April 14, 1936. T. BRADY 2,037,688

AUTOMATIC DRINK VENDING MACHINE

Original Filed Sept. 20, 1932 4 Sheets-Sheet 1

Fig. 1

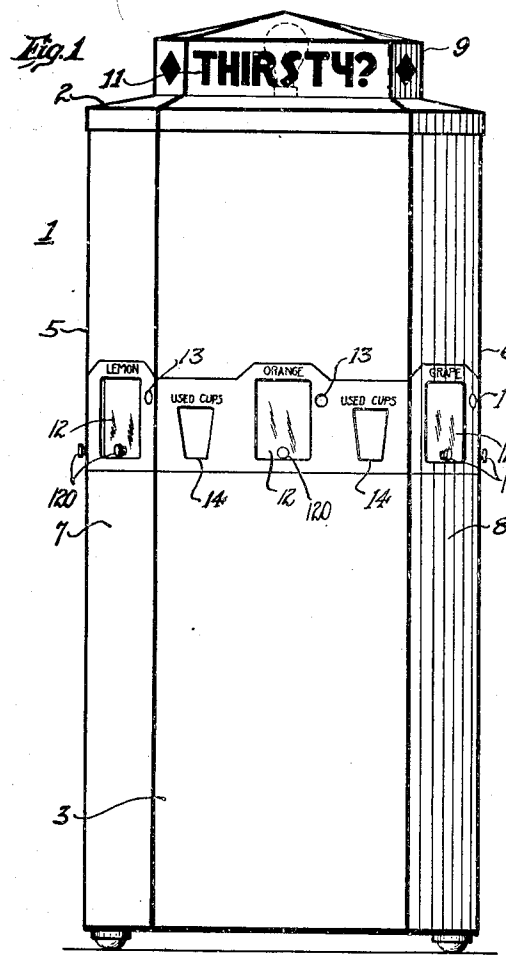


Fig. 2

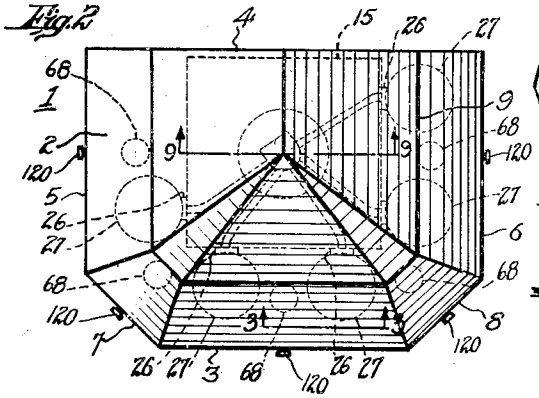
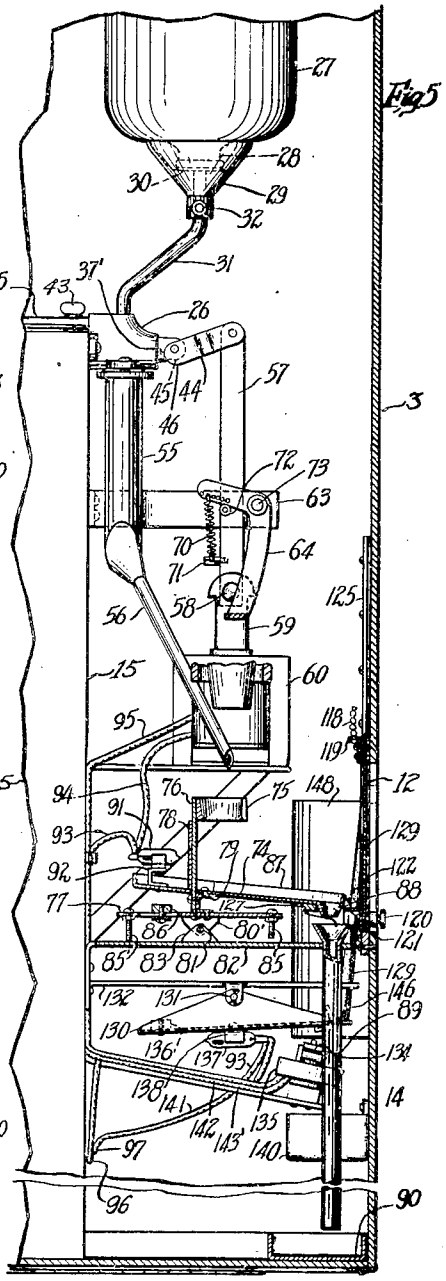


Fig. 5



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Fig 3

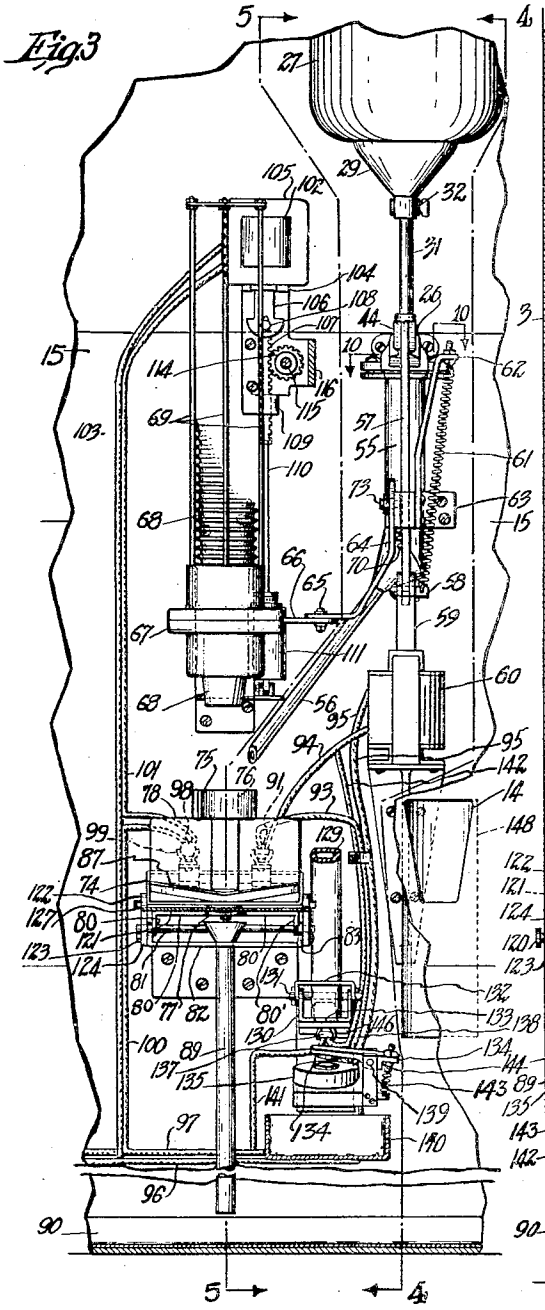
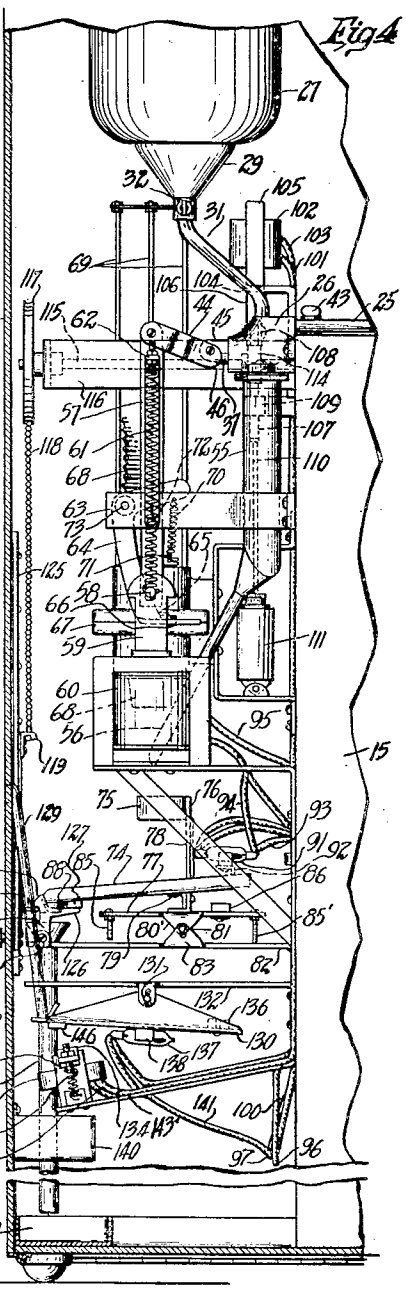


Fig 4



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AUTOMATIC DRINK VENDING MACHINE

Original Filed Sept. 20, 1932 4 Sheets-Sheet 3

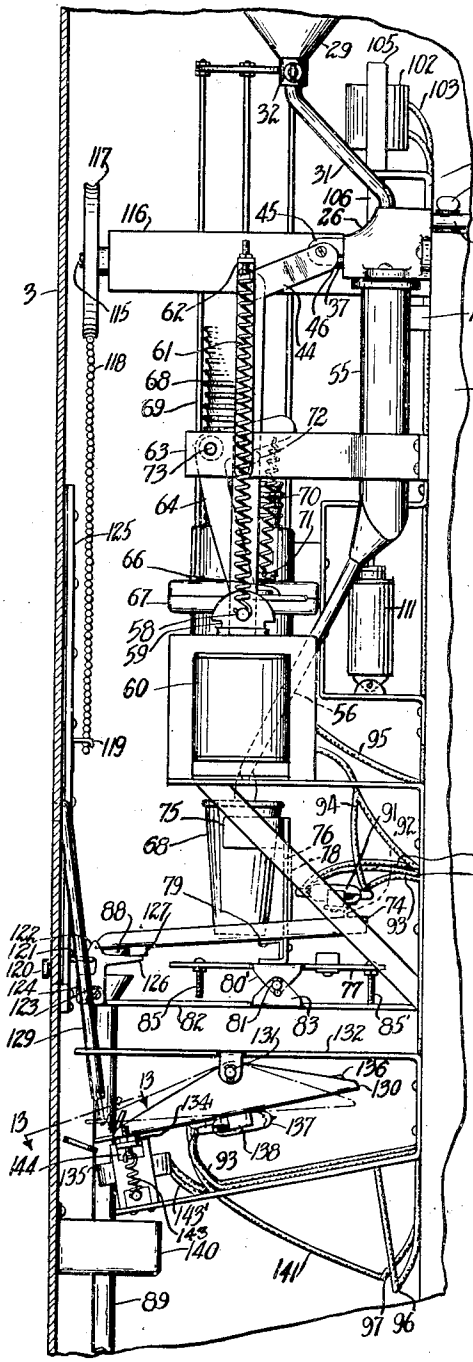


Fig. 6

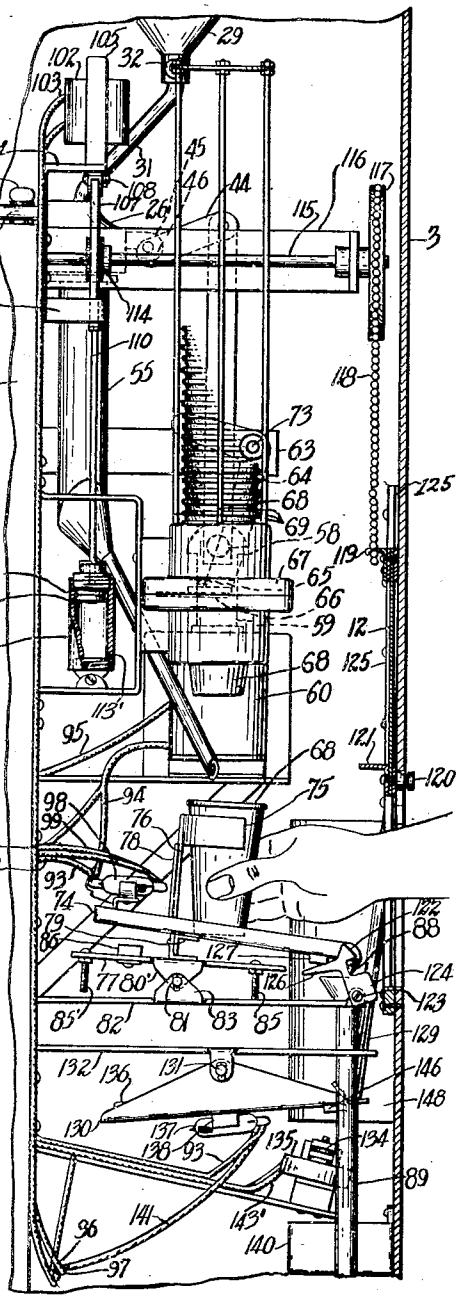


Fig. 7

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AUTOMATIC DRINK VENDING MACHINE

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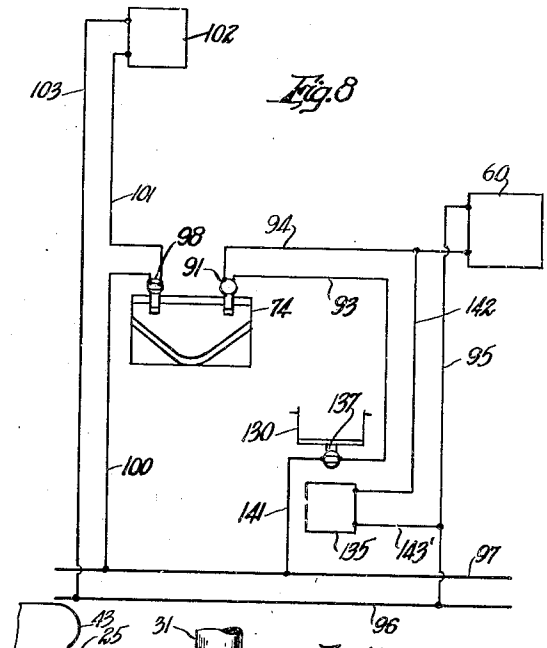


Fig. 8

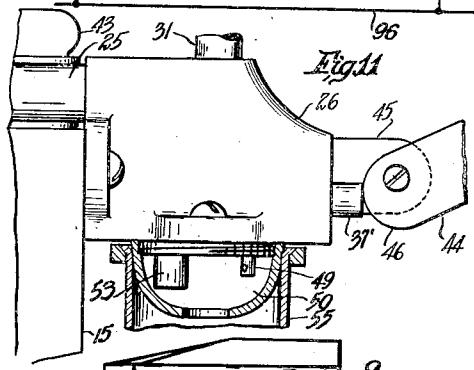


Fig. 11

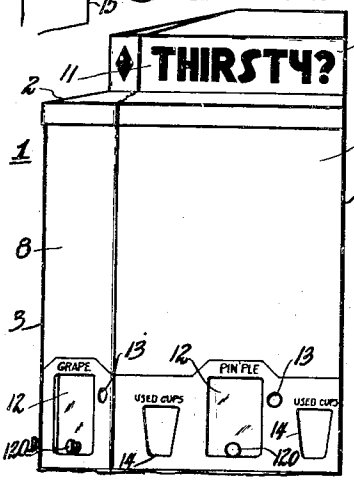


Fig. 12

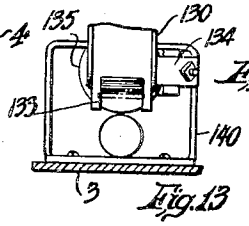


Fig. 13

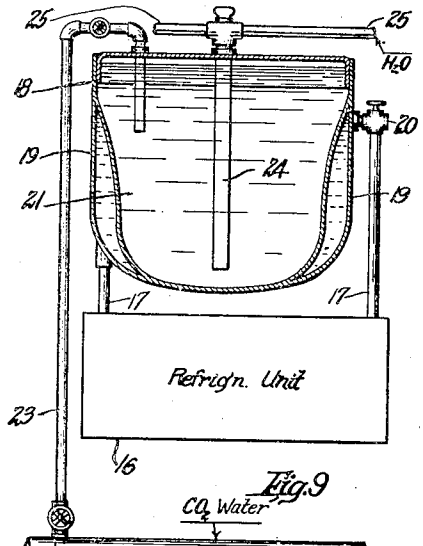
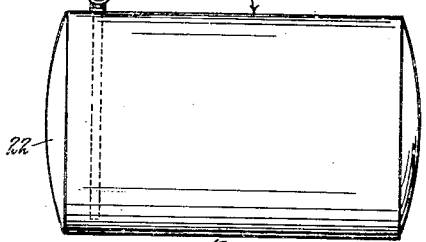


Fig. 9



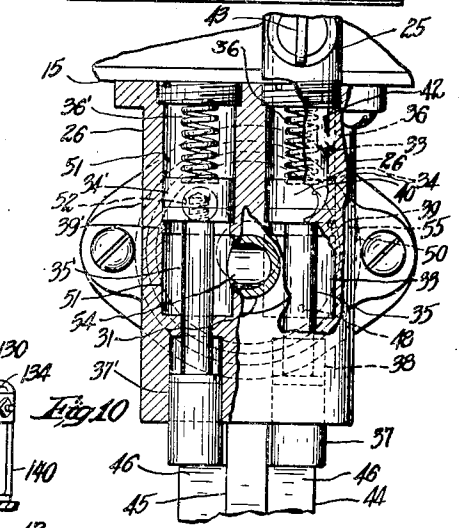


Fig. 10

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Patented Apr. 14, 1936 2,037,688

UNITED STATES PATENT OFFICE

2,037,688

AUTOMATIC DRINK VENDING MACHINE

Thomas Brady, Weehawken, N. J.

Original application September 20, 1932, Serial No. 633,942. Divided and this application April 13, 1935, Serial No. 16,177

5 Claims. (Cl. 225—21)

This invention relates, generally, to the vending of soft drinks; and the invention has reference, more particularly, to a novel coin controlled automatic vending machine for dispensing a plurality of carbonated soft drinks of various flavors.

This application is a division of my copending patent application Serial No. 633,942 filed September 20, 1932, Patent No. 2,000,556, May 7, 1935. Said copending patent application disclosed and claimed a coin operated controlling means for a fluid and cup dispensing structure, whereas the present application claims the specific fluid dispensing structure with the circuit closing means included therein broadly.

The principal object of the present invention is to provide a vending machine of the character described, including means for supplying carbonated water, additional means for supplying syrup, and valve means for intermixing the carbonated water and syrup in response to the operation of suitable circuit closing means, thereby producing a carbonated drink.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawings, in which:

Fig. 1 is a view in front elevation of the novel automatic drink vending machine of this invention.

Fig. 2 is a plan view of the structure shown in Fig. 1.

Fig. 3 is an enlarged fragmentary, part sectional view taken substantially along line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is a fragmentary view taken substantially along line 4—4 of Fig. 3 looking in the direction of the arrows.

Fig. 5 is a fragmentary view taken along line 5—5 of Fig. 3 looking in the direction of the arrows.

Fig. 6 is a view similar to Fig. 4 but illustrates the machine in operation just after a coin has been inserted thereinto.

Fig. 7 is a view looking at the reverse side of the structure shown in Fig. 6 and illustrates the purchaser in the act of removing the filled cup.

Fig. 8 is a wiring diagram illustrating the circuits involved.

Fig. 9 is a schematic sectional view taken substantially along line 9—9 of Fig. 2.

Fig. 10 is a fragmentary plan view with parts broken away of the mixing valve employed in the machine.

Fig. 11 is a fragmentary view in side elevation with parts broken away of the mixing valve.

Fig. 12 is a fragmentary view in side elevation of the machine; and

Fig. 13 is a sectional view taken along line 13—13 of Fig. 6.

Similar characters of reference are employed in all of the above described views to indicate corresponding parts.

Referring now to the said drawings, the reference numeral 1 designates the novel automatic drink vending machine of this invention as a whole. This machine comprises a cabinet 2 having front and back walls 3 and 4, side walls 5 and 6 and relatively narrow walls 7 and 8 interconnecting the front and side walls. Cabinet 2 has a hollow translucent or transparent advertising device 9 at the top thereof within which is preferably contained a suitable electric light and on the exterior walls of which are depicted suitable advertising matter 11. The front, side and interconnecting walls of the cabinet 2 are each provided with a compartment door 12, each of which doors is disposed substantially centrally of its respective wall.

Above each door is depicted the name of a respective drink, thereby designating the type of drink served through such door. Slightly to the right of each door 12 is provided a coin receiving aperture 13 of a size conforming to a particular denomination of coin, for example, a five cent piece. Further to the right of each door 12 is provided a used cup receiving aperture 14 of a shape adapted to receive a cup when the same is held in a vertical position. The used cup apertures 14 are symmetrically arranged with respect to the doors 12, thereby causing the cabinet 2 to have a neat and attractive appearance. In the form of the invention shown in the drawings, the cabinet is illustrated as having five cup compartment doors, adapting the same to serve five different drinks, but it is to be understood that this cabinet may have a lesser or even greater number of such doors, if desired. Also two cabinets may be arranged back to back when desired, thereby presenting a handsome appearance and enabling the sale of ten different carbonated drinks.

Substantially centrally disposed within the interior of the cabinet 2 is a casing 15 (see Fig. 2) containing an electric refrigerator consisting of a refrigerator unit 16 (see Fig. 9) connected by piping 17 to the cooling jacket 19 of a closed carbonated water cooler container 18. An expansion valve 20 is provided in piping 17 where this piping

joins the cooling jacket 19 so that refrigerant expanding within jacket 19 will effect the cooling of the carbonated water 21 contained within water container 18. Carbonated water under pressure is supplied from a pressure tank 22, situated in the lower part of cabinet 2, by means of piping 23 to container 18, within which container the carbonated water is cooled to a relatively low temperature by the refrigerating action of the refrigerator unit.

Container 18 is provided with outlet piping 24 to the upper end of which is connected a plurality of branch pipes 25. The branch pipes 25 are adapted to conduct the cooled carbonated water to mixing valves 26, five of which valves are illustrated in the drawings, corresponding to the number of differing drinks dispensed by the machine. Valves 43 are included in pipes 25 adjacent the respective mixing valves 26 in order to shut off the supply of cooled carbonated water to these valves, when desired. A plurality of removable jars 27 are contained within the upper part of cabinet 2, which jars are adapted to contain the various flavors or syrups dispensed by the machine. Jars 27 are mounted in inverted position with their necks 28 projecting downwardly into hoppers 29, which hoppers serve to support the jars and are illustrated as having gaskets 30 for sealing the joint between the tops of the jars and the hoppers. Hoppers 29 are connected by pipes 31 to the mixing valves 26. The lower portions of hoppers 29 are illustrated as having valves 32 which permit the shutting off of the supply of syrup when desired.

One of the mixing valves 26 is shown in detail in Figs. 10 and 11 and consists of a casing having a cylindrical valve recess 33 therein, within which is slidably contained a piston 34 that has a piston rod 35 extending therefrom. A coil compression spring 36 contained within recess 33 bears against the piston 34 and urges the free end of piston rod 35 against a plunger 37 that is reciprocally mounted within a cylindrical recess 38 provided in the casing of valve 26. An annular stop shoulder 39 is provided within valve cylinder 33 for limiting the motion of piston 34 under the action of spring 36. With piston 34 abutting stop shoulder 39, the said piston serves to close a port 40 in the valve casing, which port communicates, by means of a passage 42, with one of the pipes 25 leading to the outlet piping 24.

A camming lever 44 is pivotally mounted upon a projection 45 formed on the casing of valve 26, which camming lever has cams 46 formed thereon. One of the cams 46 is adapted, upon the turning of lever 44, downwardly, to affect the inward movement of plunger 37 and piston rod 35, thereby causing piston 34 to compress spring 36 and effect the opening or port 40 so that in use, carbonated water under pressure may flow from the pipe 25 through passage 42, port 40 and into cylindrical recess 33. The cylindrical recess 33 is provided with a relatively small aperture 48, which communicates through a short tube 49 to the interior of a small mixing chamber 50 formed in the casing of valve 26. Thus, the carbonated water under pressure within cylindrical recess 33 will flow through aperture 48 and tube 49 into the mixing chamber 50 when plunger 37 is depressed by the action of camming lever 44.

The casing of valve 26 is also provided with a second cylindrical recess 51 which extends parallel to the recess 33. Recess 51 has a piston 34' movable therein which is similar to piston 34.

The piston rod 35' of piston 34' is urged against a plunger 37' by the action of the coil spring 36'. With piston 34' in engagement with an annular shoulder 39' under the action of spring 36', the said piston serves to close a port 52 which communicates, by means of a short tube 53, to the interior of the small mixing chamber 50. Pipe 31 leading to one of the jars 27 is adapted to convey syrup into aperture 54 which communicates with the cylindrical recess 51. When plunger 37' is pressed inwardly by cam 46 of camming lever 44, piston 34' uncovers the port 39' so that syrup flowing through pipe 31, passage 54 and cylindrical recess 51, will enter port 52 and pass through tube 53 into the small mixing chamber 50 to be there intermixed with the pre-cooled carbonated water. From the small mixing chamber 50, the intermixed carbonated water and syrup will flow into a large tubular mixing chamber 55 which extends vertically downwardly from valve 26. A spout 56 is attached to the lower end of mixing chamber 55 and serves to conduct the intermixed syrup and carbonated water to a drinking cup as will further appear.

The outer free end of camming lever 44 is pivotally connected to the upper end of a depending link 57 which has its lower end pivotally connected, as by a pin 58, to the upper end of an armature 59 that is adapted to telescope within a solenoid 60. Armature 59 is normally held in its upper and withdrawn position with respect to the solenoid 60 by means of a coil tension spring 61 which has its lower end connected to the pin 58 and its upper end connected to a bracket arm 62 which is, in turn, carried by a bracket 63 projecting outwardly from the refrigerator casing 15. Since spring 61 normally holds the armature 59 in its uppermost position, the link 57 is also held in its uppermost position, causing camming lever 44 to be held in its upper position, as shown in Fig. 4, in which position the ports 40 and 52 of valve 26 are closed.

As especially shown in Figs. 3 to 5, the bracket 63 has a bell crank lever 64 pivotally mounted thereon as by means of a pivotal pin 73. One arm of bell crank lever 64 depends downwardly and is pivotally connected, as by a pivotal screw 65, to the operating arm 66 of a cup dispenser 67. The cup dispenser 67 is old and of well known construction and is thought to require no detailed description. The preferably waxed paper cups 68 of the dispenser 67 are confined in a vertical position, as by vertical rods 69, extending upwardly from the main portion of the cup dispenser. Each time the operating lever 66 is actuated, a cup 68 will be dropped vertically downwardly from this dispenser and past the discharge mouth of spout 56. The other arm of bell crank lever 64 is inclined upwardly somewhat to the horizontal, and has the upper end of a depending tension spring 70 connected to its free end portion. The lower end of spring 70 is connected to a screw 71 which is threaded into the depending link 57.

The tension of spring 70 tends to turn bell crank lever 64 in a counterclockwise direction, as viewed in Fig. 5, thereby tending to cause an operating movement of operating arm 66 of the cup dispenser 67. Movement of bell crank lever 64 under the action of tension spring 70 is normally prevented, however, by a roller stop 72 that is carried by the depending link 57 and engages the underside of the upwardly inclined arm of bell crank lever 64. When depending link 57 is pulled downwardly, however, as when sole-

noid 60 is energized, the roller stop 72 will move downwardly as will also pin 71, so that spring 70 will cause the actuation of bell crank lever 64, resulting in the operation of the cup dispenser 67. The cup dispenser 67 thus acts to discharge a cup which falls downwardly past the drink discharge mouth of spout 56 and passes into the hollow interior of a cup embracing bracket 75. The cup then comes to rest in an upright position with its bottom resting upon a tipping platform or pan 74 and with its sides embraced by bracket 75.

The cup embracing bracket 75 is of C-shape, as viewed in plan, and is open at the front so that a cup can be readily withdrawn therefrom, although this bracket 75 serves to maintain the cup in an upright position upon the tipping platform or pan 74 until the user removes the same therefrom. The cup embracing bracket 75 is supported at its rear upon the upper end portion of a strut 76 which extends downwardly and through an aperture provided in the platform 74 and has a forwardly directed flange at its lower end which is secured to a beam 77.

A substantially vertical panel 78 is fixed to the rear surface of the strut 76 and serves as a rear wall for a cup compartment which has one of the doors 12 at the front thereof. Tipping platform or pan 74 is supported upon the lower portion of strut 76, as by means of a transversely extending angle bar 79 which is secured to the under-surface of the tipping platform and to the strut 76. The strut 76 thus serves to support the tipping platform 74 upon beam 77. Beam 77 is formed with transverse extensions 80 at its sides, which extensions have down-turned ears 80' at their ends, which ears are pivotally mounted upon a transversely extending pivotal rod 81. Pivotal rod 81 has its ends supported by upwardly directed ears 83 formed at the sides of a horizontal bracket 82 which is attached to the casing 15.

Owing to the pivotal mounting of the beam 77 upon pivotal rod 81 carried by bracket 82, this beam and the platform 74 are adapted to turn somewhat about a horizontal axis. The beam 77 is provided with stop screws 85 and 85' near its ends, which screws, by engaging the bracket 82, serve to limit the turning or tipping movement of the beam 77 and of the platform or pan 74. The beam 77 carries an adjustable weight 86 which may be nicely adjusted so that the tipping platform 74 will normally remain in a somewhat forwardly and downwardly inclined position, (see especially Figs. 4 to 6) with the stop screw 85' in engagement with the bracket 82. The weight 86 is so adjusted, however, that when a cup 68, resting upon the tipping platform 74, receives the desired quantity of drinking fluid, the weight of the cup and its contents will serve to tip the platform 74 forwardly somewhat by overbalancing the weight 86, thereby moving the screw 85 into engagement with bracket 82, as illustrated in Fig. 7.

The tipping platform or pan 74 is provided with flanges at its sides and with a V-shaped flange 87, which flanges project upwardly from the upper-surface of platform 74 and serve to conduct any liquid spilt upon this platform to a spout 88 formed in the forward portion thereof. Owing to the inclination of the platform or pan 74, liquid spilt thereon will flow naturally to spout 88 and will be discharged from this spout into the flared upper end portion of a depending waste pipe 89, which serves to convey such spilt liquid downwardly and into a sump or pan 90 positioned at the bottom of the cabinet.

A mercury bulb switch 91 is mounted upon a clip 92 that is secured to the upper surface of platform 74 at the rear of panel 78. Mercury bulb switch 91 is so positioned with respect to the cup platform 74 that when this platform is in its normal slightly inclined position, i. e. with the stop screw 85' in engagement with bracket 82, the mercury within this bulb switch will engage the terminals of the switch so that, in effect, this switch is closed. A lead 93 is connected to one terminal of mercury bulb switch 91 and a second lead 94 is connected to the other terminal of this mercury bulb switch. Lead 94 extends to one terminal of the solenoid 60, the other terminal of which solenoid is connected by a lead 95 to one lead 96 of a current supply line having a second lead 97.

A second mercury bulb switch 98 is mounted upon a clip 99 that is also secured to the upper surface of platform 74 at the rear of panel 78. Mercury bulb switch 98 is so positioned with respect to the cup platform 74, that when this platform is in its normal slightly inclined position, i. e. with the stop screw 85' in engagement with bracket 82, the mercury within this bulb switch is out of engagement with the terminals of this switch so that, in effect, this switch is open. When the platform 74 is tipped forwardly, however, under the weight of a filled cup 68, the mercury within bulb switch 98 will shift so as to complete a circuit across the terminals of this switch, as especially shown in Fig. 7, whereas the circuit through bulb switch 91 will be broken, owing to the flowing of the mercury away from the terminals of switch 91 when the platform tips forwardly.

One terminal of mercury bulb switch 98 is connected by a lead 100 to the supply lead 97. The other terminal of switch 98 is connected by a lead 101 to one terminal of a door operating solenoid 102, the other terminal of which solenoid is connected by a lead 103 to the supply lead 96. The core 105 of door operating solenoid 102 is mounted upon a bracket 104 that is fixed to the casing 15. An armature 106 is adapted to telescope within the hollow interior of solenoid 102 and extends downwardly from this solenoid.

A depending rack 107 is pivotally connected at its upper end, as by a pin 108, to the armature 106 and has its lower end portion slidably guided in a slide bearing projection 109 formed on the bracket 104. A depending circular rod 110 has its upper end secured to the lower end of rack 107 and the lower end portion of this rod 110 projects downwardly through the top of an air check cylinder 111. The lower end of depending rod 110 has a check piston 112 fixed thereto for reciprocation within check cylinder 111. The upper and lower portions of check cylinder 111 are provided with relatively small apertures 113 and 113' which may be made adjustable as to size, if desired, in a manner well known to those skilled in the art. Apertures 113 and 113' serve to check the movement of check piston 112 within cylinder 111 and hence serve to check reciprocating movements of rack 107 in use. The teeth of rack 107 mesh with a gear 114 that is fixed upon a forwardly extending shaft 115. The rear end portion of shaft 115 is turnably mounted upon a bearing provided in the bracket 104, whereas the front end portion of this shaft is mounted in a bearing provided in an extension 116 of the bracket 104.

A sheave 117 is fixed upon the forward end portion of shaft 115 and has a chain 118 passing thereover. One end of the chain 118 is fixed to the periphery of sheave 117 and the other end of this chain is attached to a bracket 119 that is secured to the upper portion of a cup compartment door 12. The door 12 is adapted to slide upwardly in moving from closed to open position and is guided in its movement by vertical guides 125 attached to the inner wall surface of cabinet 2. Door 12 is preferably transparent and may be made, for example, of any suitable cellulosic material. A knob or handle 120 is shown attached to the lower central portion of the door 12, which handle projects outwardly of the cabinet 2. A transverse bar, such as an angle bar, extends across the lower rear portion of door 12 and has a horizontal flange 121 projecting rearwardly of this door, which flange is adapted to cooperate with pivoted latches 122 which are pivotally mounted, as by screws 123, upon upturned ears formed at the two sides of bracket 82.

The latches 122 have enlarged or weighted portions 124 positioned forwardly of the pivotal screws 123 so that these latches are normally urged by gravity into cooperative relation with the flange 121. Thus, in Fig. 6, for example, the enlarged portions 124 of the latches 122 urge these latches in a counterclockwise direction so that they will engage flange 121 and thereby serve to retain the door 12 in closed and locked condition. Latches 122 have rearwardly directed releasing projections 126 which are adapted to cooperate with a transversely extending bar 127 carried by the forward portion of the cup platform 74. With the door 12 in closed position, as shown in Fig. 6, and with the cup platform 74 in its normal position (i. e. with stop screw 85' engaging bracket 82) the latches 122, by engaging the flange 121, will serve to lock the door in closed position, while the releasing projections 126 are positioned immediately below the under surface of bar 127.

After a cup 68 has been filled with a predetermined quantity of drink, however, causing platform 74 to tip forwardly as shown in Fig. 7, the transverse bar 127 will act to move the releasing projections 126 downwardly, thereby turning latches 122 rearwardly about their pivotal connections with the bracket 82 and effecting the unlocking of the door 12. The forward tipping of the platform 74 also completes a circuit through mercury bulb switch 98, thereby effecting the energization of door operating solenoid 102 (see especially Fig. 8) and causing upward movement of armature 106, resulting in the turning of gear 114 and sheave 117, to thereby raise door 12 to open position and permitting the purchaser to insert his hand, as shown in Fig. 7, and remove the filled cup.

The coin control mechanism consists of a depending flattened conveying tube 129 which extends downwardly and rearwardly from the coin receiving aperture 13 (see especially Figs. 3 to 7). The conveying tube 129 has an internal cross section substantially conforming to that of the denomination of coin used, i. e. when the coin is viewed edgeways, and this tube serves to convey the coins to the forward end portion of a pivoted beam 130. The coins are delivered so that their edges strike the beam 130, the faces of the coin extending transversely of the beam as shown in dot and dash lines in Fig. 13. Beam 130 is pivotally supported substantially midway of its length as upon a pivotal pin 131 carried by a bracket 132 that is fixed to the casing 15. As especially shown in Fig. 13, the forward portion of beam 130 is provided with a slot 133 immediately underlying the discharge end of tube 129. Slot 133 is of slightly lesser width than the diameter of a genuine coin intended to be used in the machine, so that fictitious coins of smaller diameter than genuine coins will fall through slot 133 and will not serve to turn the beam 130. A coin box 140 is provided below the forward end of beam 130 for receiving coins dropped from this beam.

A genuine coin will not fall through the slot 133, but the edges of such a coin will strike the beam 130 at the sides of slot 133 and move the forward end of the same downwardly somewhat until this end of the beam engages the upper surface of the pivoted armature 134 of a holding coil 135. Armature 134 is pivoted at 139 upon the core frame of holding coil 135. A tension spring 143 pulls upon one end of armature 134 and urges the other end thereof upwardly and toward the under surface of beam 130. A suitable stop 144 serves to limit the upward turning movement of armature 134, thereby serving to hold this armature somewhat spaced from beam 130. The beam 130 is nicely balanced so that the weight of a genuine coin will cause this beam to turn about the pivotal pin 131 until the turning motion of the beam is stopped by the same contacting with the upper end of pivoted armature 134. The beam is stopped in its turning movement by the armature 134 before this beam has turned sufficiently to completely dislodge the coin from the tube 129, so the beam will come momentarily to rest with the coin still resting thereon. The beam 130 is preferably provided with an adjustable weight 136 so that the same may be nicely balanced.

A mercury bulb switch 137 is carried by a clip 138 which is attached to the under surface of beam 130. One terminal of mercury bulb switch 137 is connected to lead 93 while the other terminal of switch 137 is connected by a lead 141 (see especially Fig. 8) to supply line lead 97. The mercury bulb switch 137 is so held by clip 138 that prior to the engagement of beam 130 by a coin, the mercury of this switch does not engage the terminals of the switch as shown in Figs. 4 and 5.

In use, the tipping of the beam 130, caused by the insertion of the proper coin into coin aperture 13, causes the mercury in bulb switch 137 to engage the terminals of this switch, thereby completing a circuit for holding coil 135. This circuit (see Fig. 8) is from supply lead 97, by way of lead 141 through switch 137, lead 93, switch 91, lead 94, lead 42, holding coil 135, lead 143' and lead 95 to supply lead 96. Thus, as soon as a coin strikes the beam 130 causing the same to tip downwardly until stopped by pivoted armature 134, a circuit is completed for holding coil 135 which immediately acts to draw armature 134 down to the core of this coil and causing beam 130 to tip still lower and effect the complete dislodgment of the coin from tube 129, which coin falls into box 140, as especially illustrated in Fig. 6. The beam 130 is shown as having an iron piece 146 on the under surface thereof, which piece is attracted by the magnetism of the holding coil so that the beam 130 is held in its down tilted position shown in Fig. 6 after the coin has dropped from this beam.

The closing of switch 137 also completes a circuit for the soledoid 60. As especially shown in Fig. 8, this circuit extends from supply lead 97, through lead 141, switch 137, lead 93, switch 91,

lead 94, solenoid 60, lead 95 to supply lead 96. The energization of solenoid 60 causes downward movement of armature 59 against the tension of spring 61. As armature 59 commences to move downwardly, the link 57 also moves downwardly so that the tension of spring 70 causes movement of bell crank lever 64 and effects an operation of cup dispenser 67, resulting in the discharge of a cup from this dispenser 67, which cup falls downwardly and is received upon the cup platform 74. Continued downward movement of armature 59, causes the cams of camming lever 44 to press plungers 37 and 37' of mixing valve 26 inwardly. This action of the camming lever causes intermixed carbonated water and syrup to flow from valve 26 downwardly through mixing chamber 65 and through spout 56 into the cup 68.

The mixed drink continues to flow into cup 68 until this cup is substantially filled, whereupon the weight of this cup and its contents causes cup platform 74 to tip forwardly until stop screw 85 engages bracket 82. The forward tipping of platform 74 causes the opening of switch 91 and effects the deenergization of solenoid 60 as well as the deenergization of holding coil 135. The deenergization of solenoid 60 permits tension spring 61 to immediately return armature 59 to its upper position, thereby turning camming lever 44 upwardly to effect the shutting off of the supply of mixed drink through valve 26. At the same time, bell crank lever 64 is returned to its initial position ready for another operation of the cup dispenser. The deenergization of the holding coil 135 permits beam 130 to swing upwardly into its initial position, i. e. in abutting relation to the lower end of coin conveying tube 129.

The forward tipping of cup platform 74, due to the weight of the filled cup, also effected the unlatching of latches 122 and likewise caused the closing of switch 98, resulting in the energization of door operating solenoid 102, which effects the raising of the door 12 so that the purchaser may insert his hand, as shown in Fig. 7, and remove the filled cup 68. When the purchaser removes the cup 68, the forward portion of cup platform 74 will turn or tip upwardly owing to the presence of weight 86, thereby opening switch 98 and reclosing switch 91. The opening of switch 98 permits the door 12 to descend by gravity, the dash-pot 111 serving to suitably check the downward movement of the door.

When the door has reached its lowermost position, the latches 122 snap over the angle bar 121, thereby locking the door in closed position and the appartus is again in condition for another operation. The purchaser when through with his cup may insert the same in an upright position through one of the cup apertures 16 provided in the machine, and such cup will be conducted downwardly, while still in a vertical position, by a vertical guide tube 148 (see Figs. 3 and 5). The cup will thus fall in an upright position upon pan 90 and subsequently deposited cups will stack up upon this first cup, thereby forming a compacted mass of used cups which will require relatively little space within cabinet 2.

Since the machine of this invention is provided with five independently operating drink dispensing mechanisms, two or more differing drinks may be dispensed simultaneously so that a number of persons may have access simultaneously to the machine, thereby enabling the machine to have a large output of the various drinks. Owing to the use of the cooling jacket 19 surrounding the carbonated water reservoir 21, the drinks are supplied in a cold condition such as would be obtained from an ordinary soda fountain. Applicant, by using the cooling jacket 19, also eliminates the multiplicity of complicated and expensive cooling coils as heretofore used in devices of this character.

It will be apparent that the door operating solenoid 102 and associate mechanism may be omitted, if desired, thereby simplifying the machine, in which event each door 12 will be opened by the purchaser grasping handle 120 and manually raising the door. After removing the filled cup of beverage, the purchaser will release the door handle, whereupon the door will close by gravity and will be locked in closed position by the latches 122.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, as defined by the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a machine of the character described, a mixing valve, a carbonated water supply device communicating with said mixing valve for supplying cold carbonated water under pressure to said valve, a syrup container communicating with said mixing valve for supplying syrup thereto, said mixing valve having a mixing chamber therein, a second mixing chamber depending from said valve and communicating with said first mixing chamber, and circuit closing means for causing operation of said mixing valve, whereby carbonated water and syrup are initially intermixed within the mixing chamber of said valve and are further intermixed in said second depending mixing chamber.

2. In a machine of the character described, a mixing valve, a carbonated water supply device communicating with said mixing valve for supplying cold carbonated water under pressure to said valve, said carbonated water supply device having a jacketed carbonated water reservoir and refrigerating means for circulating cooling fluid through the jacket of said reservoir, a syrup container communicating with said mixing valve for supplying syrup thereto, said mixing valve having a mixing chamber therein, and circuit closing means for causing operation of said mixing valve, whereby carbonated water and syrup are intermixed within the mixing chamber of said valve.

3. In a machine of the character described, a mixing valve, a refrigerated carbonated water supply device communicating with said mixing valve for supplying cold carbonated water under pressure to said valve, a syrup container communicating with said mixing valve for supplying syrup thereto under the action of gravity, said mixing valve having a mixing chamber therein, a second mixing chamber depending from said valve and communicating with said first mixing chamber, solenoid actuating means for operating said valve to open position, and circuit closing means for causing the energization of said solenoid actuating means, whereby cold carbonated water and syrup are initially intermixed within the mixing chamber of said valve and are there-

after further intermixed in said second depending mixing chamber.

4. In a machine of the character described, a mixing valve, a refrigerated carbonated water supply device communicating with said mixing valve for supplying cold carbonated water under pressure to said valve, a syrup container communicating with said mixing valve for supplying syrup thereto under the action of gravity, said mixing valve having a mixing chamber therein, motive means for operating said mixing valve, and circuit closing means for causing operation of said motive means to effect the opening of said mixing valve and the admixture of carbonated water and syrup in the mixing chamber thereof.

5. In a machine of the character described, a mixing valve, a refrigerated carbonated water supply device communicating with said mixing valve for supplying cold carbonated water under pressure to said valve, a syrup container communicating with said mixing valve for supplying syrup thereto under the action of gravity, said mixing valve having a mixing chamber therein, motive means for operating said mixing valve, circuit closing means for causing operation of said motive means to effect the opening of said mixing valve and the admixture of carbonated water and syrup in the mixing chamber thereof, means for further intermixing the carbonated water and syrup and for delivering the resulting drink for use, and circuit opening means responsive to the delivery of the drink for causing the deenergization of said motive means to effect the closing of said mixing valve.

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