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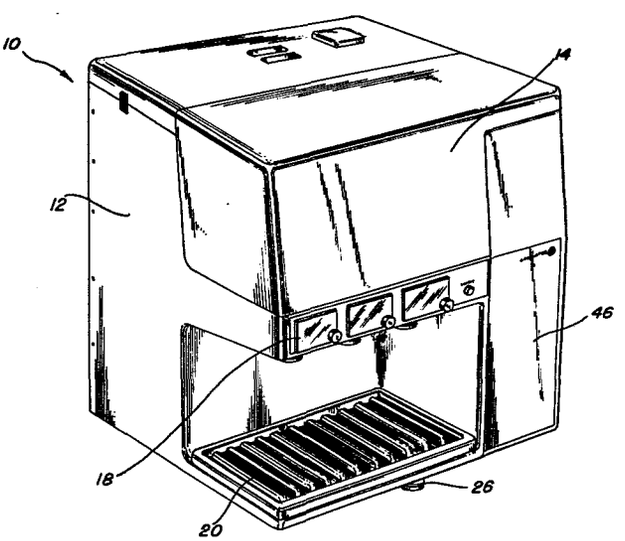
(71) Applicant: **THE COCA-COLA COMPANY, 310 North Avenue, Atlanta Georgia 30301 (US)**

(72) Inventor: **Sedam, Jason K., 1258 Mill Glen Drive, Dunwoody Georgia (US)**
Inventor: **Mueller, Richard J., 6155 Old Hickory Point, Atlanta Georgia (US)**
Inventor: **Holoubek, Andrew J., 1401 N. Hairston Road, Stone Mountain Georgia (US)**

(74) Representative: **Leale, Robin George et al, FRANK B. DEHN & CO. Imperial House 15-19 Kingsway, London WC2B 6UZ (GB)**

(54) Post-mix beverage dispenser.

(57) A lightweight, portable post-mix carbonated beverage dispenser unit for use in small offices or small-volume locations is described. Flavoured syrup is supplied to the unit from disposable sealed syrup packages SP which are plugged into a dispenser valving system. CO_2 is supplied to the unit carbonator system CT in returnable containers 42 which also may be quickly plugged into a CO_2 valving system 44. A thermoelectric refrigeration system 72 may be provided to decrease noise and the number of moving parts or a mechanical freon system may be used. The unit construction may be modular for ease of repair. The cabinet is injection-molded from plastic. Water is supplied to the unit for mixing with the CO_2 and syrup from a water reservoir WR which may be manually filled. The refrigeration system cools the water in the reservoir, as well as the syrup packages and carbonator tank.



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"Post-mix beverage dispenser"

This invention relates to post-mix beverage dispensers which are suitable for use in for example small offices or other small volume locations.

Heretofore, the majority of commercially-available post-mix beverage dispenser units have been designed for large volume commercial uses such as in fast food restaurants. Because of these large volume uses, design criteria have emphasized optimum cooling and dispenser speed rather than low unit cost, size and portability. Although some consideration has been given to cost, size and portability even in these large volume commercial units, the resulting unit designs are generally far too expensive, bulky and heavy for small volume use.

Some attempts have been made in the beverage dispenser industry to reduce the cost, size and weight of these units to make them available for use by the general public. However, the units designed heretofore have lacked sufficient cooling capacity, dispensing efficiency, beverage quality and reliability as a trade off to achieving the aforementioned low cost, size and portability needed for consumer acceptance.

In order to be accepted by the small volume consumer, post-mix dispenser units must be easy to set up for use, compact, lightweight, easily repaired, reliable and, most importantly, inexpensive. In addition, the syrup, water and CO_2 supplies must be quickly and easily replenished during use by an unskilled consumer.

Viewed from one aspect the present invention provides a cabinet for a post-mix beverage dispenser unit, comprising:

a main cabinet portion having front, back, side and top walls with open compartments formed therein for housing various components of the post-mix beverage dispenser, said compartments including:

a water reservoir compartment for housing a

water supply, and an entrance chute therefor adjacent said front wall,

a carbonator compartment for housing a carbonator tank,

a syrup supply compartment for housing at least one replaceable syrup container adjacent said front wall, and

a CO_2 supply compartment for housing a CO_2 cylinder adjacent said front wall;

said top wall of said main cabinet having openings therein providing access to said water reservoir compartment, said entrance chute, said carbonator compartment, and said syrup supply compartment;

said front wall also having openings therein providing access to said syrup supply compartment and said CO_2 supply compartment;

first access panel means normally covering at least the openings in said front and top walls providing access to said syrup supply compartment;

second access panel means normally covering said openings in said top wall providing access to said water reservoir compartment and said carbonator compartment; and

third access panel means normally covering at least the opening in said front wall providing access to said CO_2 supply compartment.

Viewed from another aspect the present invention provides a post-mix beverage dispenser unit comprising:

a refillable water reservoir;

a carbonator tank;

a CO_2 supply tank;

at least one syrup container;

water supply conduit means connecting said water reservoir to said carbonator tank;

pump means for pumping water from said water reservoir to said carbonator tank;

CO_2 supply conduit means connecting said CO_2 supply tank to said carbonator tank; and

a refrigeration system including heat extraction means having a main portion disposed in contact with said water reservoir for cooling the water therein, a second portion in heat transfer relationship with said carbonator tank, and a third portion in heat transfer relationship with said at least one syrup container.

Viewed from another aspect the present invention provides, in a post-mix beverage dispenser unit having a water supply, a carbonator tank, at least one syrup container, a CO_2 cylinder, a CO_2 pressure regulator valve assembly and a beverage dispenser valve assembly, the improvement comprising:

first socket means in said CO_2 pressure regulator valve assembly for receiving and supporting the discharge end of said CO_2 cylinder, said discharge end being at the bottom of said container when said container is disposed in said first socket means; and

second socket means in said beverage dispenser valve assembly for receiving and supporting a discharge end of said syrup container, said discharge end of said syrup container being at the bottom of said container when said container is disposed in said second socket means,

whereby said CO_2 cylinder and said syrup container can be rapidly plugged into said first and second socket means.

Viewed from another aspect the present invention provides a method of loading at least one syrup container and a CO_2 supply container into a post-mix beverage dispenser unit, comprising the steps of:

providing said syrup container with a discharge opening therein which is normally at the top of the container during storage and transportation;

providing said CO_2 container with a discharge opening that is normally at the top of the container during storage and transportation;

inverting said syrup container and plugging the discharge opening into a socket provided on the top surface of a beverage dispenser valve assembly; and

inverting said CO_2 container and plugging the discharge opening into a socket provided in the top surface of a CO_2 regulator valve assembly.

Two embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:-

Figure 1 is a front elevational view of a post-mix beverage dispenser unit of the present invention;

Figure 2 is a left-side elevational view of the post-mix beverage dispenser unit of Figure 1;

Figure 3 is a right-side elevational view of the post-mix beverage dispenser unit of Figure 1;

Figure 4 is a back elevational view of the post-mix beverage dispenser unit of Figure 1;

Figure 5 is a top plan view of the post-mix beverage dispenser unit of Figure 1 with the top access panels removed to illustrate the compartments for housing the respective component parts of the post-mix beverage dispenser system;

Figure 6 is a rear elevational view of the dispenser unit of Figure 1 with the rear panel removed;

Figure 7 is a front perspective view showing a front access panel of the cabinet of the dispenser unit of Figure 1

slid to an open position to expose the water entrance chute of the dispenser unit;

Figure 8 is a front perspective view with the front access panel completely removed to uncover both the water entrance chute and syrup supply compartment of the dispenser unit;

Figure 9 is a front perspective view illustrating the CO_2 supply compartment of the dispenser cabinet of Figure 1 in an open position;

Figure 10 is a bottom perspective view of a top access panel which covers the carbonator compartment and water reservoir section of the dispenser unit;

Figure 11 is a schematic diagram of the mechanical refrigeration system of the dispenser unit;

Figure 12A and 12B are cross-sectional views of a portion of an alternate embodiment of the refrigeration system dispenser unit wherein a thermoelectric cooling element may be used.

Cabinetry Construction and General Component Arrangement

The cabinetry construction and the general arrangement of the components of a post-mix beverage dispenser unit of the present invention are illustrated in Figures 1 to 9. Referring in detail to these Figures, the post-mix beverage dispenser unit is generally designated 10, and includes a main cabinet portion 12 having front, back, side, top and bottom walls disposed at right angles to each other to provide a generally cubicle shape. First access panel means in the form of a front access panel 14 is slidably mounted on the main cabinet portion 12 in suitable tracks to provide selective access to a water entrance chute EC and a syrup supply compartment 34. The front access panel 14 is so configured that it forms a flush corner of the final cabinet design in its closed position. That is, removable pane 14 has major surfaces parallel to the top, front and left side of the main cabinet portion 12 so that it wraps around and defines a corner of the overall cabinet surface of the unit in the closed position. As best illustrated in Figure 7 and Figure 10 in perspective, the front panel

14 is provided with an extension surface in the plane of the top wall of the main cabinet 12 which covers water entrance chute EC in the closed position and may be selectively removed to uncover the entrance chute EC in an open position. In this position illustrated in Figure 7, the water reservoir WR illustrated in Figure 5 can be manually filled with water from a pitcher by pouring water into entrance chute EC. However, it is advantageous to close off entrance chute EC from the atmosphere when water is not being introduced into the unit, for sanitary reasons.

Second access panel means in the form of a top access panel 16 is provided to cover both the water reservoir WR and carbonator compartment 38 juxtaposed near the back wall of the main cabinet portion 12. This access panel 16 is rectangular in shape and merely lifts off from the top of the unit by releasing latch members 16A when access to the water reservoir WR and carbonator compartment 38 is desired. As illustrated in Figure 10, the top access panel 16 has an agitator blade AG depending therefrom coupled to an agitator motor AM secured within access panel 16 and having a complimentary shape to the carbonator compartment 38 to thereby seal and insulate the carbonator compartment 38 when the rear access panel 16 is secured to the top of the cabinet 12.

The back of the main cabinet 12 is provided with fourth access panel means in the form of a removable access panel 30 which substantially covers the entire rear wall of the cabinet 12 and has attached thereto a conventional refrigeration condenser 32 for the mechanical refrigeration system of the dispenser unit. Removal of this rear access panel 30 and condenser 32 provides ready access to the water pump and refrigeration components of the dispenser unit which will be described in more detail hereinafter with reference to Figure 6.

Third access panel means in the form of an access panel 46 is provided in the lower right-hand corner of the dispenser unit, as viewed in Figures 1 and 9. In the closed position, panel 46 comprises the lower right-hand corner of the dispenser unit cabinet and is hinged at its

back edge to, in effect, form a door which provides access to a CO_2 compartment 40 for containing a CO_2 cylinder 42 and a CO_2 regulator valve assembly 44. That is, access panel 46 has a right angle configuration which conforms to the shape of the lower right-hand corner of the dispenser cabinet to close the CO_2 supply compartment which is a cut-out in one corner of cabinet 12.

The unique combination of the access panels 14, 16 and 46 facilitates rapid set-up of the post-mix beverage system of the present invention and easy access for repair. With respect to set-up of the system, this may be achieved in the following manner. Front access panel 14 may be slid to a fully opened position, as illustrated in Figure 8, and suitable syrup containers SP may be inverted, directing their discharge ends downwardly and plugged into sockets 36 (Figure 5). Water may then be manually poured from a pitcher into water entrance chute EC whereby it flows down the chute into water reservoir WR. Front access panel 14 may then be closed to the fully closed position illustrated in Figure 1. In the event that the dispenser unit had an adequate supply of syrup and only water need be added, the access panel 14 could be slid to the partially open position of Figure 7, whereby only water entrance chute EC were exposed and water added as described above. The CO_2 cylinder 42 illustrated in Figure 9 may then be added by inverting the CO_2 cylinder to direct the discharge opening downwardly and plugging the same into a socket provided on the top surface of CO_2 regulator valve assembly 44. Thus, it can be seen that the necessary ingredients to be supplied to the post-mix beverage dispenser can be supplied in a rapid and efficient manner without cumbersome connections by virtue of the unique cabinetry design of the dispenser unit and the plug-in nature of both the syrup packages SP and CO_2 cylinder 42 employed.

In further reference to the plug-in nature of the syrup packages SP and the CO_2 supply cylinder 42, the specific structure of the valve assemblies and associated

containers to be used with the illustrated dispenser unit are described in prior co-pending applications assigned to the same assignee as the present invention. For example, the specific dispensing valve assembly 18 and mixing nozzles 20 contemplated for use with the dispenser unit is described in British Patent Application Serial No. 8038593 filed 2nd December 1980. The specific socket for use in combination with the valve assembly 18 contemplated for use with the dispenser unit is described in United States Patent Application Serial No. 311,645 filed October 15, 1982 by Jason K. Sedam. The specific CO_2 cylinder construction to be used for cylinder 42 and the associated CO_2 regulator valve socket and assembly to be used with the dispenser unit is described in European Patent Application Serial No. 82303244.6 filed 22nd June 1982. The disclosures of each of these aforementioned co-pending applications are incorporated herein by reference.

The preferred embodiments of the syrup packages SP to be utilized with the disperser unit are described in U.S. Patent 4,216,885, and the particular shape of the package is disclosed in British Registered Design Serial No. 1006047. As disclosed in U.S. Patent 4,216,885, the syrup package SP is provided with a flow control tube therein which is vented to the atmosphere through the bottom of the container after the container is plugged into socket 36. Containers SP are also provided with frangible seals or membranes over the discharge openings thereof and are punctured by a knife or cutting means of the type described in the United States Patent Application Serial No. 311,645 mentioned above.

The CO_2 cylinder 42 to be used with the dispenser unit is of the type described in the aforementioned Sedam application Serial No. 277,806, which has a dip tube therein to facilitate the dispensing of CO_2 gas from the container in an inverted position such as that which occurs when the discharge end is plugged into a socket in the top of CO_2 regulator valve assembly 44.

Referring in further detail to Figures 5 and 9, it can

be seen that the cabinetry construction of the dispenser unit includes three component compartments accessible through the top wall of the cabinet, including the syrup compartment, water reservoir compartment and carbonator compartment and a CO_2 supply compartment 40 (Figure 9) formed as a cut-out in the lower right-hand front corner of the dispenser cabinet. An additional compartment is provided in the bottom rear of the cabinet, as illustrated in Figure 6, to house the components of the refrigeration system to be described hereinafter.

The main cabinet portion 12, as well as the various access panels in a preferred embodiment are made of injection molded plastic. Insulation may be provided within the unit and the access panels to increase the cooling efficiency. The injection molded plastic cabinet may be hot-stamped or otherwise decorated with suitable identifying logos, if desired.

The cabinet of the dispenser unit is also provided with a conventional form of drip tray 20 disposed in an open recess below the syrup compartment and mixing nozzles 22. The cabinet also is provided with a single vertically adjustable front foot 26 centrally disposed under the front edge of the cabinet and a rear support bracket or leg 28 which extends along the entire back edge of the cabinet. This support arrangement facilitates adjustability and stability of the cabinet of the dispenser unit.

As will be described in more detail hereinafter, a U-shaped cooling bracket 48 may be provided in the syrup supply compartment 34 as illustrated in Figure 8. This bracket may be formed of any good heat conductor, and it wraps around the three syrup packages SP. As will be illustrated in more detail with reference to Figure 11, a portion of the evaporator coil C disposed within the water reservoir WR may pass behind and in direct contact with cooling bracket 48 to assist in the cooling of the syrup within syrup packages SP.

The arrangement of the components of the mechanical refrigeration system of a preferred embodiment of the present invention and other mechanical components not described hereinabove is illustrated in Figure 6. The compressor of the refrigeration system is indicated as CP and is disposed directly below the carbonator compartment of the dispenser unit. A circulating fan F is also provided and disposed directly below the water reservoir WR for exhausting hot air from the dispenser cabinet. The evaporator of the refrigeration system is not illustrated in Figure 6, but can be viewed in the top plan view of Figure 5 as being in the bottom of the water reservoir WR. A water pump WP is disposed in the cabinet just below the fan F. The water pump, as will become more fully apparent hereinafter with respect to Figure 11, is provided to pump water from the water reservoir WR into the carbonator tank CT on demand. The electrical controls for operating the dispensing unit are housed in a box CB just above the fan F, as illustrated in Figure 6.

Water Supply, Carbonation and Refrigeration Systems

The water supply, carbonation and refrigeration systems of the dispenser unit are illustrated in the schematic diagram of Figure 11. The water reservoir WR is connected to the carbonator tank CT through the water pump WP to pump water on demand from the reservoir to the carbonator tank under the supervision of a plurality of probes, IP, MP and CO and suitable electrical controls within box CB. That is, when power is turned on, pump WP will normally pump water from reservoir WR into carbonator tank CT. However, if the water level falls below the minimum level of probe MP, the electrical circuitry provided within control box CB will turn pump WP off and indicator light 58 on, which signals the need to refill the water reservoir WR.

Probes IP in water reservoir tank WR and carbonator tank CT sense the build-up of ice on the walls thereof, and when it exceeds a predetermined thickness whereby it covers

probes IP, compressor CP is turned off via control box CB and control line 64. Probes CO in water reservoir tank WR and carbonator tank CT are merely the common or ground connections for the circuitry of both probes IP and MP.

Carbonator tank CT also has an additional pair of probes 66 and 68 to initiate or terminate the operation of water pump WP, depending on the level of water present in carbonator tank CT. That is, when the water level drops below probe 66, pump WP turns on to fill the carbonator tank, and when it reaches a maximum level at the position of probe 68, a signal is generated in the control circuitry within box CB via line 50 to turn the water pump WP off. Thus, the respective probes in the water reservoir WR and carbonator tank CT are all connected through the electrical control circuitry in control box CB to either turn the water pump WP on and off, or the refrigeration compressor CP via line 64.

With water present in carbonator tank CT, it operates in a conventional manner by mixing water from line 52 and CO_2 gas from line 56 within the tank CT and dispensing carbonated water through outlet line 54 to the dispenser valve assembly 18 wherein it is mixed with syrup from the syrup packages SP.

As further illustrated in Figure 11, the mechanical refrigeration system includes a compressor CP, an evaporator C, and a condenser 32 connected in a closed refrigeration loop. The evaporator C is disposed in contact with the water reservoir WR to directly chill the water to be pumped to the carbonator. As illustrated, a portion of the evaporator C, namely portion 60, wraps around the carbonator tank CT to cool the same. In addition, another portion 62 of evaporator C may pass directly behind and in direct contact with cooling bracket 48 which surrounds syrup packages SP on three sides to cool the contents of those packages. Thus, the mechanical refrigeration system of the dispenser unit may be in heat transfer relationship with all of the essential components of the

post-mix beverage to be dispensed prior to the mixing of those components within mixing nozzles 22. This assures that a post-mix beverage is dispensed at a controllable and suitable temperature into cups or containers resting on drip tray 20.

In an alternative embodiment, the heat transfer relationship achieved by the refrigeration system of Figure 11 and, more specifically, the portions 60 and 62 of the evaporator coil C in conjunction with the heat transfer bracket 48, may be accomplished by use of a thermoelectric cooling system in combination with a specially designed cold plate therefor which makes a similar type of contact with the carbonator tank and syrup packages. This embodiment of a thermoelectric refrigeration system is illustrated in Figures 12A and 12B.

Referring to Figure 12A, there is generally illustrated a thermoelectric module 72, having associated therewith a cold plate 76. Cold plate 76 is so configured that it wraps around water reservoir WR and the syrup supply compartment which houses syrup packages SP. Thus, both the water reservoir WR and the syrup packages SP are directly cooled by the cold plate 76. Also illustrated in Figure 12A is a heat sink 70 on the bottom of the thermoelectric module 72 and an associated fan 74 for removing heat from a dispenser cabinet.

Referring to Figure 12B, there is illustrated a carbonator tank CT, which is also juxtaposed to water reservoir WR and in direct contact with a portion of cold plate 76. Thus, carbonator tank CT is also in a heat transferring relationship with cold plate 76 and is directly cooled thereby. Accordingly, the dispenser unit has three juxtaposed compartments housing the water reservoir, syrup packages and carbonator tank, respectively, which are all in direct heat transfer relationship with cold plate 76. Thus, as in the mechanical refrigeration system of the dispenser unit, the water reservoir, carbonator tank and syrup packages are all

directly cooled by the refrigeration system to provide a suitably chilled post-mix beverage.

It should be understood that a preferred embodiment of the dispenser cabinetry and system components of the beverage dispenser of the present invention have been described herein, but that modifications may be made as would occur to one of ordinary skill in the art without department from the scope of the appended claims.

For example, the arrangement of the respective compartments of the cabinetry may be modified within the scope of the present invention. The terminology of front, back, side and bottom walls is used for descriptive purposes of the preferred embodiment only to define the relative locations of the component parts as illustrated in the drawings, it being recognized that the cabinet may be rotated making the cabinet front and back the sides and vice verse. In addition, the cabinet access panels may be modified within the scope of the present invention. For example, commone panels could be used to cover adjacent component compartments to reduce the number of panels. An accessory attachment may allow connection to a building water supply for automatic refill of the reservoir.

It will thus be seen that, at least in its preferred embodiments, the present invention provides a portable, low cost, miniature post-mix beverage dispenser unit suitable for use in small offices or low volume locations, with cabinetry features which facilitate rapid set-up, loading and replenishing of the syrup, water and CO_2 to be used in making the beverages, and with a heat transfer circuit operatively associated with a mechanical refrigeration system which directly contacts and cools the water, carbonator tank and syrup packages contained in the unit, or as an alternative a thermoelectric cooling system which is reliable, compact, adaptable to world electrical requirements, quiet and lightweight.

CLAIMS:

1. A cabinet for a post-mix beverage dispenser unit, comprising:

a main cabinet portion having front, back, side and top walls with open compartments formed therein for housing various components of the post-mix beverage dispenser, said compartments including:

a water reservoir compartment for housing a water supply, and an entrance chute therefor adjacent said front wall,

a carbonator compartment for housing a carbonator tank,

a syrup supply compartment for housing at least one replaceable syrup container adjacent said front wall, and

a CO_2 supply compartment for housing a CO_2 cylinder adjacent said front wall;

said top wall of said main cabinet having openings therein providing access to said water reservoir compartment, said entrance chute, said carbonator compartment, and said syrup supply compartment;

said front wall also having openings therein providing access to said syrup supply compartment and said CO_2 supply compartment;

first access panel means normally covering at least the openings in said front and top walls providing access to said syrup supply compartment;

second access panel means normally covering said openings in said top wall providing access to said water reservoir compartment and said carbonator compartment; and

third access panel means normally covering at least the opening in said front wall providing access to said CO_2 supply compartment.

2. A cabinet as claimed in claim 1, wherein said first access panel means also normally covers said entrance chute and is slidably mounted on said main cabinet portion, and when slid from said normal covering position first uncovers said entrance chute and then said syrup compartment.

3. A cabinet as claimed in claim 2, wherein said first access panel means has a wrap-around portion with surfaces parallel to the corner defined by said top and front walls and is slidable in tracks provided in said top and front walls.

4. A cabinet as claimed in claim 3, wherein said first access panel means has an extension from said wrap-around portion in the plane of said top wall which covers said entrance chute.

5. A cabinet as claimed in any of claims 1 to 4, wherein said second access panel means is flat, with major surfaces thereof parallel to said top wall, and including latch means for securing the same to said top wall.

6. A cabinet as claimed in any of claims 1 to 5, wherein said CO_2 supply compartment is a cut-out of a vertical corner of said main cabinet portion between said front wall and one of said side walls and said third access panel means comprises a hinged door having major planar surfaces at right angles to each other, filling the cut-out of said vertical corner in a closed position.

7. A cabinet as claimed in any of claims 1 to 6, further comprising a fourth removable access panel normally covering the entire back wall of said main

cabinet portion.

8. A post-mix beverage dispenser unit comprising a cabinet as claimed in any of claims 1 to 7, and further comprising:

water supply conduit means for connecting said water supply to said carbonator tank;

pump means for pumping water from said water supply to said carbonator tank;

CO_2 supply conduit means for connecting said CO_2 cylinder to said carbonator tank; and

a refrigeration system including heat extraction means having a main portion disposed in contact with said water reservoir compartment for cooling said water supply, a second portion arranged to be in heat transfer relationship with said carbonator tank, and a third portion arranged to be in heat transfer relationship with said at least one replaceable syrup container.

9. Apparatus as claimed in claim 8, wherein said refrigeration system comprises a compressor, a condensor, and an evaporator constituting said heat extraction means.

10. Apparatus as claimed in claim 9, further including heat transfer bracket means in heat transfer relationship with said evaporator and arranged to be in heat transfer relationship with said at least one syrup container.

11. Apparatus as claimed in claim 9 or 10, further including agitator means within said water reservoir for circulating water relative to said evaporator.

12. A post-mix beverage dispenser unit comprising:

a refillable water reservoir;

a carbonator tank;

a CO_2 supply tank;

at least one syrup container;

water supply conduit means connecting said water reservoir to said carbonator tank;

pump means for pumping water from said water reservoir to said carbonator tank;

CO_2 supply conduit means connecting said CO_2 supply tank to said carbonator tank; and

a refrigeration system including heat extraction means having a main portion disposed in contact with said water reservoir for cooling the water therein, a second portion in heat transfer relationship with said carbonator tank, and a third portion in heat transfer relationship with said at least one syrup container.

13. Apparatus as claimed in claim 12, wherein said refrigeration system comprises a compressor, a condensor, and an evaporator constituting said heat extraction means.

14. Apparatus as claimed in claim 8 or 12, wherein said refrigeration system comprises

a thermoelectric element, and

a cold plate therefor constituting said heat extraction means.

15. In a post-mix beverage dispenser unit having a water supply, a carbonator tank, at least one syrup container, a CO_2 cylinder, a CO_2 pressure regulator valve assembly and a beverage dispenser valve assembly, the improvement comprising:

first socket means in said CO_2 pressure regulator valve assembly for receiving and supporting the discharge end of said CO_2 cylinder, said discharge end being at the bottom of said container when said container is disposed in said first socket means; and

second socket means in said beverage dispenser

valve assembly for receiving and supporting a discharge end of said syrup container, said discharge end of said syrup container being at the bottom of said container when said container is disposed in said second socket means,

whereby said CO_2 cylinder and said syrup container can be rapidly plugged into said first and second socket means.

16. A method of loading at least one syrup container and a CO_2 supply container into a post-mix beverage dispenser unit, comprising the steps of:

providing said syrup container with a discharge opening therein which is normally at the top of the container during storage and transportation;

providing said CO_2 container with a discharge opening that is normally at the top of the container during storage and transportation;

inverting said syrup container and plugging the discharge opening into a socket provided on the top surface of a beverage dispenser valve assembly; and

inverting said CO_2 container and plugging the discharge opening into a socket provided in the top surface of a CO_2 regulator valve assembly.

17. A method as claimed in claim 16, further including the step of manually pouring water for the post-mix beverage into a water reservoir in said dispenser unit.

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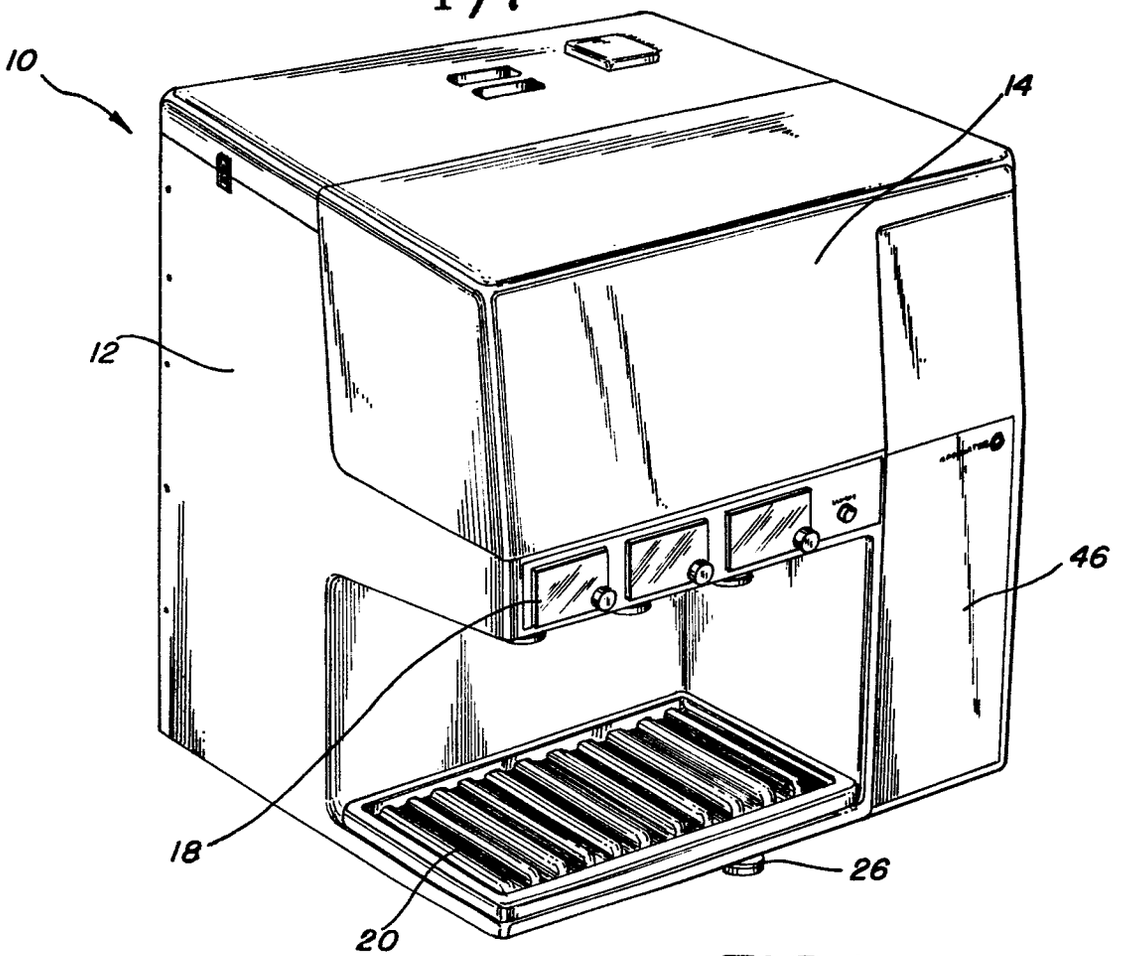

FIG. 1

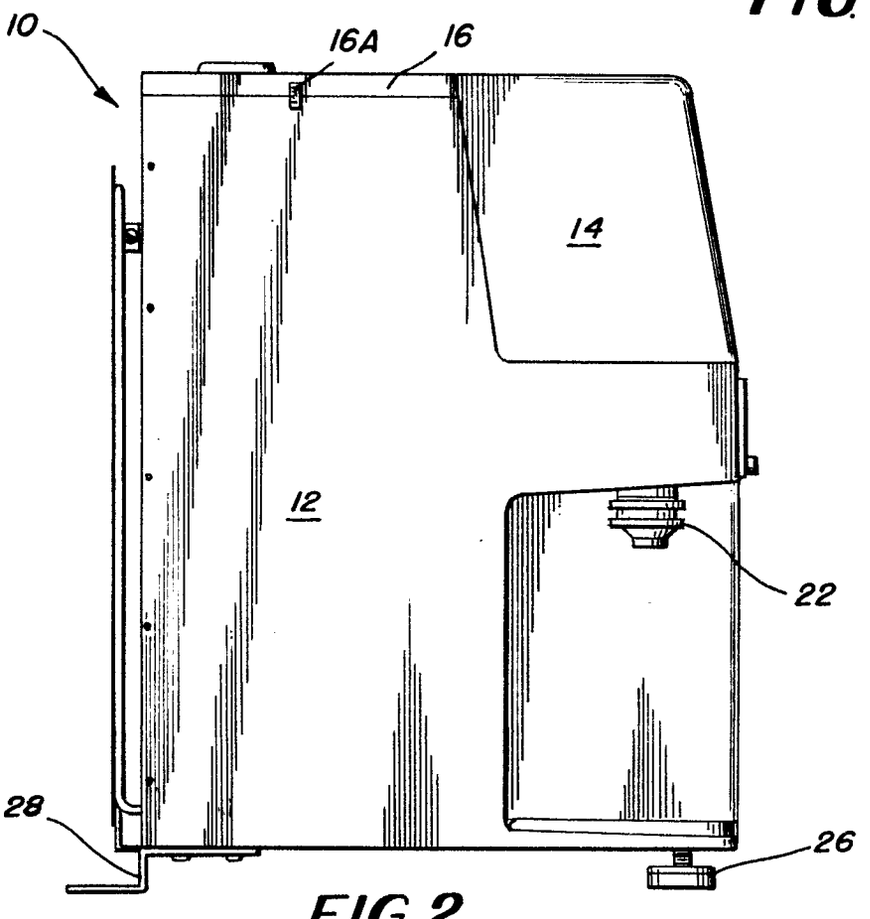

FIG. 2

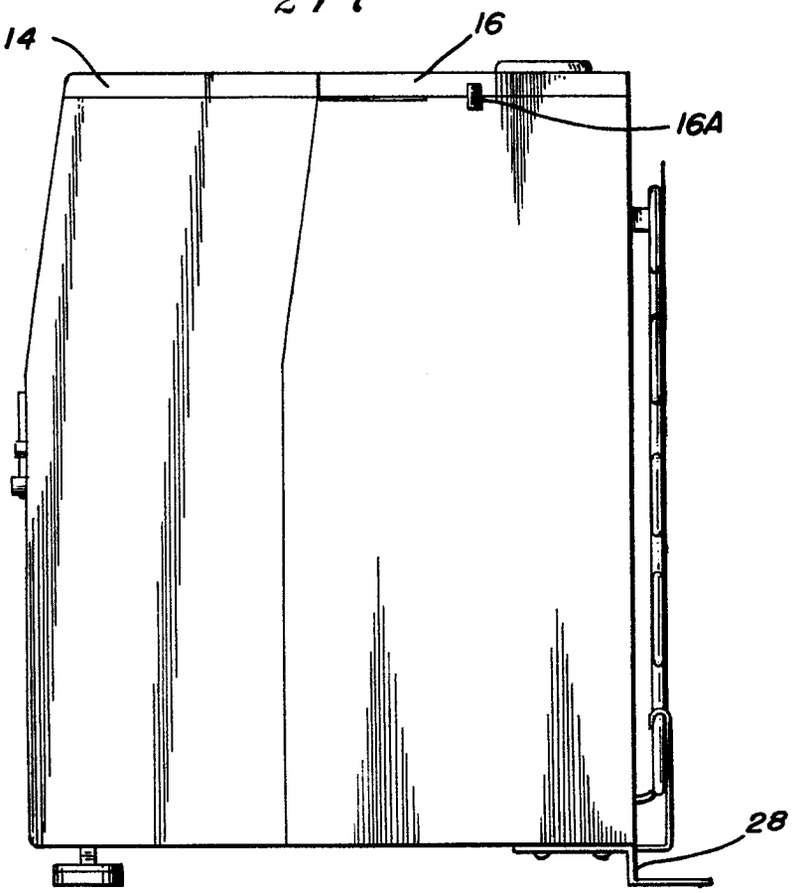

FIG. 3

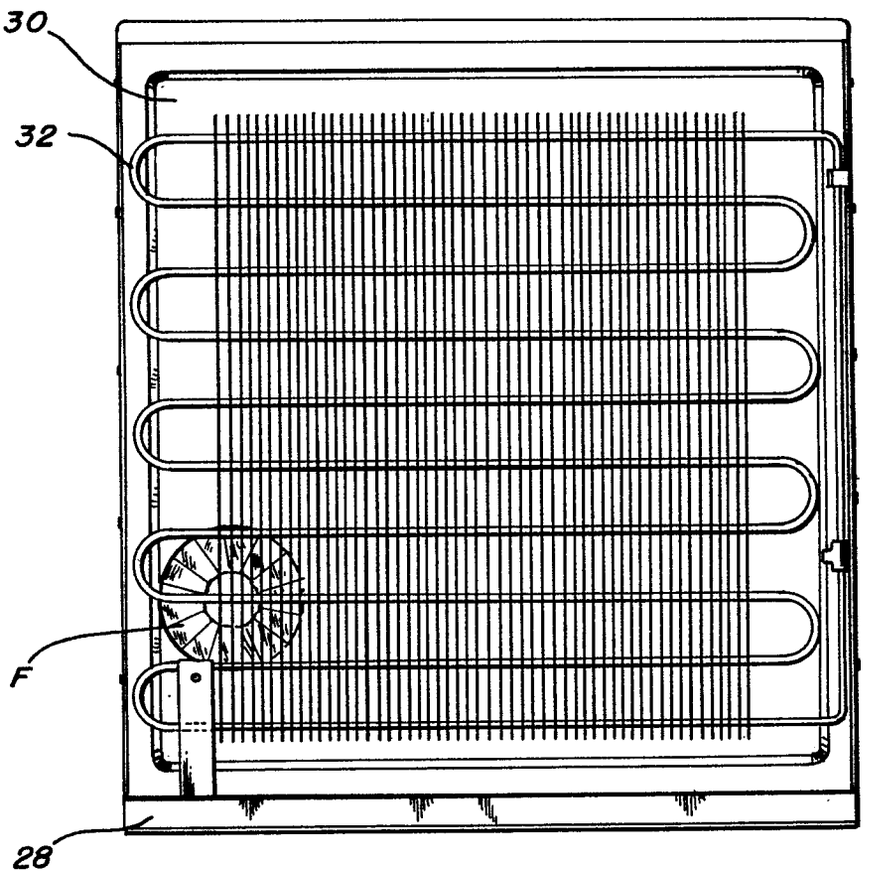

FIG. 4

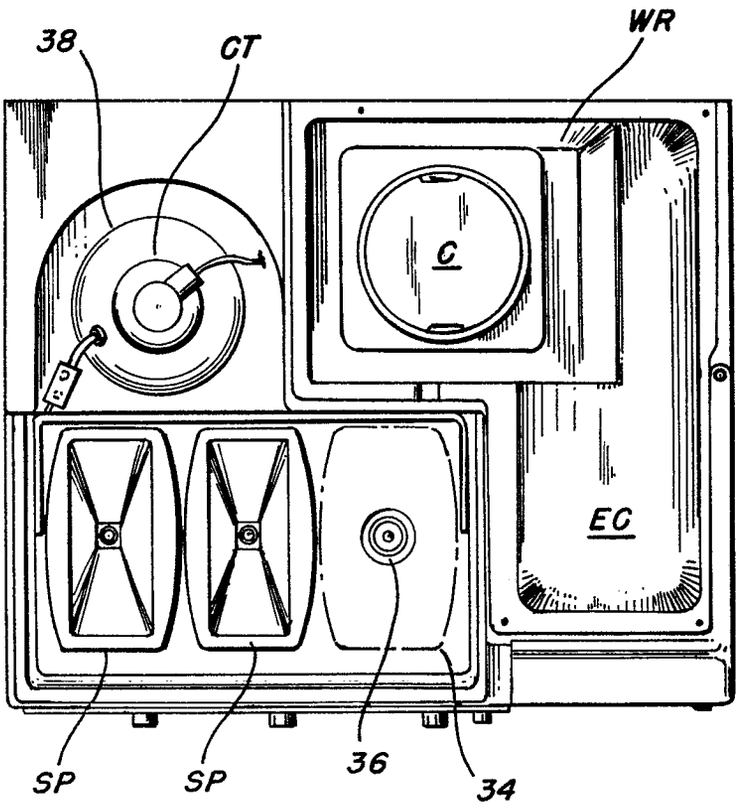

FIG. 5

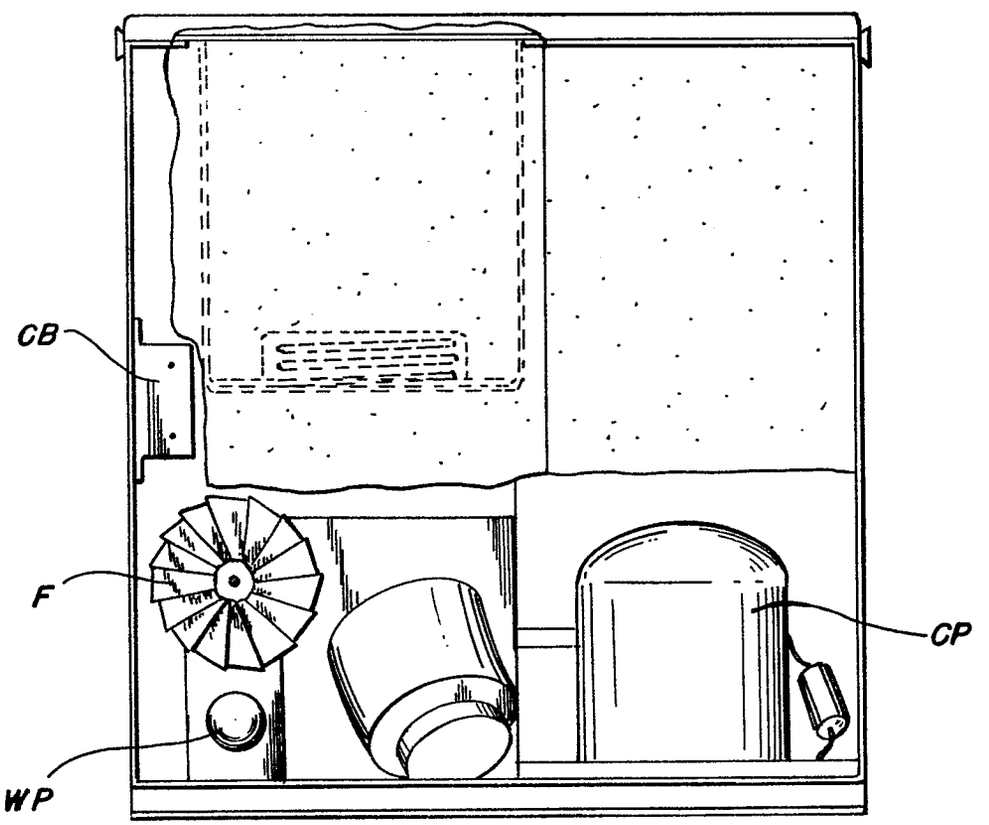

FIG. 6

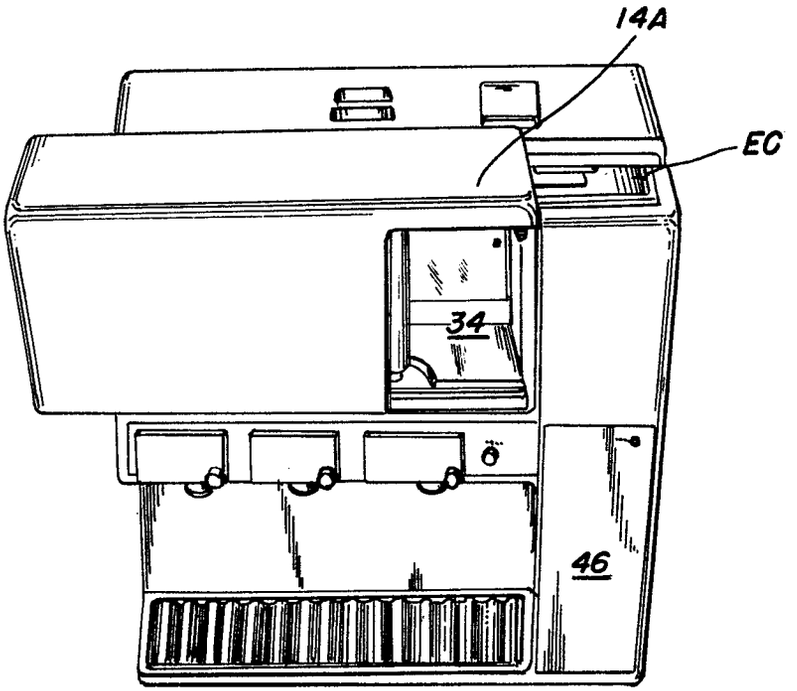

FIG. 7

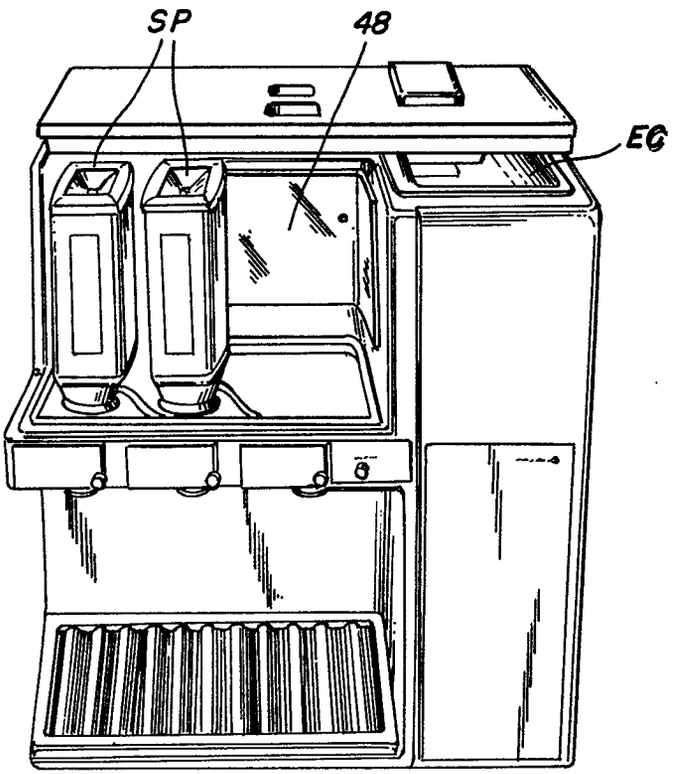

FIG. 8

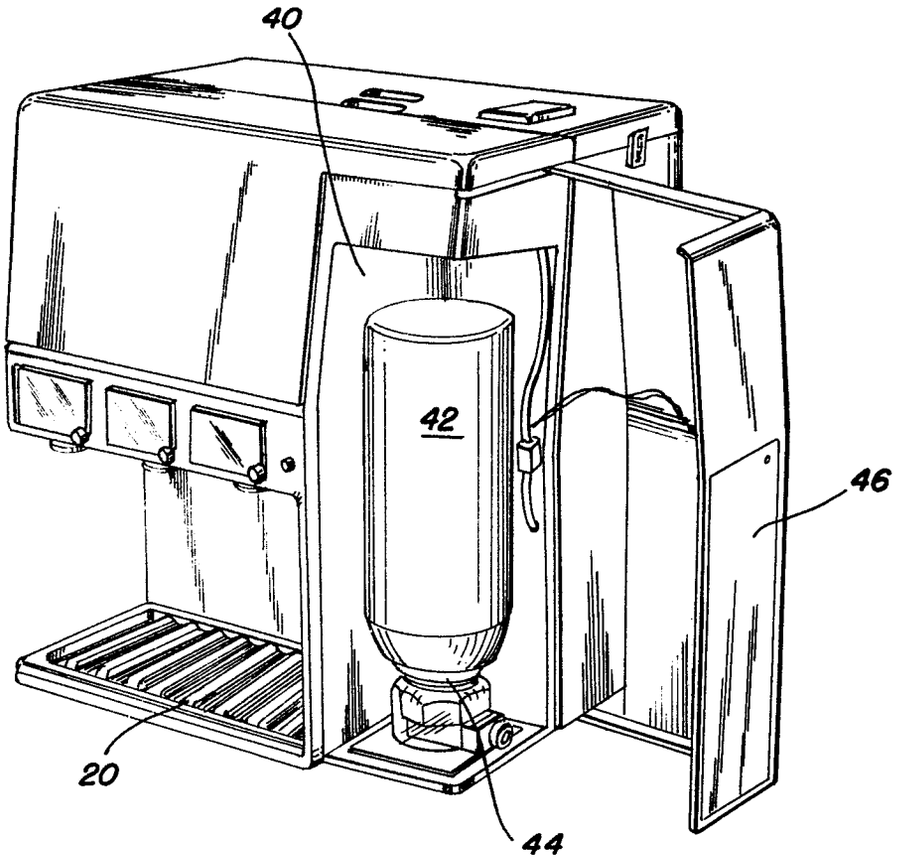

FIG. 9

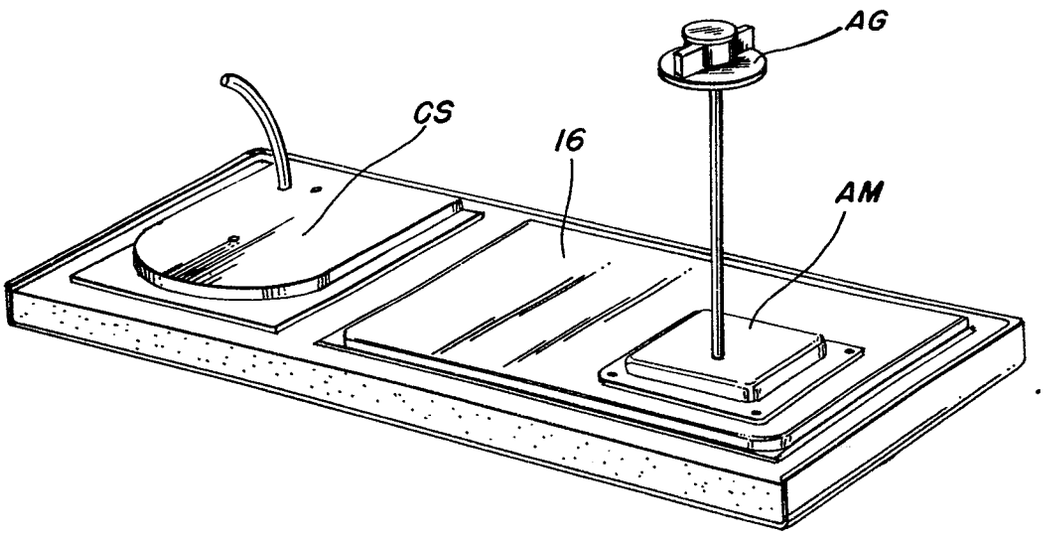

FIG. 10

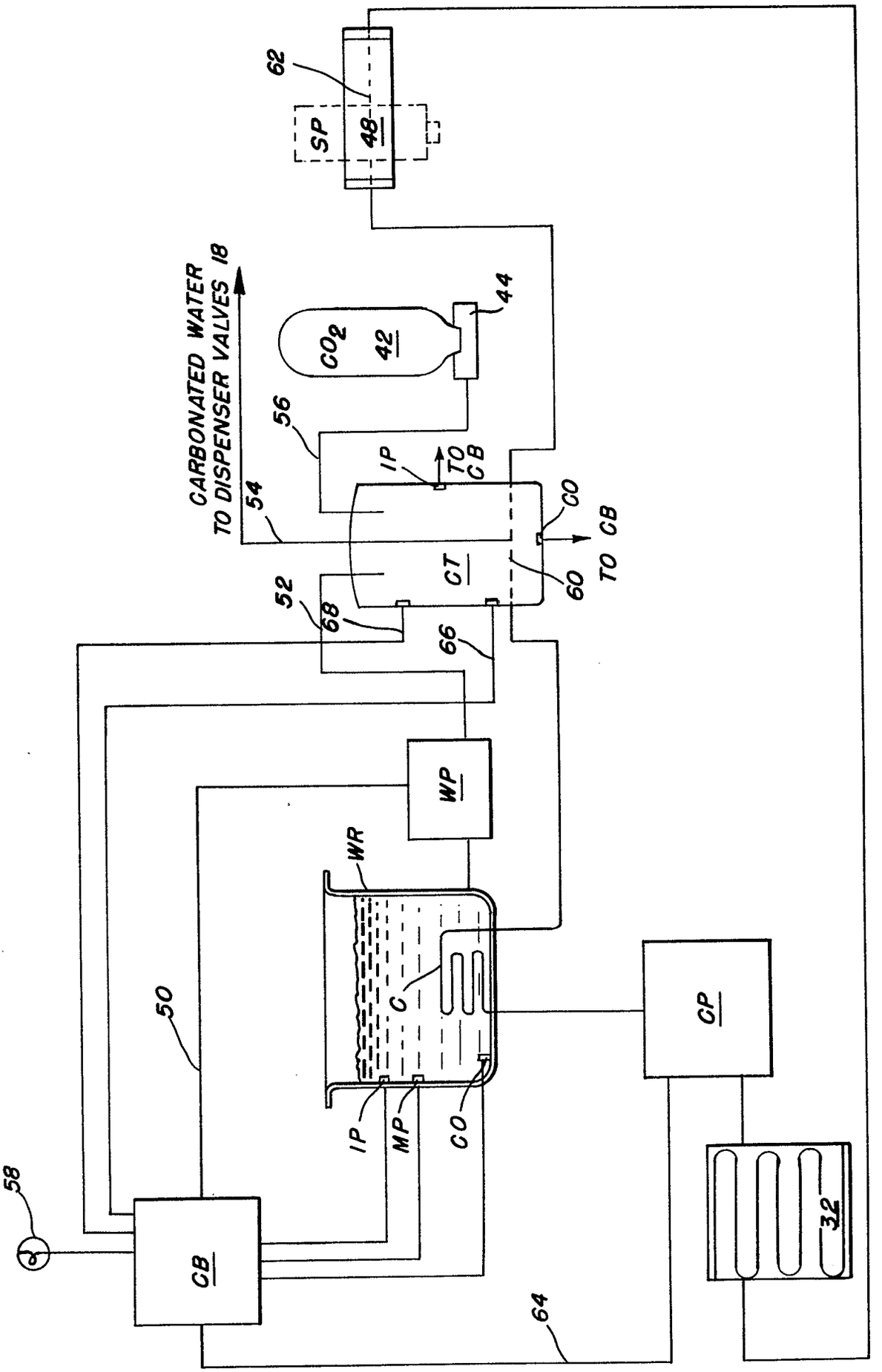
62
SP
48
CARBONATED WATER
TO DISPENSER VALVES 18
44
CO_2
42
56
IP
TO CB
54
CO
TO CB
CT
60
52
68
66
WP
WR
50
C
CP
IP
MP
CO
58
CB
32
64

FIG. 11

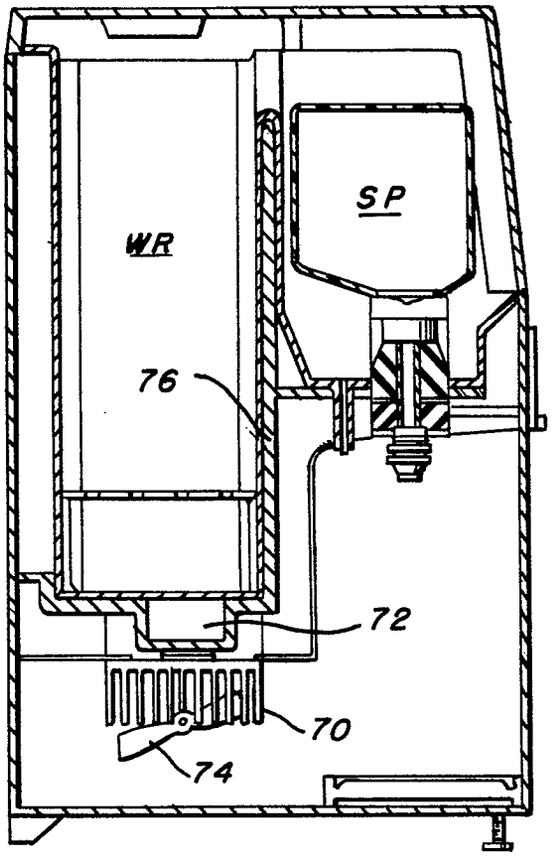

FIG. 12A

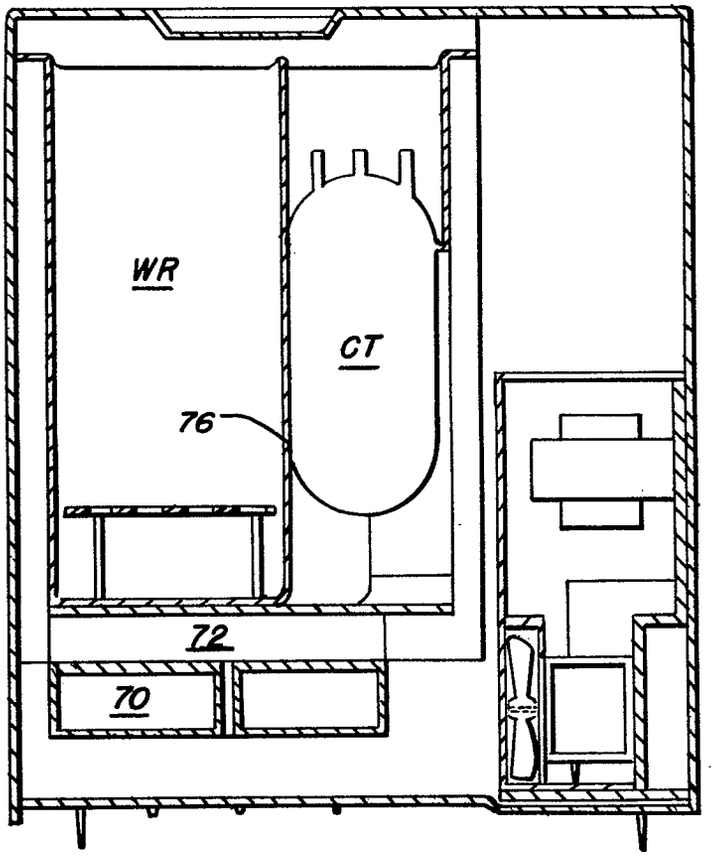

FIG. 12B