

Description

This invention relates to a vending machine for dispensing both refrigerated foods, for example drink containers, and unrefrigerated foods such as packaged snacks.

It is generally known that vending machines can provide a refrigerated section to keep products cold. For example, food vending machines are known for dispensing sandwiches or cold drinks by inserting coins or bills. It is also known to provide vending machines which dispense products which are not refrigerated. For example, candy or snack food packages are generally kept in a non-refrigerated vending machine. Very often, it is desired to have both unrefrigerated and refrigerated foods dispensed at the same physical location, such as in an employee kitchen. However, it is impractical due to space limitations to use both a refrigerated vending machine and an unrefrigerated vending machine. Some presently available vending machines have refrigerated and unrefrigerated sections or areas, but require all the dispensed products to pass through both the refrigerated and unrefrigerated sections prior to dispensing. For example, as shown in US-A-3 160 255, food products are kept in a refrigerated compartment and then passed to a heated location before dispensing, and as shown in US-A-2 963 883 ice cream is kept in a storage freezing compartment before being dispensed by passage through a second compartment maintained at a temperature slightly above freezing. In these vending machines, it is not possible to independently or separately dispense the product from the refrigerated as well as from the unrefrigerated sections.

Very often, the use of the non-refrigerated vending machine results in the candy or the like being destroyed because of melting, thus resulting in customer dissatisfaction or loss of the product. Because many unrefrigerated foods are most palatable at a temperature most near room temperature, it is generally not desirable to refrigerate this product down to a temperature for which unrefrigerated foods are enjoyed. Therefore, it is undesirable, for example, to place candy or the like in a refrigerated machine since these machines typically cool to around 2-7° C (35-45° F).

Among the several objects of the invention may be noted the provision of a vending machine permitting the dispensing of refrigerated product and unrefrigerated product from a single machine; the provision of such vending machine which is suitable for locations having space limitations; the provision of such vending machine which permits the independent and separate dispensing of refrigerated and unrefrigerated product; the provision of such vending machine which partially cools product

in the unrefrigerated section of the vending machine; the provision of such vending machine which has a single selection control for choosing refrigerated and/or unrefrigerated product; and the provision of such vending machine which is economically feasible and commercially practical.

The prior art portion of claim 1 is based upon the above-mentioned US-A-3 160 255. As compared therewith, the present invention, as defined in claim 1, provides a vending machine for the selective dispensing of refrigerated and unrefrigerated foods and which includes a housing having a refrigerated storage and dispensing area for the refrigerated foods separate from and unrefrigerated storage and dispensing area for the unrefrigerated foods. A common receiving device adjacent the refrigerated and unrefrigerated storage and dispensing areas is adapted to receive dispensed foods from either area. The vending machine further includes a device for selecting one of the refrigerated foods or unrefrigerated foods to be dispensed to the common receiving device and a device responsive to the selecting device for dispensing the selected food to the common receiving device.

Other objects and features will be in part apparent and in part pointed out hereinafter.

Brief Description of the Drawings

Fig. 1 is a front view of the vending machine of the present invention;

Fig. 2 is a perspective view of the vending machine of Fig. 1 with a front door opened;

Fig. 3 is a side view of the vending machine in Fig. 1 with a portion cutaway showing an interior cross-section;

Fig. 4 is a close up view of a refrigerated area of the vending machine in Fig. 1 with a portion cutaway;

Fig. 5 is a side view of a drink can dispenser of the vending machine in Fig. 1;

Fig. 5A is a side view of the drink can dispenser in Fig. 5 showing a can being dispensed;

Fig. 6 is a view from the line 6-6 in Fig. 5; and

Fig. 7 is a close-up view of a refrigeration unit included in Fig. 3.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Description of a Preferred Embodiment

In Fig. 1 the vending machine 1 of the present invention has a door 3 having a clear see-thru panel for displaying foods in the vending machine. Unrefrigerated foods, such as candy or food packages, are displayed in the vending machine 1 in an

upper section or unrefrigerated food storage and dispensing area 5. Analogously, refrigerated foods, such as drink containers or cans, are displayed in a lower section or refrigerated food storage and dispensing area 7. A selection panel 9 has a plurality of push button switches 11 corresponding to a respective dispenser in the unrefrigerated or refrigerated storage and dispensing areas 5 and 7. The selection panel 9 includes a vendor control and selection system as described in U.S.-A-4,512,453. Money is inserted in the selection panel 9 and when a proper amount is inserted, push button switches 11 may be operated. In response to the pushed switch 11, refrigerated or unrefrigerated foods are dispensed to a common receiving device or curved shelf 18 which is accessible through an opening 17 in the door 3.

As may best be seen in Figs. 2, 3 and 4, the door 3 is mounted on an exterior housing 15 and may be opened for access to the vending machine interior which includes both the unrefrigerated and refrigerated storage and dispensing areas 5 and 7. The housing 15 thus constitutes housing means having a refrigerated storage and dispensing area for the refrigerated foods separate from an unrefrigerated storage and dispensing area for the unrefrigerated foods.

The unrefrigerated storage and dispensing area 5 has four shelves 19a, 19b, 19c and 19d. Each of the shelves 19 has separators 23 between spiral arms 25 in which the unrefrigerated foods such as candy bars or snack food packages are placed. The spiral arms 25 are rotated by motors (not shown) in response to a machine controller as shown in Fig. 1 of U.S.-A-4,512,453 for dispensing the unrefrigerated foods. A dispenser having spiral arms for dispensing food packages is shown in U.S.-A-3,986,759.

The refrigerated storage and dispensing area 7 has a clear continuous door 27 masked so that four windows 29a, 29b, 29c and 29d are outlined for displaying the drink can to be next dispensed from one of four corresponding dispensers 31a, 31b, 31c and 31d. For illustration purposes the dispenser 31b is shown in Fig. 3. As will be appreciated from the discussion there are four dispensers 31. Labels 33a, 33b, 33c and 33d may be mounted below the corresponding window 29 for displaying such things as price and item number for the corresponding switch on the selection panel 9. Additional track labelling 35 may also be attached above the windows 29 to further identify the refrigerated foods e.g. brand names. A door 37 is mounted above the labelling 35 and may also have labels attached thereto. Another door 39 is mounted below the windows 29 and provides access to a refrigerated storage area 41.

As may best be seen in Figs. 3, 4 and 5, the

door 37 is attached to a generally rectangularly shaped housing 48 for enclosing the storage and dispensing area 7. The door 37 is mounted on a strip hinge 47 with spring 46 which tends to keep the door 37 in a vertical or closed position. The spring 46 is an example of spring means tending to keep the door closed. Door 37 consists of two pieces of material, an outside piece 49 and an inside piece 51 with an air insulating space therebetween. The door 37 tends to be pressed against gaskets 53 and 55 by the spring 46 to seal the storage and dispensing area 7. Each of the dispensers 31 has a corresponding opening 61 in the housing 48 behind the door 37. For example, as shown in Fig. 5, dispenser 31b has an opening 61b for the insertion of the drink cans into the dispenser 31b.

The housing 48 includes rear panel 63, top panel 65 and bottom panel 67. The top panel 65 and bottom panel 67 are secured to side panels 71 and 73 and rear panel 63. The housing 48 also includes a front frame 66 which incorporates a top cross member 81, a bottom cross member 91 and a center cross member 105. A sealing gasket 85 seals between the front frame 66 and the top panel 65, bottom panel 67 and side panels 71 and 73. Additional support is provided by overlapping corner piece 97. Pieces of insulating material 98 and 100 are used for insulation around the housing 48.

The center cross member 105 which extends from side panel 71 to side panel 73 has the strip hinge 47 for door 37 mounted thereto and the labelling 35 is also attached to the cross member 105. The clear door 27 is constructed similarly to door 37 and includes outside piece 107 and inside piece 109 with an air space therebetween for insulation. A strip hinge 115 is attached to the center cross member 105 and door 27 to permit the door to swing outward. A spring 119 tends to press the door 27 toward door gaskets 121 and 123 to seal the storage and dispensing area 7. Center cross member 105 includes a C-shaped portion 125 to which is attached channel or mounting bracket 131 by rivets 133 and 135.

For illustration purposes the dispenser 31b is shown in Figs. 3, 5, 5A and 6. As will be readily appreciated the discussion which follows applies to all dispensers 31. For each dispenser 31 an angle bracket 137 is attached to mounting bracket 131 by rivets or screws 141 and 143. Also for each dispenser 31 a cover piece 145 is attached to the mounting bracket 131. The bracket 137 has a circular opening 151 through which a rotating member 153 of a gear assembly 155 protrudes. The gear assembly 155 is secured to the bracket 137 by screws (not shown) and is driven by a motor 161 with control and powering wires (not shown) passing through an opening 162 in bracket 131 (as shown in Fig. 6).

These wires connect to the machine controller as shown in Fig. 1 of U.S.-A-4,512,453. The rotating member 153 has a square drive 163 which is attached to an offset lever 165. A pivoting arm 167 is pivotally attached at end 171 and at an opposite end 173.

Mounting bracket 131 includes for each dispenser 31 hinge supports 181 and 181' which support pivot pins 183 therebetween. Each dispenser 31 has a levered gate 185 which is pivotally attached to one of the pins 183. The levered gate 185 has a clear ejector flap portion 187 attached by rivets 186 to an angle 188. The levered gate 185 also includes a retainer portion 189 which is continuous with the angle 188 and perpendicular to the flap portion 187. The retainer portion 189 includes a lip 191 and pie shaped segments 193 and 193' at either end. The pivoting arm 167 is pivotally attached to the levered gate 185 at the end 173.

Each of the four dispensers 31 has sides 201 and 203 having openings 205, 207 and 209 to permit air circulation. Additionally, each dispenser 31 has a top 202 and a bottom 204 mounted inside respectively the top panel 65 and bottom panel 67. A piece of insulating material 102 is placed between the bottom panel 67 and bottom 204. Attached to each of sides 201 and 203 is a rearward sloping guide 211 which extends from near the door 37 to near the rear panel 63 (Figs. 3, 4, 5 and 6). A guide and duct 213 is secured to the sides 201 and 203 and to the bottom panel 67 near the rear panel 63. A frontward sloping guide 215 is attached to each of sides 201 and 203 and extends from near the rear panel 63 to near the door 27.

As may best be seen in Figs. 3 and 7 a selfcontained refrigeration unit and housing 221 is mounted adjacent the housing 48 for the refrigerated food storage and dispensing area 7. The refrigeration unit 221 includes a compressor 223 and condensor coils 225. Cooling or evaporator coils 227 of the refrigeration unit 221 are in an insulated area. There are two openings 231 and 233 formed in a single foam plastic member 241 and matching holes through a top portion 239 of the refrigerator unit and housing 221. These two openings 231 and 233 in the refrigeration unit 221 match openings 235 and 237 in the bottom panel 67 and the piece of insulating material 102. The foam plastic member 241 is thus used to form passageways between the housing 221 and the housing 48. Additional passageways 245 and 247 are found on either side of the cooling coils 227. A motor driven fan (not shown) forces air over the cooling coils 227 and out the opening 231 into the refrigerated storage and dispensing area 7. The air supplied to the refrigerated storage and dispensing area 7 is sufficient to cool the temperature to around 1°C (34°F). Cool air also passes into refrigerated area

41 through an opening (not shown) in passageway 247. Air is supplied to the fan from a top area 101 of the refrigerated area 7, between the duct 213 and the rear panel 63 and into the openings 237 and 233. The cooling air thus circulates through the refrigerated area 7 by passing through passageway 247, out the opening 231, into the housing 48, returned from area 101, back through opening 233 and into passageway 245. The refrigerator unit 221 thus constitutes means contained in the housing 15 for cooling the refrigerated foods in the refrigerated storage and dispensing area. In this way housing 48 includes housing means for enclosing only the refrigerated storage and dispensing area to contain the cooling. The opening 231 is thus an example of duct means for directing cooling air into the housing 48 through the opening 235.

The operation and use of the vending machine 1 will now be described. With the door 3 open as shown in Fig. 2 the unrefrigerated foods may be placed between the spiral arms 25 in the unrefrigerated food storage and dispensing area 5. Because the door 3 is clear, different types of these foods may be mixed on each spiral arm. The refrigerated food may be conveniently stored in the refrigerated storage 41 for cooling prior to insertion in the dispensers 31. For example, previously stored drink cans may be accessed through the door 39. The door 39 seals the refrigerated storage area 41 with a gasket 248 and opens by pulling downward on handle 249 thus pivoting the door 39 at hinge 251. These precooled cans may then be conveniently inserted from the front into the dispensers 31 by opening the door 37. Cans are placed in the openings 61 and will move down on the guides 211 and 215. The can nearest the flap portion 187 of levered gate 185, i.e. can 261, will then be visible through the windows 29 and the clear flap portion 187. Because the can 261 is easily visible, different types of cans may be mixed in one of the dispensers 31. The door 3 may then be closed and the vending machine 1 is ready for dispensing. With the door 3 closed cool air escaping from the refrigerated storage and dispensing area 7 will reduce the temperature in the adjacent unrefrigerated storage and dispensing area 5.

Money is inserted into the selection panel 9 and when the proper amount is inserted, the push-button switches 11 on the panel 9 will permit dispensing. The user may conveniently select the food for dispensing since both the unrefrigerated foods in the unrefrigerated food storage and dispensing area 5 and the refrigerated foods in the refrigerated food storage and dispensing area 7 are visible through door 3. The refrigerated food, e.g. the can nearest the flap portion 187, i.e., can 261, may be identified through window 29 and clear flap portion 187. As previously discussed the vendor

control and selection system described in U.S.-A-4,512,453 is used for controlling dispenser motors for both the refrigerated and unrefrigerated foods. The selection panel 9 thus constitutes means for selecting one of the refrigerated foods or unrefrigerated foods to be dispensed to the common receiving device 18.

If an unrefrigerated food is selected for dispensing the motor connected to one of the spiral arms 25 will respond by rotating thus forcing the food to be pushed off the shelf 19. The unrefrigerated food package will then fall into the common receiving device or shelf 18 for retrieval by the user.

If a refrigerated food e.g. a drink can is selected for dispensing, one of the motors 161 associated with the selected dispenser will begin rotating. The dispenser 31 starts in a closed position as shown in Fig. 5. This rotation (in the clockwise direction as shown in Figs. 5 and 5A) causes the rotating member 153 of the gear assembly 155 to turn the offset lever 165. The pivoting arm 167 will pivot at the end 171 and at the opposite end 173. The levered gate 185 will then pivot on the pin 183. The flap portion 187 will push against the inside 109 of door 27 causing the door 27 to open. The lip 191 of retaining portion 189 will proceed into a position between the can nearest the flap portion 187 i.e., can 261, and the can next nearest the flap portion 187 i.e., can 263. The pie-shaped segments 193 and 193' at either end of the levered gate 185 will then retain the can 263 in the dispenser 31. The rotation will continue and an open position will be reached as shown in Fig. 5A. The levered gate is thus movable between the closed position (Fig. 5) and the open position (Fig. 5A). In the open position the flap portion 187 has pushed the door 27 open so that the can 261 will then fall into the common receiving device 18 for retrieval by the user.

The common receiving device 18 thus constitutes common receiving means adjacent the refrigerated and unrefrigerated storage and dispensing areas for receiving dispensed foods from either the refrigerated or unrefrigerated storage and dispensing area. And the dispensers 31 and the spiral arms 25 are an example of means responsive to the selecting means for dispensing the selected food to the common receiving means.

The rotating member 153 will continue rotating through an entire revolution. Thus, after the open position in Fig. 5A is reached the levered gate 185 will move toward its closed position as shown in Fig. 5. As this rotation progresses the can 263 will eventually move to the position nearest the flap portion 187 when the lip 191 has risen to allow the can to clear it. The levered gate 185 returns to its closed position and all the cans remaining in the dispenser 31 will then move down the guides 211 and 215. Because the guides 211 and 215 extend

from front to back, the number of cans that may be stored is increased. The vending machine 1 is ready for dispensing another refrigerated or unrefrigerated food.

Claims

1. A vending machine for dispensing foods comprising housing means (15) having a refrigerated storage area (7) for refrigerated foods separate from and below an unrefrigerated storage area (5) for unrefrigerated foods; means (221) contained in the housing means (15) for cooling the refrigerated foods in the refrigerated storage area; and dispensing means (25,31) for dispensing food to a receiving means (18), characterised in that the vending machine is capable of dispensing both refrigerated and unrefrigerated foods and comprises separate dispensing means (31) in the refrigerated area (7) and dispensing means (25) in the unrefrigerated area (5), common receiving means (18) adjacent the refrigerated storage and dispensing area (7) for receiving dispensed foods from either the refrigerated or the unrefrigerated storage and dispensing area; and means (11) for selecting one of the refrigerated foods or unrefrigerated foods to be dispensed to the common receiving means (18), the dispensing means (25,31) being responsive to the selecting means (11) for dispensing the selected food to the common receiving means (18).
2. A vending machine as claimed in claim 1, further comprising another housing means (48) for enclosing only the refrigerated storage and dispensing area (7) to contain the cooling.
3. A vending machine as claimed in claim 2, wherein the refrigerated storage and dispensing area (7) and unrefrigerated storage and dispensing area (5) are adjacent to reduce the temperature in the unrefrigerated storage and dispensing area (5) by heat transfer between the areas (5,7).
4. A vending machine as claimed in claim 2 or 3, wherein said other housing means (48) has an opening for the insertion of the refrigerated foods into the refrigerated storage and dispensing area (7), a door (37) covers the opening, and spring means are provided to bias the door to a closed position.
5. A vending machine as claimed in claim 4, wherein the other housing means (48) has another opening below the first named opening,



control and selection system described in U.S.-A-4,512,453 is used for controlling dispenser motors for both the refrigerated and unrefrigerated foods. The selection panel 9 thus constitutes means for selecting one of the refrigerated foods or unrefrigerated foods to be dispensed to the common receiving device 18.

If an unrefrigerated food is selected for dispensing the motor connected to one of the spiral arms 25 will respond by rotating thus forcing the food to be pushed off the shelf 19. The unrefrigerated food package will then fall into the common receiving device or shelf 18 for retrieval by the user.

If a refrigerated food e.g. a drink can is selected for dispensing, one of the motors 161 associated with the selected dispenser will begin rotating. The dispenser 31 starts in a closed position as shown in Fig. 5. This rotation (in the clockwise direction as shown in Figs. 5 and 5A) causes the rotating member 153 of the gear assembly 155 to turn the offset lever 165. The pivoting arm 167 will pivot at the end 171 and at the opposite end 173. The levered gate 185 will then pivot on the pin 183. The flap portion 187 will push against the inside 109 of door 27 causing the door 27 to open. The lip 191 of retaining portion 189 will proceed into a position between the can nearest the flap portion 187 i.e., can 261, and the can next nearest the flap portion 187 i.e., can 263. The pie-shaped segments 193 and 193' at either end of the levered gate 185 will then retain the can 263 in the dispenser 31. The rotation will continue and an open position will be reached as shown in Fig. 5A. The levered gate is thus movable between the closed position (Fig. 5) and the open position (Fig. 5A). In the open position the flap portion 187 has pushed the door 27 open so that the can 261 will then fall into the common receiving device 18 for retrieval by the user.

The common receiving device 18 thus constitutes common receiving means adjacent the refrigerated and unrefrigerated storage and dispensing areas for receiving dispensed foods from either the refrigerated or unrefrigerated storage and dispensing area. And the dispensers 31 and the spiral arms 25 are an example of means responsive to the selecting means for dispensing the selected food to the common receiving means.

The rotating member 153 will continue rotating through an entire revolution. Thus, after the open position in Fig. 5A is reached the levered gate 185 will move toward its closed position as shown in Fig. 5. As this rotation progresses the can 263 will eventually move to the position nearest the flap portion 187 when the lip 191 has risen to allow the can to clear it. The levered gate 185 returns to its closed position and all the cans remaining in the dispenser 31 will then move down the guides 211 and 215. Because the guides 211 and 215 extend

from front to back, the number of cans that may be stored is increased. The vending machine 1 is ready for dispensing another refrigerated or unrefrigerated food.

Claims

1. A vending machine for dispensing foods comprising housing means (15) having a refrigerated storage area (7) for refrigerated foods separate from and below an unrefrigerated storage area (5) for unrefrigerated foods; means (221) contained in the housing means (15) for cooling the refrigerated foods in the refrigerated storage area; and dispensing means (25,31) for dispensing food to a receiving means (18), characterised in that the vending machine is capable of dispensing both refrigerated and unrefrigerated foods and comprises separate dispensing means (31) in the refrigerated area (7) and dispensing means (25) in the unrefrigerated area (5), common receiving means (18) adjacent the refrigerated storage and dispensing area (7) for receiving dispensed foods from either the refrigerated or the unrefrigerated storage and dispensing area; and means (11) for selecting one of the refrigerated foods or unrefrigerated foods to be dispensed to the common receiving means (18), the dispensing means (25,31) being responsive to the selecting means (11) for dispensing the selected food to the common receiving means (18).
2. A vending machine as claimed in claim 1, further comprising another housing means (48) for enclosing only the refrigerated storage and dispensing area (7) to contain the cooling.
3. A vending machine as claimed in claim 2, wherein the refrigerated storage and dispensing area (7) and unrefrigerated storage and dispensing area (5) are adjacent to reduce the temperature in the unrefrigerated storage and dispensing area (5) by heat transfer between the areas (5,7).
4. A vending machine as claimed in claim 2 or 3, wherein said other housing means (48) has an opening for the insertion of the refrigerated foods into the refrigerated storage and dispensing area (7), a door (37) covers the opening, and spring means are provided to bias the door to a closed position.
5. A vending machine as claimed in claim 4, wherein the other housing means (48) has another opening below the first named opening,



said other opening being for dispensing the refrigerated foods from the refrigerated storage and dispensing area (7), another door (27) covering said other opening.

6. A vending machine as claimed in claim 2, 3 4 or 5, wherein the other housing means (48) has a window (27) therein for viewing the one of the refrigerated foods to be dispensed to the common receiving means (18).

7. A vending machine as claimed in any one of claims 2 to 6, wherein the other housing means (48) is positioned below the unrefrigerated storage and dispensing area (5).

8. A vending machine as claimed in any one of claims 2 to 7, wherein the cooling means (221) supplies cool air through a cooling opening (231) into the other housing means (48) to cool the refrigerated storage area (7).

9. A vending machine as claimed in claim 8, wherein the refrigerated storage and duct means (245,247) are includes for directing cooling air into the other housing means (48) through the opening (231).

10. A vending machine as claimed in any preceding claim, wherein the means for dispensing the selected food comprises a plurality of dispensers (25) each for dispensing one of the unrefrigerated foods and a plurality of dispensers (31) each for dispensing one of the refrigerated foods.

11. A vending machine as claimed in any preceding claim, wherein the means (31) for dispensing one of the unrefrigerated foods comprises a spiral arm (25) which separates the unrefrigerated foods in the storage and dispensing area (5) and a motor which operates in response to the selecting means (11) for rotating the spiral arm (25) to dispense one of the unrefrigerated foods.

12. A vending machine as claimed in any preceding claim, wherein the means (31) for dispensing one of the refrigerated foods comprises a levered gate (185) movable between an open and a closed position when, when in the closed position, retains the refrigerated foods in the refrigerated food storage and dispensing area (7) and when in the open position permits one of the refrigerated foods to move to the common receiving means (18) and retain the refrigerated foods remaining in the refrigerated food storage and dispensing area (7), and a

motor(161) which operated in response to the selecting means (11) to move the levered gate (185) from the closed position to the open position to dispense one of the refrigerated foods and then returns the gate to the closed position.

Revendications

1. Machine de vente pour distribuer des aliments comportant des moyens formant enceinte (15) possédant une zone de stockage réfrigérée (7) pour des aliments réfrigérés distincte de et au-dessous d'une zone de stockage non réfrigérée (5) pour des aliments non réfrigérés; des moyens (221) contenus dans les moyens formant enceinte (15) pour refroidir les aliments réfrigérés dans la zone de stockage réfrigérée; et des moyens de distribution (25,31) pour distribuer un aliment à un moyen de réception (18), caractérisée en ce que la machine de vente est apte à distribuer à la fois des aliments réfrigérés et non réfrigérés et comporte des moyens de distribution (31) distincts dans la zone réfrigérée (7) et des moyens de distribution (25) dans la zone non réfrigérée (5), des moyens de réception communs (18) adjacents à la zone de stockage et de distribution réfrigérée(7) pour recevoir des aliments distribués, soit de la zone de stockage et de distribution réfrigérée, soit de la zone de stockage et de distribution non réfrigérée; et des moyens (11) pour choisir l'un des aliments réfrigérés ou des aliments non réfrigérés devant être distribué aux moyens de réception communs (18), les moyens de distribution (25,31) étant sensibles aux moyens de sélection (11) pour distribuer l'aliment choisi aux moyens de réception communs (18).

2. Machine de vente selon la revendication 1, comportant en outre un autre moyen formant enceinte (48) pour entourer uniquement la zone de stockage et de distribution réfrigérée (7) pour contenir le réfrigérant.

3. Machine de vente selon la revendication 2, dans laquelle la zone de stockage et de distribution réfrigérée (7) et la zone de stockage et de distribution non réfrigérée (5) sont adjacentes pour réduire la température dans la zone de stockage et de distribution non réfrigérée (5) par transfert thermique entre les zones (5,7).

4. Machine de vente selon la revendication 2 ou 3, dans laquelle lesdits autres moyens formant enceinte (48) possèdent une ouverture pour



l'introduction des aliments réfrigérés dans la zone de stockage et de distribution réfrigérée (7), une porte (37) fermant l'ouverture, et des moyens formant ressort étant prévus pour solliciter la porte dans une position fermée.

5. Machine de vente selon la revendication 4, dans laquelle les autres moyens formant enceinte (48) possèdent une autre ouverture au-dessous de l'ouverture citée en premier lieu, ladite autre ouverture étant prévue pour distribuer les aliments réfrigérés provenant de la zone de stockage et de distribution réfrigérée (7), une autre porte (27) fermant ladite autre ouverture.

6. Machine de vente selon la revendication 2,3,4 ou 5, dans laquelle les autres moyens formant enceinte (48) possèdent une fenêtre (27) pour voir celui des aliments réfrigérés devant être distribué aux moyens de réception communs (18).

7. Machine de vente selon l'une quelconque des revendications 2 à 6, dans laquelle les autres moyens formant enceinte (48) sont disposés au-dessous de la zone de stockage et de distribution non réfrigérée (5).

8. Machine de vente selon l'une quelconque des revendications 2 à 7, dans laquelle les moyens de refroidissement (221) délivrent de l'air froid à travers une ouverture de refroidissement (231) dans les autres moyens formant enceinte (48) pour refroidir la zone de stockage réfrigérée (7).

9. Machine de vente selon la revendication 8, dans laquelle les moyens de stockage et de distribution réfrigérés (245,247) comprennent des moyens pour diriger de l'air de refroidissement dans les autres moyens formant enceinte (48) à travers l'ouverture (231).

10. Machine de vente selon l'une quelconque des revendications précédentes, dans laquelle les moyens pour distribuer l'aliment choisi comportent une pluralité de distributeurs (25) chacun pour distribuer un des aliments non réfrigérés et une pluralité de distributeurs (31) chacun pour distribuer l'un des aliments réfrigérés.

11. Machine de vente selon l'une quelconque des revendications précédentes, dans laquelle les moyens (31) pour distribuer l'un des aliments non réfrigérés comportent un bras hélicoïdal (25) qui sépare les aliments non réfrigérés dans la zone de stockage et de distribution (5)

et un moteur qui fonctionne en réponse aux moyens de sélection (11) pour faire tourner le bras hélicoïdal (25) pour distribuer l'un des aliments non réfrigérés.

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12. Machine de vente selon l'une quelconque des revendications précédentes, dans laquelle les moyens (31) pour distribuer l'un des aliments réfrigérés comportent une porte basculante (185) déplaçable entre une position ouverte et une position fermée qui, lorsqu'elle se trouve dans la position fermée, retient les aliments réfrigérés dans la zone de stockage et de distribution d'aliments réfrigérés (7), et lorsqu'elle se trouve dans la position ouverte, permet à l'un des aliments réfrigérés de se déplacer vers les moyens de réception communs (18) et retient les aliments réfrigérés restant dans la zone de stockage et de distribution d'aliments réfrigérés (7), et un moteur (161) qui est actionné en réponse aux moyens de sélection (11) pour déplacer la porte basculante (185) de la position fermée dans la position ouverte pour distribuer l'un des aliments réfrigérés et ensuite ramène la porte dans sa position de fermeture.

Patentansprüche

1. Verkaufsautomat zur Ausgabe von Lebensmitteln, mit einem Gehäuse (15) mit einem separat von und unterhalb eines ungekühlten Lagerungsbereichs (5) für ungekühlte Lebensmittel vorgesehenen gekühlten Lagerungsbereich (7) für gekühlte Lebensmittel, Mitteln (221), die in dem Gehäuse (15) zum Kühlen der gekühlten Lebensmittel in dem gekühlten Lagerungsbereich enthalten sind, und Ausgabemitteln (25, 31) zur Ausgabe von Lebensmitteln an ein Aufnahmemittel (18), dadurch gekennzeichnet, daß der Verkaufsautomat sowohl gekühlte als auch ungekühlte Lebensmittel ausgeben kann und in dem gekühlten Bereich (7) separate Ausgabemittel (31) und in dem ungekühlten Bereich (5) Ausgabemittel (25) sowie angrenzend an den gekühlten Lagerungs- und Ausgabebereich (7) gemeinsame Aufnahmemittel (18) zur Aufnahme von entweder aus dem gekühlten oder dem ungekühlten Lagerungs- und Ausgabebereich ausgegebenen Lebensmitteln und Mittel (11) zum Auswählen eines der an das gemeinsame Aufnahmemittel (18) auszugebenden gekühlten Lebensmittel oder ungekühlten Lebensmittel umfaßt, wobei Ausgabemittel (25,31) auf die Auswahlmittel (11) zur Ausgabe des ausgewählten Lebensmittels an das gemeinsame Aufnahmemittel (18) reagie-



ren.

2. Verkaufsautomat nach Anspruch 1, der desweiteren ein weiteres Gehäuse (48) zum Umschließen lediglich des gekühlten Lagerungs- und Ausgabebereichs (7) umfaßt, um die Kühlung zu umschließen. 5
3. Verkaufsautomat nach Anspruch 2, bei dem der gekühlte Lagerungs- und Ausgabebereich (7) und der ungekühlte Lagerungs- und Ausgabebereich (5) nebeneinanderliegen, um die Temperatur in dem ungekühlten Lagerungs- und Ausgabebereich (5) durch Wärmeübergang zwischen den Bereichen (5,7) zu verringern. 10
4. Verkaufsautomat nach Anspruch 2 oder 3, bei dem das weitere Gehäuse (48) eine Öffnung zur Eingabe der gekühlten Lebensmittel in den gekühlten Lagerungs- und Ausgabebereich (7) aufweist, eine Türe (37) die Öffnung abdeckt und Federmittel vorgesehen sind, um die Türe auf eine geschlossene Stellung hin vorzuspannen. 15
5. Verkaufsautomat nach Anspruch 4, bei dem das weitere Gehäuse (48) eine zweite Öffnung unterhalb der zuerst genannten Öffnung aufweist, wobei die zweite Öffnung zur Ausgabe der gekühlten Lebensmittel aus dem gekühlten Lagerungs- und Ausgabebereich (7) vorgesehen ist, wobei eine weitere Türe (27) die zweite Öffnung abdeckt. 20
6. Verkaufsautomat nach Anspruch 2, 3, 4, oder 5, bei dem das weitere Gehäuse (48) in sich ein Fenster (27) zur Betrachtung desjenigen der gekühlten Lebensmittel aufweist, welches an das gemeinsame Aufnahmemittel (18) abgegeben werden soll. 25
7. Verkaufsautomat nach einem der Ansprüche 2 bis 6, bei dem das weitere Gehäuse (48) unterhalb des ungekühlten Lagerungs- und Ausgabebereichs (5) angeordnet ist. 30
8. Verkaufsautomat nach einem der Ansprüche 2 bis 7, bei dem das Kühlmittel (221) kalte Luft durch eine Kühlöffnung (231) in das weitere Gehäuse (48) zur Kühlung des gekühlten Lagerungsbereichs (7) zuführt. 35
9. Verkaufsautomat nach Anspruch 8, bei dem die gekühlten Lagerungsmittel und Rohrleitungsmittel (245, 247) enthalten sind, um kühle Luft durch die Öffnung (231) in das andere Gehäuse (48) zu leiten. 40
10. Verkaufsautomat nach einem der vorhergehenden Ansprüche, bei dem die Mittel zur Ausgabe des ausgewählten Lebensmittels eine Vielzahl von Ausgabeelementen (25) jeweils für die Ausgabe eines der ungekühlten Lebensmittel und eine Vielzahl von Ausgabeelementen (31) jeweils für die Ausgabe eines der gekühlten Lebensmittel umfaßt. 45
11. Verkaufsautomat nach einem der vorhergehenden Ansprüche, bei dem die Mittel zur Ausgabe eines der ungekühlten bei dem die Mittel zur Ausgabe eines der ungekühlten Lebensmittel einen Spiralarm (25), der die ungekühlten Lebensmittel in dem Lagerungs- und Ausgabebereich (5) trennt, sowie einen Motor umfassen, der in Reaktion auf die Auswahlmittel (11) betrieben wird, um den Spiralarm (25) zur Ausgabe eines der ungekühlten Lebensmittel zu drehen. 50
12. Verkaufsautomat nach einem der vorhergehenden Ansprüche, bei dem die Mittel (31) zur Ausgabe eines der gekühlten Lebensmittel eine mit einem Hebel betätigte Klappe (185), die zwischen einer offenen und einer geschlossenen Stellung bewegbar ist und die gekühlten Lebensmittel in dem gekühlten Lebensmittellagerungs- und Ausgabebereich (7) zurückhält, wenn sie in der geschlossenen Stellung ist, und es ermöglicht, daß eines der gekühlten Lebensmittel zu dem gemeinsamen Aufnahmemittel (18) bewegt wird und daß die in dem gekühlten Lebensmittellagerungs und Ausgabebereich (7) zurückbleibenden gekühlten Lebensmittel zurückgehalten werden, wenn sie in der offenen Stellung ist, sowie einen Motor (161) umfassen, der in Reaktion auf die Auswahlmittel (11) betätigt wird, um die durch Hebel betätigte Klappe (185) aus der geschlossenen Stellung in die offene Stellung zu bewegen, um eines der gekühlten Lebensmittel auszugeben, und um dann die Klappe wieder in die geschlossene Stellung zurückzuführen. 55