

Jan. 13, 1931.

L. L. BENHAM ET AL

1,789,211

BEVERAGE DISPENSER

Filed Oct. 23, 1928

7 Sheets-Sheet 1

Fig. 1

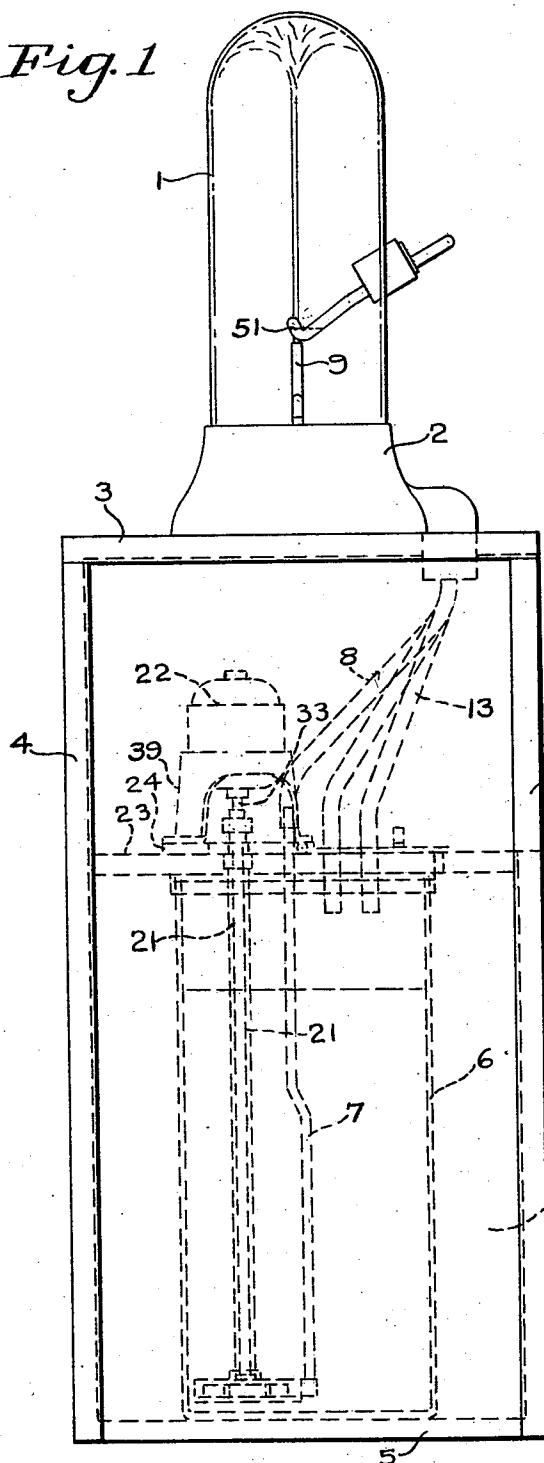


Fig. 3

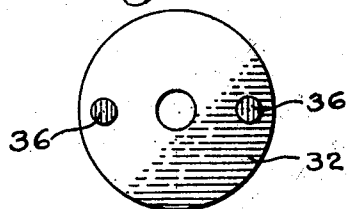


Fig. 2

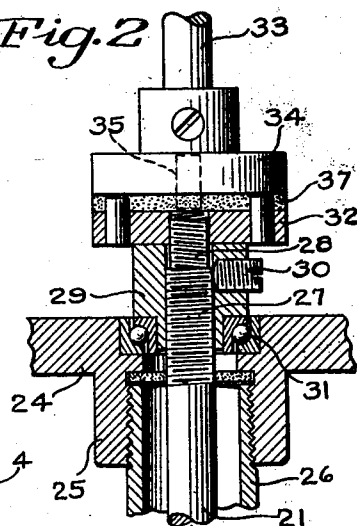


Fig. 4

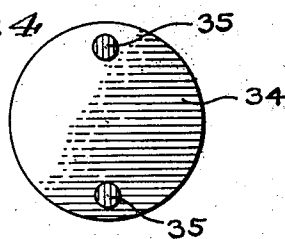
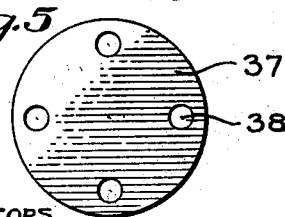


Fig. 5



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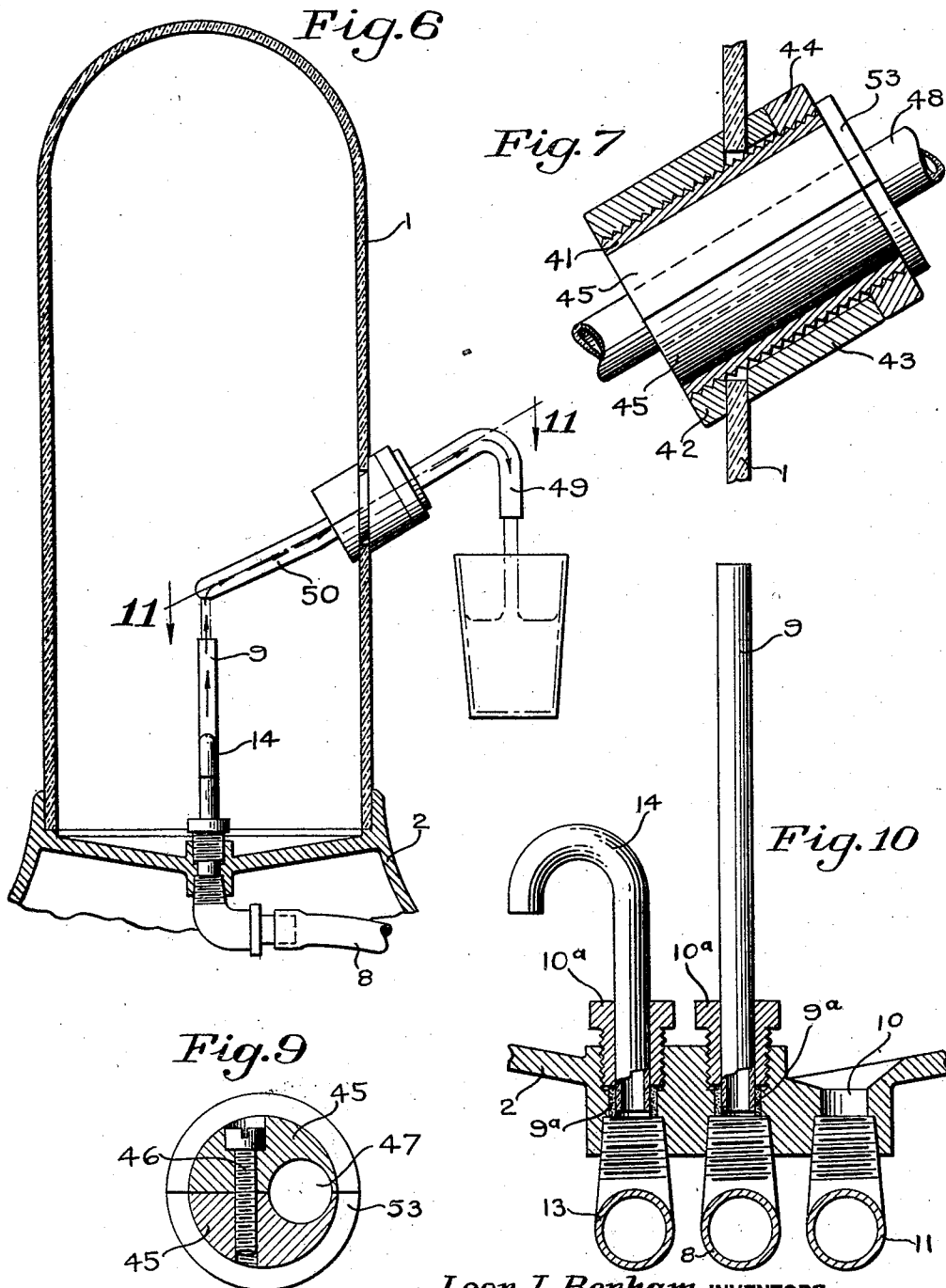
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BEVERAGE DISPENSER

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BEVERAGE DISPENSER

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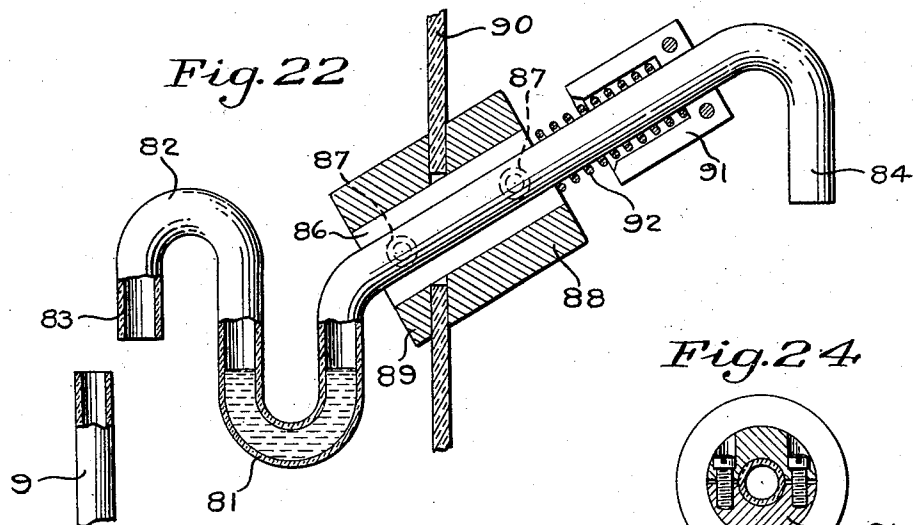


Fig. 24

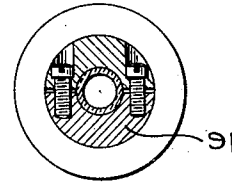


Fig. 23

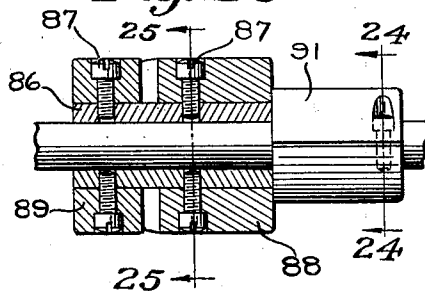
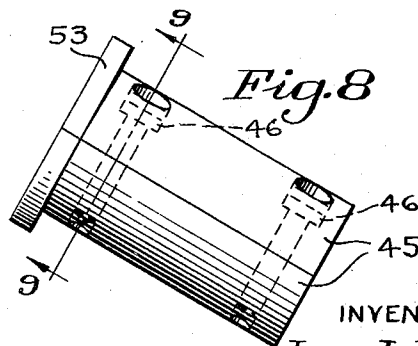
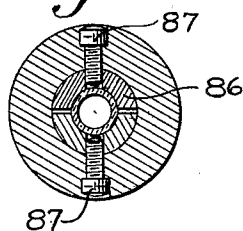


Fig. 25



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BEVERAGE DISPENSER

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Fig. 11

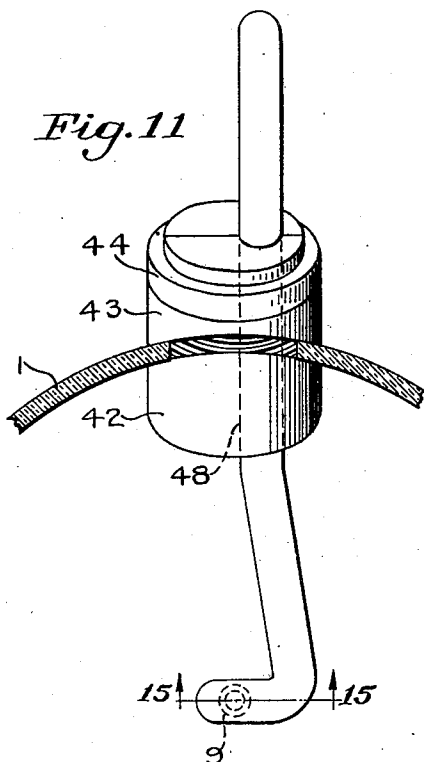


Fig. 12

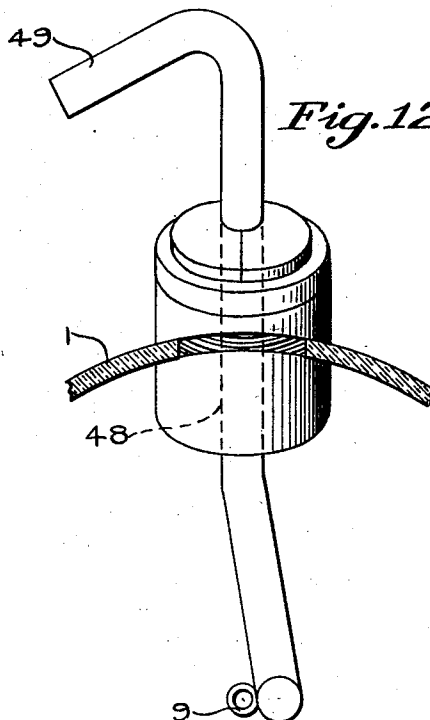


Fig. 13

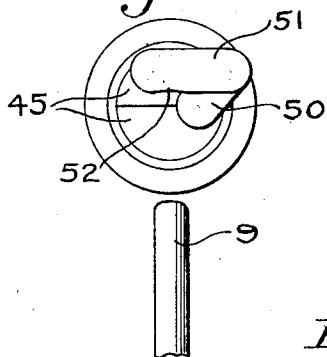


Fig. 14

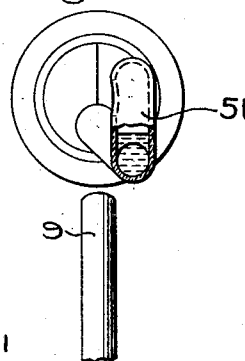
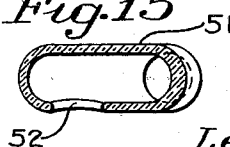


Fig. 15



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BEVERAGE DISPENSER

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Fig. 16

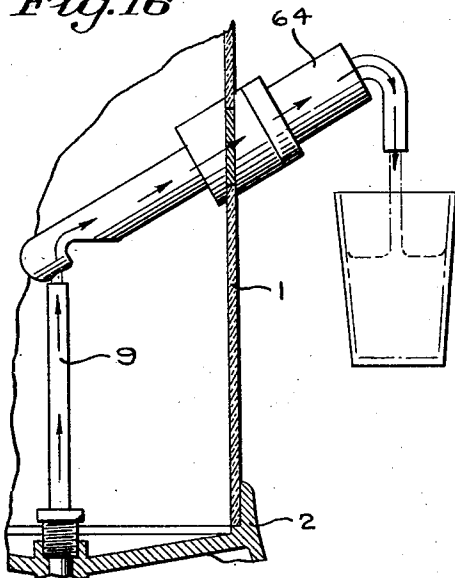


Fig. 17

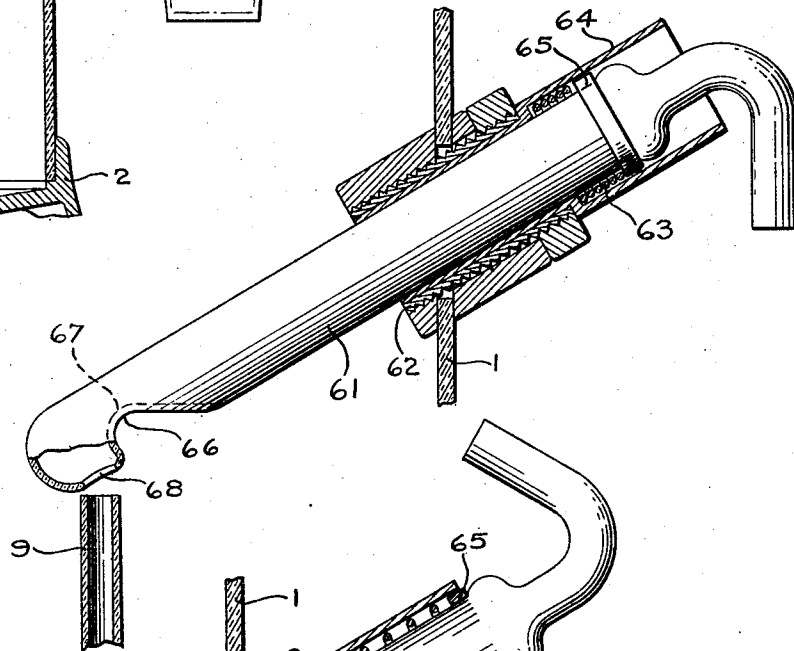
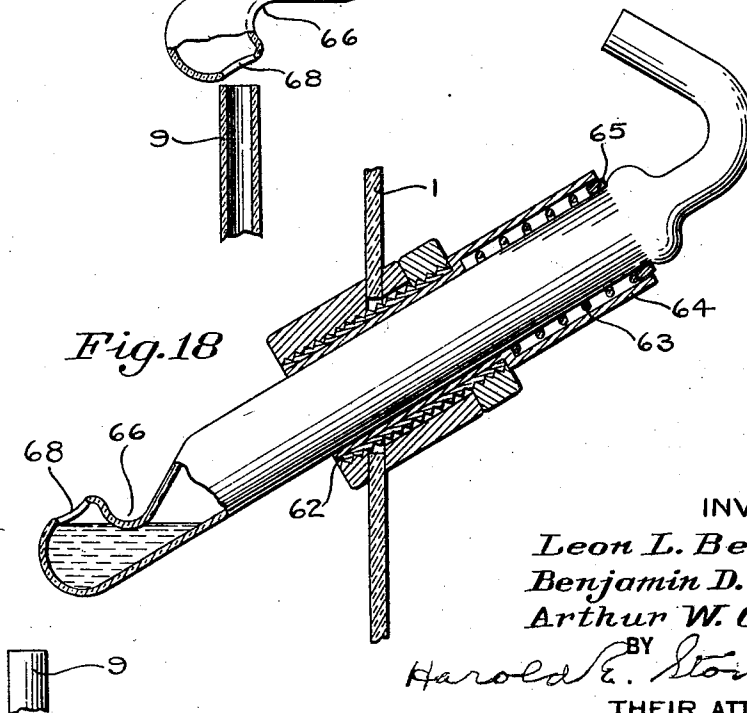


Fig. 18



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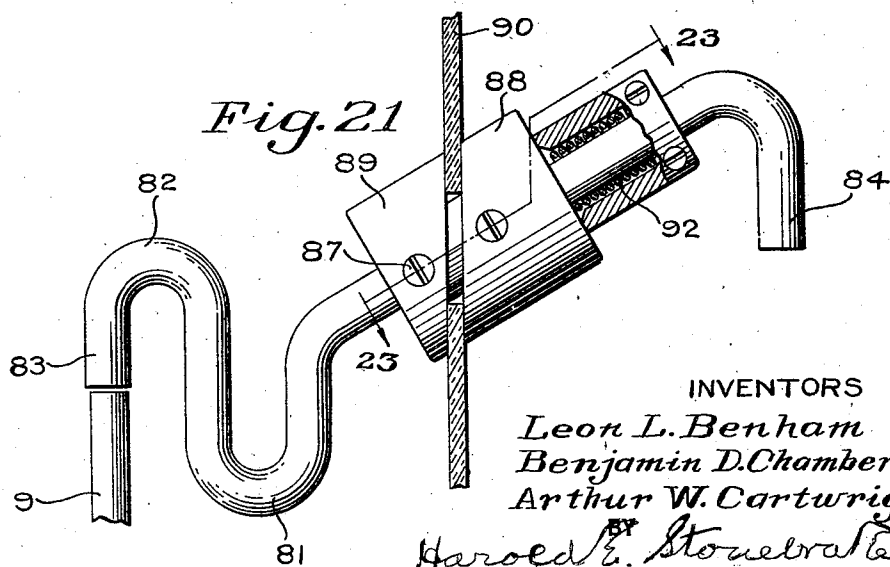
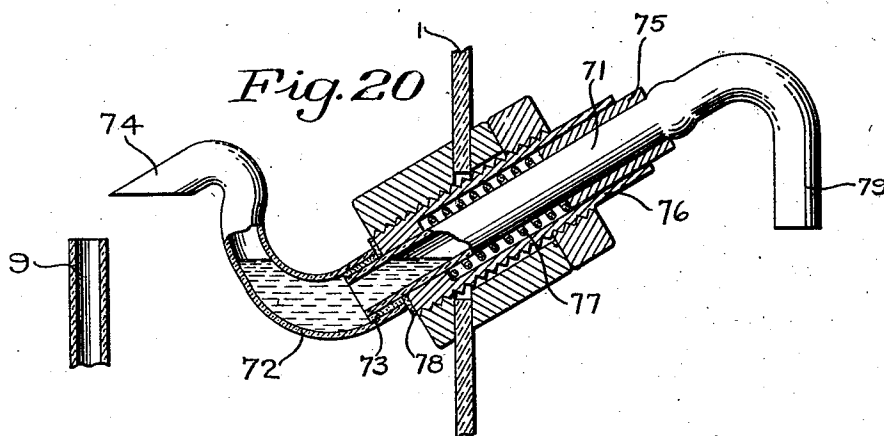
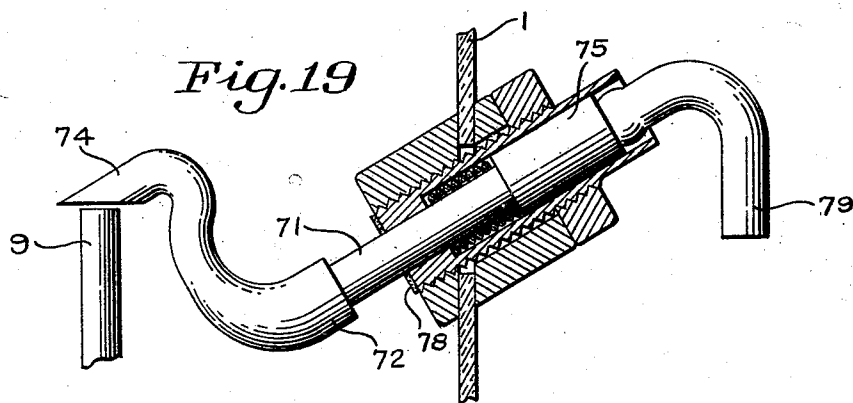
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BEVERAGE DISPENSER

Filed Oct. 23, 1928

7 Sheets-Sheet 6



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BEVERAGE DISPENSER

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Fig. 26

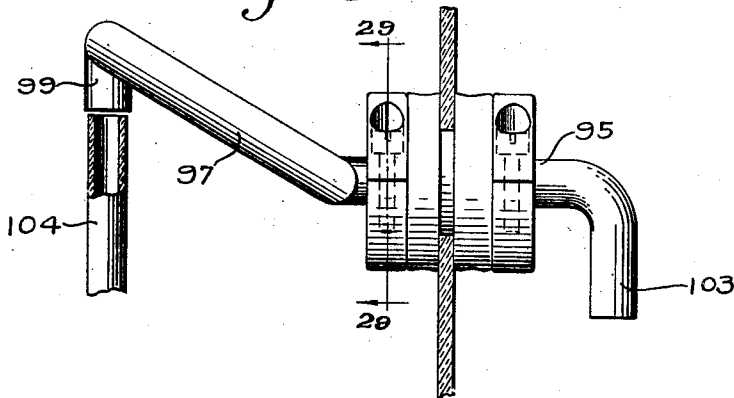


Fig. 27

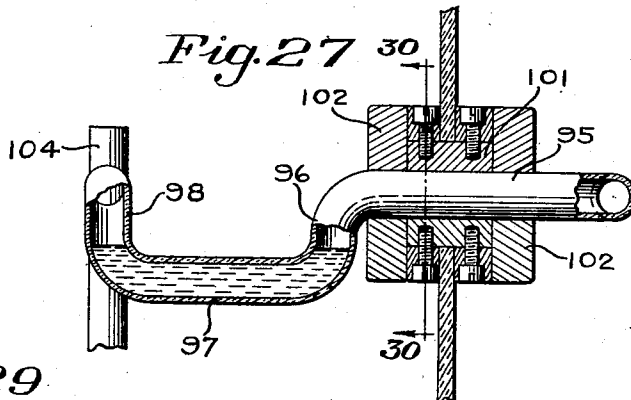


Fig. 29

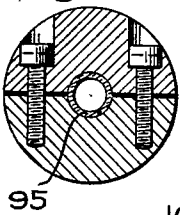


Fig. 28

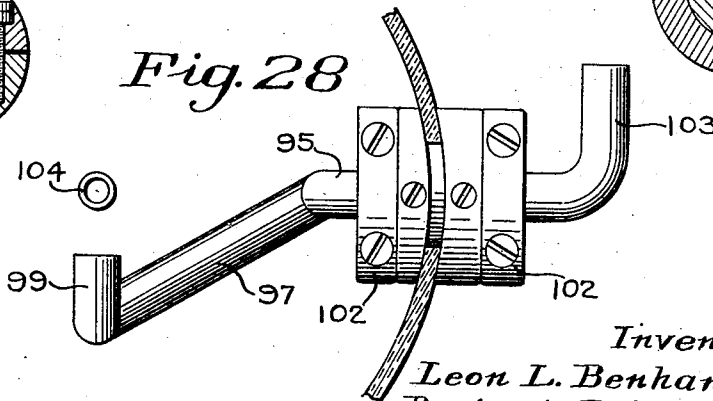
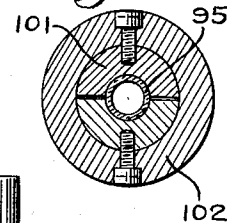


Fig. 30



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UNITED STATES PATENT OFFICE

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BEVERAGE DISPENSER

Application filed October 23, 1928. Serial No. 314,349.

This invention relates to a beverage dispenser and has to do with certain improvements in the type of apparatus disclosed in co-pending application Serial No. 241,882, filed December 22, 1927, patented April 9, 1929, No. 1,708,212, wherein there is a transparent display receiver into which beverage is discharged from a source of supply, the beverage being dispensed through a tube that is positionable to divert the beverage as it is discharged into the receiver to a point outside the receiver.

One object of the invention is to afford means for closing the dispensing tube when the beverage is not being dispensed, so as to prevent ingress of air from outside into the display receiver.

Another purpose of the invention is to provide an air circulation between the display receiver and the beverage reservoir or other source of supply, thus maintaining the air within the display receiver in a cold state, and serving also to assist in preventing ingress of air from outside the display receiver to a point inside the same.

An additional object of the invention is to afford simple and efficient connecting means between the motor shaft and the pump shaft so as to afford a positive support for the latter, insure easy running of the parts, and to permit ready removal of the motor and pump when necessary.

A still further purpose is to provide a flexible connection between the motor shaft and pump shaft so as to facilitate assembly of the parts and avoid the necessity of accurate alinement between the pump shaft and motor shaft.

With these and other ends in view, the invention consists in the construction and arrangement of parts that will appear from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the description.

In the drawings:

Figure 1 is a side elevation of a beverage dispenser constructed in accordance with a

preferred embodiment of the improvements;

Figure 2 is a detail vertical sectional view of the connection between the motor and pump shafts;

Figure 3 is a top plan view of the plate attached to the upper end of the pump shaft;

Figure 4 is a bottom plan view of the plate attached to the lower end of the motor shaft;

Figure 5 is a plan view of the yieldable interlocking washer located between the plates shown in Figures 3 and 4;

Figure 6 is an enlarged side view of the display receiver illustrating the dispensing tube in dispensing position;

Figure 7 is an enlarged vertical sectional view of the means for supporting the dispensing tube;

Figure 8 is a side elevation of the bushing employed in the construction shown in Figure 7;

Figure 9 is a sectional view on line 9—9 of Figure 8;

Figure 10 is an enlarged vertical sectional view through the display receiver taken in a plane at right angles to Figure 6;

Figure 11 is a top plan view of the dispensing tube and supporting parts as illustrated in Figure 6;

Figure 12 is a similar view with the dispensing tube turned out of dispensing position;

Figure 13 is an inner end elevation of the dispensing tube in the position shown in Figure 11;

Figure 14 is a similar elevation of the parts as illustrated in Figure 12;

Figure 15 is a detail sectional view on line 15—15 of Figure 11;

Figure 16 is a detail sectional view through the transparent display receiver with parts broken away, and showing a modified form of dispensing tube in dispensing position;

Figure 17 is an enlarged vertical sectional view taken through the support for the dispensing tube of Figure 16, with the parts in the same position as there shown;

Figure 18 is a sectional view in the same plane as Figure 17, and showing the dis-

dispensing tube when moved out of dispensing position;

Figure 19 is a view similar to Figure 17 with a further modification of dispensing tube;

Figure 20 is a similar view showing the dispensing tube moved out of dispensing position;

Figure 21 is a view of a further modified form of dispensing tube in dispensing position;

Figure 22 is a view similar to Figure 21 with the dispensing tube moved away from dispensing position;

Figure 23 is a sectional view on line 23—23 of Figure 21;

Figure 24 is a sectional view on line 24—24 of Figure 23;

Figure 25 is a sectional view on line 25—25 of Figure 23;

Figure 26 is a view similar to Figure 17, illustrating an additional modified form of dispensing tube in dispensing position;

Figure 27 is a vertical sectional view partially in elevation of the parts shown in Figure 26, with the dispensing tube moved out of dispensing position;

Figure 28 is a plan view, partially in section, of the parts as shown in Figure 27;

Figure 29 is a sectional view on the line 29—29 of Figure 26, and

Figure 30 is a sectional view on the line 30—30 of Figure 27.

Referring more particularly to the drawings, in which like reference numerals refer to the same parts throughout the several views, 1 designates a transparent display receiver preferably of glass supported on a base 2, the latter being suitably mounted upon the top 3 of a cabinet which also includes side walls 4 and a bottom 5. Mounted at the bottom of the cabinet is a reservoir 6 for containing the beverage supply which is pumped from the reservoir through a pipe 7 and flexible conducting tube 8 to a discharge pipe 9 extending upwardly at the center of the display receiver and from which the beverage is discharged into the receiver with a fountain effect. The reservoir 6 is suitably iced or refrigerated, and the beverage may be permitted to discharge into the display receiver in other ways than that specifically shown.

The discharge pipe 9, which is preferably of glass to afford transparency, is clamped in place by the resilient or rubber ring 9^a, which is compressed tightly against the glass by means of the nut 10^a, see Figure 10. Thus the glass tube is held securely in position in such a way as to prevent its readily breaking.

The beverage falling to the bottom of the display receiver enters an outlet 10, see Figure 10, passing thence through flexible conductor 11 to the top of reservoir 6, in this fashion maintaining a continuous circulation

of beverage between the reservoir 6 and the display receiver 1. As the beverage flows away from the bottom of the display receiver back to the reservoir, a certain amount of suction is created within the display receiver which has a tendency to draw in air from outside the receiver. This is undesirable because of the effect such action has in reducing the temperature of the beverage, which is kept cold by the refrigerating compartment 12.

To overcome this objection, an additional flexible conductor 13 is provided, leading from the top of reservoir 6 to an outlet in the display receiver, such outlet being preferably in the form of a goose-neck 14, the open end of which is normally above the level of liquid in the display receiver. This permits passage of cold air from the top of reservoir 6, or the space above the level of liquid in the reservoir, to the display receiver, such air being drawn back into the reservoir 6 through the outlet 10 as the beverage is returned. The effect of this is to maintain a relatively cold body of air in the display receiver and prevent sucking in warm air from outside the display receiver, thus permitting a continuous circulation of beverage for purpose of display without materially reducing its temperature, and requiring a minimum amount of refrigerant to maintain the beverage at the desired temperature.

The beverage is forced from the reservoir 6 to the display receiver by a suitable pump mounted on a shaft 21 that is driven by an electric motor 22, said parts being mounted and supported on the shelf 23 within the cabinet. It is desirable to afford a yieldable and separable connection between the motor shaft and the pump shaft, in order to permit ready separation of the parts and efficient operation of the pump without the necessity of close alinement between the motor shaft and pump shaft, and this is accomplished by the construction that will now be described.

Suitably mounted on the top of the shelf 23 is a supporting plate 24 having an interiorly threaded collar 25 to which is attached the pipe 26 that surrounds the downwardly extending pump shaft 21. The pump shaft 21 has at its upper end reversely threaded portions 27 and 28, and 29 designates a collar threaded on the portion 27 and held in adjusted position thereon by a set screw 30. The collar 29 and with it pump shaft 21 are supported on the plate 24 preferably through ball bearings 31. Mounted at the upper end of the pump shaft 21 is a plate 32 which is turned down tightly against the collar 29 and because of the reversely threaded relationship of the portions 27 and 28, the plate 32 is locked against the collar 29.

Attached to the lower end of the motor shaft 33 is a plate 34 provided with oppositely arranged pins 35 while 36 designates

oppositely arranged pins formed on the plate 32, disposed between the pins 35. 37 designates a yieldable interlocking member preferably in the form of a washer of leather or like material, having a series of openings 38 arranged to receive the pins 35 and 36 and thus establish an interlocking driving connection between the motor shaft 33 and the pump shaft 21. The yieldable washer 37 allows a slight play between the connected shafts so that absolute alinement between them is not required, although a positive and satisfactory driving connection is established between the motor shaft and the pump shaft. This arrangement permits quick assembly of the parts, and enables moving the motor and motor shaft without disturbing the pump shaft, it being understood that the motor is mounted in a frame 39 that rests upon the supporting plate 24 on the shelf 23, and held thereagainst by any suitable means.

For a complete understanding of the invention, it is to be understood that the beverage is drawn through a dispensing tube which may be of glass or suitable material, and is supported in and extends through the side wall of the transparent display receiver. This dispensing tube is movable into a position to intercept the stream of beverage as it discharges from outlet 9, and it is highly desirable to close the dispensing tube when it is not in dispensing position, in order to prevent travel of warm air from the outside atmosphere into the display receiver during the time when beverage is not being dispensed. This may be accomplished by forming the dispensing tube in such a fashion that when it is out of dispensing position, a liquid seal is automatically afforded to prevent passage of air inward.

A preferred arrangement for accomplishing this is illustrated in Figures 1, 6, 8, 9 and 11 to 15 inclusive, in which the barrel 41 is held fixedly in an opening in the side wall of the display receiver by means of interior and exterior threaded sleeves 42 and 43 and a threaded locking collar 44. Arranged within said barrel for turning movement is a split bushing consisting of two sections 45 held together by the screws 46 and including an eccentrically disposed opening 47 within which the dispensing tube is clamped tightly. The dispensing tube includes a central or clamped portion 48 and an outlet 49. The central clamped portion 48 terminates at its inner end in an inwardly and upwardly extending portion 50, see Figure 13, which latter terminates in a horizontally extending portion 51 having an inlet opening 52 disposed directly above the beverage discharge pipe 9 when the dispensing tube is in dispensing position, as in Figures 11 and 13.

The split bushing includes a flange 53, see Figures 7 and 8, adapted to overlie the collar 44 and limit inward movement of the dis-

charge tube. To move the latter out of dispensing position, the operator grasps the outlet portion 49, turning the dispensing tube and with it the bushing in which it is clamped, thus moving the dispensing tube from the position shown in Figures 11 and 13 to the position shown in Figures 12 and 14, in which the horizontal portion 51 is moved to a vertical position and the opening 52 is out of the path of the beverage.

With the dispensing tube in this position the portion 50 extends downwardly and the bend between portion 50 and portion 51, which latter extends then upwardly as shown in Figures 1 and 14, affords a trap or pocket for holding the beverage remaining in the dispensing tube. Since with the parts in this position, portion 51 extends upwardly, the remaining beverage cannot flow back into the display receiver but is held in the dispensing tube and closes the passage therein so as to prevent travel of air from outside of the display receiver through the dispensing tube to the interior of the display receiver.

This result can be accomplished in a variety of ways, and a modification of the structure just described is illustrated in Figures 16 to 18 inclusive, in which the dispensing tube is slidable in and out within its supporting barrel and at the same time may be turned. The dispensing tube of this arrangement is indicated at 61, being slidably and rotatably mounted within the barrel 62 and held in normal or outward position by a spring 63 housed in an extension 64 of the barrel and engaging a suitable collar 65 on the dispensing tube. At its inner end, the dispensing tube is formed with an indentation 66 affording a reduced cross-section 67, while 68 is the inlet opening through which the beverage enters when the tube is in dispensing position, as shown in Figure 17. When the operator releases the dispensing tube, and at the same time turns it into the position shown in Figure 18, the beverage remaining in the tube pockets at its lower end as shown in Figure 18, and thus affords a seal.

Figures 19 and 20 disclose another modified arrangement in which the dispensing tube is made in two pieces, designated at 71 and 72, and suitably held together by a rubber gasket 73. The inner portion 72 of the dispensing tube is curved first downwardly and thence upwardly, as shown, terminating in a downwardly directed inlet 74 that is positionable over the stream of beverage in the display receiver, as in Figure 19. The outer portion 71 of the dispensing tube carries a sleeve 75 that is movable in a pocket in the bushing 76 and is held normally in outermost position by a spring 77, such outward movement of the dispensing tube being limited by the inner portion 72 striking against washer 78. To dispense the beverage with this form of construction, the dispensing tube is pressed

inwardly by the operator, as shown in Figure 19, causing beverage to flow from the outlet 79 as long as the dispensing tube is held in this position. When released, it assumes the position shown in Figure 20, and the remaining beverage at the bottom of the inner portion 72 forms a seal, as shown in Figure 20, preventing passage of air from the outside to the inside of the display receiver when the dispensing tube is out of dispensing position.

Figures 21 and 22 show still another form of construction in which the dispensing tube is made in one piece, including at its inner end a downwardly extending U-shaped portion 81 and an upwardly extending U-shaped portion 82 terminating in an inlet 83, the opposite end of the tube being formed to afford an outlet 84. The tube is slidable in a sleeve 86 that is held by screws 87 within the surrounding collars 88 and 89 which serve to clamp the sleeve 86 to the wall 90 of the display receiver.

Clamped on the tube is a split collar 91 which is recessed interiorly, as shown in Figure 22, and fitted in said recess is a spring 92, the opposite end of which engages the sleeve 86, the spring 92 thus serving to hold the dispensing tube normally in its outermost position, as shown in Figure 22. For dispensing, it is pushed inwardly against the action of spring 92, as shown in Figure 21, and when out of dispensing position, the remaining beverage in the bottom U-shaped portion 81 seals the passage and prevents ingress of air through the tube to the display receiver.

Figures 26 to 28 inclusive disclose an additional modified arrangement of dispensing tube formed in one piece and including a horizontal portion 95 connected by a branch 96 with an upwardly inclined portion 97, see Figure 26, the portion 97 being in turn connected by a branch 98 with a downwardly extending inlet 99 when positioned as shown in Figure 26. With this arrangement, the tube is operated by turning it about a horizontal axis, for which purpose the horizontal portion 95 of the tube is supported in the sleeve 101 and collars 102 and has a turning movement therein. When the dispensing tube is positioned as shown in Figure 26 with the outlet 103 extending downwardly, beverage passes from pipe 104 to the inlet 99 of the dispensing tube and thence through the latter. When the dispensing tube is turned to the position shown in Figure 28, the inlet 99 is out of the path of the stream of beverage and the remaining beverage is trapped in the portion 97 which is then disposed horizontally at the lowermost point, as shown in Figure 27, so that the passage through the tube is sealed against air.

While a number of different modified arrangements of the invention have been illustrated, it is to be understood that the improvements are not restricted to any of the

particular forms or details herein disclosed, and this application is intended to cover such embodiments or other adaptations of the invention as may come within the disclosed intent of the improvements or the scope of the following claims.

We claim:

1. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, beverage conducting means between the reservoir and display receiver, a dispensing tube movable into the path of the beverage as it is discharged into the display receiver to divert it to a point outside the receiver, and air conducting means connecting the beverage reservoir and the display receiver independently of the beverage conducting means.

2. A beverage dispenser comprising a transparent display receiver and a beverage reservoir, an inlet and an outlet for the beverage in the display receiver, conducting means from said inlet and outlet to the aforementioned reservoir, means for forcing beverage from the reservoir to the display receiver, an air pipe having an outlet above the normal level of beverage in the display receiver, and a conductor from said air pipe to the top of the beverage reservoir whereby circulation of air is permitted between the reservoir and display receiver.

3. A beverage dispenser comprising a display receiver, a beverage reservoir, means for forcing beverage from the reservoir to the receiver comprising a vertically arranged motor shaft, a vertically arranged pump shaft separate from and coaxial with the motor shaft, an intermediate member of yieldable material, and means for interlocking the intermediate member with the motor shaft and pump shaft respectively.

4. A beverage dispenser comprising a display receiver, a beverage reservoir, means for forcing beverage from the reservoir to the receiver comprising a vertically arranged motor shaft, a vertically arranged pump shaft separate from and coaxial with the motor shaft, adjacently disposed reversely threaded portions at the upper end of the pump shaft, a collar engaging the lower of said threaded portions, supporting means for said collar, a plate engaging the upper of said threaded portions and abutting said collar, a plate secured to the lower end of the motor shaft, an intermediate member of yieldable material located between said plates and having openings, and pins carried by the respective plates and engaging said openings in the intermediate member.

5. A beverage dispenser comprising a display receiver, a beverage reservoir, means for forcing beverage from the reservoir to the receiver comprising a vertically arranged motor shaft, a vertically arranged pump shaft separate from and coaxial with the motor shaft, adjacently disposed reversely

threaded portions at the upper end of the pump shaft, a collar engaging the lower of said threaded portions and adjustable thereon, supporting means for the collar and pump shaft, a plate engaging the upper of said threaded portions and abutting the aforementioned collar, and a yieldable interlocking connection between the last mentioned plate and the motor shaft.

6. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage between the reservoir and display receiver, and a dispensing tube extending through a wall of the display receiver and operable to divert beverage as it is discharged into the receiver to a point outside the latter, said dispensing tube including a sealing portion which traps the liquid remaining in the tube when the latter is moved out of dispensing position and thereby prevents passage of air inwardly through the tube.

7. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage between the reservoir and the receiver, and a dispensing tube extending through a wall of the receiver and movable to divert the beverage as it is discharged into the receiver to a point outside the latter, said dispensing tube being oscillatable to and from dispensing position and including a sealing portion that traps the liquid remaining in the tube when the latter is moved out of dispensing position to thereby prevent passage of air inwardly through the tube.

8. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage from the reservoir to the receiver, and a dispensing tube extending through a wall of the display receiver and movable endwise to divert the beverage as it is discharged into the receiver to a point outside the receiver, said dispensing tube having an inlet opening and including a reduced portion adjacent to its inlet opening whereby when the dispensing tube is inverted in its outermost position the beverage remaining therein pockets in its lower end and cooperates with said reduced portion to form a seal and prevent passage of air inwardly through the tube.

9. A beverage dispenser comprising a transparent display receiver and a beverage reservoir, means for circulating beverage from the reservoir to the receiver, and a dispensing tube extending through a wall of the receiver and movable transversely of said wall into and out of dispensing position, the dispensing tube including a sealing portion at its lowermost point which traps the beverage remaining in the tube when the latter is moved away from dispensing position and prevents passage of air inwardly through the tube.

10. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage between the reservoir and the receiver, and a dispensing tube movable into the path of the beverage as it discharges into the receiver and acting to divert it to a point outside the receiver, said dispensing tube including means for closing it against inward travel of air when moved out of dispensing position.

11. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage between the reservoir and the receiver, and a dispensing tube movable into the path of the beverage as it discharges into the receiver and acting to divert it to a point outside the receiver, said dispensing tube including liquid sealing means for closing it against inward travel of air when moved out of dispensing position.

12. A beverage dispenser comprising a transparent display receiver, a beverage reservoir, means for circulating beverage between the reservoir and the display receiver, a bushing extending through an opening in a wall of the receiver and supported therein for turning movement, and a dispensing tube eccentrically supported in said bushing and including a sealing portion that traps the liquid remaining in the tube when the latter is moved out of dispensing position and thereby prevents passage of air inwardly through the tube.

In witness whereof, we have hereunto signed our names.

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ARTHUR W. CARTWRIGHT.

BENJAMIN D. CHAMBERLIN.

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