GUIDE MECHANISM, MANIPULATOR AND DOCUMENT MANAGEMENT TERMINAL

TECHNICAL FIELD

The present disclosure relates generally to a technical field of document management terminal, and more particularly, to a guide mechanism, a manipulator and 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. The operator saves the document in batches to the document management terminal for the user to take out the corresponding document, which includes a book-type document and a card-type document.

In practical applications, due to different thickness of the book-type document and the card-type document, different transport mechanisms should be employed to transport the book-type document and the card-type document, respectively. Two different transport mechanisms occupy a large internal space of the document management terminal, resulting in the large volume of the document management terminal.

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 guide mechanism, a manipulator and a document management terminal, aiming at the technical problem of how to realize the miniaturization design.

In a first aspect, a guide mechanism is provided, including:

a first guide frame, which is arranged with a first guide groove;

a first 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 than a groove height of the first guide groove;

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

the first 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 which corresponds to the first guide groove is arranged with a first guide bevel, so that a notch of at least one end of the first guide groove becomes wider.

In an embodiment of this disclosure, at least one end of the second guide frame which corresponds to the second guide groove is arranged with a second guide bevel, so that a notch of at least one end of the second guide groove becomes wider.

In an embodiment of this disclosure, the first guide frame and the second first guide frame are moveably connected.

In an embodiment of this disclosure, the first guide frame is arranged in a plate shape or in a frame shape.

In an embodiment of this disclosure, the third guide groove is located at a middle part of the first guide groove.

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;

at least part of the second guide frame is located inside the third guide groove.

In an embodiment of this disclosure, the first guide frame is arranged with a first avoidance hole, which is connected with the first guide groove;

the second guide frame is arranged with a second avoidance hole, wherein the second avoidance hole is connected with the second guide groove, and the second avoidance hole is arranged corresponding to the first avoidance hole;

wherein the guide mechanism further includes an identifier which is arranged at the first guide frame, and a sensing end of the identifier is arranged corresponding to the first avoidance hole and the second avoidance hole.

In an embodiment of this disclosure, the guide mechanism further includes a card reader which is arranged at the first guide frame, wherein the card reader is arranged corresponding to the first avoidance hole and the second avoidance hole.

In an embodiment of this disclosure, the card reader is opposite to the identifier.

In an embodiment of this disclosure, the second guide frame includes:

a first plate, which is connected with the first drive module; and

two second plates, which are arranged at one side of the first plate oppositely to form the second avoidance hole, each second plate is arranged with the second guide groove, and the two second guide grooves are correspondingly arranged.

In an embodiment of this disclosure, the guide mechanism further includes at least one guide rod, which is arranged at the first guide frame;

the second guide frame is arranged with a slide hole, and the guide rod penetrates into and is slidably arranged inside the slide hole to enable the second guide frame to slide along an extension direction of the guide rod.

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;

at least part of the second guide frame is located inside the third guide groove.

In an embodiment of this disclosure, the extension direction of the guide rod is perpendicular to an extension direction of the first guide groove.

In a second embodiment, a guide mechanism is provided, including:

a first guide frame, which is arranged with a first guide groove;

a first 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 than a groove height of the first guide groove;

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

at least one end of the first guide frame which corresponds to the first guide groove is arranged with a first guide bevel, so that a notch of at least one end of the first guide groove becomes wider; and

at least one end of the second guide frame which corresponds to the second guide groove is arranged with a second guide bevel, so that a notch of at least one end of the second guide groove becomes wider.

In a third aspect, a manipulator is provided, including a second drive module, a third drive module, fourth drive module, a first connection frame, a second

connection frame, a third connection frame, a mechanical claw and the guide mechanism discussed above; wherein the third connection frame is arranged at the second drive module and slidably connected with the first connection frame, the fourth drive module is arranged at the third connection frame and engages with the first connection frame through a rack and a gear; wherein the first connection frame and the second connection frame are rotationally connected, the third drive module is arranged at the first connection frame and/or the second connection frame, and is configure to drive the second connection frame to rotate relative to the first connection frame, the first guide frame of the guide mechanism and the mechanical claw are arranged at the second connection frame, and the mechanical claw is arranged corresponding to the first guide groove of the first guide frame.

In an embodiment of this disclosure, the manipulator further includes an imaging mechanism which is arranged at the first guide frame of the guide mechanism and is adjacent to the mechanical claw.

In an embodiment of this disclosure, the manipulator further includes a fill-in light, which is arranged at the first guide frame of the guide mechanism and adjacent to the imaging mechanism.

In a fourth aspect, a document management terminal, including the manipulator discussed above.

In an embodiment of this disclosure, the document management terminal further includes a storage bin, which is arranged at intervals with the manipulator, and includes a plurality of storage grooves for storing documents.

The technical solution of this disclosure arranges the first drive module at the first guide frame, connects the first drive module with the second guide frame, drives the second guide frame towards or away from the first guide frame through the first drive module drive, such that the guide mechanism has the transporting state for card-type document in which the second guide frame is adjacent to the

first guide frame, and the transporting state for book-type document in which the second guide frame is away from the first guide frame. That is, in the transporting state for card-type document, the second guide groove partially coincides with the first guide groove, and the first guide groove is partially blocked by the second guide frame, so that the card-type document can pass through the second guide groove with a smaller groove height. In the transporting state for book-type document, the second guide groove is in parallel with the first guide groove and is away from the first guide groove, such that the first guide groove is not blocked by the second guide frame and the book-type document can pass through the first guide groove with a greater groove height. In this way, one guide mechanism 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. The guide mechanism of this disclosure effectively realizes the miniaturization of mechanism.

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 manipulator according to a first embodiment of this disclosure.

Fig. 2 is a structural diagram of part structure of the manipulator in Fig. 1 from one perspective.

Fig. 3 is a structural diagram of part structure of the manipulator in Fig. 1 from another one perspective.

Fig. 4 is a partial diagram of A in Fig. 3.

Fig. 5 is a structural diagram of part structure of the manipulator in Fig. 1 from a further one perspective.

Fig. 6 is a partial diagram of B in Fig. 5;

Fig. 7 is a sectional diagram of part structure of the manipulator in Fig. 1 according to a further embodiment of this disclosure.

Fig. 8 is an assembled structural diagram of part structure of the manipulator in Fig. 1.

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

Reference number	Name	Reference number	Name
1	Guide mechanism	136	Slide hole
11	First guide frame	14	Identifier
111	First guide groove	15	Card reader
112	First guide bevel	16	Guide rod
113	Third guide groove	2	Second drive module
114	First avoidance hole	3	Third drive module
12	First drive module	4	First connection frame
13	Second guide frame	5	Second connection frame
131	Second guide groove	6	Mechanical claw
132	Second guide bevel	7	Third connection frame
133	Second avoidance hole	8	Fourth drive module
134	First plate	9	Rack
135	Second plate		

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 on 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 base 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 proposes a guide mechanism for guide of document, so that the document can enter the document management terminal stably. The guide mechanism can be installed at a manipulator to cooperate with the manipulator to clamp the book-type document and card-type document. Alternatively, the guide mechanism can also be installed at a document inlet and a document outlet to facilitate a stable output and input of book-type document and card-type document by cooperating with rollers at the document inlet and the document outlet. Refer to Fig. 1, which is a structural diagram of a manipulator according to a first embodiment of this disclosure. Refer to Fig. 2, which is a structural diagram of part structure of the manipulator in Fig. 1 from one perspective. Refer to Fig. 3, which is a structural diagram of part structure of the manipulator in Fig. 1 from another one perspective. Refer to Fig. 4, which is a partial diagram of A in Fig. 3. Refer to Fig. 5, which is a structural diagram of part structure of the manipulator in Fig. 1 from a further one perspective. Refer to Fig. 6, which is a partial diagram of B in Fig. 5. Refer to Fig. 7, which is a sectional diagram of part structure of the manipulator in Fig. 1 according to a further embodiment of this disclosure. Refer to Fig. 8, which is an assembled structural diagram of part structure of the manipulator in Fig. 1.

In an embodiment of this disclosure, as shown in Fig. 1 and in combination with Fig. 2, Fig. 3 and Fig. 5, the guide mechanism 1 includes a first guide frame 11, a first drive module 12 and a second guide frame 13. The first guide frame 11 is arranged with a first guide groove 111. The first drive module 12 is arranged at the first guide frame 11. The second guide frame 13 is arranged with a second guide groove 131 and is connected with the first drive module 12. A groove height of the second guide groove 131 is smaller than a groove height of the first guide groove 111. Wherein, the first drive module 12 drives the second guide frame 13 toward the first guide groove 111 to enable the second guide groove 131 to partially coincide with the first guide groove 111. Alternatively, the first drive module 12 drives the second guide frame 13 away from the first guide groove 111 to enable the second guide groove 131 to be in parallel with the first guide groove 111.

In this embodiment, the first drive module 12 is arranged at the first guide frame 11, and connected with the second guide frame 13. The first drive module 12 drives the second guide frame 13 towards or away from the first guide frame 11, such that the guide mechanism 1 has a transporting state for card-type document in which the second guide frame 13 is adjacent to the first guide frame 11, and a transporting state for book-type document in which the second guide frame 13 is away from the first guide frame 11. That is, in the transporting state for card-type document, the second guide groove 131 partially coincides with the first guide groove 111, and the first guide groove 111 is partially blocked by the second guide frame 13, so that the card-type document can pass through the second guide groove 131 with a smaller groove height. In the transporting state for book-type document, the second guide groove 131 is in parallel with the first guide groove 111 and is away from the first guide groove 111, such that the first guide groove 111 is not blocked by the second guide frame 13 and the book-type document can pass

through the first guide groove 111 with a greater groove height. In this way, one guide mechanism 1 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 while device. The guide mechanism 1 of this disclosure effectively realizes the miniaturization of mechanism.

In an optional embodiment of this disclosure, the second guide frame 13 can be movably connected with the first guide frame 11. For example, the second guide frame 13 is rotationally connected with the first guide frame 11, or the second guide frame 13 is slidably connected with the first guide frame 11.

In an optional embodiment of this disclosure, the first guide frame 11 can be arranged in any shape, such as in a plate shape or a frame shape.

Based on the above embodiment, when the first guide frame 11 is arranged as a plate, the first guide groove 111 can be located at any surface of the first guide frame 11, while the drive module 12 can be installed at any surface or side of the first guide frame 11 and drive the second guide frame 13 to move.

On the other hand, when the first guide frame 11 is arranged as a frame, the first guide groove 111 can be arranged at a surface of an inner frame or an outer frame of the frame. Without blocking the first guide groove 111, the first drive module 12 can be arranged at the surface of the inner frame or outer frame of the frame, and the first drive module 12 drives the second guide frame 13 to move.

Based on the above optional embodiment of the first guide frame 11, the second guide frame 13 can also be arranged in any shape, such as in a plate shape or a frame shape.

In an embodiment of the disclosure, in combination with Fig. 2, Fig. 3 and Fig. 4, the first guide frame 11 can be arranged as a frame with a rectangle profile. The first drive module 12 is arranged at the outer frame of the frame, the first guide

groove 111 of the first guide frame 11 is located inside the frame. The second guide frame 13 is located inside the frame and is connected with the first drive module 12.

In an optional embodiment of the disclosure, the first drive module 12 can be arranged as a matching component between a motor and a transmission structure. Optionally, the first drive module 12 can be arranged as a matching component between a gas cylinder and a transmission structure. Optionally, the first drive module 12 can be arranged as a matching component between an electric cylinder and a transmission structure.

In an embodiment of the disclosure, as shown in Fig. 2, Fig. 3 and Fig. 4, at least one end of the first guide frame 11 which corresponds to the first guide groove 111 is arranged with a first guide bevel 112, so that a notch of at least one end of the first guide groove 111 becomes wider.

In this embodiment, the first guide bevel 112 is arranged at the notch of either end of the first guide groove 111 and extends from the notch of the first guide groove 111 to an outer edge of the first guide groove 111, so that the at least one end of the first guide groove 111 becomes wider, which enables the document to enter the first guide groove 111.

In an optional embodiment of the disclosure, the first guide bevel 112 is arranged around the notch of the first guide groove 111.

In an optional embodiment of the disclosure, both ends of the first guide groove 111 are arranged with the first guide bevel 112.

In an embodiment of the disclosure, as shown in Figs. 2, 3 and 4, at least one end of the second guide frame 13 which corresponds to the second guide groove 131 is arranged with a second guide bevel 132, so that a notch of at least one end of the second guide groove 131 becomes wider.

In this embodiment, the second guide bevel 132 is arranged at the notch of either end of the second guide groove 131 and extends from the notch of the second guide groove 131 to an outer edge of the second guide groove 131, so that the at least one end of the second guide groove 131 becomes wider, which enables the document to enter the second guide groove 131.

In an optional embodiment of the disclosure, the second guide bevel 132 is arranged around the notch of the second guide groove 131.

In an optional embodiment of the disclosure, both ends of the second guide groove 131 are arranged with the second guide bevel 132.

In an embodiment of the disclosure, as shown in Figs. 2, 3 and 4, the first guide frame 11 is further arranged with a third guide groove 113, which is connected with the first guide groove 111. At least part of the second guide frame 13 is located inside the third guide groove 113. In other words, the third guide groove 113 is used to guide a movement of the second guide frame 13, so that the second guide frame 13 can move smoothly along the third guide groove 113.

In an optional embodiment of the disclosure, the third guide groove 113 may be located at either end of the first guide groove 111.

In an optional embodiment of the disclosure, the third guide groove 113 may be relatively located at middle of the first guide groove 111. In other words, the third guide groove 113 connects with the middle of the first guide groove 111, so that the second guide frame 13 can enter middle area of the first guide groove 111, In this way, at least part of the second guide frame 13 coincides with the first guide frame 11, so as to prevent the second guide frame 13 from protruding out of the first guide frame 11, and realize the miniaturization of the guide mechanism 1.

In an embodiment of the disclosure, as shown in Fig. 4, the first guide frame 11 is arranged with a first avoidance hole 114, which is connected with the first guide groove 111.The second guide frame 13 is arranged with a second avoidance

hole 133, which is connected with the second guide groove 131, and the second avoidance hole 133 is arranged corresponding to the first avoidance hole 114.

The guide mechanism 1 further includes an identifier 14 arranged at the first guide frame 11, and a sensing end of the identifier 14 is arranged corresponding to the first avoidance hole 114 and the second avoidance hole 133.

In this embodiment, the first guide frame 11 is arranged with the identifier 14, so that the identifier 14 can correspond to the first and second avoidance holes 114 and 133. When the document corresponds to the first avoidance hole 114 and/or the second avoidance hole 133, the identifier 14 can obtain images of the document.

In an optional embodiment of this disclosure, the first guide frame 11 is arranged with the first avoidance hole 114, and the first avoidance hole 114 is connected with an upper wall surface and/or an lower wall surface of the first guide groove 111.

Based on the above discussion, it can be understood that when the upper wall surface and the lower wall surface of the first guide groove 111 both have the first avoidance hole 114, the first guide groove 111 can be divided into two grooves which are opposite to each other by the first avoidance hole 114. When the document is fed into the first guide groove 111, and both sides of the document move along the two grooves of the first guide frame 11 respectively.

Similarly, in the optional embodiment that the second guide frame 13 is arranged with the second avoidance hole 133, equivalent to the above description, when the document is fed into the second guide groove 131, and both sides of the document move along the two grooves of the second guide frame 13 respectively.

In an optional embodiment of the disclosure, the identifier 14 and the first drive module 12 are arranged side by side to achieve the compactness of the structure.

In an optional embodiment of the disclosure, the first guide frame 11 is arranged with an avoidance hole corresponding to the sensing end of the identifier 14.

Optionally, the identifier 14 may be an imaging module.

In an embodiment of the disclosure, in combination with Fig. 3, Fig. 5 and Fig. 7, the guide mechanism 1 further includes a card reader 15 which is arranged at the first guide frame 11 and opposite to the identifier 14. The card reader 15 is arranged corresponding to the first avoidance hole 114 and the second avoidance hole 133.

In this embodiment, the card reader 15 and the identifier 14 are arranged opposite to each other, so that the guide mechanism 1 can recognize both book-type document and card-type document, thus realizing the integration of functions and improving the integration of the whole mechanism.

Optionally, the card reader 15 may be an electromagnetic identification module.

In an embodiment of the disclosure, in combination with Fig. 5, Fig. 6 and Fig. 7, the second guide frame 13 includes a first plate 134 and two second plates 135, wherein the first plate 134 is connected with the first drive module 12, and the two second plates 135 are arranged at one side of the first plate 134 oppositely to each other to form the second avoidance hole 133, each second plate 135 is arranged with the second guide groove 131, and the two second guide grooves 131 are arranged correspondingly.

In this embodiment, the two second plates 135 are arranged oppositely to each other to form the second avoidance hole 133 there between, so that on the one hand, the card reader 15 and/or the identifier 14 can read the information of the document. On the other hand, two second plates 135 are located at one side of the first plate 134. On the premise that the second plate 135 corresponds to the third

guide groove 113, the first drive module 12 can be arranged outside of the first guide frame 11 to form the guide mechanism 1 by using a smaller first guide frame 11.

In an embodiment of the disclosure, in combination with Fig. 3 and Fig. 7, the guide mechanism 1 further includes at least one guide rod 16, which is arranged at the first guide frame 11. The second guide frame 13 is arranged with a slide hole 136, and the guide rod 16 penetrates into and is slidably arranged inside the slide hole 136 to enable the second guide frame 13 to slide along an extension direction of the guide rod 16. In this way, a smooth movement of the second guide frame 13 relative to the first guide frame 11 through the cooperation of the guide rod 16 and the slide hole 136 of the second guide frame 13.

In an embodiment of the disclosure, the guide rod 16 is corresponding to the third guide groove 113. That is, the extension section of the guide rod 16 is parallel or coincided with an extension direction of the third guide groove 113.

In an embodiment of the disclosure, the extension direction of the guide rod 16 is perpendicular to the extension direction of the first guide groove 111, so that the second guide frame 13 slides smoothly along the third guide groove 113 to the first guide groove 111.

Based on the above, the extension direction of the third guide groove 113 is perpendicular to the extension direction of the first guide groove 111.

The application also proposes a manipulator, which is shown in Figs. 1 and 8. The manipulator includes a second drive module 2, a third drive module 3, a first connection frame 4, a second connection frame 5, a third connection frame 7, a fourth drive module 8, a mechanical claw 6 and the guide mechanism 1 discussed above. The specific structure of the guide mechanism refers to the above embodiments. Since the manipulator adopts all the technical solutions the guide mechanism of all the above embodiments of the guide mechanism, therefore, at

least all the beneficial effects brought by the technical solutions of the above embodiments are not repeated herein for concise.

The third connection frame 7 is arranged at the second drive module 2, the third connection frame 7 is slidably connected with the first connection frame 4, the fourth drive module 8 is arranged at the third connection frame 7 and engages with the first connection frame 7 through a rack 9 and a gear. That is, the rack 9 is arranged at the first connection frame 4.

The first connection frame 4 and the second connection frame 5 are rotationally connected, the third drive module 3 is arranged at the first connection frame 4 and/or the second connection frame 5, the third drive module 3 is configured to drive the second connection frame 5 to rotate relative to the first connection frame 4, the first guide frame 11 of the guide mechanism 1 and the mechanical claw 6 are arranged at the second connection frame 5, and the mechanical claw 6 is arranged corresponding to the first guide groove 111 of the first guide frame 11.

It can be understood that the mechanical claw 6 includes an electric cylinder or a gas cylinder and two gripping sheets which are arranged at the electric cylinder or gas cylinder, and the electric cylinder or gas cylinder drives the two gripping sheets towards or away from each other to grip the document.

In an embodiment of the disclosure, the manipulator further includes an imaging mechanism, which is arranged at the first guide frame of the guide mechanism and is adjacent to the mechanical claw 6.

Optionally, the imaging mechanism is located above the first guide frame.

Optionally, the imaging mechanism is arranged as a camera, such as a CCD camera, a digital camera, etc.

Optionally, the manipulator further includes a fill-in light, which is arranged at the first guide frame of the guide mechanism and adjacent to the imaging mechanism.

This disclosure further proposes a document management terminal which includes a manipulator. The specific structure of the manipulator is referred to the above embodiments. Since the document management terminal uses all the technical solutions of the manipulator of all the above embodiments, it has at least all the beneficial effects brought by the technical solutions of the above embodiments, which is not repeated here for concise.

In an embodiment of the disclosure, the document management terminal further includes a storage bin, which is arranged at intervals with the manipulator, and includes a plurality of storage grooves for storing documents.

In an embodiment of the disclosure, the document management terminal further includes a main frame, and the storage bin and manipulator are arranged at the main frame.

The specific design of the necessary components of the document management terminal can refer to any known prior art and is not repeated here for concise. Since the document management terminal uses all the technical solutions of the manipulator of all the above embodiments, it has at least all the beneficial effects brought by the technical solutions of the above embodiments, and is not repeated here for concise.

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 guide mechanism, comprising:

a first guide frame, which is arranged with a first guide groove;

a first 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 than a groove height of the first guide groove;

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

the first 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.

2. The guide mechanism according to claim 1, wherein at least one end of the first guide frame which corresponds to the first guide groove is arranged with a first guide bevel, so that a notch of at least one end of the first guide groove becomes wider.

3. The guide mechanism according to claim 1, wherein at least one end of the second guide frame which corresponds to the second guide groove is arranged with a second guide bevel, so that a notch of at least one end of the second guide groove becomes wider.

4. The guide mechanism according to claim 1, wherein the first guide frame and the second first guide frame are moveably connected.

5. The guide mechanism according to claim 1, wherein the first guide frame is arranged in a plate shape or in a frame shape.

6. The guide mechanism according to claim 1, wherein the first guide frame is further arranged with a third guide groove, which is connected with the first guide groove;

at least part of the second guide frame is located inside the third guide groove.

7. The guide mechanism according to claim 6, wherein the third guide groove is located at a middle part of the first guide groove.

8. The guide mechanism according to claim 1, wherein the first guide frame is arranged with a first avoidance hole, which is connected with the first guide groove;

the second guide frame is arranged with a second avoidance hole, wherein the second avoidance hole is connected with the second guide groove, and the second avoidance hole is arranged corresponding to the first avoidance hole;

wherein the guide mechanism further comprises an identifier which is arranged at the first guide frame, and a sensing end of the identifier is arranged corresponding to the first avoidance hole and the second avoidance hole.

9. The guide mechanism according to claim 8, wherein the guide mechanism further comprises a card reader which is arranged at the first guide frame, wherein the card reader is arranged corresponding to the first avoidance hole and the second avoidance hole.

10. The guide mechanism according to claim 9, wherein the card reader is opposite to the identifier.

11. The guide mechanism according to claim 8, wherein the second guide frame comprises:

a first plate, which is connected with the first drive module; and

two second plates, which are arranged at one side of the first plate oppositely to form the second avoidance hole, each second plate is arranged with the second guide groove, and the two second guide grooves are correspondingly arranged.

12. The guide mechanism according to claim 1, wherein the guide mechanism further comprises at least one guide rod, which is arranged at the first guide frame;

the second guide frame is arranged with a slide hole, and the guide rod penetrates into and is slidably arranged inside the slide hole to enable the second guide frame to slide along an extension direction of the guide rod.

13. The guide mechanism according to claim 12, wherein the first guide frame is further arranged with a third guide groove, which is connected with the first guide groove;

at least part of the second guide frame is located inside the third guide groove.

14. The guide mechanism according to claim 12, wherein the extension direction of the guide rod is perpendicular to an extension direction of the first guide groove.

15. A guide mechanism, comprising:

a first guide frame, which is arranged with a first guide groove;

a first 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 than a groove height of the first guide groove;

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

at least one end of the first guide frame which corresponds to the first guide groove is arranged with a first guide bevel, so that a notch of at least one end of the first guide groove becomes wider; and

at least one end of the second guide frame which corresponds to the second guide groove is arranged with a second guide bevel, so that a notch of at least one end of the second guide groove becomes wider.

16. A manipulator comprising a second drive module, a third drive module, fourth drive module, a first connection frame, a second connection frame, a third connection frame, a mechanical claw and the guide mechanism according to any one of claims 1-15; wherein the third connection frame is arranged at the second drive module and slidably connected with the first connection frame, the fourth drive module is arranged at the third connection frame and engages with the first connection frame through a rack and a gear; wherein the first connection frame and the second connection frame are rotationally connected, the third drive module is arranged at the first connection frame and/or the second connection frame, and is configure to drive the second connection frame to rotate relative to the first connection frame, the first guide frame of the guide mechanism and the mechanical claw are arranged at the second connection frame, and the mechanical claw is arranged corresponding to the first guide groove of the first guide frame.

17. The manipulator according to claim 16, wherein the manipulator further comprises an imaging mechanism which is arranged at the first guide frame of the guide mechanism and is adjacent to the mechanical claw.

18. The manipulator according to claim 17, wherein the manipulator further comprises a fill-in light, which is arranged at the first guide frame of the guide mechanism and adjacent to the imaging mechanism.

19. A document management terminal, comprising the manipulator according to claim 16.

20. The document management terminal according to claim 19, wherein the document management terminal further comprises a storage bin, which is arranged

at intervals with the manipulator, and includes a plurality of storage grooves for storing documents.