

Nov. 15, 1966

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3,285,474

POSITIONER FOR REFRIGERATED LIQUID DISPENSER CONTAINER

Filed April 29, 1965

3 Sheets-Sheet 1

FIG. 1.

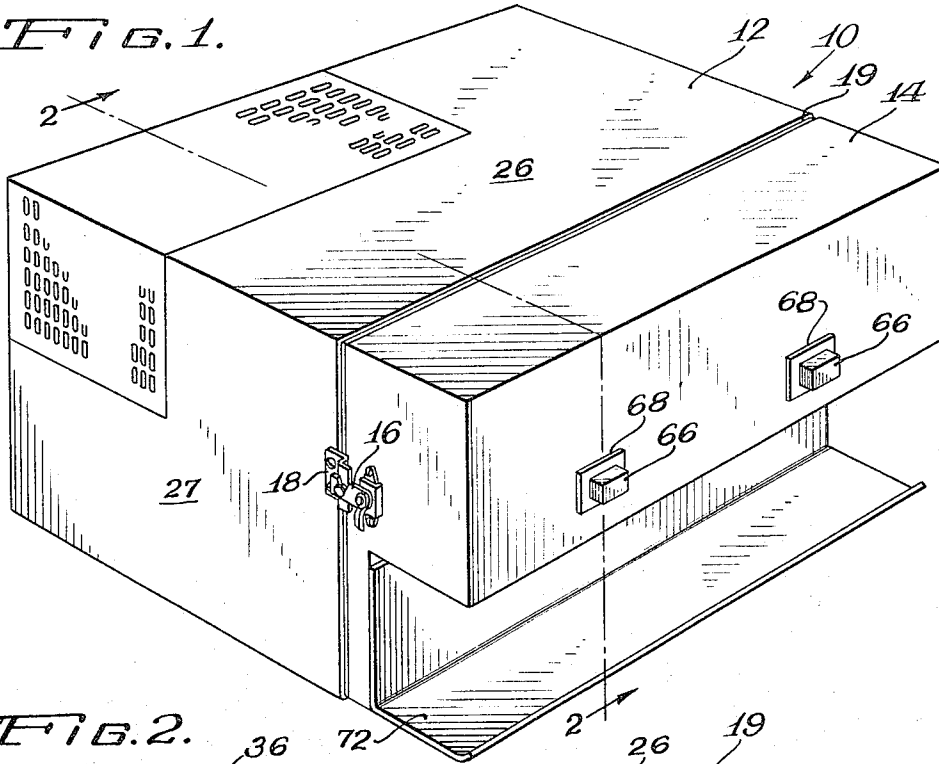
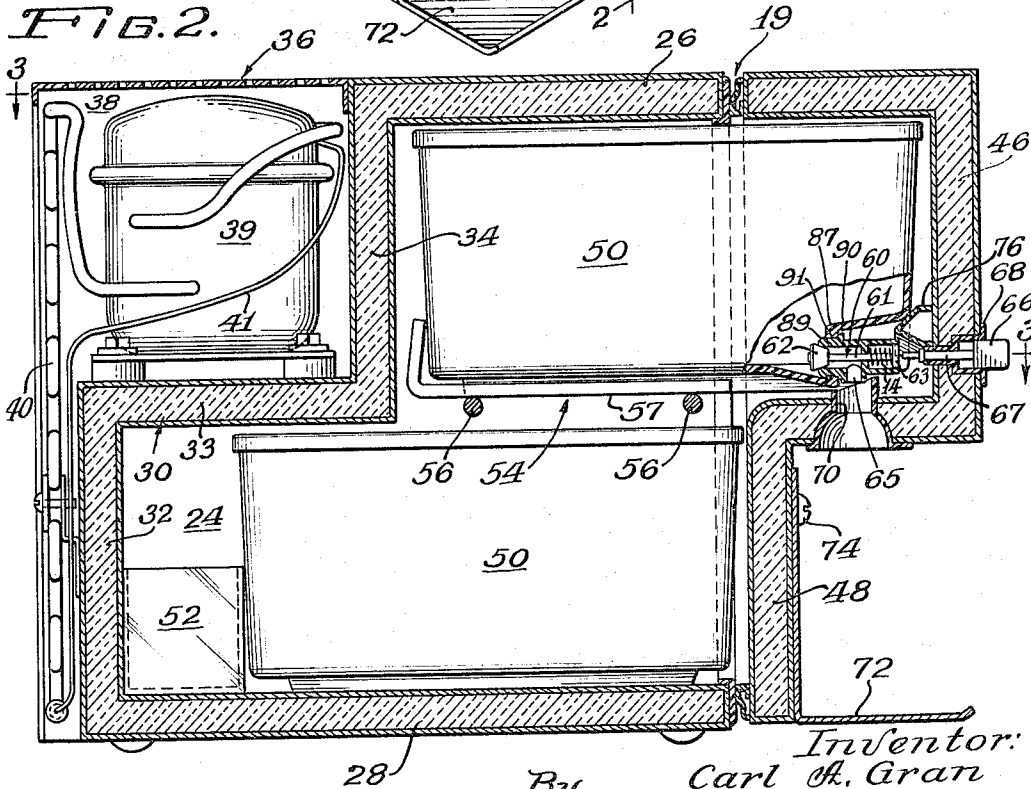


FIG. 2.



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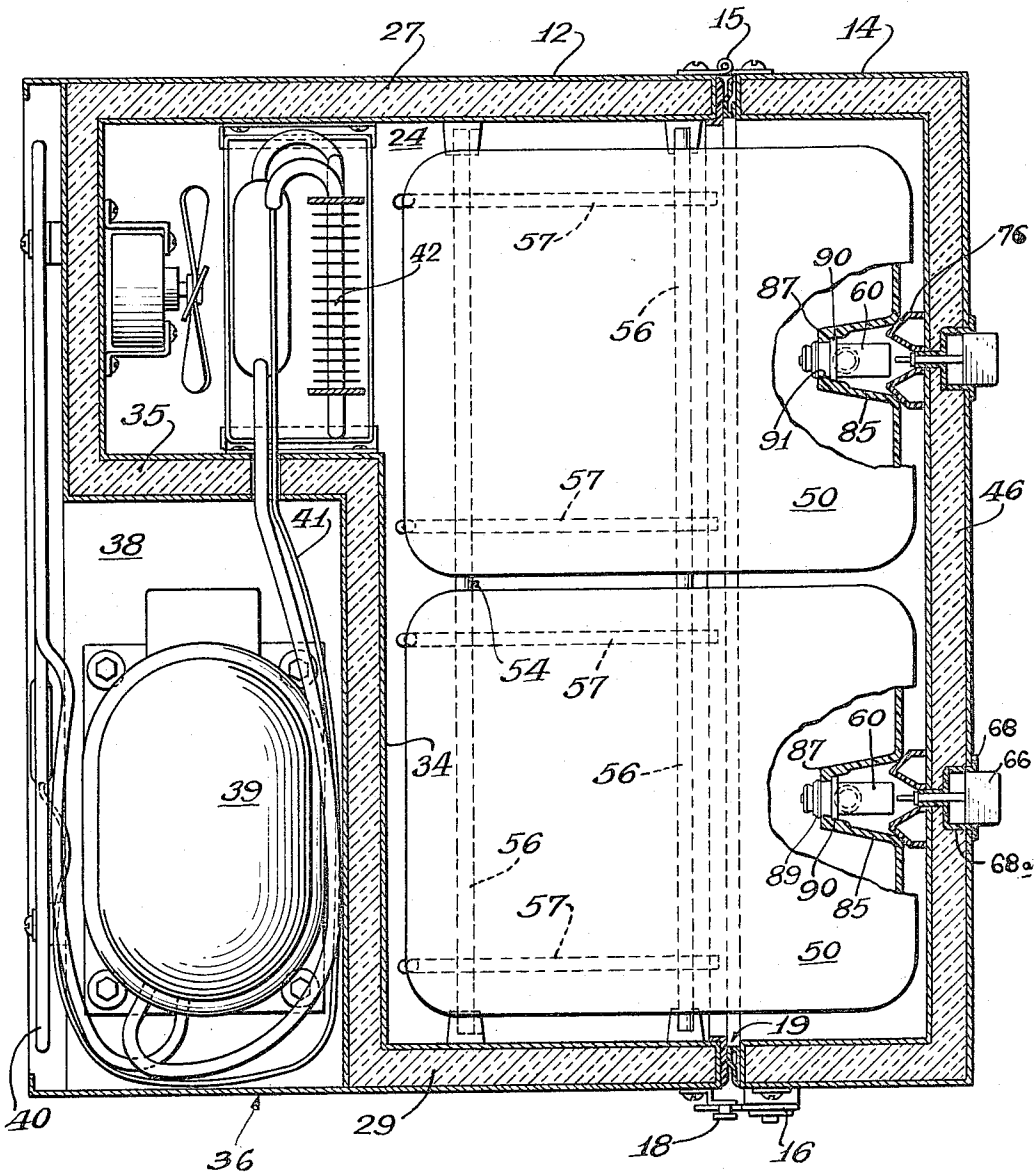
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FIG. 3.



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3 Sheets-Sheet 3

FIG. 4.

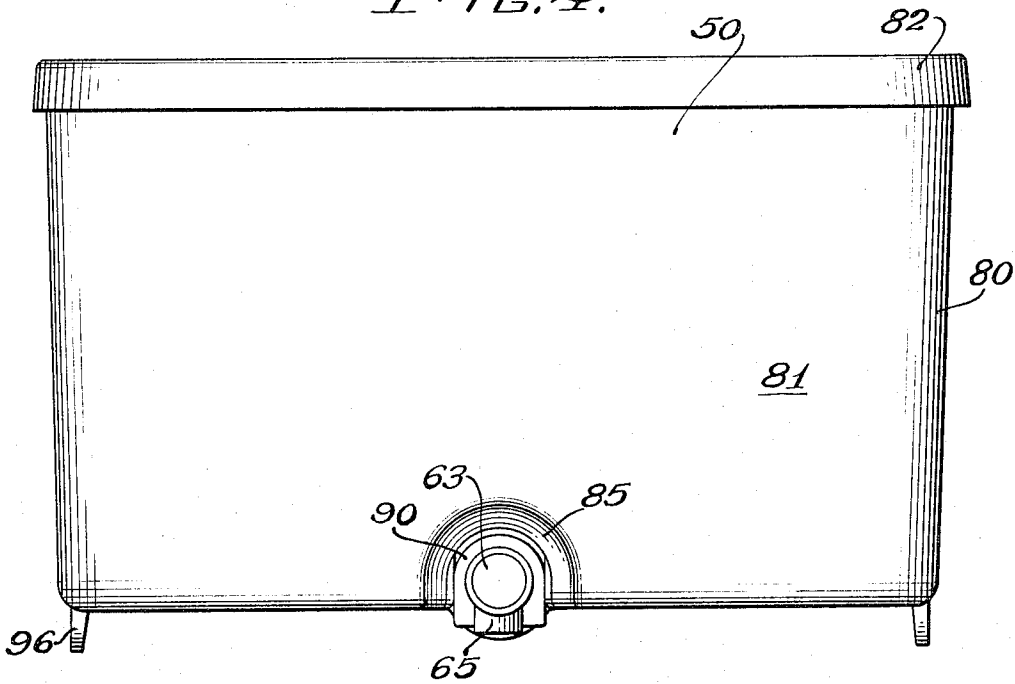


FIG. 5.

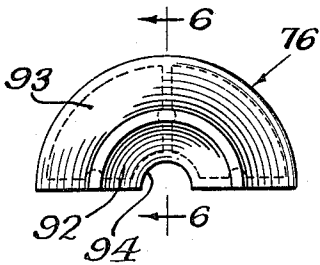


FIG. 7.

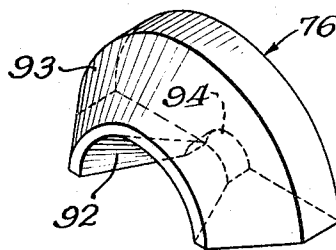
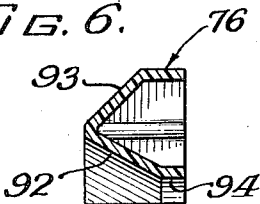


FIG. 6.



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## POSITIONER FOR REFRIGERATED LIQUID DISPENSER CONTAINER

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Filed Apr. 29, 1965, Ser. No. 451,883  
6 Claims. (Cl. 222—131)

This invention relates to a liquid dispenser and, more particularly, to a device for storing and dispensing refrigerated liquid comestibles, such as milk, fruit juices and the like.

This application is an improvement over my copending application Serial No. 362,697, filed April 27, 1964, now Patent No. 3,237,810. In said copending application, there is disclosed, among other things, an improved liquid dispenser construction which combined refrigerated cabinet means of improved utility and capacity with valved container means of simplified reuseable construction wherein the cabinet means and container means were coordinated in design and arrangement to produce an improved and desirable combination for the storage, cooling and dispensing of liquid comestibles of the type that required, or desirably utilized, refrigeration. Provided within the liquid dispenser were rack means which cooperated with depending legs on the bottom of the valved containers for accurately positioning a valved liquid container within the cooling chamber of the liquid dispenser so that the discharge valve cartridge of the liquid container could be selectively actuated through the access door for the liquid dispenser, so as to selectively dispense liquid under gravity through a discharge opening provided in the access door.

In practice, it has been observed that there exist problems in the alignment of the valve actuator in the access door with the reciprocable valve stem within the discharge valve cartridge due to the difficulty of maintaining tolerances of the components, misalignment of the rack in the cabinet means, or improper positioning of the container on the rack.

Thus, one object of this invention is to provide an improved liquid dispenser with positioning means on the access door for automatically and accurately positioning a valved container within the cooling chamber of the liquid dispenser, so that the discharge valve of the liquid container will be properly positioned to be selectively actuated through the access door for the liquid dispenser to selectively dispense liquid under gravity through a discharge opening provided in the access door.

A further object of this invention is to provide an improved arrangement for a liquid dispenser wherein cabinet means provide an improved storage for liquid containers in a cooling chamber, and wherein positioning means on the access door are arranged to automatically cooperate with a complementary surface on the front of the liquid container so as to accurately position the valved liquid container within the cooling chamber of the liquid dispenser such that the valve stem of the discharge valve is always operatively aligned axially with the actuator in the access door and the discharge spout from the discharge valve is properly vertically registered over a discharge opening provided in the access door.

Further objects and advantages of this invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

A preferred embodiment of the invention is shown in the accompanying drawings, in which:

FIGURE 1 is a perspective view of a liquid dispenser embodying the features of the present invention;

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FIGURE 2 is a longitudinal cross-sectional view of the liquid dispenser taken on line 2—2 of FIGURE 1 and illustrating the positioning means on the access door engaging the recess in the front wall of the liquid container for accurately positioning the liquid container within the cooling chamber;

FIGURE 3 is a cross-sectional view through the cabinet means of the liquid dispenser taken generally along the line 3—3 of FIGURE 2;

FIGURE 4 is a front view of a typical liquid container for utilization within the liquid dispenser of FIGURES 1—3;

FIGURE 5 is an enlarged front view of the positioning means or locator of the present invention;

FIGURE 6 is a cross-sectional view of the positioning means taken generally along the line 6—6 of FIGURE 5; and

FIGURE 7 is a perspective view of the positioning means of FIGURES 5 and 6.

Referring now to the drawings, there is illustrated in FIGURES 1—3, a liquid dispenser indicated generally at 10 which is adapted to be mounted on a suitable support, as for example, a counter top in a home. The dispenser 10 includes cabinet means comprising an open-sided cabinet 12 that is arranged to be selectively opened and closed by a complementary access door 14. The access door is arranged to swing about a vertical axis by means of hinges 15 secured at one edge to the cabinet 12. The opposite edge of the door 14 carries a pivotally mounted clamp-type lock lever 16 which may be of any well known type adapted to cooperate with an abutment or hasp 18 carried by cabinet 12.

Sealing gasket means 19 are provided between the door 14 and the cabinet 12 to provide a temperature-retaining seal therebetween when the access door 14 is closed and clamped shut by lock 16—18.

Referring particularly to FIGURES 2 and 3, it is seen that the interior of the cabinet part 12 is shaped to define a cooling chamber 24 that has two distinct levels—an upper level, and a lower level offset to project rearwardly of the upper level. The cooling chamber 24 is bounded by insulated top and bottom walls 26 and 28, by insulated side walls 27 and 29, and by an insulated offset back wall 30 that includes upright lower back wall portion 32, a horizontal intermediate portion 33, an upright upper back wall portion 34, and an upper upright wall portion 35, the latter portion being best seen in FIGURE 3.

A perforated wall or grille 36, secured to cabinet 12, cooperates with the exterior of walls 26 and 27 to provide flush extensions thereof and cooperates with wall portions 33, 34 and 35 to define a chamber 38 within which is mounted part of the refrigeration system for the dispenser. The refrigeration system, which includes a compressor 39, a condenser 40, expansion means 41, and an evaporator 42 is of conventional design and therefore, is not described further herein as it forms no part of the present invention. Reference may be made to copending application Serial No. 362,697, filed April 27, 1964, now Patent No. 3,237,810, for further description of the refrigeration system.

The access door 14 comprises an upper over-hanging portion 46 of U-shaped section and which cooperates to define a part of the cooling chamber 24 therewithin when the access door is closed, and a vertically disposed lower portion 48, which closes the bottom portion of chamber 24. The access door is formed from insulated walls similar in construction to the insulated walls of the cabinet. As best seen in FIGURE 2, the chamber 24 takes the form of a pair of offset levels when the access door 14 is closed, with the upper level projecting for-

wardly for overhanging the lower level. A pair of valved liquid container means 50 may be stored side by side in both the upper and lower portions of the compartment 24. Each liquid container 50 is of such length that it will lie within the compartment 24 and not interfere with the closure of the access door 14. Provided in the compartment 24 to the rear of the lower containers 50 is a condensate-receiving container 52 for retaining condensate discharged from the evaporator during use.

The uppermost containers 50 are stored in side-by-side relationship on horizontally disposed rack means 54 at an attitude to have liquid drained therefrom. The rack means may be of any suitable construction, and as specifically shown, comprise a pair of transversely disposed parallel bar members 56 and longitudinally disposed rod-like members 57. As will be more apparent hereafter, the liquid containers 50 are supported on the rack means 54 in such manner that only limited transverse movement thereon is permitted.

A discharge valve cartridge 60, which provides both flow control means and a discharge spout, includes a housing member that is detachably and removably affixed in a laterally-opening discharge aperture in the front wall in each container 50, for permitting removal of the valve cartridge from the container so as to facilitate cleaning of all interior surfaces of the container to permit reuse thereof. The flow control means comprises a valve stem 61 reciprocally carried in the housing, a valve element 62 affixed at one end of stem 61, and a head 63 affixed at the other end thereof. The valve element 62 is normally biased closed against a valve seat defined at one end of the valve housing by a bias spring 64.

The access door 14 carries a pair of valve actuators 66 for effecting discharge selectively from each of the uppermost containers 50. Each valve actuator 66 includes a reciprocable stem 67 slidably mounted in a plastic escutcheon or bushing member 68, which is affixed within an opening or recess 68a in the access door 14. The inner end of the stem 67 is of smaller diameter than the portion of the stem that is journaled in the bushing member 68. In use, the actuator 66 is positioned so that it registers substantially coaxially with the valve stem 61 and positioned to move into engagement with head 63 for actuating the valve 62 upon manipulation of actuator 66 from exteriorly of the access door 14. The discharge spout 65 of discharge valve cartridge 60 is arranged to be positioned over a discharge spout or opening 70 in the horizontal discharge wall of access door 14.

When the valve actuator 66 is pressed inwardly to open valve 62 of an associated discharge valve cartridge 60, liquid comestible will flow from container means 50 through the valved discharge cartridge 60 and then discharge through opening 70 into a receptacle, as for example a glass, which may be supported in the service area defined beneath the overhanging portion of the access door. If desired, the receptacle may be positioned beneath a discharge opening 70 on an angle-shaped support shelf 72, which is affixed by means of suitable fastening means, such as screws or bolts 74, to the vertical portion 48 of the access door 14. The spring 64 in discharge valve cartridge 60 will function not only to close the valve 62 but also to restore actuator 66 to its outermost position upon release thereof.

As an important part of the invention herein, positioning means are provided both for accurately and automatically aligning the head 63 of the valve cartridge with the actuator stem 67, and also for accurately registering the discharge spout 65 over the discharge opening 70 in access door 14. These positioning means include a centering device or locater 76, which is affixed on the rear inner surface of the portion 46 of the access door, as for example, by a suitable adhesive and which is adapted to cooperate with a recessed portion 85 of the front wall on the container 50.

Referring to FIGURES 2, 3 and 4, it is seen that each

container 50 comprises an open-topped, box-like receptacle 80 having a cover 82 sealingly engaging the top edges of the receptacle. The discharge valve cartridge 60 is detachably engaged in a recessed wall 85 in the front wall 81 of the receptacle. The innermost end of the recess 85 that is adjacent the wall 87 is of a specific cross section and, as shown, includes a semicircular upper portion which merges into a pair of spaced parallel upright sides. More specifically, the covered receptacle 80 and the disposable valve cartridge 60 attached thereto are of the general form and construction as disclosed more fully in my copending application Serial No. 264,114.

The disposable valve cartridge or discharge means 60, which is adapted for snap-in engagement with the opening defined in the rearmost portion 87 of the recessed wall 85, is provided thereon with an aligning flange 90, which is specifically shaped to provide a top portion that is generally semicircular in configuration and lower parallel sides as viewed from the front, so that the lower portion will not register with the semicircular upper portion at the inner end of recess 85. The configuration of said flange 90 is complementary to the configuration of the recess 85, so as to obtain precise aligning of the disposable valve cartridge 60 within the recess 85 prior to the cartridge 60 being snapped into the opening 91 in the wall 87. The tapered surface on the cartridge between abutment bead 89 and flange 90 engages with the surface defining the tapered opening 91. Abutment bead 89 and flange 90 abut opposite sides of wall 87 and cooperate to detachably retain the cartridge in the container.

The locater 76, which is arranged to be affixed to the inside of the access door, comprises a molded body member in the form of a segment of an annulus having an inner surface 92, preferably flaring or conical as illustrated, adapted to provide the necessary clearance for receiving therinto the front end of the valve cartridge 60 and an outer surface 93, preferably flaring outwardly in the direction away from the extended end of the body member. More specifically, the surface 93 is generally frusto-conical with the smallest dimension at the extended tip and arranged for entry into recess 85 on receptacle 80, and with said frusto-conical surface 93 adapted to engage the wall of receptacle 80 that defines recess 85 so as to effect truer alignment, since the inclined surface 93 causes movement of a mis-aligned receptacle 80 until there is substantial alignment between actuator stem 66 and stem 61, and between discharge spout 65 and opening 70. The inner surface 92 terminates in a cylindrical surface 94, which is complementary to the exterior configuration of the bushing member 68. The surface 94 of the locater 76 may be positioned in abutment with the bushing member 68 for rigidification and for precise assembly.

It will be understood that the longitudinally-disposed retention rack members 57 are disposed apart a distance less than the distance between the depending legs 96 on each container 50, so as to provide for shifting of the containers 50 transversely with respect to the actuators 66 when the conical surfaces 93 on locaters 76 engage with the complementary-shaped recessed walls 85 as the access door 14 is closed. The containers are each initially supported on the rack means 54 such that there is substantial alignment between the actuator 67 and the head 63 at the outer end of the valve stem 61. Upon closure of the access door 14, the conical surface on the positioning means or locater 76 will engage the complementary-shaped surface defined between the recessed wall 85 and the front wall 81 of the receptacle and cause the receptacle to be accurately positioned such that there is substantially precise coaxial alignment between the valve stem 61 and the end of the actuator stem 67, whereby, actuator stem 67 will engage the head 63 each time the actuator is actuated. Further, the positioner 76 cooperates with the recessed wall of container 50 to position the container such that the discharge spout 65 of the valve cartridge 60 will be positioned in vertical alignment over the open-

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ing 70 in the access door 14. Therefore, as the access door is closed, the container 50 is automatically positioned to (1) accurately align the valve head 63 for actuation by actuator stem 67 and (2) accurately position the discharge spout 65 of housing 60 over the discharge opening 70 from the cabinet means. Upon actuation of the actuator 66, the head 63 will be engaged by stem 67 to move valve stem 61 to open valve 62 and permit the discharge of liquid comestible from the container, through the valve cartridge 60, the discharge spout 65, and out from the discharge opening 70, without any drippage or loss into the refrigerated cooling chamber.

By the present invention, there has been provided locator means on an access door for a dispenser cabinet that is arranged to automatically position a valved container carried within the cabinet as the door is closed.

While one embodiment of the invention has been shown and described herein, it will be understood that it is illustrative only and not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

I claim:

1. In a dispenser for liquid comestible including means for cooling said liquid comestible and valve means for selectively dispensing same, the improved combination of: cabinet means defining an open-sided cooling chamber and a horizontal support for supporting a liquid container thereon, and a selectively openable access door for closing said cooling chamber; said cabinet means having a discharge opening therethrough; a liquid container adapted to be removably positioned on the support in said cooling chamber and providing a laterally-opening discharge aperture in a front wall thereof adjacent the open side of the cabinet means closed by said access door; a discharged valve cartridge providing both flow control means and a discharge spout therefrom, said flow control means including a reciprocable valve means; a valve actuator movably carried in the access door to provide selective control for said valve means from exteriorly of the dispenser when the door is closed, said valve actuator including a reciprocable stem positioned to register substantially axially with said reciprocable valve means; said access door defining a portion of said cooling chamber and being adapted to enclose a portion of the liquid container; and positioning means on said door arranged to cooperate with an adjacent portion of said container for automatically positioning said liquid container as said door is closed to (1) accurately align said reciprocable stem with said valve means and (2) position said discharge spout over said discharge opening.

2. A dispenser for cooled liquid comestibles comprising, in combination: cabinet means defining an open-sided cooling chamber and a selectively openable access door closing off said chamber, said cabinet means having a discharge opening therethrough; a liquid container removably positioned in said cooling chamber at an attitude adapted to have liquid selectively drained therefrom and through said discharge opening in the cabinet means, said liquid container providing a recessed wall adjacent the side of the cabinet means closed by said access door; discharge valve means for the container including a housing affixed to said recessed wall of the container and having a discharge spout defined therein, and a valve element carried in said housing; actuator means movably carried in said access door and adapted for selectively actuating said valve element from exteriorly of the dispenser when the access door is closed and the actuator means are aligned with said valve element; and positioning means on said door arranged to cooperate with the recessed wall of the container as the access door is closed to cause said container to be aligned relative to said actuator means so that when said door is closed, said actuator means are accurately aligned with said valve element and the discharge spout is accurately aligned with said discharge opening.

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3. In a dispenser for liquid comestible including means for cooling said liquid comestible and valve means for selectively dispensing same, the improved combination of: cabinet means defining an open-sided cooling chamber and a horizontal support for supporting liquid container means thereon, and a selectively openable access door for closing said cooling chamber; liquid container means adapted to be removably positioned on the horizontal support in said cooling chamber and providing a recessed wall having a laterally-opening discharge aperture therein adjacent the side of the cabinet means closed by said access door; a discharge valve cartridge affixed into the laterally-opening discharge aperture for providing both flow control means and a discharge spout therefrom, said flow control means including a reciprocable valve means; a valve actuator carried on the access door to provide selective control for said valve means from exteriorly of the dispenser when the door is closed and the valve actuator is properly aligned with said valve means, said valve actuator including a reciprocable stem adapted to register substantially axially with said reciprocable valve means, said access door having a discharge opening therethrough, and positioning means on said access door arranged to cooperate with the recessed wall of the container as the access door is closed to cause said container to be aligned relative to said actuator so that when said access door is closed, said discharge spout of the discharge valve cartridge is accurately positioned over said discharge opening in said access door and the reciprocable stem is accurately aligned with the reciprocable valve means, whereby upon actuation of the valve actuator through said access door, the reciprocable valve means may be moved to permit the discharge of liquids from said liquid container means, through said discharge valve cartridge, and through said discharge opening in said access door.

4. A dispenser for cooled liquid comestible comprising, in combination: cabinet means defining an open-sided cooling chamber and a selectively openable access door closing off said chamber, said access door having a recessed portion defined therein which forms a part of said cooling chamber when said access door is closed, there being a discharge opening extending through said access door and a valve actuator movably carried in said access door, a liquid container positioned in said cooling chamber at an attitude adapted to have liquid selectively drained therefrom and through said discharge opening, valved discharge means affixed to said liquid container for controlling the discharge of liquid from said container, said valved discharge means including a housing, a valve member movable in said housing having a head at one end thereof, and a discharge spout; and guide means in said cabinet means for accurately positioning said liquid container within said cooling chamber as the access door is closed to accurately position the discharge spout over the discharge opening in the access door and to accurately align the head of the valve member with the valve actuator, said guide means comprising complementary engaging surfaces defined on said liquid container and on said access door.

5. A dispenser as in claim 4, wherein said liquid container is provided with a recessed wall adjacent the side of the cabinet means closed by said access door, said recessed wall being generally semicircular in cross section, there being a positioning member on said access door having a conical exterior surface arranged to cooperate with the recessed wall of the container as the access door is closed to automatically accurately position the discharge spout over the discharge opening in the access door and to accurately align the head of the valve member with the valve actuator carried in the access door.

6. A dispenser for cooled liquid comestible comprising, in combination: cabinet means defining an open-sided cooling chamber and a selectively openable access door

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closing off said chamber, said access door having an overhanging portion at the top thereof which forms a part of said cooling chamber when said access door is closed, there being a discharge opening extending through a horizontally disposed wall in said access door and a valve actuator reciprocably carried in an upright wall in said access door, a liquid container positioned in said cooling chamber at an attitude to have liquid selectively drained therefrom, said liquid container having a recessed front wall with a discharge opening therein adjacent the open side of the cabinet means closed by said access door, valved discharge means affixed to said discharge opening in said recessed front wall in said liquid container for regulating the discharge of liquid from said container, said discharge means comprising a housing having a discharge spout and a valve stem reciprocable in said housing and having a valve member at one end and a valve head at the other end; rack means in the cabinet for supporting said liquid container in the upper portion of said cooling chamber such that the discharge spout is generally positioned over the discharge opening in the access door and the valve head is positioned adjacent to the valve actuator in the access door; and positioning means on said door having a con-

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figuration complementary to an adjacent portion of said recessed front wall of said liquid container for accurately positioning said liquid container as said door is closed so as (1) to align said valve head with said valve actuator such that the valve head will be engaged each time the valve actuator is reciprocated to open the valve member and (2) to position said discharge spout vertically over said discharge opening in the access door.

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