

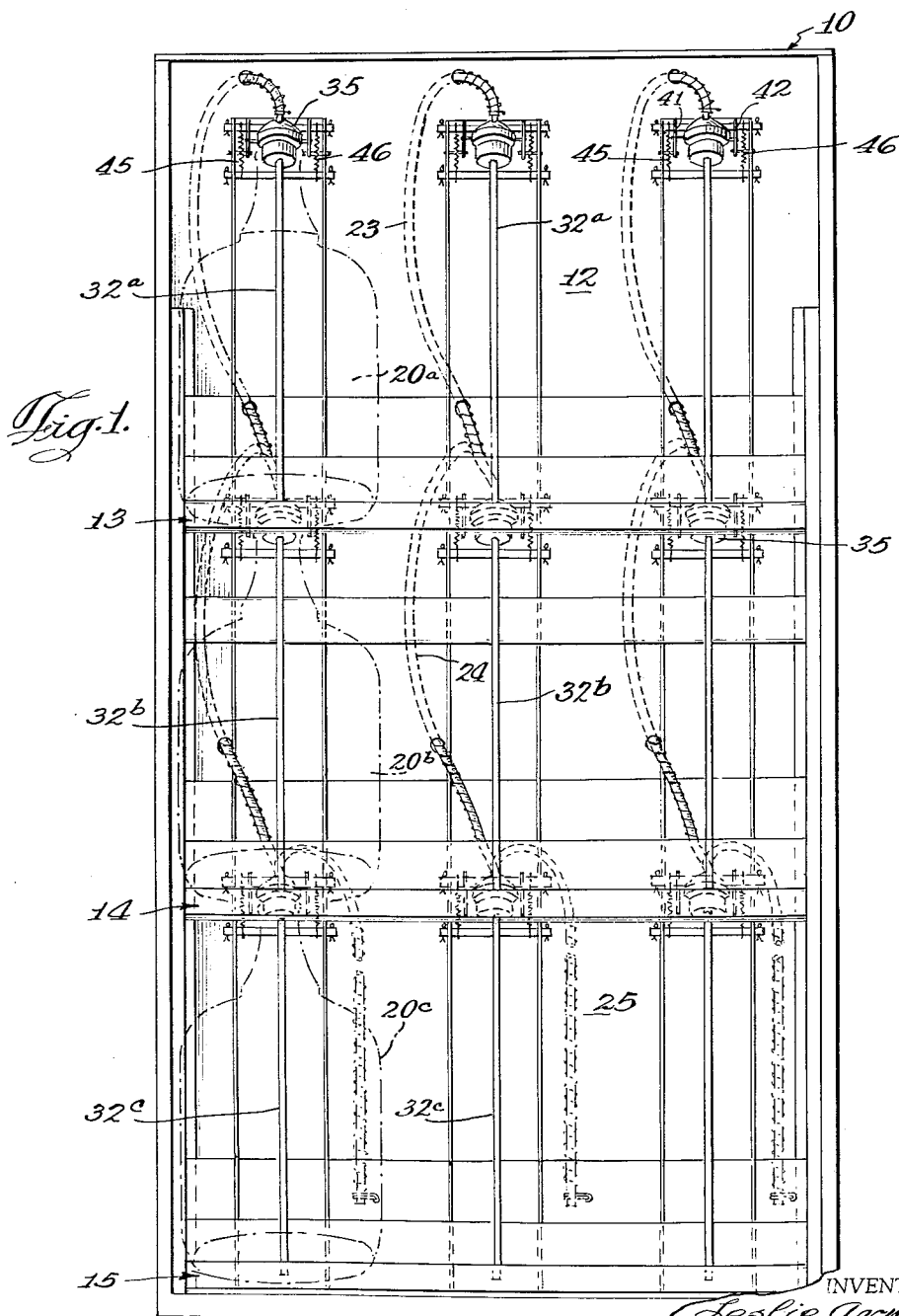
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L. ARNETT ET AL
SYRUP SUPPLY SYSTEM

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3 Sheets-Sheet 1



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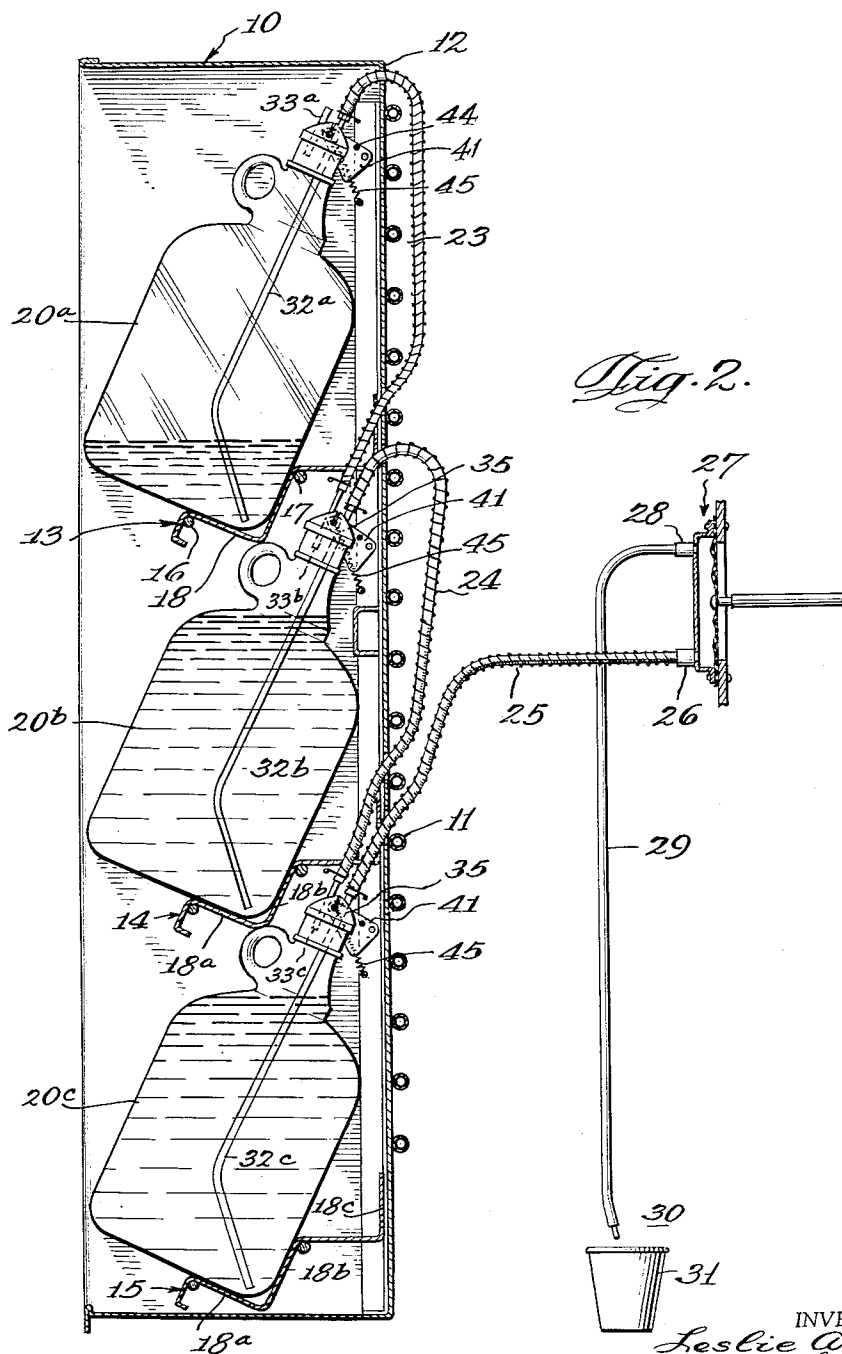
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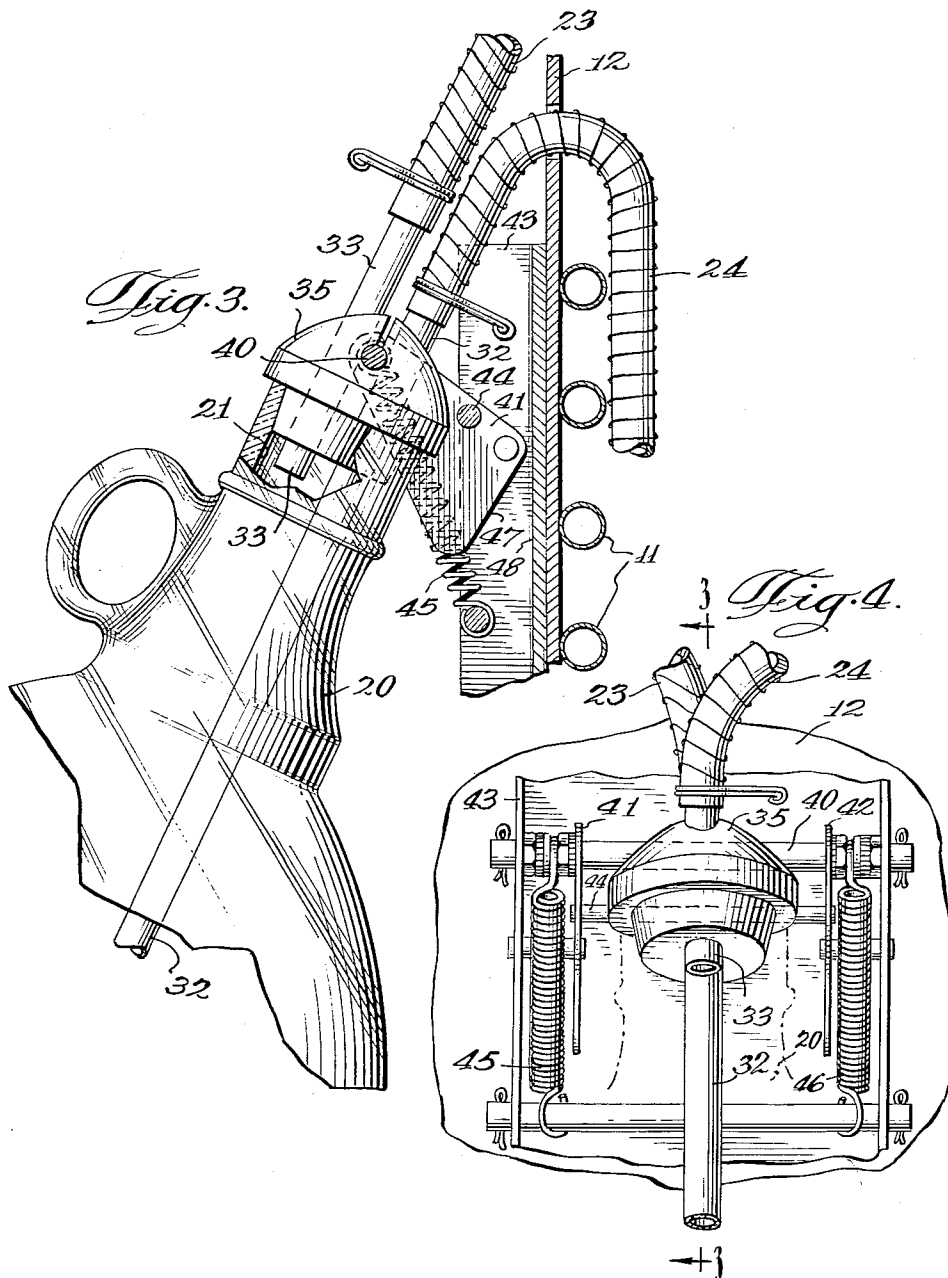
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1

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SYRUP SUPPLY SYSTEM

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This invention relates to a syrup supply system for a beverage dispensing machine, and more particularly to a sanitary and efficiently serviced syrup supply system for a coin-operated beverage dispensing machine.

Coin-operated beverage dispensing machines, as those serving carbonated or non-carbonated soft drinks, include a supply of flavored syrup which is mixed with carbonated or plain water to provide the drink. The syrup is generally kept in tanks, preferably in a refrigerated compartment, which the serviceman fills periodically from bottles of syrup carried with him. It is desirable that the tanks be removed and cleaned at intervals, but as this is a messy and, in some cases, difficult job, it is often neglected. Syrup is sometimes spilled during the filling of the containers, leaving the interior of the syrup cabinet unclean.

A principal object of the present invention is the provision of new and improved syrup supply system for beverage dispensing machines, which utilizes the original containers in which the syrup is supplied.

One feature of the invention is the provision in a coin-operated beverage dispensing machine of a syrup supply, comprising a cabinet having support means therein, an original syrup container carried on the support means and having an open mouth, a sealing connector for the mouth of the container and readily engageable with and releasable therefrom, and means connected with the container through the sealing connector for withdrawing syrup from the container. Another feature is that the releasable connector is provided with a resilient mounting to facilitate its engagement and release from the open mouth of the syrup container. A further feature is that a plurality of syrup containers are disposed in a vertically spaced arrangement, with means for withdrawing syrup from the lowest bottle and further means interconnecting the bottles to transfer syrup from the higher bottle or bottles to the lowest bottle.

Still another feature is that inlet and outlet tubes for containers are carried by the connector members, and the mounting means for the container is such that the container is positioned at an angle with the outlet tube extending almost to the bottom of the lowest point therein.

Yet a further feature is that the connector is spring-urged into sealing engagement with the opening in the container, and is readily engageable with and releasable therefrom.

Further features and advantages will readily be apparent from the following specification and from the drawings, in which:

FIGURE 1 is a front view of the syrup cabinet embodying the invention;

FIGURE 2 is a vertical section through the cabinet, with a portion of the system shown diagrammatically;

FIGURE 3 is an enlarged side view of a connector with a portion broken away; and

FIGURE 4 is an enlarged front view of a connector with a syrup container shown in broken lines.

The invention will be described herein as applied to the syrup system of a coin-actuated, automatic, soft drink beverage dispensing machine, and it is particularly adapted for use in such a machine. However, it will be understood that certain features of the invention may find application in other types of liquid dispensing systems.

Turning now to the drawings, and particularly to FIG-

2

URES 1 and 2, the syrup cabinet 10 of a beverage dispensing machine is illustrated. The cabinet is preferably cooled, as by refrigerant circulated through coils 11 on the rear wall 12 of the cabinet. The front of the cabinet may be closed by a suitable door (not shown). Extending transversely across the cabinet in a vertically spaced arrangement are a plurality of syrup container support racks 13, 14 and 15, each including a pair of rods 16 and 17 and a plate member 18. In the embodiment shown, provision is made for nine syrup bottles arranged in three columns of three, there being one bottle of each column on each of the supports 13, 14 and 15. The syrup containers 20 are preferably the original bottles or jugs in which the syrup is supplied by the manufacturer, each having a capacity of the order of one gallon. The support members, including the rods 16 and 17 and plate 18 are so arranged that the bottles 20 are carried at a slight angle so that the lower corner thereof forms a well in which the syrup gathers. The plate 18 has first and second portions 18a and 18b engaging the bottom and side of the supported bottle, and a third portion 18c in contact with the refrigerated rear wall 12 of the syrup cabinet. This plate conducts heat away from the bottles, materially speeding the cooling of warm syrup when it is placed in the machine.

With particular reference to FIGURE 2, it will be seen that the syrup bottles 20a, 20b and 20c, in one column are interconnected by suitable conduits 23 and 24, which may be flexible plastic material encircled by a coil spring, for protection. Extending from the lowest bottle 20c is a flexible conduit 25 connected with the inlet 26 of a suitable pump 27, in this case illustrated as a reciprocating diaphragm pump. The outlet 28 of the pump is connected through conduit 29 to a dispensing point 30 at which a cup 31 may be positioned to receive a charge of the flavored syrup upon actuation of the pump.

Each of the containers is provided with outlet tubes, designated as 32a, 32b and 32c, the tubes having a curved configuration with the lower ends thereof positioned adjacent the bottom corner of the bottles, to draw syrup from the well formed by the angular mounting of the bottles. The bottles are also provided with short inlet tubes designated 33a, 33b and 33c. As best seen in FIGURES 3 and 4, the outlet and inlet tubes 32 and 33 are carried in a resilient stopper a sealing connector 35 which seats in the open mouth 21 of bottle 20, sealing the opening. The outlet tube 32c of the lowest bottle 20c is connected through conduit 25 with the pump, while the inlet for bottle 20c is connected through conduit 24 with the outlet of bottle 20b. Similarly the inlet 33b of bottle 20b is connected through conduit 23 with the outlet 32a of bottle 20a.

Upon each operation of pump 27, a quantity of syrup is drawn from the lowermost bottle 20c, and a like quantity discharged from the syrup system into cup 31. As the syrup is withdrawn from bottle 20c, the pressure in the bottle is reduced and a quantity of syrup is drawn into bottle 20c from bottle 20b, keeping the lower bottle filled. Similarly, syrup is drawn from bottle 20a into bottle 20b. The open inlet tube 33a in bottle 20a admits air to the system. Thus, as the machine is used, the uppermost bottle 20a is emptied first and then the second bottle 20b is emptied. When the serviceman checks the machine, he removes the empty bottles and replaces them with full ones, which are preferably kept sealed until the cap is removed just prior to placement of the bottle in the machine. Partially empty bottles may be removed, or may be shifted to the position of bottle 20a on the top support 13, so that the bottles in the lower supports 14 and 15 are always full.

There is no syrup to pour and thus little or no spillage. As service calls are preferably so timed that two of the

3

bottles are empty and the third partially empty, and the partially empty bottle may be moved to the upper position where it is the first emptied on subsequent operations, no bottle remains in the machine for an extended period of time. The various flexible conduits are readily removable from the inlet and outlet tubes for cleaning or replacement, and the tubes themselves may be slipped out of stopper 35 for cleaning or replacement.

Referring again to FIGURES 3 and 4, it will be seen that the stopper 35 is mounted on a pin 40 carried by a pair of links 41 and 42 pivotally mounted on a bracket 43 secured to the rear panel 12 of the cabinet. A spacer bar 44 extends between links 41 and 42 which are urged downwardly (in a counterclockwise direction as viewed in FIGURE 3) by springs 45 and 46. The springs serve to hold the connector tightly in engagement with bottle 20. The surface 47 of the links is formed to engage the surface 48 of bracket 43 when the connector is not inserted in a bottle, to hold the outlet tube 32 up out of engagement with the bottle support rack.

While we have shown and described certain embodiments of our invention, it is to be understood that it is capable of many modifications. Changes therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

We claim:

1. In a beverage dispensing machine, a syrup supply, comprising: a refrigerated cabinet having a plurality of transversely extending, vertically spaced supports; a plurality of syrup bottles, each having an open mouth, carried on said supports; sealing connectors seated in the mouths of said bottles; an elongated outlet tube carried by each of said stoppers and extending to a point adjacent the bottom of the associated bottle; an inlet tube carried by each of said stoppers; means connected with the outlet tube of the lowest bottle for withdrawing syrup therefrom; and conduit means interconnecting the inlet tubes of the lower bottles with the outlet tube of the next higher bottle, for transferring the syrup from the higher bottles successively through the bottles to the lowest bottle, said connectors each having independent mounting means for resilient pivotal movement to enable said bottles to receive said associated tubes and connector and then to be swung into supporting position on said supports.

2. In a coin-operated beverage dispensing machine, a

4

syrup supply, comprising: a refrigerated cabinet; a plurality of vertically spaced heat conductive supports in said cabinet, said supports being in engagement with a refrigerated wall of said cabinet; a plurality of syrup shipment containers carried on said supports, each container having an open mouth; a sealing connector in engagement with the mouth of each of said containers; means extending through the connector of one of said containers for withdrawing syrup therefrom, said means comprising an elongated tube having its end adjacent the bottom of said one container and adjacent its respective support; and means interconnecting said one container with the other containers for transferring syrup from the other containers to said one container.

3. In a beverage dispensing machine having a syrup supply container with an open mouth, a connector mounting, comprising: a resilient stopper; a movable link member resiliently pivotally mounted on a support and having said stopper mounted thereon; spring means connected with said member and urging said stopper into sealed engagement with the open mouth of said container; and a syrup dispensing tube carried by said stopper.

4. In a beverage dispensing machine having a syrup supply container with an open mouth, a connector mounting, comprising: a stopper; a pair of links pivotally carried by a support; a pin extending between said links and having said stopper mounted laterally thereon; spring means connected with at least one of said links urging said stopper into readily releasable sealed engagement with the open mouth of said container; and a syrup dispensing tube carried by said stopper and extending generally at right angles to said pin.

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