

Aug. 17, 1965

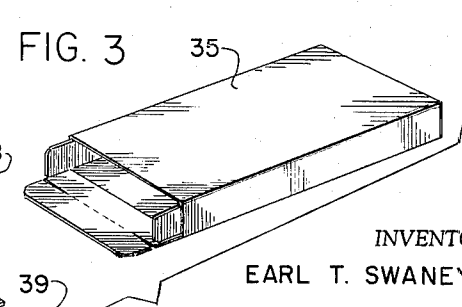
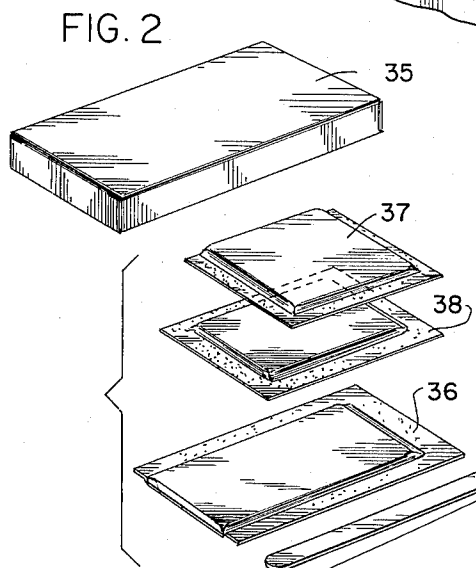
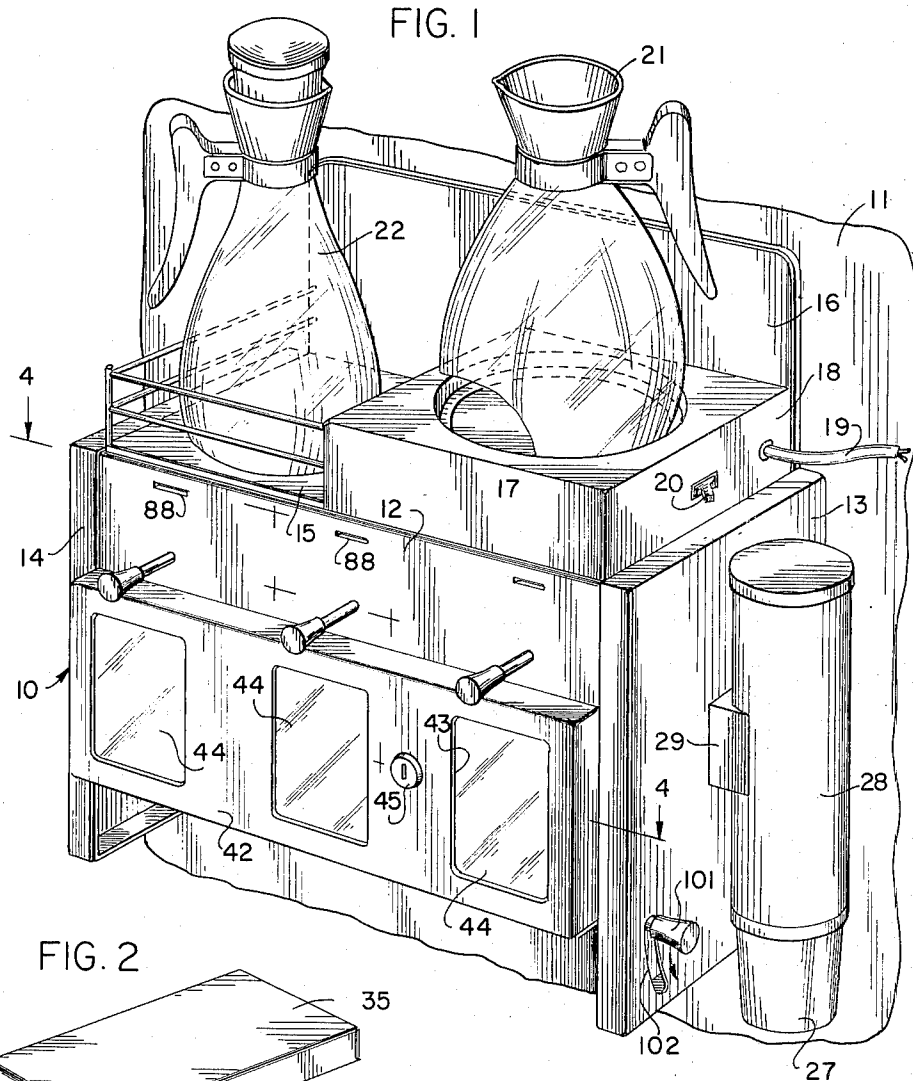
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3,200,925

VENDING AND TEMPERATURE MODIFICATION DEVICE

Filed May 8, 1962

4 Sheets-Sheet 1



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FIG. 4

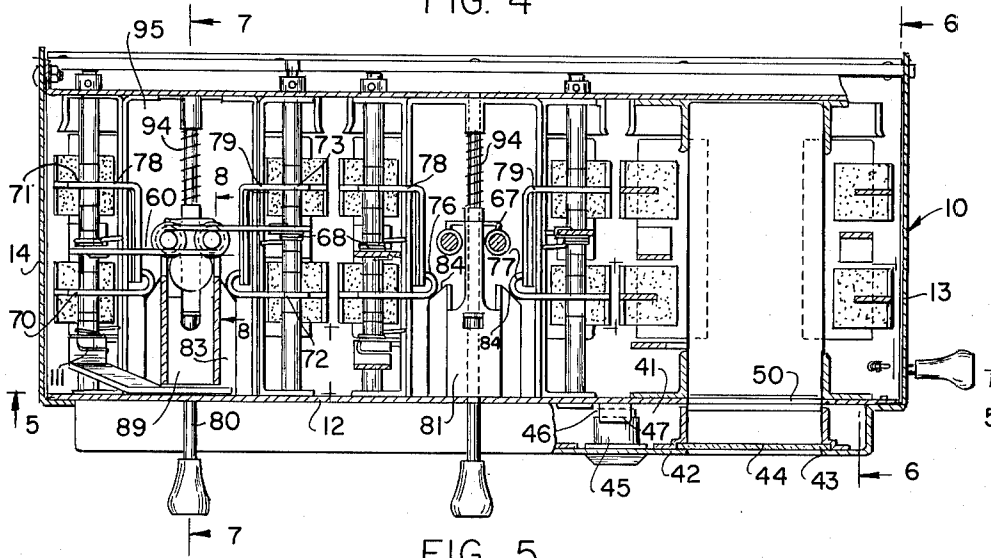
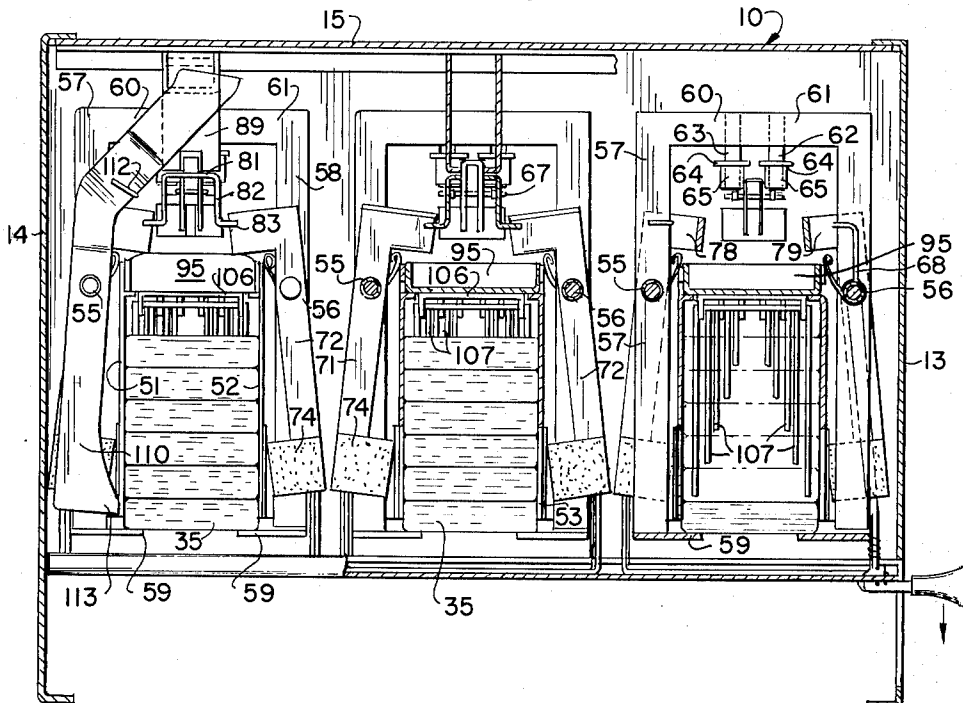


FIG. 5



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FIG. 6

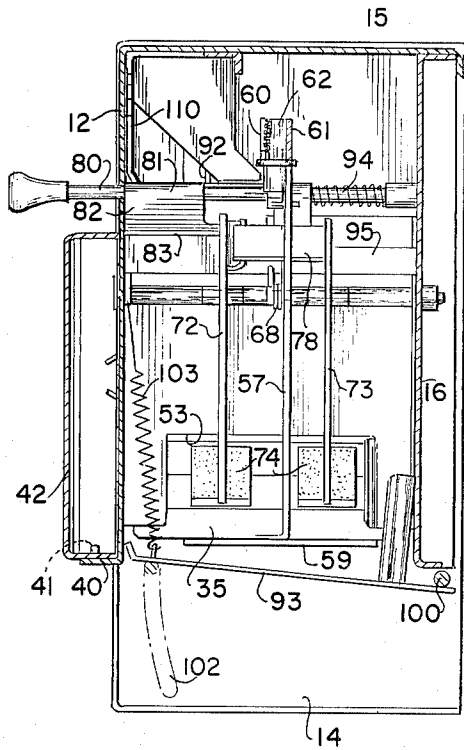


FIG. 7

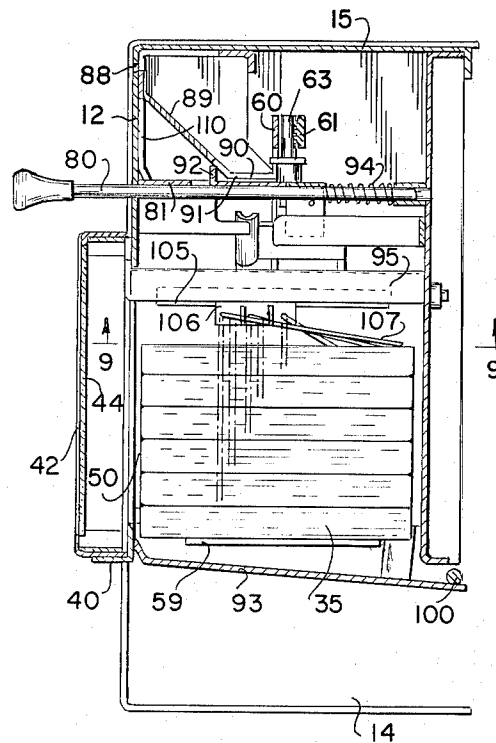


FIG. 9

FIG. 8

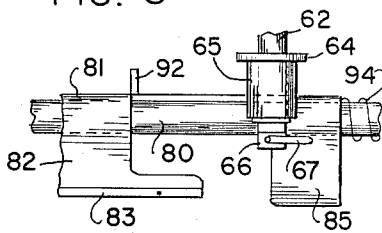
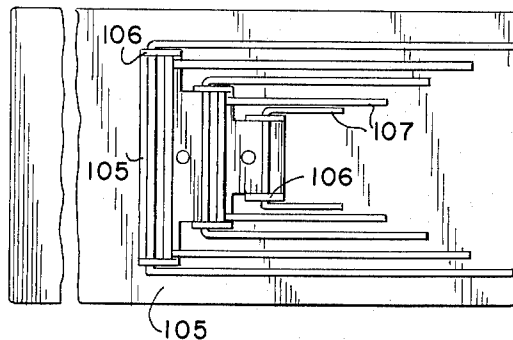
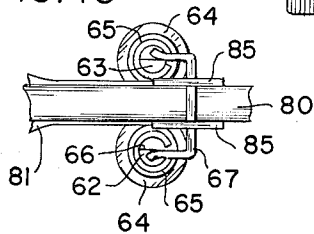


FIG. 10



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FIG. 11

FIG. 13

FIG. 15

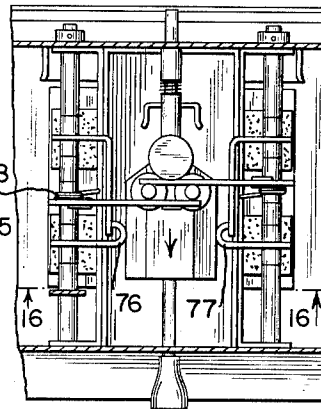
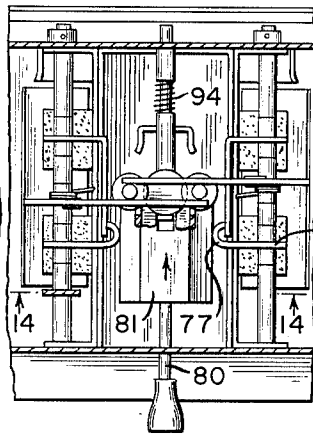
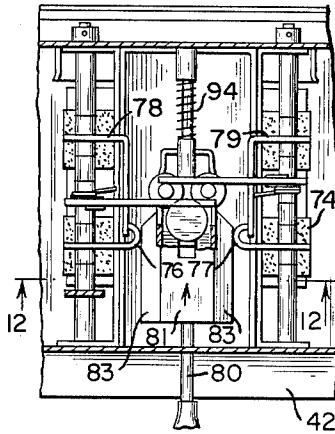


FIG. 12

FIG. 14

FIG. 16

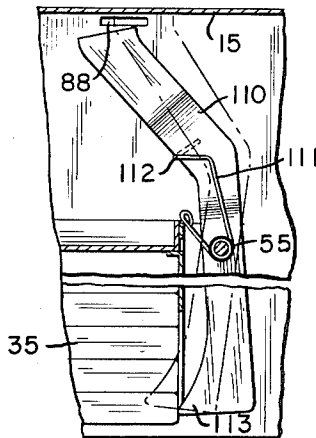
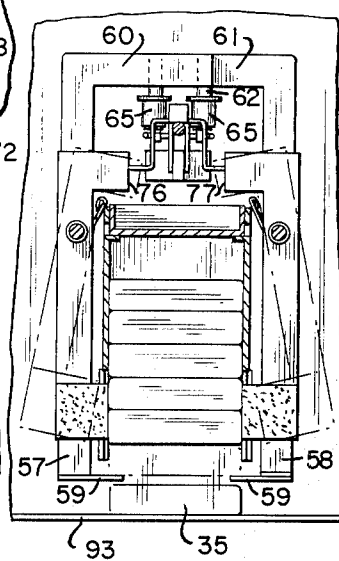
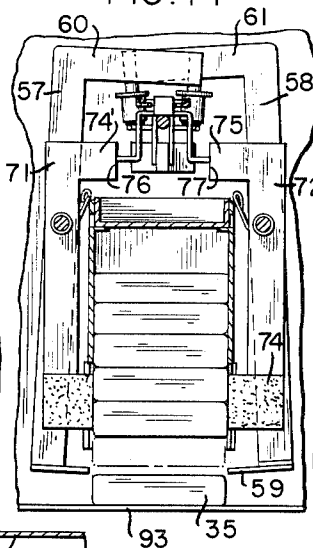
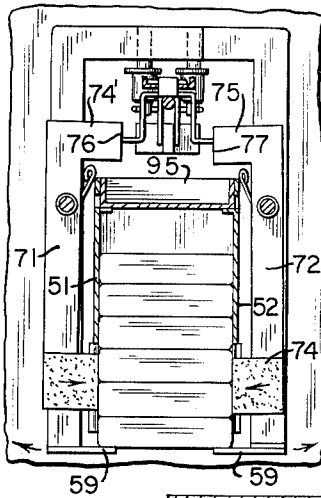


FIG. 17

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**VENDING AND TEMPERATURE  
MODIFICATION DEVICE**

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Wilburn W. Woodcock  
Filed May 8, 1962, Ser. No. 193,108  
6 Claims. (Cl. 194-72)

This invention relates to commodities in common use, to the production, preparation and use of such commodities, and to equipment for facilitating the availability and use of such commodities.

The invention relates particularly to apparatus or equipment for containing coffee, coffee substitutes or other beverages or substances including in dry condition for convenient availability in various locations for ready use and to the preparation of such beverages for consumption or other use.

Coffee, coffee substitutes, and the like are consumed extensively and, in fact, to such an extent that they are provided in public and private locations, and are served by various business enterprises including hotels, motor courts, and many other places with more or less control of the dispensing thereof, and various ways have been employed for the dispensing thereof for the convenience of the consumer.

It is an object of the invention to provide a coin-controlled coffee or other beverage vending and temperature modification device by which a beverage such as coffee or other substances can be contained in a small package or in small bulk with a sweetening agent and with a cream or appropriate additive as well as a container for water or other liquid, a temperature modification means, a vessel in which the temperature of the water can be modified, and individual cups or drinking elements.

Another object of the invention is to provide apparatus for dispensing relatively small packages, one at a time, from a stack or supply of such packages and to prevent unauthorized access to or removal of the packages.

A further object of the invention is to provide coin-controlled mechanism in which the coin functions as a portion of the operating mechanism to dispense a package from a stack or supply of packages.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective illustrating one application of the invention;

FIG. 2, a perspective of one of the packages dispensed by the apparatus of FIG. 1;

FIG. 3, an exploded perspective of the package of FIG. 2;

FIG. 4, an enlarged section on line 4-4 of FIG. 1;

FIG. 5, a section on the line 5-5 of FIG. 4;

FIG. 6, a section on the line 6-6 of FIG. 4;

FIG. 7, a section on the line 7-7 of FIG. 4;

FIG. 8, an enlarged fragmentary section on the line 8-8 of FIG. 4;

FIG. 9, a section on the line 9-9 of FIG. 7;

FIG. 10, a bottom plan view of the structure of FIG. 8;

FIG. 11, a fragmentary section of the coin operated mechanism illustrating the first step of the operation;

FIG. 12, a section on the line 12-12 of FIG. 11;

FIG. 13, a fragmentary section similar to FIG. 11 illustrating the second step of the operation;

FIG. 14, a section on the line 14-14 of FIG. 13;

FIG. 15, a fragmentary section similar to FIG. 11 illustrating the third step of the operation;

FIG. 16, a section on the line 16-16 of FIG. 15; and

FIG. 17, a fragmentary detail of the coin stop lever.

Briefly stated, the present invention is a vending machine including coin-controlled apparatus for dispensing

packages of beverages in powdered form in such a manner that when an operating lever is pressed the coin-controlled mechanism activates a plurality of holding members to dispense a package. Certain of the holding members are adapted to grasp a stack of containers while other holding members release the lowermost container from the stack and a container thus dispensed falls by gravity onto a delivery tray from which it may be removed by the operator of the machine. The apparatus includes a heating element operatively associated with the dispensing mechanism, a vessel for heating water, a container for water to be heated, and a dispenser for cups located on one side of the machine to provide a complete unit for the dispensing and preparation of a beverage.

With continued reference to the drawings, the present invention comprises a housing 10 adapted to be mounted on the wall structure 11 of a building or, if desired, may rest on any flat surface such as a table top. The housing 10 includes a front 12, ends 13 and 14, a top 15 and a back plate 16. The top 15 is provided with a hot plate 17 or other temperature modifying apparatus confined within an auxiliary housing 18. The hot plate 17 is of conventional construction and includes resistance wires supplied with electrical current through conduits 19 and controlled by a switch 20.

A miniature coffee container 21 or other vessel for heating water is provided and adapted to be received on the hot plate 17 so that when the switch 20 is closed such hot plate will cause water within the vessel 21 to reach boiling temperature. Water for the vessel 21 is provided in a pitcher or thermos type container 22 on the top 15 adjacent to the housing 18.

After preparation the product is put into containers for consumption and such containers 27 may be provided in a holder or dispenser 28 mounted by a bracket 29 to the end 13 of the housing. The containers 27 are removable from the dispenser 28 in a conventional manner by a downward pull on the lowermost container, whereupon the remaining containers will move downwardly by gravity to present the next succeeding container to the lowermost position within the dispenser for ready access.

The housing 10 is adapted to contain a plurality of stacks of packages 35 of substantially uniform size and shape. Each package contains an envelope 36 with a predetermined amount of material therein for making a beverage such as instant coffee, chocolate or the like, an envelope 37 containing a sweetening agent such as sugar, an envelope 38 containing cream in powdered form, and a stick or stirring member 39 for completely integrating the beverage and the additives prior to consumption.

The front 12 of the housing has an outwardly turned flange 40 provided with upstanding pins 41 for mounting a facade 42 thereon. Such facade has an opening 43 closed by a transparent plate 44 for each of the stacks of packages within the housing. Advertising media or indicia indicating the particular beverage contained within the packages of the stack may be positioned behind the transparent plate 44 and be visible therethrough. A lock 45 is mounted on the facade 42 and has a lever 46 engageable with a bracket 47 mounted on the housing 10 to fasten the facade to the housing.

The front of the housing 10 is provided with a plurality of openings 50 for receiving the individual packages when the packages are placed within the apparatus. In order to confine the stacks, a pair of side plates 51 and 52 project inwardly from the openings 50 to prevent any lateral shifting of the packages. The side plates 51 and 52 have cut-out portions 53 along the lower edges thereof in which the mechanism for dispensing the packages is received.

Each group of packages is controlled by the same type of mechanism and although the mechanism for one group

will be described, it will be apparent that such mechanism will apply to any and all of the groups within the device.

In order to dispense one package at a time, the housing 10 is provided with a pair of longitudinally disposed shafts 55 and 56 on which arms 57 and 58 respectively are pivotally mounted. Each of such arms is provided with an inwardly turned flange or shoe 59 at the bottom thereof on which the stack of packages is normally adapted to rest. The arms 57 and 58 have inwardly extending flanges 60 and 61 respectively on their upper ends adjacent to the top 15 and such flanges extend past the center line of the stack in spaced relation to each other. The free ends of the flanges 60 and 61 are welded or otherwise attached, respectively, to downwardly extending pins 62 and 63 on the lower end of which are mounted collars 64 and rollers 65. The lower ends of the pins 62 and 63 have recessed or flattened portions 66 which receive a spring member 67 to prevent the pins from spreading apart and the unauthorized removal of packages from the stack.

Springs 68, coiled about the shafts 55 and 56, each have one end forming a hook which respectively engage the arms 57 and 58 to urge the upper portion of such arms outwardly. The outward movement of the upper portions of the arms 57 and 58 causes the shoes 59 on the lower end to extend beneath the stack of packages to support the same until such time as the upper portions are forced inwardly in a manner to be described later.

The shaft 55 pivotally supports an additional pair of arms 70 and 71 and the shaft 56 pivotally supports an additional pair of arms 72 and 73. Each of such additional arms has a resilient block or mass 74 of sponge rubber or the like fastened to its lower end for engaging the stack of packages when such mass is moved inwardly through the openings 53 in the side walls 51 and 52 and against the second lowermost package.

The arms 70 and 72 at their upper ends respectively have inwardly extending flanges 74' and 75 terminating in hook portions 76 and 77 respectively. The arms 71 and 73 correspondingly have inwardly extending flanges 78 and 79 respectively the inner ends of which are bent substantially parallel to each other and extending toward the front of the apparatus to a position adjacent to the flanges 74' and 75. The free ends of the hook portions 76 and 77 engage the parallel portions of the flanges 78 and 79 in such a manner that the arms 70, 71, 72 and 73 move simultaneously and apply an equal pressure on the packages.

In order to move the lower ends of the arms 70-73 inwardly and to move the shoes 59 outwardly, a coin controlled mechanism is provided including an operating rod 80 on which a platform 81 is welded or otherwise attached. The platform 81 is provided with downwardly depending portions 82 having outwardly extending camming flanges 83 with their rear edges 84 tapered and adapted to engage the hook portions 76 and 77 of the arms 70 and 72.

When the operating rod and platform are moved inwardly or rearwardly, the cams 84 on platform flanges 83 move the upper ends of the arms 70 and 72 outwardly and the hook portions 76 and 77 on these arms, which engage the parallel portions of the flanges 78 and 79 of the arms 71 and 73 respectively, similarly move such arms a distance corresponding to the movement of the arms 70 and 72. When the upper portion of the arms 70-73 are moved outwardly, the resilient mass 74 on the lower end of each arm will be pivoted inwardly against the second lowermost package to retain the stack of packages in position.

The operating rod 80 also has a pair of depending flanges 85 connected thereto in which the spring member 67 is fixed. When the operating rod is moved rearwardly, the spring member 67 is removed from the recessed portions 66 of the pins 62 and 63 to permit the rollers 65 to move outwardly. In order to move the rollers 65, a

coin of a predetermined value is inserted through a coin slot 88 (FIG. 7) where it falls by gravity down an incline or chute 89 onto a flat bottom surface portion 90 thereof adjacent the platform 81 and rests against the rollers 65. The flat portion 90 has a slot 91 in which is slidably received an upturned flange or finger 92 carried by the platform 81. When a coin is deposited on the flat portion 90 and the operating rod 80 is pressed, the upturned flange 92 will engage one side edge of the coin and the opposite side edge of the coin, being thrust against rollers 65, will force the rollers 65 apart as illustrated in FIG. 13 the platform 81 being in underlying support of the coin.

When the rollers 65 are forced apart, the upper portions of the arms 57 and 58 are moved inwardly and the lower portions of such arms with the shoes 59 thereon are moved outwardly to release the lowermost package and permit such package to fall by gravity onto a delivery tray 93. Upon the passage of the coin the rollers 65, the arms 57 and 58 will be returned to their normal position by the springs 68. A coil spring 94 is disposed about the operating rod 80 and when the package has fallen onto the delivery tray and the operating rod is released, the spring 94 will return the operating rod to its outermost position.

Since the coin cannot pass back between the rollers 65 as the operating rod is moved back by spring 94, it is removed by the rollers from the platform 81 and falls by gravity into a tray 95 immediately below the operating rod 80. During the return of such operating rod, the shoes 59 are first returned to a position underlying the remaining packages in the stack and then the arms 70-73 are released to permit the stack to fall by gravity until such stack encounters the shoes 59.

The delivery tray 93 has a pivot pin 100 at its rear edge for pivotally connecting the tray 93 to the housing 10. The forward part of the tray is provided with an operating handle 101 operable within a slot 102 in the end 13 of the housing and such tray is normally maintained in its uppermost position by a spring 103.

As illustrated in FIGS. 7 and 9, the coin tray 95 is provided with a bracket 105 having a plurality of depending flanges 106 in which a series of U-shaped members 107 of varying lengths are pivotally supported. The U-shaped members 107 vary in length substantially the same distance as the width of one of the packages and when there is a full stack of packages, all of the U-shaped members will be pivoted rearwardly. When the first package has been removed from the stack, the shortest U-shaped member will pivot downwardly and prevent the stack from being raised from beneath and when each succeeding package is removed, another U-shaped member will swing downwardly by gravity until all of the packages have been removed and the stack is exhausted.

When the stack is exhausted, a coin stop lever 110 (FIG. 17) is adapted to be moved over the coin slot 88 to prevent further coins from being inserted for which no package can be delivered. The coin stop lever 110 is pivotally mounted on the shaft 55 and is normally urged to a slot closing position by a spring 111 having a hook portion 112 on one end which engages the lever 110. The lower portion of the lever 110 is provided with an inwardly projecting lug 113 which projects through a slot in the side wall 51 into the path of movement of the stack of packages so that as long as packages remain in the stack, the lug 113 is forced outwardly and the coin slot 88 remains open. When the last package has been dispensed, the lug 113 no longer meets resistance and the spring 111 will urge the upper portion of the lever 110 outwardly to cover the coin slot and prevent further coins from being inserted.

In the operation of the device, a coin of a predetermined denomination is inserted in the coin slot 88 and such coin will fall by gravity onto the flat surface portion 90 of an incline whereupon the operating rod 80 is pressed

so that the camming flanges 83 of the platform 81 will cause the lower ends of the arms 70-73 to pivot inwardly and grasp the second lowermost package of the stack and upon continued movement of the operating rod, the coin will be forced by the platform finger 92 to engage the rollers 65 to cause the lower ends of the arms 57 and 58 to pivot outwardly and permit the lowermost package to fall by gravity onto the delivery tray 93. When the coin passes the rollers 65, the arms 57 and 58 are returned to their original position so that the shoes 59 on the lower ends of such arms underlie the stack of packages and upon the release of the operating rod, the spring 94 will return such rod to its initial outermost extended position. When the operating rod is returned, the coin cannot pass the rollers 65 and is therefore ejected from the coin mechanism into a coin tray 95. The delivery tray is then pivoted downwardly so that the operator can remove the package from the machine and place the beverage in powdered form carried within the package in a cup carried by a holder 28 on one end of the device. A desired amount of water is adapted to be poured from the pitcher 22 into the heating vessel 21 and the switch 20 closed to allow the water within the vessel to reach boiling temperature. The heated water may be poured into the cup containing the beverage, after which the beverage is modified by the addition of sugar and cream according to the preference of the consumer.

It will be apparent that a compact unit is provided for the dispensing and preparation of a beverage in a minimum of time and with minimum effort.

It will be obvious to one skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawings and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A beverage vending and temperature modification device comprising a housing,  
 said housing having structure for mounting a plurality of beverage-related packages of substantially uniform size and shape in stacked relation therein,  
 a plurality of generally vertically extending arms pivotally mounted intermediate their length in said housing at opposite sides of and adjacent said structure mounting each stack of the packages,  
 a resilient block mounted on the lower portion of each of said plurality of arms adapted to frictionally engage a lower portion of the stack of packages for the support of the major portion of the stack of packages,  
 a pair of additionally generally vertically extending arms pivotally mounted intermediate their length on said housing and closely parallel each other at said opposite adjacent sides of said stack mounting structure,  
 a shoe on the lower end portion of each of said pair of additional arms normally underlying and supporting all of the packages in the stack,  
 abutment means on the upper ends of all of said first and second mentioned arms,  
 coin-responsive mechanism for controlling the release of packages from said supporting structure for each stack,  
 said mechanism comprising a movable operating rod, first means on said operating rod operative when said rod is initially moved to engage with the abutment means on said plurality of arms to move the resilient blocks thereon to frictionally engage the sides of a lower portion of the stack of packages for the support of said major portion thereof,  
 second means on said operating rod operative for causing a coin when placed thereagainst to sequentially

pivot said additional pair of arms during further movement of said rod to withdraw said shoes thereon from supporting positions relative to the lowermost portion of the stack of packages for release thereof from the stack and housing,

spring means operative to return said movable operating rod and said pair of arms to their initial positions relative to the stack-mounting structure after release of the lowermost portion of the stack,

said housing having component wall means forming support means for liquid supply containers thereon, said support means of said housing component wall means having temperature-modifying means supported thereby for modifying the temperature of the liquid supply containers,

and means for controlling the flow of heating energy to said temperature-modifying means,

each of the packages supported within said housing being functionally related to the liquid of said liquid containers for ultimate intimate association therewith.

2. A dispenser for commodities in package form including a housing,

said housing including means therein for mounting a plurality of commodity packages in at least one stack having a substantially vertical central plane,

a pair of substantially vertically extending arms each of which is pivotally mounted intermediate its length in said housing adjacent each side of the stack of packages in oppositely disposed relation,

a flange on the upper end of each of said arms disposed above the stack of packages and extending toward the opposite side thereof,

said flange of each of said oppositely positioned arms extending beyond said central plane and having a roller mounted on the end thereof, with each roller intersecting a common substantially horizontal plane,

a shoe on the lower end of each of said arms normally positioned in supporting relation to the entire stack of packages,

a plurality of additional substantially vertically extending arms each pivotally mounted intermediate its length in said housing coaxially of said pair of arms and adjacent each side of the stack of packages in oppositely disposed relation,

interrelated flange means on the upper end of each of said additional arms disposed above said stack of packages and extending inwardly towards said central plane,

a resilient block mounted on the lower end portion of each of said additional arms, said resilient block being normally positioned out of contact with said packages but movable when actuated to frictionally and holdingly engage a lower portion of the stack for the support of the major portion of the packages thereof,

coin-responsive mechanism for controlling the release of packages from said stack-supporting structure, said mechanism including manually operable operating rod mounted for axial sliding movement,

a platform on said operating rod having outwardly extending camming flanges operative when said rod is initially axially moved to thrust against said interrelated flange means of said plurality of additional arms to effect movement thereof whereby said resilient blocks are moved into frictional holding contact with the stacked packages to effect support of the upper major portion thereof,

coin entry slot means in said housing,

means on said platform for thrustingly engaging a coin from said entry slot means for movement therewith when said rod is moved axially by manual pressure, to said plurality of additional arms by the thrust of the coin against said rollers during continued said pair of arms being sequentially actuated relative

manual actuation of said rod to effect withdrawal of the shoes on said pair of arms from the bottom of the stack of packages for the release of the lowermost portion thereof,

spring means to return the operating rod and said pair of arms to their initial positions when the manual pressure on said rod is released,

a discharge tray for receiving the packages when released from said stack,

a coin stop lever in said housing operative to prevent insertion of coins in said coin slot when the stack of packages in said mounting means is exhausted, and means preventing the stack from being raised from beneath.

3. Package vending apparatus comprising,

a housing including means for mounting a plurality of packages of substantially uniform size in at least one substantially vertical stack therein,

a pair of substantially vertically extending arms each pivotally mounted in said housing intermediate their length on substantially parallel axes disposed adjacent opposite sides of the vertical stack of packages, flange means on the lower ends of said pair of arms normally extending under the bottom edges of said stack of packages and supporting the weight thereof, abutment means on the upper ends of each of said arms and overlying said stack of packages,

a plurality of additional arms mounted in said housing at each side of said stack and coaxially of each of said first-mentioned arms,

resilient means on the lower end portion of each of said pivotally mounted additional arms normally free of but adapted to be moved into frictional supporting engagement with at least the second lowermost package of the stack,

abutment means on the upper ends of said additional arms overlying the stack of packages and spaced vertically from said abutment means on said pair of arms,

means for sequentially actuating said pair of arms and said additional arms comprising,

coin controlled mechanism having a manually movable operating rod,

said rod having means thereon operable in conjunction with a coin placed thereon when said rod is manually moved from an initial position to sequentially engage the abutment means on said multiple additional arms and said pair of arms to first move the resilient means on said multiple additional arms into lateral frictional supporting contact with the said second lowest package in the stack and thereafter move the flange means of said pair of arms out from supporting relation under the stack of packages whereby to release the said lowermost package from the stack for removal from said housing,

and spring means operative to move said pair of arms and said operating rod back to their initial positions when the manually applied pressure acting thereagainst is released.

4. The package vending apparatus of claim 3 wherein said housing includes,

coin slot means for insertion therein of the coin to effect the release of the lowermost package from the stack,

and a stack-controlled pivoted-coin-stop lever in said casing operative when the stack is exhausted to prevent the insertion of a coin in said coin slot means.

5. A dispenser for commodities in package form comprising,

a housing having a plurality of means for mounting a plurality of stacks of packages wherein the packages of each stack are of substantially uniform size, each of said mounting means having a pair of oppositely

disposed parallel sides having an aperture therein disposed abreast of the second lowermost package, a shaft mounted in said housing and disposed adjacent to and parallel to each of the parallel sides of each one of said mounting means,

a plurality of generally vertically extending arms pivotally mounted in said housing intermediate their lengths on said shafts,

a resilient block on the lower end of each of said arms positioned abreast of but normally spaced outwardly of said apertures in said package mounting means, abutment means on the upper end of each of said plurality of arms overlying each of said stack mounting means,

a pair of generally vertically extending arms each pivotally mounted on each of said shafts and having laterally extending flange means on the lower end thereof normally disposed in underlying supporting relation to each stack of packages,

roller abutment means on the upper ends of said pair of arms extending above and across the upper end of the stack in over-centered relation thereto at an elevation spaced from said abutment means on said first-mentioned arms,

coin-controlled mechanism for controlling the release of packages from each of said stack supporting means comprising,

an operating rod mounted for axial movement above the stack and between each of said abutment means on said plurality and said pair of arms,

means on said axially movable operating rod operable in conjunction with a coin to engage both said arm abutment means comprising,

platform means having camming flanges thereon and means for thrustingly engaging a coin when placed thereagainst whereby when said rod is moved by pressure axially in one direction said camming flanges and said means are sequentially operative through engagement with said abutment means on said plurality and said pair of arms to first move said resilient blocks through said apertures into lateral supporting frictional contact with the second lowermost package of the stack and thereafter move the said laterally extending flange means from supporting relation under the stack of packages to thereby release the lowermost package therefrom, and resilient means operative to return said operating rod and said pair of arms to their normal initial position when pressure is removed from said rod and said abutment means.

6. A dispenser as defined in claim 5 and including a coin slot means in said housing for insertion of the coin into operative position relative to said means on said platform,

means responsive to the packages in each stack for preventing the insertion of a coin in said slot when the stack is exhausted,

and means for preventing the unauthorized removal of packages from the stacks in said housing.

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