April 15, 1958 S. D. POLSEN ET AL 2,830,627

LIQUID AND CUP DISPENSING APPARATUS

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Fig. 1.

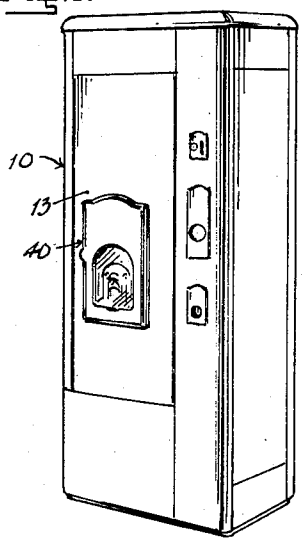


Fig. 2.

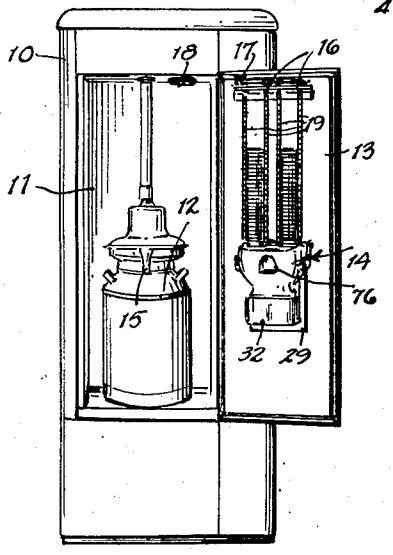
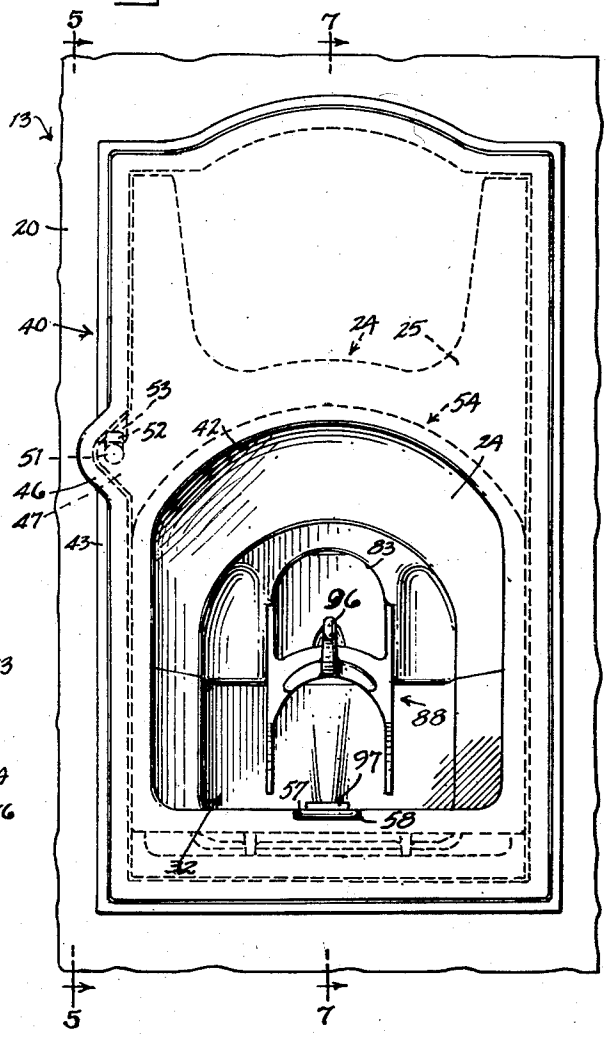


Fig. 3.



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Fig. 4.

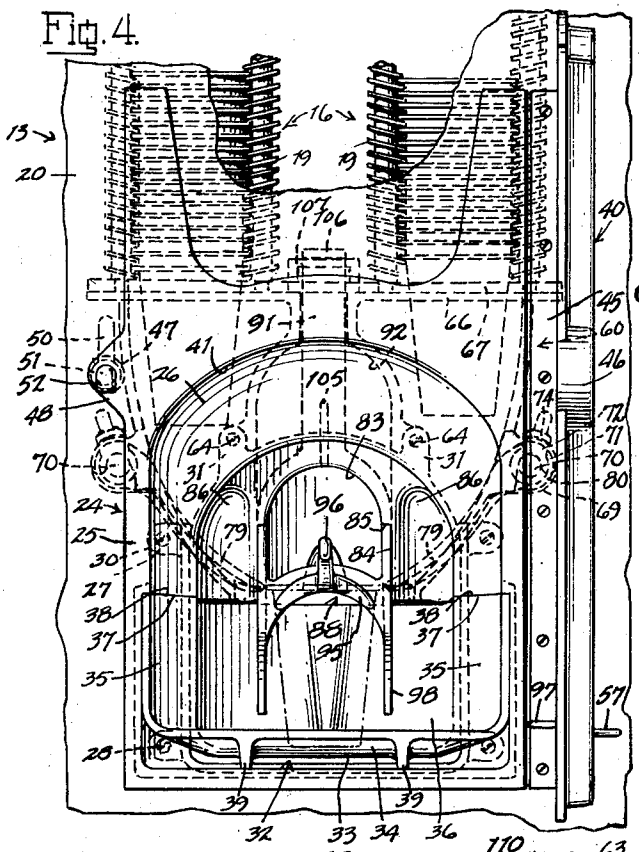


Fig. 5.

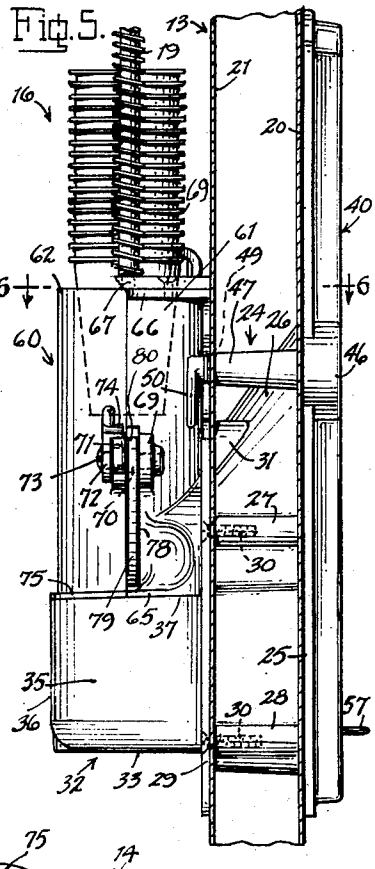
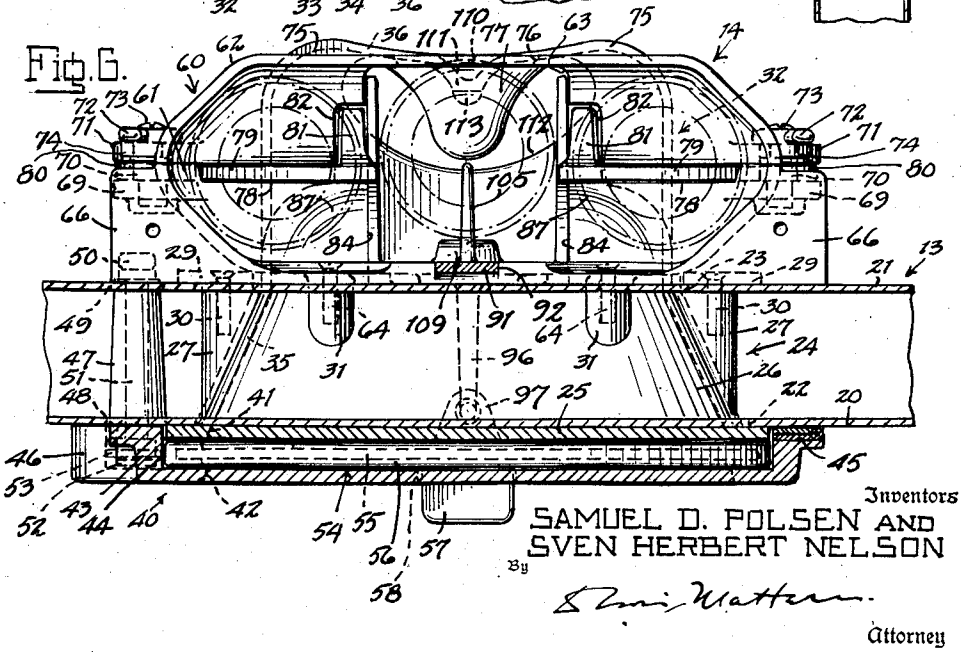


Fig. 6.



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Fig. 7.

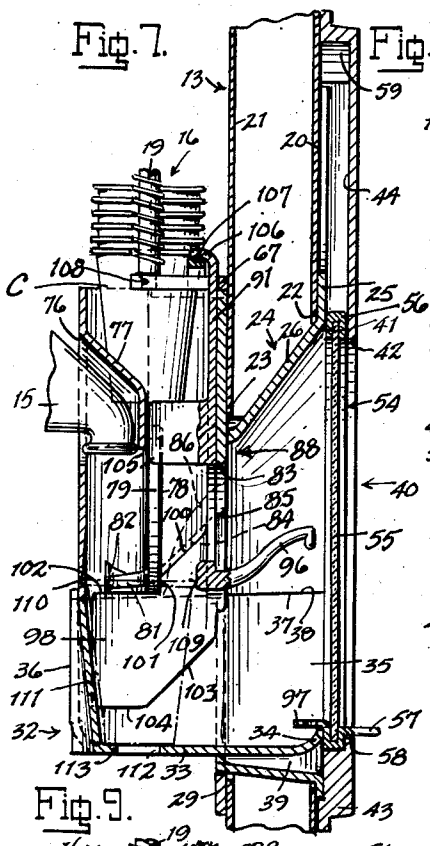


Fig. 8.

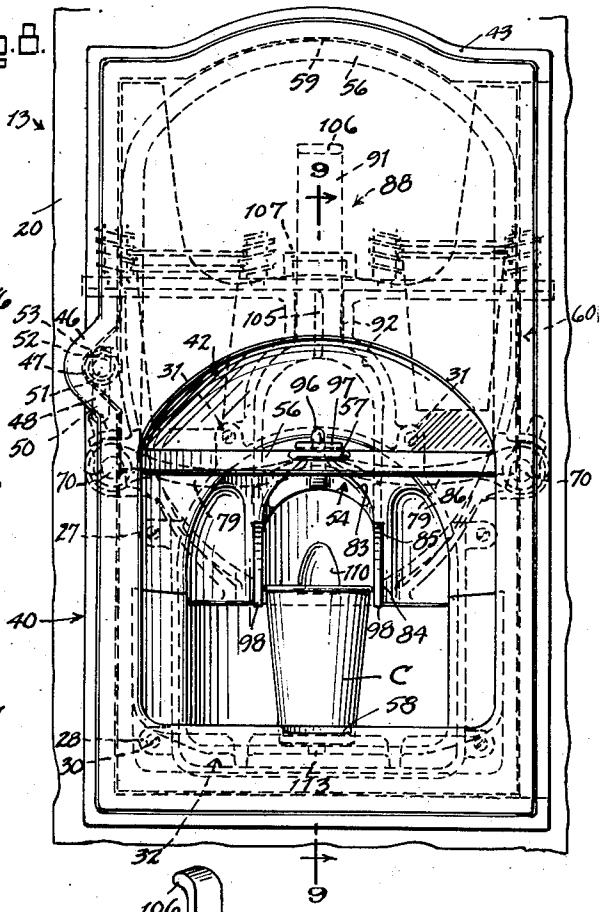


Fig. 9.

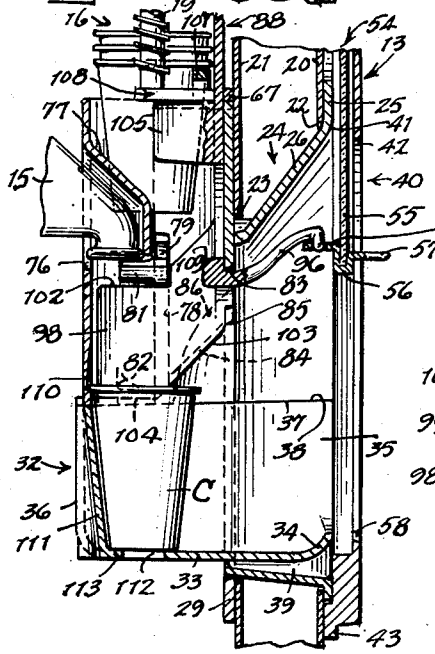
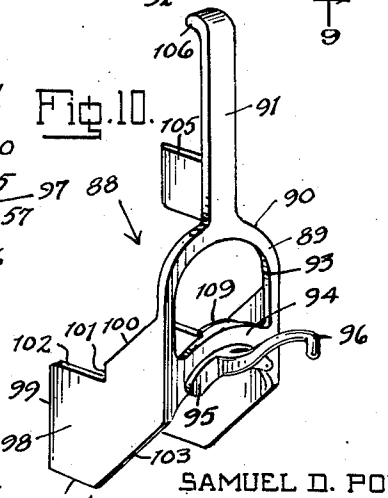


Fig. 10.



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LIQUID AND CUP DISPENSING APPARATUS

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Application April 29, 1955, Serial No. 504,788

16 Claims. (Cl. 141—174)

The present invention relates to a cup dispensing apparatus, particularly for incorporation in an automatic liquid dispensing machine of the coin slot type which is adapted, through a cycle of operation initiated through the insertion of a coin, to dispense a measured quantity of liquid, such, for instance, as milk, from a container into a paper cup. In such a machine, the liquid container is disposed in a refrigerator cabinet normally closed by a door, and in which door the cup dispensing apparatus is mounted in such relation that during each cycle of operation a cup is dropped into place to receive a measured quantity of liquid from the container. The cup, during the filling operation, is disposed in a compartment which is normally closed by a lift type glass window, and the filled cup is removable from the compartment upon lifting the window.

The present invention relates especially to an improved cup dispensing unit for mounting in the door of the refrigerator cabinet, and is an improvement over the cup dispensing apparatus disclosed in our U. S. patent for Dispensing Apparatus, No. 2,426,707 dated September 2, 1947. Vending apparatus of this type is usually placed in public places, such as schools, factories, bus terminals, etc., and a prime consideration in their maintenance is the provision of such an apparatus which is free from contamination by the hands of persons using the machine, as well as one which is effectually protected against theft and vandalism.

It is an object of the present invention to provide a cup dispensing unit in which these purposes are accomplished to a high degree, and particularly it is proposed to provide a unit in which means is provided which is automatically moved into a position to guard the spout of the container against contact of the hands or extraneous objects when the apparatus is opened to remove the filled cup.

A further object is to provide an apparatus in which automatic means is provided to effectively close the drop chutes or passageways in the unit extending from the cup feeding devices to the cup support upon which the cup is supported beneath the spout during filling, to the end that when the glass window of the cup compartment is opened it is impossible for anyone to reach the cups depending from the cup feeding devices to either remove or contaminate them. This is of particular importance in the automatic cycling machine contemplated herein, where the cups are provided in two feeding devices which are alternately operated to release a cup, and in which the number of cups dispensed determines, to a large extent, the amount of liquid that has been removed from the container. Obviously, the unauthorized removal of cups would not only interfere with the proper cycling of the machine, but would prevent the proper determination through the number of cups dispensed of the amount of liquid consumed.

A further object is to provide a cup dispensing unit

in which the several parts are readily removable by authorized persons for cleaning purposes.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a satisfactory embodiment of the invention is shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawings:

Fig. 1 is a perspective view of the dispensing machine having a cup dispenser according to the invention, the same being shown in its normal condition with the door closed;

Fig. 2 is a similar view showing the door open;

Fig. 3 is a front elevation of the cup dispensing unit;

Fig. 4 is a front elevation of the cup dispensing unit with the hinged closure panel thereof in open position;

Fig. 5 is a side elevation, partly in vertical section taken along the line 5—5 of Fig. 3;

Fig. 6 is a top plan view, on an enlarged scale, partly in horizontal section, taken along the line 6—6 of Fig. 5, the cup feeding devices being removed;

Fig. 7 is a vertical sectional view, taken along the line 7—7 of Fig. 3, and showing in dot-and-dash lines a cup in position to receive liquid from the pouring spout of the container;

Fig. 8 is a front elevation showing the glass window raised to remove a filled cup;

Fig. 9 is a vertical sectional view taken along the line 9—9 of Fig. 8; and

Fig. 10 is a perspective view of the cup guard member removed from the apparatus.

Referring to the drawings, and more particularly to Figs. 1 and 2 thereof, the cup dispensing unit of the invention is adapted to be incorporated in a coin slot vending machine of the type consisting of a refrigerator cabinet 10, having a compartment 11 in which a liquid container 12 is placed, and which compartment is normally closed by a hinged door 13 on which the cup dispensing unit of the invention, generally indicated as 14, is mounted in such relation that in the closed position of the door the spout 15 of the container engages within the unit, so that upon cycling of the machine to dispense a measured quantity of liquid, as, for instance, milk, such measured quantity is directed from the spout into a cup disposed within the unit, the filled cup being accessible to the patron of the machine from the outer side of the door, as will hereinafter more fully appear.

Within the cabinet there is provided suitable refrigeration means, in the case of a cold liquid to be served, such as milk, or suitable heating means, in the case of hot liquid, such as soup. In the upper part thereof there is provided suitable mechanism which operates a dipper within the container to dispense a measured quantity through the spout during each cycle of operation.

Mounted upon the inner side of the door, above the cup dispensing unit, are a pair of cup feeding devices 16—16, each containing a stack of nested paper cups and which are alternately operated to deliver a single cup from their respective lower ends, these devices being operated by suitable gearing 17 which in the closed position of the door meshes with an operating gear 18 which is rotated during each cycle to operate the cup feeding devices. These devices are preferably of the type as disclosed in our U. S. patent for Cup Dispenser, No. 2,556,740 dated June 12, 1951, and each consists of a pair of vertical screws 19—19, the gearing being such that during each cycle the screws are rotated a half turn. The screws

of one device are offset 180° from the screws of the other device, so that during a half turn of one device a cup is released and during the simultaneous half turn of the other device the cup of such latter device is retained. Thus the cup devices are alternately operated, one device delivering a cup during one cycle and the other device delivering a cup during the succeeding cycle.

The cabinet door 13 is of conventional refrigerator door construction, comprising a pair of spaced parallel outer and inner panels 20 and 21, and within suitably spaced openings 22 and 23 respectively provided therein the cup dispensing unit of the invention is mounted. This unit comprises a body frame part indicated generally as 24, having a front plate portion 25 provided with an opening defined by a rearwardly extending framing wall 26 extended through the opening 22 of the front panel 20 with its rearward edge projecting inwardly through the opening 23 of the panel 21. The framing wall 26 comprises a lower wall portion inclined upwardly and rearwardly at a relatively small angle, vertical side wall portions inclined inwardly and rearwardly at a substantially greater angle, and an arched top wall portion inclined downwardly and rearwardly at a still greater angle. Thus the space defined by the framing wall 26 flares outwardly from the inner to the outer side of the door.

As seen in Fig. 5, the side wall portions of the framing wall 26 are provided on their outer sides with screw receiving post portions 27 and 28 which serve to secure the body frame part within the door by means of a U-shaped frame member 29 provided at the rearward side of the door and secured as by welding or the like to the door panel 21, so that it outlines the lower and side edges of the opening 23, the inner edges of the frame member engaging the rearwardly projecting marginal portions of the bottom and side wall portions of the framing wall 26. Its vertical sides project inwardly from the vertical edges of the opening 23 and engage the inner ends of the post portions 27 and 28 which are secured thereto by screws 30 screwed into the post portions, thus drawing the inner surface of the plate portion 25 of the body frame part tightly against the forward surface of the door panel 20 in surrounding relation to the opening 22. Upon the arched upper wall portion of the framing wall 26 there are formed a pair of screw receiving bosses 31—31 which, in the assembled relation, are flush with the outer surface of the door panel 21 and which are adapted, as will presently more fully appear, to secure the chute part of the unit to the body frame part 24.

Within the lower half of the opening of the body frame part 24 there is removably engaged a cup supporting tray part indicated generally as 32, and which consists of a horizontal bottom wall 33 having its forward marginal edge portion curved upwardly as at 34, vertical side walls 35—35, each comprising a forward outwardly flared portion and a rearward straight portion, and a generally vertical rear wall 36. The upper edges 37 of the side walls 35 of the tray part are inclined downwardly and rearwardly at a slight angle, and the side wall portions of the framing wall 24 are respectively provided with recesses 38—38 of a depth corresponding to the thickness of the side walls 35 and within which their forward flared portions are seated in the assembled relation. The bottom wall 33 of the tray part is provided at the underside of its forward portion with a pair of ribs 39—39 having inclined lower edges which rest upon the inclined lower wall portion of the framing wall 26. Thus the tray part, in the exposed condition of the body frame part 24 of the unit, as seen in Fig. 4, is removable from the forward side of the unit. When inserted into the unit from the forward side, it is retained in place through closing of the hinged closure panel 40 of the unit, presently to be more fully described. In the assembled relation of the tray part, the inner surface of

the forward flared portions of its side walls 35 are flush with the inner flared surfaces of the framing wall 26 above the recesses 38, and the forward edges of the side walls 35 and the bottom wall 33 are flush with the forward surface of the plate portion 25 of the body frame part 24 and thus define a space within the unit having an entrance opening, indicated at 41 in Fig. 4.

The closure panel 40 is provided with an opening 42 in substantial registry with the entrance opening 41, and at its marginal edge with a peripheral flange 43 which surrounds the edge of the plate portion 25 of the body frame part 24, and defines a recess 44 in which a window for the openings 41 and 42 is mounted for vertical movement, as will presently more fully appear. The closure panel is hingedly mounted at one vertical edge by means of a hinge 45, the leaves of which are respectively secured to the panel 20 and to the marginal edge portion of the closure panel, and at its other edge is provided with a pocket portion 46 open at its inner side and which encloses means for latching the closure panel in closed position.

The latching means consists of a tubular post 47 provided upon the rearward side of a projecting ear 48 provided upon one vertical edge of the plate portion 25, and which fits within the pocket 46 in the closed position of the closure panel. The post 47 projects through an opening 49 in the inner door panel 21, and at its inner end there is provided a lever handle 50 of a shaft 51 extending through the post and provided at its forward end with a radially projecting latching lug 52 forwardly spaced from the forward surface of the ear 48, a latching web portion 53 being provided in the upper portion of the pocket 46 in vertical line with the space between the latching lug 52 and the forward surface of the ear.

In the open position of the closure panel 40, as seen in Fig. 4, the latching lug 52 is downwardly disposed and the closure panel may be closed without interference of the latching web 53 with the latching lug. In order to latch the closure panel, the handle 50 is turned to bring the latching lug 52 into an upwardly projecting position where it engages the forward surface of the latching web 53 and thereby latches the closure panel closed. Thus the closure panel is latched or unlatched from the inner side of the door 13 of the refrigerator cabinet, and as this is provided with a key lock which can only be opened by authorized persons, it is seen that only authorized persons can open the closure panel.

The window 54 for the openings 41 and 42 consists of a pane of glass 55 and a frame 56 engaged about the edges of the glass, the outside dimensions of the vertical sides of the frame being such that the panel is vertically slidable within the recess 44, and the inner edge of the frame substantially corresponding in outline to the respective openings 41 and 42 of the body frame part 24 and the closure panel 40. The lower side of the frame 56 is provided with a lift handle 57 projecting outwardly and resting in a recess 58 in the lower edge of the opening 42 in the closed position of the window. In the open position of the window, as indicated in Figs. 8 and 9, its upper arched edge is engaged with the upper end of the recess 44 which is arched as at 59 to conform thereto.

The cup delivering chute part 60, which is adapted to guide the cups alternately delivered by the cup feeding devices 16 to a substantially central position in the tray part 32, comprises a pair of clamshell-like members 61 and 62 having an elongated open upper end in the respective sides of which the lower cups C of the pair of cup feeding devices 16 depend, and the side walls of which curve downwardly and inwardly to a centrally disposed opening 63 of the member 62 through which the individual cups are adapted to drop into the tray in upright position. The chute member 61 is fixedly secured to the body frame part 24 by screws 64 engaged in the bosses 31—31, and is provided at the respective ends of its lower edge with seating flanges 65—65 against

which the upper inclined edges 37 of the tray part 32 engages, and at the respective ends of its upper edge with horizontally extending flanges 66—66 upon which the base member 67, in which the lower ends of the screws 19 of the cup feeding devices 16 have bearing engagement, is secured by screws 68.

The chute member 62 is removably secured to the member 61 so that it may be readily removed for cleaning purposes, the member 61 having at each of its opposite sides a projecting ear 69 in which is secured a rearwardly projecting pivot stud 70, and the member 62 having at each of its opposite sides a projecting hook 71 which, in the assembled relation, is hooked over the stud 70. The member 62 is releasably retained at each side by means of a latching lever 72 pivotally secured upon the end of the stud 70 by a screw 73, and having an arcurate latching flange 74 which in the latched position, as shown in Figs. 4–6, frictionally engages the upper side of the hook 71 to thus retain the hook upon the stud. By swinging the latching lever downwardly the hook is cleared so that it may be readily disengaged from the stud to remove the chute member 62. At its lower edge the chute member is provided with a seating flange 75 aligned with the flanges 65 of the chute member 61, and against which the upper edges 37 of the tray part engage in the assembled relation.

In the rear wall of the chute member 62 there is provided a spout receiving opening 76, from the side and top walls of which a spout covering hood portion 77 extends inwardly, and which is open at its lower side so that the spout 15 of the container 12 may engage within the member 77 with its outlet end directed downwardly toward the central area of the tray where a cup is adapted to be disposed to receive liquid therefrom, as will presently more fully appear. The side walls of the hood portion are inclined inwardly, and in addition to providing a guide surface for the cups moving downwardly through the chute at each side, serve to provide a centering means for the spout 15, it being pointed out that when the door 13 is closed the spout will enter the opening 76 and will thereupon engage the inclined side walls of the hood portion 77 so that should the container 12 be slightly out of line, the inclined side walls will cam it into a position in which the spout is centrally aligned, thus insuring a proper positioning of the spout with respect to the cup dispensing unit.

In each of the downwardly curved side walls of the chute part there is provided a slot 78, by recessing the rearward edge of the chute member 61 to form one side of the slot, and the other side of the slot being formed by the forward edge of the chute member 62. Within each slot there is disposed an arm 79 having a hub portion 80 at its outer end pivotally engaged upon the respective stud 70 between the ear 69 of the member 61 and the hook 71 of the member 62, it being pointed out that with this mounting arrangement of the arm it may be readily removed from the stud for cleaning purposes upon removal of the member 62.

At its lower end, the arm is provided with a finger projection 81 which extends rearwardly into a pocket 82 in the lower end of the chute member 62 cut into the transverse edge of the opening 63, the edge of the finger 81 being in line with the transverse edge of the opening 63 and the end of the arm 79 projecting slightly beyond the edge of the finger, for a purpose presently to more fully appear. The finger 81 has its upper surface downwardly offset from the upper surface of the arm 79, and the downwardly curved surface of the side wall of the member 62 is gradually downwardly offset from the upper side of the arm, so that at its lower edge terminating in the recess 82 it is flush with the downwardly offset surface of the finger 81. The upper surface of the arm 79 is flush with the downwardly curved side wall of the member 61 so that, as clearly shown in Figs. 4 and 5, the chute is divided by the arm into forward and rearward portions, the rearward portion being slightly downwardly offset from the forward portion and the arm forming a downwardly curved shoulder. This serves to guide the lower ends of the cups C toward the back wall of the member 62 as they drop from the feeding devices into the chute, and insures against the possibility of the cups assuming a diagonal position where they may become jammed.

It is pointed out at this point that the arms 79 normally lie in the slots 78 to form parts of the guiding walls of the chute, while a cup is guided downwardly from one or the other of the feeding devices to a central position in the tray and also during the filling of the cup. However, after the filling of the cup and when the cup compartment is opened to remove the cup, means presently to be more fully described swings the arms 79 upwardly to a position as shown in Figs. 8 and 9, where the finger portions 81 thereof are disposed directly beneath the spout 15 to thus provide a guard which prevents anyone reaching into the dispensing unit from touching the spout and thus tampering with or contaminating it.

The central opening 63 of the member 62 in the lower end of the chute part is of substantially rectangular outline, and at its forward end it opens into an arched opening 83 in the forward wall of the chute member 61, spaced parallel side edges 84—84, aligned with the parallel side edges of the opening 63, being inclined downwardly and inwardly from stop shoulder portions 85 at the lower ends of the arched opening 83. At each side of the opening 83, and outwardly of the side edges 84, the front wall of the chute member 61 is provided with a recess 86 which is inclined downwardly and inwardly and which, at the inner side of the chute member 61, forms a convexly curved portion 87 which guides the cups toward the back wall of the chute as they move downwardly therein.

A cup guard and arm operating part 88 is mounted for vertical sliding movement within the rectangular opening defined at its front and rear by the front and rear walls of the chute and at its sides by the side edges of the opening 63 and the side edges 84 of the opening 83, and comprises a front wall portion 89 having an arched upper edge 90, from which a guide stem 91 extends upwardly, the front wall portion 89 and the guide stem 91 being slidably engaged within a recess 92 provided upon the inner side of the front wall of the chute member 61. The lower part of this recess is relatively wide to receive and guide the wall portion 89 and the upper portion is relatively narrow to receive and guide the stem portion 91.

The front wall portion 89 is provided with an opening 93 having an arched upper edge which, in the lowered position of the guard member, registers with the arched opening 83 of the chute part, its lower edge forming the upper side of an arched transverse bar portion 94, upon the forward side of which there is provided an arched boss 95, adapted to engage with the arched edge of the opening 83 of the chute member in the raised position of the guard member, and from the center of which a hook-like lift finger 96 projects forwardly. This lift finger has its hook end in the path of an apertured lug 97 secured upon the inner side of the lower edge of the frame 56 of the window 54, so that when the window is moved from its lowered position, as seen in Figs. 4 and 7, to its raised position, as seen in Figs. 8 and 9, the lift finger is engaged by the lug and thus moves the cup guard part upwardly.

At the side edges of the front wall 89 there are provided rearwardly projecting parallel wing portions 98—98 which extend along the transverse sides of the rectangular chute opening. Each wing portion has a vertical rear edge 99 which is parallel and contiguous to the rear wall of the chute member 62, an upper edge including a forward edge portion 100 inclined downwardly and inwardly to a vertical shoulder portion 101 and a horizontally extending rearward portion 102, this latter portion being engaged

beneath the projected end of the respective arm 79 in the lowered position of the cup guard part. In the lowered position of the cup guard part, the upper inclined edge portions 100 are substantially in line with the inclined edge portions 84 of the chute opening, so that in this lowered position the upper edges of the wing portions are substantially in line with the lower edges of the respective sides of the chute.

The lower edge of each wing portion includes a forward inclined portion 103 which, in the raised position of the cup guard part as seen in Fig. 9, is in line with the respective inclined edge 84 of the chute opening, and a horizontally extending rearward edge portion 104 which is substantially parallel to the upper edge portion 102 and which, in the raised position of the cup guard, is in line with the respective side edge of the opening 83. Thus in the lowered position of the cup guard, the wings extend downwardly from the lower end of the chute into the tray part and provide a confining space for receiving the cup to be filled, the chute space above the upper edges of the wings being clear to allow a cup to slide downwardly from the cup feeding devices.

In the raised position of the cup guard part, the wing portions 99 extend above the lower end of each side of the chute and form barrier walls which prevent access of a person's hand upwardly through the chute to the cups depending from the cup feeding devices.

At the lower end of the stem portion 91 there is provided a rearwardly projecting fin portion 105 which, in the lowered position of the cup guard, provides a stop wall which, in cooperation with the spout enclosing hood 77, aids in guiding the cups downwardly in the chute. In the raised position of the cup guard part, this fin provides an additional barrier means within the chute to thwart any attempt to reach the cups of the cup feeding devices by a person's hand inserted into the unit.

The guide stem 91 is provided at its upper end with a rearwardly curved hook portion 106 which, in the lowered position of the cup guard part, is adapted to engage a stop member 106 secured upon the base portion 67 of the cup feeding devices to limit the downward movement of the guard part. The stop member 107 is of inverted U-shape and straddles an open central space 108 of the base portion 67, so as to provide a clear way for removal of the guard part for cleaning purposes, when desired. This is accomplished by first removing the chute member 62 and the tray part 32, and thereupon swinging the guard part rearwardly, the curved hook end 106 of the stem 91 being rotated around the stop member until it is released therefrom.

Upon the rearward side of the arched bar portion 94 there is provided a rearwardly projecting boss 109 rounded at its upper edge, and which serves to position the cup by engaging the beaded upper edge thereof, the rearward wall of the chute member 61 having a shouldered notch 110 therein in which the opposite edge of the bead rests, as shown clearly in Fig. 9.

The rearward wall of the tray part is provided centrally with an inwardly and downwardly inclined rib-like indentation 111 having an inclination corresponding to the inclination of the side wall of the cup and which serves to position the cup on the tray part. In the bottom wall 33 of the tray part there is provided an opening 112 through which spilled liquid may flow from the tray, the rearward wall of this opening having a projection lip 113 upon which the rearward portion of the base of the cup rests, the forward edge of the opening being spaced from the lip a distance substantially less than the diameter of the lower end of the cup.

The operation is as follows: Upon the start of a cycle of operation of the machine, initiated through the insertion of a coin, the cup dispensing apparatus is in the condition as illustrated in Fig. 3, the window 54 being in its closed position and the cup guard member 88 being lowered. Thereupon a cup is released by one or the other of the cup feeding devices 16 and is guided by the chute means into the cup supporting tray member 32 where it is positioned between the wing portions 98 of the cup guard part 88, as shown in dot-and-dash lines in Figs. 4 and 7. The milk dispensing means of the container 12 thereupon dispenses a measured quantity, i. e., a cup full, of liquid through the spout 15 which flows into the cup. When the cup is filled, as can be determined by viewing the operation through the window 54, the window is raised to remove the filled cup, the raising of the window causing the cup guard part 88 to be moved to the raised position as shown in Figs. 8 and 9, the wing members 98 in such raised position constituting barriers to access of the cups at each side of the chute part, and the arms 79 being swung upwardly by contact of the edges 102 of the wing members therewith into position to dispose the finger end portions 81 in guarding relation to the spout 15. Thus when the window is opened it is impossible for a person's hand to either tamper with or remove the cups from the stacks or to come into contact with the spout. Upon closing of the window, the cup guard member moves downwardly to its lowered position determined by the engagement of the hook end 106 of the stem 91 with the stop 107, in which position the wing members 98 are disposed below the two sides of the chute and the arms 79 are swung to their normal positions within the chute.

When the stacks of cups are to be replaced, the door 13 is opened and the chute member 62 is removed by releasing it from the chute member 61 through downward swinging of the latching levers 72, thus providing a laterally free space for placing new stacks of cups in position in the feeding devices 16. When it is desired to clean the several parts of the dispensing apparatus, the door 13 is opened, the chute member 62 is removed by releasing the latch members 72, the closure panel 40 is opened by releasing its latch means from the inner side of the door by operation of the lever 50, whereupon the window 54 may be removed from the closure panel and the tray part 32 removed forwardly from the body frame part 24. The cup guard member 88 is raised to the position as shown in Fig. 9 during the removal of the tray part, and may thereupon be swung out of the chute part by disengaging its hook end 106 from the stop member 107.

What is claimed is:

1. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal of a filled cup, chute means at the inner side of said door having a passage leading to said compartment adapted to deliver cups individually released to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, a movable chute guard member disposed in cooperative relation to the cup delivering end of said passage of said chute means which in one operative position is disposed in non-obstructing relation to said end of said cup delivering passage to permit delivery of a cup therefrom and in another operative position is disposed in obstructing relation to said passage to retain a cup therein, and means adapted through the opening of said window member to move said chute guard member to said passage obstructing position.

2. The invention as defined in claim 1, wherein said chute guard member is vertically movable and includes a barrier wall portion having upper and lower edges, said upper edge in said one operative position being substantially in line with the inner end of said passage and said lower edge in said other operative position being substantially in line with said inner end of said passage.

3. In a cup dispensing apparatus for mounting in a

door of a cabinet wherein is disposed a liquid container having a spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal of a filled cup, chute means at the inner side of said door having a pair of passages respectively at opposite sides of and leading to said compartment adapted to deliver cups individually released to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, a movable chute guard member disposed in cooperative relation to the cup delivering ends of said passages of said chute means which in one operative position is disposed in non-obstructing relation to said ends of said cup delivering passages to permit delivery of cups therefrom and in another operative position is disposed in obstructing relation to said passages to retain cups therein, and means adapted through the opening of said window member to move said chute guard member to said passage obstructing position.

4. The invention as defined in claim 3, wherein said chute guard member is vertically movable and includes a pair of laterally spaced barrier wall portions respectively adjacent the inner ends of said passages and defining a cup receiving space between them, each having upper and lower edges, said upper edges in said one operative position being substantially in line with the inner ends of said passages and said lower edges in said other operative position being substantially in line with said inner ends of said passages.

5. In a cup dispensing apparatus for mounting in a door of a cabinet, a liquid container having a downwardly directed spout having a liquid dispensing passage terminating in the lower delivery end of said spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal of a filled cup, chute means at the inner side of said door having a passage leading to said compartment adapted to deliver cups individually released to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, spout guard means normally disposed out of relation to the delivery end of said spout and movable into guarding relation directly below said spout and blocking said liquid dispensing passage to the delivering end of said spout, and means adapted through the opening of said window member to move said spout guard means to spout guarding position.

6. The invention as defined in claim 5, wherein said spout guard means comprises an arm pivoted at its outer end to said chute means and normally lying along said passage, its inner end adapted upon upward swinging of said arm to move into spout guarding relation to said spout.

7. The invention as defined in claim 5, wherein said spout guard means comprises an arm pivoted at its outer end to said chute means and normally lying substantially along the median line of said passage, the surface of said passage forwardly of said arm being substantially flush therewith and the surface rearwardly of said arm being downwardly offset, said arm having a downwardly offset finger portion at its inner end normally flush with said downwardly offset surface of said passage adapted upon upward swinging of said arm to move into spout guarding relation to said spout.

8. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal

of a filled cup, chute means at the inner side of said door having a pair of passages respectively at opposite sides of and leading to said compartment adapted to deliver cups individually released to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, a pair of spout guard means in said respective passages normally disposed out of relation to the delivery end of said spout and movable into guarding relation to said spout, and means adapted through the opening of said window member to move said spout guard means to spout guarding position.

9. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal of a filled cup, chute means at the inner side of said door having a passage leading to said compartment adapted to deliver cups individually released thereto to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, a movable cup guard member which in one operative position is disposed in non-obstructing relation to said cup delivering passage and in another operative position is disposed in obstructing relation to said passage, spout guard means normally disposed out of relation to the delivery end of said spout and movable into guarding relation to said spout, and means adapted through the opening of said window member to move said cup guard member to said passage obstructing position and said spout guard means to said spout guarding position.

10. The invention as defined in claim 9, wherein said cup guard member includes a portion engageable with said spout guard means to move the latter into spout guarding relation as said cup guard member is moved into said passage obstructing position.

11. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a cup supporting member having a compartment opening to the outer side of said door, a window member normally closing said compartment and movable to a position to open said compartment for the removal of a filled cup, chute means at the inner side of said door having a pair of passages respectively at opposite sides of and leading to said compartment adapted to deliver cups individually released to said compartment, spout receiving means above said compartment for receiving the spout of said container in a position to deliver liquid to a cup supported in said compartment, a movable cup guard member which in one operative position is disposed in non-obstructing relation to said cup delivering passages and in another operative position is disposed in obstructing relation to said passages, spout guard means normally disposed out of relation to the delivery end of said spout and movable into guarding relation to said spout, and means adapted through the opening of said window member to move said cup guard member to said passage obstructing position and said spout guard means to said spout guarding position.

12. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a body frame member for mounting in an opening in said door and having an opening extending from the forward to the rearward side of said door, a cup supporting tray part removably engaged in the lower portion of said opening and projecting rearwardly therefrom to provide a cup supporting compartment, a cup feeding chute part at the inner side of said body frame member disposed above said rearwardly projecting portion of said tray part and having passages leading to said compartment adapted to deliver cups individually re-

leased to said compartment, said chute part comprising a chute member secured to the inner side of said body frame part and a second chute member removably secured to said first chute member, a closure panel hinged at the forward side of said body frame part having an opening substantially in register with the opening of said body frame part, and a vertically movable window carried by said panel normally closing said opening and adapted upon being raised to give access to said compartment.

13. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a body frame member for mounting in an opening in said door and having an opening extending from the forward to the rearward side of said door, a cup supporting tray part removably engaged in the lower portion of said opening and projecting rearwardly therefrom to provide a cup supporting compartment, said tray part being removable forwardly through said opening in said body frame part, a cup feeding chute part at the inner side of said body frame member disposed above said rearwardly projecting portion of said tray part and having passages leading to said compartment adapted to deliver cups individually released to said compartment, said chute part comprising a chute member secured to the inner side of said body frame part and a second chute member removably secured to said first chute member, a closure panel hinged at the forward side of said body frame part having an opening substantially in register with the opening of said body frame part, a vertically movable window carried by said panel normally closing said opening and adapted upon being raised to give access to said compartment, said panel in its normally closed position, adapted to retain said tray part in engaged relation with said body frame part, and latch means accessible from the inner side of said door normally retaining said closure panel in closed position.

14. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a body frame member for mounting in an opening in said door and having an opening extending from the forward to the rearward side of said door, a cup supporting tray part removably engaged in the lower portion of said opening and projecting rearwardly therefrom to provide a cup supporting compartment, a cup feeding chute part at the inner side of said body frame member disposed above said rearwardly projecting portion of said tray part and having passages leading to said compartment adapted to deliver cups individually released to said compartment, said chute part comprising a chute member secured to the inner side of said body frame part and a second chute member removably secured to said first chute member, a cup guard member vertically movable in said chute part adapted in a lower operative position to be disposed in non-obstructing relation to said passages, and in a raised operative position to be disposed in obstructing relation to said passages, said cup guard member being removable upon removal of said second chute member, a closure panel hinged at the forward side of said body frame part having an opening substantially in register with the opening of said body frame part, a vertically movable window carried by said panel normally closing said opening and adapted upon being raised to give access to said compartment, and means carried by said window adapted during raising movement thereof to move said cup guard member to its raised position.

15. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a body frame member for mounting in an opening in said door and having an opening extending from the forward to the rearward side of said door, a cup supporting tray part removably engaged in the lower portion of said opening and projecting rearwardly therefrom to provide a cup supporting compartment, a cup feeding chute part at the inner side of said body frame member disposed above said rearwardly projecting portion of said tray part and having passages leading to said compartment adapted to deliver cups individually released thereto to said compartment, said chute part comprising a chute member secured to the inner side of said body frame part and a second chute member removably secured to said first chute member, a pair of spout guard arms pivotally mounted between said first and second chute members and removable upon removal of said second chute member, said guard arms normally lying in said passages and adapted upon being moved upwardly to be disposed in guarding relation to said spout, a closure panel hinged at the forward side of said body frame part having an opening substantially in line with the opening of said body frame part, a vertically movable window carried by said panel normally closing said opening and adapted upon being raised to give access to said compartment, and means actuated by the raising of said window adapted to move said arms to spout guarding position.

16. In a cup dispensing apparatus for mounting in a door of a cabinet wherein is disposed a liquid container having a spout, a body frame member for mounting in an opening in said door and having an opening extending from the forward to the rearward side of said door, a cup supporting tray part removably engaged in the lower portion of said opening and projecting rearwardly therefrom to provide a cup supporting compartment, a cup feeding chute part at the inner side of said body frame member disposed above said rearwardly projecting portion of said tray part and having passages leading to said compartment adapted to deliver cups individually released thereto to said compartment, said chute part comprising a chute member secured to the inner side of said body frame part and a second chute member removably secured to said first chute member, a pair of spout guard arms pivotally mounted between said first and second chute members and removable upon removal of said second chute member, said guard arms normally lying in said passages and adapted upon being moved upwardly to be disposed in guarding relation to said spout, a cup guard member vertically movable in said chute part adapted in a lower operative position to be disposed in non-obstructing relation to said passages and in a raised operative position to be disposed in obstructing relation to said passages, said cup guard member adapted upon being raised to swing said arms to spout guarding position, a closure panel hinged at the forward side of said body frame part having an opening substantially in register with the opening of said body frame part, a vertically movable window carried by said panel normally closing said opening and adapted upon being raised to give access to said compartment, and means carried by said window adapted during raising movement thereof to move said cup guard member to its raised position.

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