

# US Patent & Trademark Office

## Patent Public Search | Text View

---

United States Patent	12392169
Kind Code	B2
Date of Patent	August 19, 2025
Inventor(s)	Wang; Kuan-Chih et al.

---

### Device with lock function and lock mechanism

---

#### Abstract

A device with lock function includes a housing, a casing and a lock mechanism. The housing has a first engaging portion. The lock mechanism includes a frame, a lock member, a first elastic member, an operating member and an unlock member. The frame has a second engaging portion. The lock member has a third engaging portion engaging with the first engaging portion to lock the casing in the housing. The unlock member has a fourth engaging portion engaging with the second engaging portion to restrain the operating member. When the unlock member is pressed, the fourth engaging portion disengages from the second engaging portion and the first elastic member drives the lock member to move toward an inside of the frame, such that the third engaging portion disengages from the first engaging portion and the lock member drives the operating member to move toward an outside of the frame.

---

**Inventors:** Wang; Kuan-Chih (New Taipei, TW), Wu; Hung-Chien (New Taipei, TW), Cheng; Fu-Sheng (New Taipei, TW), Huang; Po-Han (New Taipei, TW)

**Applicant:** Wiwynn Corporation (New Taipei, TW)

**Family ID:** 1000008768233

**Assignee:** Wiwynn Corporation (New Taipei, TW)

**Appl. No.:** 18/519098

**Filed:** November 27, 2023

#### Prior Publication Data

Document Identifier	Publication Date
US 20240279962 A1	Aug. 22, 2024

#### Foreign Application Priority Data

TW	112106240	Feb. 21, 2023
----	-----------	---------------

---

## Publication Classification

**Int. Cl.:** A47B88/00 (20170101); E05B65/46 (20170101)

**U.S. Cl.:**

**CPC** E05B65/46 (20130101);

## Field of Classification Search

**CPC:** E05B (65/46); H05K (7/1401); H05K (7/1488); H05K (7/183)

---

## References Cited

### U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
5207781	12/1992	Rock	312/319.1	A47B 88/467
8459758	12/2012	Rechberg	312/319.1	A47B 88/467
2009/0013732	12/2008	Gianelo	312/333	E05B 65/46

### FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC
113163655	12/2020	CN	N/A
200945994	12/2008	TW	N/A

---

*Primary Examiner:* Sterling; Amy J.

---

## Background/Summary

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

(1) The invention relates to a lock mechanism and, more particularly, to a lock mechanism that is easy to operate and occupies less space and a device equipped with the lock mechanism.

#### 2. Description of the Prior Art

(2) With the rise of big data, machine learning, the Internet of Things, and various network platforms, the demand for servers in life is getting higher and higher. Since the server is a hardware that requires frequent maintenance, a chassis of the server is usually installed in a rack by a sliding manner. To prevent the server from sliding out of the rack due to vibration or other external forces, a lock mechanism must be disposed on the server to lock the server in the rack. However, the lock mechanism of the conventional server is not easy to operate and occupies much space, such that it is not beneficial for maintenance and design of the server.

### SUMMARY OF THE INVENTION

(3) According to an embodiment of the invention, a device with lock function comprises a housing, a casing and a lock mechanism. The housing has a first engaging portion. The casing is disposed in the housing. The lock mechanism is disposed in the casing. The lock mechanism comprises a frame, a lock member, a first elastic member, an operating member and an unlock member. The frame is fixed on the casing. The frame has a second engaging portion. The lock member is

movably disposed in the frame. The lock member has a third engaging portion. The third engaging portion engages with the first engaging portion to lock the casing in the housing. The first elastic member is connected to the lock member. The operating member is movably disposed in the frame. The unlock member is movably connected to the operating member. The unlock member has a fourth engaging portion. The fourth engaging portion engages with the second engaging portion to restrain the operating member. When the unlock member is pressed, the fourth engaging portion disengages from the second engaging portion and the first elastic member drives the lock member to move toward an inside of the frame, such that the third engaging portion disengages from the first engaging portion and the lock member drives the operating member to move toward an outside of the frame.

(4) According to another embodiment of the invention, a lock mechanism comprises a frame, a lock member, a first elastic member, an operating member and an unlock member. The lock member is movably disposed in the frame. The first elastic member is connected to the lock member. The operating member is movably disposed in the frame. The unlock member is movably connected to the operating member. The unlock member engages with the frame. When the unlock member is pressed, the unlock member disengages from the frame, the first elastic member drives the lock member to move toward an inside of the frame, and the lock member drives the operating member to move toward an outside of the frame.

(5) These and other objectives of the present invention will no doubt become obvious to those of ordinary skill in the art after reading the following detailed description of the preferred embodiment that is illustrated in the various figures and drawings.

---

## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. 1 is a perspective view illustrating a device with lock function according to an embodiment of the invention.

(2) FIG. 2 is a partial perspective view illustrating the device shown in FIG. 1 without a housing.

(3) FIG. 3 is a perspective view illustrating a lock mechanism shown in FIG. 2 from another viewing angle.

(4) FIG. 4 is a perspective view illustrating the lock mechanism shown in FIG. 2 from another viewing angle.

(5) FIG. 5 is an exploded view illustrating the lock mechanism shown in FIG. 2.

(6) FIG. 6 is an exploded view illustrating the lock mechanism shown in FIG. 2 from another viewing angle.

(7) FIG. 7 is a top view illustrating the lock mechanism in a lock state.

(8) FIG. 8 is a top view illustrating the lock mechanism in an unlock state.

(9) FIG. 9 is a partial perspective view illustrating the lock mechanism equipped with a first elastic member.

(10) FIG. 10 is a partial perspective view illustrating the lock mechanism equipped with a first elastic member.

(11) FIG. 11 is a top view illustrating a lock mechanism in a lock state according to another embodiment of the invention.

(12) FIG. 12 is a top view illustrating the lock mechanism shown in FIG. 11 in an unlock state.

(13) FIG. 13 is a top view illustrating a lock mechanism in a lock state according to another embodiment of the invention.

(14) FIG. 14 is a top view illustrating the lock mechanism shown in FIG. 13 in an unlock state.

### DETAILED DESCRIPTION

(15) Referring to FIGS. 1 to 8, FIG. 1 is a perspective view illustrating a device 1 with lock

function according to an embodiment of the invention, FIG. 2 is a partial perspective view illustrating the device **1** shown in FIG. 1 without a housing **10**, FIG. 3 is a perspective view illustrating a lock mechanism **14** shown in FIG. 2 from another viewing angle, FIG. 4 is a perspective view illustrating the lock mechanism **14** shown in FIG. 2 from another viewing angle, FIG. 5 is an exploded view illustrating the lock mechanism **14** shown in FIG. 2, FIG. 6 is an exploded view illustrating the lock mechanism **14** shown in FIG. 2 from another viewing angle, FIG. 7 is a top view illustrating the lock mechanism **14** in a lock state, and FIG. 8 is a top view illustrating the lock mechanism **14** in an unlock state.

(16) As shown in FIG. 1, the device **1** with lock function comprises a housing **10**, a casing **12** and a lock mechanism **14**. The casing **12** is disposed in the housing **10** and the lock mechanism **14** is disposed in the casing **12**, wherein the lock mechanism **14** is configured to lock the casing **12** in the housing **10**. In an embodiment, the housing **10** may be a rack for installing a server and the casing **12** may be a chassis of the server. Thus, the lock mechanism **14** may be configured to lock the chassis of the server in the rack. It should be noted that the device **1** may also be other electronic or non-electronic devices requiring lock function according to practical application.

(17) As shown in FIGS. 1 and 2, the housing **10** has a first engaging portion **100** and a rail **102**. A position of the first engaging portion **100** corresponds to a position of the lock mechanism **14**. In this embodiment, the first engaging portion **100** may be, but is not limited to, an engaging hole. In practical applications, two lock mechanisms **14** may be disposed at opposite sides of the casing **12** and two first engaging portions **100** may be formed at opposite sides of the housing **10** correspondingly, such that the lock and unlock operations of the casing **12** are more stable.

Needless to say, in some embodiments, one lock mechanism **14** may be disposed only at one side of the casing **12** and one first engaging portion **100** is formed at one side of the housing correspondingly according to practical applications. Furthermore, the casing **12** has a track **120**. The track **120** is able to slide in the rail **102**, such that the casing **12** is installed in the housing **10** by a sliding manner. In practical applications, two rails **102** may be disposed at two inner walls of the housing **10** and two tracks **120** may be disposed at two outer walls of the casing **12**.

(18) As shown in FIGS. 3 to 6, the lock mechanism **14** comprises a frame **140**, a lock member **142**, a first elastic member **144**, an operating member **146**, an unlock member **148**, a rotating member **150**, a second elastic member **152** and a restraining member **154**.

(19) In this embodiment, the frame **140** may comprise an upper cover **140a** and a lower cover **140b**, but the invention is not so limited. The frame **140** is fixed on the casing **12** and the frame **140** has a second engaging portion **1400**. In this embodiment, the second engaging portion **1400** may be, but is not limited to, an engaging hole located at a side of the upper cover **140a**.

(20) The lock member **142** is movably disposed in the frame **140**. The frame **140** may have a sliding groove and the lock member **142** may have a sliding portion. The sliding portion is disposed in the sliding groove, such that the lock member **142** is movably disposed in the frame **140**. In this embodiment, the upper cover **140a** of the frame **140** may have two sliding grooves **1402a**, **1402b**, the lower cover **140b** of the frame **140** may have a sliding groove **1402c**, and the lock member **142** may have two sliding portions **1420a**, **1420b**. The sliding portion **1420a** may extend from opposite sides of the lock member **142** to be disposed in the sliding groove **1402a** of the upper cover **140a** and the sliding groove **1402c** of the lower cover **140b**. The sliding portion **1420b** may extend from one side of the lock member **142** to be disposed in the sliding groove **1402b** of the upper cover **140a**. It should be noted that the number of the sliding grooves and the sliding portions may be determined according to practical applications, so the invention is not limited to the embodiment illustrated in the figures. Furthermore, the lock member **142** has a third engaging portion **1422**. The third engaging portion **1422** is configured to engage with the first engaging portion **100** of the housing **10** to lock the casing **12** in the housing **10**. In this embodiment, the third engaging portion **1422** may be, but is not limited to, an engaging protrusion.

(21) The first elastic member **144** is connected to the lock member **142**. In this embodiment, the

first elastic member **144** may be a tension spring, wherein opposite ends of the first elastic member **144** may be connected to the sliding portion **1420a** of the lock member **142** and the upper cover **140a** of the frame **140**.

(22) The operating member **146** is movably disposed in the frame **140**. In this embodiment, the frame **140** may have a positioning groove **1404** and the operating member **146** may have a positioning portion **1460**. The positioning portion **1460** is disposed in the positioning groove **1404**, such that the operating member **146** is movably disposed in the frame **140**. In this embodiment, an extending direction of each of the sliding grooves **1402a**, **1402b**, **1402c** is perpendicular to an extending direction of the positioning groove **1404**, such that a moving direction of the lock member **142** is perpendicular to a moving direction of the operating member **146**. In this embodiment, each of the upper cover **140a** and the lower cover **140b** of the frame may have a positioning groove **1404** and opposite sides of the operating member **146** may have two positioning portions **1460**. Still further, the lower cover **140b** of the frame **140** may have two retaining walls **1406**. The operating member **146** may be sandwiched in between the two retaining walls **1406** to stabilize the installation of the operating member **146**.

(23) The rotating member **150** is pivotally connected to the lower cover **140b** of the frame **140** by a pivot **156**. In this embodiment, the rotating member **150** may have a first driving groove **1500** and a second driving groove **1502**. Furthermore, the operating member **146** may have a linking portion **1462**. The sliding portion **1420a** of the lock member **142** may be disposed in the first driving groove **1500** of the rotating member **150**, and the linking portion **1462** of the operating member **146** may be disposed in the second driving groove **1502** of the rotating member **150**.

(24) The unlock member **148** is movably connected to the operating member **146**. In this embodiment, the operating member **146** may have an inserting portion **1464** and the unlock member **148** may have a sleeve portion **1480**. The sleeve portion **1480** is sleeved on the inserting portion **1464** and the second elastic member **152** is disposed in the sleeve portion **1480**, wherein opposite ends of the second elastic member **152** are connected to the inserting portion **1464** and the sleeve portion **1480**. In this embodiment, the second elastic member **152** may be a compression spring. Furthermore, the inserting portion **1464** may have a restraining groove **1466**. After the sleeve portion **1480** is sleeved on the inserting portion **1464**, the restraining member **154** is disposed on the sleeve portion **1480** and located in the restraining groove **1466**, so as to prevent the unlock member **148** from coming off the operating member **146**. Still further, the unlock member **148** has a fourth engaging portion **1482**. The fourth engaging portion **1482** is configured to engage with the second engaging portion **1400** of the frame **140** to restrain the operating member **146**. In this embodiment, the fourth engaging portion **1482** may be, but is not limited to, an engaging hook.

(25) As shown in FIGS. **1** and **7**, the casing **12** may be locked in the housing **10** by the lock mechanism **14**. For further explanation, the third engaging portion **1422** of the lock member **142** engages with the first engaging portion **100** of the housing **10** to lock the casing **12** in the housing **10**. At the same time, the fourth engaging portion **1482** of the unlock member **148** engages with the second engaging portion **1400** of the frame **140** to restrain the operating member **146**. At this time, the first elastic member **144** is stretched. When a user wants to take the casing **12** out of the housing **10**, the user may hold the operating member **146** with an index finger and press the unlock member **148** with a thumb in a direction of an arrow **A1**. When the unlock member **148** is pressed, the fourth engaging portion **1482** disengages from the second engaging portion **1400**. At this time, the first elastic member **144** drives the lock member **142** to move toward an inside of the frame **140** (see a direction of an arrow **A2**), such that the third engaging portion **1422** disengages from the first engaging portion **100**, as shown in FIG. **8**. When the first elastic member **144** drives the lock member **142** to move toward the inside of the frame **140**, the sliding portion **1420a** of the lock member **142** pushes the first driving groove **1500** of the rotating member **150** to drive the rotating member **150** to rotate toward a direction of an arrow **A3**. When the rotating member **150** rotates toward the direction of the arrow **A3**, the second driving groove **1502** of the rotating member **150**

pushes the linking portion **1462** of the operating member **146** to drive the operating member **146** to move toward an outside of the frame **140** (see a direction of an arrow **A5**). In other words, in this embodiment, when the unlock member **148** is pressed, the lock member **142** indirectly drives the operating member **146** to move toward the outside of the frame **140** through the rotating member **150**, so as to facilitate the user to hold the operating member **146**. Accordingly, the user may pull the operating member **146** to pull the casing **12** out of the housing **10** easily.

(26) When the user wants to install the casing **12** into the housing **10**, the user may push the casing **12** into the housing **10** along the rail **102**. In this embodiment, the rotating member **150** has a protruding portion **1504**. When the casing **12** is pushed into the housing **10** along the rail **102**, the protruding portion **1504** is pushed by the rail **102** to drive the rotating member **150** to rotate toward a direction of an arrow **A4**. When the rotating member **150** rotates toward the direction of the arrow **A4**, the first driving groove **1500** of the rotating member **150** pushes the sliding portion **1420a** of the lock member **142** to drive the lock member **142** to move toward the outside of the frame **140** (see the direction of the arrow **A1**) and the second driving groove **1502** of the rotating member **150** pushes the linking portion **1462** of the operating member **146** to drive the operating member **146** to move toward the inside of the frame **140** (see a direction of an arrow **A6**), such that the third engaging portion **1422** of the lock member **142** engages with the first engaging portion **100** of the housing **10** and the fourth engaging portion **1482** of the unlock member **148** engages with the second engaging portion **1400** of the frame **140**. In this embodiment, the fourth engaging portion **1482** of the unlock member **148** has an inclined surface **1484**. When the operating member **146** moves toward the inside of the frame **140** (see the direction of the arrow **A6**), a side wall **1408** of the frame **140** pushes the inclined surface **1484**, such that the unlock member **148** moves toward the operating member **146** (see the direction of the arrow **A1**). After the fourth engaging portion **1482** of the unlock member **148** is aligned with the second engaging portion **1400** of the frame **140**, the second elastic member **152** returns the unlock member **148** toward the direction of the arrow **A2**, such that the fourth engaging portion **1482** of the unlock member **148** engages with the second engaging portion **1400** of the frame **140**. Accordingly, when the user pushes the casing **12** into the housing **10**, the invention may achieve auto-lock function by the cooperating between the protruding portion **1504** and the sliding rail **102**.

(27) It should be noted that the invention may also omit the aforesaid protruding portion **1504**. When the user pushes the casing **12** into the housing **10**, the user only needs to push the operating member **146** toward the inside of the frame **140** (see the direction of the arrow **A6**) and then the lock member **142** can be driven to move toward the outside of the frame **140** (see the direction of the arrow **A1**) to lock the casing **12** in the housing **10**.

(28) Referring to FIG. 9, FIG. 9 is a partial perspective view illustrating the lock mechanism **14** equipped with a first elastic member **144'**. As shown in FIG. 9, the first elastic member **144'** may be a compression spring, wherein opposite ends of the first elastic member **144'** are connected to the sliding portion **1420a** and the lower cover **140b** of the frame **140**. The first elastic member **144** shown in FIGS. 7 and 8 may be replaced by the first elastic member **144'** shown in FIG. 9. When the lock mechanism **14** is in a lock state shown in FIG. 7, the first elastic member **144'** is compressed. As shown in FIG. 8, when the unlock member **148** is pressed, the first elastic member **144'** drives the lock member **142** to move toward the inside of the frame **140** (see the direction of the arrow **A2**), such that the third engaging portion **1422** disengages from the first engaging portion **100**.

(29) Referring to FIG. 10, FIG. 10 is a partial perspective view illustrating the lock mechanism **14** equipped with a first elastic member **144''**. As shown in FIG. 10, the first elastic member **144''** may be a torsion spring, wherein the first elastic member **144''** is sleeved on the pivot **156** and opposite ends of the first elastic member **144''** are connected to the sliding portion **1420a** and the lower cover **140b** of the frame **140**. The first elastic member **144** shown in FIGS. 7 and 8 may be replaced by the first elastic member **144''** shown in FIG. 10. When the lock mechanism **14** is in a lock state

shown in FIG. 7, the first elastic member **144'** is twisted. As shown in FIG. 8, when the unlock member **148** is pressed, the first elastic member **144'** drives the lock member **142** to move toward the inside of the frame **140** (see the direction of the arrow A2), such that the third engaging portion **1422** disengages from the first engaging portion **100**.

(30) Referring to FIGS. 11 and 12, FIG. 11 is a top view illustrating a lock mechanism **14'** in a lock state according to another embodiment of the invention, and FIG. 8 is a top view illustrating the lock mechanism **14'** shown in FIG. 11 in an unlock state.

(31) The main difference between the lock mechanism **14'** and the aforesaid lock mechanism **14** is that the lock mechanism **14'** does not comprise the aforesaid rotating member **150**. As shown in FIGS. 11 and 12, the lock member **142** has a first inclined driving surface **1424** and the operating member **146** has a second inclined driving surface **1468**, wherein the first inclined driving surface **1424** abuts against the second inclined driving surface **1468**. Thus, when the first elastic member **144** drives the lock member **142** to move toward the inside of the frame **140** (see the direction of the arrow A2), the first inclined driving surface **1424** pushes the second inclined driving surface **1468** to drive the operating member **146** to move toward the outside of the frame **140** (see the direction of the arrow A5). Similarly, when the operating member **146** is pushed toward the inside of the frame **140** (see the direction of the arrow A6), the second inclined driving surface **1468** pushes the first inclined driving surface **1424** to drive the lock member **142** to move toward the outside of the frame **140** (see the direction of the arrow A1). The aforesaid lock mechanism **14** may be replaced by the lock mechanism **14'**, so as to utilize the lock mechanism **14'** to lock the casing **12** in the housing **10**. It should be noted that the same elements in FIGS. 11-12 and FIGS. 1-8 are represented by the same numerals, so the repeated explanation will not be depicted herein again. In addition, the first elastic member **144** of the lock mechanism **14'** may also be replaced by the first elastic member **144'** shown in FIG. 9 or the first elastic member **144''** shown in FIG. 10.

(32) Referring to FIGS. 13 and 14, FIG. 13 is a top view illustrating a lock mechanism **14''** in a lock state according to another embodiment of the invention, and FIG. 14 is a top view illustrating the lock mechanism **14''** shown in FIG. 13 in an unlock state.

(33) The main difference between the lock mechanism **14''** and the aforesaid lock mechanism **14** is that the lock mechanism **14''** does not comprise the aforesaid rotating member **150**. As shown in FIGS. 13 and 14, the lock member **142** has a linking portion **1426** and the operating member **146** has a driving groove **1470**, wherein the linking portion **1426** is disposed in the driving groove **1470**. Thus, when the first elastic member **144** drives the lock member **142** to move toward the inside of the frame **140** (see the direction of the arrow A2), the linking portion **1426** pushes the driving groove **1470** to drive the operating member **146** to move toward the outside of the frame **140** (see the direction of the arrow A5). Similarly, when the operating member **146** is pushed toward the inside of the frame **140** (see the direction of the arrow A6), the driving groove **1470** pushes the linking portion **1426** to drive the lock member **142** to move toward the outside of the frame **140** (see the direction of the arrow A1). The aforesaid lock mechanism **14** may be replaced by the lock mechanism **14''**, so as to utilize the lock mechanism **14''** to lock the casing **12** in the housing **10**. It should be noted that the same elements in FIGS. 13-14 and FIGS. 1-8 are represented by the same numerals, so the repeated explanation will not be depicted herein again. In addition, the frame **140**, the operating member **146** and the unlock member **148** of the lock mechanism **14''** and the frame **140**, the operating member **146** and the unlock member **148** of the aforesaid lock mechanism **14** may be design in different shapes according to practical applications, and the principle thereof is not affected by different shapes.

(34) As mentioned in the above, when the user wants to take the casing out of the housing, the user may press the unlock member to disengage the unlock member from the frame. At this time, the first elastic member drives the lock member to move toward the inside of the frame to disengage the lock member from the housing. At the same time, the lock member drives the operating member to move toward the outside of the frame, so as to facilitate the user to hold the operating

member. Accordingly, the user may pull the operating member to pull the casing out of the housing easily. In an embodiment, the housing may be a rack for installing a server and the casing may be a chassis of the server. Thus, the lock mechanism of the invention may be configured to lock the chassis of the server in the rack. Since the lock mechanism of the invention is easy to operate and occupies less space, it is beneficial for maintenance and design of the server.

(35) Those skilled in the art will readily observe that numerous modifications and alterations of the device and method may be made while retaining the teachings of the invention. Accordingly, the above disclosure should be construed as limited only by the metes and bounds of the appended claims.

## Claims

1. A device with lock function comprising: a housing having a first engaging portion; a casing disposed in the housing; and a lock mechanism disposed in the casing, the lock mechanism comprising: a frame fixed on the casing, the frame having a second engaging portion; a lock member movably disposed in the frame, the lock member having a third engaging portion, the third engaging portion engaging with the first engaging portion to lock the casing in the housing; a first elastic member connected to the lock member; an operating member movably disposed in the frame; and an unlock member movably connected to the operating member, the unlock member having a fourth engaging portion, the fourth engaging portion engaging with the second engaging portion to restrain the operating member; wherein when the unlock member is pressed, the fourth engaging portion disengages from the second engaging portion and the first elastic member drives the lock member to move toward an inside of the frame, such that the third engaging portion disengages from the first engaging portion and the lock member drives the operating member to move toward an outside of the frame.
2. The device with lock function of claim 1, wherein the frame has a sliding groove, the lock member has a sliding portion, and the sliding portion is disposed in the sliding groove.
3. The device with lock function of claim 2, wherein the lock mechanism further comprises a rotating member pivotally connected to the frame, the rotating member has a first driving groove and a second driving groove, the operating member has a linking portion, the sliding portion is disposed in the first driving groove, and the linking portion is disposed in the second driving groove; when the first elastic member drives the lock member to move toward the inside of the frame, the sliding portion pushes the first driving groove to drive the rotating member to rotate; when the rotating member rotates, the second driving groove pushes the linking portion to drive the operating member to move toward the outside of the frame.
4. The device with lock function of claim 3, wherein the rotating member is pivotally connected to the frame by a pivot, the first elastic member is a torsion spring, the first elastic member is sleeved on the pivot, and opposite ends of the first elastic member are connected to the sliding portion and the frame.
5. The device with lock function of claim 3, wherein the housing has a rail and the rotating member has a protruding portion; when the casing is pushed into the housing along the rail, the protruding portion is pushed by the rail to drive the rotating member to rotate; when the rotating member rotates, the first driving groove pushes the sliding portion to drive the lock member to move toward the outside of the frame and the second driving groove pushes the linking portion to drive the operating member to move toward the inside of the frame, such that the third engaging portion engages with the first engaging portion and the fourth engaging portion engages with the second engaging portion.
6. The device with lock function of claim 2, wherein the frame has a positioning groove, the operating member has a positioning portion, the positioning portion is disposed in the positioning groove, and an extending direction of the sliding groove is perpendicular to an extending direction



of the positioning groove.

7. The device with lock function of claim 1, wherein the lock mechanism further comprises a second elastic member, the operating member has an inserting portion, the unlock member has a sleeve portion, the sleeve portion is sleeved on the inserting portion, the second elastic member is disposed in the sleeve portion, and opposite ends of the second elastic member are connected to the inserting portion and the sleeve portion.

8. The device with lock function of claim 7, wherein the lock mechanism further comprises a restraining member, the inserting portion has a restraining groove, and the restraining member is disposed on the sleeve portion and located in the restraining groove.

9. The device with lock function of claim 1, wherein the lock member has a first inclined driving surface, the operating member has a second inclined driving surface, and the first inclined driving surface abuts against the second inclined driving surface; when the first elastic member drives the lock member to move toward the inside of the frame, the first inclined driving surface pushes the second inclined driving surface to drive the operating member to move toward the outside of the frame.

10. The device with lock function of claim 1, wherein the lock member has a linking portion, the operating member has a driving groove, and the linking portion is disposed in the driving groove; when the first elastic member drives the lock member to move toward the inside of the frame, the linking portion pushes the driving groove to drive the operating member to move toward the outside of the frame.

11. A lock mechanism comprising: a frame; a lock member movably disposed in the frame; a first elastic member connected to the lock member; an operating member movably disposed in the frame; and an unlock member movably connected to the operating member, the unlock member engaging with the frame; wherein when the unlock member is pressed, the unlock member disengages from the frame, the first elastic member drives the lock member to move toward an inside of the frame, and the lock member drives the operating member to move toward an outside of the frame.

12. The lock mechanism of claim 11, wherein the frame has a sliding groove, the lock member has a sliding portion, and the sliding portion is disposed in the sliding groove.

13. The lock mechanism of claim 12, further comprising a rotating member pivotally connected to the frame, wherein the rotating member has a first driving groove and a second driving groove, the operating member has a linking portion, the sliding portion is disposed in the first driving groove, and the linking portion is disposed in the second driving groove; when the first elastic member drives the lock member to move toward the inside of the frame, the sliding portion pushes the first driving groove to drive the rotating member to rotate; when the rotating member rotates, the second driving groove pushes the linking portion to drive the operating member to move toward the outside of the frame.

14. The lock mechanism of claim 13, wherein the rotating member is pivotally connected to the frame by a pivot, the first elastic member is a torsion spring, the first elastic member is sleeved on the pivot, and opposite ends of the first elastic member are connected to the sliding portion and the frame.

15. The lock mechanism of claim 13, wherein the rotating member has a protruding portion; when the protruding portion is pushed to drive the rotating member to rotate, the first driving groove pushes the sliding portion to drive the lock member to move toward the outside of the frame and the second driving groove pushes the linking portion to drive the operating member to move toward the inside of the frame.

16. The lock mechanism of claim 12, wherein the frame has a positioning groove, the operating member has a positioning portion, the positioning portion is disposed in the positioning groove, and an extending direction of the sliding groove is perpendicular to an extending direction of the positioning groove.

17. The lock mechanism of claim 11, further comprising a second elastic member, wherein the operating member has an inserting portion, the unlock member has a sleeve portion, the sleeve portion is sleeved on the inserting portion, the second elastic member is disposed in the sleeve portion, and opposite ends of the second elastic member are connected to the inserting portion and the sleeve portion.

18. The lock mechanism of claim 17, further comprising a restraining member, wherein the inserting portion has a restraining groove, and the restraining member is disposed on the sleeve portion and located in the restraining groove.

19. The lock mechanism of claim 11, wherein the lock member has a first inclined driving surface, the operating member has a second inclined driving surface, and the first inclined driving surface abuts against the second inclined driving surface; when the first elastic member drives the lock member to move toward the inside of the frame, the first inclined driving surface pushes the second inclined driving surface to drive the operating member to move toward the outside of the frame.

20. The lock mechanism of claim 11, wherein the lock member has a linking portion, the operating member has a driving groove, and the linking portion is disposed in the driving groove; when the first elastic member drives the lock member to move toward the inside of the frame, the linking portion pushes the driving groove to drive the operating member to move toward the outside of the frame.

---