TRANSPORTABLE MODULAR SYSTEM FOR DISPENSING AND BOXING FOOD AND BEVERAGE ITEMS

RELATED APPLICATIONS

[0001] The present application claims priority to and the benefit of United States Patent Application No. 14/449,597, filed August 1, 2014, the entirety of which application is incorporated by reference in its entirety.

BACKGROUND

[0002] Conventional food delivery systems for airplane passengers prepackage predetermined orders into discrete packages that, once on the plane, are selected by passengers. For example, after boarding an airplane, a passenger will be given a choice between a vegetarian meal and a standard meal. While these systems minimized time requirements for reloading an airplane prior to a flight, they have several drawbacks, including the inability to handle customized food orders, possibly inaccuracy of matching a passenger's choices to the available food or beverage, and the like. Beyond providing a choice to passengers of two or three preset orders, individually customized food orders, such as those selected by the passenger prior to boarding an airplane, were not considered possible by the food delivery industry.

SUMMARY

[0002a] According to a first aspect of the present invention, there is provided a transportable system for dispensing and containerizing items, the system being mounted to and enclosed by a truck, the system comprising:

at least one dispensing cart, each cart including a body, a set of wheels disposed on a bottom surface of the body, a set of bearing surfaces disposed on the top surface of the body for guiding the at least one dispensing cart into a predetermined position in the truck, and an outlet defined by the body; and

a conveyor system disposed beneath the outlet of the at least one dispensing cart, the conveyor system defining a continuous path for containers to circulate under the at least one dispensing cart.

[0002b] According to a second aspect of the present invention, there is provided a transportable cart for storing items, the transportable cart being adapted to receive a request from a communication device to dispense at least one of the stored items, the transportable cart comprising:

a body;

a set of wheels disposed on a bottom surface of the body;

a guide system disposed on the top surface of the body for guiding and registering the dispensing cart into a predetermined position in a truck;

an outlet defined by the bottom surface of the body;

an escapement connected to the bottom surface of the body and configured to control passage of items through the outlet to a location beneath the transportable cart, the escapement including a jaw and a linkage; and

an actuator connected to the linkage, wherein the actuator is adapted to actuate the escapement to selectively dispense the at least one of the stored items through the outlet based only on the request from the communication device.

[0003] There is disclosed a system is provided that enables a customer to select from several food and beverage choices, and the system diminishes the time required to rapidly provide a package having the selected food and beverage to a predetermined location, such as a commercial airplane, in a time-sensitive environment.

[0004] There is also disclosed a transportable system for dispensing and boxing items is mounted to and enclosed by a truck. The system comprises at least two dispensing carts. Each cart includes a body, a set of wheels disposed on a bottom surface of the body, a set of bearings disposed on the top surface of the body, and an outlet defined by the body. At least one of the at least two dispensing carts is adapted to store a first set of items vertically and dispense the first set of items using an unpowered escapement and at least another one of the at least two dispensing carts is adapted to store items horizontally. The system further comprises a box

dispenser configured to dispense boxes and a conveyor system disposed beneath the outlets of the at least two dispensing carts. The conveyor system defines a continuous path for boxes from the box dispenser to an end location.

[0005] There is also disclosed a transportable cart for storing items comprises a body, a set of wheels disposed on a bottom surface of the body, a set of bearings disposed on the top surface of the body, an outlet defined by the body, and an escapement. The escapement is configured to control passage of items from an interior of the body through the outlet, and includes jaws and a linkage. The linkage includes an interface for engaging an actuator that has a power source that is not connected to the transportable cart.

[0006] There is also disclosed a method of dispensing and boxing items using a transportable system that is mounted to and enclosed by a truck comprises a step of dispensing a box from a box dispenser onto a conveyor system. The method further comprises a step of conveying the box from the box dispenser to at least two dispensing carts using a conveyor belt of the conveyer system. The conveyor system is disposed beneath the at least two dispensing carts and defines a continuous path for the box from the box dispenser to an end location. The method also includes a step of dispensing a first item from a first dispensing cart. The first dispensing cart includes a body, a set of wheels disposed on a bottom surface of the body, a set of bearings disposed on the top surface of the body, and an outlet defined by the body. The first dispensing cart is adapted to store a first set of items vertically. The step of dispensing the first item includes actuating an escapement to release the item through the outlet. The method also includes a step of dispensing a second item from a second dispensing cart. The second dispensing cart is adapted to store items horizontally.

BRIEF DESCRIPTION OF THE FIGURES

[0007] Figure 1 is a schematic representation of a transportable system for dispensing and boxing items, including a truck in which the system is mounted to and enclosed by;

[0008] Figure 2 is a schematic representation of the transportable system shown in Figure 1;

[0009] Figure 3 is the transportable system shown in Figures 1 and 2, showing dispensing carts, a box dispenser, boxes, and a conveyor system;

CLAIMS

1. A transportable system for dispensing and containerizing items, the system being mounted to and enclosed by a truck, the system comprising:

at least one dispensing cart, each cart including a body, a set of wheels disposed on a bottom surface of the body, a set of bearing surfaces disposed on the top surface of the body for guiding the at least one dispensing cart into a predetermined position in the truck, and an outlet defined by the body; and

a conveyor system disposed beneath the outlet of the at least one dispensing cart, the conveyor system defining a continuous path for containers to circulate under the at least one dispensing cart.

2. The transportable system of claim 1, wherein the at least one dispensing cart includes an escapement configured to control passage of the items through the outlet, the escapement including a jaw and a linkage, the linkage including an interface for engaging an actuator.

3. The transportable system of claim 2, wherein the escapement includes a pair of jaws and a pair of linkages.

4. The transportable system of claim 1, wherein the dispensing cart includes a set of carousel cells configured to hold the items and rotate about a frame so as to control passage of the items through a pair of doors disposed proximate the outlet.

5. The transportable system of claim 1, wherein the at least one dispensing cart includes clips or augers that are configured to control passage of items through the outlet.

6. The transportable system of claim 1, further comprising a container dispenser configured to dispense the containers, wherein the continuous path circulates from the container dispenser to an end location.

7. The transportable system of claim 1, wherein the conveyor system includes a recirculating track.

8. The transportable system of claim 1, wherein at least one wheel of the set of wheels of the at least one dispensing cart defines a groove that is configured to mate with at least one corresponding rail, respectively, mounted to the truck.

9. The transportable system of claim 1, wherein the set of bearing surfaces of the at least one dispensing cart is a pair of rollers that are configured to roll against at least one rail mounted to the truck.

10. The transportable system of claim 1, wherein the conveyor system is configured to pause when one of the containers is aligned with the outlet of the at least one dispensing cart.

11. The transportable system of claim 10, further comprising a printing system configured to print a unique label for each one of the containers.

12. The transportable system of claim 11, wherein the printing system is capable of receiving information while the system is being transported between a commissary and a target location.

13. The transportable system of claim 1, further comprising at least two dispensing carts wherein the bodies of two of the at least two dispensing carts have the same width.

14. The transportable system of claim 1, wherein the set of bearing surfaces are opposing bearing surfaces that are configured to engage a corresponding guide that is mounted on the truck.

15. The transportable system of claim 1, wherein the containers housing the containerized items include boxes.

16. The transportable system of claim 1, wherein the containers housing the containerized items include bags.

17. A transportable cart for storing items, the transportable cart being adapted to receive a request from a communication device to dispense at least one of the stored items, the transportable cart comprising:

a body;

a set of wheels disposed on a bottom surface of the body;

a guide system disposed on the top surface of the body for guiding and registering the dispensing cart into a predetermined position in a truck;

an outlet defined by the bottom surface of the body;

an escapement connected to the bottom surface of the body and configured to control passage of items through the outlet to a location beneath the transportable cart, the escapement including a jaw and a linkage; and

an actuator connected to the linkage, wherein the actuator is adapted to actuate the escapement to selectively dispense the at least one of the stored items through the outlet based only on the request from the communication device.

18. The transportable cart of claim 17, wherein the escapement includes a pair of jaws and a pair of linkages.

19. The transportable cart of claim 17, wherein at least one wheel of the set of wheels of the transportable cart define a groove that is configured to mate with at least one corresponding rail, respectively.

20. The transportable cart of claim 17, wherein the guide system is configured to roll against at least one rail.

21. The transportable cart of claim 17, wherein the guide system includes a pair or rollers that are configured to roll against at least one rail mounted to the truck.

22. The transportable cart of claim 17, wherein the guide system includes opposing bearing surfaces of a rail that are configured to engage corresponding guides that are mounted on the truck.