Claims

What is claimed is:

1. A box lunch vending machine comprising a box body, a storage shelf and a pushing device, wherein the storage shelf and the pushing device are arranged in the box body, the box body is provided with several exits and several cabinet doors, each of the several cabinet doors corresponds to each of the several exits and is articulated above a corresponding exit, the box body is provided with a supporting plate, the supporting plate is located below each of the several exits, and an interval between the supporting plate and each of the several exits is larger than or equal to the thickness of the box lunch, the pushing device is arranged for opening each of the several cabinet doors to push out the box lunch on the storage shelf through each of the several exits, when the box lunch falls on the supporting plate through each of the several exits, the pushing device is retracted so that each of the several cabinet doors is closed.

2. The box lunch vending machine of claim 1, wherein the supporting plate is provided with an in-place sensor, and the in-place sensor is used for detecting whether the box lunch is on the supporting plate.

3. The box lunch vending machine of claim 1, wherein the box lunch vending machine further comprises a plurality of electromagnetic locks, wherein each of the plurality of electromagnetic locks comprises a plunger latch and a lock hole matched

with each other, the plunger latch is arranged on one side of each of the several exits, the lock hole is arranged on each of the several cabinet doors, and when each of the several cabinet doors closes the corresponding exit, the plunger latch selectively inserts into the lock hole or retracts from the lock hole.

4. The box lunch vending machine of claim 3, wherein the box lunch vending machine further comprises a plurality of door state sensors, each of the plurality of door state sensors is arranged on one side of each of the several exits, a sensing sheet is arranged on each of the several cabinet doors, when the sensing sheet is located in the detection region of each of the plurality of door state sensors, each of the plurality of door state sensors detects a cabinet door closing signal and transmits the cabinet door closing signal to the corresponding electromagnetic lock.

5. The box lunch vending machine of claim 3, wherein the end part of the plunger latch has an oblique section.

6. 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.

7. The box lunch vending machine of claim 6, wherein 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 each of the liquid guiding grooves contains heat conducting medium used for heating the box lunches;

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 so that the box lunches leave the liquid guiding grooves and face to the one of the several exits.

8. The box lunch vending machine of claim 7, 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 at the box body, the plurality of supporting poles are arranged on the first fixed plate, the movable plate is sleeved on the supporting pole, the second fixed plate is connected with the 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.

9. The box lunch vending machine of claim 8, 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 is capable of moving along with the movable plate and enter the detection regions of the sensing elements.

10. The box lunch vending machine of claim 1, wherein the box lunch vending machine further comprises:

a rotating device comprising a motor and a transmission assembly, wherein the motor drives the storage shelf to rotate by means of the transmission assembly;

a detecting device, which comprises a detecting element and a sensing plate, wherein the detecting element comprises the first sensor and the second sensor that are arranged with an interval, the sensing plate is capable of rotating 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 is detected by one of the first sensor and the second sensor, and the second locating tooth is detected by both the first sensor and the second sensor at the same time;

the number of the first locating tooth is one, the number of the second locating tooth is two or more, 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 one of the several exits; or

the number of the first locating tooth is two or more, the number of the second locating tooth is 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 each of the several exits.