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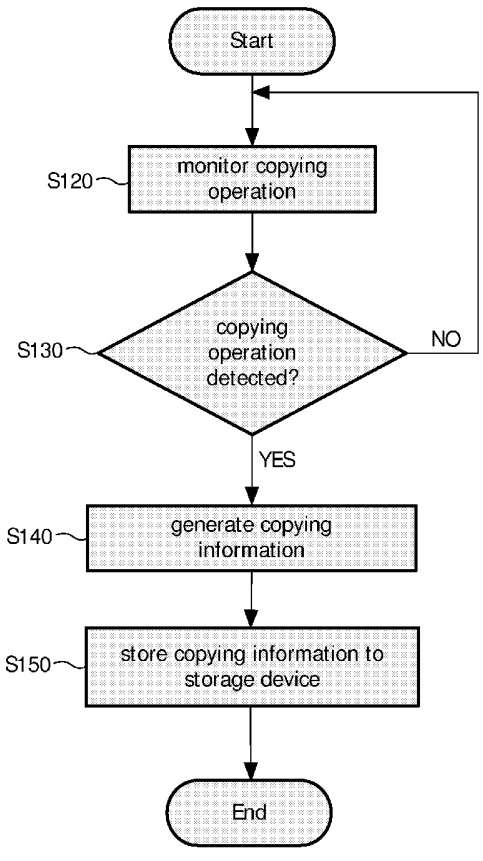
(54) Title: METHOD AND DEVICE OF TRACKING FILE TRANSFER



(57) Abstract: The present invention provides a method and device of tracking file transfer, the method including the steps of: monitoring transferring operation performed with respect to a file on a storage device; and generating an operation information related to the transferring operation based on the result of said monitoring. Using the method and device of tracking file transfer provided by the present invention, corresponding operation information can be stored on a storage device when transferring a file stored on the storage device, so that users can save time to be spent in performing next operation on the stored file and manage the storage file on the storage device more conveniently.

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METHOD AND DEVICE OF TRACKING FILE TRANSFER

FIELD OF THE INVENTION

The present invention relates to a file management system, and specifically to a method and device of tracking file transfer.

BACKGROUND OF THE INVENTION

Nowadays people need to face and process more and more information. They usually store the information to a storage device (e.g. hardware in a computer or a removable memory card) with data processing means for the sake of use. Users utilizing the information may further perform transferring operation on a file stored on the above storage device according to their needs. This transferring operation may be copying operation or printing operation.

In real life, users are often confronted with a problem: When they need to transfer a file in part or in its entirety that is stored on a storage device, it is difficult to decide whether relevant operation has been performed on this file for the reason that time is remote or the operator has been changed. In this case, users have to take some preventive measures against occurrence of harmful consequences.

The problem users come across most frequently is that, when they want to delete a file from a storage device so as to give storage space for a new file, since it is difficult to decide whether this file has been copied to another storage device, they are not sure whether this file should be deleted, and they have to give up the plan of storing a new file with the storage device; or else they may first copy the file to another storage device before executing deleting operation; or else they may check for all other possible storage devices to confirm whether this file has been copied, and thus waste a vast amount of time. This is extremely inconvenient for them.

Therefore, there is a need for a method and device of tracking file transfer so as to facilitate an user to perform querying before taking next operation.

OBJECT AND SUMMARY OF THE INVENTION

The present invention provides a method and device of tracking file transfer, to help users conveniently check whether corresponding transferring operation has been

performed on a file stored on a storage device.

The method of tracking file transfer provided according to an embodiment of the present invention includes the steps of: monitoring transferring operation performed with respect to a file on a storage device; and generating an operation information related to the transferring operation based on the result of said monitoring.

The device of tracking file transfer provided according to an embodiment of the present comprises: monitoring means for monitoring transferring operation performed with respect to a file on a storage device; and information generating means for generating an operation information related to the transferring operation based on the result of said monitoring.

Using the method and device of tracking file transfer provided by the present invention, corresponding operation information can be stored on a storage device when transferring a file stored on the storage device, so that users can save time to be spent in performing next operation on the stored file and manage the storage file on the storage device more conveniently.

Said and other objects, features and advantages of the present invention will become more apparent from the following detailed description, taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 depicts a flow chart of a method of tracking file transfer according to an embodiment of the present invention;

Fig 2 depicts a flow chart of file copying operation according to an embodiment of the present invention;

Fig. 3 depicts a structural schematic view of a device of tracking file transfer according to an embodiment of the present invention; and

Fig. 4 depicts a structural schematic view of operation information obtaining means according to an embodiment of the present invention.

In the accompanying drawings, the same elements and components are represented by identical reference numerals, and repeated description thereof is omitted.

DETAILED DESCRIPTION OF THE INVENTION

Hereinafter, the present invention will be described with reference to the accompanying drawings illustrating the embodiments of the present invention.

Fig. 1 shows a flow chart of a method of tracking file transfer according to an embodiment of the present invention. In the present embodiment, description is made with copying and transferring operation of a file on a storage device taken for example.

In step S120, copying operation of a file stored on a storage device is monitored. Monitoring of the copying operation can be carried out through monitoring operations of the file system.

Then in step S130, it is decided whether copying operation is detected. When copying operation is detected after decision, the flow goes to step S140. In this step, copying operation information is generated with respect to the copied file, where the generated copying operation information may include at least one of the following items: operation name (such as copy or print), name of the copied file, time for completing copying operation, path of copying operation, name of target storage device, IP address of target storage device etc., or may be only a copy identification for indicating whether the file has been copied.

Afterwards in step S150, the generated copying operation information is stored to the storage device. In the embodiments of the present invention, all copying operation information may be collectively stored as a file, or may be respectively stored to different files according to criteria such as copying operation path, the copy file corresponding to each copying operation, etc.. For instance, copy files copied to different IP addresses are respectively stored to files corresponding to respective IP addresses, or else a copy identification is stored together with the corresponding copy file in a form of Meta Data.

Of course, the copying operation information may also be stored to a device other than the storage device, e.g. user's specific USB memory card. When the user needs to obtained the copying operation information, he(she) can perform querying on this specific USB memory card.

If it is decided in step S130 that no copying operation is detected, the flow returns to step S120 to continue to monitor whether there is copying operation.

It is to be understood that the operation information generating method of the present invention is not limited to the copying operation described in the above

embodiment, but includes various transferring operations performed with respect to a file stored on a storage device, such as printing operation and the like. The generated operation information may include different items according to different types of the detected transferring operation. For instance, printing information with respect to the printing operation may include printing time, target path of printing etc..

Thus, when an user of the storage device needs to perform further processing on a file on the storage device but cannot determine whether relevant operation has been performed on the file, he(she) may refer to operation information corresponding to the file as stored on the storage device.

Referring to Fig. 2, description is given to how to obtain corresponding operation information on the storage device when the user is performing file copying operation. Fig. 2 shows a flow chart of a method of obtaining operation information according to an embodiment of the present invention. In the present embodiment, copying operation is taken again for example.

As shown in Fig. 2, in step 210 the storage device decides whether a user's request for file deleting or copying is detected; if not, monitoring is continued; if yes, search for the copying information on the storage device is conducted in step S220. After that, it is decided in step S230 whether copying operation information corresponding to a file the user wants to understand exists on the storage device. If there is the corresponding copying operation information, then the flow goes to step S240. In step S240, the copying operation information as found is output. There might be various ways of outputting the copying operation information, such as displaying the copying operation information through displaying means or making indication sound via a loudspeaker to allow further processing.

Subsequently in step S250, the storage device decides whether the user is sure to delete the file. If yes, the storage device deletes the file in step S260. Otherwise, the flow skips to step S280 to decide whether to proceed.

If it is decided in step S230 that there is no corresponding copying information, then the flow goes to step S270. In this step, indication indicating that no copy has been performed is output, such as displaying indication or warning sound indicating that no corresponding copying information has been found, so as to remind further operation on the file which has not been copied. In step S275, copying operation is performed, and

corresponding copying operation information generated. Next, it is decided in step S280 whether to proceed. If yes, the flow returns to step S210 to continue to decide whether the user's request for copy deleting or copying is detected. If it is not continued, then the flow is terminated.

Similarly, those skilled in the art should appreciate that the method of obtaining operation information of the present invention is not limited to the copying operation information described in the above embodiment, but includes various transmission operations performed with respect to a storage file on the storage device, such as printing operation and the like. The obtained operation information may also include different items according to different types of transferring operations.

The present invention also provides a device of tracking file transfer, the structural schematic view thereof being as shown in Fig. 3. Operation information generating unit 300 according to an embodiment of the present invention comprises monitoring unit 310 and information generating unit 320.

The monitoring unit 310 monitors various transferring operations performed with respect to a storage file on the storage device, such as copying operation or printing operation, and transfers related transferring operation information to the information generating unit 320 when detecting the above transferring operation. According to the processing content contained in the transferred operation information, the information generating unit 320 generates operation information with respect to the processed file and delivers the operation information to the storage device for storage. In the embodiment of the present invention, all operation information may be collectively stored as a file, or may be respectively stored to different files according to criteria such as transferring operation path, the processed file corresponding to each transferring operation, etc.. For instance, copy files copied to different IP addresses are respectively stored to files corresponding to respective IP addresses, or else a copy identification is stored together with the corresponding copy file.

It is to be understood that the monitoring unit 310 described in the above embodiment may determine whether transferring operation has been performed on a storage file on the storage device, on the basis of the trigger of transferring operation per se.

The operation information generating unit 300 according to the present invention

may be disposed inside any unit that is connected with the storage device, such as a PC or a digital camera. Operation information generated by the information generating unit 320 may also be stored to the storage device via a data line or data interface, e.g. USB interface or PnP interface (for example, SD slot or memory stick slot).

The operation information generating unit 300 according to the present invention may be directly incorporated into the storage device, and operation information generated by the information generating unit 320 may also be directly stored to the storage device without additional data line or data interface.

To utilize the above operation information generated by the operation information generating unit 300, the present invention further provides operation information obtaining unit for obtaining operation information stored on the storage device, the structure thereof being as shown in Fig. 4.

Operation information obtaining unit 400 as shown in Fig. 4 comprises querying unit 410 and outputting unit 420. The querying unit 410 queries whether there is operation information corresponding to a file to be understood on the storage device. When the corresponding operation information is found, the outputting unit 420 outputs the operation information. The outputting unit 420 may be displaying unit, for example a display, for displaying operation information. Also, the outputting unit 420 may be a loudspeaker for making indication sound of further operation via the loudspeaker. When no corresponding operation information is found, the outputting unit 420 outputs indication indicating that the file the user needs has not been processed, e.g. displaying indication or making warning sound indicating that no corresponding operation information is found, as to as remind further operation on the file which has not been processed.

The operation information obtaining unit 400 provided by the present invention may be disposed inside any unit that is connected with the storage device, e.g. a PC or a digital camera. Operation information may be output using outputting unit such as a PC or a digital camera.

The operation information obtainingobtaining unit 400 provided by the present invention may also be directly incorporated into the storage device. In the case that the operation information obtaining unitobtaining 400 is directly incorporated into the storage device, the user can directly obtained operation information on the storage device.

With the method and device of tracking file transfer provided by the present

invention, the corresponding operation information can be stored on the storage device while the transferring operation performed on a file stored on the storage device is detected. An user may refer to operation information corresponding to a file when he/she wants to further process the file, so that the user is provided with convenience to efficiently use information stored on the storage device and storage space on the storage device.

For instance, image files shot by the user at different time are stored on the storage medium of a digital camera (15 shot on May 1, 2005; 25 shot on May 3, 2005; 30 shot on June 1, 2005). When the user needs to delete these files on the digital camera so as to give storage space, the device of tracking file transfer provided by the present invention (disposed inside the digital camera) will remind the user of the following: <file name: 200500001.jpg; operation name: copy; operation date: 2005-05-02; operation path: D:\photo\2005; name of target storage device: CNH00876; IP address of target storage device: 174.34.33.12>. According to the "copy" operation information, the user can know transferring records of the file and perform next operation conveniently, e.g. deletion of the file. If some file has not been copied, the device of tracking file transfer provided by the present invention will remind the user of: <file name: 200500031.jpg, not copied, proposed to copy>.

As the present invention has been described with reference to the file currently thought to be the embodiment, it is to be understood that the present invention is not limited to the disclosed embodiments. Instead, it is intended that the present invention covers various modifications and equivalents falling under the concept and scope of the claims as appended. The scope of the claims as follows demands the broadest interpretation, thereby containing all such modifications and equivalent structures and functions.

CLAIMS:

1. A method of tracking file transfer, including the steps of:

monitoring transferring operation performed with respect to a file on a storage device; and

generating an operation information related to the transferring operation based on the result of said monitoring.

2. The method as claimed in claim 1, further including the step of: storing said operation information to said storage device.

3. The method as claimed in claim 2, wherein the storing step includes the step of: storing said operation information in a specific file on said storage device.

4. The method as claimed in claim 2, wherein the storing step includes the step of: storing said operation information together with said file in the form of Meta Data.

5. The method as claimed in claim 1, wherein said transferring operation is a copying operation.

6. The method as claimed in claim 1, wherein said transferring operation is a printing operation.

7. The method as claimed in claim 1, wherein said operation information includes at least one of the following items: operation name, operation time, operation path, name of target storage device, IP address of target storage device or identification indicating whether operation has been performed on the file.

8. A device of tracking file transfer, comprising:

monitoring means for monitoring transferring operation performed with respect to a file on a storage device; and

information generating means for generating an operation information related to the transferring operation based on the result of said monitoring.

9. The device as claimed in claim 8, wherein said operation information is stored in a specific file on said storage device.

10. The device as claimed in claim 8, wherein said operation information is stored together with said file in the form of Meta Data.

11. The device as claimed in claim 8, wherein said transferring operation is a copying operation.

12. The device as claimed in claim 8, wherein said transferring operation is a printing operation.

13. The device as claimed in claim 8, wherein said operation information includes at least one of the following items: operation name, operation time, operation path, name of target storage device, IP address of target storage device or identification indicating whether operation has been performed on the file.

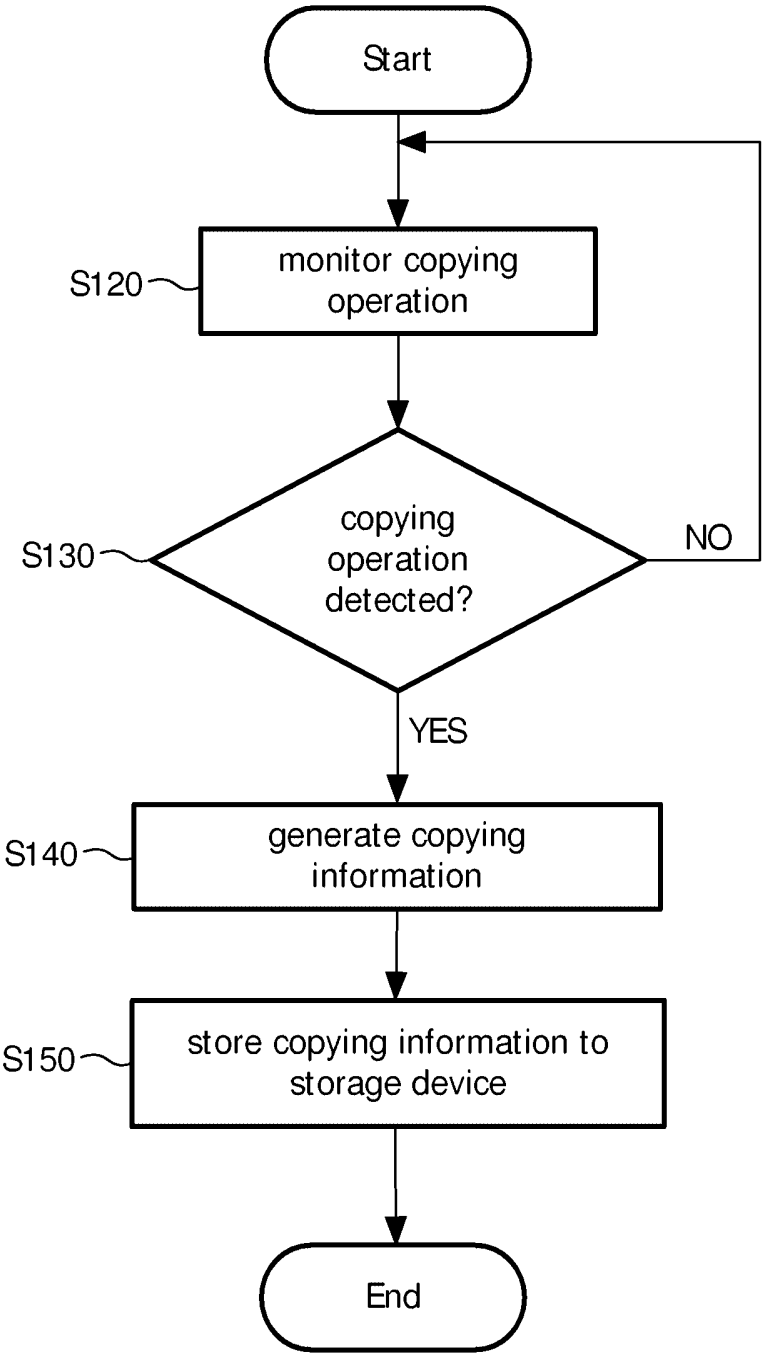
Start
S120
monitor copying operation
S130
copying operation detected?
NO
YES
S140
generate copying information
S150
store copying information to storage device
End

FIG. 1

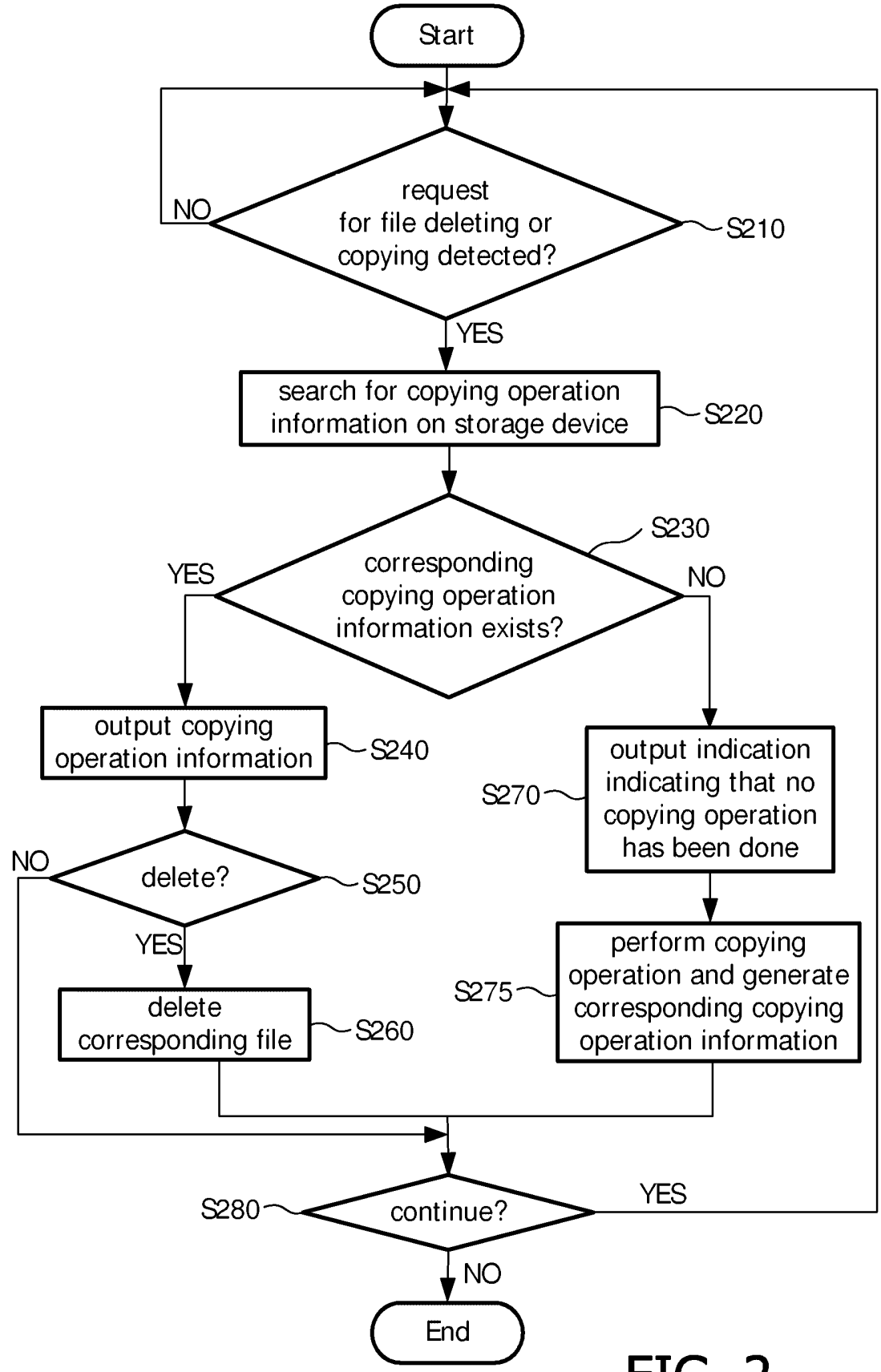
Start
request for file deleting or copying detected?
NO
S210
YES
search for copying operation information on storage device
S220
corresponding copying operation information exists?
S230
YES
NO
output copying operation information
S240
output indication indicating that no copying operation has been done
S270
delete?
NO
S250
YES
delete corresponding file
S260
perform copying operation and generate corresponding copying operation information
S275
continue?
S280
YES
NO
End

FIG. 2

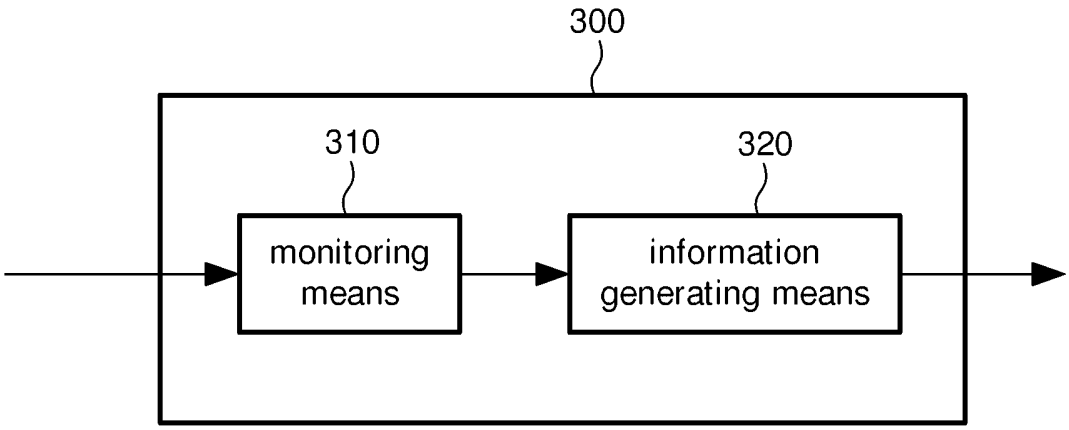
300
310
320
monitoring means
information generating means

FIG. 3

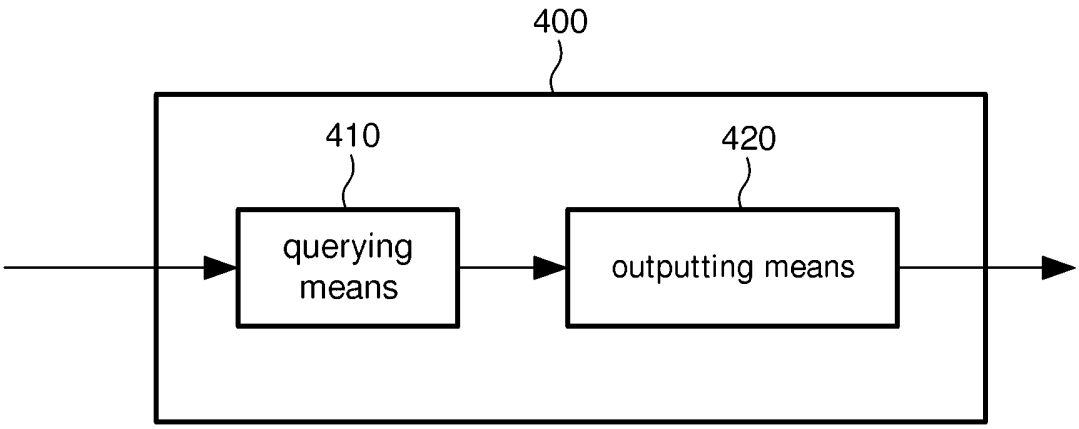
400
410
420
querying means
outputting means

FIG. 4