

CLAIMS

1. An inventory system, comprising:

a control system,

5 a plurality of storage and retrieval devices in communication with the control system, and

a plurality of handling devices in communication with the control system,

wherein the plurality of storage and retrieval devices operate in a storage area of the inventory system, a plurality of inventory racks are deployed in the storage area, each inventory rack of the plurality of inventory racks has a plurality of compartments, each compartment of the plurality of compartments comprises a plurality of storage spaces, and an inventory receptacle is placed on each
10 storage space of the plurality of storage spaces,

wherein the control system is configured to: determine a target inventory receptacle from inventory receptacles in the storage area; determine a target storage and retrieval device from the plurality of storage and retrieval devices and a target handling device from the plurality of handling
15 devices; and send a dispatching instruction to the target storage and retrieval device and to the target handling device;

wherein the target storage and retrieval device is configured to: drive, in response to the dispatching instruction, to a position specified in the dispatching instruction, take out the target inventory receptacle, and directly or indirectly provide the target inventory receptacle to the target
20 handling device; and

wherein the target handling device is configured to: drive, in response to the dispatching instruction, to a position specified in the dispatching instruction, obtain the target inventory receptacle, and transport the target inventory receptacle from the storage area to a workstation specified in the dispatching instruction for a service operation.

25 2. The inventory system according to claim 1, wherein

the target storage and retrieval device is further configured to place ~~at least one taken out~~ the target inventory receptacle at a preset transfer position; and

the target handling device is further configured to drive, in response to the dispatching instruction, to the present transfer position to obtain the target inventory receptacle.

3. The inventory system according to claim 1, wherein

the target storage and retrieval device is further configured to take out ~~at least one~~the target inventory receptacle from a storage space of a first position of the plurality of inventory racks and place the target inventory receptacle in a storage space of a second position of the plurality of inventory racks, wherein the first position is higher than the second position; and

the target handling device is further configured to drive, in response to the dispatching instruction, to a position corresponding to the storage space of the second position, and obtain the target inventory receptacle.

4. The inventory system according to claim 1, wherein

the target handling device is further configured to drive, in response to the dispatching instruction, to a preset position, wherein the preset position is adjacent to a position where the target storage and retrieval device takes out the target inventory receptacle; and

the target storage and retrieval device is further configured to place at least one taken-out target inventory receptacle on the target handling device.

~~5. The system according to claim 1, wherein the handling device is a conveying apparatus; and~~

~~the target storage and retrieval device is further configured to place at least one taken-out target inventory receptacle on the target handling device.~~

~~6. The system according to claim 1, wherein a height of the storage and retrieval device is greater than a height of the handling device.~~

~~7. The system according to claim 1, wherein an area where the target storage and retrieval device takes out the target inventory receptacle is different from an area of the specified workstation.~~

~~8. The system according to claim 4, wherein the target handling device is further configured to: drive, in response to the dispatching instruction, to be below a bottommost compartment of an inventory rack where the target inventory receptacle is located or to an aisle where the target storage and retrieval device takes out the target inventory receptacle, and obtain the target inventory receptacle from the target storage and retrieval device.~~

~~9. The system according to claim 3, wherein a jacking mechanism is arranged on each of the plurality of handling devices; and the target handling device is further configured to drive, in response to the dispatching instruction, to be below a bottommost storage space and take out the target inventory receptacle via the jacking mechanism.~~

~~10. The system according to claim 4, wherein at least one carrying mechanism is arranged on each of the plurality of handling devices;~~

~~the target storage and retrieval device is further configured to place the at least one taken-out target inventory receptacle on at least one carrying mechanism of the target handling device; and~~

5 ~~the target handling device is further configured to carry the at least target inventory receptacle through the at least one carrying mechanism.~~

~~11. The system according to claim 10, wherein the carrying mechanism has a transmission function; and~~

10 ~~the target handling device is further configured to transmit the carried target inventory receptacle to a specific position on the carrying mechanism.~~

~~12. The system according to claim 11, wherein the carrying mechanism is a belt or a roller mechanism.~~

~~13. The system according to claim 11 or 12, wherein there are two carrying mechanisms, and each of the two carrying mechanisms is arranged horizontally or vertically.~~

15 ~~145. The inventory system according to any one of claims 1-4, wherein each storage space of each inventory rack of the plurality of inventory racks has a storage space identification mark to allow the plurality of storage and retrieval devices to identify and to be aligned with a storage space where the target inventory receptacle is located; and/or.~~

20 ~~15. The system according to claim 1, wherein each inventory receptacle of the plurality of inventory receptacles has a receptacle identification mark to allow the plurality of storage and retrieval devices to identify and to be aligned with the target inventory receptacle.~~

~~166. The inventory system according to any one of claims 1-59, wherein a bottommost compartment of each inventory rack of the plurality of inventory racks is a storage floor;~~

25 ~~the target storage and retrieval device is further configured to place the ~~taken-out~~ target inventory receptacle on a bottommost compartment of a given inventory rack serving as ~~the~~ a storage floor; and~~

~~the target handling device is further configured to obtain the inventory receptacle from the bottommost compartment of the given inventory rack serving as the storage floor.~~

~~177. The inventory system according to any one of claims 1-69, wherein a storage rack is arranged below a bottommost compartment of each inventory rack of the plurality of inventory racks;~~

30 ~~the target storage and retrieval device is further configured to place the ~~taken-out~~ target inventory~~

receptacle on a storage rack; and

the target handling device is further configured to obtain the inventory receptacle from the storage rack.

5 ~~18. The system according to claim 1, wherein each compartment of each of the plurality of inventory racks has at least one storage space in a longitudinal direction for placing at least one inventory receptacle.~~

~~19. The system according to claim 1, wherein a receptacle storage and retrieval assembly is arranged on each of the plurality of storage and retrieval devices, and an inventory receptacle is taken out from an inventory rack through a receptacle storage and retrieval assembly.~~

10 ~~20. The inventory system according to any one of claims 1-79, wherein a temporary storage rack is further arranged on each storage and retrieval device of the plurality of storage and retrieval devices, each temporary storage rack has a plurality of compartments, and each compartment comprises at least one storage space;~~

15 ~~21. The system according to claim 20, wherein the target inventory receptacle is located in a rear row of a compartment in which the target inventory receptacle is located in a longitudinal direction; and~~

the target storage and retrieval device is further configured to directly take out the target inventory receptacle based on there being no other inventory receptacle located in a front row with respect to the target inventory receptacle of the compartment in which the target inventory receptacle is located; or
20 sequentially take out, based on there being at least one inventory receptacle located in the front row with respect to the target inventory receptacle that blocks the target inventory receptacle, the at least one inventory receptacle in the front row, sequentially place the at least one inventory receptacle in at least one storage space of temporary storage racks, take out the target inventory receptacle, place the target inventory receptacle in a storage space of the temporary storage racks, and return the at least one
25 inventory receptacle ~~in the front row to~~ the compartment from which the at least one inventory receptacle was taken out ~~an inventory rack.~~

~~22. An inventory method, comprising:~~

determining, by a control system, a target inventory receptacle from an inventory receptacle in a storage area of an inventory system;

30 determining, by the control system, a target storage and retrieval device from a plurality of storage

and retrieval devices and a target handling device from a plurality of handling devices;

sending, by the control system, a dispatching instruction to the target storage and retrieval device and to the target handling device, wherein the plurality of storage and retrieval devices and the plurality of handling devices are in communication with the control system, the plurality of storage and retrieval devices operate in the storage area, a plurality of inventory racks are deployed in the storage area, each inventory rack of the plurality of inventory racks has a plurality of compartments, each compartment of the plurality of compartments comprises a plurality of storage spaces, and an inventory receptacle is placed on each storage space of the plurality of storage spaces;

driving the target storage and retrieval device, in response to the dispatching instruction, to a position specified in the dispatching instruction, taking out, by the target storage and retrieval device, the target inventory receptacle, and directly or indirectly providing, by the target storage and retrieval device, the target inventory receptacle to the target handling device; and

driving the target handling device, in response to the dispatching instruction, to a position specified in the dispatching instruction, obtaining, by the target handling device, the target inventory receptacle, and transporting, by the target handling device, the target inventory receptacle from the storage area to a workstation specified in the dispatching instruction for a service operation.

2310. The inventory method according to claim 229, wherein

the directly or indirectly providing, by the target storage and retrieval device, the target inventory receptacle to the target handling device comprises:

placing, by the target storage and retrieval device in response to the dispatching instruction, ~~at least one taken out~~ the target inventory receptacle at a preset transfer position; and

driving the target handling device in response to the dispatching instruction to the preset transfer position to obtain the target inventory receptacle.

2411. The inventory method according to claim 229, wherein

the directly or indirectly providing, by the target storage and retrieval device, the target inventory receptacle to the target handling device comprises:

taking out, by the target storage and retrieval device in response to the dispatching instruction, the ~~at least one~~ target inventory receptacle from a storage space of a first position of the plurality of inventory racks and placing the target inventory receptacle in a storage space of a second position of the plurality of inventory racks, wherein the first position is higher than the second position; and

driving the target handling device in response to the dispatching instruction to a position corresponding to the storage space of the second position, and obtaining the target inventory receptacle.

~~25. The method according to claim 22, wherein~~

~~the directly or indirectly providing, by the target storage and retrieval device, the target inventory receptacle to the target handling device comprises:~~

~~driving the target handling device in response to the dispatching instruction to a preset position, wherein the preset position is adjacent to a position where the target storage and retrieval device takes out the target inventory receptacle; and~~

~~placing, by the target storage and retrieval device in response to the dispatching instruction, at least one taken out target inventory receptacle on the target handling device.~~

~~26. The method according to claim 25, wherein the directly or indirectly providing, by the target storage and retrieval device, the target inventory receptacle to the target handling device comprises:~~

~~driving the target handling device in response to the dispatching instruction to be below a bottommost compartment of an inventory rack where the target inventory receptacle is located or to an aisle where the target storage and retrieval device takes out the target inventory receptacle, and obtaining, by the target handling device, the target inventory receptacle from the target storage and retrieval device.~~

~~27. The method according to claim 24, wherein a jacking mechanism is arranged on each of the plurality of handling devices, and the obtaining, by the target handling device, the target inventory receptacle from the target storage and retrieval device comprises:~~

~~driving the target handling device in response to the dispatching instruction to be below a bottommost storage space and obtaining, by the target handling device, the target inventory receptacle through a jacking mechanism.~~

~~28. The method according to claim 22, wherein the driving the target handling device in response to the dispatching instruction to a position specified in the dispatching instruction, and obtaining the target inventory receptacle comprises:~~

~~driving the target handling device in response to the dispatching instruction to a bottom floor of an inventory rack where the target inventory receptacle is located that corresponds to a position where the target storage and retrieval device takes out the target inventory receptacle, and obtaining the target inventory receptacle from the target storage and retrieval device.~~

29. The method according to claim 28, wherein the directly or indirectly providing the target inventory receptacle to the target handling device comprises:

placing, by the target storage and retrieval device, the at least one taken-out target inventory receptacle on at least one carrying mechanism of the target handling device; and

5 the obtaining, by the target handling device, the target inventory receptacle comprises:

carrying, by the target handling device, the at least target inventory receptacle through the at least one carrying mechanism.

30. The method according to claim 29, wherein after the carrying, by the target handling device, the target inventory receptacle, the method further comprises:

10 transmitting, by the target handling device using a transmission function of the carrying mechanism, the carried target inventory receptacle to a specific position on the carrying mechanism.

31. The method according to claim 30, wherein the carrying mechanism is a belt or a roller mechanism.

32. The method according to claim 30 or 31, wherein there are two carrying mechanisms, and
15 each of the two carrying mechanisms is arranged horizontally or vertically.

33. The inventory method according to any one of claims 9-11, wherein each storage space of each inventory rack of the plurality of inventory racks has a storage space identification mark to allow the storage and retrieval devices to identify and to be aligned with a storage space where the target inventory receptacle is located; and/or.

20 34. The method according to claim 27, wherein each of the inventory receptacles has a receptacle identification mark to allow the storage and retrieval devices to identify and to be aligned with the target inventory receptacle.

35. The method according to claim 28, wherein the directly or indirectly providing the target inventory receptacle to the target handling device comprises:

25 placing, by the target storage and retrieval device, the taken-out target inventory receptacle on a storage rack, the storage rack being arranged on a bottom floor of the inventory rack; and

the obtaining, by the target handling device, the target inventory receptacle comprises:

obtaining, by the target handling device, the inventory receptacle from the storage rack.

36. The method according to claim 35, wherein the obtaining, by the target handling device, the
30 inventory receptacle from the storage rack comprises:

~~driving the target handling device, to be below the storage rack, and obtaining and lifting the target inventory receptacle placed on the storage rack by using a jacking mechanism arranged on the target handling device.~~

~~37. The method according to claim 27, wherein each compartment of each inventory rack of the plurality of inventory racks has at least one storage space in a longitudinal direction for placing at least one inventory receptacle.~~

~~38. The method according to claim 33 or 36, wherein a receptacle storage and retrieval assembly is arranged on each of the plurality of storage and retrieval devices, and an inventory receptacle is taken out from an inventory rack through the receptacle storage and retrieval assembly.~~

~~39~~13. The inventory method according to any one of claims 9-12~~38~~, wherein a temporary storage rack is ~~further~~ arranged on each of the plurality of storage and retrieval devices, each temporary storage rack has a plurality of compartments, and each compartment comprises at least one storage space;

~~40. The method according to claim 39, wherein the target inventory receptacle is located in a rear row of a compartment in which the target inventory receptacle is located in a longitudinal direction; and driving the target storage and retrieval device to a position specified in the dispatching instruction, and taking out the target inventory receptacle comprises:~~

directly taking out, by the target storage and retrieval device, the target inventory receptacle based on there being no other inventory receptacle in a front row with respect to the target inventory receptacle of the compartment in which the target inventory receptacle is located; or

sequentially taking out, by the target storage and retrieval device, based on there being at least one inventory receptacle in the front row with respect to the target inventory receptacle that blocks the target inventory receptacle, the at least one inventory receptacle in the front row, sequentially placing the at least one inventory receptacle in at least one storage space of the temporary storage racks, taking out the target inventory receptacle, placing the target inventory receptacle in a storage space of the temporary storage racks, and returning the at least one inventory receptacle to the compartment from which the at least one inventory receptacle was taken out in the front row to the plurality of inventory racks.

~~41~~14. An inventory system, comprising:

one or more control systems,

one or more storage and retrieval devices in communication with the one or more control systems,

one or more handling devices in communication with the one or more control systems, and one or more destinations,

wherein a warehouse is formed by at least one inventory rack with a plurality of floors,

wherein space between the at least one inventory rack forms a first aisle, each floor of the
5 inventory rack is provided with at least two storage spaces in a longitudinal direction, a row of first
bottom-floor storage spaces are arranged on a bottom floor of at least one side of the inventory rack
adjacent to the first aisle, at least some of the first bottom-floor storage spaces on the bottom floor of
the inventory rack are provided with inventory receptacles, and at least some of higher-floor storage
spaces on higher floors other than the bottom floor of the inventory rack are provided with inventory
10 receptacles;

wherein space where no first bottom-floor storage space is arranged on the bottom floor of the
inventory rack forms a second aisle, and the second aisle runs through the bottom floor of the inventory
rack;

wherein the control system is configured to determine, according to a handling task, a storage and
15 retrieval device and/or a handling device that performs the handling task, and send a handling
instruction for performing the handling task to the storage and retrieval device and to the handling
device;

wherein the storage and retrieval device drives in the first aisle and is configured to:

take out, according to the handling instruction sent by the control system, a target inventory
20 receptacle indicated by the handling instruction from a higher-floor storage space of the inventory rack
and put the target inventory receptacle in an idle first bottom-floor storage space, or

take out the target inventory receptacle indicated by the handling instruction from the first bottom-
floor storage space and put the target inventory receptacle in the higher-floor storage space; and

wherein the handling device drives in the first aisle and/or the second aisle, and is configured to:

25 take out, according to the handling instruction sent by the control system, the target inventory
receptacle indicated by the handling instruction from the first bottom-floor storage space, or

put the target inventory receptacle indicated by the handling instruction in the first bottom-floor
storage space, and transport the target inventory receptacle indicated by the handling instruction
between the first bottom-floor storage space and the one or more destinations.

30 ~~42~~15. The inventory system according to claim ~~41~~14, wherein bottom floors of the at least one

inventory rack are all provided with the first bottom-floor storage spaces; and

the handling device drives in the first aisle.

4316. The inventory system according to claim 4114 or 15, wherein at least one row of second bottom-floor storage spaces are further arranged on a bottom floor of the inventory rack not adjacent to the first aisle, and at least some of the second bottom-floor storage spaces on the bottom floor of the inventory rack are provided with inventory receptacles; and

space where no first bottom-floor storage space or second bottom-floor storage space is arranged on the bottom floor of the inventory rack forms thea second aisle.

~~44. The system according to claim 43, wherein the first bottom-floor storage spaces are adjacent to the second bottom-floor storage spaces.~~

~~45. The system according to claim 43, wherein the second bottom-floor storage spaces are adjacent to at least one second aisle.~~

4617. The inventory system according to claim 4316, wherein the handling device is further configured to:

take out, according to the handling instruction sent by the control system, the target inventory receptacle indicated by the handling instruction from a second bottom-floor storage space or put the target inventory receptacle indicated by the handling instruction in the second bottom-floor storage space, and

transport the target inventory receptacle indicated by the handling instruction between the second bottom-floor storage space and a given destination or between the first bottom-floor storage space and the second bottom-floor storage space.

~~47. The system according to claim 41, wherein the storage and retrieval device is provided with a storage and retrieval mechanism and a temporary storage support, the temporary storage support is provided with a plurality of floors, and each floor is provided with at least one temporary storage space;~~

~~and~~

~~the storage and retrieval device is further configured to:—~~

~~take out, in response to it being determined that the target inventory receptacle indicated by the handling instruction is not in a higher-floor storage space adjacent to the first aisle, at least one blocking inventory receptacle outside the higher-floor storage space where the target inventory receptacle is located,—~~

~~place the at least one blocking inventory receptacle in at least one temporary storage space of the temporary storage support by using the storage and retrieval mechanism according to the handling instruction, and—~~

~~take out the target inventory receptacle by using the storage and retrieval mechanism.~~

5 ~~48. The system according to claim 41, wherein the storage and retrieval device is provided with a storage and retrieval mechanism and one or more temporary storage stations, and each temporary storage station is provided with at least one temporary storage space; and~~

~~the storage and retrieval device is further configured to:—~~

10 ~~take out, in response to it being determined that the target inventory receptacle indicated by the handling instruction is not in a higher floor storage space adjacent to the first aisle, at least one blocking inventory receptacle outside the higher floor storage space where the target inventory receptacle is located,—~~

15 ~~place the at least one blocking inventory receptacle in temporary storage spaces of the one or more temporary storage stations by using the storage and retrieval mechanism according to the handling instruction, and—~~

~~take out the target inventory receptacle by using the storage and retrieval mechanism.~~

~~49. The system according to claim 43, wherein the handling device is further configured to:—~~

20 ~~take out, according to the handling instruction, the target inventory receptacle indicated by the handling instruction from a higher floor storage space above the second aisle in the inventory rack or put the target inventory receptacle indicated by the handling instruction in the higher floor storage space above the second aisle, and—~~

25 ~~transport the target inventory receptacle indicated by the handling instruction in at least one case of between the higher floor storage space above the second aisle and the first bottom floor storage space, between the higher floor storage space above the second aisle and the destination, or between the higher floor storage space above the second aisle and the second bottom floor storage space.~~

~~50~~18. The inventory system according to any one of claims 48~~14-17~~, wherein

the control system is further configured to send a position change instruction to the storage and retrieval device; and

30 the storage and retrieval device is further configured to change a target inventory receptacle indicated in the position change instruction from a current storage space to at least one of the first

bottom-floor storage space, the second bottom-floor storage space, or the higher-floor storage space above the second aisle according to the position change instruction, or from the first bottom-floor storage space to the higher-floor storage space above the second aisle.

51. The system according to claim 50, wherein

5 the storage and retrieval device is further configured to change the target inventory receptacle indicated in the position change instruction from the first bottom floor storage space to the higher-floor storage space above the second aisle according to the position change instruction.

52. The system according to claim 50 or 51, wherein

10 the control system is further configured to send a position change instruction to the handling device; and

the handling device is further configured to place a target inventory receptacle indicated in the position change instruction from a second bottom floor storage space and an inventory receptacle in a higher floor storage space above the second aisle in first bottom floor storage spaces according to the position change instruction.

15 53. The system according to claim 50, wherein

the control system is further configured to send a position change instruction to the storage and retrieval device; and

20 the storage and retrieval device is further configured to change a target inventory receptacle indicated in the position change instruction from a storage space not adjacent to the first aisle to a storage space adjacent to the first aisle according to the position change instruction.

54. The system according to claim 43, wherein the handling device is further configured to return the target inventory receptacle indicated by the handling instruction to at least one selected from the first bottom floor storage space, the second bottom floor storage space, and the higher floor storage space above the second aisle according to the handling instruction.

25 55. The system according to claim 54, wherein in response to the target inventory receptacle being returned to the first bottom floor storage space, the storage and retrieval device is further configured to take out, according to the handling instruction, the target inventory receptacle indicated by the handling instruction from the first bottom floor storage space and put the target inventory receptacle in any idle higher floor storage space.

30 56. The system according to claim 54, wherein in response to the target inventory receptacle is

returned to the second bottom floor storage space or the higher floor storage space above the second aisle, the handling device is further configured to, take out, according to the handling instruction, the target inventory receptacle from the second bottom floor storage space or the higher floor storage space above the second aisle, and put the target inventory receptacle in the first bottom floor storage space; and

the storage and retrieval device is further configured to take out, according to the handling instruction, the target inventory receptacle indicated by the handling instruction from the first bottom floor storage space and put the target inventory receptacle in any idle higher floor storage space.

57. The system according to claim 49, wherein the storage and retrieval device is further configured to transport, in response to it being determined that the target inventory receptacle indicated by the handling instruction is not in a higher floor storage space adjacent to the first aisle, a blocking inventory receptacle outside a higher floor storage space where the target inventory receptacle is located to an idle higher floor storage space above the second aisle according to the handling instruction.

58. The system according to claim 41, wherein the storage and retrieval devices and the handling devices are located through identification marks set in warehouse space.

59. The system according to claim 58, wherein the identification marks are set in the warehouse space at different intervals.

60. The system according to any one of claims 41, 42, 43, and 49, wherein a bottom of the target inventory receptacle is provided with an identification mark; and

the handling device is provided with an image sensor that shoots upwards and that is configured to determine a position and/or an attitude of the target inventory receptacle according to an identification mark in an acquired image.

61. The system according to claim 60, wherein the handling device is further configured to reach a target position according to the handling instruction sent by the control system; and the handling device is further configured to:

determine a deviation between a position of the handling device and a position of the target inventory receptacle according to an image acquired in real time,

determine whether the deviation is greater than a preset threshold, and

take out the target inventory receptacle from a storage space corresponding to the target position

~~after adjusting the position of the handling device according to the deviation in response to the deviation being greater than the preset threshold, or—~~

~~drive to the target position and take out the target inventory receptacle from the storage space in response to the deviation being not greater than the preset threshold.~~

5 ~~62. The system according to claim 60, wherein the handling device is further configured to:—~~

~~determine a deviation between a center of the handling device and a center of the target inventory receptacle carried by the handling device according to the handling instruction sent by the control system and information acquired by a sensor arranged on the handling device;—~~

10 ~~adjust the target position and/or adjust an attitude of the handling device at the target position according to the deviation and a position of the first bottom-floor storage space, the second bottom-floor storage space, or the higher floor storage space above the second aisle; and~~

~~put the target inventory receptacle in the first bottom-floor storage space, the second bottom-floor storage space, or the higher floor storage space above the second aisle after driving to the target position.~~

15 ~~63~~19. The inventory system according to any one of claims 41, 42, 43, and ~~49~~14-18, wherein heights of inventory receptacle racks of at least some of the first bottom-floor storage spaces and at least some of the second bottom-floor storage spaces on the bottom floor of the inventory rack are greater than a height of the handling device carrying no inventory receptacle; and

20 the handling device carrying no inventory receptacle is further configured to selectively drive below the at least some of the first bottom-floor storage spaces and the at least some of the second bottom-floor storage spaces, or transport the target inventory receptacle in a piggybacking manner and leave.

25 ~~64. The system according to any one of claims 41, 42, 43, and 49, wherein the handling device is further configured to take out the target inventory receptacle from a side of the first bottom-floor storage space on the first aisle adjacent to the first bottom-floor storage space to the handling device, or put the target inventory receptacle on the handling device to the first bottom-floor storage space from the side of the first bottom-floor storage space.~~

30 ~~65. The system according to claim 43 or 49, wherein the handling device is further configured to take out the target inventory receptacle from a side of the second bottom-floor storage space on the second aisle adjacent to the second bottom-floor storage space to the handling device, or put the target~~

inventory receptacle on the handling device to the second bottom floor storage space from the side of the second bottom floor storage space.

66. The system according to any one of claims 41, 42, 43, and 49, wherein the destination is further provided with an operating terminal; and

5 the operating terminal is configured to take out an item from the target inventory receptacle at the destination, or put the item into the target inventory receptacle.

67. The system according to claim 66, wherein the destination comprises at least two or more operating terminals.

68. The system according to claim 66, wherein the handling device is further configured to lift
10 the target inventory receptacle to a preset height in response to transporting the target inventory receptacle to the destination, to allow the operating terminal at the destination to take out the item from the target inventory receptacle, or put the item into the target inventory receptacle.

69. The system according to claim 68, wherein the destination is further provided with a lifting device;

15 the handling device is further configured to put, in response to transporting the target inventory receptacle to the destination, the target inventory receptacle into the lifting device or take out the target inventory receptacle from the lifting device; and

 the lifting device is configured to lift the target inventory receptacle to the preset height after the target inventory receptacle is put by the handling device, to allow the operating terminal to take out
20 the item from the target inventory receptacle, or to allow the operating terminal to put the item into the target inventory receptacle; and lower the target inventory receptacle to an original height in response to the item being put by the operating terminal into the target inventory receptacle.

70. The system according to claim 64, wherein the control system is further configured to continue to send other handling instructions to the handling device after determining that the handling device
25 places the target inventory receptacle on the lifting device;

 the lifting device is configured to send notification information to the control system when item picking is completed; and

 the control system determines a new handling task according to the notification information sent by the lifting device, determines a handling device that performs the new handling task, and sends a
30 handling instruction to the determined handling device according to the new handling task, to allow

~~the handling device receiving the handling instruction to reach the lifting device at the destination and take out the target inventory receptacle.~~

~~71. The system according to claim 69 or 70, wherein the destination is further provided with a temporary storage area for temporarily storing the target inventory receptacle transported by the handling device.~~

~~72. The system according to claim 71, wherein the temporary storage area of the destination is arranged at the lifting device; and~~

~~the lifting device is further configured to:—~~

~~temporarily store the target inventory receptacle placed by the handling device in the temporary storage area, and—~~

~~in response to the operating terminal being idle, lift the temporarily stored target inventory receptacle to the preset height to allow the operating terminal to take out the item from the target inventory receptacle, or put the item into the target inventory receptacle.~~

~~73~~20. An inventory method applied in a warehouse, wherein the warehouse comprises one or more storage and retrieval devices, one or more handling devices, and one or more destinations, the warehouse is formed by at least one inventory rack, the inventory rack is provided with a plurality of floors, space between the at least one inventory rack forms a first aisle, each floor of the inventory rack is provided with at least two storage spaces in a longitudinal direction, a row of first bottom-floor storage spaces are arranged on a bottom floor of at least one side of the inventory rack adjacent to the first aisle, at least some of the first bottom-floor storage spaces on the bottom floor of the inventory rack are provided with inventory receptacles, at least some of higher-floor storage spaces on higher floors other than the bottom floor of the inventory rack are provided with inventory receptacles, space where no first bottom-floor storage space is arranged on the bottom floor of the inventory rack forms a second aisle, the second aisle runs through the bottom floor of the inventory rack, and the method comprises:

determining a to-be-performed handling task;

determining a storage and retrieval device and/or a handling device that performs the handling task according to the handling task; and

sending a handling instruction for performing the handling task to the storage and retrieval device and to the handling device, wherein the storage and retrieval device drives in the first aisle, the handling

device drives in the first aisle and/or the second aisle, and the storage and retrieval device and the handling device cooperate to transport a target inventory receptacle indicated by the handling instruction from a higher-floor storage space or a first bottom-floor storage space of the warehouse to a destination, or transport the target inventory receptacle indicated by the handling instruction from
5 the destination to the higher-floor storage space or the first bottom-floor storage space of the warehouse.