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Oishi

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(54) **INFORMATION PROCESSING DEVICE**

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(52) **U.S. Cl.**
CPC ***H04N 1/00503*** (2013.01); ***H04N 1/00514*** (2013.01); ***H04N 1/00946*** (2013.01); ***H04N 1/32112*** (2013.01); *H04N 2201/3276* (2013.01)

(58) **Field of Classification Search**
USPC 358/1.14
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,438,433	A *	8/1995	Reifman	H04N 1/00474 358/400
8,065,380	B2 *	11/2011	Asahara	G06F 9/45512 370/338
8,321,877	B2 *	11/2012	Asahara	719/320
2003/0051107	A1 *	3/2003	Shimizu et al.	711/154
2009/0164489	A1 *	6/2009	Matsuda et al.	707/100
2012/0215828	A1 *	8/2012	Torii	G06F 3/1205 709/202

FOREIGN PATENT DOCUMENTS

JP 2013-110710 A 6/2013

* cited by examiner

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(74) *Attorney, Agent, or Firm* — Mots Law, PLLC

(57) **ABSTRACT**

An aspect of the invention is an information processing device. The information processing device includes a setting part configured to set an attribute of a folder, and a restriction part configured to restrict storage of a file into the folder based on the set attribute and an attribute of a file.

8 Claims, 9 Drawing Sheets

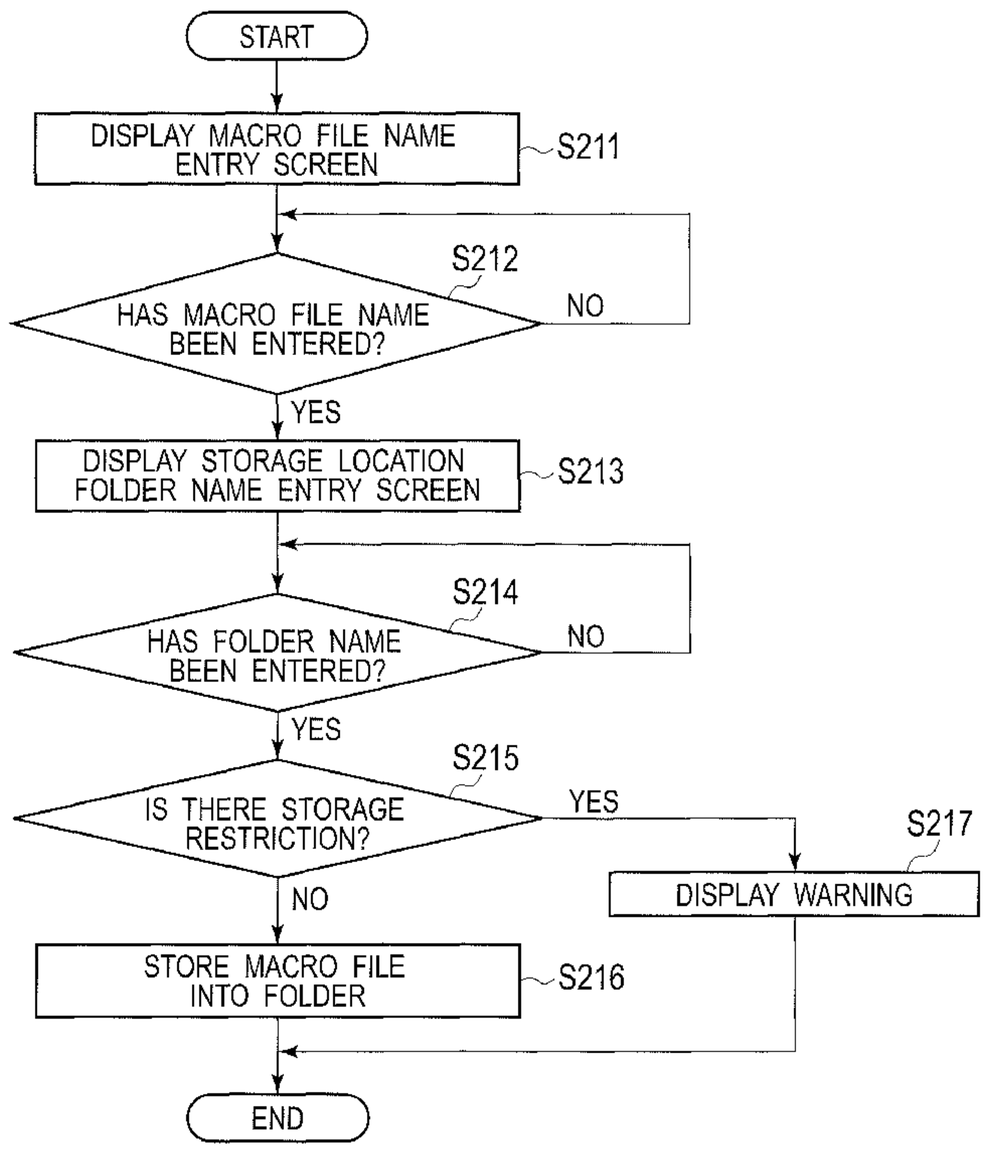

FIG. 1

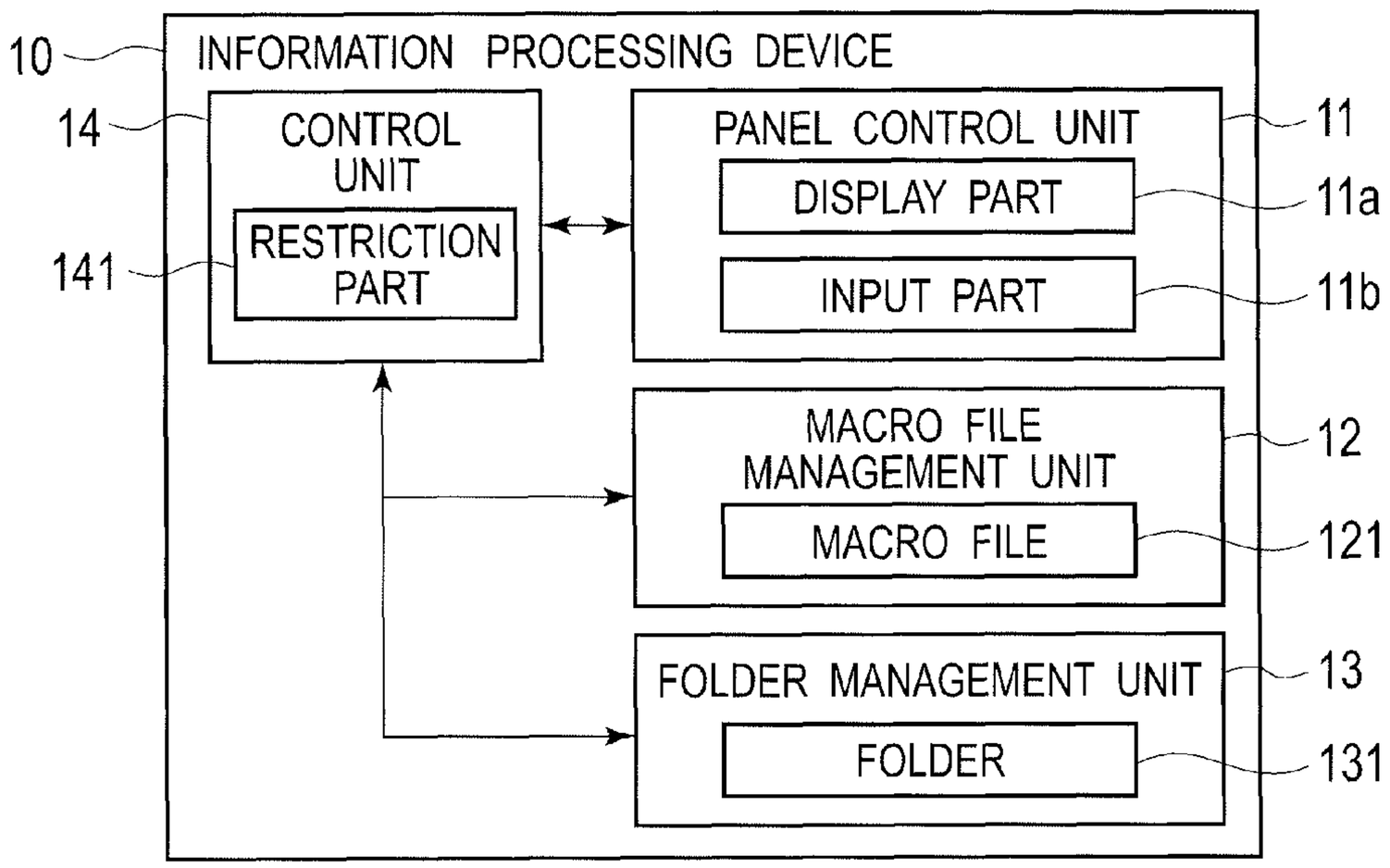

FIG. 2

121

121a	NAME	aaa
121b	FUNCTION NAME	COPY
121c	PARAMETER	SHEET SIZE = A4 SCALE FACTOR = 100% BOTH SIDE PRINTING = NO ...

FIG. 3

131

131a	NAME	AAA
131b	STORAGE-PERMITTED FUNCTION NAME	COPY
131c	STORED MACRO FILE COUNT	5
131d	STORED MACRO FILE NAME	aaa bbb ccc ddd eee

FIG. 4

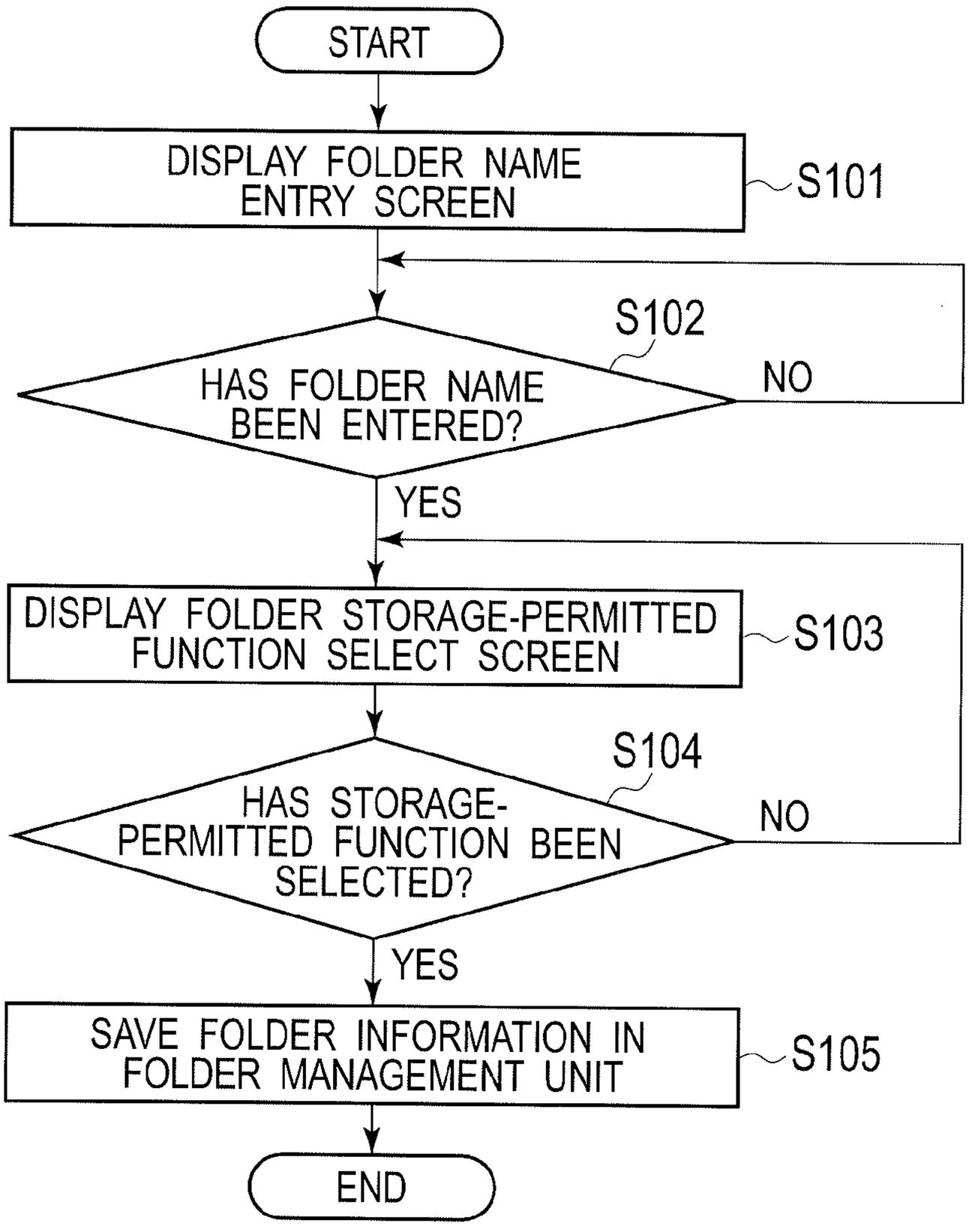
START
DISPLAY FOLDER NAME ENTRY SCREEN
S101
S102
HAS FOLDER NAME BEEN ENTERED?
NO
YES
DISPLAY FOLDER STORAGE-PERMITTED FUNCTION SELECT SCREEN
S103
S104
HAS STORAGE-PERMITTED FUNCTION BEEN SELECTED?
NO
YES
SAVE FOLDER INFORMATION IN FOLDER MANAGEMENT UNIT
S105
END

FIG. 5

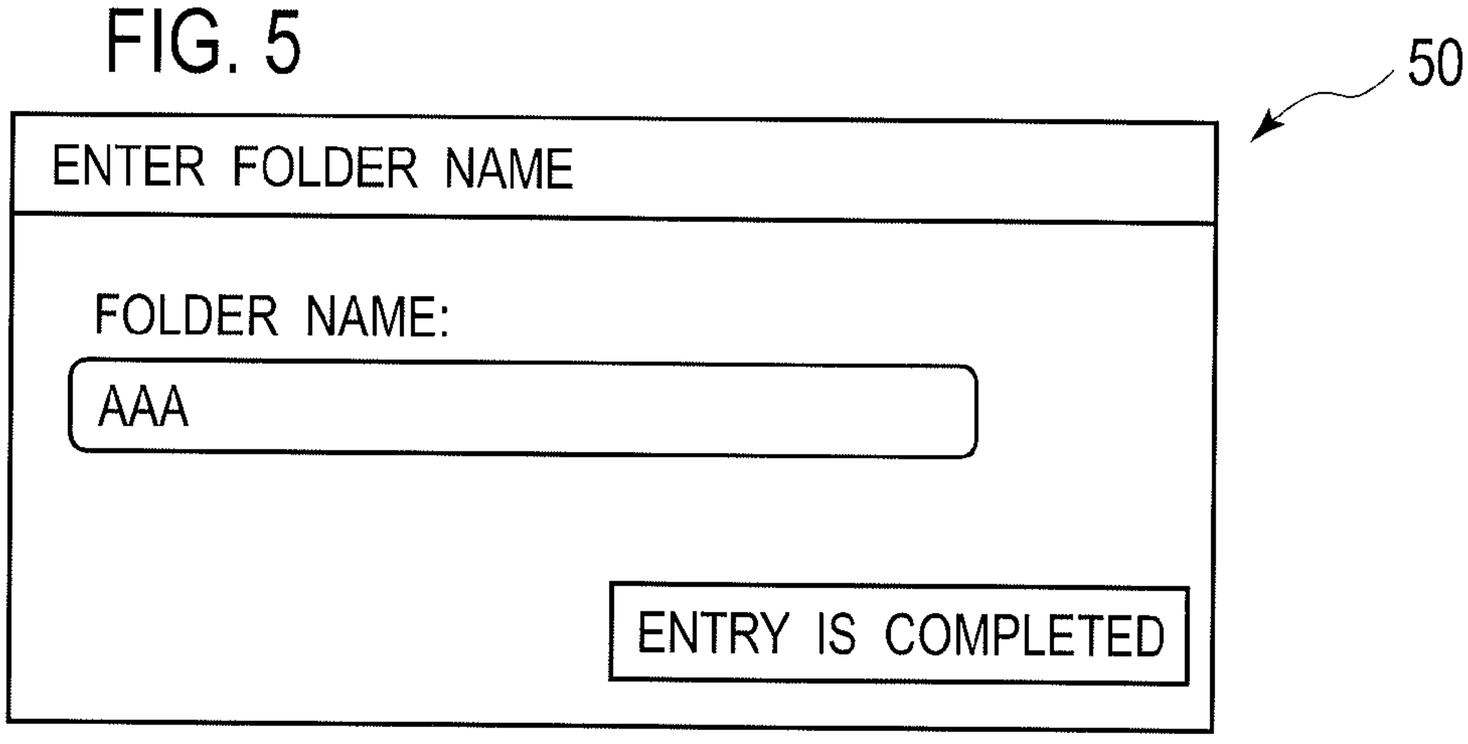
50
ENTER FOLDER NAME
FOLDER NAME:
AAA
ENTRY IS COMPLETED

FIG. 6

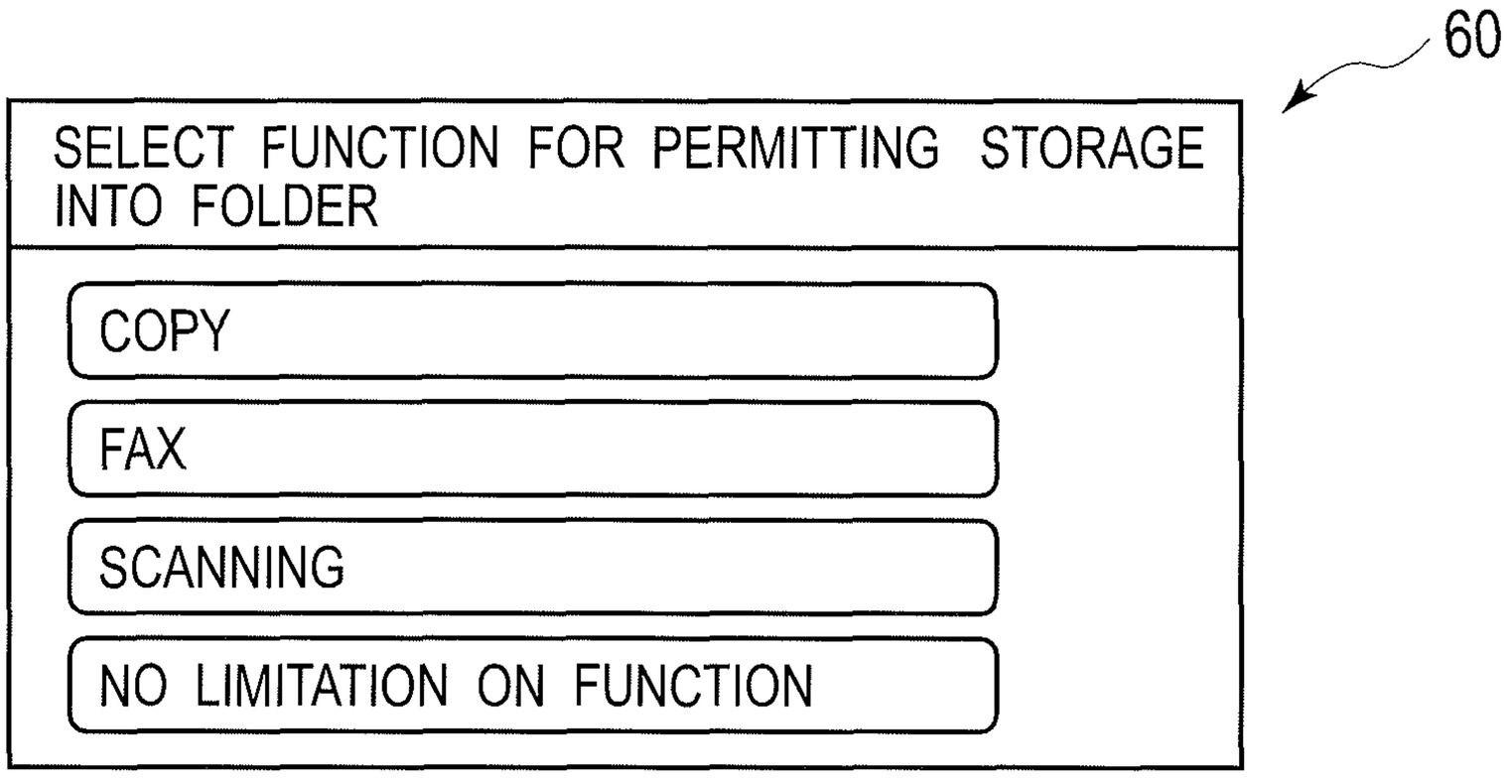
60
SELECT FUNCTION FOR PERMITTING STORAGE INTO FOLDER
COPY
FAX
SCANNING
NO LIMITATION ON FUNCTION

FIG. 7

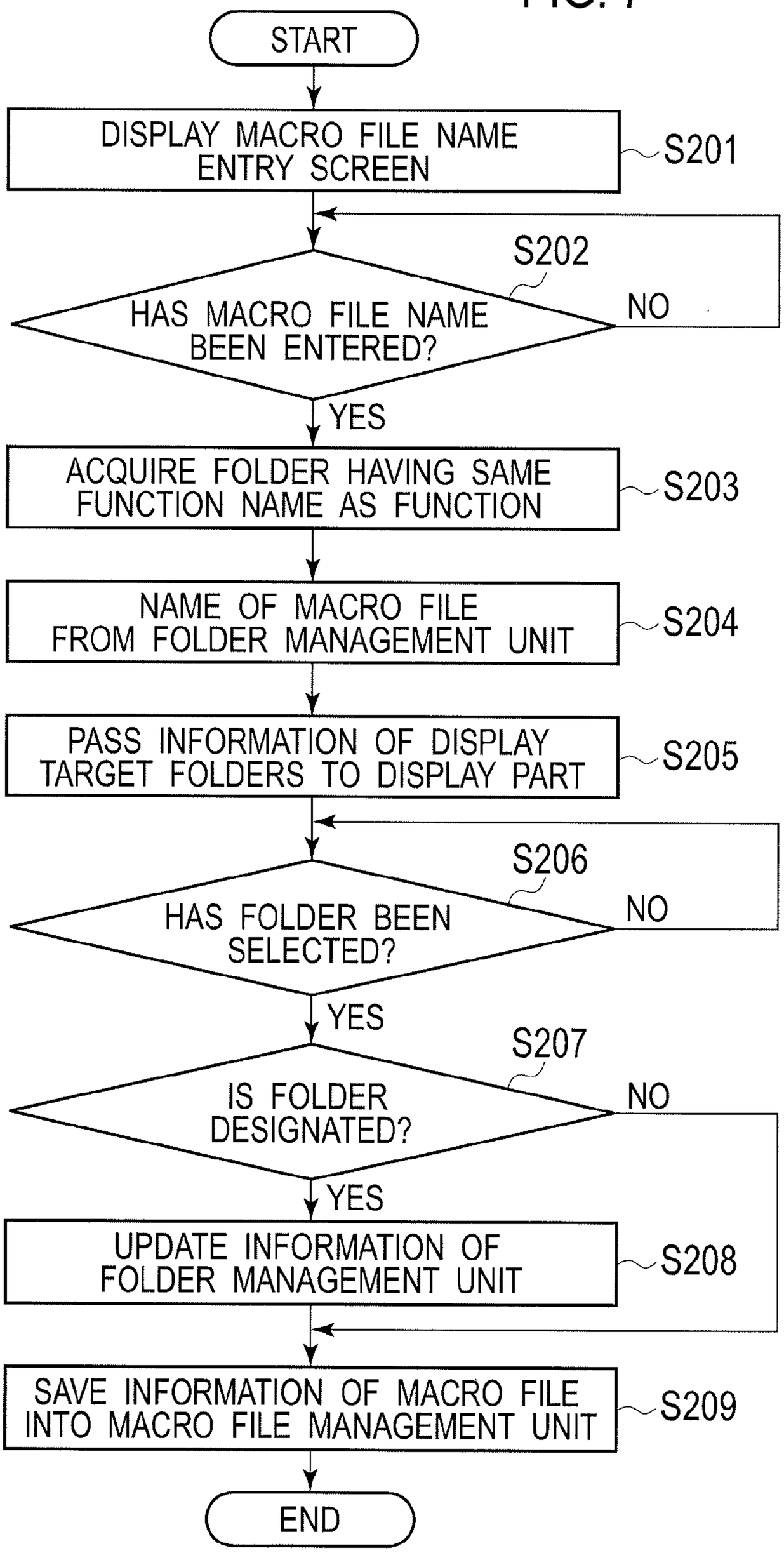
START
DISPLAY MACRO FILE NAME ENTRY SCREEN
S201
S202
HAS MACRO FILE NAME BEEN ENTERED?
NO
YES
ACQUIRE FOLDER HAVING SAME FUNCTION NAME AS FUNCTION
S203
NAME OF MACRO FILE FROM FOLDER MANAGEMENT UNIT
S204
PASS INFORMATION OF DISPLAY TARGET FOLDERS TO DISPLAY PART
S205
S206
HAS FOLDER BEEN SELECTED?
NO
YES
S207
IS FOLDER DESIGNATED?
NO
YES
UPDATE INFORMATION OF FOLDER MANAGEMENT UNIT
S208
SAVE INFORMATION OF MACRO FILE INTO MACRO FILE MANAGEMENT UNIT
S209
END

FIG. 8

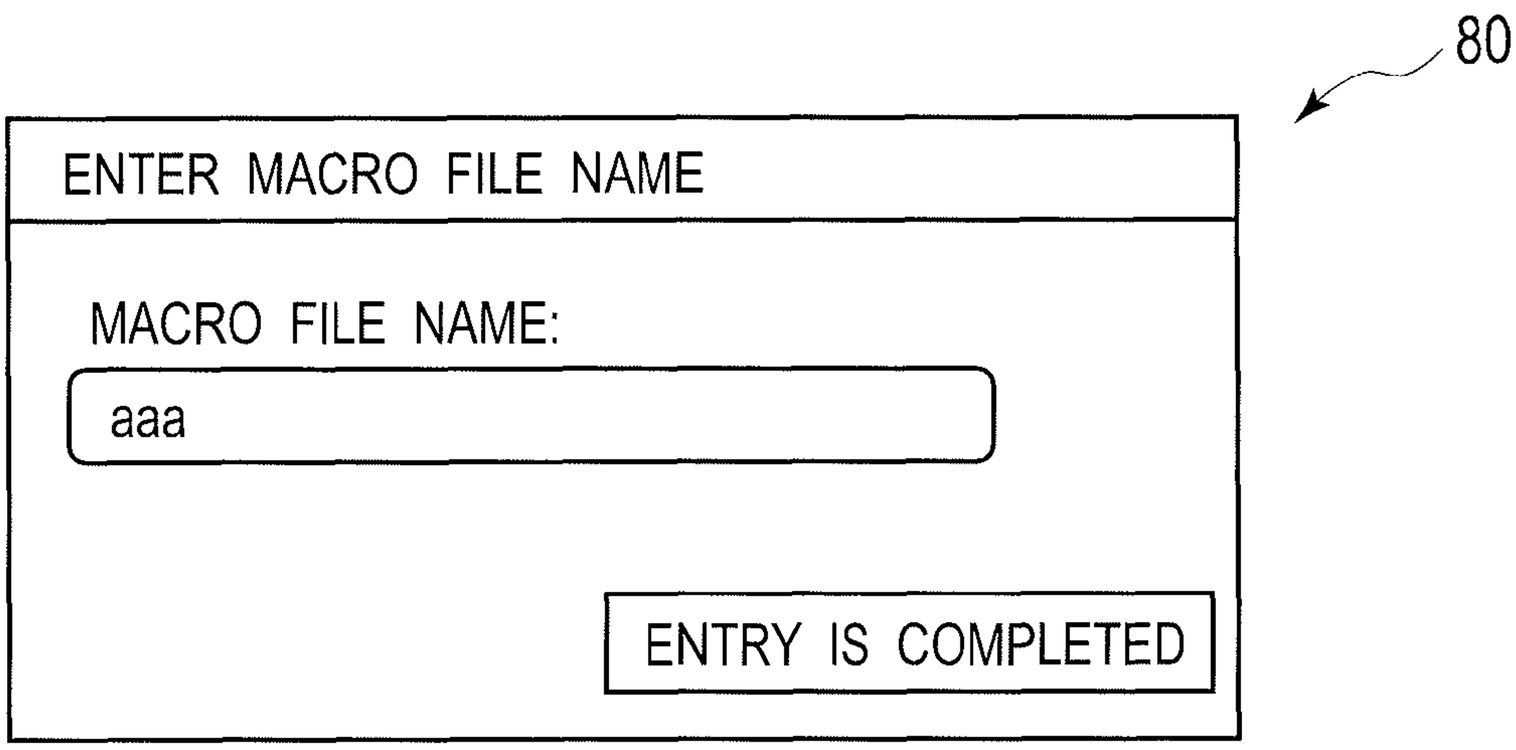
80
ENTER MACRO FILE NAME
MACRO FILE NAME:
aaa
ENTRY IS COMPLETED

FIG. 9

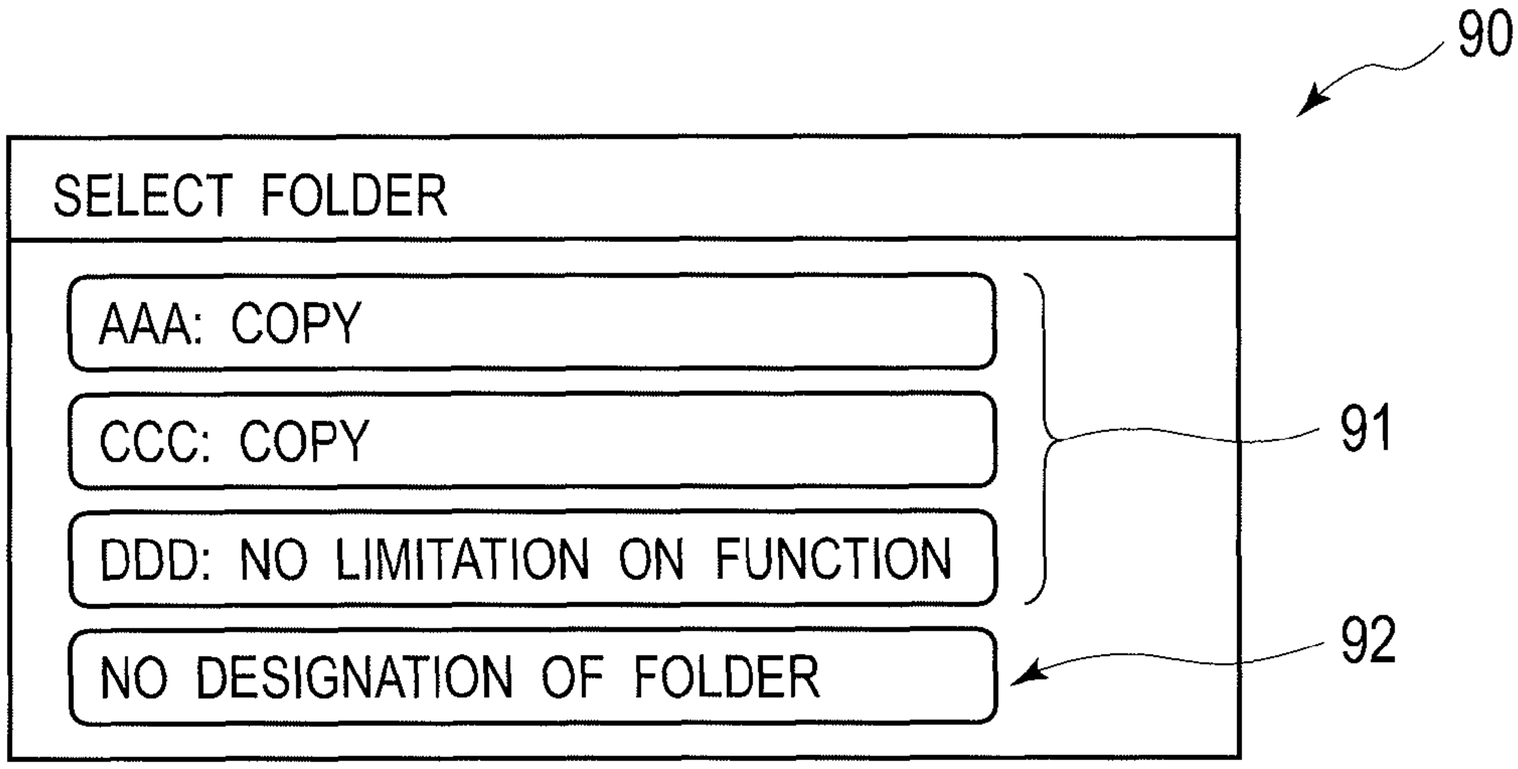
90
SELECT FOLDER
AAA: COPY
CCC: COPY
DDD: NO LIMITATION ON FUNCTION
NO DESIGNATION OF FOLDER
91
92

FIG. 10

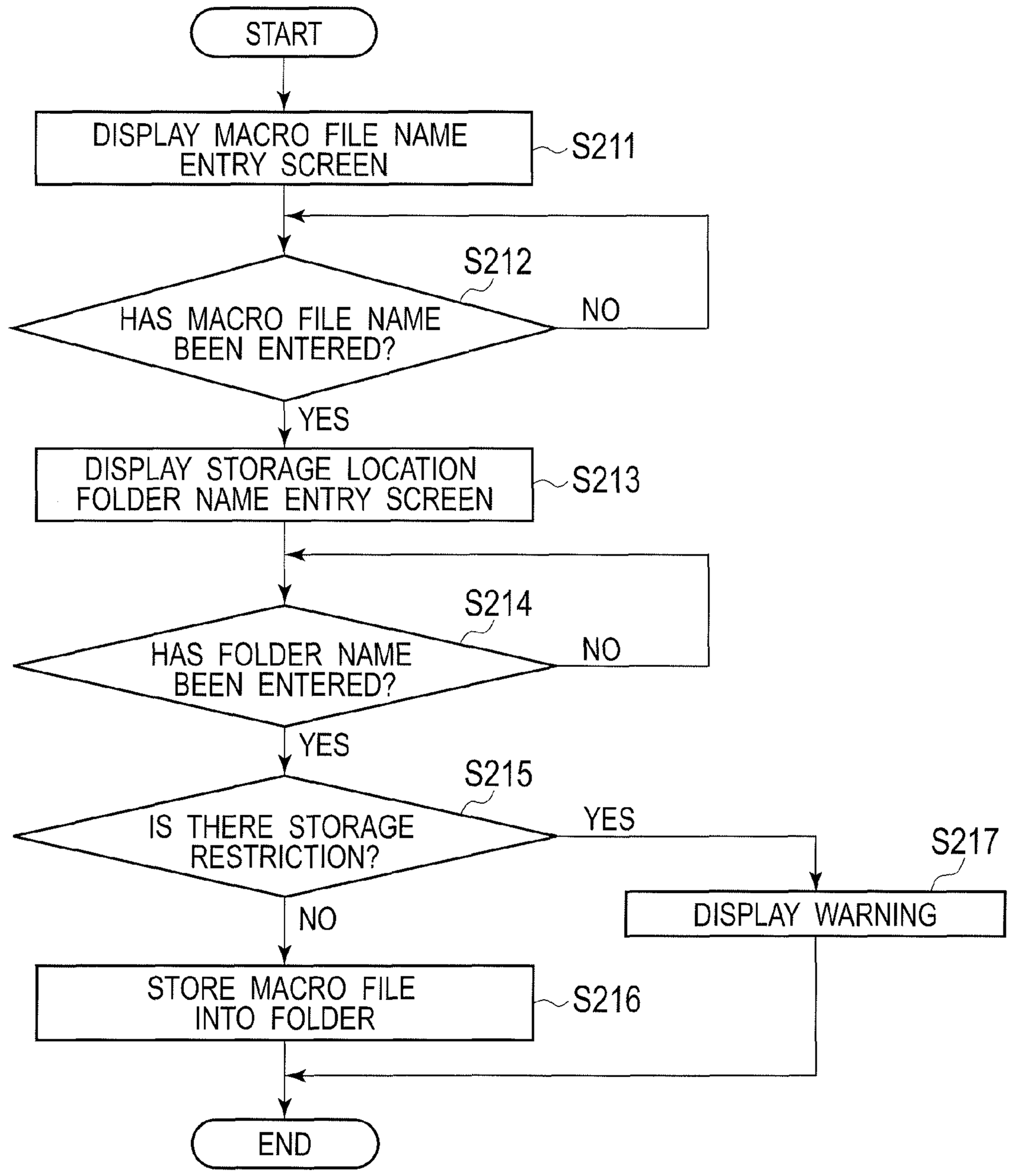
START
DISPLAY MACRO FILE NAME ENTRY SCREEN
S211
S212
HAS MACRO FILE NAME BEEN ENTERED?
NO
YES
DISPLAY STORAGE LOCATION FOLDER NAME ENTRY SCREEN
S213
S214
HAS FOLDER NAME BEEN ENTERED?
NO
YES
S215
IS THERE STORAGE RESTRICTION?
YES
S217
DISPLAY WARNING
NO
STORE MACRO FILE INTO FOLDER
S216
END

FIG. 11

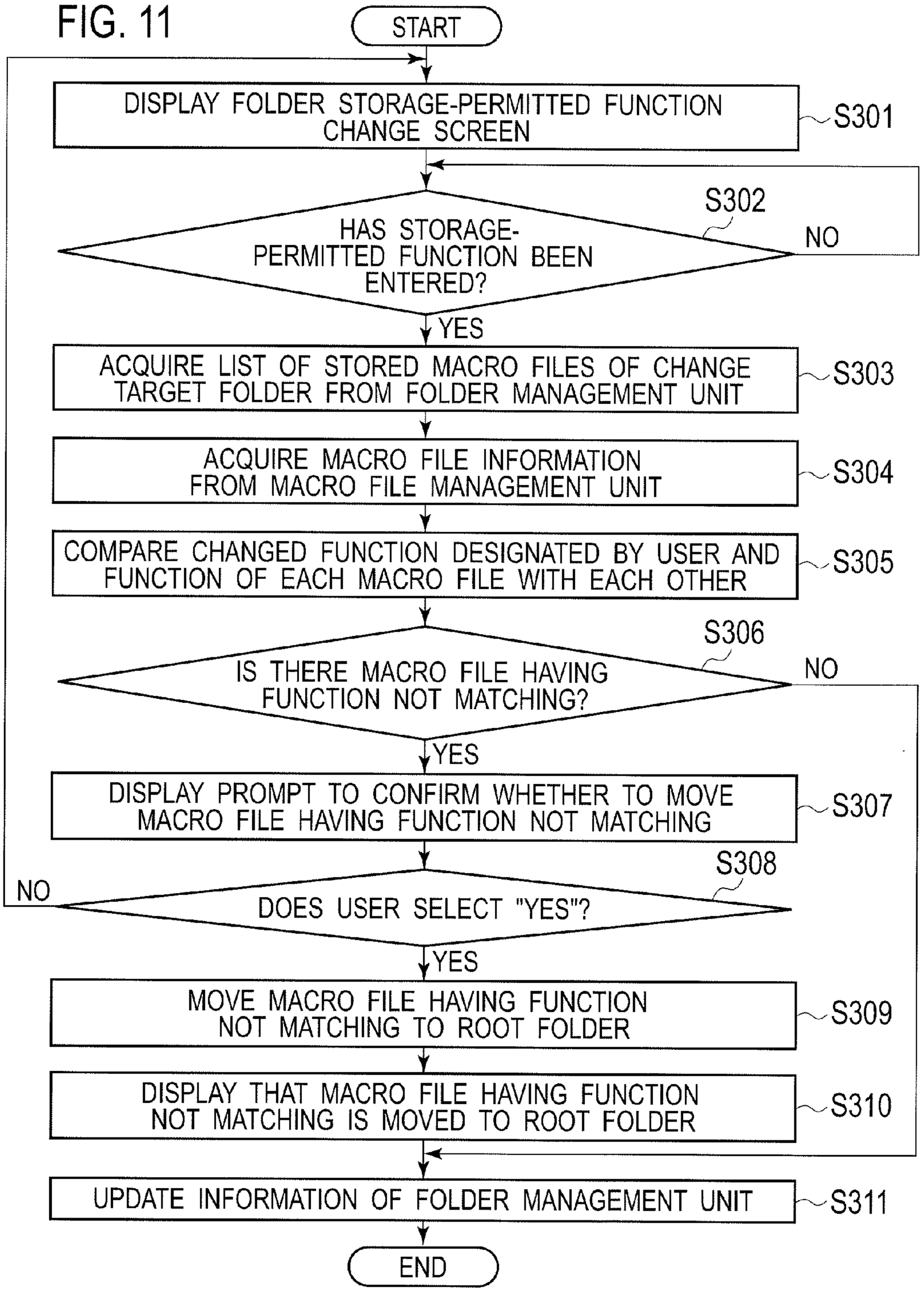
START
DISPLAY FOLDER STORAGE-PERMITTED FUNCTION CHANGE SCREEN
S301
S302
HAS STORAGE-PERMITTED FUNCTION BEEN ENTERED?
NO
YES
ACQUIRE LIST OF STORED MACRO FILES OF CHANGE TARGET FOLDER FROM FOLDER MANAGEMENT UNIT
S303
ACQUIRE MACRO FILE INFORMATION FROM MACRO FILE MANAGEMENT UNIT
S304
COMPARE CHANGED FUNCTION DESIGNATED BY USER AND FUNCTION OF EACH MACRO FILE WITH EACH OTHER
S305
S306
IS THERE MACRO FILE HAVING FUNCTION NOT MATCHING?
NO
YES
DISPLAY PROMPT TO CONFIRM WHETHER TO MOVE MACRO FILE HAVING FUNCTION NOT MATCHING
S307
S308
NO
DOES USER SELECT "YES"?
YES
MOVE MACRO FILE HAVING FUNCTION NOT MATCHING TO ROOT FOLDER
S309
DISPLAY THAT MACRO FILE HAVING FUNCTION NOT MATCHING IS MOVED TO ROOT FOLDER
S310
UPDATE INFORMATION OF FOLDER MANAGEMENT UNIT
S311
END

FIG. 12

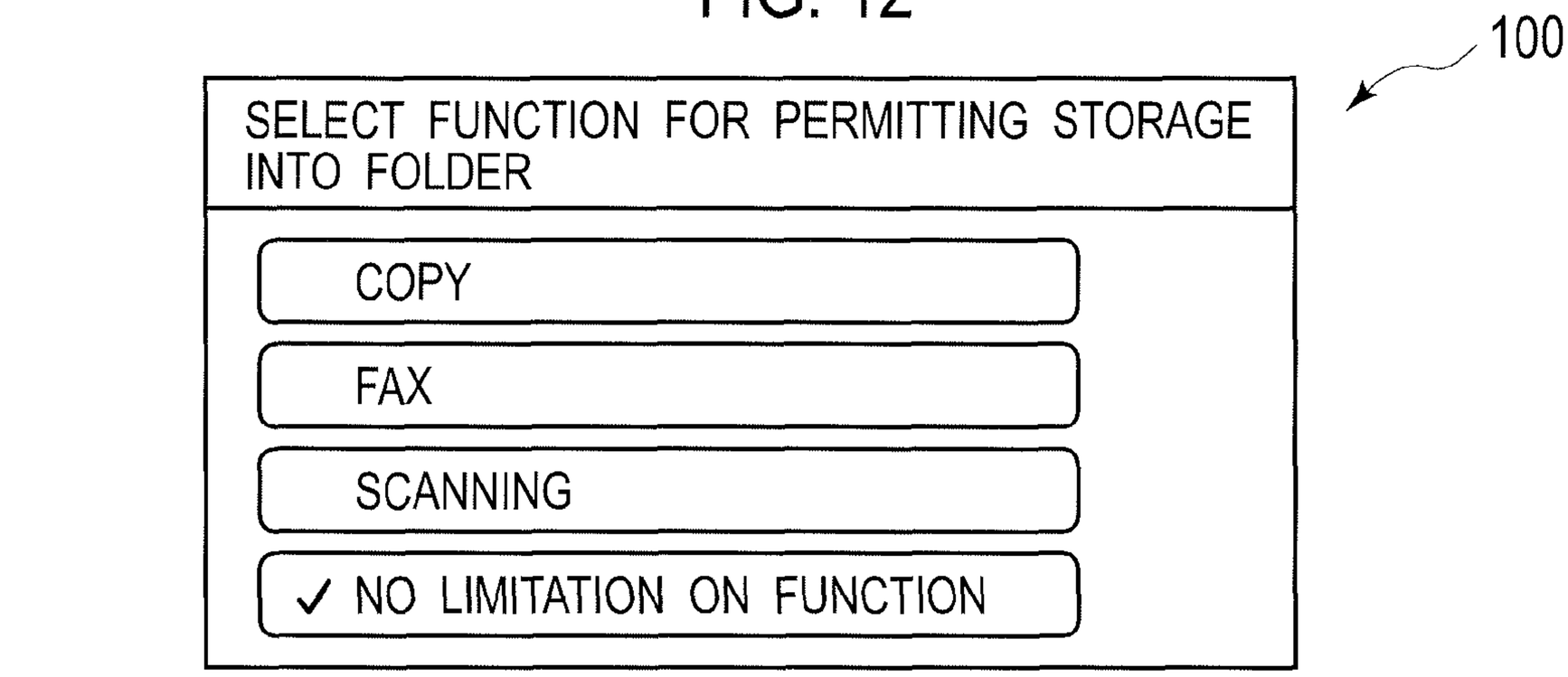

FIG. 13

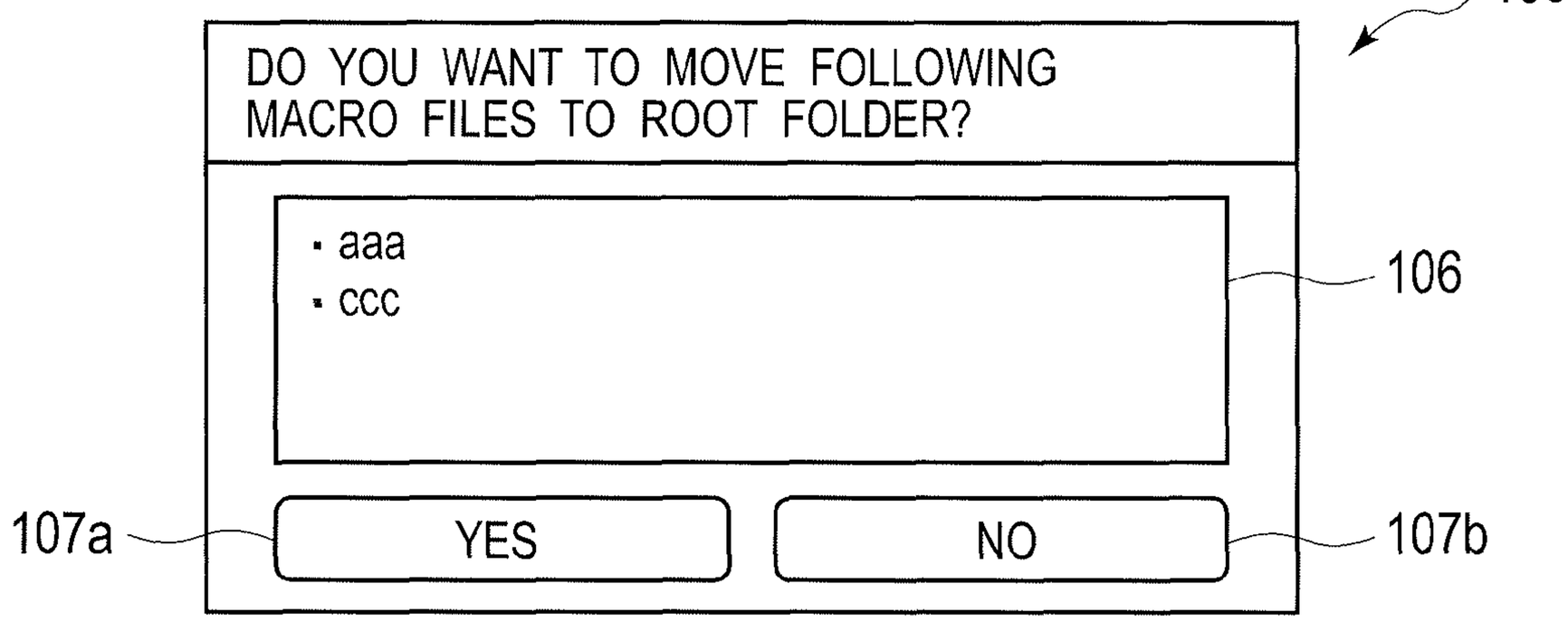

FIG. 14

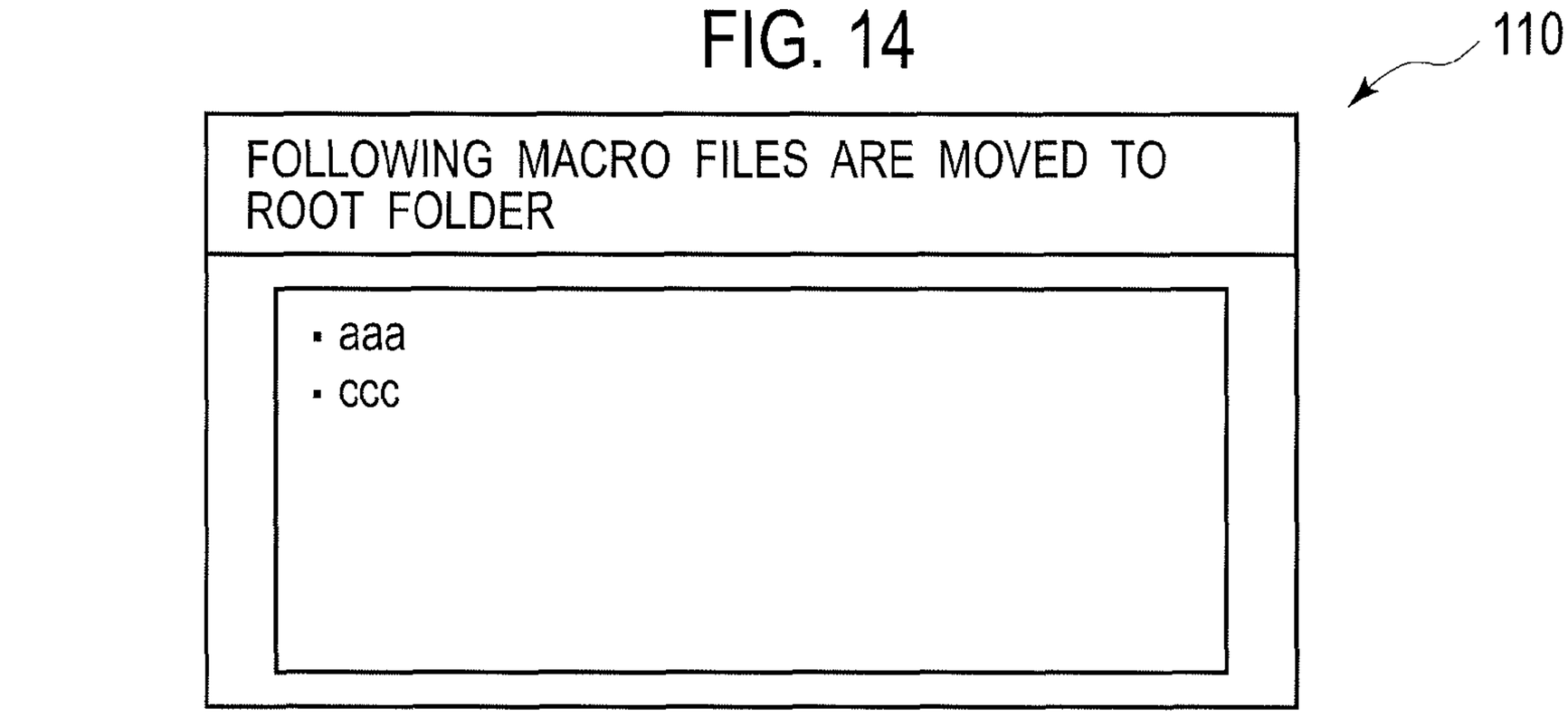

FIG. 15A

131

131a	NAME	BBB
131b	STORAGE-PERMITTED FUNCTION NAME	NO LIMITATION ON FUNCTION
131c	STORED MACRO FILE COUNT	5
131d	STORED MACRO FILE NAME	aaa bbb ccc ddd eee

FIG. 15B

131

131a	NAME	BBB
131b	STORAGE-PERMITTED FUNCTION NAME	COPY
131c	STORED MACRO FILE COUNT	3
131d	STORED MACRO FILE NAME	bbb ddd eee

INFORMATION PROCESSING DEVICE

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority based on 35 USC 119 from prior Japanese Patent Application No. 2013-271088 filed on Dec. 27, 2013, entitled "INFORMATION PROCESSING DEVICE", the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The disclosure relates to an information processing device having a key macro function.

2. Description of Related Art

Some conventional information processing devices have a key macro function in which a key macro obtained by allocating multiple key operations in a sequence to one key operation is registered as a file. When the file is selected, the previously-registered multiple key operations are executed by one key operation (for example, see Japanese Patent Application Publication No. 2013-110710).

SUMMARY OF THE INVENTION

However, in the conventional art, selecting a file of a key macro registered in advance includes selecting the file by inputting a number from the ten-key keyboard. As the number of registered files increases, an operation for selecting a desired file becomes complicated.

An embodiment of the invention has an objective to make it possible to easily select a desired file.

An aspect of the invention is an information processing device that includes: a setting part configured to set an attribute of a folder; and a restriction part configured to restrict storage of a file into the folder based on the set attribute and an attribute of a file.

According to the aspect of the invention, a desired file can be selected easily.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram illustrating a configuration of an information processing device according to a first embodiment.

FIG. **2** is an illustrative diagram illustrating a data configuration of a macro file according to the first embodiment.

FIG. **3** is an illustrative diagram illustrating a data configuration of a folder according to the first embodiment.

FIG. **4** is a flow chart illustrating a flow of folder creation processing according to the first embodiment.

FIG. **5** is an illustrative diagram of a folder name entry screen according to the first embodiment.

FIG. **6** is an illustrative diagram of a folder storage-permitted function select screen according to the first embodiment.

FIG. **7** is a flow chart illustrating a flow of macro file creation processing according to the first embodiment.

FIG. **8** is an illustrative diagram of a macro file name entry screen according to the first embodiment.

FIG. **9** is an illustrative diagram of a macro file storage folder select screen according to the first embodiment.

FIG. **10** is a flow chart illustrating a flow of macro file storage processing according to the first embodiment.

FIG. **11** is a flow chart illustrating a flow of a folder storage-permitted function change processing according to a second embodiment.

FIG. **12** is an illustrative diagram of a folder storage-permitted function change screen according to the second embodiment.

FIG. **13** is an illustrative diagram of a moving-target macro file confirmation screen according to the second embodiment.

FIG. **14** is an illustrative diagram of a moved macro file list screen according to the second embodiment.

FIG. **15**A and FIG. **15**B are illustrative diagrams illustrating a data configuration of a folder according to the second embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS

Descriptions are provided hereinbelow for embodiments based on the drawings. In the respective drawings referenced herein, the same constituents are designated by the same reference numerals and duplicate explanation concerning the same constituents is omitted. All of the drawings are provided to illustrate the respective examples only.

Hereinafter, embodiments of an information processing device according to the invention are described with reference to the accompanying drawings.

Embodiment 1

FIG. **1** is a block diagram illustrating a configuration of an information processing device according to a first embodiment. In FIG. **1**, information processing device **10** comprises a key macro function for registering a key macro as a file (macro file) in advance. Information processing device **10** is, for example, a copy machine, a composite machine, or the like, which includes an image processing part for processing an image. Information processing unit comprises panel control unit **11**, macro file management unit **12**, folder management unit **13**, and control unit **14**.

Panel control unit **11** as a setting part is configured to set attributes of the macro file and the folder, and includes display part **11***a* such as a display, and input part **11***b* such as operation keys and a touch panel. Information such as a user operation guiding message received from control unit **14** is displayed on display part **11***a*, a user's operation is accepted by input part **11***b*, and a detected operation signal is notified to control unit **14**. The attribute is information showing any function out of multiple functions implemented by information processing device **10**.

Macro file management unit **12** is configured to store and manage a key macro for achieving a key macro function capable of implementing multiple key operations, previously registered in response to one key operation, as a macro file (that is, a macro file in which multiple key operations are allocated in sequence to one key operation, and which causes the image processing part to perform image processing).

Folder management unit **13** is configured to store and manage a folder as a storage region for arranging and storing macro files. These folders have a hierarchical structure with a root folder at an uppermost tier thereof. In this embodiment, a storage region for arranging and storing macro files is described as a folder, but the storage region is not limited to the folder, and may be a storage region such as a directory if the macro file can be arranged and stored.

Here, the macro file and the folder are described based on an illustrative diagram illustrating a data configuration of the macro file according to the first embodiment of FIG. **2**, and an illustrative diagram illustrating a data configuration of the folder according to the first embodiment of FIG. **3**. In FIG. **2**, macro file **121** comprises name **121***a*, function name **121***b*,

and parameters **121***c*. Name **121***a* is a name as identification information for identifying macro file **121** to uniquely determine macro file **121**.

Function name **121***b* as an attribute is information for identifying a function in the execution of a key macro function, such as copy (duplication) or fax (facsimile transmission). Parameter **121***c* is information for specifying an operation in the execution of a function identified by function name **121***b*, and items thereof vary depending on the function identified by function name **121***b*. The micro file thus configured is defined by information such as, for example, name **121***a* of "aaa", function name **121***b* of "Copy", parameters **121***c* of "Sheet size=A4, Scale factor=100%, and Both side printing=No".

In FIG. **3**, folder **131** comprises name **131***a*, storage-permitted function name **131***b*, stored macro file count **131***c*, and stored macro file name **131***d*. Name **131***a* is a name as identification information for identifying folder **131** and the name uniquely determines folder **131**. Storage-permitted function name **131***b* is information (an attribute which is set for folder **131**) indicating function name **121***b* of macro file **121** in FIG. **2**, which is permitted to be stored into folder **131**. Only macro file **121** having function name **121***b* matching storage-permitted function name **131***b* is stored into concerned folder **131**. This imposes a restriction on the storage, into concerned folder **131**, of macro file **121** having a function name **121***b* not matching the function name set in storage-permitted function name **131***b*.

Stored macro file count **131***c* is information indicating the number of macro files stored in folder **131**. Stored macro file name **131***d* is information indicating the name of the macro file stored in folder **131**. Name **121***a* of macro file **121** illustrated in FIG. **2**, which is managed by macro file management unit **12** illustrated in FIG. **1**, is stored and used to refer to macro file **121**.

Referring back to FIG. **1**, control unit **14** comprises restriction part **141** configured to restrict storage into folder **131** of macro file **121**. Restriction part **141** restricts the storage of macro file **121** into folder **131** based on an attribute set for folder **131** and an attribute of macro file **121**. That is, when the attribute of macro file **121** does not match the attribute set for folder **131**, restriction part **141** restricts the storage of macro file **121** into folder **131**. Control unit **14** is configured to control the entire operation of information processing device **10** including panel control unit **11**, macro file management unit **12**, and folder management unit **13**, based on a control program (software) stored in the storage unit such as a memory.

Operation of the above configuration is described. The folder creation processing performed by the information processing device is described along S-prefixed steps of a flow chart illustrating a flow of the folder creation processing according to the first embodiment of FIG. **4** with reference to FIG. **1** and FIG. **3**.

S**101**: Control unit **14** of information processing device **10** accepts the operation of creating a new folder by the user at input part **11***b* under the control of panel control unit **11**, and then causes display part **11***a* under the control of panel control unit **11** to display a folder name entry screen for entering a folder name. The folder name entry screen is, for example, folder name entry screen **50** illustrated in FIG. **5** for accepting the press-down of an entry completion key indicating the folder name entry or the folder name entry finish.

S**102**: Control unit **14** waits for the user to input a folder name and press down the entry completion key at input part **11***b* under the control of panel control unit **11**, and shifts the process to **5103** when notified by panel control unit **11** that the folder name has been entered.

S**103**: Upon receiving the notification that the folder name has been entered, control unit **14** causes display part **11***a*, under the control of panel control unit **11**, to display a folder storage-permitted function select screen for selecting a function to permit storage into the folder. The folder storage-permitted function select screen is, for example, folder storage-permitted function select screen **60** illustrated in FIG. **6**, which displays a select list of folder storage-permitted functions such as "Copy", "Fax", and "Scan", and a select item not restricting the folder storage-permitted function such as "No Limitation on Function", and accepts the selection of a displayed function.

S**104**: Control unit **14** waits until input part **11***b* accepts the selection of a folder storage-permitted function by the user on the folder storage-permitted function select screen displayed by display part **11***a* under the control of panel control unit **11**, and shifts the process to the step S**105** when notified by panel control unit **11** that the folder storage-permitted function has been selected.

S**105**: Upon receiving the notification that the folder storage-permitted function has been selected, control unit **14** causes folder management unit **13** to create folder **131**, store and keep the folder name received from panel control unit **11** into name **131***a*, store and keep information of the selected folder storage-permitted function as storage-permitted function name **131***b*, and ends the processing.

Next, macro file creation processing performed by the information processing device is described along S-prefixed steps of a flow chart illustrating a flow of the macro file creation processing according to the first embodiment of FIG. **7** with reference to FIG. **1**, FIG. **2**, and FIG. **3**. Control unit **14** of information processing device **10** accepts, at input part **11***b* under the control of panel control unit **11**, the user's input operation for parameters defining the function name such as copy or fax and the operation of the function, and further accepts the operation of creating a new macro file for registering entered multiple key operations.

S**201**: After accepting the new macro file creation operation by the user at input part **11***b* under the control of panel control unit **11**, control unit **14** of information processing device **10** causes display part **11***a* under the control of panel control unit **11** to display a macro file entry screen for entering a macro file name. The macro file name entry screen is, for example, macro file name entry screen **80** illustrated in FIG. **8** for accepting the press-down of an entry completion key indicating the macro file name entry or the macro file name entry finish.

S**202**: Control unit **14** waits for the press-down of the macro file name entry or macro file name entry completion key by the user at input part **11***b* under the control of panel control unit **11**, and then shifts the process to the step S**203** when notified by panel control unit **11** that the macro file name has been entered.

S**203**: Upon receiving the notification that the macro file name has been entered, restriction part **141** of control unit **14** acquires, from folder management unit **13**, the folder list information of folders having the storage-permitted function name matching the function name of macro files already entered.

S**204**: Control unit **14** passes the acquired folder list information to display part **11***a* of panel control unit **11** as information of the display target folders.

S**205**: Based on the passed information of the display target folders, panel control unit **11** causes display part **11***a* to dis-

play the macro file storage folder select screen comprising a list of folders in which the macro file can be stored, and an item for selecting to store the macro file without designating a specific folder. The macro file storage folder select screen is, for example, macro file storage folder select screen **90** illustrated in FIG. **9**, comprising select key **91** for selecting a list of folders or a folder in which the macro file can be stored, and a "No Designation of Folder" select key **92** for selecting to store the macro file without designating a specific folder. Thus, restriction part **141** makes a restriction such that the macro file cannot be stored in a folder having the storage-permitted function name not matching the function name of the macro file.

S**206**: Control unit **14** waits for the user to press down a folder select key (select key **91** or **92** illustrated in FIG. **9**) for storing the macro file at input part **11***b* under the control of panel control unit **11**, and shifts the process to the step S**207** when notified by panel control unit **11** that the folder select key for storing the macro file has been pressed down.

S**207**: Upon receiving the notification that the folder select key for storing the macro file has been pressed down, control unit **14** determines whether a folder for storing a macro file is designated (whether any of select keys **91** illustrated in FIG. **9** was pressed down). If determining that the folder for storing the macro file is designated, control unit **14** shifts the process to the step S**208**. If determining that the folder for storing the macro file is not designated, control unit **14** shifts the process to the step S**209**.

S**208**: If determining that the folder for storing the macro file is designated, control unit **14** updates the information of the designated folder **131**, managed by folder management unit **13**, by adding "1" to stored macro file count **131***c*, and adding the macro file name entered at the step S**202** into stored macro file name **131***d*, and stores the macro file into the designated folder.

S**209**: Control unit **214** stores information of the macro file **121**, including name **121***a*, function name **121***b*, and parameters **121***c*, into macro file management unit **12**, and ends the processing.

When a folder for storing the macro file is not designated, control unit **14** stores information of macro file **121**, including name **121***a*, function name **121***b*, and parameters **121***c*, into a root folder managed by macro file management unit **12**, and ends the processing.

Next, macro file storage processing performed by the information processing device is described along S-prefixed steps of a flow chart illustrating a flow of the macro file storage processing according to the first embodiment of FIG. **10** with reference to FIG. **1**, FIG. **2**, and FIG. **3**.

S**211**: Control unit **14** of information processing device **10** accepts the operation of moving or copying a macro file to a folder by the user at input part **11***b* under the control of panel control unit **11**, and causes display part **11***a* under the control of panel control unit **11** to display a macro file name entry screen for entering a macro file name. The macro file name entry screen is, for example, macro file name entry screen **80** illustrated in FIG. **8** for accepting the press-down of an entry completion key indicating a macro file name entry or a macro file name entry finish.

S**212**: Control unit **14** waits for the press-down of the macro file name entry or macro file name entry completion key by the user at input part **11***b* under the control of panel control unit **11**, and then shifts the process to the step S**213** when notified by panel control unit **11** that the macro file name has been entered.

S**213**: Control unit **14** accepts the press-down of the macro file name entry or entry completion key by the user at input part **11***b* under the control of panel control unit **11**, and causes display part **11***a* under the control of panel control unit **11** to display a storage location folder name entry screen for entering the storage location folder name. The storage location folder name entry screen is a screen for accepting the press-down of an entry completion key indicating the entry of the storage location folder name or entry finish of the storage location folder name.

S**214**: Control unit **14** waits for the press-down of the storage location folder name entry or entry completion key by the user at input part **11***b* under the control of panel control unit **11**, and then shifts the process to the step S**215** when notified by panel control unit **11** that the macro file name has been entered.

S**215**: After accepting the press-down of the storage location folder name entry or the entry completion key by the user at input part **11***b* under the control of panel control unit **11**, control unit **14** retrieves, through macro file management unit **12** based on the macro file name entered at the step S**212**, and extracts function name **121***b* of macro file **121** having name **121***a* matching the macro file name.

Further, control unit **14** retrieves, through folder management unit **13** based on the storage location folder name entered at the step S**214**, and extracts storage-permitted function name **131***b* of folder **131** having name **131***a* matching the storage location folder name. The control unit determines whether extracted macro file **121** can be stored into extracted folder **131** or whether there is a storage restriction. If determining that there is a storage restriction, the process shifts to the step S**217**. If determining that there is no storage restriction, the process shifts to the step S**216**.

Control unit **14** compares function name **121***b* of extracted macro file **121** and storage-permitted function name **131***b* of folder **131** with each other to determine whether function name **121***b* and storage-permitted function name **131***b* are associated with each other (for example, whether they both match each other). If function name **121***b* and storage-permitted function name **131***b* are not associated with each other, control unit determines that there is a storage restriction. If it is determined that they are associated with each other, control unit determines that there is no storage restriction.

S**216**: If determining that there is no storage restriction, control unit **14** updates the information of folder **131** in folder management unit **13** which is the storage location of the macro file, by adding "1" to stored macro file count **131***c*, and adding the macro file name entered at the step S**212** into stored macro file name **131***d*, and stores the macro file into the storage location folder.

S**217**: When determining that there is a storage restriction, control unit **14** causes display part **11***a* under the control of panel control unit **11** to display a warning screen indicting that the macro file cannot be stored, and ends the processing. Thus, control unit **14** restricts the storage of macro files **121** into folder **131** based on the functional attribute as an attribute set for folder **131** and a functional attribute of macro file **121**, which makes it easy to find a macro file having a desired functional attribute and this thereby reduces the user's operation burden.

There is a case where macro files are sorted by functional attributes to retrieve a macro file having a desired functional attribute. In a conventional method, the number of functions of macro files stored in each folder is two or more, and folders cannot be sorted by a functional attribute. In contrast, according to the present embodiment, the function of macro files stored in each folder can be uniquely determined, and thereby folders can be sorted, and a macro file having a desired functional attribute can be retrieved efficiently. As described

above, the first embodiment provides an advantageous effect in that the user can easily select a macro file by restricting the functional attribute of the macro file to be stored in each folder. Further, the embodiment provides an advantageous effect in that a macro file having a desired functional attribute can be retrieved efficiently by sorting folders.

Embodiment 2

The second embodiment adds a folder storage-permitted function change processing to the first embodiment. Since a configuration of the second embodiment is similar with the first embodiment, components are allocated similar referential numerals and the description thereof is omitted. Operation of the second embodiment is described. Folder storage-permitted function change processing performed by the information processing device is described along S-prefixed steps of a flow chart illustrating a flow of the folder storage-permitted function change processing according to the second embodiment of FIG. **11** with reference to FIG. **1**, FIG. **2** and FIG. **3**.

Control unit **14** of information processing device **10** accepts the user's operation of selecting a folder for changing the folder storage-permitted function at input part **11***b* under the control of panel control unit **11**.

S**301**: Control unit **14** of information processing device accepts the user's operation for changing the folder storage-permitted function at input part **11***b* under the control of panel control unit **11**, and causes display part **11***a* under the control of panel control unit **11** to display a folder storage-permitted function change screen for changing the folder permission function.

The folder storage-permitted function change screen is, for example, folder storage-permitted function change screen **100** illustrated in FIG. **12**, which accepts the operation of selecting or specifying a function authorizing to store by allocating with a check mark this function out of those currently permitted to store. Assume that folder **131** managed by folder management unit **13** stores, for example: "BBB" in name **131***a*, information indicating "No Limitation on Function" in the storage-permitted function name **131***b*, "5" in the stored macro file count, and "aaa", "bbb", "ccc", "ddd", and "eee" in the stored macro file name **131***d*, as illustrated in FIG. **15**(*a*).

S**302**: Control unit **14** waits for the user's input operation of selecting or specifying a storage-permitted function at input part **11** under the control of panel control unit **11**, and shifts the process to S**303** when notified by panel control unit **11** that the storage-permitted function has been selected or specified.

S**303**: Upon receiving the notification that the storage-permitted function has been selected or specified, control unit **14** acquires stored macro file name **131***d* stored in folder **131** of the change target from folder management unit **13**, as a stored macro file list.

S**304**: After acquiring the stored macro file list, control unit **14** acquires function name **121***b* as macro file information of the macro files contained in the list of stored macro files from macro file management unit **12**.

S**305**: Control unit **14** compares the changed storage-permitted function name of the folder selected or specified by the user at the step **5302** and the function name **121***b* of each of the acquired macro files with each other.

S**306**: When determining that there is a macro file whose function name **121***b* does not match the changed storage-permitted function name of the folder selected or specified by the user at the step S**302**, control unit **14** shifts the processing to the step S**307**. Otherwise, control unit **14** shifts the processing to the step S**311**.

S**307**: Control unit **14** causes display part **11***a*, with the control of panel control unit **11**, to display a moving-target macro file confirmation screen for selecting whether to move a macro file having the function not matching the storage-permitted function name of the folder. The moving-target macro file confirmation screen is, for example, moving-target macro file confirmation screen **105** illustrated in FIG. **13**, which comprises macro file name **106** (for example, "aaa" and "ccc" are displayed) whose function does not match, "Yes" select key **107***a* for permitting movement, and "No" select key **107***b* for not permitting movement.

S**308**: Control unit **14** determines whether movement of the macro file is permitted. If determining that the movement is permitted, control unit **14** shifts the processing to the step S**309**. If determining that the movement is not permitted, control unit **14** shifts the processing to the step S**301**, and causes display part **11***a*, under the control of panel control unit **11**, to again display the folder storage-permitted function change screen for changing the folder storage-permitted function.

S**309**: Restriction part **141** of control unit **14**, which determines that the movement is permitted, moves the macro file of the moving target to an uppermost root folder. In such a manner, when an attribute is set for folder **131** under the control of panel control unit **11**, restriction part **141** of control unit **14** moves macro file **121** having an attribute not matching the attribute set for folder **131** to outside of folder **131** if such macro file **121** is already stored in the folder **131**.

S**310**: Control unit **14** causes display part **11***a* under the control of panel control unit **11** to display a moved macro file list screen showing that the macro file having a function not matching the folder storage-permitted function name has been moved to the root folder. The moved macro file list screen is, for example, moved macro file list screen **110** showing a list of macro folders moved to the root folder.

S**311**: Control unit **14** updates the information of folder **131** managed by folder management unit **13**, the information including storage-permitted function name **131***b*, stored macro file count **131***c*, and stored macro file name **131***d* (for example, as illustrated in FIG. **15**(*b*), storage-permitted function name **131***b* is updated to "Copy", stored macro file count **131***c* updated to "3", and stored macro file name **131***d* updated to "bbb", "ddd", and "eee"), and ends the processing.

In such a manner, when storage-permitted function name **131***b* of folder **131** has been changed with macro file **121** stored in folder **131**, restriction part **141** of control unit moves macro file **121** having a function not matching storage-permitted function name **131***b* to the other folder. This eliminates the operation of moving the folder to the other folder and thereby reduces the user's operation burden.

In the above description, this embodiment is characterized in that macro file **121** having a function not matching storage-permitted function name **131***b* is moved from the folder to a root folder. However, a moving destination folder may be specified by the user's operation, or a macro file not matching the storage-permitted function name **131***b* may be moved to temporary saving folder **131** which is separately prepared by control unit **14**.

As described above, the second embodiment provides an advantage of reducing the user's operation burden when the storage-permitted function of the folder is changed with macro files stored in the folder, in addition to the advantage of the first embodiment. Although a copy machine or composite machine is used as the information processing device in the first and second embodiments, the information processing device is not limited thereto, and a mobile phone carrying an

operation panel, a portable information terminal, or a PDA (personal digital assistants) may be used as the information processing device.

The invention includes other embodiments in addition to the above-described embodiments without departing from the spirit of the invention. The embodiments are to be considered in all respects as illustrative, and not restrictive. The scope of the invention is indicated by the appended claims rather than by the foregoing description. Hence, all configurations including the meaning and range within equivalent arrangements of the claims are intended to be embraced in the invention.

What is claimed is:

1. An information processing device operable to perform a plurality of functions, comprising:

a setting part configured to set a first attribute of a file and a second attribute of a folder, wherein the first and second attributes are information to specify one of the plurality of functions of the information processing device; and

a controller configured, when the first attribute does not match the second attribute when comparing the first attribute with the second attribute, to restrict storage of the file into the folder.

2. The information processing device according to claim **1**, wherein the controller is configured, when the first attribute matches the second attribute, to store the file into the folder, and

the controller is configured, when the second attribute of the folder is changed to a third attribute by the setting part, to compare the first attribute of the file having already been stored in the folder with the third attribute of the folder, and to move the file from inside to outside of the folder when the first attribute does not match the third attribute.

3. The information processing device according to claim **2**, further comprising an input part having a plurality of keys, wherein the file is a macro file to achieve a sequence operation of two or more keys by one key operation.

4. The information processing device according to claim **3**, further comprising an image processing part configured to perform image processing, wherein

the image processing part performs image processing based on the macro file.

5. The information processing device according to claim **1**, further comprising an input part having a plurality of keys, wherein the file is a macro file to achieve a sequence operation of two or more keys by one key operation.

6. The information processing device according to claim **5**, further comprising an image processing part configured to perform image processing, wherein

the image processing part performs image processing based on the macro file.

7. The information processing device according to claim **1**, wherein

the plurality of functions include at least one of a copy function, a facsimile function, and a scan function.

8. The information processing device according to claim **1**, further comprising a display, wherein

the controller is configured, when the first attribute does not match the second attribute, to display, in the display, a warning message indicating that storage of the file into the folder is restricted.

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