

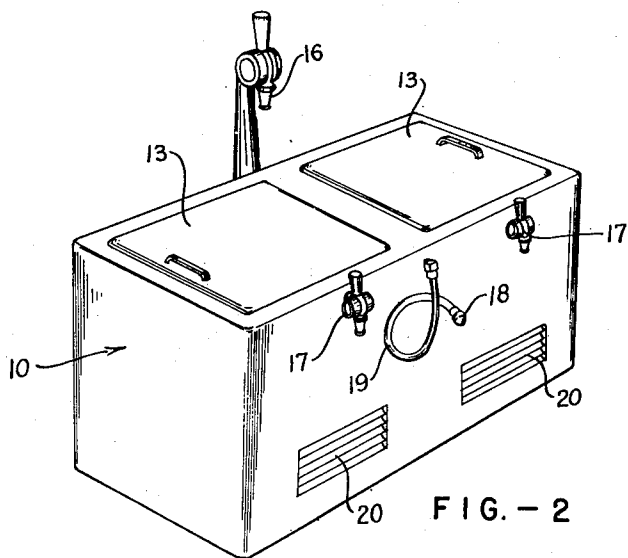
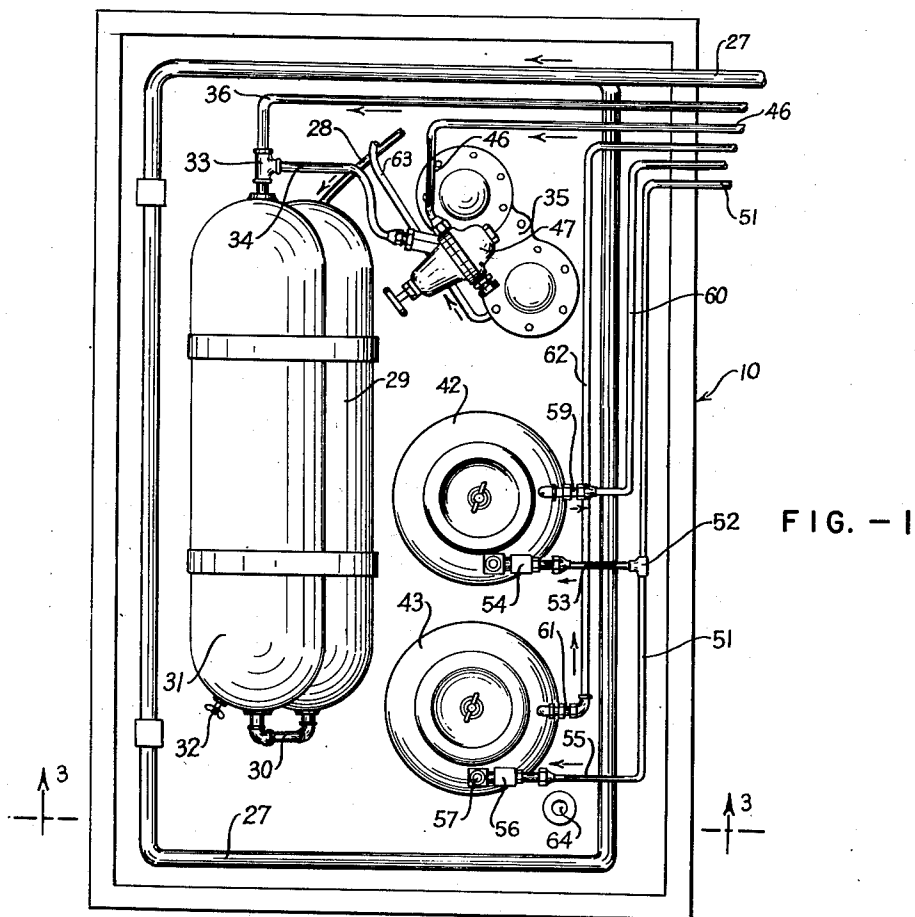
May 10, 1955

E. B. CHARPIAT
MEANS FOR PRODUCING, CHILLING AND DISCHARGING
CARBONATED BEVERAGES IN VOLUME

2,707,911

Filed Jan. 19, 1950

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

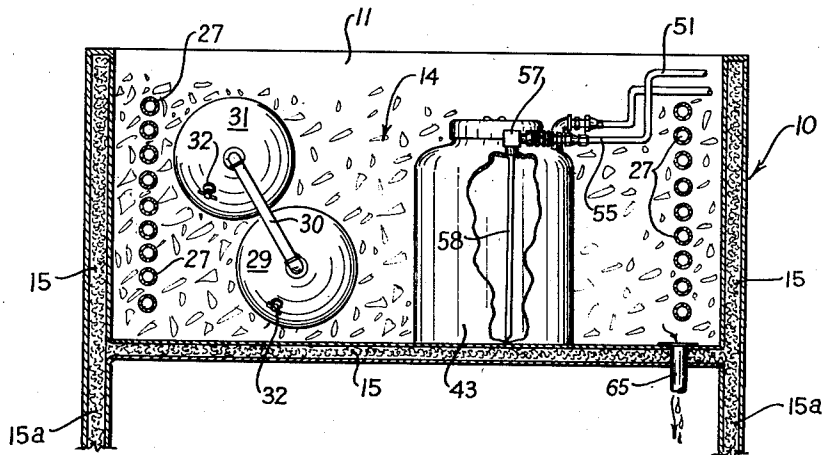


FIG. - 3

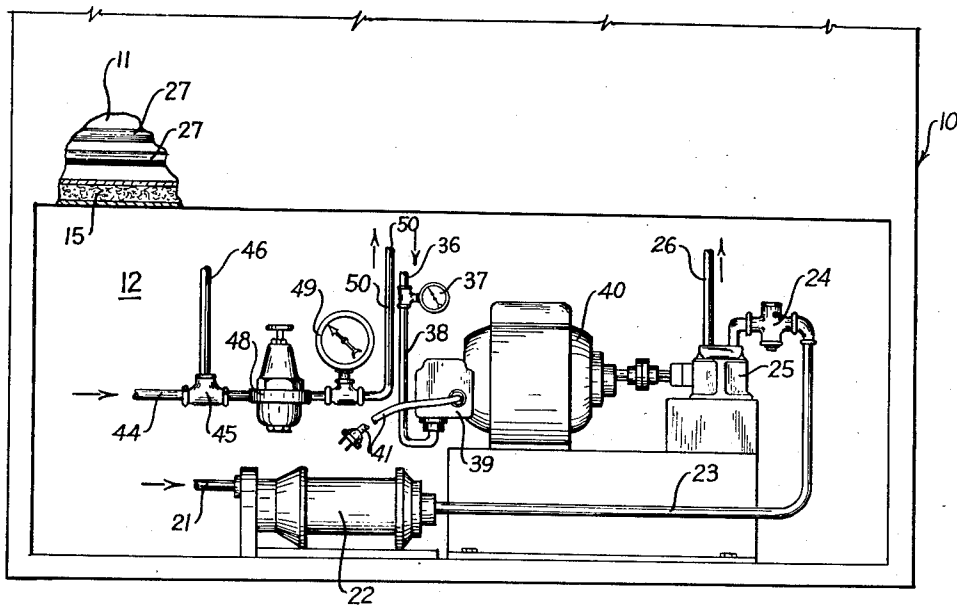


FIG. - 4

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2,707,911

MEANS FOR PRODUCING, CHILLING AND DISCHARGING CARBONATED BEVERAGES IN VOLUME

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2 Claims. (Cl. 99—275)

The present invention relates to means for rapidly producing, chilling and discharging carbonated beverages in large volume for filling, charging, or replenishing the beverage supply of portable and transportable carbonated beverage dispensing containers. It has to do particularly, although not exclusively, with means, or a system, or apparatus whereby a carbonated beverage, such as Pepsi-Cola may be produced from stock, chilled, and dispensed or discharged in relatively large volume to fill or replenish the supply of transportable carbonated beverage dispensing containers. One of the particular uses and advantages of the present invention is in connection with the filling or replenishing of the contents of transportable dispensing containers similar to those disclosed in my copending application Serial No. 139,411 filed January 19, 1950, now Patent No. 2,684,787, which are transported by venders to dispense fountain-like or bottle-like carbonated beverages from a discharge faucet. The apparatus or system of the present invention may, however, be used in various other ways.

One of the important features of the present invention has to do with beverage producing, chilling, and discharging or dispensing means which is capable of rapidly cooling or chilling the beverage as it is produced in large quantities, this chilling occurring as the liquid ingredients flow to the dispensing taps or faucets so that a succession of relatively large, though transportable dispensing containers or tanks can be filled or charged with the beverage in condition to be dispensed from the latter containers. It is, of course, desirable that adequate means be provided at a predetermined location in a stadium or other sports arena, or the like, which is capable of handling a large volume of a desired carbonated beverage so as to fill and/or replenish the supply of the beverage in a number of transportable beverage dispensing containers which are transported about the stadium, or the like, by numerous venders, thus eliminating the necessity of filling the transportable dispensing containers at the beverage-producing or bottling plant. In other words, the means or system embodying the present invention makes it possible for the first time to produce directly at the stadium or other public gathering place, or the like, a carbonated beverage in fountain-like form and in sufficient quantity to supply the needs or demands of the crowds of individuals present. Prior to the development of the present invention, carbonated beverages were necessarily dispensed in bottled form at such places.

One of the objects of the present invention is, therefore, to provide new and improved means for rapidly producing, chilling and discharging carbonated beverages in volume to fill or replenish the supply of a number of transportable dispensing containers or tanks, with the beverage being in the proper chilled condition for sale.

Another object of the present invention is to provide improved means or a system as aforesaid which is of compact nature, which may be located in a relatively limited space, and which needs only to be tapped into,

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or connected with a source of water supply and a source of gas supply, such as CO₂, or air under pressure.

A further object of the present invention is to provide a cabinet-like structure having all of the necessary units of the apparatus located within compartments of the cabinet and with one or more preferably exteriorly disposed dispensing or discharging outlets or faucets; another object of the invention being to provide the cabinet-like structure with an exteriorly disposed, preferably flexible gas tap for CO₂, or with a similar compressed air tap or discharge outlet.

Another object of the present invention is to provide such means or system with a filter for filtering the incoming water and with suitable control means and a preferably motor-operated pump for controlling and/or regulating the quantity of syrup, water and gas and the pressure thereof at the dispensing or discharging outlets or faucets; it being another and important object to provide an abundance of coiled water conduit whereby entering water from the filtering device will be rapidly chilled as it is drawn to the discharge outlet or outlets.

A further object of the present invention is to provide a cabinet-like structure in which adjacent compartments are included, the upper or chilling compartment being preferably insulated and also being provided with movable cover means permitting ready access to the interior of the compartment.

Another object of the present invention is to provide an improved means, system, or apparatus as aforesaid which is not only of compact nature but which is of sturdy construction and of relative simplicity, permitting its production at relatively low cost; a further object being to construct at least a part of the equipment from standard or conventional parts or units capable of being purchased in the open market, thus permitting renewal and replacement of parts if and when desirable.

A further object of the invention is to provide new and improved means whereby large quantities of a carbonated beverage can be rapidly produced, cooled, and discharged to supply and/or replenish a large number of portable and transportable dispensing containers which are carried about a stadium or other public gathering place by venders.

The foregoing and other objects and advantages of the present invention will be apparent from the following description and appended claims when considered in connection with the accompanying drawing forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In said drawings:

Fig. 1 is a top plan view of one form or embodiment of the present invention, showing the cover removed from the upper compartment of the cabinet-like structure.

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

Fig. 3 is a fragmentary vertical transverse sectional view taken substantially along the line 3—3 of Fig. 1, looking in the direction of the arrows; and

Fig. 4 is a fragmentary rear elevational view partly broken away and partly in section, of the cabinet-like structure of the preceding views, showing certain of the apparatus system as being located in a lower compartment thereof.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. It is to be understood also that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the inven-

tion claimed herein beyond the requirements of the prior art.

In accordance with one form of the present invention, the means, apparatus, or mechanism constituting the new system of producing, chilling, and discharging a carbonated beverage, is disposed within a cabinet-like structure, shown as a whole at 10. This structure preferably has an upper compartment 11 and a lower compartment 12. As seen in Fig. 2, the upper compartment 11 may be closed by a pair of movable lids 13. The lids may also be removable. It will be understood, however, that this compartment 11 may likewise be covered by a single lid which could be removable as well as movable, to permit access to the interior thereof. The upper compartment 11 is preferably the chilling or beverage-making and cooling compartment, or chamber and contains preferably a large water coil, one or more water storage tanks and several syrup tanks which are all interconnected by suitable fittings and conduits or pipes as will be fully explained hereinafter. The upper compartment 11 is normally filled with crushed ice, as indicated at 14 in Fig. 3, the level of the ice being usually high enough to cover the equipment or units disposed within compartment 11, and particularly the water coil unit.

As seen in Fig. 4, the lower and adjacent compartment 12 is preferably provided with a front wall, end walls and a bottom wall but has no rear or back wall, thus permitting easy access to said compartment from the rear of the structure. Suitable apparatus constituting a part of the entire means or system embodying the present invention, is disposed within compartment 12, certain units thereof being mounted upon the bottom wall or floor of said compartment.

The upper or chilling compartment 11 has its upright side and end walls and its floor or bottom wall in the form of a double-wall construction, there being suitable insulating material, indicated generally at 15, located between the spaced dual walls throughout. This insulation may be extended downwardly and into the preferably double upright walls of the lower compartment, as indicated at 15a in Fig. 3. Thus, by insulating the cooling compartment or chamber 11 from the lower compartment 12, there is no transference of heat which might be created by the operation of the apparatus in compartment 12, to the chilling compartment 11. Moreover, the insulating material in the walls of the lower compartment helps to deaden or muffle the sound of the operation of the apparatus therein.

With particular reference to Fig. 2, it is to be noted that the cabinet-like housing or casing 10 carries on its exterior rear wall a valve-controlled manually actuated tap or discharging faucet 16 and on its front wall, a pair of generally similar manually actuated valve controlled taps or faucets 17. The front wall of cabinet 11 is also preferably provided with a gas tap, such as CO₂, or compressed air tap 18, carried by a flexible hose or connection 19. The lower outer or front wall of the cabinet may be louvered at 20 for ventilation and air circulation purposes.

With particular reference to Figs. 1 and 3, there is shown in these figures substantially the complete circuit embodying the present invention and employed for the purpose of producing, chilling and supplying a carbonated beverage to the outlets or taps 16 and 17, whereas in the compartment 12 there is located the necessary mechanism for effecting the operation of the apparatus or equipment in compartment 11 and for supplying the necessary water and gas, or air thereto.

As seen in Fig. 4 a water inlet pipe 21 leads from a source of water supply to a water filter unit 22 which filters the water before it enters the system. Filtered water passes from filter 22 through pipe line or conduit 23 past check valve 24 to a suitable water pump 25. Water pump 25 discharges into pipe line 26 which leads into upper compartment 11 and connects with water coil or

pipe 27. This water coil or pipe 27 is extended around and around in coiled fashion adjacent the upright walls of chamber or compartment 11, as clearly seen in Figs. 1, 3 and 4. Thus, water entering the coil 27 follows a circuitous path before reaching the water storage tanks through the water intake pipe 28 from water coil 27. The water preferably enters the lower water tank 29 which is connected with the upper water tank 31 by means of a connecting pipe assembly 30, see Figs. 1 and 3. Each of the water storage tanks is provided with a manually controlled outlet valve 32 which may be useful for the purpose of permitting the escape of air from the tanks. Water from the upper water tank 31 passes through a T-connection 33 and a relatively short pipe line or conduit 34 to a carbonator unit 35 which, as shown, is of the dual type. A portion of the water passing through T-connection 33 continues on through pipe line 36 past pressure gage 37 and through pipe lines 38 to a motor pressure switch 39, see Fig. 4.

The water pump 25 is coupled to and operated by an electric motor 40 which may be plugged into a source of electrical energy by means of a plug and cable connection 41. The motor pressure switch controls the operation of the electric motor and through it the water pump to maintain the pressure at a given degree.

The syrup which is employed in the mixture for producing the carbonated beverage is preferably contained in syrup tanks or containers 42 and 43, these tanks being mounted upon the floor or bottom wall of compartment 11.

A source of gas, preferably CO₂, supplies gas under approximately 120 pounds pressure to intake pipe 44 on which, as shown, a T-connection 45 is mounted. Connected to the T-connection 45 is a gas line 46 which leads to the carbonator unit 35, which unit it enters after having passed through a pressure control valve 47, see Fig. 1. Some of the gas entering intake pipe 44 passes through T-connection 45 and into a pressure regulator 48 which reduces the pressure of the gas from approximately 120 pounds to preferably a pressure of approximately 25 pounds. This reduced pressure gas then passes low pressure gage 49 and continues through a pipe line 50 to a similar pipe line 51, from whence it enters the syrup tanks 42 and 43. The gas at approximately 25 pounds pressure enters syrup tank 42 through a T-connection 52 and branch pipe 53 and a snap-on or quick-change connection 54. Pipe line 51 continues on beyond the T-connection 52 and, by means of a branch 55 and similar snap-on or quick-change connection 56, the gas flows into syrup tank 43. It is to be noted, see particularly Fig. 3, that a fitting 57 in the top of tank 43 carries a depending pipe or tube 58 having a tapered lower end which terminates adjacent the bottom of the tank. Thus, gas at approximately 25 pounds pressure enters the syrup in the tank adjacent the bottom thereof. In the illustration of Fig. 3, the wall of tank 43 is broken away to reveal the presence and location of said gas tube 58.

The syrup under pressure is discharged from tanks 42 and 43 and then conducted to the taps or faucets 16 and 17. As seen in Fig. 1, the syrup passes from tank 42 through a quick-change connection 59 and pipe line 60 to the taps or faucets, whereas pressurized syrup from syrup tank 43 passes through a quick-change connection 61 and pipe line or conduit 62 also to the faucets 16 and 17. It is to be understood, of course, that the inlet of gas under pressure through connection 54 and into syrup tank 42 is provided with a depending tube (not shown) having a tapered lower end which is similar to tube 58 shown in connection with tank 43, so that this gas will be discharged into tank 42 in the same manner and at substantially the same low level as in the corresponding syrup tank 43.

Whereas pressurized syrup is supplied to the faucets 16 and 17 by means of pipe lines or conduits 60 and 62, gas and water from carbonator unit 35 is also supplied

to these faucets by means of a connecting pipe line or conduit 63, see Fig. 1. Moreover, a supply of gas, such as CO₂ under approximately 120 pounds pressure, is supplied or delivered by a suitable pipe or conduit (not shown) to the gas chuck or tap 18 mounted on the end of the flexible tube or hose 19 seen in Fig. 2. Thus, tap or chuck 18 provides a source of gas or compressed air, as the case may be. This may be used to pressurize or repressurize portable dispensing containers.

It is to be understood that once the electric plug 41 is connected with a source of electric current, the several valves and regulators adjusted, and the syrup tanks 42 and 43 supplied with a supply of suitable syrup, the action of operation of the system of apparatus of the present invention is automatic immediately any one or all of the beverage discharge outlets or faucets 16 and 17 are opened. A vender with a portable beverage dispensing container such as referred to above, needs only to remove the cover of the dispensing tank of said container and allow the carbonated beverage to flow from any of the outlets 16 or 17 into the tank. By virtue of the present system, the gas pressure of the beverage may be controlled to the proper and desirable amount so that the beverage which issues from the outlets 16 and 17 is free from foaming and of the same character and consistency as that beverage is when dispensed directly from a soda fountain or when contained in bottles.

Water which forms an important ingredient of the beverage is necessarily caused to travel a great distance through the convolutions of the water coils 27 and since these are preferably constantly submerged in ice or some other suitable cooling medium, see especially Fig. 3, by the time the liquid reaches the faucets 16 and 17 it is naturally in a very cold state. By virtue of the long coiled arrangement of pipe or tubing 27 it is therefore possible to very quickly and efficiently chill the water portion of the beverage during its passage from the pump to the taps or beverage outlets 16 and 17. Since the syrup itself within the syrup tanks 42 and 43 is also maintained at all times in a very cold or thoroughly chilled condition, the relatively low temperature of the beverage will be maintained when it reaches the outlet taps or faucets 16 and 17.

It will be understood that the syrup tanks and also the water storage tanks may be quickly and easily removed from chamber or compartment 11 if and when desirable. Each of the syrup tanks is provided with a removable lid or cover preferably held in place by a wing nut, or the like, to permit the quick application and/or removal of the covers. Preferably, the openings in the tops of the syrup tanks 42 and 43 are of sufficient size to permit ready access to the interior of the tanks for cleaning purposes. The quick-change connections for detachably connecting the gas inlet and syrup outlet lines to the syrup tanks, may be of any desired and preferably conventional type or construction and which are capable of being purchased in the open market.

The bottom wall of chamber or compartment 11 is preferably provided with a drain opening 64, see Fig. 1, to which a drain pipe 65 is connected, see Fig. 3, for the purpose of draining or drawing off any accumulation of water from the melting ice within compartment 11.

From the foregoing it will be seen that I have provided a new and improved means or system for automatically producing and chilling a carbonated beverage formed from several ingredients and for maintaining said beverage on tap for discharge in large quantities through manually-controlled faucets. Moreover, it will be seen that I have provided novel means or a system whereby the water which provides one of the major ingredients of the carbonated beverage is rapidly chilled during its passage from the pump mechanism to the discharge faucet or faucets.

It is to be understood that the particular arrangement of the several groups of mechanism or units which combine to produce the present system may be varied from that illustrated in the accompanying drawings, such illustration being merely by way of example.

I claim:

1. In a beverage dispenser, in combination, an insulated walled cabinet and beverage dispensing mechanism associated therewith and enclosed thereby, an upper coolant-containing compartment housing conduit-interconnected units comprising syrup containing tanks, water tanks, a carbonator, and a pressure control valve, a lower compartment insulatingly separated from the upper compartment and housing an operatively connected electric motor, motor pressure switch and water pump, and also conduit-connected units including a filter for filtering the water to said pump and a gas pressure regulator, gas and liquid conveying conduits connecting the water pump and pressure regulator with the syrup tanks, water tanks, and carbonator in the upper compartment, and manually-operable beverage dispensing faucets mounted upon the cabinet exteriorly thereof, said faucets being connected with certain of said conduits for dispensing a chilled beverage comprising a mixture of syrup, gas and water supplied by the units in said upper compartment.

2. A beverage dispenser according to claim 1, wherein that portion of the front wall of the cabinet defining the lower compartment is louvered and wherein the cabinet back wall has a relatively large opening opposite the louvered front wall.

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