Claims

WHAT IS CLAIMED IS:

1. A box lunch vending machine comprising a box body, a storage shelf and a pushing device, wherein the box body is provided with an exit, a cabinet door is articulated to the top of the exit, the storage shelf is arranged in the box body, and the pushing device comprises a mounting base, a guide component, a power component and a pushing assembly, the mounting base is arranged on the side wall of the box body, the guide component and the mounting base are fixedly connected, the power component is arranged on the guide component, the output end of the power component is connected with the pushing assembly, the pushing assembly is slidingly arranged on the guide component, and when the power component drives the pushing assembly to move close to the exit, the pushing assembly opens the cabinet door and pushes out the box lunch on the storage shelf through the exit;

wherein the pushing assembly comprises a base, a plurality of rollers, a first pushing component and a second pushing component, the rollers are symmetrically arranged on the two sides of the base, a guide slot is formed on the guide component, the rollers are arranged in the guide slot in a rolling manner, the first pushing component and the second pushing component are arranged on the base, and when the pushing assembly moves close to the exit, the first pushing component is propped against the cabinet door to open the cabinet door, and the second pushing component pushes out the box lunch.

2. The box lunch vending machine of claim 1, wherein the pushing device further comprises a restoring assembly, the restoring assembly is arranged between the guide component and the cabinet door, and the restoring assembly can close the cabinet door when the pushing assembly moves away from the exit.

3. The box lunch vending machine of claim 2, wherein the restoring assembly comprises an elastic component and a transmission component that are connected with each other, the transmission component is provided with a first limit block and a second limit block with an interval, the pushing device further comprises a stop block, and the stop block is located between the first limit block and the second limit block and is used for limiting the motion range of the transmission component.

4. The box lunch vending machine of claim 1, wherein the storage shelf is provided with a plurality of layers of supporting mechanisms, and each supporting mechanism comprises a

plurality of storage units used for arranging box lunches, the box lunch vending machine further comprises a plurality of liquid guiding grooves which are arranged in the box body, wherein the liquid guiding grooves and the supporting mechanisms are arranged in one-to-one correspondence, and the liquid guiding grooves contain heat conducting medium for heating the box lunches.

5. The box lunch vending machine of claim 4, wherein the box lunch vending machine further comprises a lifting device which is arranged for driving the storage shelf to lift up and down, the supporting mechanisms carries the box lunches to move down in such a way that the box lunches are immersed in the corresponding liquid guiding grooves when the lifting device drives the storage shelf to lift down, and when the lifting device drives the storage shelf to lift up, the supporting mechanisms carries the box lunches to move up in such a way that the box lunches leave the liquid guiding grooves and face to the exits.

6. The box lunch vending machine of claim 5, wherein the lifting device comprises a first fixed plate, a movable plate, a second fixed plate, a plurality of supporting poles, a screw rod and a driving assembly, the first fixed plate is arranged on the box body, the plurality of supporting poles are arranged on the first fixed plate, the movable plate is sleeved on the supporting poles, the second fixed plate is connected with an end of the supporting pole away from the first fixed plate, the screw rod is respectively rotationally connected with the first fixed plate and the second fixed plate and is in threaded matching with the movable plate, the driving assembly is arranged for driving the screw rod to rotate so as to drive the movable plate to lift up and down along the supporting poles, the movable plate is connected with a lifting rod, and the lifting rod is connected with the storage shelf.

7. The box lunch vending machine of claim 6, wherein the lifting device further comprises a plurality of detecting assemblies, wherein each detecting assembly comprises two sensing elements and a detecting strip, the detecting strip is arranged on the movable plate, the two sensing elements are respectively arranged on the first fixed plate and the second fixed plate, and the detecting strip can move along with the movable plate and enter the detection regions of the sensing elements.

8. The box lunch vending machine of claim 1, wherein the box lunch vending machine further comprises:
a rotating device, which comprises a motor and a transmission assembly, wherein the motor can

drive the storage shelf to rotate by means of the transmission assembly; and

a detecting device, which comprises a detecting element and a sensing plate, wherein the detecting element comprises a first sensor and a second sensor that are arranged with an interval, the sensing plate can rotate synchronously along with the storage shelf, a plurality of locating teeth are circumferentially arranged on the sensing plate, and each locating tooth corresponds to one storage unit; the locating teeth comprise a first locating tooth and a second locating tooth, the first locating tooth can be detected by one of the first sensor and the second sensor, and the second locating tooth can be detected by both the first sensor and the second sensor at the same time,

the first locating tooth has a number of one, the second locating tooth has a number of more than one, in the initial state, the first locating tooth is located in a detection region of the first sensor or a detection region of the second sensor, and one storage unit is aligned to the exit; or

the first locating tooth has a number of more than one, the second locating tooth has a number of one, in the initial state, the second locating tooth is located in the detection region of the first sensor and the detection region of the second sensor at the same time, and one storage unit is aligned to the exit.

9. The box lunch vending machine of claim 8, wherein the transmission assembly comprises a first transmission part and a second transmission part that match with each other, the output end of the motor is connected with the first transmission part, the second transmission part and the storage shelf are coaxially arranged, a plurality of arc slots are formed on the sensing plate, and a plurality of connecting pieces penetrate through the arc slots in order to fix the sensing plate to the second transmission part.