the parcel and inspects the content of the parcel in detail. The secondary inspection system 5 displays the result of the primary inspection in the primary inspection system 4 and the information acquired in the 0th-order process, and accepts an input of information indicative of the result of the detailed inspection of the unpacked parcel by the operator.

For example, in the secondary inspection system 5, when it is confirmed that a controlled item is included in the parcel, the operator inputs, by the operation terminal, the confirmation result that the article is a parcel that is to be rejected. In addition, when the operator confirmed, as the inspection result of the unpacked parcel, that the parcel does not include a controlled item and is a normal parcel, the operator inputs, by the operation terminal, the confirmation result that the inspection result for the parcel is normal.

Next, the configuration of the upper-level apparatus 2 will be described.

FIG. 2 is a block diagram illustrating a configuration example of the upper-level apparatus 2.

The upper-level apparatus 2 is an information management apparatus which manages the information of the entirety of the inspection system 1. The upper-level apparatus 2 is a computer that is communicably connected to the systems 3, 4 and 5. The upper-level apparatus 2 is composed of, for example, a server apparatus.

inspection system 4 and secondary inspection system 5 is registered in the second database 16.

The data amount that the second database 16 stores increases each time the inspection of parcels is performed. Thus, the data registered in the second database 16 may be deleted according to a preset specific rule, thereby to reduce the stored data amount and to improve the precision of a search function. For example, the data stored in the second database 16 may be periodically deleted in the order from the oldest data.

In addition, in the second database 16, information (data set) relating to a parcel (a finally rejected parcel), which was determined to be NG in the secondary inspection, may not be deleted. For example, a flag indicative of the prohibition of deletion is set for the information (data set) relating to the parcel (finally rejected parcel) which was determined to be NG in the secondary inspection, thereby to prevent the deletion of the information (data set). Besides, the information (data set) relating to the parcel (finally rejected parcel), which was determined to be NG in the secondary inspection, may be copied and stored in a storage area that is provided separately from the second database 16, thereby to prevent the deletion of the information (data set).

Next, a description will be given of a configuration of the 0th-order process system (information acquisition system) 3 according to the embodiment.

that sorts the parcel M according to the address, may be provided on the rear end portion of the first conveyor 51.

In addition, a gate 53a, which is driven by the distribution mechanism 53, is provided on the conveyance path of the parcel M by the first conveyor 51. The distribution mechanism 53 rotates the gate 53a and performs distribution (sorting) as to whether the parcel M that was conveyed by the first conveyor 51 is to be conveyed by the first conveyor 51 as such, or is to be conveyed by the second conveyor 52. When the parcel M is distributed to the second conveyor 52, the gate 53a is set in such a position as to guide the parcel M, which is conveyed by the first conveyor 51, to the second conveyor 52. In addition, when the parcel M is to be conveyed by the first conveyor 51 as such, the gate 53a is set in such a position as not to interfere with the parcel M conveyed by the first conveyor 51.

The second conveyor 52 conveys the parcel M in a second direction, the parcel M being distributed from the first conveyor 51 by the gate 53a. The parcel M, of which the inspection result was determined to be NG (the secondary inspection is necessary, or the parcel M is to be rejected), is sent to a rear end portion of the second conveyor 52. A mechanism for sending the parcel M to the secondary inspection system 5 or a reject accumulation unit may be provided on the rear end portion of the second conveyor 52. For example, a mechanism for sending the

parcel M to the secondary inspection system 5 may be provided on the rear end portion of the second conveyor 52 of the primary inspection system 4. In addition, a mechanism for sending the parcel M to the reject accumulation unit, which accumulates rejected parcels, may be provided on the rear end portion of the second conveyor 52 of the secondary inspection system 5.

The distribution mechanism 53 drives the gate 53a and distributes the parcel M that is conveyed by the first conveyor 51. The gate 53a is disposed on the first conveyor 51 on the downstream side of the position where the inspection work for the parcel M is conducted. For example, when the inspection result of the parcel M conveyed by the first conveyor 51 is OK, the distribution mechanism 53 drives the gate 53a such that the parcel M is conveyed by the first conveyor 51 as such. In addition, when the inspection result of the parcel M conveyed by the first conveyor 51 is NG (the secondary inspection is necessary, or the parcel M is to be rejected), the distribution mechanism 53 drives the gate 53a such that the parcel M is guided to the second conveyor 52.

Furthermore, the distribution mechanism 53 may be configured as a retention mechanism that retains the parcel M, which is conveyed by the first conveyor 51, by the gate 53a. For example, the distribution mechanism 53 moves the gate 53a to such a position as to hold back the parcel M that is conveyed by the first conveyor 51, thereby staying

secondary inspection site. The secondary inspection system 5 executes the secondary inspection process in which the operator unpacks the parcel that is the inspection target, and performs a detailed inspection (secondary inspection) (ST15). In the secondary inspection process, the operator unpacks the parcel and inspects the content of the parcel. For example, when it is confirmed that a controlled item is included in the parcel, the operator determines that the parcel is abnormal (NG). The operator inputs a result of the inspection (secondary inspection) through the touch panel 56. Here, when the operator determined that the parcel is abnormal, the operator may input through the touch panel 56 the reason for the determination that the parcel is abnormal (a controlled item, a dangerous article, abnormality in regard to the sender, abnormality in regard to the receiver, a taxable item, or the like).

The secondary inspection system determines whether the parcel of the inspection target is abnormal or normal, in accordance with the input to the touch panel 56 by the operator (ST16). When the input indicating that the parcel is abnormal (NG) is made to the touch panel 56 (ST16, YES), the secondary inspection system 5 determines that the destination of distribution of the parcel is the reject (ST17). On the other hand, when the input indicating that the parcel is normal is made to the touch panel 56 (ST16, NO), the secondary inspection system 5 determines that the destination of distribution of the parcel is the address

conveyor 22. The camera 24 supplies the image, which is captured by photographing the parcel M on the conveyor 22, to the information acquisition apparatus 20 as the external appearance image. Thereby, the information acquisition apparatus 20 acquires the external appearance image of the parcel M, which is supplied from the camera 24 via the communication interface 34 (ST22).

The X-ray photography apparatus 25 of the 0th-order process system 3 captures an X-ray image of the parcel M which is being conveyed by the conveyor 22. The X-ray photography apparatus 25 supplies the image, which is captured by radiating X-rays to the parcel M on the conveyor 22, to the information acquisition apparatus 20 as the X-ray image. Thereby, the information acquisition apparatus 20 acquires the X-ray image, which is supplied from the X-ray photography apparatus 25 via the communication interface 34 (ST23).

The form reader 26 of the 0th-order process system 3 reads the form information from the form M1 attached to the parcel M which is being conveyed by the conveyor 22. The form reader 26 recognizes the form information described on the form M1 by an OCR process using the dictionary of the dictionary DB 32a, and supplies the form information, which is acquired as the recognition result, to the information acquisition apparatus 20. Thereby, the information acquisition apparatus 20 acquires the form information described on the form M1 attached to the parcel, which is supplied from the form reader 26 via the communication

interface 34 (ST24).

The processor 31 of the information acquisition 20 confirms whether the parcel ID of the parcel, the various kinds of information of which were acquired, could be acquired (ST25). For example, the processor 31 confirms whether the parcel ID could be acquired, based on whether the tag information including the identification information that is the parcel ID could be read from the parcel M by the tag reader 23.

In addition, when the parcel ID could be acquired (ST25, YES), the processor 31 registers a data set, in which the various kinds of information (external appearance image, X-ray image, form information and the like) acquired from the parcel M are correlated with the parcel ID, as the information of the parcel in the second database 16 of the upper-level apparatus 2 (ST26).

Upon receiving the dataset including the parcel ID from the primary inspection system 4, the upper-level apparatus 2 registers in the second database 16 the various kinds of information that was acquired by being correlated with the parcel ID.

In addition, when the acquisition of the parcel ID failed (ST25, NO), the processor 31 issues provisional identification information (provisional ID) for the parcel, the various kinds of information of which were acquired (ST27). Upon issuing the provisional ID, the processor 31

inspection for the parcel (ST54). In the secondary inspection process, the operator unpacks the parcel and inspects the content of the parcel, and the operator inputs the confirmation result of the content of the unpacked parcel through the touch panel 56 as the inspection result of the secondary inspection. Here, the processor 61 accepts an input of the inspection result by the operator with use of the touch panel 56 (ST55).

If the inspection result is input through the touch panel 56, the processor 61 registers the input inspection result in the second data base 16 (ST56). According to the example illustrated in FIG. 13, in the second database 16, as the information relating to the secondary inspection, the secondary inspection result, secondary inspection content and inspection date/time are registered. In this case, the processor 61 of the inspection apparatus 50 correlates the secondary inspection result, secondary inspection content and inspection date/time with the parcel ID, and supplies them to the upper-level apparatus 2 as the information to be registered in the second database 16. Thereby, the upper-level apparatus 2 registers in the second database 16 the information relating to the secondary inspection from the inspection apparatus 50.

Besides, if the inspection result of the secondary inspection is input, the processor 61 determines the destination of distribution of the parcel, in accordance with the inspection result. If the parcel is determined to

be executed based on the item designated by the search key. For example, when the parcel ID is designated as the search key, the detailed display may be executed, and when a search key other than the parcel ID is designated, the table display may be executed. Furthermore, whether the detailed display or the table display is executed may be designated by the operator. Besides, if a plurality of parcels is searched, the table display may be executed, and if a single parcel is searched, the detailed display may be executed.

If the information of the searched parcel is displayed by the detailed display (ST80, NO), the processor 11 causes the search terminal 6 to display a detailed screen which displays the information of the searched parcel in detail (ST81). For example, the detailed screen is configured to display the information of the searched parcel on a parcel-by-parcel basis, and the search terminal 6 is caused to display the various kinds of information acquired from the parcel in the 0th-order process, the processing status of the parcel, and the information indicative of the present position of the parcel.

FIG. 17 is a view illustrating a display example of a detailed screen 100 which displays the information of a searched parcel in detail.

Like the confirmation screen 81 illustrated in FIG. 12, the detailed screen 100 illustrated in FIG. 17 displays the external appearance image 83, X-ray image 84, advance data 85, form information 86, and the like. In addition, the detailed

screen 100 displays a display field 101 of a search item, a display field 102 of a search key, and a display field 103 of the number of search results. The display field 101 of the search item displays a designated search item. For example, if the search item is not designated, the display field 101 of the search item may be blank, or may display "all". The display field 102 of the search key displays a keyword designated as the search key. For example, the search key displayed in the display field 102 is a parcel ID. However, the search key displayed in the display field 102 is not limited to the parcel ID, and may be, for example, information included in sender information or destination information.

Furthermore, the detailed screen 100 displays a display field 104 that displays the processing status of the parcel, and a display field 105 that displays the present position. The display field 104 displays the information indicative of the processing status of the parcel, which was determined in the above-described ST79. In addition, the display field 105 displays the information indicative of the present position of the parcel, which was determined in the above-described ST79.

In addition, when the information of the searched parcel is displayed by the table display (ST80, YES), the processor 11 causes the search terminal 6 to display a table screen that displays the information of each searched

In addition, in the example illustrated in FIG. 18, the table 114 displays, with respect to each searched parcel, a parcel ID, sender information, destination information, an external appearance image, an inspection stage, an inspection result, and a present position. The display of a part of the information, such as the sender information, destination information and external image, may be omitted in consideration of the display space. The inspection stage and the inspection result display the information corresponding to the processing status determined in ST79. Besides, the present position displays the information indicative of the present position of the parcel determined in ST79.

According to the above-described parcel search process, the operator can easily confirm, with respect to each parcel, in which inspection step in the inspection system the parcel is being processed, and where the parcel is located at present. In addition, by the search item and search key designated by the operator, the corresponding parcel can easily be searched, and the operator can easily recognize the present position and the processing status in regard to the parcel searched under various search conditions. As a result, when a specific parcel is searched from the inspection system, since the operator can easily understand the present position, the operator can easily find the actual parcel that is searched.

While certain embodiments of the present invention

Claims

1. An information management apparatus comprising:

a communication interface configured to communicate with an information acquisition apparatus configured to acquire information of a parcel, an inspection apparatus configured to inspect the parcel in each of stages, and a search terminal;

a memory configured to store, via the communication interface, information of the parcel acquired from the information acquisition apparatus, the information including at least any one of identification information for identifying the parcel, image data captured by photographing the parcel, destination information of the parcel, and sender information of the parcel, and an inspection result acquired from the inspection apparatus, the inspection result including information indicating whether the inspection result in each of the stages is normal, or indicating that an inspection is yet to be executed; and

a processor configured to extract, as a target parcel, a parcel with respect to which identification information designated from the inspection terminal, for searching information stored in the memory agrees with part of the information of the parcel stored in the memory, and configured to cause the search terminal to display a

present position of the target parcel, based on the inspection result for the target parcel,

wherein when a parcel of the identification information is absent in the memory, the search terminal is caused to display unique information of the parcel, the identification information of which is not registered in the memory.

2. The information management apparatus of Claim 1, wherein the processor is configured to determine the present position of the target parcel, based on a combination of whether the information of the parcel is stored in the memory, and whether the inspection result in each of the stages is normal.

3. The information management apparatus of Claim 1 or 2, wherein when one parcel is selected from the search terminal after the search terminal is caused to display the information of the parcel, the identification information of which is not registered in the memory, identification information of the parcel searched from the search terminal is registered in the unique information of the selected parcel.

4. An information management program executed by a processor of an information management apparatus used in an

inspection system configured to inspect a parcel, the information management program causing the processor to:

communicate, via a communication interface, with an information acquisition apparatus configured to acquire information of a parcel, an inspection apparatus configured to inspect the parcel in each of stages, and a search terminal;

cause a memory to store, via the communication interface, the information of the parcel acquired from the information acquisition apparatus, the information including at least any one of identification information for identifying the parcel, image data captured by photographing the parcel, destination information of the parcel, and sender information of the parcel, and an inspection result acquired from the inspection apparatus, the inspection result including information indicating whether the inspection result in each of the stages is normal, or indicating that an inspection is yet to be executed; and

extract, as a target parcel, a parcel with respect to which identification information designated from the inspection terminal, for searching information stored in the memory agrees with part of the information of the parcel stored in the memory, and cause the search terminal to display a present position of the target parcel, based on the inspection result for the target parcel,

wherein when a parcel of the identification information is absent in the memory, the search terminal is caused to display unique information of the parcel, the identification information of which is not registered in the memory.