

LOCKER OPERATING METHOD, AND INFORMATION SENDING METHOD, APPARATUS, AND SYSTEM

Technical Field

[001] This application relates to the field of computer technologies, and in particular, to a locker operating method, and an information sending method, apparatus, and system.

Background

[002] Currently, with continuous innovations in Internet technologies, online shopping has become increasingly popular. Users select and purchase required commodities on the Internet, and then Internet merchants send to the users the commodities purchased by the users.

[003] In real life, the following case usually occurs: when a courier delivers a product purchased by a user to a delivery address (for example, a residential address of the user or a business address of the user) specified by the user, the user may not be at the specified delivery address due to personal reasons, and therefore, cannot sign for the receipt of the product.

[004] For the foregoing case, a self-service locker (or referred to as a locker) is provided in the existing technologies. When the user cannot sign for the receipt of the product, the user may select a delivery method of using a self-service locker. When this method is used, the courier delivers the product of the user to the self-service locker, and subsequently, the receiving user may arrive at the location of the self-service locker according to a notification, open the self-service locker after a series of operations, and obtain the product in the self-service locker.

[005] According to the existing technologies, before picking up the product in the self-service locker, the receiving user first needs to perform the series of operations to trigger opening of the self-service locker. A specific triggering method is as follows: the user uses an information input apparatus of the self-service locker to input authentication information into an embedded control terminal installed in the self-service locker, and after the authentication information is authenticated, the embedded control terminal opens the self-service locker. For example, the user sequentially inputs, by using an external keyboard of the embedded control terminal, each character included in an authentication password used as the authentication information into the terminal, to trigger opening of the self-service locker. Alternatively, the user may use a mobile phone to search for and present a two-dimensional code including the

authentication information, and then use a two-dimensional code scanning apparatus disposed on the self-service locker to scan the two-dimensional code, to trigger opening of the self-service locker.

[006] The foregoing self-service locker opening method has disadvantages as follows: the user needs to perform complex operations, and the efficiency is low.

Summary

[007] Embodiments of this application provide a locker operating method, to resolve the problem of low efficiency caused by complex operations that need to be performed by a user when a self-service locker operation manner in existing technologies is used.

[008] The embodiments of this application further provide a locker operation apparatus, to resolve a problem of low efficiency caused by complex operations that need to be performed by a user when a self-service locker operation manner in existing technologies is used.

[009] The embodiments of this application further provide an information sending method and apparatus, and a locker operation system.

[0010] The following technical solutions are used in the embodiments of this application.

[0011] A locker operating method includes: obtaining, by a user terminal, a locker operation instruction; and sending to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.

[0012] An information sending method includes: obtaining, by a user terminal, warehoused article information, where the warehoused article information includes at least locker information and a user identifier; and uploading the warehoused article information to a server.

[0013] A locker operating method includes: receiving, by a server, a locker operation request sent by a user terminal; and sending, in response to the locker operation request, a locker operation notification to a locker.

[0014] A locker operating method includes: receiving, by a locker, a locker operation notification sent by a user terminal; and performing, in response to the locker operation notification, a predetermined operation.

[0015] A locker operation system includes: a first user terminal, configured to: obtain a locker operation instruction, and send, in response to the locker operation instruction, a locker operation request to a server; the server, configured to: receive the locker operation request

sent by the first user terminal, and send, in response to the locker operation request, a locker operation notification to a locker; and the locker, configured to: receive the locker operation notification, and perform, in response to the locker operation notification, a predetermined operation.

[0016] A locker operation apparatus includes: an operation instruction obtaining unit, configured to obtain a locker operation instruction; and an operation instruction sending unit, configured to: send to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.

[0017] An information sending apparatus includes: an information obtaining unit, configured to obtain warehoused article information, where the warehoused article information includes at least locker information and a user identifier; and an information uploading unit, configured to upload the warehoused article information to a server.

[0018] A locker operation apparatus includes: an operation request receiving unit, configured to receive a locker operation request sent by a user terminal; and an operation notification sending unit, configured to send, in response to the locker operation request, a locker operation notification to a locker.

[0019] A locker operation apparatus includes: an operation notification receiving unit, configured to receive a locker operation notification sent by a user terminal; and an operation execution unit, configured to perform, in response to the locker operation notification, a predetermined operation.

[0020] The foregoing at least one technical solution used in the embodiments of this application can achieve the following beneficial effects.

[0021] By the technical solutions provided in the embodiments of this application, during the use of a locker, a user may send a locker operation notification to the locker by using a user terminal (such as a mobile phone), to control a locker door of the locker to open or close or perform another operation. In this way, the user does not need to perform the complex operations in existing technologies, thereby improving operation efficiency for the locker.

Brief Description of the Drawings

[0022] The accompanying drawings described herein are used to provide a further understanding of this application, and form part of this application. Exemplary embodiments of this application and descriptions thereof are used to explain this application, and do not constitute any inappropriate limitation to this application. In the accompanying drawings:

[0023] FIG. 1 is a detailed schematic flowchart of a locker operating method according to embodiments of this application;

[0024] FIG. 2 is a detailed schematic flowchart of a locker operating method according to embodiments of this application;

[0025] FIG. 3 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0026] FIG. 4 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0027] FIG. 5 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0028] FIG. 6 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0029] FIG. 7 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0030] FIG. 8 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0031] FIG. 9 is a detailed schematic diagram of an operation interface of an application program according to the embodiments of this application;

[0032] FIG. 10 is a detailed schematic flowchart of a locker operating method according to the embodiments of this application;

[0033] FIG. 11 is a detailed schematic structural diagram of a locker operation apparatus according to the embodiments of this application;

[0034] FIG. 12 is a detailed schematic structural diagram of an information sending apparatus according to the embodiments of this application;

[0035] FIG. 13 is a detailed schematic structural diagram of a locker operation apparatus according to the embodiments of this application; and

[0036] FIG. 14 is a detailed schematic structural diagram of a locker operation apparatus according to the embodiments of this application.

Detailed Description

[0037] To make the objectives, technical solutions, and advantages of this application clearer, the following clearly and completely describes the technical solutions of this application with reference to detailed embodiments of this application and corresponding accompanying drawings. Apparently, the described embodiments are merely some rather than

all the embodiments of this application. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of this application without creative efforts fall within the protection scope of this application.

[0038] The following describes in detail the technical solutions provided by the embodiments of this application with reference to the accompanying drawings.

[0039] Embodiment 1

[0040] The embodiments of this application provide a locker operating method, to resolve the problem of low efficiency caused by complex operations that need to be performed by a user when a self-service locker operation manner in existing technologies is used.

[0041] The locker operating method provided in the embodiments of this application may be performed by a user terminal, for example, a user terminal of a delivering party, or a user terminal of a receiving user. The execution body does not constitute any limitation to this application. For ease of description, in the embodiments of this application, descriptions are provided by using examples in which the execution body is a user terminal of a receiving user. A detailed flowchart of the method is shown in FIG. 1, and mainly includes the following steps:

[0042] Step 11. A user terminal obtains a locker operation instruction.

[0043] The user terminal may be a mobile phone, a personal computer, a tablet computer, or the like used by a user.

[0044] Generally, the user may input a locker operation instruction through a locker operation instruction input interface provided by an application program (Application, APP) installed on the user terminal. The APP may be produced and provided by an express delivery company, or may be produced and provided by an Internet e-commerce company, or may be produced and provided by a third-party self-service locker manufacturer. The locker operation instruction input interface, may be, for example, an operable button presented on an interface.

[0045] It should be noted that after an article is left in a locker, to enable a user to learn that the article has been left in the locker, in an implementation, the method provided in the embodiments of this application may further include: receiving an article warehousing notification.

[0046] Generally, the received article warehousing notification may be displayed on the user terminal in a form of a message pop-up window. To enable the user to timely check the received article warehousing notification, after receiving the article warehousing notification,

the user terminal may vibrate or ring, to inform the user that the article warehousing notification is received.

[0047] For example, the user terminal is a mobile phone. After receiving an article warehousing notification, the mobile phone vibrates, and pops up a message prompt box on a display interface of the mobile phone, to inform the user that the article warehousing notification is received.

[0048] To help the user trigger the locker operation instruction rapidly, in an implementation, after the user terminal receives the article warehousing notification, the method may further include: presenting, by the user terminal, a display interface (referred to as a first display interface below) including a button; and the obtaining, by a user terminal, a locker operation instruction includes: receiving, by the user terminal, the locker operation instruction triggered by an operation performed on the button displayed on the first display interface. The manner in which the user triggers the locker operation instruction by triggering the button may be referred to as "one-button operation" in the embodiments of this application.

[0049] The locker operation instruction may include, for example, at least one of a plurality of instructions, such as an instruction for triggering the user terminal to instruct a locker to open, an instruction for triggering the user terminal to instruct a locker to close, and an instruction for triggering the user terminal to instruct a locker to sound an alarm.

[0050] It should be noted that to enable the user to check information related to a warehoused article by using the received article warehousing notification, the article warehousing notification may include to-be-presented information, and after the article warehousing notification is obtained, the method may further include: presenting, by the user terminal, a display interface (referred to as a second display interface below) including the to-be-presented information. The to-be-presented information may include, for example, at least one of the following: information related to a locker, and information related to a warehoused article.

[0051] The information related to a locker may include, for example, at least one of: location information of the locker, manufacturer information of the locker, or other information. The information related to a warehoused article may include, for example, at least one of: an order number of a warehoused article, a name of a receiving user of a warehoused article, a mobile phone number of a receiving user of a warehoused article, a mobile phone number of a delivery person of a warehoused article, or other information.

[0052] The first display interface of the user terminal and the second display interface of the user terminal may be the same display interface, or may be different display interfaces.

[0053] It should be noted that to help the user to arrive at the location of the locker, in an implementation, the method provided in this application further includes: obtaining, by the user terminal, location information of the locker; and prompting, according to the location information of the locker, information about a path to the location of the locker.

[0054] For example, after the user terminal obtains the location information of the locker, current location information of the user terminal is determined based on a location function of the user terminal, and navigation is performed according to the obtained location information of the locker and the current location information of the user terminal, so that the user goes to the location of the locker.

[0055] Step 12. The user terminal sends to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.

[0056] The locker may be manufactured and provided by an express delivery company, or may be manufactured and provided by an Internet e-commerce company, or may be manufactured and provided by a third-party manufacturer. In addition, the locker has a communication function, that is, the locker may receive, by Wi-Fi, Bluetooth, or in another communication manner, information sent by the user terminal or a server, and the locker may send information to the user terminal or the server in the communication manner.

[0057] In an implementation, sending a locker operation notification to a locker with a communication function may specifically include but is not limited to the following two manners:

[0058] Manner 1: The user terminal sends the locker operation request to a server, to trigger the server to send the locker operation notification to the locker.

[0059] For example, the user terminal is a mobile phone. The user triggers a locker open instruction by clicking a control button on an APP installed on the mobile phone. The mobile phone sends a locker open request to the server according to the instruction, so that the server sends a locker open notification to the locker.

[0060] In the embodiments of this application, the locker operation request may include an identifier of a locker, so that the server can send the locker operation notification to the corresponding locker according to the identifier. Alternatively, the locker operation request may include information having a mapping relationship with a locker, for example, a user

identifier or an article identifier, so that the server sends the locker operation notification to the corresponding locker according to the information and the mapping relationship stored in the server between the information and the locker.

[0061] Manner 2: The user terminal sends the locker operation notification to the locker based on a connection established between the user terminal and the locker.

[0062] For example, the user terminal is a mobile phone of the user. The user triggers a locker open instruction by clicking a control button on an APP installed on the mobile phone. Then the mobile phone may send the locker operation notification to the locker according to a connection established between the mobile phone and the locker.

[0063] The locker operation notification for instructing the locker to perform an operation includes at least one of the following: a locker operation notification for instructing the locker to open a locker door; a locker operation notification for instructing the locker to close a locker door; or a locker operation notification for instructing the locker to sound an alarm.

[0064] For example, assuming that step 11 and step 12 are performed, and the user terminal obtains a locker open operation instruction, and sends, in response to the locker open operation instruction to the locker, a locker operation notification for instructing the locker to perform an open operation, the locker may open a locker door of the locker according to the received locker operation notification.

[0065] To prevent the problem that an article stored in a locker gets lost because a person other than the user performs an operation to open the locker, in an implementation, when the locker operation notification for instructing the locker to perform an operation includes the locker operation notification for opening a locker door of a locker, the locker operation notification includes user information, so that after receiving the locker operation notification and determining that the user information matches article information sent by the server to the locker, the locker performs the operation of opening the locker door of the locker.

[0066] The user information may be, for example, a mobile phone number (or a user account number) of the user, and may indicate information about an identity of the user. The article information sent by the server to the locker includes information related to a receiving user that is input by a courier when storing the article in the locker, for example, a mobile phone number (or an account number of the receiving user) of the receiving user. After receiving the locker operation notification sent by the user terminal, the locker determines whether user information included in the locker operation notification matches the information related to the receiving user that is included in the article information sent by the

server. When a determining result is that the two pieces of information match each other, the locker can perform the operation of opening the locker door of the locker.

[0067] It should be noted that to prevent an article in a locker of a user from getting lost because the user incorrectly performs an operation to open the locker before arriving at the location of the locker, in an implementation, the method provided in the embodiments of this application includes: sending to a server, in response to the locker operation instruction, an identity authentication request including authentication information. If the server successfully authenticates the authentication information, the server sends the locker operation notification to the locker.

[0068] In another embodiment, the authentication information may be included in the locker operation request sent by the user terminal to the server. If the server successfully authenticates the authentication information, the server sends the locker operation notification to the locker.

[0069] Generally, when the authentication performed by the server on the authentication information fails, the server may send a notification to the user terminal. The user terminal may present, in response to the notification, a corresponding prompting message, for example, a prompting message "Authentication on the authentication information fails, please re-authenticate".

[0070] In the embodiments of this application, the authentication information may be obtained by the user by scanning a two-dimensional code on the locker. The two-dimensional code may include information related to the locker and used as the authentication information, for example, at least one of the location information (such as Building XX, Residential community XX, Avenue XX) of the locker, a unique identifier of the locker, the manufacturer of the locker, or other information.

[0071] The authentication information may further be the location information of the user terminal obtained by the user terminal. For example, the user terminal may obtain, in response to the locker operation instruction and based on the location function of the user terminal, information about a current location of the user terminal, such as coordinates of the current location of the user terminal, or Building XX, Residential community XX, Avenue XX at which the user terminal is currently located. The user terminal sends the location information to the server, so that the server can search, according to user information (such as a mobile phone number of the user) included in the authentication information, the stored article information for the article information including the user information; determine that a

locker corresponding to the article information is a locker corresponding to the user terminal; then obtain location information of the locker from stored location information of all lockers; and compare the obtained location information of the locker with the location information of the user terminal, to determine whether the location information of the user terminal matches the location information of the locker (for example, whether the two pieces of location information are the same or whether a deviation of the location information falls within a preset deviation range). If it is determined that the two pieces of location information match each other, authentication succeeds, and a locker operation notification is sent to the locker. If it is determined that the two pieces of location information do not match each other, authentication fails, and the server may send information "Authentication fails, please try again" to a user terminal of a receiving user, and end the procedure. By such manner, it may be ensured that the user notifies a locker to perform an operation only after the user proves the user's arrival near the locker, thereby preventing an article in the locker from getting lost because the user incorrectly performs an operation to open the locker before arriving at the location of the locker.

[0072] In addition, the manner, used in the embodiments of this application, of sending the locker operation notification to the locker only after the authentication performed by the server on the authentication information succeeds may be further used to prevent the article security problem caused by an operation performed by a person other than the user. To prevent the problem, the authentication information may be some private information, such as at least one of an ID of the user, a biological feature (such as a fingerprint feature, a voiceprint feature, or a palm print feature) of the user, or a password of the user.

[0073] The foregoing method is generally performed by a user terminal used by a receiving user. Correspondingly, the following describes, by using an example in which the execution body is a user terminal used by a delivering party, an information sending method provided based on an inventive concept same as that of the foregoing method. Specifically, the information sending method includes the following two steps:

[0074] Step a: A user terminal obtains warehoused article information, where the warehoused article information includes at least locker information and a user identifier (a user identifier of a receiving user).

[0075] Step b: The user terminal uploads the warehoused article information to a server.

[0076] It should be noted that to improve the efficiency of inputting warehoused article information by a user of the delivering party using the user terminal, in an implementation,

the warehoused article information may be obtained in the following three manners:

[0077] Manner 1: Obtain information about a locker of a warehoused article by scanning a two-dimensional code.

[0078] The information about the locker may include information such as the location of the locker and the manufacturer of the locker.

[0079] For example, the delivering party may use a mobile phone to scan a two-dimensional code on a locker, to obtain locker information of the locker. The two-dimensional code includes the locker information.

[0080] It should be noted that the locker information may alternatively be obtained by inputting a unique number of the locker. In an implementation, the locker provided in the embodiments of this application may present a two-dimensional code of the locker and a unique number of the locker on a locker body, so that the user can scan the two-dimensional code or input the unique number of the locker, to enable the user terminal to obtain the locker information.

[0081] Manner 2: Obtain an express bill number of a warehoused article by scanning a barcode.

[0082] For example, a courier may scan, by using a mobile phone, a barcode on a parcel and indicating an express bill number, to obtain the express bill number. Alternatively, a user may manually input an express bill number on a parcel by button input.

[0083] It should be noted that the server may store a mapping relationship between an express bill number of a warehoused article and a receiving user name, a receiving user's phone number and a delivering-party's phone number, so that the server finds, according to an express bill number sent by a user terminal, information such as the receiving user's name, the receiving user's phone number, and the phone number of the delivering-party of the warehoused article.

[0084] Manner 3: Obtain, by a button operation, a time at which a warehoused article enters a locker.

[0085] A delivering-party user may input an article warehousing time into a user terminal by button input. The user terminal may store, after a receiving user inputs a locker operation instruction by using an APP installed on the user terminal, a system time that is after the locker operation instruction is received, and use the stored system time as the time at which the article is warehoused.

[0086] The following describes, by using an example in which the execution body is a

server, a locker operating method provided based on an inventive concept same as that of the foregoing method. Specifically, the locker operating method includes the following steps:

[0087] Step A: The server receives a locker operation request sent by a user terminal.

[0088] Step B: The server sends, in response to the locker operation request, a locker operation instruction to a locker.

[0089] It should be noted that the locker operation request received by the server may be sent by a user terminal used by a delivering party, or may be sent by a user terminal used by a receiving user.

[0090] It should be noted that to ensure security of an article in the locker, the server may perform authentication on authentication information after receiving the locker operation request sent by the user terminal. A detailed process includes: obtaining, by the server, authentication information sent by the user terminal; and sending a locker operation notification to the locker after the authentication information is successfully authenticated.

[0091] The authentication information obtained by the server may be obtained in one of the following two manners:

[0092] Manner a: Obtain the authentication information from the locker operation request sent by the user terminal.

[0093] Manner b: Obtain the authentication information from an identity authentication request sent by the user terminal.

[0094] The following describes how the server performs authentication on the obtained authentication information by using an example in which "warehoused article information" includes an express bill number and "locker information 1" that is obtained by using a scanned two-dimensional code on a locker by the user terminal used by the delivering party.

[0095] After obtaining the warehoused article information including the express bill number and the "locker information 1", the server stores the express bill number and the "locker information 1" and establishes a mapping relationship between the two. In addition, the server sends, to the user terminal used by the receiving user, a warehoused article notification including the express bill number.

[0096] After obtaining "locker information 2" by scanning the two-dimensional code on the locker, the user terminal used by the receiving user adds the "locker information 2" and the express bill number included in the warehoused article to a locker operation instruction, and sends the locker operation instruction to the server.

[0097] The server obtains the express bill number in the locker operation instruction, and

obtains, according to the established mapping relationship between the express bill number and the "locker information 1," the "locker information 1" mapped with the express bill number.

[0098] The server compares whether the "locker information 2" in the locker operation instruction is the same as the "locker information 1" obtained according to the mapping relationship. If the two are the same, the authentication succeeds. In this case, the server sends a locker operation notification to the locker. If the two are different, the authentication fails. In this case, the server may send information "Authentication fails, please try again" to the user terminal of the receiving user, and end the procedure.

[0099] It should be further noted that the authentication information may further include location information of the user terminal. For example, the user terminal may obtain, in response to the locker operation instruction and based on the location function of the user terminal, information about a current location of the user terminal, such as coordinates of the current location of the user terminal, or Building XX, Residential community XX, Avenue XX at which the user terminal is currently located. The user terminal sends the location information to the server, so that the server can search, according to user information included in the authentication information, the stored locker article information for the locker article information including the user information; determine that a locker corresponding to the article information is a locker corresponding to the user terminal; then obtain location information of the locker; and compare the obtained location information of the locker with the location information of the user terminal, to determine whether the location information of the user terminal matches the location information of the locker (for example, whether the two pieces of location information are the same or whether a deviation of the location information falls within a preset deviation range). If it is determined that the two pieces of location information match each other, authentication succeeds, and a locker operation notification is sent to the locker. If it is determined that the two pieces of location information do not match each other, authentication fails, and the server may send information "Authentication fails, please try again" to the user terminal of the receiving user, and end the procedure. By such manner, it may be ensured that the user notifies a locker to perform an operation only after the user proves the user's arrival near the locker, thereby preventing an article in the locker from getting lost because the user incorrectly performs an operation to open the locker before arriving at the location of the locker.

[00100] The following describes, by using an example in which the execution body is a

locker, a locker operating method provided based on an inventive concept same as that of the foregoing method. Specifically, the locker operating method includes the following two steps:

[00101] Step 1: Receive a locker operation notification.

[00102] Step 2: Perform, in response to the locker operation notification, a predetermined operation.

[00103] It should be noted that in the embodiments of this application, different lockers may have respective communications devices and processors. Alternatively, different lockers may form a locker set, and all the lockers in the locker set may be centrally controlled and operated by the same processor, and all the lockers may share a communications device.

[00104] A locker may receive a locker operation notification in one of the following two manners:

[00105] Manner a: The locker receives a locker operation notification sent by a user terminal based on a connection established between the user terminal and the locker.

[00106] Manner b: The locker receives a locker operation notification sent by a server.

[00107] It should be noted that the locker operation notification received by the locker may include the following three notifications.

[00108] A notification A is a locker operation notification for instructing the locker to open a locker door.

[00109] In this case, the locker may perform, according to the received locker operation notification for instructing the locker to open a locker door, an operation of opening a locker door of a locker.

[00110] It should be noted that a processor of the locker may be used to control to perform the operation of opening a locker door of a locker, or an embedded control terminal of the locker may be used to control to perform the operation of opening a locker door of a locker.

[00111] A notification B is a locker operation notification for instructing the locker to close a locker door.

[00112] In this case, the locker may perform, according to the received locker operation notification for instructing the locker to close a locker door, an operation of closing a locker door of a locker.

[00113] A notification C is a locker operation notification for instructing the locker to sound an alarm.

[00114] In this case, the locker may perform, according to the received locker operation

notification for instructing the locker to sound an alarm, an operation of sounding an alarm.

[00115] Generally, in actual practice, the following scenario may occur:

[00116] For example, assuming that multiple users come to the locker set described above to perform an article pickup operation at the same time, and the multiple users each perform step 11 and step 12 by using mobile phones, and each send, to the locker set, a notification for opening a locker door of a locker, then the locker set open locker doors of multiple lockers according to the received multiple open locker operation notifications. In this case, a user may not know which opened locker stores an article of the user.

[00117] To resolve the foregoing problem, in an implementation, a processor of the locker set provided in the embodiments of this application may notify, to a user according to a received locker operation notification, information about the user to which a locker cell that is open belongs.

[00118] For example, it is assumed that a user A, a user B and a user C come to a locker set to pick up articles at the same time, and it is assumed that an article of the user A is stored in a locker cell 1, an article of the user B is stored in a locker cell 2, and an article of the user C is stored in a locker cell 3. After the user A, the user B and the user C separately send, to the locker set by using mobile phones, a locker operation notification for instructing a locker to open a locker door, the locker set may send, by using a voice device (such as a speaker), the following three voice broadcasts: "User A, please pick up your article from the locker cell 1", "User B, please pick up your article from the locker cell 2", and "User C, please pick up your article from the locker cell 3", so that the users can find the corresponding locker cells according to content of the broadcasts, and pick up their articles. Alternatively, the locker set may send information to the users separately, where information received by the mobile phone of the user A is "Please pick up your article from the locker cell 1", information received by the mobile phone of the user B is "Please pick up your article from the locker cell 2", and information received by the mobile phone of the user C is "Please pick up your article from the locker cell 3".

[00119] It should be noted that after a user performs, by using a user terminal, an operation of opening a locker, and places an article into the locker, the user may forget to close a locker door of the locker. Therefore, the article of the user in the locker may get lost. To prevent the foregoing problem from occurring, in an implementation, the locker provided in the embodiments of this application may automatically close the locker door of the locker. This may specifically include: after performing the operation of opening a locker door of a locker,

performing, by the locker after a specified event occurs, the operation of closing a locker door of a locker. The specified event, for example, may be that using a moment at which the locker door of the locker is open as a start moment, after a set time period, the locker detects that its locker door is not closed. In an example, a detection apparatus for transmitting a status (an open state or a closed state) of the locker door of the locker may be disposed near the locker door, so that it may be determined, by using information sent by the detection apparatus, whether the locker door is open or closed. When the locker door of the locker is not closed, if the locker does not detect any locker operation notification sent by the user to the locker within a set time period after the locker door is open, the locker automatically closes the locker door of the locker.

[00120] For example, it is assumed that a time for automatically closing a locker door that is set by the locker is two minutes, and it is assumed that the user does not close the locker door of the locker after placing an article into the locker. If the locker does not detect, within two minutes, any locker operation notification sent by the user to the locker, the locker automatically closes the locker door. This prevents the article in the locker from getting lost because the user forgets to close the locker door.

[00121] It should be further noted that the locker provided in the embodiments of this application may further send, when the locker door of the locker is not closed, a reminder to a user using the locker, receive a locker operation notification for instructing a locker to close a locker door that is sent by the user by using a user terminal, and close, in response to the locker operation notification, the locker door of the locker.

[00122] For example, it is assumed that when the locker door of the locker is not closed, and the locker does not detect, within two minutes, any locker operation notification sent by the user to the locker, the locker sends, to the user using the locker, a locker security reminder (which, for example, may be "The locker door of your locker A is not closed yet, to prevent your article in the locker from getting lost, please close the locker door of the locker in time by using your mobile phone APP"). After receiving the notification, the user may send, to the locker by using the mobile phone APP, an operation notification of closing the locker door of the locker. After receiving the notification, the locker closes the locker door of the locker in response to the locker operation notification.

[00123] By the locker provided in Embodiment 1 of this application, during use of a locker, a user may send a locker operation notification to the locker by using a user terminal (such as a mobile phone), to control a locker door of the locker to open or close or perform another

operation. In this way, the user does not need to perform the complex operations in existing technologies, thereby improving the operation efficiency for the locker.

[00124] Embodiment 2

[00125] The embodiments of this application describe an application manner of the locker operating method provided in Embodiment 1 in real life.

[00126] Specifically, the embodiments of this application provide a locker operating method, to resolve a problem of low efficiency when an existing self-service locker is used to store or pick up a parcel. A detailed flowchart of the method is shown in FIG. 2, and mainly includes the following steps:

[00127] Step 21: A courier inputs self-service locker information and order information by using a user terminal.

[00128] The user terminal may be, for example, a mobile phone or a tablet computer of the courier. The self-service locker may be manufactured and provided by an express delivery company, or may be manufactured and provided by an Internet e-commerce company, or may be manufactured and provided by a third-party manufacturer.

[00129] For example, the courier inputs self-service locker information and order information by using the mobile phone. The courier opens an APP on the mobile phone, and selects an option of storage in a self-service locker. In this case, the APP displays an interface shown in FIG. 3. The courier may click a button for scanning a two-dimensional code, and uses the mobile phone to scan a two-dimensional code on the self-service locker, to obtain the self-service locker information (for example, information about a detailed location of the self-service locker) according to the two-dimensional code. The courier clicks a button for scanning a barcode, and uses the mobile phone to scan a barcode on a parcel, to obtain an order number of the parcel according to the barcode. In addition, the courier may alternatively input a number on the self-service locker manually, to obtain the self-service locker information; manually input an express bill number on a parcel, to obtain order information of the parcel, and upload the obtained self-service locker information and order number to a server.

[00130] It should be noted that the APP generally may be an APP provided by the manufacturer of the self-service locker. Assuming that the self-service locker and the APP are provided by an Internet e-commerce company, the server of the APP may be used to share data of the Internet e-commerce company and an express delivery company having a cooperative relationship with the Internet e-commerce company. Further, the APP may be

used to obtain information about the express delivery company providing a mailing service, information about the Internet e-commerce company, and information about a user purchasing the parcel.

[00131] Step 22: The courier inputs, by using the user terminal, an instruction for instructing a self-service locker to open, opens the self-service locker, and places a parcel into the self-service locker.

[00132] After performing step 21 and completing information entry, the courier clicks a button "open the door" shown in FIG. 3, and the APP displays content shown in FIG. 4. If after the courier clicks the button "open the door", a locker door of the self-service locker opens normally, the courier may click a button "the door is open" shown in FIG. 4, place a parcel to be mailed into the self-service locker, and close the locker door of the self-service locker. If after the courier clicks the button "open the door", the locker door of the self-service locker does not open normally, the courier may click a button "the door is not open" shown in FIG. 4. In this case, the APP displays the interface shown in FIG. 3, and the courier needs to input the self-service locker information and the order number again. If the courier clicks a button "next", the APP displays the interface shown in FIG. 3, and may receive the self-service locker information and the order number newly input by the courier.

[00133] Step 23: A receiving user receives a parcel logistics update notification, and arrives at a location of a specified self-service locker according to the parcel logistics update notification.

[00134] It should be noted that the parcel logistics update notification includes the "self-service locker information" and "order information" that are input by the courier by performing step 21 and uploaded to the server. After the courier performs step 22 and selects the button "the door is open", the server determines the receiving user according to "consigner information" in the "order information", and sends the logistics update notification including the "self-service locker information" and "order information" to a user terminal (which, for example, may be a mobile phone) of the receiving user. The specified APP is also installed on the user terminal of the receiving user.

[00135] After receiving the parcel logistics update notification, the receiving user opens the APP. In this case, the APP displays an interface shown in FIG. 5. The receiving user clicks a button to check the self-service locker, checks the self-service locker information by using an interface shown in FIG. 6, and arrives at the location of the self-service locker according to self-service locker location information in the self-service locker information.

[00136] Step 24: The receiving user clicks a button on a presentation interface of a user terminal of the receiving user, to open the self-service locker, and takes the parcel out.

[00137] For example, the receiving user clicks a button "scan to open the door" in the interface of the user terminal of the receiving user shown in FIG. 6, to trigger the user terminal of the receiving user to present a two-dimensional code scanning interface shown in FIG. 7.

[00138] The receiving user scans, by using the user terminal of the receiving user, a two-dimensional code presented on the self-service locker, and confirms that the receiving user has arrived at a location near the self-service locker.

[00139] After determining that the receiving user has arrived at a location near the self-service locker, the APP presents an interface shown in FIG. 8, and prompts successful matching of the information. Then the self-service locker is open, and the article in the self-service locker is taken out.

[00140] If identity authentication on the receiving user fails, the APP presents an interface shown in FIG. 9, and informs the receiving user that the self-service locker is a wrong one.

[00141] The foregoing procedure may be represented by a procedure shown in FIG. 10.

[00142] Currently, according to an existing self-service locker, before a courier opens the self-service locker to place an article into it, the courier needs to sequentially input, by using an input apparatus (such as a keyboard) provided by the self-service locker, information such as an order number of an article, a receiving user's name, a receiving user's mobile phone number, a courier's mobile phone number, and a self-service locker number. The information all needs to be sequentially input by the courier by using an external keyboard. Therefore, the process is complex, and time-consuming. However, according to the self-service locker provided in the embodiments of this application, when a courier needs to open the self-service locker to place an article into it, the courier only needs to use a mobile phone to scan an express bill number of the article, and the courier can obtain information such as an order number of the article, a receiving user's name, and a receiving user's mobile phone number. In addition, the courier can obtain self-service locker information by scanning, by using the mobile phone, a two-dimensional code presented on the self-service locker, without a need to input the foregoing information by using an external keyboard, thereby reducing a time required for placing an article into the self-service locker.

[00143] It should be noted that to ensure normal use of the self-service locker, the self-service locker needs to be maintained regularly. However, the existing self-service locker

needs to be equipped with a code scanning device, an interactive screen, and an external keyboard. Purchasing and maintenance costs of these devices are high. By the self-service locker provided in the embodiments of this application, all operation instructions are input by the user terminal. Therefore, the foregoing devices do not need to be mounted, thereby reducing costs required for maintaining the self-service locker.

[00144] It should be further noted that by the existing self-service locker, when a user picks up an article by using the self-service locker, the user needs to sequentially input, by using the external keyboard, each character included in an authentication password into the self-service locker, and then departs for opening the self-service locker. The process is complex and time-consuming. By the self-service locker provided in the embodiments of this application, when a user intends to open the self-service locker to pick up an article, the user just needs to open an APP on a user terminal (such as a mobile phone), and click a corresponding button on the APP, so that the corresponding self-service locker can be opened, thereby reducing the time required for taking an article out of the self-service locker.

[00145] Currently, an authentication password for the existing self-service locker is generally sent to a receiving user by using a short message. Consequently, the user may mistakenly delete the short message. When the short message including an authentication password is mistakenly deleted, the user can resolve the article pick-up problem only by contacting customer service staff of an express delivery company. The process of resolving the problem by contacting customer service staff is complex, and the efficiency is low. However, by the self-service locker provided in the embodiments of this application, the APP installed on the user terminal is used to control one-button operation of opening the door. Therefore, no authentication password is required, and the problem of losing a password does not exist. Even if the APP on the user terminal is deleted, the user only needs to download and install the APP again, and log in to an account of the user, to use the APP to perform again the one-button operation of opening the door.

[00146] It should be further noted that by the existing self-service locker, after a courier places an article into the self-service locker, even if the user has not picked up the article from the self-service locker, it still indicates that the user has signed for the receipt of the article in the procedure of the express delivery company. In this case, unnecessary economic losses may be caused to the user. However, by the self-service locker provided in the embodiments of this application, because the server is used to collect data of the express delivery company, the Internet e-commerce company, and the user, when the courier places

an article into the self-service locker, the server notifies the user and the Internet e-commerce company of such information. In this case, a state of the article is: to be picked up by the user from the self-service locker, and the user and the Internet e-commerce company are not notified that the user has signed for receipt of the article. Therefore, the user and the Internet e-commerce company can know the state of the article more accurately.

[00147] By the self-service locker provided in Embodiment 2 of this application, when a self-service locker is used, a user may directly send an operation instruction to the self-service locker by using a user terminal (such as a mobile phone), to control opening or closing of a locker door of the self-service locker, and the user does not need to directly operate the self-service locker, thereby improving efficiency in storing and taking out an article.

[00148] Embodiment 3

[00149] The embodiments of this application provide a locker operation apparatus, to resolve the problem of low efficiency caused by complex operations that need to be performed by a user when the user picks up a parcel by using existing technologies. A detailed schematic structural diagram of the apparatus is shown in FIG. 11, and the apparatus includes an operation instruction obtaining unit 31 and an operation instruction sending unit 32.

[00150] The operation instruction obtaining unit 31 is configured to obtain, by a user terminal, a locker operation instruction.

[00151] The operation instruction sending unit 32 is configured to: send to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.

[00152] In an implementation, the operation instruction sending unit 32 is configured to: send, by the user terminal, a locker operation request to a server, to trigger the server to send the locker operation notification to the locker; or send, by the user terminal, the locker operation notification to the locker based on a connection established between the user terminal and the locker.

[00153] In an implementation, the operation instruction sending unit 32 is further configured to: before the user terminal obtains the locker operation instruction, receive an article warehousing notification.

[00154] In an implementation, the operation instruction obtaining unit 31 is further configured to: after the user terminal receives the article warehousing notification, present a

button in a first display interface; and receive the locker operation instruction triggered by an operation performed on the button.

[00155] In an implementation, an information presentation unit is configured to: when the article warehousing notification obtained by the operation instruction obtaining unit includes to-be-presented information, present, by the user terminal, a second display interface including to-be-presented information, where the to-be-presented information includes at least one of the following: information related to a locker; and information related to a warehoused article.

[00156] In an implementation, an identity authentication unit is configured to: before the operation instruction sending unit sends the locker operation notification to the locker, send to a server, in response to the locker operation instruction, an identity authentication request including authentication information.

[00157] In an implementation, an identity authentication unit is configured to send, to a server, a locker operation request including authentication information, to trigger the server to send the locker operation notification to the locker after successfully authenticating the authentication information.

[00158] In an implementation, the identity authentication unit is further configured to: receive a result of the authentication performed by the server for the identity authentication request; and when the received result of the authentication is that the authentication fails, present a corresponding prompting message.

[00159] In an implementation, the authentication information includes at least one of the following information: information related to the locker; and obtained location information of the user terminal.

[00160] In an implementation, the identity authentication unit is further configured to: when the authentication information includes the information related to the locker, obtain the information related to the locker by scanning a two-dimensional code; and when the authentication information includes the location information, obtain, in response to the locker operation instruction, information about a current location of the user terminal.

[00161] In an implementation, the locker operation notification for instructing the locker to perform an operation includes at least one of the following: a locker operation notification for instructing the locker to open a locker door; a locker operation notification for instructing the locker to close a locker door; or a locker operation notification for instructing the locker to sound an alarm.

[00162] In an implementation, a path prompting unit is further included, and configured to: obtain location information of the locker; and prompt, according to the location information of the locker, information about a path to the location of the locker.

[00163] In an implementation, the operation instruction sending unit 32 is configured to: when the operation includes an operation of opening a locker door of a locker, the locker operation notification includes user information; and the locker operation notification is used to cause the locker to perform the operation of opening a locker door of a locker after receiving the locker operation notification and determining that the user information matches article information sent by a server to the locker.

[00164] In an implementation, embodiments of this application further provide an information sending apparatus. A detailed schematic structural diagram of the apparatus is shown in FIG. 12, and the apparatus includes: an information obtaining unit 41 and an information uploading unit 42.

[00165] The information obtaining unit 41 is configured to obtain warehoused article information, where the warehoused article information includes at least locker information and a user identifier.

[00166] The information uploading unit 42 is configured to upload the warehoused article information to a server.

[00167] In an implementation, that the information obtaining unit 41 is configured to obtain a warehoused article information includes at least one of the following: obtaining, by a user terminal, the warehoused article information by scanning a two-dimensional code; obtaining, by a user terminal, the warehoused article information by scanning a barcode; or obtaining, by a user terminal, the warehoused article information by button input.

[00168] In an implementation, embodiments of this application further provide a locker operation apparatus. A detailed schematic structural diagram of the apparatus is shown in FIG. 13, and the apparatus includes: an operation request receiving unit 51 and an operation notification sending unit 52.

[00169] The operation request receiving unit 51 is configured to receive a locker operation request sent by a user terminal.

[00170] The operation notification sending unit 52 is configured to send, in response to the locker operation request, a locker operation notification to the locker.

[00171] In an implementation, the operation notification sending unit 52 is configured to: when obtained authentication information includes location information of the user terminal,

determine whether the location information of the user terminal matches information related to the locker stored in a server, and if yes, send the locker operation notification to the locker.

[00172] In an implementation, the operation request receiving unit 51 is further configured to: receive warehoused article information uploaded by a user terminal of a delivering party, where the warehoused article information includes at least locker information and a user identifier; and send the warehoused article information to a user terminal corresponding to the user identifier.

[00173] In an implementation, embodiments of this application further provide a locker operation apparatus. A detailed schematic structural diagram of the apparatus is shown in FIG. 14, and the apparatus includes: an operation notification receiving unit 61 and an operation execution unit 62.

[00174] The operation notification receiving unit 61 is configured to receive a locker operation notification sent by a user terminal.

[00175] The operation execution unit 62 is configured to perform, in response to the locker operation notification, a predetermined operation.

[00176] In an implementation, the operation notification receiving unit 61 is configured to: receive, by a locker, a locker operation notification sent by the user terminal based on a connection established between the user terminal and the locker; or receive, by a locker, a locker operation notification sent by a server and triggered by the user terminal.

[00177] In an implementation, the operation execution unit 62 is configured to: perform, in response to a locker operation notification for instructing the locker to open a locker door, an operation of opening a locker door of a locker; perform, in response to a locker operation notification for instructing the locker to close a locker door, an operation of closing a locker door of a locker; or perform, in response to a locker operation notification for instructing the locker to sound an alarm, an operation of sounding an alarm.

[00178] In an implementation, the operation execution unit 62 is further configured to: after performing, in response to the locker operation notification for instructing the locker to open a locker door, the operation of opening a locker door of a locker, perform, after a specified event occurs, the operation of closing a locker door of a locker.

[00179] In an implementation, the operation execution unit 62 is configured to: obtain user information from the locker operation notification; determine whether the user information matches article information sent by a server to the locker; and if yes, perform the operation of opening a locker door of a locker.

[00180] In an implementation, embodiments of this application further provide a locker operation system, including: a first user terminal, configured to: obtain a locker operation instruction, and send, in response to the locker operation instruction, a locker operation request to a server; the server, configured to receive the locker operation request sent by the first user terminal, and send, in response to the locker operation request, a locker operation notification to the locker; and the locker, configured to: receive the locker operation notification, and perform, in response to the locker operation notification, a predetermined operation.

[00181] In an implementation, a second user terminal is configured to: obtain warehoused article information; and upload the warehoused article information to the server, where the warehoused article information includes at least: locker information and a user identifier. The server is further configured to: send, according to the user identifier, the locker information to the first user terminal corresponding to the user identifier.

[00182] By the locker provided in Embodiment 3 of this application, when a locker is used, a user may directly send an operation instruction to the locker by using a user terminal (such as a mobile phone), to control opening or closing of a locker door of the locker, and the user does not need to directly operate the locker, thereby improving efficiency in storing and taking out an article.

[00183] A person skilled in the art should understand that the embodiments of the present invention may be provided as a method, a system, or a computer program product. Therefore, the present invention may use a form of hardware only embodiments, software only embodiments, or embodiments combining software and hardware. Moreover, the present invention may use a form of a computer program product that is implemented on one or more computer-usable storage media (including but not limited to a magnetic disk memory, a CD-ROM, an optical memory, and the like) that include computer-usable program code.

[00184] The present invention is described with reference to flowcharts and/or block diagrams of the method, device (system), and computer program product in the embodiments of the present invention. It should be understood that computer program instructions may be used to implement each process and/or each block in the flowcharts and/or the block diagrams and a combination of a process and/or a block in the flowcharts and/or the block diagrams. These computer program instructions may be provided for a general-purpose computer, a dedicated computer, an embedded processor, or a processor of any other programmable data processing device to generate a machine, so that the instructions executed

by a computer or a processor of any other programmable data processing device generate an apparatus for implementing a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[00185] These computer program instructions may also be stored in a computer readable memory that can instruct the computer or any other programmable data processing device to work in a specific manner, so that the instructions stored in the computer readable memory generate an artifact that includes an instruction apparatus. The instruction apparatus implements a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[00186] These computer program instructions may also be loaded onto a computer or another programmable data processing device, so that a series of operations and steps are performed on the computer or the another programmable device, thereby generating computer-implemented processing. Therefore, the instructions executed on the computer or the another programmable device provide steps for implementing a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[00187] In a typical configuration, a computing device includes one or more processors (CPU), an input/output interface, a network interface, and a memory.

[00188] The memory may include a form such as a non-persistent memory, a random access memory (RAM), and/or a non-volatile memory in a computer readable medium, such as a read-only memory (ROM) or a flash memory (flash RAM). The memory is an example of the computer-readable medium.

[00189] The computer-readable medium includes persistent and non-persistent, and movable and non-movable media, and can implement information storage by using any method or technology. The information may be a computer-readable instruction, a data structure, a module of a program, or other data. For example, the computer storage medium may include but is not limited to a phase-change memory (PRAM), a static random access memory (SRAM), a dynamic random access memory (DRAM), another type of random access memory (RAM), read-only memory (ROM), electrically erasable programmable read-only memory (EEPROM) or flash memory or another memory technology, a compact disc read-only memory (CD-ROM), a digital versatile disc (DVD), another optical memory, magnetic tape cassette, cassette magnetic disk memory or another magnetic storage device, or any other non-transmission medium, and may be configured to store information accessible to the computing device. As defined in this specification, the computer-readable medium

does not include a transitory computer-readable medium, such as a modulated data signal and carrier.

[00190] It should be further noted that, the terms "include", "comprise", or their any other variant is intended to cover a non-exclusive inclusion, so that a process, a method, a product, or an apparatus that includes a list of elements not only includes those elements but also includes other elements which are not expressly listed, or further includes elements inherent to such process, method, product, or apparatus. Unless otherwise specified, an element limited by "including a/an..." does not exclude other same elements existing in the process, the method, the product, or the device that includes the element.

[00191] A person skilled in the art should understand that the embodiments of this application may be provided as a method, a system, or a computer program product. Therefore, this application may use the form of hardware only embodiments, software only embodiments, or embodiments combining software and hardware. In addition, this application may use a form of a computer program product that is implemented on one or more computer-usable storage media (including but not limited to a magnetic disk memory, a CD-ROM, an optical memory, and the like) that include computer-usable program code.

[00192] The foregoing descriptions are merely embodiments of this application, and are not intended to limit this application. For a person skilled in the art, various modifications and changes may be made to this application. Any modifications, equivalent replacements, and improvements made within the spirit and principle of this application shall fall within the scope of the claims of this application.

CLAIMS

What is claimed is:

1. A locker operating method, comprising:
obtaining, by a user terminal, a locker operation instruction; and
sending to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.
2. The method according to claim 1, wherein the sending to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation comprises:
sending, by the user terminal, a locker operation request to a server, to trigger the server to send the locker operation notification to the locker; or
sending, by the user terminal, the locker operation notification to the locker based on a connection established between the user terminal and the locker.
3. The method according to claim 1, wherein before the obtaining, by a user terminal, a locker operation instruction, the method further comprises:
receiving, by the user terminal, an article warehousing notification.
4. The method according to claim 3, wherein after the receiving, by the user terminal, an article warehousing notification, the method further comprises:
presenting, by the user terminal, a first display interface comprising a button; and
the obtaining, by a user terminal, a locker operation instruction comprises:
receiving, by the user terminal, the locker operation instruction triggered by an operation performed on the button.
5. The method according to claim 2 or 3, wherein the article warehousing notification comprises to-be-presented information, and after the article warehousing notification is obtained, the method further comprises:
presenting, by the user terminal, a second display interface comprising the to-be-presented information, wherein
the to-be-presented information comprises at least one of the following:
information related to the locker; and

information related to a warehoused article.

6. The method according to claim 1, wherein before the user terminal sends the locker operation notification to the locker, the method further comprises:

sending to a server, in response to the locker operation instruction, an identity authentication request comprising authentication information.

7. The method according to claim 1, wherein sending, by the user terminal, the locker operation notification to the locker comprises:

sending, by the user terminal to a server, a locker operation request comprising authentication information, to trigger the server to send the locker operation notification to the locker after successfully authenticating the authentication information.

8. The method of claim 6 or 7, wherein the method further comprises:

presenting, by the user terminal, a corresponding prompting message when a result of the authentication performed by the server on the authentication information is that the authentication fails.

9. The method according to claim 6 or 7, wherein the authentication information comprises at least one of the following information:

information related to the locker; and
obtained location information of the user terminal.

10. The method according to claim 9, wherein when the authentication information comprises the information related to the locker, the method further comprises:

obtaining, by the user terminal, the information related to the locker by scanning a two-dimensional code; and

when the authentication information comprises the location information, the method further comprises:

obtaining, in response to the locker operation instruction, information about a current location of the user terminal.

11. The method according to claim 1, wherein the locker operation notification for

instructing the locker to perform an operation comprises at least one of the following:

- a locker operation notification for instructing the locker to open a locker door;
- a locker operation notification for instructing the locker to close a locker door; and
- a locker operation notification for instructing the locker to sound an alarm.

12. The method of claim 1, wherein the method further comprises:

- obtaining, by the user terminal, location information of the locker; and
- prompting, according to the location information of the locker, information about a path to a location of the locker.

13. The method according to claim 1, wherein when the operation comprises an operation of opening a locker door of a locker, the locker operation notification comprises user information; and

the locker operation notification is used to cause the locker to perform the operation of opening a locker door of a locker after receiving the locker operation notification and determining that the user information matches article information sent by a server to the locker.

14. An information sending method, comprising:

- obtaining, by a user terminal, warehoused article information, wherein the warehoused article information comprises at least locker information and a user identifier; and
- uploading the warehoused article information to a server.

15. The method according to claim 14, wherein the obtaining, by a user terminal, warehoused article information comprises at least one of the following:

- obtaining, by the user terminal, the warehoused article information by scanning a two-dimensional code;
- obtaining, by the user terminal, the warehoused article information by scanning a barcode; or
- obtaining, by the user terminal, the warehoused article information by button input.

16. A locker operating method, comprising:

- receiving, by a server, a locker operation request sent by a user terminal; and

sending, in response to the locker operation request, a locker operation notification to a locker.

17. The method according to claim 16, wherein the sending, by a server in response to the locker operation request, a locker operation notification to the locker comprises:

obtaining, by the server, authentication information sent by the user terminal; and
sending the locker operation notification to the locker after the authentication information is successfully authenticated.

18. The method according to claim 17, wherein the authentication information comprises location information of the user terminal; and

the sending the locker operation notification to the locker after the authentication information is successfully authenticated comprises:

determining whether the location information of the user terminal matches information related to the locker stored in the server, and if yes, sending the locker operation notification to the locker.

19. The method according to claim 16, further comprising:

receiving, by the server, warehoused article information uploaded by a user terminal of a delivering party, wherein the warehoused article information comprises at least locker information and a user identifier; and

sending the locker information to a user terminal corresponding to the user identifier.

20. A locker operating method, comprising:

receiving, by a locker, a locker operation notification sent by a user terminal; and
performing, in response to the locker operation notification, a predetermined operation.

21. The method according to claim 20, wherein the receiving, by a locker, a locker operation notification sent by a user terminal comprises:

receiving, by the locker, the locker operation notification sent by the user terminal based on a connection established between the user terminal and the locker; or

receiving, by the locker, the locker operation notification sent by a server and triggered by the user terminal.

22. The method according to claim 20, wherein the performing, in response to the locker operation notification, a predetermined operation comprises at least one of the following:

performing, in response to a locker operation notification for instructing the locker to open a locker door, an operation of opening the locker door of the locker;

performing, in response to a locker operation notification for instructing the locker to close the locker door, an operation of closing the locker door of the locker; or

performing, in response to a locker operation notification for instructing the locker to sound an alarm, an operation of sounding an alarm.

23. The method according to claim 22, wherein when the performing, in response to the locker operation notification, a predetermined operation comprises the performing, in response to a locker operation notification for instructing the locker to open a locker door, an operation of opening a locker door of a locker, the method further comprises:

after performing the operation of opening the locker door of the locker, performing, by the locker after a specified event occurs, the operation of closing the locker door of the locker.

24. The method according to claim 22 or 23, wherein the performing, in response to a locker operation notification for instructing the locker to open a locker door, an operation of opening the locker door of the locker comprises:

obtaining, by the locker, user information from the locker operation notification;

determining whether the user information matches article information sent by a server to the locker; and

if yes, performing the operation of opening the locker door of the locker.

25. A locker operation system, comprising:

a first user terminal, configured to: obtain a locker operation instruction, and send, in response to the locker operation instruction, a locker operation request to a server;

the server, configured to: receive the locker operation request sent by the first user terminal, and send, in response to the locker operation request, a locker operation notification to a locker; and

the locker, configured to: receive the locker operation notification, and perform, in

response to the locker operation notification, a predetermined operation.

26. The system according to claim 25, further comprising:

a second user terminal, configured to: obtain warehoused article information, and upload the warehoused article information to the server, wherein the warehoused article information comprises at least locker information and a user identifier; and

the server is further configured to send, according to the user identifier, the locker information to the first user terminal corresponding to the user identifier.

27. A locker operation apparatus, comprising:

an operation instruction obtaining unit, configured to obtain a locker operation instruction; and

an operation instruction sending unit, configured to: send to a locker with a communication function, in response to the locker operation instruction, a locker operation notification for instructing the locker to perform an operation.

28. The apparatus according to claim 27, wherein the operation instruction sending unit is configured to:

send a locker operation request to a server, to trigger the server to send the locker operation notification to the locker; or

send the locker operation notification to the locker based on a connection established between a user terminal and the locker.

29. The apparatus according to claim 27, wherein the operation instruction obtaining unit is further configured to:

receive an article warehousing notification before obtaining the locker operation instruction.

30. The apparatus according to claim 29, wherein the operation instruction obtaining unit is further configured to:

present a button in a first display interface after receiving the article warehousing notification; and

receive the locker operation instruction triggered by an operation performed on the

button.

31. The apparatus according to claim 28 or 29, wherein the apparatus further comprises:
an information presentation unit, configured to:

when the article warehousing notification obtained by the operation instruction obtaining unit comprises to-be-presented information, present the to-be-presented information in a second display interface, wherein

the to-be-presented information comprises at least one of the following:

information related to the locker; and

information related to a warehoused article.

32. The apparatus according to claim 27, wherein the apparatus further comprises:
an identity authentication unit, configured to:

before the operation instruction sending unit sends the locker operation instruction to the locker, send to a server, in response to the locker operation instruction, an identity authentication request comprising authentication information.

33. The apparatus according to claim 27, wherein an identity authentication unit is configured to:

send, to a server, a locker operation request comprising authentication information, to trigger the server to send the locker operation notification to the locker after successfully authenticating the authentication information.

34. The apparatus according to claim 32 or 33, wherein the identity authentication unit is further configured to:

receive a result of the authentication performed by the server for the identity authentication request; and

when the received result of the authentication is that the authentication fails, present a corresponding prompting message.

35. The apparatus according to claim 32 or 33, wherein the authentication information comprises at least one of the following information: information related to the locker; and obtained location information of the user terminal.

36. The apparatus according to claim 35, wherein the identity authentication unit is further configured to:

when the authentication information comprises the information related to the locker, obtain the information related to the locker by scanning a two-dimensional code; and

when the authentication information comprises the location information, obtain, in response to the locker operation instruction, information about a current location of the user terminal.

37. The apparatus according to claim 27, wherein the locker operation notification for instructing the locker to perform an operation comprises at least one of the following:

a locker operation notification for instructing the locker to open a locker door;

a locker operation notification for instructing the locker to close a locker door; and

a locker operation notification for instructing the locker to sound an alarm.

38. The apparatus according to claim 27, wherein the apparatus further comprises a path prompting unit, configured to:

obtain location information of the locker; and

prompt, according to the location information of the locker, information about a path to a location of the locker.

39. The apparatus according to claim 27, wherein the operation instruction sending unit is configured to:

when the operation comprises an operation of opening a locker door of a locker, the locker operation notification comprises user information; and the locker operation notification is used to cause the locker to perform the operation of opening a locker door of a locker after receiving the locker operation notification and determining that the user information matches article information sent by a server to the locker.

40. An information sending apparatus, comprising:

an information obtaining unit, configured to obtain warehoused article information, wherein the warehoused article information comprises at least locker information and a user identifier; and

an information uploading unit, configured to upload the warehoused article information to a server.

41. The method according to claim 40, wherein that the information obtaining unit is configured to obtain a warehoused article information comprises at least one of the following:

obtaining, by a user terminal, the warehoused article information by scanning a two-dimensional code;

obtaining, by a user terminal, the warehoused article information by scanning a barcode;
or

obtaining, by a user terminal, the warehoused article information by button input.

42. A locker operation apparatus, comprising:

an operation request receiving unit, configured to receive a locker operation request sent by a user terminal; and

an operation notification sending unit, configured to send, in response to the locker operation request, a locker operation notification to a locker.

43. The apparatus according to claim 42, wherein the operation notification sending unit is configured to:

obtain authentication information sent by the user terminal; and

send the locker operation notification to the locker after the authentication information is successfully authenticated.

44. The apparatus according to claim 43, wherein the operation notification sending unit is configured to:

when the obtained authentication information comprises location information of the user terminal, determine whether the location information of the user terminal matches information related to the locker stored in a server, and if yes, send the locker operation notification to the locker.

45. The apparatus according to claim 42, wherein the operation request receiving unit is further configured to:

receive warehoused article information uploaded by a user terminal of a delivering party,

wherein the warehoused article information comprises at least locker information and a user identifier; and

send the warehoused article information to a user terminal corresponding to the user identifier.

46. A locker operation apparatus, comprising:

an operation notification receiving unit, configured to receive a locker operation notification sent by a user terminal; and

an operation execution unit, configured to perform, in response to the locker operation notification, a predetermined operation.

47. The apparatus according to claim 46, wherein the operation notification receiving unit is configured to:

receive the locker operation notification sent by the user terminal based on a connection established between the user terminal and the locker; or

receive the locker operation notification sent by a server and triggered by the user terminal.

48. The apparatus according to claim 46, wherein the operation execution unit is configured to:

perform, in response to a locker operation notification for instructing the locker to open a locker door, an operation of opening the locker door of the locker;

perform, in response to a locker operation notification for instructing the locker to close the locker door, an operation of closing the locker door of the locker; or

perform, in response to a locker operation notification for instructing the locker to sound an alarm, an operation of sounding an alarm.

49. The apparatus according to claim 46, wherein the operation execution unit is further configured to:

after performing, in response to the locker operation notification for instructing the locker to open a locker door, the operation of opening the locker door of the locker, perform, after a specified event occurs, the operation of closing the locker door of the locker.

50. The apparatus according to claim 46 or 47, wherein the operation execution unit is configured to:

obtain user information from the locker operation notification; and

determine whether the user information matches article information sent by a server to the locker; and if yes, perform the operation of opening the locker door of the locker.