United States Patent [19]

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[11] **3,853,244**

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[54] **REMOTE DRINK DISPENSER**

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[73] Assignee: **Reynolds Products Inc.,** Schaumburg, Ill.

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[52] **U.S. Cl.** **222/129.1,** 222/132, 222/135, 222/238

[51] **Int. Cl.** **B67d 5/56**

[58] **Field of Search** 222/129.1, 132, 135, 236, 222/238, 254

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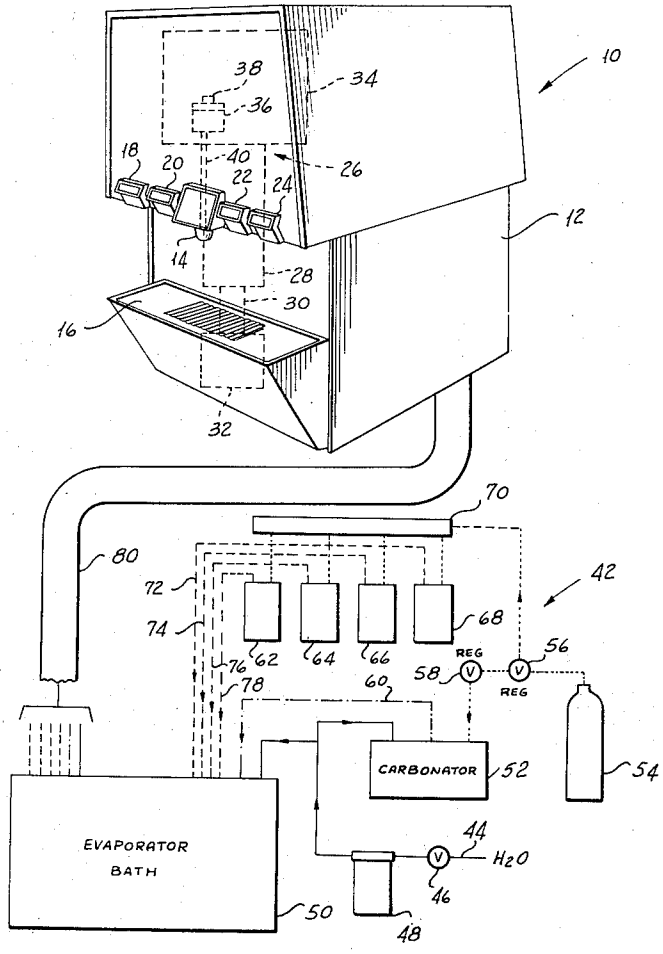
[57] **ABSTRACT**

A cold drink dispenser in which operation of one of a plurality of handles or the like on a counter unit concomitantly opens valves to deliver beverage components from supplies at a remote location to a receptacle such as a cup and energizes both an ice maker storage chamber agitator motor and an ice delivery mechanism motor to deliver a predetermined quantity of ice per unit time to the cup as the beverage components flow into the cup.

5 Claims, 7 Drawing Figures



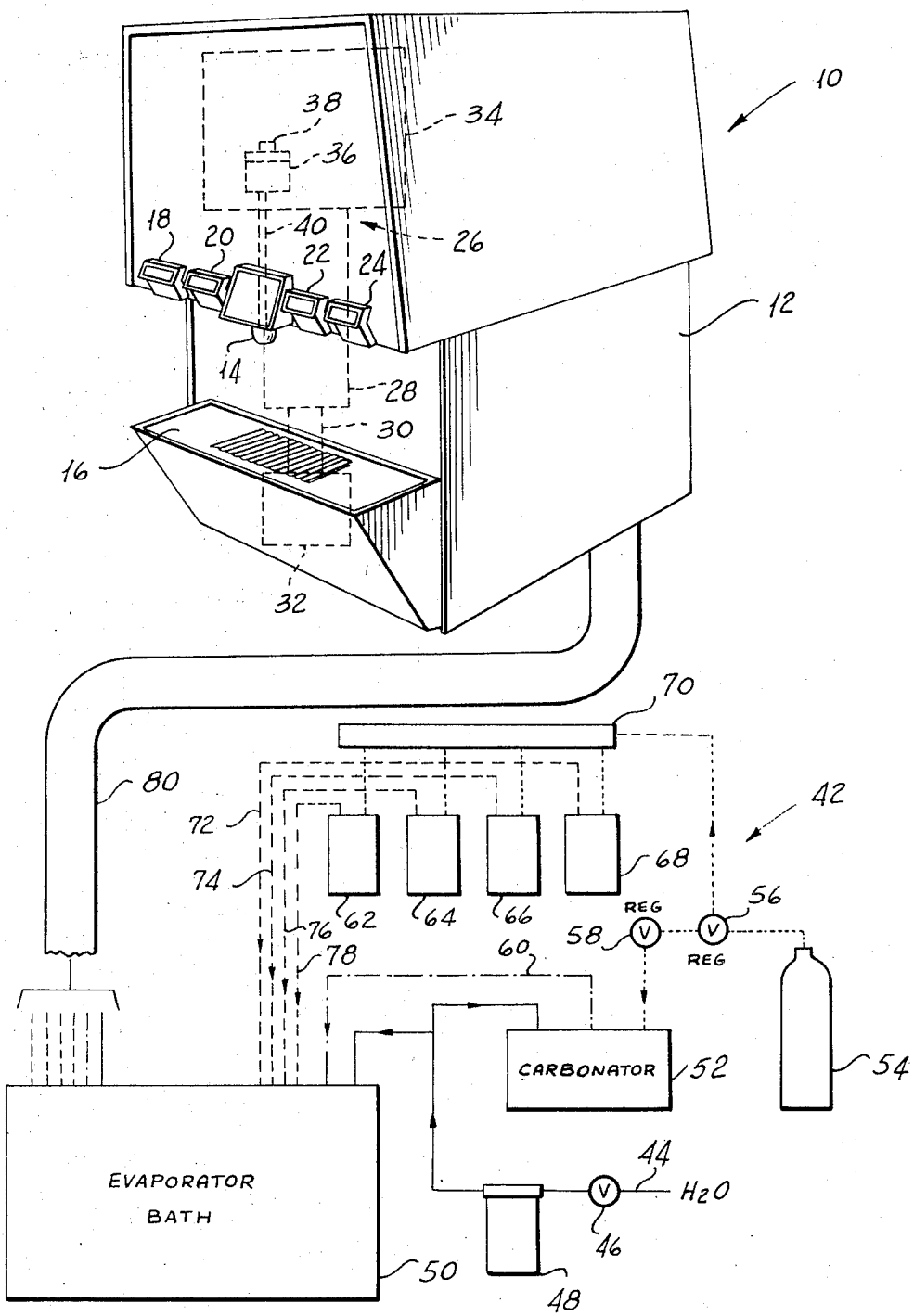


Fig 1

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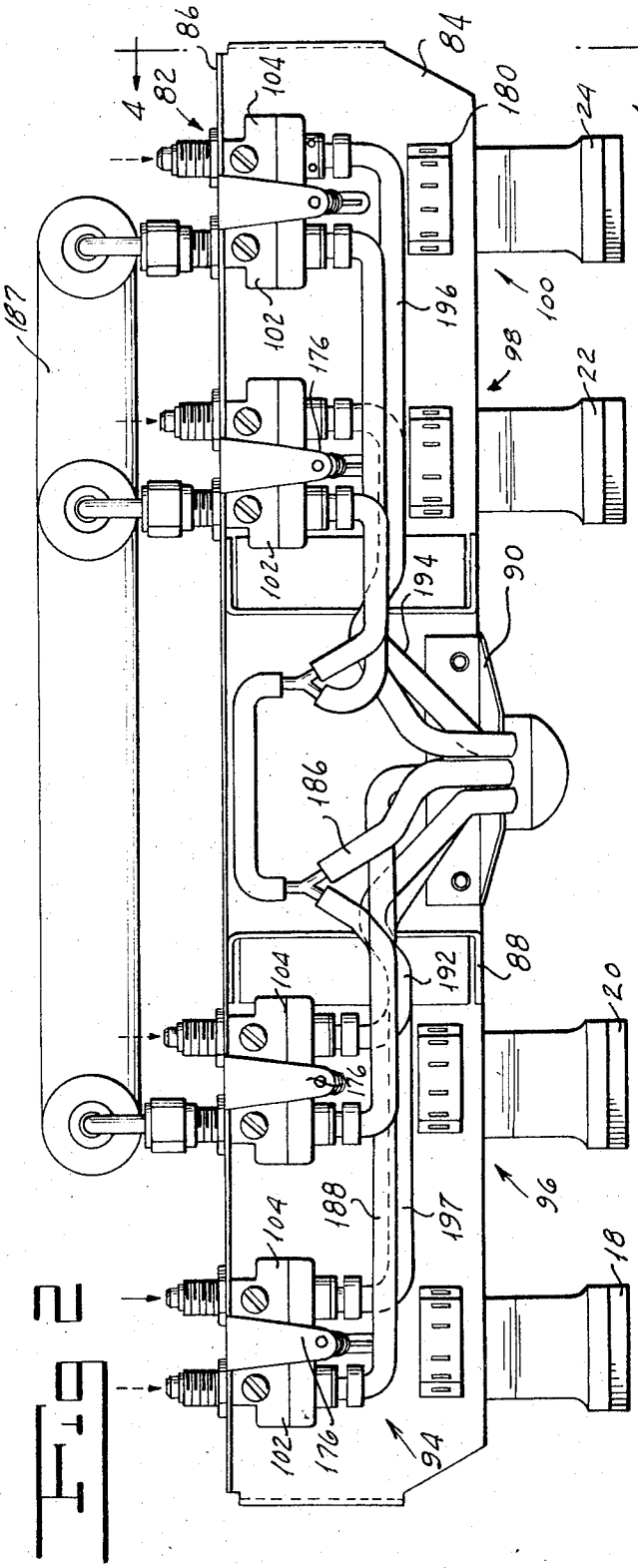

FIG. 2

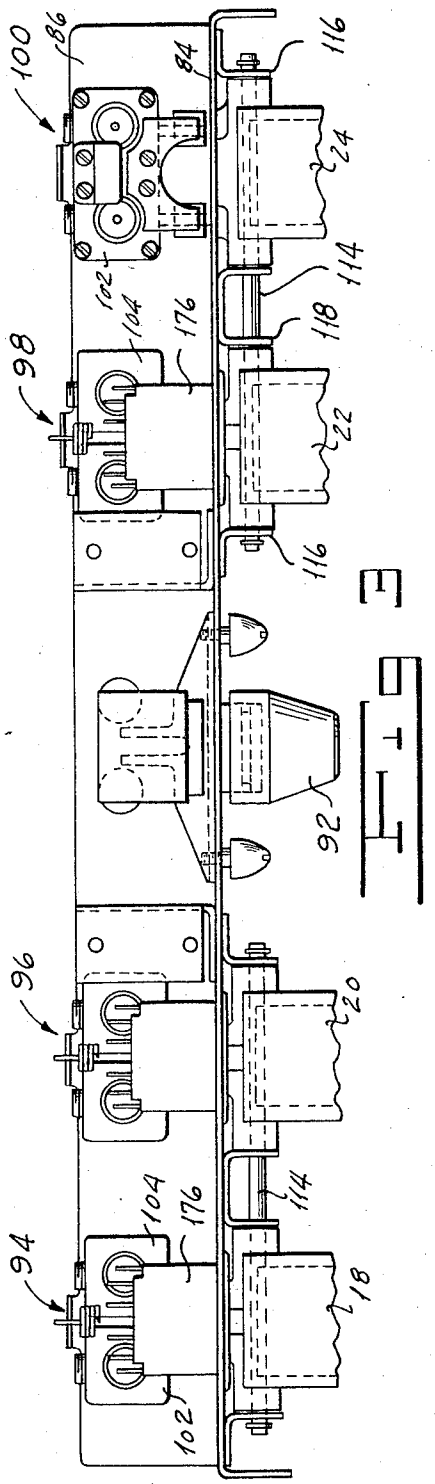

FIG. 3

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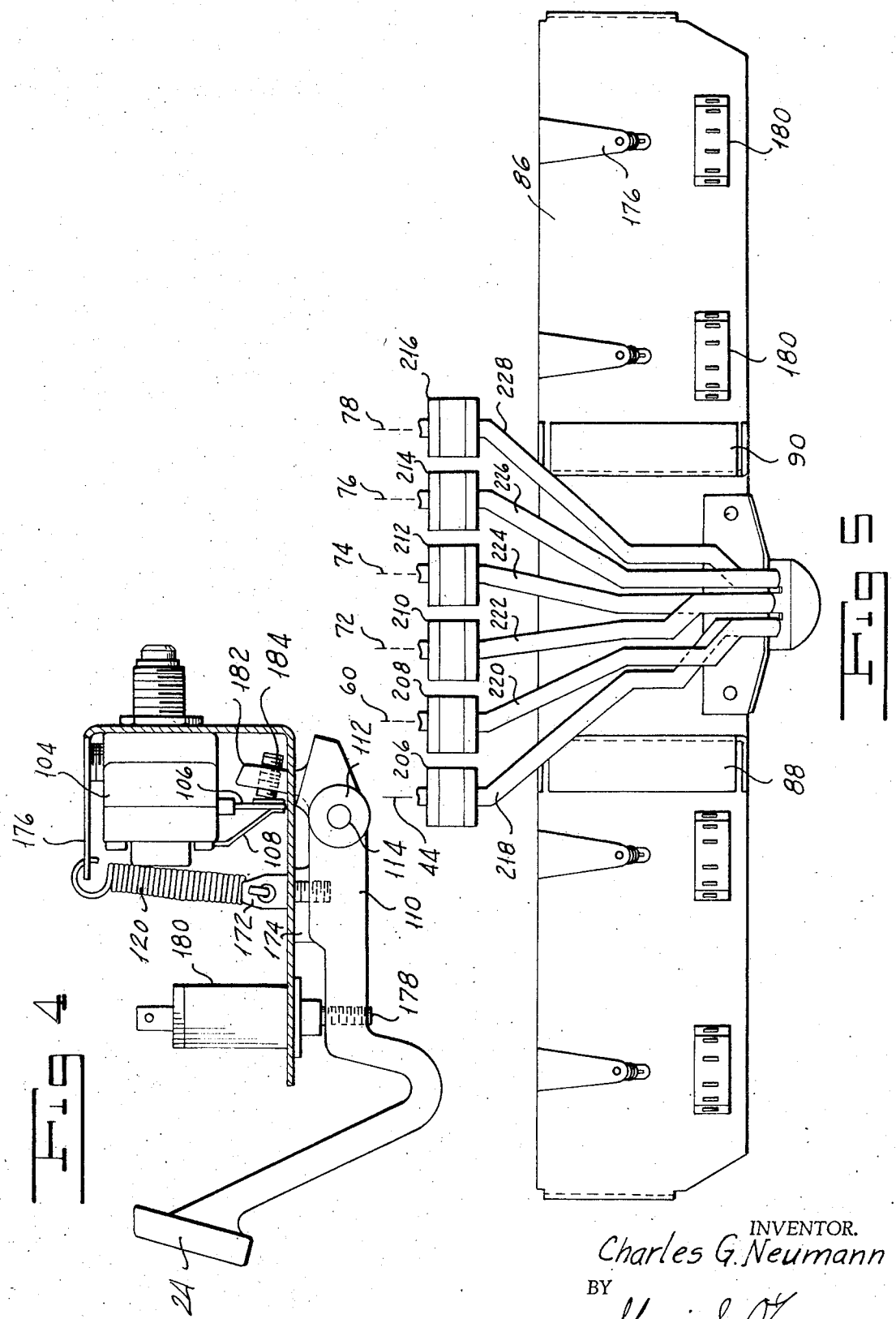

FIG. 5

FIG. 4

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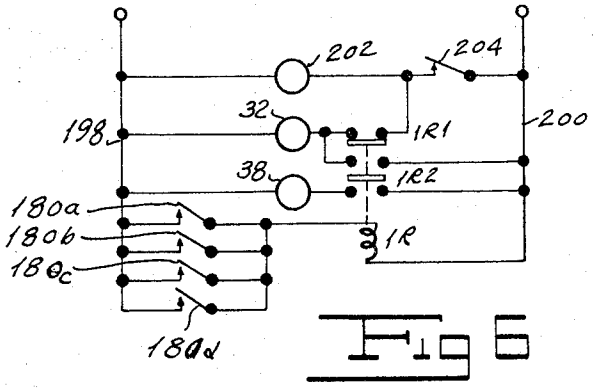

FIG 6

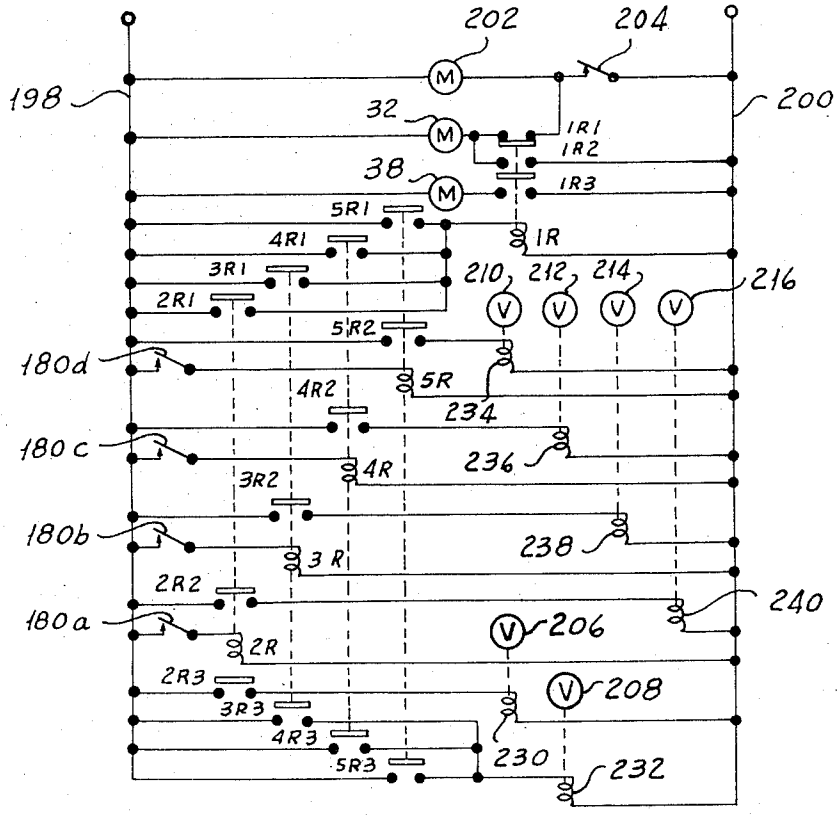

FIG 7

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REMOTE DRINK DISPENSER

BACKGROUND OF THE INVENTION

There are known in the prior art remote drink dispensing units in which a counter-top unit includes a plurality of handles or the like which are operated to cause beverage components to flow from supplies at a remote location into a cup in which they are mixed to form the drink. In such units the operator customarily adds ice to the cup by scooping it into the cup from an open bin before the beverage components flow into the cup. The ice is customarily stored in a bin located at the counter. These units of the prior art require the operator to perform both the operation of putting ice into the cup and of operating the dispenser unit to deliver beverage components to the cup. The open ice trays or bins are relatively insanitary. The storage bin takes up valuable counter space. The operation of refilling the bin requires time. The multiple handling and exposure of the ice raises the possibility of contaminating the drink.

I have invented a remote drink dispensing unit which overcomes the disadvantages of remote units of the prior art. My unit delivers a predetermined amount of ice to the cup together with the beverage components. It does not require storage of ice in an open bin. It saves counter space. It is more sanitary than are systems of the prior art since it minimizes the possibility of contamination of the drink by unclean ice.

SUMMARY OF THE INVENTION

One object of my invention is to provide a remote drink dispenser which concomitantly delivers a predetermined quantity of ice per unit time and beverage components to the cup.

Another object of my invention is to provide a remote drink dispenser which speeds customer service.

Another object of my invention is to provide a remote drink dispenser which makes more efficient use of the operator's time.

A further object of my invention is to provide a remote drink dispenser which does away with the need for providing ice bins at the counter location.

Still another object of my invention is to provide a remote drink dispenser which saves counter space.

A further object of my invention is to provide a remote drink dispenser which minimizes the possibility of drink contamination by unclean ice.

Other and further objects of my invention will appear in the following description:

In general my invention contemplates the provision of a remote drink dispenser for concomitantly delivering beverage components from a remote supply to a cup or the like while delivering a predetermined quantity of ice per unit time to the cup.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a partially schematic perspective view of my remote drink dispenser system.

FIG. **2** is a top plan view of the valve and delivery assembly of one form of my remote drink dispenser.

FIG. **3** is a front elevation of the form of valve assembly illustrated in FIG. **2.**

FIG. **4** is a sectional view of the form of my remote drink dispenser illustrated in FIG. **2** taken along the line **4—4** of FIG. **2.**

FIG. **5** is a top plan view of the valve and delivery assembly of an alternate embodiment of my remote drink dispenser.

FIG. **6** is a schematic view of one form of electrical circuit which may be used with the form of my remote drink dispenser illustrated in FIGS. **2** to **4.**

FIG. **7** is a schematic view of one form of electrical circuit which may be used to control the operation of the form of my remote drink dispenser illustrated in FIG. **5.**

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. **1** I have shown a remote drink dispensing system including my remote drink dispenser indicated generally by the reference character **10.** The unit **10** includes a cabinet **12** the front of which carries a delivery spout **14** through which beverage components and ice are delivered to a suitable receptacle such as a cup (not shown) positioned over a drain **16.** The unit **10** includes a plurality of handles **18, 20, 22** and **24** where the unit is to deliver, for example, four different beverages.

My unit **10** includes an ice maker indicated generally by the reference character **26** located within the cabinet **12** adjacent to the front thereof. The ice maker **26** preferably is of the type shown in Reynolds U.S. Pat. No. 3,196,628. As is more fully pointed out therein ice maker **26** includes a generally cylindrical freezing chamber **28** and auger and agitator drive shaft **30** driven by a motor and speed-reducing unit **32.** Ice made by the machine **26** is fed upwardly and is stored in a container **34.** As will more fully be pointed out hereinafter the ice maker continues to operate until a switch is actuated to indicate that the container **34** is filled. I provide the ice maker **26** with an ice delivery mechanism **36** of the type shown and described in the co-pending application of Robert M. Nitschneider and Charles G. Neumann for a Paddle Type Ice Dispenser, Ser. No. 180,016, filed Sept. 13, 1971, now U.S. Pat. No. 3,744,679. As is more fully explained in that co-pending application the delivery unit **36** includes a motor **38** adapted to be energized to deliver a predetermined amount of ice per unit time through a delivery tube **40** leading to the spout **14.**

One form of remote system indicated generally by the reference character **42** which may be employed with my drink dispenser **10** includes a water line **44** having a valve **46** therein adapted to be opened to supply fresh water to the system through a filter **48.** Line **44** has a first branch leading through an evaporator bath **50** of a suitable refrigeration system of any type known in the art. The other branch of the fresh water line **44** leads to a carbonator **52.** Carbonator **52** which is of any suitable type known to the art receives carbon dioxide from a storage tank **54** through respective regulating valves **56** and **58.** Carbonated water made by the carbonator **52** passes outwardly through a line **60** leading through the evaporator bath **50.**

Where the system is to dispense beverages of four different flavors I provide the remote system **42** with four syrup tanks **62, 64, 66** and **68,** each containing syrup of a different flavor. Carbon dioxide from the regulating valve **56** flows through a manifold **70** to the respective tanks **62, 64, 66** and **68** to cause syrup to flow outwardly on respective lines **72, 74, 76** and **78** which pass through the evaporator bath **50.**

For purposes of clarity in exposition I have indicated a fresh water line 44 by a solid line. The carbonated water line 60 by a dot-dash line, the carbon dioxide line by a dotted line and the syrup lines by broken lines. All of the lines emerging from the bath 50 are directed to the drink dispenser 10 by means of a trunk line 80.

Referring now to FIGS. 2 to 4, I have shown the valve and operating mechanism for a manual dispensing system indicated generally by the reference character 82. This system includes a sheet metal, welded frame having a base 84 extending from side to side in the machine and having a vertical flange 86. Reinforcing webs 88 are welded to the base and flange at spaced locations thereon. I provide the frame with a nozzle inlet support bracket 90. A nozzle 92 secured to the frame adjacent to the mid-point thereof directs the beverage components into the cup through the outlet spout 14. In the particular embodiment illustrated in the drawings I provide four respective dispensing units 94, 96, 98 and 100. Each of the dispensing units includes a pair of valves 102 and 104 of any suitable type known to the art. One type of valve suitable for use in my system is sold by McCann Engineering and Manufacturing Company of Glendale, California. Each valve, such as the valve 102, includes an actuator 106 adapted to be moved against the action of a return spring 108 to open the valve.

Each dispensing unit includes a lever 110 formed with a bifurcated hub 112, by means of which the lever is supported for pivotal movement on a pivot pin 114 carried by brackets 116 and 118 secured to the frame. As will be clear from the showing, I provide one pivot pin 114 for the two right-hand units and another pivot pin 114 for the two left-hand units. A spring 120 secured at one end to a spade bolt 172 located in a lever stop 174 and at the other end to a tab 176 on flange 86 normally biases the lever to a position at which lever stop 174 engages the underside of the base 84. A set screw 178 carried by the lever at a location to the left of the pivot pin 114 as shown in FIG. 4 is adapted to actuate a switch 180 normally to hold the switch open in the home position of the lever. Lugs 182 at the end of the lever remote from its handle carry set screws 184 adapted to engage the actuators 106 of the valves 102 and 104 when the lever is moved from its home position to its actuated position to open the two valves.

In the specific arrangement shown in the drawings I arrange the three right-hand units as viewed in FIG. 2 to dispense three carbonated beverages of different respective flavors. The left-hand unit is adapted to dispense an uncarbonated beverage of a fourth flavor. To achieve this result I connect the outlets of the valves 102 of each of the units 96, 98 and 100 to a common carbonated water outlet line 186 leading to the nozzle 92. The inlets to these valves are supplied from a manifold 187 the input of which is provided by line 60. Respective lines 192, 194 and 196 connect the outlets of the valves 104 of units 96, 98 and 100 to the nozzle 92. I connect the inlet to the valve 102 of the unit 94 to the fresh water line 44 and connect the outlet of this valve to the nozzle 92 by means of a line 188. A line 197 connects the outlet of the syrup valve 104 of unit 94 to the nozzle 92.

Referring to FIG. 6 one form of electrical circuit which may be used in connection with the manual dispensing unit 82 includes respective conductors 198 and 200 connected to a suitable source of electrical energy. As is pointed out more fully in the Reynolds patent referred to hereinabove the ice maker 26 includes a compressor motor 202 and a full switch 204. Normally closed relay contacts 1R1 associated with a relay winding 1R connect the agitator and auger motor 32 of the ice maker 26 in parallel with motor 202. Switch 204 connects the parallel-connected motors 202 and 32 between conductors 198 and 200. So long as contacts 1R1 and switch 204 are closed the ice maker continues to make ice. When the storage compartment 34 is full switch 204 opens and the ice maker stops operating.

In FIG. 6 I have designated the switches 180 associated with the respective units 94, 96, 98 and 100 as 180*a*, 180*b*, 180*c* and 180*d*. I connect these switches in parallel to each other and in series with winding 1R between conductors 198 and 200. When any one of the switches 180 is operated relay 1R is energized to open contacts 1R1 and to complete the circuit of agitator motor 32 by closing contacts 1R2. At the same time contacts 1R3 close to energize the ice delivery system motor 38. As is more fully pointed out in the Nitschneider et al. application this operation causes a predetermined amount of ice per unit time to be delivered through tube 40 and spout 14 to the cup.

Referring now to FIG. 5 in an alternate embodiment of my drink dispenser, the flow of beverage components from the remote supply to the dispensing spout 14 is under the control of solenoid operated valves. I employ the same frame as that shown in FIGS. 2 to 4 for supporting the switches, the operating levers and the outlet lines. Respective solenoid operated valves 206 and 208 control the flow of fresh water from line 44 to an outlet line 218 and control the flow of carbonated water from line 60 to an outlet line 220. Further respective solenoid operated valves 210, 212, 214 and 216 respectively control the flow from syrup inlet lines 72, 74, 76 and 78 to outlet lines 222, 224, 226 and 228. All of the solenoid operated valves in this form of my dispenser may be of any suitable type known to the art. They are positioned within the cabinet 12. As in the form of my invention illustrated in FIGS. 2 to 4 the levers 110 operate respective switches 180 though no valves are mechanically operated by the levers. It will be seen that in this form of my invention fewer valves are reuqired. However, as will be pointed out more fully hereinbelow the electrical system is relatively complicated as compared with that used in the manual dispensing unit.

Referring now to FIG. 7 the electrical circuit for controlling the operation of the form of my dispenser illustrated in FIG. 5 is similar to that of FIG. 7 insofar as the connections of motors 32, 38 and 202 are concerned. In this form of my dispenser, however, operation of the switches 180*a*, 180*b*, 180*c* and 180*d*, respectively energize relay windings 2R, 3R, 4R and 5R. Energization of any one of the windings 2R to 5R closes a corresponding set of contacts 2R1 to 5R1 to energize relay winding 1R to operate the ice delivery system in the manner described above in connection with the showing of FIG. 6. Similarly energization of any one of the windings 2R to 5R closes an associated pair of contacts 2R2 to 5R2 to energize a respective solenoid 234, 236, 238 or 240. These solenoids 234, 236, 238 and 240 operate the respective valves 210, 212, 214 and 216. Energization of winding 2R also closes contacts 2R3 to energize a solenoid 230 associated with the fresh water supply valve 206. Energization of the respective windings 3R,

4R and 5R closes the corresponding contacts 3R3, 4R3 or 5R3 to energize the solenoid 232 associated with the carbonated water valve 208. It will thus be seen that closing of any of the switches 180*a* to 180*d* operates the ice making system and also either the carbonated water valve or the fresh water valve together with one of the syrup supply valves.

In operation of the manual form of my drink dispenser actuation of one of the handles 18, 20, 22 or 24 rotates the corresponding lever 110 to open the two associated valves 102 and 104 to cause a syrup component and either frssh water or carbonated water to flow upwardly through the dispensing unit and through spout 14 to the cup. At the same time rotation of the lever causes the corresponding switch 180 to close to complete the circuit of the agitator motor 32 and of the ice delivery system motor 38 to cause a predetermined quantity of ice per unit time to flow through tube 40 and into the cup together with the beverage components.

The operation of the form of my dispenser illustrated in FIG. 5 is similar to the operation of the manual system. In the electrical system, however, actuation of one of the handles 18, 20, 22 and 24 completes the circuit of a syrup valve solenoid and the circuit of either the fresh water solenoid or the carbonated water solenoid. Thus, as in the case of the manual system a syrup component and either fresh water or carbonated water flow into the cup. At the same time a predetermined quantity of ice per unit time flows into the cup from the ice delivery mechanism 34.

It will be seen that I have accomplished the objects of my invention. I have provided a remote drink dispenser which automatically delivers ice to the cup together with the beverage components. It speeds customer service and makes more efficient use of the operator's time. It does away with the necessity for open ice trays. It saves counter space. it minimizes the possibility of contamination of the drink by unsanitary ice.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of my claims. It is further obvious that various changes may be made in details within the scope of my claims without departing from the spirit of my invention. It is, therefore, to be understood that my invention is not to be limited to the specific details shown and described.

Having thus described my invention, what I claim is:

1. A beverage dispenser for selectively delivering one of a plurality of drinks at a dispensing location including in combination, a plurality of beverage supply means, means including a plurality of respective normally closed valves adapted to be opened to connect said supply means to said delivery location, a container for holding a supply of ice, said container holding a supply of ice, said container having an exit opening, motor-driven means inside said container for moving ice through said exit opening, a delivery element mounted adjacent to said exit opening and adapted to be driven to deliver ice from said exit opening to said dispensing location at a predetermined rate, a motor adapted to be energized to drive said delivery element, a plurality of manually actuatable members, means mounting said members adjacent to said delivery location for movement between home positions and actuated positions, respective means responsive to the presence of said members in their actuated positions for selectively holding said valves open for the time during which a member is in its actuated position and respective means responsive to the presence of said members in their actuated positions for energizing said motor for the time during which any member is in its actuated position, the arrangement being such that the valve corresponding to an actuated member closes and said motor is deenergized upon the return of an actuated member to its home position.

2. A drink dispenser as in claim **1** wherein said motor driven means is an agitator in said container adapted to move ice through said exit opening, a second motor adapted to be energized to drive said agitator, and in which said motor energizing means concomitantly energizes said second motor.

3. A drink dispenser as in claim **1** in which each of said beverage supply means comprises a supply of flavoring syrup and a supply of mixer and in which said valve means comprise respective pairs of valves associated respectively with said syrup and mixer supplies.

4. A drink dispenser as in claim **3** in which said valves are manually operable valves mounted respectively adjacent to said members.

5. A drink dispenser as in claim **3** in which said valves are solenoid operated valves, said valve opening means comprising a source of electrical power, respective solenoids for operating said valves, respective normally open switches for connecting said solenoids to said source and means responsive to said members in said second position for closing said switches.

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