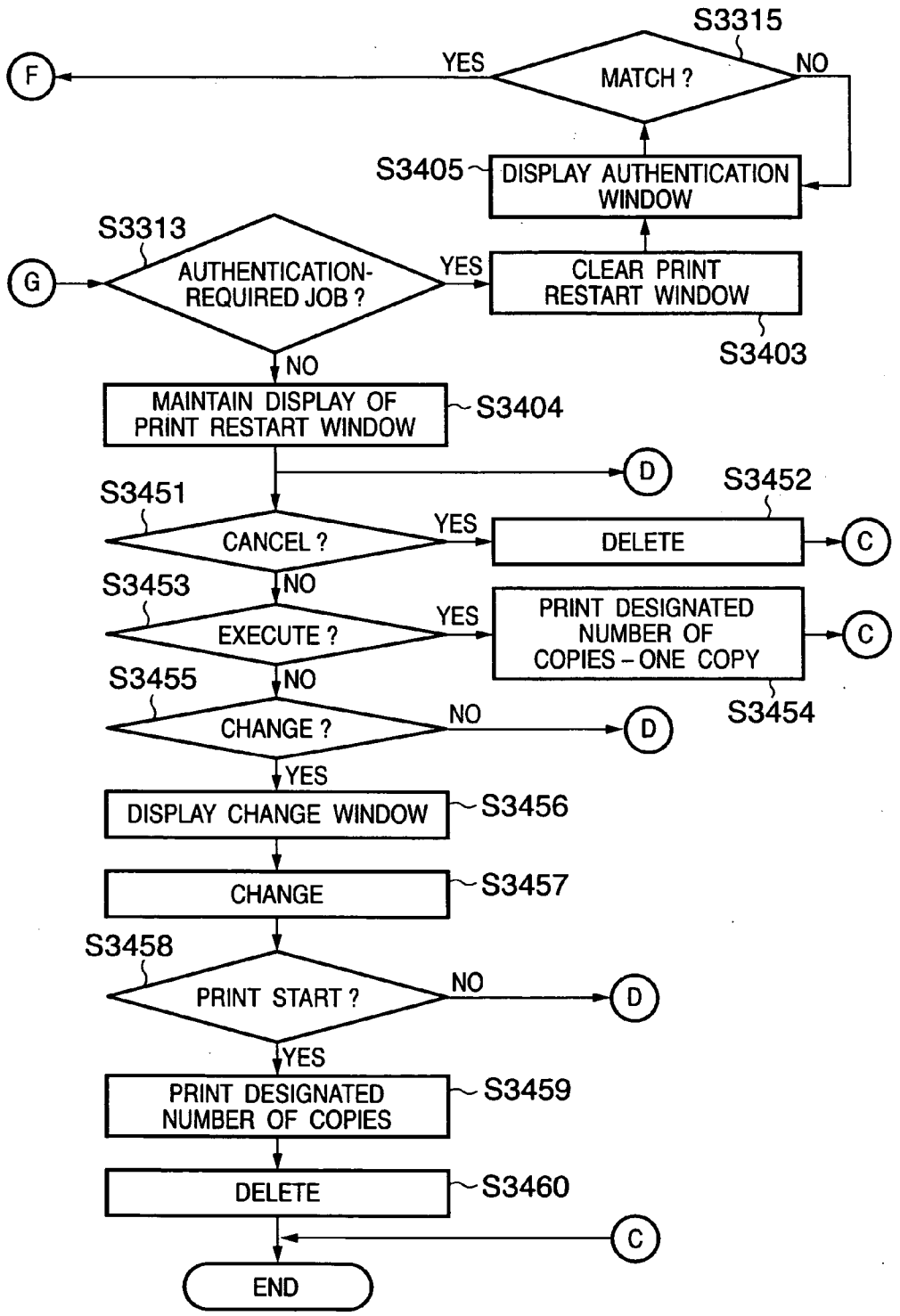

S3315
MATCH ?
YES
NO
F
S3405
DISPLAY AUTHENTICATION WINDOW
S3313
AUTHENTICATION-REQUIRED JOB ?
G
YES
CLEAR PRINT RESTART WINDOW
S3403
NO
MAINTAIN DISPLAY OF PRINT RESTART WINDOW
S3404
D
S3451
CANCEL ?
YES
S3452
DELETE
C
NO
S3453
EXECUTE ?
YES
PRINT DESIGNATED NUMBER OF COPIES – ONE COPY
C
S3454
NO
S3455
CHANGE ?
NO
D
YES
DISPLAY CHANGE WINDOW
S3456
CHANGE
S3457
S3458
PRINT START ?
NO
D
YES
PRINT DESIGNATED NUMBER OF COPIES
S3459
DELETE
S3460
C
END

FIG. 35A

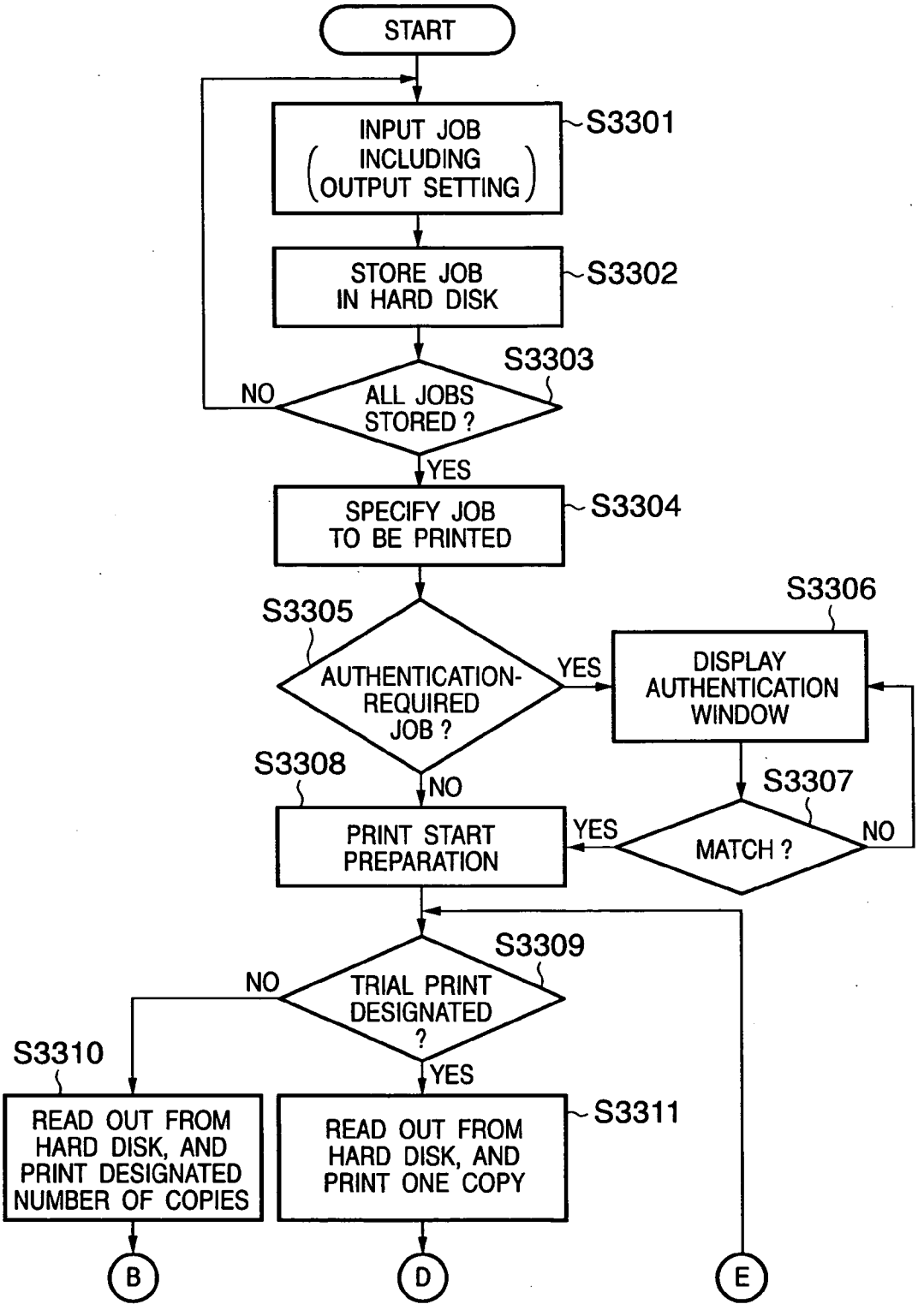

START
INPUT JOB INCLUDING OUTPUT SETTING
S3301
STORE JOB IN HARD DISK
S3302
S3303
ALL JOBS STORED ?
NO
YES
SPECIFY JOB TO BE PRINTED
S3304
S3305
AUTHENTICATION-REQUIRED JOB ?
YES
S3306
DISPLAY AUTHENTICATION WINDOW
S3307
MATCH ?
NO
YES
S3308
NO
PRINT START PREPARATION
S3309
TRIAL PRINT DESIGNATED ?
NO
YES
S3310
READ OUT FROM HARD DISK, AND PRINT DESIGNATED NUMBER OF COPIES
READ OUT FROM HARD DISK, AND PRINT ONE COPY
S3311
B
D
E

FIG. 35B

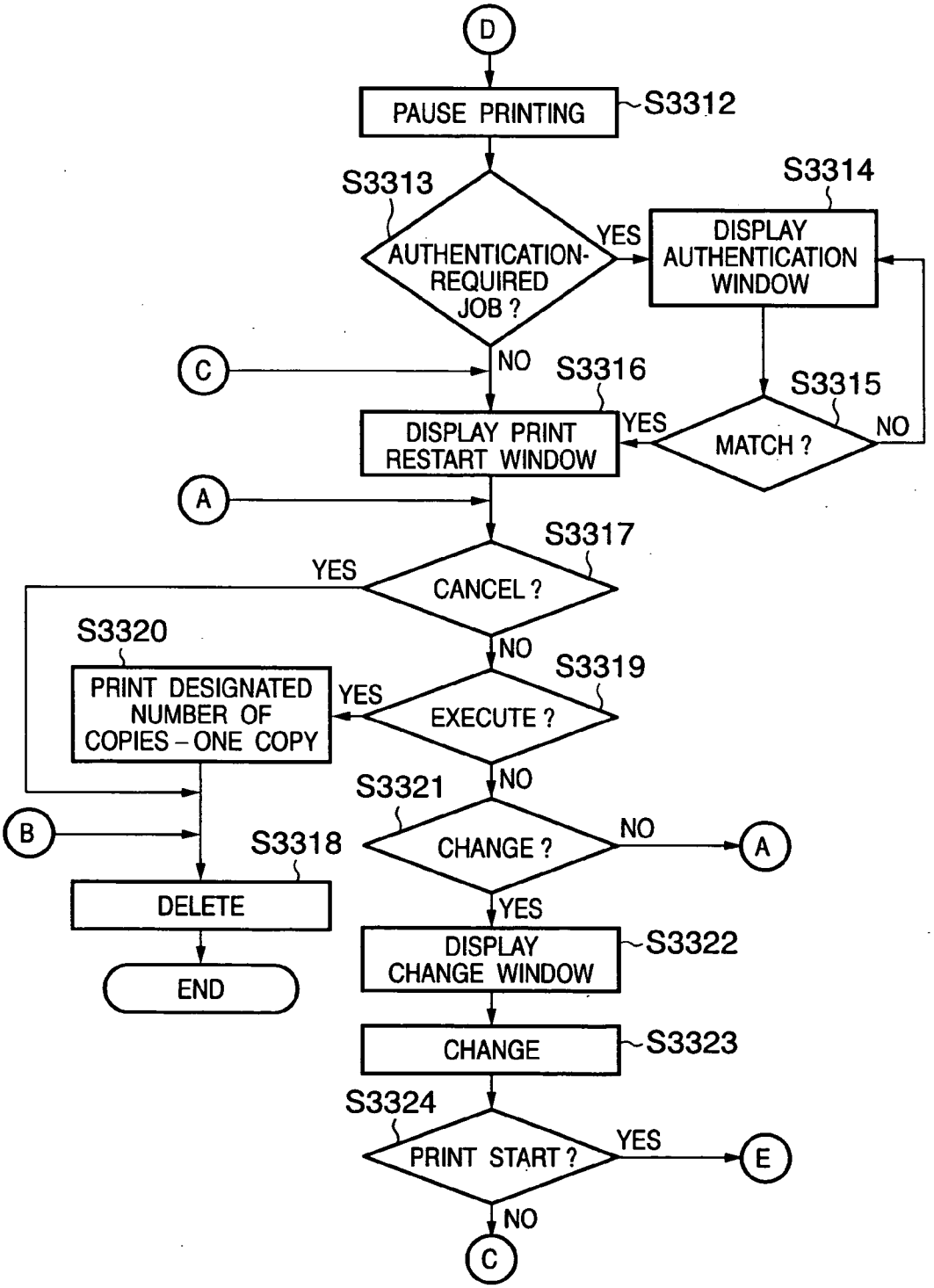

D
PAUSE PRINTING
S3312
S3313
AUTHENTICATION-REQUIRED JOB ?
YES
S3314
DISPLAY AUTHENTICATION WINDOW
C
NO
S3316
S3315
DISPLAY PRINT RESTART WINDOW
YES
MATCH ?
NO
A
S3317
YES
CANCEL ?
S3320
NO
S3319
PRINT DESIGNATED NUMBER OF COPIES – ONE COPY
YES
EXECUTE ?
NO
S3321
B
S3318
CHANGE ?
NO
A
DELETE
YES
DISPLAY CHANGE WINDOW
S3322
END
CHANGE
S3323
S3324
PRINT START ?
YES
E
NO
C

FIG. 36A

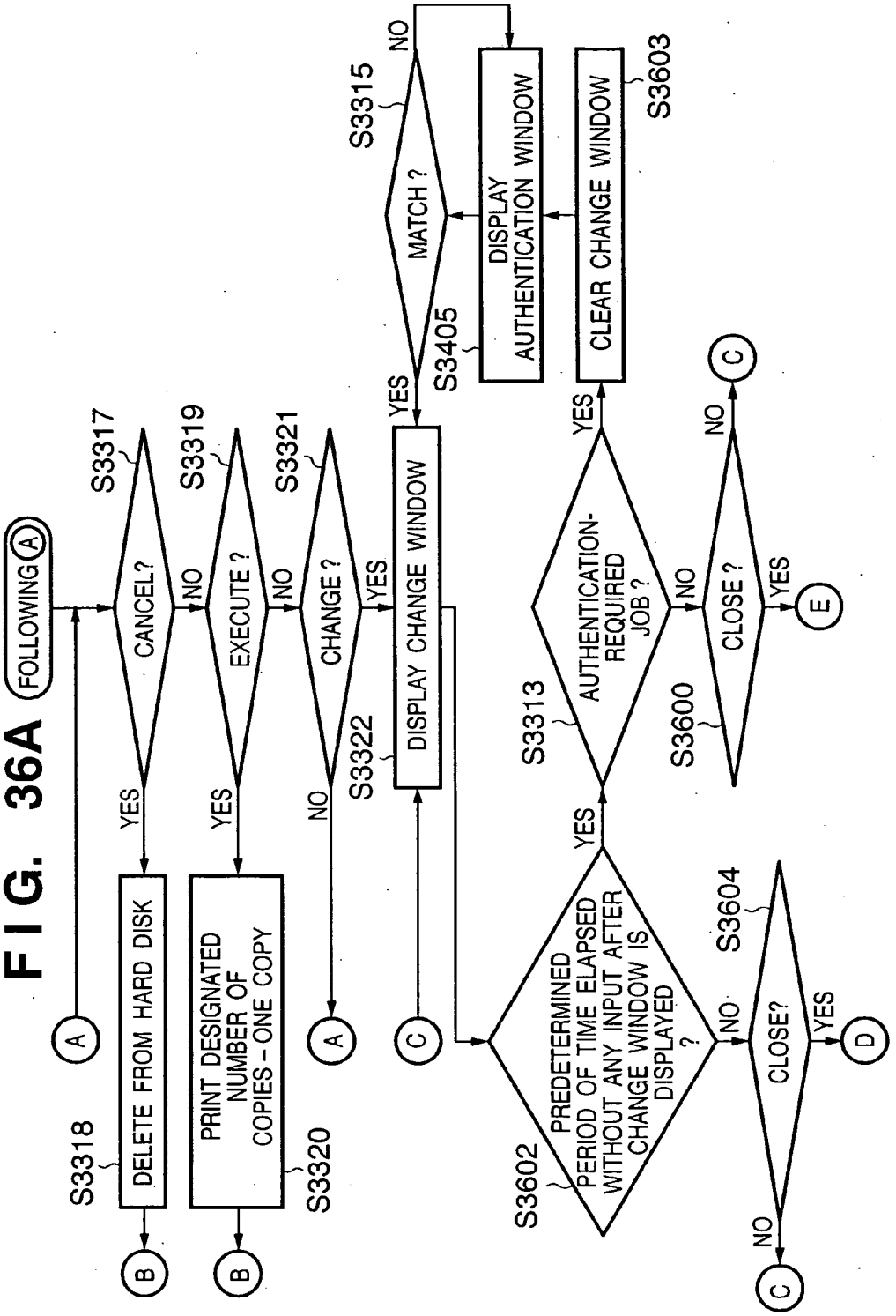

FOLLOWING A
S3317
CANCEL?
YES
NO
S3318
DELETE FROM HARD DISK
B
S3319
EXECUTE ?
YES
NO
PRINT DESIGNATED NUMBER OF COPIES - ONE COPY
S3320
B
S3321
CHANGE ?
YES
NO
A
S3322
DISPLAY CHANGE WINDOW
C
S3315
MATCH ?
YES
NO
S3405
DISPLAY AUTHENTICATION WINDOW
S3603
CLEAR CHANGE WINDOW
S3313
AUTHENTICATION-REQUIRED JOB ?
YES
NO
S3600
CLOSE ?
YES
NO
E
C
S3602
PREDETERMINED PERIOD OF TIME ELAPSED WITHOUT ANY INPUT AFTER CHANGE WINDOW IS DISPLAYED ?
YES
NO
S3604
CLOSE?
YES
NO
D
C

FIG. 36B

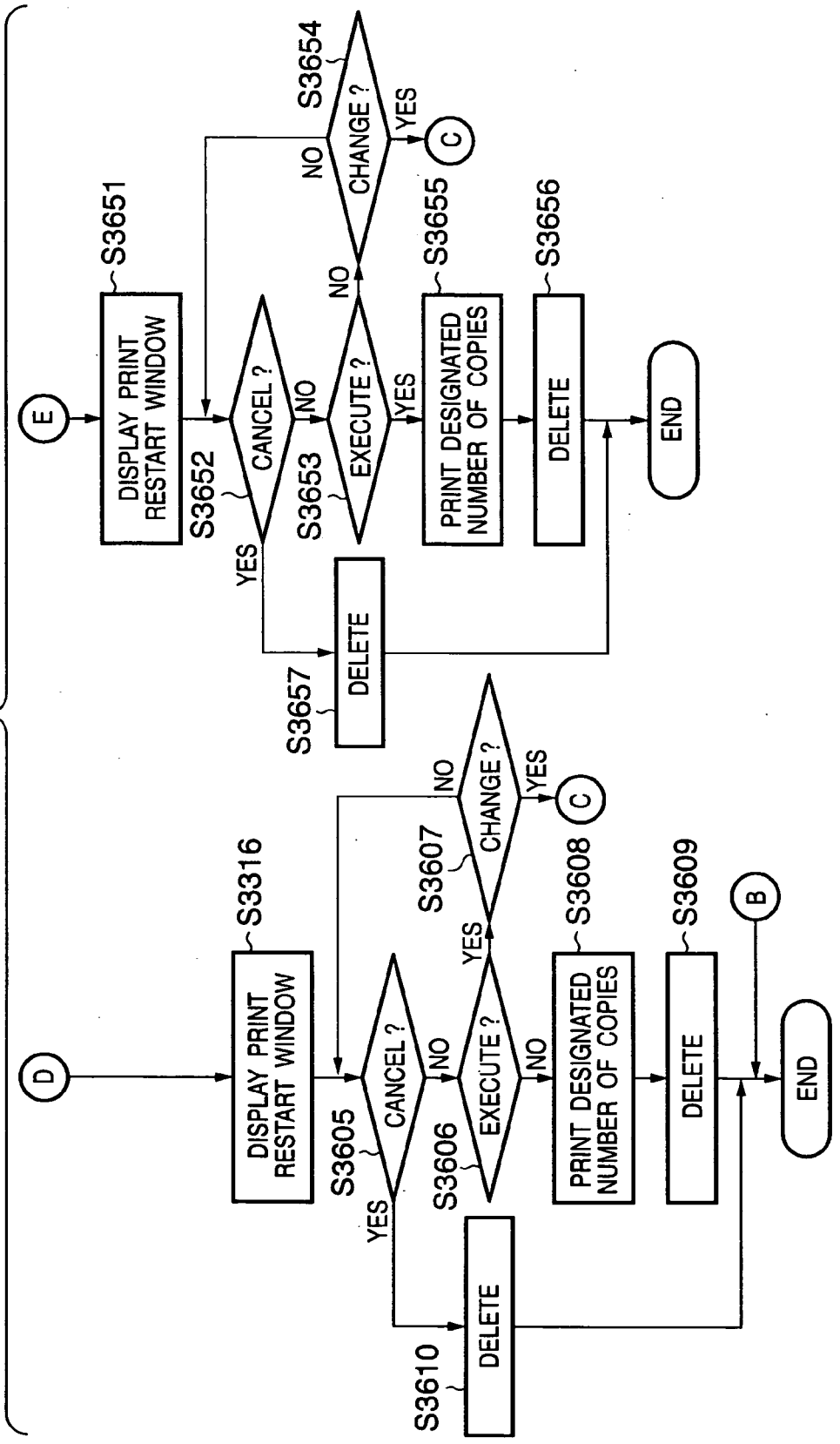

D
E
S3316
DISPLAY PRINT RESTART WINDOW
S3605
CANCEL ?
YES
NO
S3606
EXECUTE ?
YES
NO
S3607
CHANGE ?
YES
NO
C
S3608
PRINT DESIGNATED NUMBER OF COPIES
S3609
DELETE
B
END
S3610
DELETE
S3651
DISPLAY PRINT RESTART WINDOW
S3652
CANCEL ?
YES
NO
S3653
EXECUTE ?
YES
NO
S3654
CHANGE ?
YES
NO
C
S3655
PRINT DESIGNATED NUMBER OF COPIES
S3656
DELETE
END
S3657
DELETE

FIG. 37

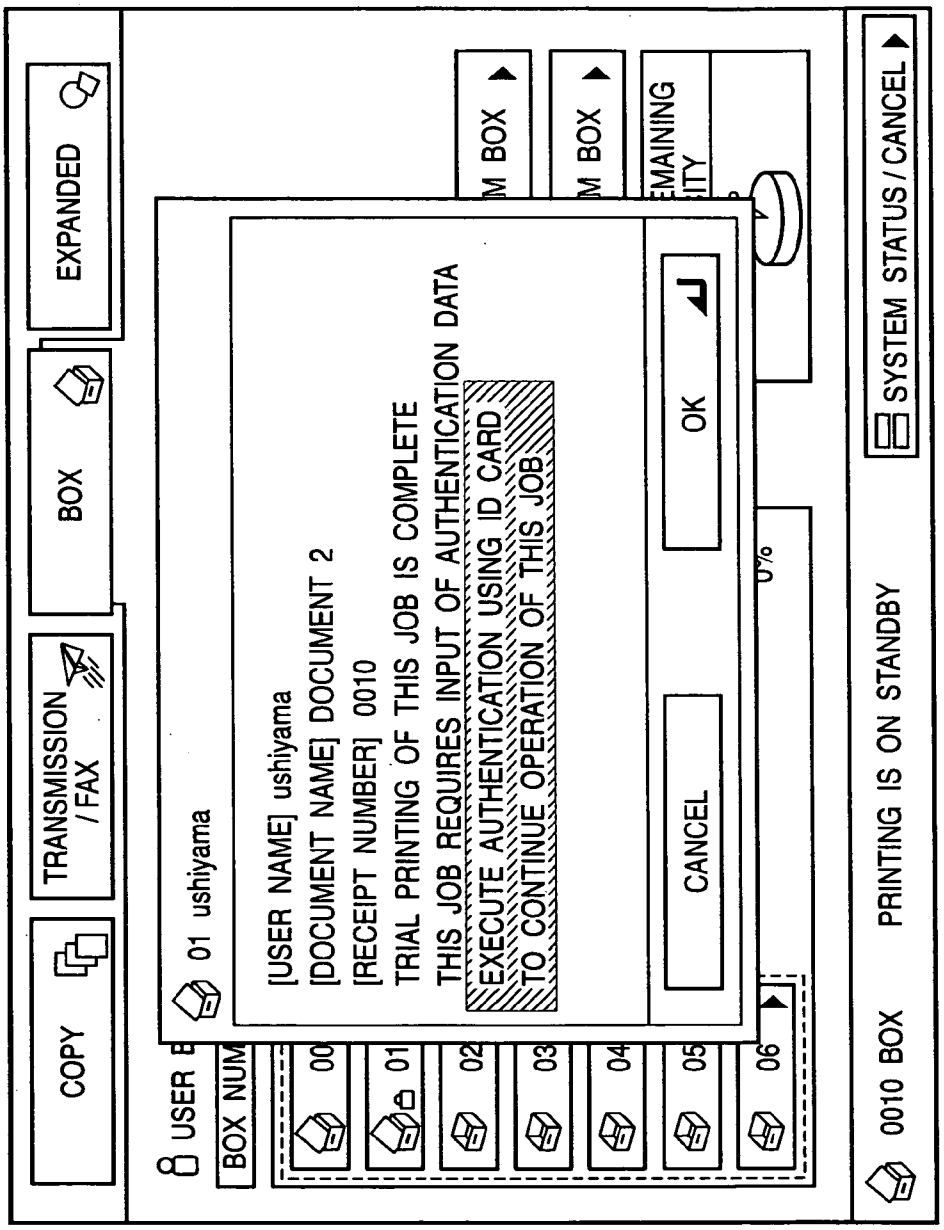
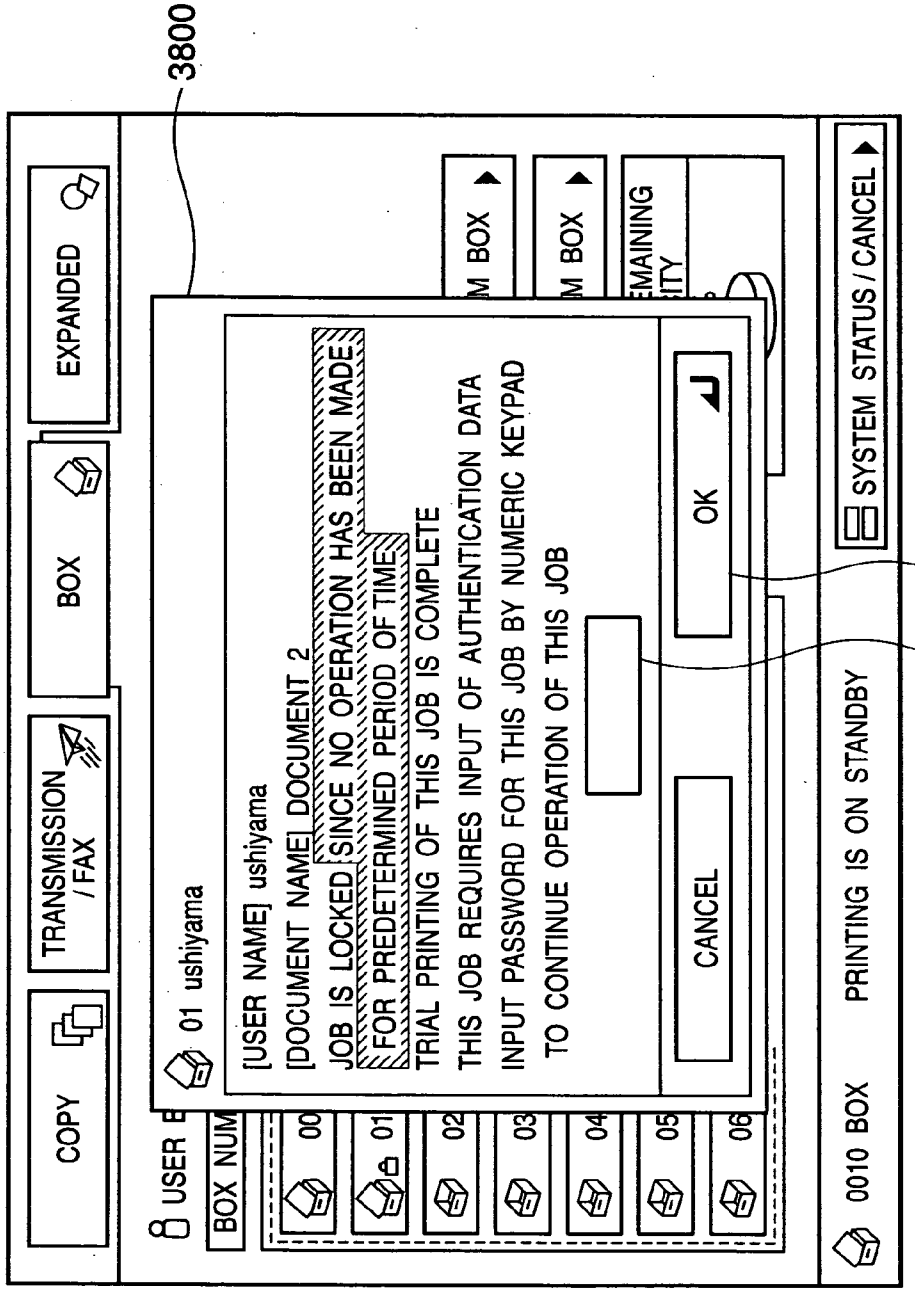

COPY
TRANSMISSION / FAX
BOX
EXPANDED
USER B
01 ushiyama
BOX NUM
00
01
02
03
04
05
06
[USER NAME] ushiyama
[DOCUMENT NAME] DOCUMENT 2
[RECEIPT NUMBER] 0010
TRIAL PRINTING OF THIS JOB IS COMPLETE
THIS JOB REQUIRES INPUT OF AUTHENTICATION DATA
EXECUTE AUTHENTICATION USING ID CARD
TO CONTINUE OPERATION OF THIS JOB
CANCEL
OK
0%
M BOX
M BOX
EMAINING
ITY
0010 BOX
PRINTING IS ON STANDBY
SYSTEM STATUS / CANCEL

FIG. 38


3800
COPY
TRANSMISSION / FAX
BOX
EXPANDED
USER
01 ushiyama
BOX NUM
00
01
02
03
04
05
06
[USER NAME] ushiyama
[DOCUMENT NAME] DOCUMENT 2
JOB IS LOCKED SINCE NO OPERATION HAS BEEN MADE
FOR PREDETERMINED PERIOD OF TIME
TRIAL PRINTING OF THIS JOB IS COMPLETE
THIS JOB REQUIRES INPUT OF AUTHENTICATION DATA
INPUT PASSWORD FOR THIS JOB BY NUMERIC KEYPAD
TO CONTINUE OPERATION OF THIS JOB
CANCEL
OK
M BOX
M BOX
EMAINING ITY
SYSTEM STATUS / CANCEL
0010 BOX
PRINTING IS ON STANDBY
3801
3802

PRINTING APPARATUS AND ITS CONTROL METHOD, JOB PROCESSING METHOD, AND PRINTING SYSTEM

FIELD OF THE INVENTION

[0001] The present invention relates to a printing technique for executing print processing on the basis of a print job and, more particularly, to a printing technique of a print job that requires authentication processing.

BACKGROUND OF THE INVENTION

[0002] Upon printing (copying) a plurality of pages, a trial print (trial copy) function which trial-prints some pages prior to main print processing and starts print processing after it is confirmed if the user wants to start, cancel, change, or the like the main print processing is known (see Japanese Patent Laid-Open No. 2003-208298). In terms of the nature of the trial print function, the printing operation of a job to be processed by this function is paused when the user confirms the trial print result or changes the job after confirmation.

[0003] Upon printing a secure document, a secure print function which requires authentication to output and allows to output at an arbitrary timing so as to prevent information from leaking to a third party when print processing starts at a position beyond eyeshot is known (see Japanese Patent Laid-Open No. 2001-341361).

[0004] The two functions, i.e., the trial print and secure print functions are independent functions, and have no relevance to each other. A job (secure job) which requires authentication to output, and a job (non-secure job) which does not require any authentication to output have a feature in that although they require different control processes before the beginning of execution, their control processes have no difference after their print processes start in practice. For this reason, upon executing the trial print processing of a secure job, when the owner of that secure job leaves from an image forming apparatus main body for the purpose of replenishing paper sheets for the main print processing, toner, or the like after the job is interrupted, a third party may manipulate the secure job which has undergone the trial print processing and waits for post-processing. Hence, the main print operation of the secure job may be executed, and the document security may not be protected.

SUMMARY OF THE INVENTION

[0005] The present invention has been made in consideration of the aforementioned problems, and has as its object to provide a technique for maintaining the security of a document to be printed even after execution of trial print processing, when trial print processing is to be executed based on a secure job. It is another object of the present invention to prevent a problem such as poor usability or the like, which is posed to maintain the security after the trial print processing of a secure job upon execution of the trial print processing of a job other than the secure job such as a non-secure job, and to simultaneously realize an effect of maintaining security even after the trial print processing of a secure job and an effect of improving usability upon execution of the trial print processing of a non-secure job.

[0006] In order to achieve an object of the present invention, for example, a job processing method of the present invention comprises the following arrangement.

[0007] That is, a job processing method in a printing system includes a printing device can accept a plurality of types of print job including a print job of a first type and a print job of a second type, the method comprising the steps of:

[0008] enabling an execution of a processing for data of a print job in which a trial printing was performed by the printing device; and

[0009] enabling the execution of the processing for data of the print job in which the trial printing was performed by the printing device, after an authentication processing for the print job, in case that the job in which the trial printing was performed is the job of the first type but not the job of the second type.

[0010] Other features and advantages of the present invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the figures thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

[0012] **FIG. 1** is a diagram showing the basic arrangement of a printing system according to the first embodiment of the present invention;

[0013] **FIG. 2** is a block diagram showing the functional arrangement of an image forming apparatus **101**;

[0014] **FIG. 3** shows an example of the arrangement of an operation unit **203** shown in **FIG. 2**;

[0015] **FIG. 4** shows a display example of an operation window (user interface) to be displayed on a display unit **301**;

[0016] **FIG. 5** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0017] **FIG. 6** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0018] **FIG. 7** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0019] **FIG. 8** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0020] **FIG. 9** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0021] **FIG. 10** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0022] **FIG. 11** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0023] **FIG. 12** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0024] **FIG. 13** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0025] **FIG. 14** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0026] **FIG. 15** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0027] **FIG. 16** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0028] **FIG. 17** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0029] **FIG. 18** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0030] **FIG. 19** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0031] **FIG. 20** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0032] **FIG. 21** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0033] **FIG. 22** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0034] **FIG. 23** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0035] **FIG. 24** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0036] **FIG. 25** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0037] **FIG. 26** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0038] **FIG. 27** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0039] **FIG. 28** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0040] **FIG. 29** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0041] **FIG. 30** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0042] **FIG. 31** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0043] **FIG. 32** shows a display example of an operation window (user interface) to be displayed on the display unit **301**;

[0044] **FIGS. 33A and 33B** are flowcharts of print processing to be executed by the image forming apparatus **101** according to the first embodiment of the present invention;

[0045] **FIGS. 34A, 34B**, and **34**C are flowcharts of print processing to be executed by an image forming apparatus **101** according to the third embodiment of the present invention;

[0046] **FIGS. 35A and 35B** are flowcharts of print processing to be executed by an image forming apparatus **101** according to the second embodiment of the present invention;

[0047] **FIGS. 36A and 36B** are flowcharts of print processing to be executed by an image forming apparatus **101** according to the fourth embodiment of the present invention;

[0048] **FIG. 37** shows a display example of an operation window (user interface) to be displayed on the display unit **301**; and

[0049] **FIG. 38** shows a display example of an operation window (user interface) to be displayed on the display unit **301**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0050] Preferred embodiments of the present invention will now be described in detail in accordance with the accompanying drawings.

First Embodiment

[0051] An image forming apparatus as a digital multifunctional peripheral (MFP) comprising a plurality of functions (also called modes) such as a copy function, print function, facsimile function, and the like, and a printing system having this image forming apparatus will be described hereinafter.

[0052] **FIG. 1** is a diagram showing the basic arrangement of the printing system according to this embodiment. The system according to this embodiment includes an image forming apparatus **101**, server computer **102**, client computer A **103**, client computer B **104**, another digital MFP **105**, and Internet facsimile apparatus **106**. These apparatuses can communicate data with each other via a network **100** such as a LAN or the like. Note that the network **100** is not limited to either a wireless or wired one.

[0053] Note that the gist of the following description is not limited by the numbers of respective apparatuses, and a system that can be applied to the following description is not limited to the arrangement shown in **FIG. 1** as long as the

system includes the image forming apparatus **101** and also an apparatus which can transmit a job to this image forming apparatus **101**.

[**0054**] The image forming apparatus **101** will be described below.

[**0055**] The image forming apparatus **101** has a plurality of modes (functions) such as a copy mode, print mode, facsimile mode, and the like. The image forming apparatus **101** can execute various kinds of output processing of job data scanned by a scanner unit of the self apparatus, job data output from the client computer A **103** or B **104**, job data output from a scanner of the other digital MFP **105**, job data output from the Internet facsimile apparatus **106**, and the like. For example, the image forming apparatus **101** can make a printer unit of the self apparatus execute print processing of such job data via a storage unit such as a hard disk or the like of the self apparatus, can transfer such job data to another apparatus via a communication unit of the self apparatus, and so forth.

[**0056**] The print function of the image forming apparatus **101** will be described below. The image forming apparatus **101** comprises an automatic document feeder (so-called ADF) which can automatically and continuously scan a plurality of documents in turn from the first page side in the scanner unit of the self apparatus. Also, the image forming apparatus **101** comprises a plurality of paper feed units (paper feed cassettes) in the printer unit of the self apparatus, can store print sheets of different media types (different sizes and types of print sheets) for respective paper feed units, and selectively feeds a sheet from the paper feed unit of the user's choice to allow the printer unit to print.

[**0057**] The image forming apparatus **101** comprises a so-called sort function of applying sort processing to print sheets printed by the printer unit, a staple function of applying staple processing to print sheets, a punch function of applying punch processing to print sheets printed by the printer unit, and a saddle stitch function of applying folding processing and bookbinding processing to print sheets printed by the printer unit. The image forming apparatus **101** comprises a finisher as a sheet processing device for executing these sheet processing functions in the printer unit.

[**0058**] **FIG. 2** is a block diagram showing the functional arrangement of the image forming apparatus **101**. The same reference numeral in **FIG. 2** denote the same parts as in **FIG. 1**.

[**0059**] As shown in **FIG. 2**, the image forming apparatus **101** comprises various units such as a control unit **201**, scanner unit **202**, operation unit **203**, memory **204**, external communication unit **205**, data processing unit **206**, printer unit **207**, hard disk **208**, and the like.

[**0060**] The scanner unit **202** has a document feeder such as an ADF or the like, executes scan processing of a document image set on a document table, and outputs the scanned image data to the data processing unit **206**.

[**0061**] The operation unit **203** includes a liquid crystal display unit of a touch panel type and a button group, and the information display for the operator of the image forming apparatus **101** and the operation input by the operator of the image forming apparatus **101** are made via this operation unit **203**. The memory **204** stores programs and data required for the control unit **201** to control respective units, programs and data required for the image processing unit **101** to execute respective processes (to be described later), various kinds of management information, and the like.

[**0062**] The external communication unit **205** exchanges various data (image data, command data, status request information, status information, time data, and the like) with various external apparatuses (e.g., the server computer **102**, client computers A **103** and B **104**, and the other digital MFP **105**, shown in **FIG. 1**) via the network **100**.

[**0063**] The data processing unit **206** comprises a memory such as a page memory or the like used upon processing image data, a rendering unit for rendering PDL data from the image processing unit or external apparatus to bitmap data, a compression/decompression unit for executing compression processing and decompression processing of data, and the like. The data processing unit **206** appropriately processes job data (including image data) from the scanner unit **202** or job data input from the external apparatus via the external communication unit **205** in accordance with output processing conditions set for that job data, and outputs processed image data to the hard disk **208** or printer unit **207**, or to the external communication unit **205** when the data is transmitted to the external apparatus.

[**0064**] The hard disk **208** comprises a storage area that can store and hold a plurality of job data (a plurality of a series of image data), and can store and hold job data input from the scanner unit **202** via the data processing unit **206**, job data from various external apparatuses (e.g., the server computer **102**, client computers A **103** and B **104**, and the other digital MFP **105**, shown in **FIG. 1**), and the like. Also, the hard disk **208** saves programs and data for making the control unit **201** execute respective processes (to be described later) to be implemented by the image forming apparatus **101**. These programs and data saved in the hard disk **208** are read out onto the memory **204** in accordance with the control processing of the control unit **201**, and are used when the control unit **201** executes various processes.

[**0065**] The printer unit **207** executes print processing of job data input from the scanner unit **202** via the data processing unit **206**, job data from various external apparatuses (e.g., the server computer **102**, client computers A **103** and B **104**, and the other digital MFP **105**, shown in **FIG. 1**), or job data from the hard disk **208** in accordance with print conditions set for that job.

[**0066**] Even during a print operation of a given print job executed by the printer unit **207**, print job data (image data) can be accepted from the external apparatuses (e.g., the server computer **102**, client computers A **103** and B **104**, and the other digital MFP **105**, shown in **FIG. 1**) and the scanner unit **202** of the self apparatus, and the accepted job data are sequentially saved in the hard disk **208**. Independently of and parallel to the print operation of a job by the printer unit **207**, the input operations of other jobs from the scanner unit **202** and external apparatuses (e.g., the server computer **102**, client computers A **103** and B **104**, and the other digital MFP **105**, shown in **FIG. 1**) and storage processing of these jobs in the hard disk **208** can be executed.

[**0067**] In the following description, of any jobs of the copy function, print function, and facsimile function, a job which is to undergo print processing by the printer unit **207** will be generically called a "print job".

[0068] The control unit **201** includes a processor such as a CPU, MPU, or the like, controls the operations of the respective units, and executes respective processes (to be described later) to be implemented by the image **5**, processing apparatus **101**.

[0069] In this embodiment, all the units shown in **FIG. 2** are equipped in the image forming apparatus **101**. However, the present invention is not limited to this, and some of these units may be externally arranged. As such arrangement, an arrangement which equips a storage unit such as the hard disk **208** or the like as an external device, an arrangement that houses respective units in independent housings, and the like are available. The following description can be applied to systems with these arrangements.

[0070] In order to recognize the operation states of these units, the control unit **201** can issue query data to the respective units and can receive reply result data, thus recognizing the status of each unit. The control unit **201** can acquire and recognize various kinds of status information. For example, the control unit **201** confirms information as to whether or not the document scan processing of the scanner unit **202** is in progress, information as to whether or not a document jam has occurred, and the like on the basis of status information from the scanner unit **202**. Also, the control unit **201** confirms information as to whether or not read/write processing of job data of the hard disk **208** is in progress and the like on the basis of status information from the hard disk **208**. Furthermore, the control unit **201** confirms information as to whether or not the print processing of the printer unit **207** is in progress, information as to whether or not an error has occurred, and the like on the basis of information from the printer unit **207**. Moreover, the control unit **201** confirms information as to whether or not reception of external data of the external communication unit **205** is in progress, information as to whether or not data transfer to an external apparatus of the external communication unit **205** is in progress, and the like on the basis of in formation from the external communication unit **205**.

[0071] The operation unit **203** controlled by the control unit **201** will be described below using **FIG. 3**.

[0072] **FIG. 3** shows an example of the arrangement of the operation unit **203** shown in **FIG. 2**. The same reference numerals in **FIG. 3** denote the same parts as in **FIG. 2**.

[0073] Referring to **FIG. 3**, the operation unit **203** comprises a display unit **301** and button group **302**. The display unit **301** comprises a liquid crystal type touch panel, and has a function of displaying various kinds of information, button icons, and the like, and a function of detecting a position designated on the display screen, and notifying the control unit **201** of that position. Note that the arrangement of the operation unit **203** is not limited to such specific arrangement, and the operation unit **203** need only have a function of displaying information, and a function of inputting various instructions.

[0074] The button group **302** will be described below. A key **303** is used to instruct to turn on/off the power supply of the image forming apparatus **101**. Every time the operator presses the key **303**, the power supply of the image forming apparatus **101** is switched to either ON/OFF. A start key **304** is used to instruct execution of processing. Keys **305** are used to input various numerical values as a numeric keypad. For example, the keys **305** can be used to input and set the number of print copies and the like. A user key **306** is used to input instructions for displaying various user mode setting windows for initial settings, administrator settings, timer settings, and the like. Note that the button group **302** includes an indicator used to notify the operation that data reception is in progress, an indicator used to notify the operator of occurrence of an error by flickering, an indicator used to notify the operator that the power supply is ON, and the like.

[0075] Various operation window examples to be displayed on the display unit **301** in the operation unit **203** under the display control of the control unit **201**, and various operation control examples based on user's operations made via these windows will be described below using FIGS. **4** to **32**.

[0076] FIGS. **4** to **32** show display examples of operation windows (user interfaces) to be displayed on the display unit **301** shown in **FIG. 3**.

[0077] As shown in **FIG. 4**, a display window **400** to be displayed on the liquid crystal display unit **301** is roughly classified into three display components. Note that **FIG. 4** is a view for roughly explaining the configuration of the display window, and does not illustrate all components to be displayed on an actual display window.

[0078] Reference numeral **401** denotes a function selection area which comprises operation instruction keys (operation buttons) used by the operator to select a desired one of a plurality of operation modes (also called functions) of the image forming apparatus **101**, which include a copy mode, transmission mode, facsimile mode, box mode, expanded mode, and the like.

[0079] Reference numeral **402** denotes a processing condition setting area which comprises operation instruction keys used by the operator to set various processing conditions (e.g., print setting parameters, see **FIG. 5**) for job data (image data) to be processed in the operation mode selected by the operator using the function selection area **401**.

[0080] Reference numeral **403** denotes a status display area which allows the operator to be notified of and confirm various kinds of status information (including operation status information such as image data loading in progress, print in progress, and the like, various kinds of error information such as a document jam, print sheet jam, staple jam, and the like, various kinds of warning information such as out-of-toner, out-of-paper, and the like, and so forth) indicating the operation states of the image forming apparatus **101**.

[0081] In this manner, the contents of the display window to be displayed on the display unit **301** have these three display components. The processing condition setting area **402** undergoes display control to have display contents according to the mode selected on the function selection area **401**. The function selection area **401** undergoes display control to be able to function after transition to another window (for example, an operation window that displays the function selection area **401** even after transition to another window, and allows the operator to select a function). The status display area **403** undergoes display control to allow the user to always confirm status information of the image

forming apparatus even after transition to any window (the status line (display area) **403** is displayed independently of a window to be switched).

[**0082**] This image forming apparatus **101** has a copy mode which controls the printer unit **207** to print job data (also called image data) from the scanner unit **202** via a memory such as the hard disk **208** or the like. Also, the image forming apparatus **101** has an external print mode which controls the printer unit **207** to print job data from an external apparatus such as the client computer A **103** or B **104**, the other digital MFP **105**, facsimile apparatus **106**, or the like via a memory such as the hard disk **208** or the like. The image forming apparatus **101** has a box mode which stores job data output from the scanner unit **202** and job data output from the external apparatus in a predetermined storage area (also called a box area) in the hard disk **208**, allows the user to select desired job data from the operation unit **203** after the job data area stored in the box, and controls the printer unit **207** to print the selected job data or controls the external communication unit **205** to transmit the job data to the external apparatus. In this manner, the image forming apparatus **101** of this embodiment comprises a plurality of operation modes including at least two operation modes. However, this embodiment is not limited to this, and may be applied to a single-function image forming apparatus having only one of these operation modes.

[**0083**] Print processing to be executed by the image forming apparatus **101** will be described below. A print job input to the hard disk **208** of the image forming apparatus **101** is the one transmitted from the external apparatus or the one input from the scanner unit **202** of the self apparatus. Print jobs input to the hard disk **208** are sequentially stored in the hard disk **208**, and include a "secure job" and "non-secure job".

[**0084**] The "secure job" allows to be printed only when an input password is authenticated. For example, in this embodiment, job data accepted from a data generation source such as an external apparatus (e.g., a computer or the like or another image forming apparatus or the like) and/or the scanner unit of the self apparatus is held in a memory such as the hard disk of the self apparatus or the like without being immediately printed by the printer unit. After the job data is stored in the memory, the user who wants to print that job inputs authentication data such as a password or the like via a user interface such as the operation unit of this image forming apparatus or the like. Under the condition that the authentication data that matches authentication data set in advance for that job is input via the user interface of the image forming apparatus, the controller of the image forming apparatus controls to execute print processing of the job data held in the hard disk. In other words, the secure job is a job which is held in the memory of the image forming apparatus in a locked state unless appropriate authentication processing (including processing for prompting the user to input authentication data which matches that for the job held in the memory on the image forming apparatus side) is executed by the image forming apparatus, and is prohibited from being freely read out from the memory and printed.

[**0085**] On the other hand, when print processing is to be done based on the "non-secure job", no password input is required. That is, for example, a job in a normal print mode corresponds to this job. In other words, the "non-secure job" is a job which is allowed to be automatically printed (without any intervention of the operator such as an explicit print instruction or the like to be issued after the operator inputs the job to the memory) without any authentication processing or the like executed by the image forming apparatus after the job is input to the memory.

[**0086**] Hence, for example, when the client computer A **103** transmits a print job to the image forming apparatus **101**, the client computer A **103** allows the user on the computer side to set via a printer driver or the like to be displayed on, e.g., the display of the computer whether or not this job is a secure or non-secure job. When this job is to be set as a secure job, the user on the computer side determines a password via, e.g., the printer driver, and the computer transmits the print job to this image forming apparatus while appending command data indicating a job in a secure print mode to the job data (document data to be printed. The image forming apparatus **101** sequentially stores the received job data in the hard disk **208** in the form of a queue.

[**0087**] After a job is stored in the hard disk **208**, the user may set this job to be a secure job using the operation unit **203**. In this case, the user sets a password by making the same operation as that made on the computer A **103** side. After the password is set, the control unit **201** appends this password to the job data, thus setting this job as a secure job.

[**0088**] A storage area for holding data to be stored in a "box" (corresponding to a folder) is assured in advance on the hard disk **208**, and there are a plurality of such "boxes". For example, when operator A creates box A, and when operator A operates the image forming apparatus **101** to receive a print job from the scanner unit **202**, this job data is stored in box A. Whether or not the operator of the image forming apparatus **101** is operator A may be determined by prompting the operator to input a password before use of this apparatus, and if the password is authenticated, it may be determined that the operator is operator A. Therefore, a "box for storing secure jobs" and a "box for storing non-secure jobs" may be set for respective boxes. In this case, jobs stored in the box set as the "box for storing secure jobs" are namely secure jobs.

[**0089**] In any case, print job data are sequentially saved in the hard disk **208**.

[**0090**] When the user selects "copy" on the function selection area **401**, print job data is registered by enqueuing it in a queue; when the user selects "box", print job data is registered in one of boxes.

[**0091**] Print processes to be executed when "copy" is selected (copy mode) and when "box" is selected (box mode) will be respectively explained below.

[**0092**] An example when the image forming apparatus **101** of this embodiment executes job processing using its trial print function under the control of the control unit **201** of this apparatus will be described below. The following description will be given using a job in the copy mode that controls the printer unit **207** to print job data input from the scanner unit **202** of the image forming apparatus via the hard disk **208** of the apparatus.

[**0093**] When the user selects the copy mode on the operation unit **203**, the control unit **201** controls the display

unit **301** of the operation unit **203** to display the operation window shown in **FIG. 4** in response to this selection. The control unit **201** controls the display unit to display a display window to allow the user to set various print conditions for a job to be output such as a setting of an output paper size, a setting of the number of output copies, a setting of a print magnification, a print setting of double- or single-sided printing, a finishing setting associated with an instruction for applying at least one sheet processing of sort processing, staple processing, punch processing, and bookbinding processing to printed sheets, and the like of the job to be printed. When the user presses an applied mode key on the window of **FIG. 4**, a display window shown in **FIG. 5** is displayed, and allows the user to set various other print conditions (various settings such as continuous page copy, cover paper/inserting paper, reduced-scale layout, and the like) which are not displayed on the window of **FIG. 4**.

[**0094**] Assume that the user has made various settings as follows as print conditions for a job (a job including four pages of a document) while displaying the operation window shown in **FIG. 4** on the display unit **301**.

[**0095**] (Condition 1) "5" copies are set as the number of output copies using the numeric keypad **305** of the operation unit **203**.

[**0096**] (Condition 2) An output magnification is equal to the document image size (100%).

[**0097**] (Condition 3) "Staple" is set as the finishing setting via a touch panel key.

[**0098**] (Condition 4) "Double-sided printing" is set as a setting for faces to be printed via a touch panel key.

[**0099**] Assume that the user sets a series of print conditions having a plurality of print condition parameters for the job data including image data for four pages to be output via the operation window of **FIG. 4** and the like. In response to this, the control unit **201** controls to display a setting window shown in **FIG. 6** to allow the operator to confirm the contents set for the job, and can accept an instruction for making this image forming apparatus execute a trial print operation of the job from the user via a trial copy key (also called a trial print key) **1** on the window of **FIG. 6**.

[**0100**] As can be seen from comparison between the windows shown in **FIGS. 4 and 6**, the control unit **201** controls to display the trial print (trial copy) key **1** on the operation window of **FIG. 6**. When the setting contents of the print conditions set by the user includes conditions that the number of output copies is 2 or more, the finishing setting such as staple, sort, or the like is ON, and so forth, the control unit **201** controls to display the trial print key **1** on the operation unit, and allows the user to instruct to execute trial print processing according to the set print conditions via the trial print key.

[**0101**] In this way, according to this embodiment, when the above condition is met (at least one of when the set number of output copies is 2 or more and when the finishing setting is ON), the control is made to display the trial print key **1** (see the UI in **FIG. 6**) to permit execution of the trial print function.

[**0102**] On the other hand, if the above condition is not met (at least one of when the set number of output copies is 1 and when the finishing setting is OFF), the control is made to prohibit the trial print key from being displayed on the display unit **301** to prohibit execution of the trial print function. For example, first of all, when the number of output copies is 1, the print operation remains the same independently of trial or main print processing. Even when the settings of the print conditions are changed to redo printing, the user can easily change the settings of the print conditions. In addition, if the number of print copies is only one in the first place, no wasteful output occurs. Hence, paying attention to these facts, this specification is determined with due considerations to the user so as not to introduce extra confusion to him or her.

[**0103**] The description will revert to **FIG. 6**. When the user inputs a trial print execution instruction by pressing the trial print key **1** on the window and then presses the start key **304** of the operation unit **203** in **FIG. 3** while the display window in **FIG. 6** is displayed on the display unit **301**, the control unit **201** controls the image forming apparatus to execute the following trial print operation of the job.

[**0104**] The control unit **201** starts scan processing of document image data for four pages of the job, which are set on the document feeder of the scan unit **202** starts, and sequentially stores data in the hard disk **208** page by page. As processing of the job having the image data for four pages stored in the hard disk **208**, a magnification is set to be an equal magnification (equal to the document image size), the first and second pages of the job are printed on two faces of the first print sheet (A4-size print sheet), the first print sheet is exhausted onto a processing tray with the first page facing down (to be exhausted in a face-down state), the third and fourth pages of the job are recorded on the observe and reverse faces of the second print sheet (A4-size print sheet), and the second print sheet is exhausted in a similar exhaust mode. When the two print sheets are stacked on the processing tray, the control unit **201** controls a stapler of the finisher to apply staple processing to a bundle of sheets including the two print sheets. Upon determination of completion of the processing based on information from an exhaust sensor, the control unit **201** pauses the print operation of the job.

[**0105**] As described above, in the trial print mode, the control unit **201** controls the image forming apparatus to execute the print operation of the job according to print conditions based on the plurality of print condition parameters set by the user while ignoring the print setting associated with the number of output copies. That is, in the trial print mode, the control unit **201** controls to process the job under the print conditions: the magnification=100%, the paper size=A4 size, double-sided printing=ON, staple=ON, and the number of output copies=1.

[**0106**] Note that the control unit **201** controls the display unit **301** to display an operation window of **FIG. 7**, so as to notify the user of the job processing status during the trial print operation. In this example, the job is processed as a receipt number "0006", and the window in **FIG. 7** notifies the user that the number of print copies is 1, and the print operation of the image of the first page of the job is now in progress.

[**0107**] In this embodiment, the user confirms the output product for one copy to check if it is a desired print result. After that, various instructions can be selectively accepted from the user via the display unit **301** of the operation unit

203, so as to continue the print operation of the job intact without changing the settings of the print conditions, to redo the print operation by changing the settings of the print conditions, or to cancel the print processing itself of this job.

[**0108**] Note that if the user inputs a print execution instruction via the start key **304** of the operation unit **203** without pressing the trial print key **1** on the window of **FIG. 6**, i.e., without inputting any trial print operation instruction, the control unit **201** controls to execute print processing in accordance with all the print conditions set by the user as the print operation of the job in response to this input. That is, in this example, the control unit **201** controls to process the job under the print conditions: the magnification=100%, the paper size=A4 size, double-sided printing=ON, staple=ON, and the number of output copies=5.

[**0109**] In this embodiment, as described above, both a job in the secure print mode which permits to start print processing after the user executes authentication processing (e.g., input of authentication data) via the operation unit **203** of the image forming apparatus before execution of the print processing, and a job in the non-secure print mode which permits to start print processing without requiring the user to execute authentication processing (e.g., input of authentication data) via the operation unit **203** of the image forming apparatus before execution of the print processing can be accepted. In addition, the user can set the secure or non-secure print mode for a job to be processed. Furthermore, the user can also set whether or not the aforementioned trial print mode is set for the job to be processed.

[**0110**] With this arrangement, when it is determined that a job set with the trial print mode is a secure job for which the user sets the secure print mode, the control unit **201** controls to execute authentication processing, which is executed before the beginning of the trial print processing, again after it executes the aforementioned trial print operation in the trial print mode and before it accepts the aforementioned instruction (various instructions selectively input from the user after execution of the trial print processing, so as to change the settings of the print conditions, to continue the print operation for the remaining number of output copies without under the print conditions intact, or to cancel the print processing).

[**0111**] On the other hand, when it is determined that a job set with the trial print mode is a non-secure job for which the user does not set the secure print mode, the control unit **201** controls to prohibit the authentication processing during a period after it executes the trial print operation in the trial print mode and before it receives the above instruction for the trial-printed job from the user, thus accepting the instruction from the user.

[**0112**] That is, if the job is a secure print job, the control unit **201** controls to switch the display contents of the display unit **301** of the operation unit **203** from the job processing status window shown in **FIG. 7** to a password input request window (not shown) in response to, e.g., completion of the trial print operation. Then, the control unit **201** prohibits the setting window in **FIG. 8** from being displayed unless the user inputs, via this authentication data input request window (not shown), authentication data which matches authentication data such as a password or the like, which was input before the beginning of the trial print operation as a condition for permitting to start the trial print operation. In this way, the control unit **201** controls to prohibit the image forming apparatus from executing various processes (to change print settings, to start main print processing without changing any settings, or to cancel the print processing itself) for the job after the trial print processing of the trial-printed secure job. On the other hand, when the user inputs, via the authentication data input request window (not shown), authentication data which matches authentication data such as a password or the like which was input before the beginning of the trial print operation as a condition for permitting to start the trial print operation of the job, the control unit **201** controls to switch the display contents of the display unit **301** from the password input request window to the setting window in **FIG. 8**, so as to selectively accept various instructions from the user via that window, and controls to permit to execute processing (to change settings, to execute main print processing for printing the remaining number of copies, or to cancel print processing) according to the instruction from the user for the trial-printed secure job.

[**0113**] Furthermore, if the job is a non-secure print job, the control unit **201** controls to switch the display contents of the display unit **301** of the operation unit **203** from the job processing status window in **FIG. 7** directly to the operation window in **FIG. 8** while prohibiting display of the authentication data input request window (not shown), so as to selectively accept various instructions from the user via that window, and controls to permit to execute processing (to change settings, to execute main print processing for printing the remaining number of copies, or to cancel print processing) according to the instruction from the user for the trial-printed non-secure job.

[**0114**] Referring back to **FIG. 8**, the control unit **201** controls to display, on the display unit **301**, the operation window in **FIG. 8**, which comprises a key used to accept, from the user, an instruction for changing the settings of the print conditions as a process to be executed for the trial-printed job (a setting change key **2** in **FIG. 8**), a key used to accept, from the user, an instruction for executing the main print operation without changing any settings of the print conditions (a print start key in **FIG. 8**), and a key used to accept, from the user, an instruction for canceling the print processing itself of the job (a cancel key in **FIG. 8**).

[**0115**] As for the timing at which the control unit **201** controls to display the operation window in **FIG. 8**, for example, when, for example, the job which is to undergo the trial print processing is a non-secure print job, the control unit **201** controls to display the operation window in **FIG. 8** in response to confirmation of completion of the trial print processing by a detection unit in various devices. On the other hand, when the job which is to undergo the trial print processing is a secure print job, the control unit **201** controls to display the operation window in **FIG. 8** in response to confirmation of completion of the trial print processing and of re-execution of authentication processing, which was executed by the image forming apparatus before the beginning of the trial print processing of the job, after completion of the trial print processing (e.g., re-input of the password, which was input by the user via the operation unit **203** before the trial print processing as a condition for permitting to start the trial print processing, via the password input request window displayed after completion of the trial print processing).

[0116] After the window shown in **FIG. 8** is displayed, the following operation is executed. The following explanation will be given using the job with the receipt number "0006" including four pages, which has been explained using FIGS. **4** to **7**.

[0117] As described above, the trial-printed job with the receipt number "0006" was set by the user with the plurality of print condition parameters "the number of output copies: 5, output paper: A4 size, magnification: equal magnification (100%), finishing setting: staple=ON, double-sided printing setting: double-sided printing=ON" as print conditions, before execution of the trial print processing in response to an instruction from the key **1** on the display window of **FIG. 6**.

[0118] Under such conditions, assume that the user presses the "print start" key via the window in **FIG. 8** and inputs an instruction for starting the print operation as a main print operation under the print conditions intact without changing any settings of the print conditions. In this case, the control unit **201** controls to execute the print operation without changing any settings of the print conditions set by the user using image data of the job held in the hard disk **208**.

[0119] In this case, the control unit **201** controls to execute print processing under the print conditions "output paper: A4 size, magnification: equal magnification (100%), finishing setting: staple=ON, double-sided printing setting: double-sided printing=ON" of those set by the user, except that the number of output copies is only 4. That is, although the user designated the number of print copies=5 in the above settings, the control unit **201** does not adopt this numerical value, and controls to execute the print operation for the number of output copies obtained by subtracting one from the number of print copies designated by the user (in this example, 5−1=4 (copies)) under the user's print conditions except for the setting of the number of print copies.

[0120] This is because the user instructs the print operation since he or she can obtain a desired print result without particularly changing the print conditions as a result of the trial print operation, and a copy output by the trial print operation can be handled as one of final products, i.e., this is a specification that considers minimizing wasteful outputs as a user's merit. That is, in this example, since both the print results for the remaining four copies which are output without changing any settings and the print result for one copy output by the trial print operation are adopted, the user can consequently obtain desired output results for five copies.

[0121] The control unit **201** controls to execute such series of processes (to be also referred to as a first sequence hereinafter) in response to depression by the user of the "print start" key on the display window in **FIG. 8** which is permitted to be displayed on the display unit **301** under the condition that various conditions described above are met (the condition that the trial-printed job is a non-secure job, or the condition that the trial-printed job is a secure job and the authentication processing for that secure job is executed after the trial print operation) after execution of the trial print operation.

[0122] **FIG. 15** shows a window that notifies the user of the print status when the main print operation is started without changing any settings after the trial print operation. In this example, the user is notified that the number of output copies for the job with the receipt number "0006" is changed to "4" since no settings are required to change after the trial print operation, and the print operation of the first page of the second copy is now in progress.

[0123] On the other hand, when the user inputs the setting change instruction of the job with the receipt number "0006" by pressing the "setting change" key **2** on the window in **FIG. 8**, the control unit **201** controls to display, e.g., a display window in **FIG. 9** on the display unit **301** and to allow the user to change the settings of the print conditions of the job in response to this instruction. In the example of **FIG. 9**, the user can change the number of output copies, the setting of paper sheets used in the job, that of a print density, that of a binding margin, that of finishing, and that of double- or single-sided printing. Since this job is initially set with "5" copies as the number of output copies, the control unit **201** controls the display unit **301** to display "5" as a default value in correspondence with the number of output copies set by the user before the trial print operation, as shown in **FIG. 9**, even when the setting of the number of output copies is to be changed.

[0124] On the window of **FIG. 9**, when the user wants to change the setting of finishing of a series of print conditions including a plurality of print conditions of the trial-printed job with the receipt number "0006", he or she presses a "sorter" key **3** on the window of **FIG. 9**. In response to this user's operation, the control unit **201** switches the display contents to a window of **FIG. 10** to allow the user to change the setting to another finishing mode (e.g., to change the setting from staple=ON to punch=ON or the like) or to select a setting to cancel the finishing setting itself (in this example, to change the finishing setting from "staple=ON" to "staple=OFF").

[0125] Likewise, when the user presses a key **4** on the window of **FIG. 9**, the control unit **201** switches the display contents to a window of **FIG. 11**, and allows the user to change various settings associated with double-sided printing (e.g., to change a binding direction, or to cancel double-sided printing itself and to change a setting to single-sided printing, or the like) via the window of **FIG. 11** and the like.

[0126] Assume that the user changes the setting from "double-sided printing=ON" to "single-sided printing=ON" as a setting change of the job.

[0127] In response to completion of the user's setting change, the control unit **201** controls to display a window of **FIG. 12** on the display unit **301**. As the difference between **FIGS. 9 and 12**, when the setting change window is displayed for the first time, the key **4** is enabled (ON display state) to indicate the setting "double-sided printing=ON", while the key **4** is disabled to cancel "double-sided printing=ON", i.e., to set "single-sided printing=ON" in **FIG. 12**. When the user presses a "close" key **5** in **FIG. 12**, the control unit **201** controls to display a window of **FIG. 13** on the display unit **301**. When the user then presses a "print start" key **6** in **FIG. 12**, the control unit **201** controls the image forming apparatus to execute print processing according to the print conditions whose settings are changed by the user after the aforementioned trial print operation.

[0128] That is, in this example, the print processing of the job with the receipt number "0006" is processed under the

print conditions "the number of output copies: 5, output paper: A4 size, magnification: equal magnification (100%), finishing setting: staple=ON, double-sided printing setting: double-sided printing=OFF (single-sided printing=ON)". Note that the number of output copies in this case remains unchanged from "5 copies" unlike in the case of no setting change. Unlike in the above case, since the user who confirmed the trial print result inputs the setting change instruction, it is assumed that the trial-printed print product is not counted as a final product, and the job is printed again for five copies as the number of output copies which is designated initially. In this way, the operability is improved. However, when the number of output copies is changed on the window of **FIG. 9**, print processing is executed in accordance with the changed number of output copies.

[**0129**] The control unit **201** controls to execute such series of processes (to be also referred to as a second sequence hereinafter) in response to depression by the user of the "setting change" key on the display window of **FIG. 8**, which is permitted to be displayed on the display unit **301** under the condition that various conditions described above are met (the condition that the trial-printed job is a non-secure job, or the condition that the trial-printed job is a secure job and the authentication processing for that secure job is executed after the trial print operation) after execution of the trial print operation.

[**0130**] **FIG. 14** shows a window during execution of the main print processing after the job settings have been changed. In this manner, the user is notified of the print status of the job to be processed with the receipt number "0006". For example, in this case, the user is notified that since the settings have been changed, the number of output copies is "5 copies", and the print operation of the first page of the second copy is now in progress.

[**0131**] Upon depression of a key **1302** on the window of **FIG. 13**, the control unit **201** controls to execute trial print processing again for the job with the receipt number "0006" under the print conditions after the setting change, except for the number of output copies is 1. In this way, since the loop control is executed to perform trial print processing again under the print conditions after the setting change even when the settings have been changed after the trial print operation, the usability can be further improved.

[**0132**] On the other hand, when the user presses the "cancel" key on the window of **FIG. 8**, the control unit **201** controls the print processing itself of the trial-printed job with the receipt number "0006" and ends all processes. In this case, the control unit **201** controls to return the display contents on the display unit **301** to the initial window (that of **FIG. 4**), and also to clear the image data of the job with the receipt number "0006" from the hard disk **208**.

[**0133**] The control unit **201** controls to execute such series of processes (to be also referred to as a third sequence hereinafter) in response to depression by the user of the "cancel" key on the display window of **FIG. 8**, which is permitted to be displayed on the display unit **301** under the condition that various conditions described above are met (the condition that the trial-printed job is a non-secure job, or the condition that the trial-printed job is a secure job and the authentication processing for that secure job is executed after the trial print operation) after execution of the trial print operation.

[**0134**] As described above, in this embodiment, the control unit **201** controls the image forming apparatus to selectively execute, as processes for a trial-printed job, a series of operations (first sequence) "the settings of print conditions are changed, and main print processing is then executed", a series of operations (second sequence) "main print processing is executed intact without changing the print conditions", or an operation (third sequence) "the print processing itself is canceled" on the basis of the user's instruction input via the window of **FIG. 8** and the like. When a job which is to undergo trial print processing is a secure job, the control unit **201** permits to execute such operations for the trial-printed job under the condition that the authentication processing including the user's intervention operation is executed after the trial print processing (the same authentication processing as that executed before the beginning of the trial print operation is executed again after the trial print operation). On the other hand, when the authentication processing including the user's intervention operation is not executed after the trial print operation, the control unit **201** controls to prohibit the job operations after the trial print operation of the secure job. In addition, when a job which is to undergo trial print processing is a non-secure job, the control unit **201** permits to execute the execute such operations for the trial-printed job without executing any authentication processing including the user's intervention operation.

[**0135**] With this arrangement, in this embodiment, even when trial print processing is executed based on a secure job, the security of a document to be printed can be maintained, and the security of a secure job can be continuously maintained even after execution of the trial print processing. In addition, a problem of, e.g., poor usability upon trial printing of a job other than a secure job (e.g., a non-secure job) so as to maintain the security after the trial print processing of a secure job can be prevented. Hence, both the effect of maintaining security even after a secure job is trial-printed, and the effect of improving usability upon trial-printing of a non-secure job can be achieved at the same time.

<Box Mode>

[**0136**] **FIG. 16** shows a display example of a window which is used to display a list of boxes provided for respective operators of the image forming apparatus **101**, is displayed upon selection of "box" on the function selection area **401**. **FIG. 16** displays three boxes "nagashima", "ushiyama", and "hara". That is, these three boxes are those for three operators, respectively. These boxes are assigned user names. Note that a key mark appears on a box **7**"ushiyama", and it indicates that a password input is required upon printing a job stored in this box. That is, secure jobs are stored in the box "ushiyama".

[**0137**] On the other hand, no key marks appear on boxes "nagashima" and "hara" on the window of **FIG. 16**. Contrary to the box "ushiyama", this means that no password input are required upon printing jobs stored in these boxes. That is, print jobs stored in these boxes correspond to non-secure print jobs.

[**0138**] As described above, in this embodiment, a plurality of virtual boxes are assured in the hard disk **208** of the image forming apparatus, and the user can register as an initial setting whether "to set/not to set a password" for each box. In this embodiment, a job stored in a box with a password

is handled as a secure print job, and a job stored in a box without any password is handled as a non-secure print job.

[0139] In this embodiment, whether a job is a secure or non-secure job is determined not only for respective boxes, but also for each print job. For example, when a host computer generates a print job via a printer driver, as described above, the user can set for each job on the printer driver whether a job is a secure or non-secure job. In this manner, the arrangement to be adopted is not particularly limited.

[0140] When the operator designates the box **7** with a finger, the control unit **201** detects this designation, and switches the window of the display unit **301** to that shown in **FIG. 17**. In **FIG. 17**, reference numeral **8** denotes a window used to input a password; **1701**, a field for inputting a password; and **1702**, a button icon used to instruct authentication of the password when this button icon is designated after the password is input.

[0141] When the operator inputs a password to the field **1701** using the operation unit **203** and designates the button icon **1702**, the control unit **201** detects this designation, and authenticates the password input to the field **1701**. This authentication processing is executed by collating a password which is assigned to this box (box "ushiyama") in advance with that input to the field **1701**.

[0142] If the password input to the field **1701** is authenticated (if it matches with the password assigned to the box "ushiyama"), the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 18**.

[0143] The window shown in **FIG. 18** displays a list **9** used to display a list of jobs held in the box "ushiyama", and the operator selects a job to be printed from those (three jobs in **FIG. 18**) displayed in the list **9** using the operation unit **203**. In the following description, assume that, for example, the operator selects a job with a document name "document2". Upon selection of a job, the control unit **201** detects it, and executes processing for switching display contents of the display unit **301** to a window shown in **FIG. 19**.

[0144] When the operator designates a "print" button icon **10** with a finger, the control unit **201** detects this, and executes processing for switching display contents of the display unit **301** to a window shown in **FIG. 20**.

[0145] Referring to **FIG. 20**, reference numeral **11** denotes a button icon used to change print settings. When the operator designates this button icon **11** with a finger, the control unit **201** detects this, and executes processing for switching display contents of the display unit **301** to a window shown in **FIG. 21**. The window shown in **FIG. 21** allows the operator to make a sorter setting, a setting associated with the print face such as double- or single-sided printing, a setting of the number of print copies, and the like. In this case, the operator sets a sorter setting to be "punch sort", a setting of double-sided printing to be "ON", and a setting of the number of print copies to be "12". After such settings, the control unit **201** detects this, and switches display contents of the display unit **301** to a window shown in **FIG. 22**.

[0146] When the operator designates a "print start" button image on the window of **FIG. 22**, the control unit **201** detects this, switches display contents of the display unit **301** to a window shown in **FIG. 23**, and executes print processing based on a print job.

[0147] Also, in **FIG. 22**, reference numeral **13** denotes a button icon used to instruct trial print (trial copy) processing. When the operator designates this button icon with a finger, he or she can instruct to execute trial print processing of a job selected from the list **9**. When the operator designates this button icon **13** with a finger or the like, the control unit **201** detects this, and switches display contents of the display unit **301** to a window shown in **FIG. 24**. When the operator designates a "print start" button icon, the control unit **201** detects this, switches display contents of the display unit **301** to a window shown in **FIG. 25**, and executes trial print processing. Executing the trial print processing is to print one copy according to the job selected from the list **9**. The number of copies to be printed is not limited to one, but it is the number of copies equal to or smaller than the number of print copies set by the operation unit **203**.

[0148] Upon completion of the print processing for one copy, the control unit **201** detects this, switches display contents of the display unit **301** to a window shown in **FIG. 26**, and prompts the operator to input a password required to grant a permission to the subsequent processes. In **FIG. 26**, reference numeral **14** denotes a window used to input a password; **2601**, a field for inputting a password; and **2602**, a button icon used to instruct authentication of the password when this button icon is designated after the password is input. When the print job is not a secure job, the window in **FIG. 26** does not appear.

[0149] When the operator inputs a password to the field **2601** using the operation unit **203** and designates the button icon **2602**, the control unit **201** detects this designation, and authenticates the password input to the field **2601**. This authentication processing is as described above. If the password input to the field **2601** is authenticated, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 27**. When the print job is not a secure job, the window shown in **FIG. 27** is displayed directly without displaying the window in **FIG. 26**.

[0150] The operator confirms the print settings by checking one copy printed by the trial print processing. If the operator wants to change the settings, he or she designates a button icon **15**.

[0151] Upon detection of designation of the button icon **15**, the control unit **201** switches the display content of the display unit **301** to a window shown in **FIG. 28**, and displays a GUI used to make settings such as a setting of sorter, a setting associated with the print face such as double- or single-sided printing, and the like in the same manner as the settings on the window shown in **FIG. 22**. In this case, the operator changes the setting of sorter to "staple sort", as shown in **FIG. 29**. Upon completion of such setting, when the operator designates a button icon **16**, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 30**.

[0152] After execution of the trial print processing, the operator can change various settings associated with print processing. The setting contents are stored in the memory **204** as data. Note that an item to be re-set is not limited to this.

[0153] When the operator designates a button icon **18** on the window shown in **FIG. 30**, the same processing as the above trial print processing is executed. On the other hand, when the operator designates a button icon **17** or a "print start" button on the window of **FIG. 27**, the control unit **201** detects this, switches the display content of the display unit **301** to a window shown in **FIG. 31**, and executes processing for printing the print job selected from the list **9**.

[0154] On the other hand, if no settings are changed after the trial print processing, when the operator designates a button icon **18**, the control unit **201** detects this, switches the display content of the display unit **301** to a window shown in **FIG. 32**, and executes processing for printing the print job selected from the list **9**.

[0155] That is, the number of print copy is 12, as shown in the window of **FIG. 22**. However, when no settings are changed, since the previously printed one copy can be used, the remaining 11 copies need only be printed. However, when settings are changed, since the previously printed one copy is invalid, 12 copies are printed from the beginning.

<Copy Mode>

[0156] Print processing in the copy mode will be described below. As described above, in case of the copy mode, print jobs are sequentially enqueued in the form of a queue in the hard disk **208**, and are selected as an object to be printed in turn from the first one. Therefore, the control unit **201** refers to the first print job, and determines whether or not this job is a secure job. In this determination processing, for example, if the print job is a secure job, a password is appended to this print job. If appending of the password is detected, the control unit **201** detects this, and displays the window shown in **FIG. 17** as the display contents of the display unit **301**.

[0157] The control unit **201** can collate the appended password with that which is input to the field **1701**. In any case, the processing for prompting the operator to input a password and collating it remains the same irrespective of the input mode of the print job.

[0158] If the password input to the field **1701** is authenticated (if it matches with the password appended to the print job), the control unit **201** detects this, and switches the display contents of the display unit **301** to the window shown in **FIG. 6**. When the print job is not a secure job, the control unit **201** directly displays the window shown in **FIG. 6** without displaying the window shown in **FIG. 17**.

[0159] The operator sets the number of copies, paper sheet, magnification, and the like of the job on this window using the operation unit **203**.

[0160] Referring to **FIG. 6**, reference numeral **1** denotes a button image used to instruct trial print (trial copy) processing. When the operator designates this button icon with a finger, he or she can instruct to execute trial print processing of a print job. When the operator designates this button icon **1** with a finger or the like, the control unit **201** detects this, switches display contents of the display unit **301** to the window shown in **FIG. 7**, and executes trial print processing. Executing the trial print processing is to print one copy according to the print job. The number of copies to be printed is not limited to one, but it is the number of copies equal to or smaller than the number of print copies set on the window in **FIG. 6** using the operation unit **203**.

[0161] Upon completion of the print processing for one copy, the control unit **201** detects this, switches display contents of the display unit **301** to the window shown in **FIG. 17**, and prompts the operator to input a password required to grant a permission to the subsequent processes.

[0162] When the operator inputs a password to the field **1701** using the operation unit **203** and designates the button icon **1702**, the control unit **201** detects this designation, and authenticates the password input to the field **1701**. If the password input to the field **1701** is authenticated, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 8**. If the print job is not a secure job, the control unit **201** directly displays the window shown in **FIG. 8** without displaying the window shown in **FIG. 17**.

[0163] The operator confirms the print settings by checking one copy printed by the trial print processing. If the operator wants to change the settings, he or she designates a button icon **2** shown in **FIG. 8**.

[0164] Upon designation of the button icon **2**, the control unit **201** detects this, switches the display content of the display unit **301** to a window shown in **FIG. 9**, and displays a GUI used to change settings of, e.g., the number of copies, density, finishing, and the like. When the operator designates a button icon **3** used to input an instruction for switching a sorter, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 10**. The window shown in **FIG. 10** is a GUI window used to select a sorter to be used. When the operator designates one of buttons **1001** to **1004** used to designate the sorter to be used, he or she can designate the sorter to be used, and the display contents of the display unit **301** are switched to a window shown in **FIG. 12**. When still another setting is to be referred to, the operator can designate a button icon **1005** or **1006**.

[0165] On the other hand, when the operator designates a button icon **4** used to instruct double-sided copy on the window shown in **FIG. 9**, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 11**. The window shown in **FIG. 11** is a GUI window used to select details of the double-sided copy mode. When the operator designates one of button icons **1101** and **1102** as details of the double-sided copy mode, and then designates a button icon **1103**, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 12**.

[0166] After execution of the trial print processing, the operator can change various settings associated with print processing. The setting contents are stored in the memory **204** as data. Note that an item to be re-set is not limited to this.

[0167] When the operator designates a button icon **5** on the window shown in **FIG. 12**, the control unit **201** detects this, and switches the display content of the display unit **301** to a window shown in **FIG. 13**.

[0168] When the operator designates a button icon **6** on the window shown in **FIG. 13**, the control unit **201** detects this, switches the display content of the display unit **301** to

a window shown in **FIG. 14**, and executes print processing of a job to be printed under the previously set print conditions. In this case, the number of copies to be printed is that which is initially set or that which is re-set in the re-setting processing.

[**0169**] When the operator wants to change the settings again before he or she designates the button icon **6**, he or she can designate a button icon **1301** to execute the same processing as that upon instructing the re-setting processing. Furthermore, when the operator wants to execute trial print processing, he or she can designate a button icon **1302** to execute the aforementioned trial print processing.

[**0170**] When the re-setting processing is skipped, since the copy previously printed by the trial print processing need not be printed again, the print processing is executed for the number of copies obtained by subtracting 1 from the number of print copies set on the window in **FIG. 6** using the operation unit **203**. In this case, the display window shown in **FIG. 15** is displayed in place of that in **FIG. 14**.

[**0171**] With the above processing, when a print job is a secure job and the operator leaves the image forming apparatus **101** after this print job is printed by the trial print processing, processing for "printing for the designated number of copies" to be executed after the trial print processing cannot be started without password authentication. Hence, even when trial print processing and processing for "printing for the designated number of copies" are executed based on a secure job, the security for the print job can be maintained.

[**0172**] **FIGS. 33A and 33B** are flowcharts of the aforementioned print processing to be executed by the image forming apparatus **101**. Note that programs and data for making the control unit **201** execute the processing according to the flowcharts of **FIGS. 33A and 33B** are saved in the hard disk **208**, and are loaded onto the memory **204** under the control of the control unit **201**. When the control unit **201** executes processing using these programs and data, the image forming apparatus **101** can implement print processing to be described below.

[**0173**] Upon detection of a print job input from the external apparatus or the scanner unit **202** of the self apparatus (step S**3301**), the control unit **201** executes processing for saving this print job in the hard disk **208** (step S**3302**). Upon saving the print job, when the operator selects "box" from the function selection area **401**, the print job is stored in the box of the operator who is currently using the image forming apparatus **101**. On the other hand, when the operator selects "copy", the print job is sequentially stored in the queue assured in the hard disk **208**. Also, this print job is appended with data of print conditions (output settings such as the number of print copies, and the like).

[**0174**] It is checked if data of all input print jobs are saved in the hard disk **208** (step S**3303**). If data of all input print jobs are saved, the flow advances to step S**3304**. In case of the box mode, the control unit **201** executes processing for specifying a job to be printed by accepting an input of the operation for opening one of boxes using the operation unit **203**. In case of the copy mode, the control unit **201** executes processing for specifying the first job in the queue as a job to be printed (step S**3304**).

[**0175**] In case of the box mode, it is determined whether or not the box to be accessed by the operator using the operation unit **203** is a box that stores secure jobs. In case of the copy mode, it is checked if the first job in the queue is a secure job (step S**3305**).

[**0176**] If the box to be accessed is not a box which stores secure jobs, or if the first job in the queue is not a secure job, the flow advances to step S**3308**. On the other hand, if the box to be accessed is a box which stores secure jobs, or if the first job in the queue is a secure job, the flow advances to step S**3306** to display the window shown in **FIG. 17** on the display screen of the display unit **301** and to wait for a password input (step S**3306**). A password input to the field **1701** on this window is collated with that pre-set for this box (or a password appended to the job to be printed), and it is checked if these two passwords match (step S**3307**). If the two passwords match, the flow advances to step S**3308**.

[**0177**] Upon completion of the above processing, in case of the box mode, the control unit **201** displays the window shown in **FIG. 18** on the display screen of the display unit **301** and prompts the operator to select a job to be printed. When the operator selects a job and designates the button icon **10**, the control unit **201** displays the window shown in **FIG. 20** on the display screen of the display unit **301** and makes print preparation (step S**3308**). On the other hand, in case of the copy mode, the control unit **201** displays the window shown in **FIG. 6** on the display screen of the display unit **301**, accepts the settings of print conditions on this window as needed, and makes print preparation (step S**3308**).

[**0178**] It is checked if a trial print instruction is issued (step S**3309**). In case of the box mode, it is checked if the operator designates the button icon **13** on the window in **FIG. 22** and then designate the "print start" button icon in **FIG. 24**. On the other hand, in the copy mode, it is checked if the operator designates the button icon **1** in **FIG. 6**.

[**0179**] If the operator designates no trial print instruction, and designates a print operation start instruction using the button group **302** on the operation unit **203**, the flow advances to step S**3310**, and the control unit **201** reads out the previously specified print job from the hard disk **208** and executes print processing in accordance with the designated print conditions (step S**3310**).

[**0180**] On the other hand, if the operator designates the trial print instruction, the flow advances to step S**3311**, and the control unit **201** reads out the previously specified print job from the hard disk (HDD) **208** and prints that print job for one copy (step S**3311**).

[**0181**] The print processing is done by outputting the processing result of data of the print job by the data processing unit **206** to the printer unit **207**. Since the actual print operation is known to those skilled in the art, a description thereof will be omitted. Upon completion of the print processing for one copy, the control unit **201** pauses the print processing (step S**3312**), and checks if the print job is a secure job by executing the same processing as that in step S**3305** (step S**3313**). If the print job is not a secure job, the flow advances to step S**3316**.

[**0182**] On the other hand, if the print job is a secure job, the flow advances to step S**3314**, and the control unit **201** displays the window shown in **FIG. 26** (box mode) or **FIG. 17** (copy mode) on the display screen of the display unit **301**. The control unit **201** waits for a password input, and

executes the same processing as in step S3307, thus authenticating the input password (step S3315). If the input password is authenticated, the flow advances to step S3316.

[0183] In step S3316, the control unit 201 displays the window shown in FIG. 27 (box mode) or FIG. 8 (copy mode) on the display screen of the display unit 301 (step S3316).

[0184] If the operator designates a "cancel" button image on this window (step S3317), the flow advances to step S3318, and the control unit 201 executes processing for clearing the print job to be printed from the memory 204 and hard disk 208 (step S3318), thus ending this processing.

[0185] If the operator designates a "print start" button image on this window (step S3319), the flow advances to step S3320, and the control unit 201 executes print processing on the basis of the print job to be printed (step S3320). Note that the number of copies to be printed is that obtained by subtracting 1 from the number of copies which is previously set.

[0186] On the other hand, if the operator designates a "setting change" button image on this window (step S3321), the flow advances to step S3322, and the control unit 201 displays the window associated with the setting change (step S3322). If the operator designates a button icon for a predetermined change on this window, the control unit 201 displays a window accordingly to accept various change instructions (step S3323).

[0187] Upon completion of the change processing, since the control unit 201 displays the window shown in FIG. 30 (box mode) or FIG. 13 (copy mode) on the display screen of the display unit 301, if the operator designates a "print start" button image on this window (step S3324), the flow advances to step S3325 to execute print processing based on the print job to be printed (step S3325). Note that the number of copies to be printed is that which is set previously or that which is changed in step S3323. On the other hand, if the operator does not designate the "print start" button image, the flow returns to step S3316 to repeat the subsequent processes.

[0188] After the print processing in step S3325, the control unit 201 clears the data of the print job from the memory 204 and hard disk 208 and ends this processing.

[0189] With the above processing, the security of the secure job can be maintained.

[0190] Also, in this embodiment, password authentication is made to authenticate the operator who wants to print a secure job so as to maintain the security of the secure job. Alternatively, authentication may be made using living body information such as a retina pattern, voice, fingerprints, and the like of the operator in place of the password. In this case, the image forming apparatus 101 requires a mechanism for scanning living body information of the operator and matching it with living body information appended to a print job.

[0191] As a data input mode for authentication, a contact type ID card for personal recognition may be used.

Second Embodiment

[0192] In this embodiment, when print settings are changed after trial print processing, and the trial print processing is executed again, the control prompts the operator to input a password again.

[0193] FIGS. 35A and 35B are flowcharts of print processing according to this embodiment. Note that the same step numbers in FIGS. 35A and 35B denote the same steps as those in FIGS. 33A and 33B, and a description thereof will be omitted.

[0194] After the print settings are changed in step S3323, if the operator designates the trial print or print start button icon on the window shown in FIG. 30 (box mode) or FIG. 13 (copy mode), the flow returns to step S3309 to repeat the subsequent processes.

[0195] More specifically, when the print settings are changed and trial print processing is executed, a password input is required anew.

[0196] In this embodiment as well, as a data input mode for authentication, a method of using a contact type ID card for personal recognition may be used. When a non-contact type ID card for personal recognition and card reader are used, it is recognized that the operator is around a printer as well as personal authentication. If the card reader cannot recognize the ID card, i.e., if the operator leaves his or her seat, a window shown in FIG. 37 is displayed on the display screen of the display unit 301 to implement a scheme that prohibits a job from being restarted by a person other than an original.

Third Embodiment

[0197] In this embodiment, upon executing the processing in step S3316 in the processing according to the flowcharts of FIGS. 33A and 33B, no password input is required before this processing. However, if a no-operation input time period for the window displayed in step S3316 (the window shown in FIG. 27 (box mode) or FIG. 8 (copy mode)) continuously elapses for a predetermined period of time or more, authentication is made again.

[0198] FIGS. 34A, 34B, and 34C are flowcharts of print processing according to this embodiment. Note that the same step numbers in FIGS. 34A, 34B, and 34C denote the same steps as those in FIGS. 33A and 33B, and a description thereof will be omitted. After the processing in step S3312, that in step S3316 is executed. In this case, it is checked if a no-operation input time period for the window shown in FIG. 27 (box mode) or FIG. 8 (copy mode) continuously elapses for a predetermined period of time or more (step S3402). The time measurement is attained by the internal timer of the control unit 201.

[0199] If the no-operation input time period falls within the predetermined period of time, the processes in step S3317 and subsequent steps are executed; otherwise, the flow advances to step S3313 to check if the print job is a secure print job. If the print job is not a secure job, the flow advances to step S3404, and the control unit 201 continues to display the window shown in FIG. 27 (box mode) or FIG. 8 (copy mode) and executes the processes in step S3451 and subsequent steps. Since the processes in step S3451 and subsequent steps are the same as those in step S3317 and subsequent steps, a description thereof will be omitted.

[0200] On the other hand, if it is determined in step S3313 that the print job is a secure job, the flow advances to step

S3403, and the control unit **201** clears the window shown in **FIG. 27** (box mode) or **FIG. 8** (copy mode) (step S3403), and displays a password input window shown in **FIG. 38** to prompt the operator to input a password (step S3405). In **FIG. 38**, reference numeral **3800** denotes a window used to input a password; **3801**, a field for inputting a password; and **3802**, a button icon used to instruct authentication of the password when this button icon is designated after the password is input.

[0201] When the operator inputs a password in the field **3801** using the operation unit **203** and designates the button icon **3802**, the control unit **201** detects this, and authenticates the password input to the field **3801**. This authentication processing is the same as that described above. If the password is authenticated, the flow returns to step S3316 via step S3315 to repeat the subsequent processes.

[0202] In this embodiment as well, as a data input mode for authentication, a method of using a contact type ID card for personal recognition may be used. When a non-contact type ID card for personal recognition and card reader are used, it is recognized that the operator is around a printer as well as personal authentication. If the card reader cannot recognize the ID card, i.e., if the operator leaves his or her seat, a window shown in **FIG. 37** is displayed on the display screen of the display unit **301** to implement a scheme that prohibits a job from being restarted by a person other than an original.

Fourth Embodiment

[0203] The print processing according to this embodiment is substantially the same as that in **FIGS. 33A and 33B**, except for processes in step S3317 and subsequent steps. That is, if no operation input is made for a predetermined period of time after the change processing, the control prompts the operator to input a new password.

[0204] **FIGS. 36A and 36B** are flowcharts of processes in step S3317 and subsequent steps in the print processing according to this embodiment. Note that the same step numbers in **FIGS. 36A and 36B** denote the same steps as those in **FIGS. 33A, 33B**, 34A, 34B, and 34C, and a description thereof will be omitted.

[0205] After the change processing in step S3321, if the setting are changed, the flow advances to step S3322, and the control unit **201** displays the window shown in **FIG. 21** (box mode) or **FIG. 9** (copy mode) on the display screen of the display unit **301** to accept various changes. It is then checked if a no-operation input time period continuously elapses for a predetermined period of time or more after this window is displayed (step S3602).

[0206] As a result of this checking processing, if a no-operation input time period continuously elapses for a predetermined period of time or more after the window shown in **FIG. 21** (box mode) or **FIG. 9** (copy mode) is displayed on the display screen of the display unit **301**, the flow advances to step S3313 to check if the print job is a secure job. If the print job is not a secure job, the flow advances to step S3600 to check if the operator designates a "close" button icon. If the operator designates a "close" button icon, the flow advances to step S3651.

[0207] On the other hand, if it is determined in step S3313 that the print job is a secure job, the flow advances to step S3603, and the control unit **201** clears the window shown in **FIG. 21** (box mode) or **FIG. 9** (copy mode) (step S3603), and displays a password input window shown in **FIG. 38** to prompt the operator to input a password (step S3405).

[0208] When the operator inputs a password in the field **3801** using the operation unit **203** and designates the button icon **3802**, the control unit **201** detects this, and authenticates the password input to the field **3801**. This authentication processing is the same as that described above. If the password is authenticated, the flow returns to step S3322 via step S3315 to repeat the subsequent processes.

[0209] On the other hand, if a no-operation input time period does not continuously elapse for a predetermined period of time or more after the window shown in **FIG. 21** (box mode) or **FIG. 9** (copy mode) is displayed on the display screen of the display unit **301**, the flow advances to step S3604 to check if the operator designates a "close" button icon. If the operator designates a "close" button icon, the flow advances to step S3316, and the control unit **201** displays the window shown in **FIG. 27** (box mode) or **FIG. 8** (copy mode) on the display screen of the display unit **301** (step S3316).

[0210] If the operator designates a "cancel" button image on this window (step S3605), the flow advances to step S3610, and the control unit **201** executes processing for clearing the print job to be printed from the memory **204** and hard disk **208** (step S3610), thus ending this processing.

[0211] If the operator designates a "print start" button image on this window (step S3606), the flow advances to step S3608, and the control unit **201** executes print processing on the basis of the print job to be printed (step S3608). Note that the number of copies to be printed is that which is previously set. Then, the control unit **201** executes processing for clearing the print job to be printed from the memory **204** and hard disk **208** (step S3609), thus ending this processing.

[0212] On the other hand, if the operator designates a "setting change" button image on this window (step S3607), the flow advances to step S3322 to repeat the aforementioned processes.

[0213] Since the processes in steps S3651 and subsequent steps are the same as those in steps S3316 and subsequent steps, a description thereof will be omitted.

[0214] In this embodiment as well, as a data input mode for authentication, a method of using a contact type ID card for personal recognition may be used. When a non-contact type ID card for personal recognition and card reader are used, it is recognized that the operator is around a printer as well as personal authentication. If the card reader cannot recognize the ID card, i.e., if the operator leaves his or her seat, a window shown in **FIG. 37** is displayed on the display screen of the display unit **301** to implement a scheme that prohibits a job from being restarted by a person other than an original.

[0215] The above description has been given mainly for a case wherein the print job is a secure job. When the print job is a non-secure job, no processes associated with input and authentication of a password are required in the above description.

[0216] That is, upon handling data of a job set with a trial print function, when the job to be processed by the trial print function is a non-secure print job, a control unit of the image forming apparatus controls to display, on an operation unit of the image forming apparatus, an operation window for prompting the user to select to change settings of print conditions of the job, to continuously print the job for the remaining number of output copies without changing the settings, or the like without executing any authentication processing (e.g., by controlling to prohibit an authentication data request window from being displayed) in response to trial print processing of the job executed by the image forming apparatus. When the user issues a print setting change instruction of the job via the operation window, the control unit controls to print the print job under the print conditions after the setting change for the number of output copies designated initially (i.e., for the number of print copies initially set by the user via the operation unit before execution of the trial print processing in this example).

[0217] On the other hand, when the user instructs to continue print processing without changing the settings via the window, the control unit controls to print for the number of output copies obtained by subtracting the number of copies output by the trial print processing from the initially set number of output copies under the initially designated print conditions (corresponding to various print setting conditions at least other than the number of print copies such as a paper size setting, a print setting required to specify double- or single-sided printing, a setting associated with sheet processing such as staple processing, sort processing, or the like, an image layout processing setting, and the like).

[0218] In this manner, when a non-secure job undergoes trial print processing, the control unit controls to prohibit the image forming apparatus from executing authentication processing unlike a secure job after execution of the trial print processing, controls to directly display, on the operation unit of the image forming apparatus, the operation window for that job (a user interface window used to execute an operation for changing the settings of the print conditions, to continuously execute print processing without changing the settings of the print conditions, or the like), controls to accept a desired instruction from the user via the UI, and controls the image forming apparatus to execute the operation based on the instruction.

[0219] This arrangement can prevent occurrence of new problems (e.g., a non-secure job is affected by the specification for maintaining security upon executing trial print processing of a secure job, and when a non-secure job is to undergo trial print processing, authentication processing such as an input request of a password or the like is required to give users of non-secure jobs extra troubles).

[0220] As described above, this embodiment does not adopt a specification that merely maintains security of a secure job after the trial print processing, but it can prevent occurrence of new problems such as poor usability and the like upon executing trial print processing of a non-secure job, and can realize both the effect of maintaining security even after the trial print processing of a secure job, and the effect of improving usability upon executing the trial print processing of a non-secure job. Hence, this embodiment can provide a flexible system which considers use environments of the image forming apparatus, various needs from users, and the like.

Other Embodiments

[0221] The objects of the present invention are also achieved when a CPU or MPU of a camera reads out and executes a program code from a recording medium (or storage medium), which records a program code of a software program that can implement the functions of the above-mentioned embodiments. In this case, the program code itself read out from the recording medium implements the functions of the above-mentioned embodiments, and the recording medium which stores the program code constitutes the present invention.

[0222] The functions of the above-mentioned embodiments may be implemented not only by executing the readout program code by the camera, but also by some or all of actual processing operations executed by an operating system (OS) running on the camera on the basis of an instruction of the program code.

[0223] Furthermore, the functions of the above-mentioned embodiments may be implemented by some or all of actual processing operations executed by a CPU or the like arranged in a function extension card or a function extension unit, which is inserted in or connected to the camera, after the program code read out from the recording medium is written in a memory of the extension card or unit.

[0224] When the present invention is applied to the recording medium, that recording medium stores program codes corresponding to the aforementioned flowcharts.

[0225] As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the claims.

CLAIM OF PRIORITY

[0226] This application claims priority from Japanese Patent Application No. 2004-316308 filed on Oct. 29, 2004, which is hereby incorporated by reference herein.

What is claimed is:

1. A job processing method in a printing system includes a printing device can accept a plurality of types of print job including a print job of a first type and a print job of a second type, said method comprising the steps of:

enabling an execution of a processing for data of a print job in which a trial printing was performed by said printing device; and

enabling said execution of said processing for data of said print job in which said trial printing was performed by said printing device, after an authentication processing for said print job, in case that said job in which said trial printing was performed is said job of the first type but not said job of the second type.

2. A method comprising according to claim 1, further comprising the steps of:

prohibiting by said printing device an execution of a printing of data of said print job in which said trial printing was performed, in case that said job in which said trial printing was performed is said job of the first

type but not said job of the second type and that an authentication data is not input after said trial printing; and

permitting by said printing device said execution of said printing of data of said print job in which said trial printing was performed, in case that said job in which said trial printing was performed is said job of the first type but not said job of the second type and that said authentication data is input after said trial printing.

3. The method according to claim 1, further comprising the steps of:

enabling, in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, an execution of printing for data of said print job by said printing device after said authentication processing for said job; and

enabling, in case that said print job in which said trial printing was performed is not said print job of the first type but is said print job of the second type, said execution of said printing for data of said print job without executing said authentication processing.

4. The method according to claim 3, further comprising the step of:

permitting, in case that said print job in which said trial printing was performed is not said print job of the first type but is said print job of the second type, said execution of said printing of said print job without inputting any authentication data after an execution of said trial printing of said job.

5. The method according to claim 1, further comprising the step of:

enabling a user to change a setting of a printing condition for data of said print job in which said trial printing was performed via a user interface, as said processing for the data of said print job in which said trial printing was performed.

6. The method according to claim 1, further comprising the step of:

enabling an execution by said printing device of printing for data of said job on the basis of a processing condition after changing a setting of a processing condition for data of said print job in which said trial printing was performed, as said processing for the data of said print job in which said trial printing was performed.

7. The method according to claim 1, further comprising the step of:

enabling an execution by said printing device of printing for data of said print job without changing a setting of a processing condition for data of said print job in which said trial printing was performed, as said processing for the data of said print job in which said trial printing was performed.

8. The method according to claim 1, further comprising the step of:

ending said processing for data of said print job in which said trial printing was performed as said processing for the data of said print job in which said trial printing was performed.

9. The method according to claim 1, wherein said print job of the first type is a print job which requires authentication processing before the start of said trial printing, and

said print job of the second type is a print job which can undergo said trial printing without execution of said authentication processing.

10. The method according to claim 1, further comprising the step of:

starting, in case that said print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, said trial printing after authentication processing.

11. The method according to claim 10, further comprising the step of:

enabling, in case that said print job for which trial printing is requested is not said print job of the first type but is said print job of the second type, an execution of said trial printing without said authentication processing.

12. The method according to claim 1, further comprising the steps of:

starting, in case that a print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, said trial printing after authentication processing; and

permitting, in case that said print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, and said authentication processing executed before the start of said trial printing is executed again after said trial printing, an execution of said processing for data of said print job in which said trial printing was performed.

13. The method according to claim 12, further comprising the steps of:

prohibiting, in case that said print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, start of said trial printing without said authentication processing; and

prohibiting, in case that said print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, and said authentication processing executed before the start of said trial printing is not executed again after said trial printing, an execution of said processing for data of said print job in which said trial printing was performed.

14. The method according to claim 12, further comprising the steps of:

enabling, in case that said print job for which trial printing is requested is not said print job of the first type but is said print job of the second type, an execution of said trial printing without said authentication processing; and

enabling, in case that said print job for which trial printing is requested is not said print job of the first type but is said print job of the second type, an execution of said processing for data of said print job in which said trial printing was performed, without said authentication processing.

15. The method according to claim 1, further comprising the steps of:

starting, in case that a print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, said trial printing after authentication data is input by said printing device; and

permitting, in case that said print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, and said authentication data input by said printing device before the start of said trial printing is input again after said trial printing, an execution of said processing for data of said print job in which said trial printing was performed.

16. The method according to claim 15, further comprising the steps of:

enabling, in case that said print job for which trial printing is requested is not said print job of the first type but is said print job of the second type, an execution of said trial printing without inputting said authentication data; and

enabling, in case that said print job for which trial printing is requested is not said print job of the first type but is said print job of the second type, an execution of said processing for data of said print job in which said trial printing was performed, without inputting said authentication data.

17. The method according to claim 9, wherein said print job of the first type is a secure print job which requires to input authentication data before the start of said trial printing, and

said print job of the second type is a non-secure print job which can undergo said trial printing without inputting said authentication data.

18. The method according to claim 1, further comprising the steps of:

enabling an execution of printing by said printing device on the basis of a print condition set by a user for data of a print job for which said trial printing is required;

as said processing for data of said print job in which said trial printing was performed,

enabling an execution by said printing device of at least one of a plurality of series of operations including at least some of a first series of operations for enabling a user to change a setting of a print condition of said print job and enabling an execution by said printing device of printing of said print job under the print condition after the setting change, a second series of operations for enabling an execution by said printing device of printing of said print job without changing the print condition of said print job, and a third series of operations of ending printing of said print job; and

enabling, in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, an execution by said printing device of at least one of said plurality of series of operations for data of said print job after authentication processing for said job.

19. The method according to claim 18, further comprising the step of:

enabling, in case that said print job in which said trial printing was performed is not said print job of the first type but is said print job of the second type, an execution by said printing device of one of said plurality of series of operations for data of said print job without execution of said authentication processing.

20. The method according to claim 18, wherein a plurality of print conditions which include a first print condition associated with the number of print copies and a second print condition different from said first print condition associated with the number of print copies can be set for said print job.

21. The method according to claim 20, wherein said second print condition set by a user for said print job includes at least one of a print condition associated with a print sheet size, a print condition associated with finishing by a sheet processing device, and a print condition associated with double- or single-sided printing.

22. The method according to claim 20, further comprising the step of:

executing, in case that said printing device executes trial printing for said print job, printing according to said second print condition without following said first print condition.

23. The method according to claim 22, further comprising the step of:

executing, in case that a setting of said second print condition is changed upon execution of said first series of operations, printing according to said second print condition after the setting change for a job to be processed for the number of print copies based on said first print condition.

24. The method according to claim 22, further comprising the step of:

executing, in case that said second series of operations are executed, printing according to said second print condition by said printing device for the number of print copies corresponding to a value obtained by subtracting the number of print copies of printing executed for said job by said trial printing from the number of print copies based on said first print condition.

25. The method according to claim 18, further comprising the step of:

enabling, in case that said third series of operations are executed, clear of image data of said print job in which said trial printing was performed from a storage unit.

26. The method according to claim 1, further comprising the steps of:

requesting, in case that a print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, an input of authentication data via a user interface unit before start of said trial printing;

requesting, in case that a print job for which trial printing is requested is not said print job of the second type but is said print job of the first type, an input of said authentication data again via said user interface unit before start of said processing for data of said print job in which said trial printing was performed.

27. The method according to claim 1, further comprising the step of:

permitting, even in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, but in case that a predetermined period of time has not elapsed from execution of said trial printing, an execution by said printing device of said processing for data of said print job in which said trial printing was performed without execution of said authentication processing.

28. The method according to claim 27, further comprising the step of:

prohibiting, in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, and the predetermined period of time has elapsed from execution of said trial printing, an execution by said printing device of said processing for data of said print job in which said trial printing was performed without execution of said authentication processing.

29. The method according to claim 1, further comprising the step of:

executing, in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, and authentication data for said job is input via a user interface unit after execution of said trial printing, said processing for data of said print job in which said trial printing was performed.

30. The method according to claim 29, further comprising the step of:

permitting, even in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, but in case that a predetermined period of time has not elapsed from execution of said trial printing, an execution of said processing for data of said print job in which said trial printing was performed even in case that authentication data is not input via said user interface unit.

31. The method according to claim 30, further comprising the step of:

prohibiting, in case that said print job in which said trial printing was performed is not said print job of the second type but is said print job of the first type, and the predetermined period of time has elapsed from execution of said trial printing, an execution of said processing for said print job in which said trial printing was performed without input of authentication data using said user interface unit.

32. The method according to claim 31, further comprising the step of:

enabling, in case that said print job in which said trial printing was performed is not said print job of the first type but is said print job of the second type, an execution of said processing for said print job in which said trial printing was performed irrespective of whether or not the predetermined period of time elapses from execution of said trial printing.

33. The method according to claim 31, further comprising the step of:

notifying, in case that said execution of said processing for said print job in which said trial printing was performed is prohibited according to an elapse of the predetermined period of time from execution of said trial printing, information that advises accordingly via said user interface unit.

34. The method according to claim 1, further comprising the step of:

enabling an execution by said printing data of trial printing of data of a job accepted from a document scanning unit of said printing device.

35. The method according to claim 1, further comprising the step of:

enabling an execution by said printing data of trial printing of data of a job transmitted from an external device which can make a data communication with said printing device.

36. A printing device executing a job processing method of claim 1.

37. A printing system executing a job processing method of claim 1.

38. A computer-readable storage medium storing a program for executing a job processing method of claim 1.

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