DOCUMENT MANAGEMENT TERMINAL

TECHNICAL FIELD

The present disclosure relates generally to a technical field of document management terminal, and more particularly, to a document management terminal.

BACKGROUND

With the development of science and technology, self-service devices are widely used in daily life. Among them, document management terminal is one of the self-service devices for document management.

In the process of using the document management terminal, there may be a cases that a plurality of documents are acquired in batches by enterprise employees or individuals. As the common way of acquiring the documents is to transport the documents one by one from the document management terminal through a roller apparatus, which leads to a slow transport speed of documents and a long waiting time.

The above discussion is only used to assist in understanding the technical solution of this disclosure, and does not mean that the above content is recognized as a prior art.

SUMMARY

The object of the present disclosure is to provide a document management terminal, aiming at the technical problem of how to improve the management efficiency of document.

In a first aspect, a document management terminal, is provided, including:

a frame;

a check-out bin, which is arranged with a material groove and a plurality of feeding inlets, and the plurality of feeding inlets are connected with the material groove;

a storage bin, which is connected with the frame; and

a plurality of manipulators, which are arranged at the frame corresponding to the check-out bin and the storage bin.

In an embodiment of this disclosure, opposite sides of the check-out bin are arranged with the feeding inlet.

In an embodiment of this disclosure, the storage bin is arranged with a plurality of storage grooves, which penetrate through both opposite sides of the storage bin;

the storage bin is arranged adjacent to the check-out bin, and the feeding inlets at both sides of the check-out bin correspond to areas at both sides of the storage bin;

both sides of the storage bin correspond to at least one of the plurality of manipulators, respectively.

In an embodiment of this disclosure, the document management terminal further includes a plurality of check-out bins, at least one of which is connected with the frame, and the plurality of check-out bins are arranged longitudinally.

In an embodiment of this disclosure, opposite sides of the frame are arranged with the check-out bin.

In an embodiment of this disclosure, one side of the storage bin is corresponding to one check-out bin, and the other side of the storage bin is corresponding to another one check-out bin.

In an embodiment of this disclosure, one side of the frame is arranged with at least one check-out bin, and the other side of the frame is arranged with a plurality of check-out bins which are arranged longitudinally.

In an embodiment of this disclosure, both sides of the frame are arranged with a plurality of check-out bins which are arranged longitudinally.

In an embodiment of this disclosure, the check-out bin is further arranged with a plurality of installation grooves, each of which is connected with the material groove, one installation groove is adjacent to one feeding inlet, and the installation groove is used for installing a sensor switch.

In an embodiment of this disclosure, the installation groove is located at a lower edge of a corresponding feeding inlet.

In an embodiment of this disclosure, the manipulator includes:

a first linear module which is arranged at the frame along an extension direction of the storage bin;

a second linear module, which is arranged at the first linear module; and

a mechanical claw which is connected with the second linear module.

In an embodiment of this disclosure, the mechanical claw includes:

a first installation frame, which is connected with the second linear module;

a second installation frame, which is slidably connected with the first installation frame;

a first drive module, which is arranged at one of the second installation frame and the first installation frame, and an output shaft of the first drive module is connected with the other one of the second installation frame and the first installation frame;

a connection frame, which is connected with the second installation frame;

a clamping claw, which is arranged at the connection frame; and

an imaging mechanism, which is arranged at the connection frame and adjacent to the clamping claw.

In an embodiment of this disclosure, the connection frame is rotationally connected with the second installation frame, the third drive module is arranged at the second installation frame, and the third drive module is in drive connection with the connection frame.

In an embodiment of this disclosure, the mechanical claw further includes:

a first guide frame, which is arranged at the connection frame and arranged with a first guide groove, and the first guide groove is arranged corresponding to the clamping claw;

a second drive module, which is arranged at the first guide frame; and

a second guide frame, which is arranged with a second guide groove and connected with the first drive module, wherein a groove height of the second guide groove is smaller a groove height of the first guide groove;

wherein, the second drive module drives the second guide frame towards the first guide groove to enable the second guide groove to partially coincide with the first guide groove; or

the second drive module drives the second guide frame away from the first guide groove to enable the second guide groove to be in parallel with the first guide groove.

In an embodiment of this disclosure, at least one end of the first guide frame corresponding to the first guide groove is arranged with a first bevel.

In an embodiment of this disclosure, at least one end of the second guide frame corresponding to the second guide groove is arranged with a second bevel.

In an embodiment of this disclosure, the first guide frame is further arranged with a third guide groove, which is connected with the first guide groove, wherein at least part of the second guide frame is located inside the third guide groove.

In an embodiment of this disclosure, the frame is arranged with a plurality of feeding positions, which are adjacent to the storage bin;

the document management terminal further includes a plurality of clamping mechanisms, which are arranged at the frame, and one clamping mechanism is arranged corresponding to one feeding position.

In an embodiment of this disclosure, the document management terminal further includes a control panel, which is located at either side of the frame.

The technical solution of this disclosure arranges the check-out bin, storage bin and the plurality of manipulators at the frame to realize the output of documents in batches and facilitate the management of documents. Among them, the check-out bin stores the documents to be checked-out, and the storage bin stores the documents. The check-out bin is arranged with the plurality of feeding inlets, so that the documents can be sent to the material groove of the check-out bin from the plurality of feeding inlets. Further, the plurality of manipulators are arranged at the frame, so that the documents of the storage bin can be clamped and transported to the check-out bin by the plurality of manipulators to improve the efficiency of document output. This document management terminal of this disclosure improves the efficiency of document management.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to more clearly illustrate the technical solution in the embodiment of the present disclosure, the drawings used in the embodiments or prior arts will be briefly introduced. It is obvious that the drawings in the following description are only some embodiments of the present disclosure. For ordinary technicians in the present art, they can also obtain other drawings without paying creative labor according to these drawings.

Fig. 1 is a structural diagram of a document management terminal according to a first embodiment of this disclosure.

Fig. 2 is a partial schematic diagram of A in Fig.1.

Fig. 3 is a sectional diagram of the document management terminal in Fig.1.

Fig.4 is a structure diagram of the document management terminal in Fig.1.

Fig.5 is a structural diagram of a check-out bin according to an embodiment of this disclosure.

Fig.6 is a structural diagram of a mechanical claw according to an embodiment of this disclosure.

Fig. 7 is a partial schematic diagram of B in Fig.6.

Fig.8 is a diagram of assembly structure of the mechanical claw in Fig.6.

The reference number for each component in the drawings are as follows.

Reference number	Name	Reference number	Name
1	Frame	4321	Third drive module
11	Feeding posistion	432	Second installation frame
2	Check-out bin	433	First drive module
21	Material groove	434	Connection frame
22	Feeding inlet	435	Clamping claw
23	Installation groove	436	Imaging mechanism
24	Sensing switch	437	First guide frame
25	Material outlet	4371	First guide groove
3	Storage bin	4372	Third guide groove
31	Storage groove	438	Second drive module
4	Manipulator	439	Second guide frame
41	First linear module	4391	Second guide groove
42	Second linear module	5	Control panel
43	Mechanical claw	6	Clamping mechanism

431	First installation frame		

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In order to make the object, technical scheme and advantages of the present disclosure clearer, the present disclosure will be further described in detail in combination with the drawings and the embodiments. It should be understood that the specific embodiments described herein are only used to explain the present disclosure and are not used to limit the present disclosure.

It should be noted that when an element/component is mentioned as being "fixed" or "arranged" on another element/component, it can be directly on another element/component or it may be indirectly fixed or arranged at another element/component through a third element/component. When an element/component is mentioned as being "connected" with another element/component, it may be directly connected with another element/component or it may be indirectly connected to another element/component through a third component.

It should be noted that the technical terms, such as “length”, “width”, “upper”, “lower”, “front”, “back”, “left”, “right”, “vertical”, “horizontal”, “top”, “bottom”, “inner”, “outer”, indicating the orientation or position relationship are based on the orientation or position relationship shown in the attached drawings. They are just for the description convenience and simplifying, rather than indicating or implying that the device or element referred to must have the specific orientation, or be constructed and operated in the specific orientation, and cannot be understood as the limitation of the present disclosure.

In addition, the terms "first" and "second" are used for descriptive purposes only and cannot be understood as indicating or implying the relative importance or

implicitly indicating the number of technical features. Thus, the features defined with "first" and "second" can explicitly or implicitly include one or more of these features. In the description of the present disclosure, “several” or “a plurality of” means two or more, unless otherwise is specifically defined. In addition, the meaning of "and/or" in this disclosure includes three parallel schemes. Take "A and/or B as an example", which includes scheme A, or scheme B, or a scheme that both A and B satisfy. In addition, the technical solutions of various embodiments can be combined with each other, however, such combination should substrate on the realization of common technical personnel in the art. When the combination of technical solutions is contradictory or impossible to achieve, it should be considered that the combination of such technical solutions does not exist and never falls into the scope of protection required by this disclosure.

This disclosure provides a document management terminal for document deposit or withdraw. Among them, documents include book-type documents and card-type documents. Refer to Fig.1, which is a structural diagram of a document management terminal according to a first embodiment of this disclosure. Refer to Fig.2, which is a partial schematic diagram of A in Fig.1. Refer to Fig.3, which is a sectional diagram of the document management terminal in Fig.1. Refer to Fig.4, which is a structure diagram of the document management terminal in Fig.1. Refer to Fig.5, which is a structural diagram of a check-out bin according to an embodiment of this disclosure. Refer to Fig.6, which is a structural diagram of a mechanical claw according to an embodiment of this disclosure. Refer to Fig.7, which is a partial schematic diagram of B in Fig.6. Refer to Fig.8, which is a diagram of assembly structure of the mechanical claw in Fig.6.

As shown in Fig.1, a decorative plate can be assembled at a frame 1 and enclose rear and upper parts of the frame 1, so that middle area of the frame 1 is

fall into a relatively closed space, reducing the entry of external objects into the frame 1.

In the embodiment of this disclosure, referring to Fig.1 and in combination with Fig. 3 and Fig.4, the document management terminal includes a frame 1, a check-out bin 2, a storage bin 3 and the plurality of manipulators 4. The check-out bin 2 is arranged with a material groove 21 and a plurality of feeding inlets 22, and the plurality of feeding inlets 22 are connected with the material groove 21. The storage bin 3 is connected to the frame 1. The plurality of manipulators 4 are arranged at the frame 1 corresponding to the check-out bin 2 and the storage bin 3.

In this implementation example, the check-out bin 2, the storage bin 3, and the plurality of manipulators 4 are arranged at the frame 1 to realize the output of documents in batches and facilitate the management of documents. Among them, the check-out bin 2 stores the documents to be checked-out, and the storage bin 3 stores the documents. The check-out bin 2 is arranged with the plurality of feeding inlets 22, so that the documents can be sent to the material groove 21 of the check-out bin 2 from the plurality of feeding inlets 22. Further, the plurality of manipulators 4 are arranged inside the frame 1, so as to facilitate the plurality of manipulators 4 to clamp and transport the documents of the storage bin 3 to the check-out bin 2 by the plurality of manipulators, thus improving the efficiency of document output. The document management terminal of this disclosure improves the efficiency of document management.

In an optional embodiment of this disclosure, the check-out bin 2 and the storage bin 3 can be arranged intervals. That is to say, the check-out bin 2 and the storage bin 3 can be arranged side by side. That is, the orientation of the feeding inlet 22 is the same as or opposite to the orientation of the storage groove 31 of the storage bin 3. Alternatively, the check-out bin 2 and the storage bin 3 can arranged

in parallel to each other, that is, the orientation of the feeding inlet 22 is opposite to the orientation of the storage groove 31 of the storage bin 3.

In an optional embodiment of this disclosure, the check-out bin 2 and the storage bin 3 can be arranged adjacent to each other. That is to say, the check-out bin 2 and the storage bin 3 are adjacent to each other, but not directly connected.

In an optional embodiment of this disclosure, the check-out bin 2 and the storage bin 3 can be installed in combination. In other words, the check-out bin 2 and the storage bin 3 are connected.

In an optional embodiment of this disclosure, the plurality of manipulators 4 are oppositely arranged along peripheral side of the check-out bin 2, that is, the plurality of manipulators 4 can respectively clamp and transport the documents inside the storage bin 3 to the check-out bin 2.

In an embodiment of this disclosure, opposite sides of the check-out bin 2 are arranged with the feeding inlet 22.

In this embodiment, the opposite sides of the check-out bin 2 are arranged with the feeding inlet 22, so that the manipulator 4 can put the document into the material groove 21 from the feeding inlet 22 at both sides of the check-out bin 2.

In an optional embodiment of this disclosure, the opposite sides of the check-out bin 2 are arranged with a plurality of feeding inlets 22. Wherein, the plurality of feeding inlets 22 can be arranged in an array. Alternatively, the plurality of feeding inlets 22 can be arranged along the longitudinal direction side by side.

In an optional embodiment of this disclosure, both adjacent sides of the check-out bin 2 are arranged with the plurality of feeding inlets 22.

In an embodiment of this disclosure, as shown in Fig. 2, Fig. 3 and Fig. 4, the storage bin 3 is arranged with a plurality of storage grooves 31, which penetrate through opposite sides of the storage bin 3. That is to say, the storage groove 31 is

arranged as a through groove, which penetrates through front side and back side of the storage bin 3. The manipulator 4 can enter the storage groove 31 from the front side or the back side of the storage bin 3, and can also take the document out of the storage groove 31 from the front side or the back side of the storage bin 3.

The storage bin 3 and the check-out bin 2 are arranged adjacent to each other, and the feeding inlets 22 at both sides of the check-out bin 2 correspond to areas at both sides of the storage bin 3, respectively. It can be understood that, the front side and back side of the check-out bin 2 are arranged with the feeding inlet 22, and the check-out bin 2 is adjacent to the storage bin 3, so that the feeding inlet 22 at the front side of the check-out bin 2 is in the same direction as a notch of the storage groove 31 at the front side of the storage bin 3, and the feeding inlet 22 at the back side of the check-out bin 2 is in the same direction as a notch of the storage groove 31 at the back side of the storage bin 3.

Both sides of the storage bin 3 correspond to at least one manipulator 4, that is, one side of the storage bin 3 corresponds to at least one manipulator 4, and the other side of the storage bin 3 also corresponds to at least one manipulator 4. Both the manipulator 4 at the front side of the storage bin 3 and the manipulator 4 at the back side of the storage bin 3 can clamp the document inside the storage bin. Optionally, both the manipulator 4 at the front side of the storage bin 3 and the manipulator 4 at the back side of storage bin 3 can store the document in the storage bin 3.

In this embodiment, both sides of the storage bin 3 correspond to at least one manipulator 4, respectively. In this way, the efficiency of document storage is effectively improved. At the same time, the storage bin 3 and the check-out bin 2 are arranged adjacent to each other and the feeding inlets 22 at both sides of the check-out bin 2 correspond to the areas at both sides of the storage bin 3, so that after taking out the document from the storage bin 3, the document can be directly

moved to the feeding inlet 22 of the adjacent check-out bin 2, and placed into the material groove 21 through the feeding inlet 22, thus improving the response speed of the manipulator 4 for taking out the document.

In an optional embodiment of this disclosure, one side of the storage bin 3 corresponds to one manipulator 4, and the other side of the storage bin 3 corresponds to the plurality of manipulators 4. Among them, the plurality of manipulators 4 can be arranged in array or in parallel.

In an optional embodiment of this disclosure, one side of the storage bin 3 corresponds to a plurality of manipulators 4, and the other side of the storage bin 3 corresponds to another plurality of manipulators 4.

In an optional embodiment of this disclosure, the plurality of check-out bins 2 are arranged in an array.

In an embodiment of this disclosure, in combination with Fig.1, Fig. 3 and Fig.5, the document management terminal further includes the plurality of check-out bins 2, in which at least one check-out bin 2 is connected to the frame 1, and the plurality of check-out bins 2 are arranged longitudinally.

In this embodiment, the plurality of check-out bins 2 are arranged at the frame to facilitate the output of documents. The outputted documents can be classified according to address, age and gender in document information to facilitate the management of documents.

In an embodiment of this disclosure, as shown in Fig.1, at least one check-out bin 2 is arranged at the opposite sides of the frame 1, respectively, and the check-out bins 2 at both sides are oppositely arranged, and the check-out bins 2 at both sides are opposite or adjacent to the storage bin 3 respectively.

Both ends of storage bin 3 correspond to at least one check-out bin 2, respectively. In other words, an internal space of the frame 1 is divided into two

spaces by the storage bin 3 and the check-out bin 2 located at both ends of the storage bin 3. Both space is arranged with corresponding manipulator 4.

In an optional embodiment of this disclosure, as shown in Fig.1, the document management terminal further includes a control panel 5, which is located at either side of the frame 1.

Understandably, the control panel 5 includes electronic devices such as a display, keyboard, mouse, etc.

In an optional embodiment of this disclosure, the document management terminal further includes two control panels 5, which are respectively arranged at the two opposite sides of the frame 1.

In an embodiment of this disclosure, as shown in Fig.2, the check-out bin 2 is further arranged with a plurality of installation grooves 23, each of which is connected with the material groove 21, and one installation groove 23 is adjacent to a feeding inlet 22, and the installation groove 23 is configured to install the sensor switch 24.

In this embodiment, a material groove 21 and a plurality of installation grooves 23 are arranged at the check-out bin 2, one installation groove 23 is arranged adjacent to one feeding inlet 22, and the installation groove 23 is configured to install the sensor switch 24, so as to confirm whether the corresponding feeding inlet 22 has a document, so as to determine the state of the document stored in the check-out groove, and improve the efficiency of the document management terminal to store the document.

It can be understood that the sensor switch 24 can be arranged as any form or type of sensor.

In an embodiment of this disclosure, as shown in Fig.2, the check-out bin 2 is further arranged with a material outlet 25 which is connected with the material

groove 21. The material outlet 25 is for the user to reach the material groove 21 and take out the document.

In an embodiment of this disclosure, as shown in Fig.2, the feeding inlet 25 and the feeding inlet 22 are spaced at different sides of the check-out bin 2.

In an embodiment of this disclosure, as shown in Fig.2, each feeding inlet 22 corresponding to the check-out bin 2 is arranged with a guide bevel, which is inclined from the feeding inlet 22 to the peripheral side of the check-out bin 2, so that the feeding inlet 22 becomes wider.

In an embodiment of this disclosure, as shown in Fig. 1, 4, 6 and 8, the manipulator 4 includes a first linear module 41, a second linear module 42 and a mechanical claw 43. The first linear module 41 is arranged inside the frame 1, and the first linear module 41 is arranged along the extension direction of the storage bin 3. The second linear module 42 is arranged at the first linear module 41. The mechanical claw 43 is connected with the second linear module 42.

In this embodiment, the first linear module 41 is arranged along the extension direction of the storage bin 3, so that the first linear module 41 can drive the second linear module 42 and the mechanical claw 43 to move along the extension direction of the storage bin 3 to clamp the document of the storage bin 3.

Optionally, when one side of the storage bin 3 corresponds to the plurality of manipulators 4, the first linear modules 41 of the two adjacent manipulators 4 are arranged side by side. Alternatively, the first linear modules 41 of the two adjacent manipulators 4 are arranged linearly.

Optionally, the first linear module 41 is arranged as a linear drive module.

Optionally, the second linear module 42 is arranged as a linear drive module.

In an embodiment of this disclosure, in combination with Fig.6 and Fig.8, the mechanical claw 43 includes a first installation frame 431, a second installation frame 432, a first drive module 433, a connection frame 434, a clamping claw 435,

and an imaging mechanism 436. The first installation frame 431 is connected with the second linear module 42. The second installation frame 432 is slidably connected with the first installation frame 431. The first drive module 433 is arranged at one of the second installation frame 432 and the first installation frame 431, and the output shaft of the first drive module 433 is connected with the other one of the second installation frame 432 and the first installation frame 431. The connection frame 434 is connected with the second installation frame 432. The clamping claw 435 is arranged at the connection frame 434. The imaging mechanism 436 is arranged at the connection frame 434 and adjacent to the clamping claw 435.

In this embodiment, the first drive module 433 is installed at one of the second installation frame 432 and the first installation frame 431, while the output shaft of the first drive module 433 is connected with the other one of the second installation frame 432 and the first installation frame 431, so that the first drive module 433 drives both of the second installation frame 432 and the first installation frame 431 toward or away from each other. On the other hand, the imaging mechanism 436 is connected to the first drive module 433 through the connection frame 434. The first drive module 433 can drive the connection frame 434 to move so as to drive the clamping claw 435 and the storage groove 31 corresponding to the imaging mechanism 436 to store the document. Further, the imaging mechanism 436 and the clamping claw 435 are arranged adjacent to each other for acquiring the position of the storage groove 31 through the imaging mechanism 436, so as to coordinate with the first drive module 433 to adjust the relative position between the connection frame 434 and the storage groove 31, and then to adjust the relative position between the clamping claw 435 and the storage groove 31, thus improving the stability of the document deposit or withdraw. The

manipulator of this disclosure effectively improves the stability of the manipulator in transporting documents.

Optionally, the first drive module 433 is arranged as any one of motor, electric cylinder or gas cylinder.

Optionally, the second installation frame 432 is arranged with a rack. The first drive module 433 is arranged at the first installation frame 431, and the first drive module 433 is engaged and connected with the frame through the gear.

In an embodiment of this disclosure, the connection frame 434 is rotatably connected with the second installation frame 432, the third drive module 4321 is arranged at the second installation frame 432, and the third drive module 4321 is connected with the connection frame 434 to drive the connection frame 434 to rotate, so that the structure on the connection frame 434 can be folded or expanded relative to the second drive module 438, and furthermore, the working range of the manipulator 4 can also be increased.

Optionally, the third drive module 4321 can be arranged as any one of motor, electric cylinder or gas cylinder.

In an embodiment of this disclosure, in combination with Fig.6 and Fig.7, the mechanical claw 43 further includes a first guide frame 437, a second drive module 438 and a second guide frame 439. The first guide frame 437 is arranged at the connection frame 434 and is arranged with a first guide groove 4371 which is arranged corresponding to the clamping claw 435. The second drive module 438 is arranged at the first guide frame 437. The second guide frame 439 is arranged with a second guide groove 4391 and is connected with the first drive module 433. The groove height of the second guide groove 4391 is smaller than the groove height of the first guide groove 4371. The second drive module 438 drives the second guide frame 439 towards the first guide groove 4371, so that the second guide groove 4391 partially coincides with the first guide groove 4371. Alternatively , the second

drive module 438 drives the second guide frame 439 away from the first guide groove 4371, so that the second guide groove 4391 and the first guide groove 4371 are arranged in parallel.

That is to say, the first guide frame 437 is arranged with the first guide groove 4371, and the second guide frame 439 that can move relative to the first guide groove 4371 is also provided. The second guide frame 439 is arranged with the second guide groove 4391. In this way, the book-type document and the card-type document can be guided respectively, which further improves the stability of the manipulator for the document deposit or withdraw.

In this embodiment, the second drive module 438 is arranged at the first guide frame 437, the second drive module 438 is connected with the second guide frame 439, and the second drive module 438 drives the second guide frame 439 towards or away from the first guide frame 437, so that the manipulator 4 has a card-type document transporting state that the second guide frame 439 is adjacent to the first guide frame 437, and a book-type document transporting state in which the second guide frame 439 is away from the first guide frame 437. That is, in the card-type document transporting state, the second guide groove 4391 and the first guide groove 4371 partially coincide with each other and the first guide groove 4371 is partially blocked by the second guide frame 439, so that the card-type document can pass through the second guide groove 4391 with a smaller groove height. In the book-type transporting state, the second guide groove 4391 is away from the first guide groove 4371, so that the first guide groove 4371 is not blocked, so that book-type document can pass through the first guide groove 4371 with a higher groove height to improve the stability of the document guide. In this way, one manipulator 4 is adopted to realize the guide of book-type and card-type documents, thus avoiding taking two mechanisms for transport the book-type

document and card-type document respectively, reducing occupied space and realizing the miniaturization of the whole device.

Optionally, the second drive module 438 is arranged as any one of motor, electric cylinder or gas cylinder.

In an embodiment of this disclosure, as shown in Figs. 6 and 7, the first guide frame 437 is arranged with a first bevel at least at one end which corresponding to the first guide groove 4371, so that a notch at least at one end of the first guide groove 4371 becomes wider.

In an embodiment of this disclosure, as shown in Fig. 6 and Fig. 7, the second guide frame 439 is arranged with a second bevel at least at one end which corresponding to the second guide groove 4391, so that a notch at least at one end of the second guide groove 4391 becomes wider.

In an embodiment of this disclosure, as shown in Fig.6 and 7, the first guide frame 437 is further arranged with a third guide groove 4372, which is connected with the first guide groove 4371. At least part of the second guide frame 439 is located inside the third guide groove 4372. That is to say, the third guide groove 4372 is used for guiding the movement of the second guide frame 439 to facilitate the smooth movement of the second guide frame 439 along the third guide groove 4372.

In an embodiment of this disclosure, as shown in Fig.1 and Fig. 3, the frame 1 is arranged with a plurality of feeding positions 11, which are adjacent to the storage bin 3;

The document management terminal further includes a plurality of clamping mechanisms 6, which are arranged inside the frame 1, and one clamping mechanism 6 is arranged corresponding to one feeding position 11.

It can be understood that the feeding position 11 is arranged as an opening which connects the internal space of the frame 1. The feeding position 11 is located

at a lower part of the frame 1. After the frame 1 is arranged at the installation site, the frame 1 has a certain space between the frame 1 and a plane below the frame 1. This space can be used for a transport robot to move, so that when the transport robot stops at the feeding position 11, and the manipulator 4 clamps the document at the transport robot and transport it to the storage bin 3, which improves the efficiency of storing documents to the storage bin 3.

In an optional embodiment of this disclosure, the clamping mechanism 6 can be arranged as a combined installation structure of an electric cylinder and a clamping arm. The electric cylinder is arranged inside the frame 1, the clamping arm is connected with the electric cylinder, and one side of the clamping arm which is away from the electric cylinder is arranged with a positioning groove, which can be a groove to facilitate the positioning and coordination between the groove and the transport robot.

In an optional embodiment of this disclosure, the plurality of feeding positions 11 are arranged around the storage bin 3, so that the feeding positions 11 located around the storage bin 3 can be corresponding to the manipulator 4, thus improving the efficiency of document storage.

In an optional embodiment of this disclosure, the front side and back side of the storage bin 3 are correspondingly arranged with the feeding position 11.

The above is only an optional embodiment of this disclosure, and does not limit the protection scope of this disclosure. Under the creative concept of this disclosure, the equivalent structure transformation made by using the description and attached drawings of this disclosure, or the direct/indirect application in other relevant technical fields, are included in the protection scope of this disclosure.

CLAIMS

1. A document management terminal, comprising:

a frame;

a check-out bin, which is arranged with a material groove and a plurality of feeding inlets, and the plurality of feeding inlets are connected with the material groove;

a storage bin, which is connected with the frame; and

a plurality of manipulators, which are arranged at the frame corresponding to the check-out bin and the storage bin.

2. The document management terminal according to claim 1, wherein opposite sides of the check-out bin are arranged with the feeding inlet.

3. The document management terminal according to claim 2, wherein the storage bin is arranged with a plurality of storage grooves, which penetrate through both opposite sides of the storage bin;

the storage bin is arranged adjacent to the check-out bin, and the feeding inlets at both sides of the check-out bin correspond to areas at both sides of the storage bin;

both sides of the storage bin correspond to at least one of the plurality of manipulators, respectively.

4. The document management terminal according to claim 1, wherein the document management terminal further comprises a plurality of check-out bins, at least one of which is connected with the frame, and the plurality of check-out bins are arranged longitudinally.

5. The document management terminal according to claim 1, wherein opposite sides of the frame are arranged with the check-out bin.

6. The document management terminal according to claim 5, wherein one side of the storage bin is corresponding to one check-out bin, and the other side of the storage bin is corresponding to another one check-out bin.

7. The document management terminal according to claim 5, wherein one side of the frame is arranged with at least one check-out bin, and the other side of the frame is arranged with a plurality of check-out bins which are arranged longitudinally.

8. The document management terminal according to claim 5, wherein both sides of the frame are arranged with a plurality of check-out bins which are arranged longitudinally.

9. The document management terminal according to claim 1, wherein the check-out bin is further arranged with a plurality of installation grooves, each of which is connected with the material groove, one installation groove is adjacent to one feeding inlet, and the installation groove is used for installing a sensor switch.

10. The document management terminal according to claim 9, wherein the installation groove is located at a lower edge of a corresponding feeding inlet.

11. The document management terminal according to any one of claims 1-10, wherein the manipulator comprises:

a first linear module which is arranged at the frame along an extension direction of the storage bin;

a second linear module, which is arranged at the first linear module; and

a mechanical claw which is connected with the second linear module.

12. The document management terminal according to claim 11, wherein the mechanical claw comprises:

a first installation frame, which is connected with the second linear module;

a second installation frame, which is slidably connected with the first installation frame;

a first drive module, which is arranged at one of the second installation frame and the first installation frame, and an output shaft of the first drive module is connected with the other one of the second installation frame and the first installation frame;

a connection frame, which is connected with the second installation frame;

a clamping claw, which is arranged at the connection frame; and

an imaging mechanism, which is arranged at the connection frame and adjacent to the clamping claw.

13. The document management terminal according to claim 12, wherein the connection frame is rotationally connected with the second installation frame, the third drive module is arranged at the second installation frame, and the third drive module is in drive connection with the connection frame.

14. The document management terminal according to claim 12, wherein the mechanical claw further comprises:

a first guide frame, which is arranged at the connection frame and arranged with a first guide groove, and the first guide groove is arranged corresponding to the clamping claw;

a second drive module, which is arranged at the first guide frame; and

a second guide frame, which is arranged with a second guide groove and connected with the first drive module, wherein a groove height of the second guide groove is smaller a groove height of the first guide groove;

wherein, the second drive module drives the second guide frame towards the first guide groove to enable the second guide groove to partially coincide with the first guide groove; or

the second drive module drives the second guide frame away from the first guide groove to enable the second guide groove to be in parallel with the first guide groove.

15. The document management terminal according to claim 14, wherein at least one end of the first guide frame corresponding to the first guide groove is arranged with a first bevel.

16. The document management terminal according to claim 14, wherein at least one end of the second guide frame corresponding to the second guide groove is arranged with a second bevel.

17. The document management terminal according to claim 14, wherein the first guide frame is further arranged with a third guide groove, which is connected with the first guide groove, wherein at least part of the second guide frame is located inside the third guide groove.

18. The document management terminal according to any one of claims 1-10, wherein the frame is arranged with a plurality of feeding positions, which are adjacent to the storage bin;

the document management terminal further comprises a plurality of clamping mechanisms, which are arranged at the frame, and one clamping mechanism is arranged corresponding to one feeding position.

19. The document management terminal according to any one of claims 1-10, wherein the document management terminal further comprises a control panel, which is located at either side of the frame.