Aug. 23, 1938. L. E. PETERS ET AL 2,127,615

BEVERAGE DISPENSER

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Fig. 1.

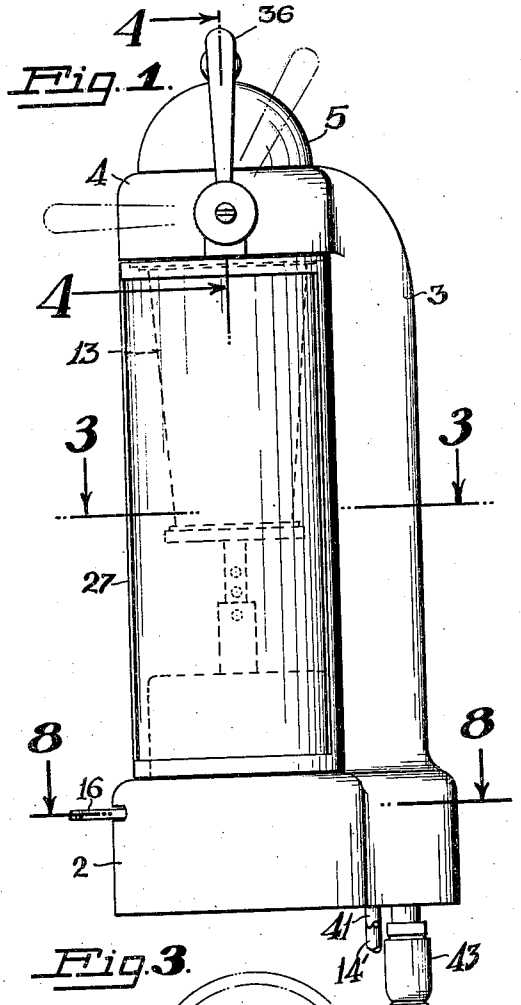


Fig. 2.

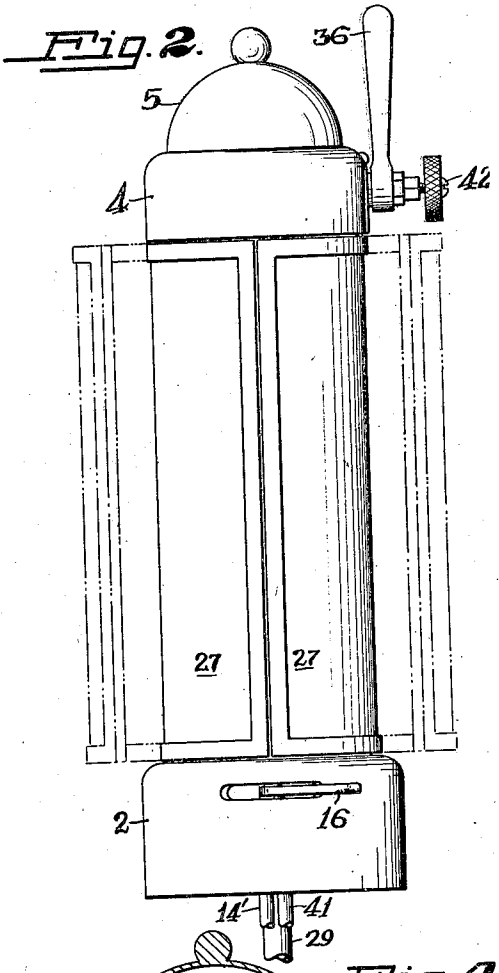


Fig. 3.

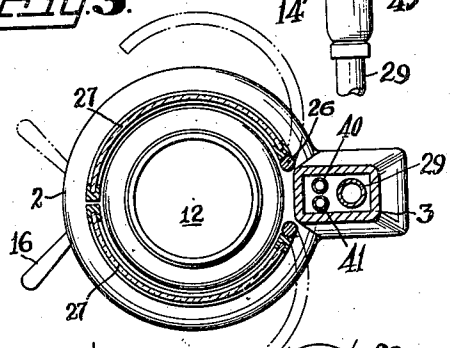


Fig. 4.

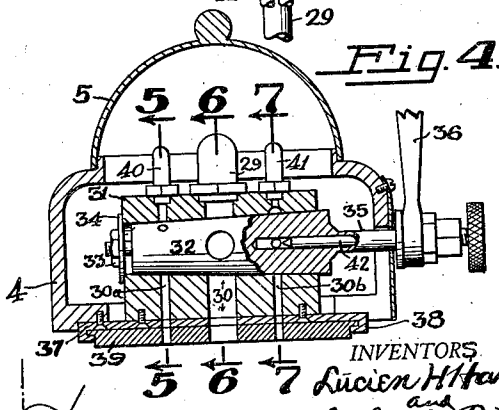


Fig. 5.

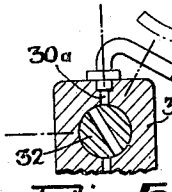


Fig. 6.

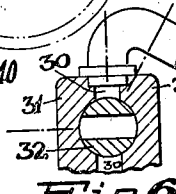
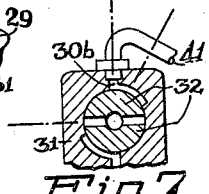


Fig. 7.



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Fig. 8.

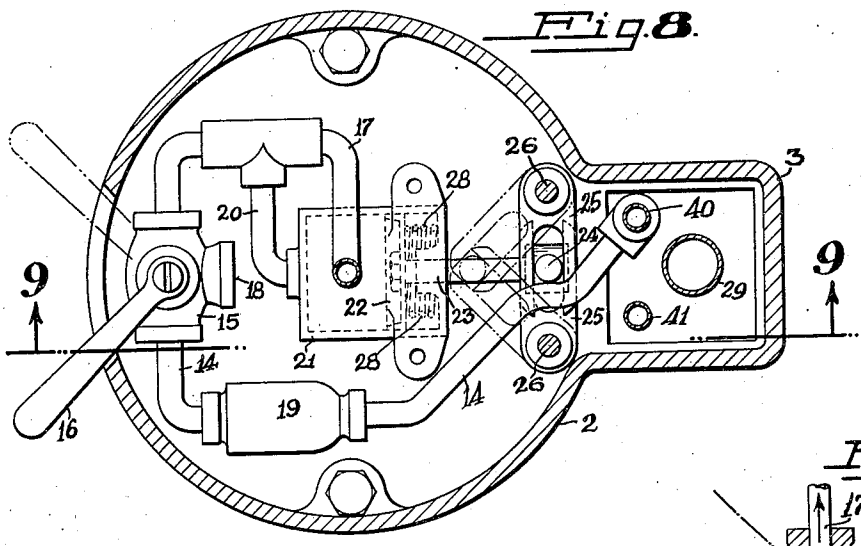


Fig. 10.

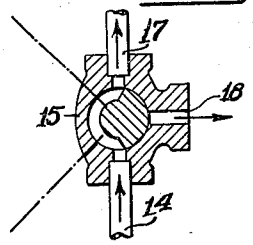
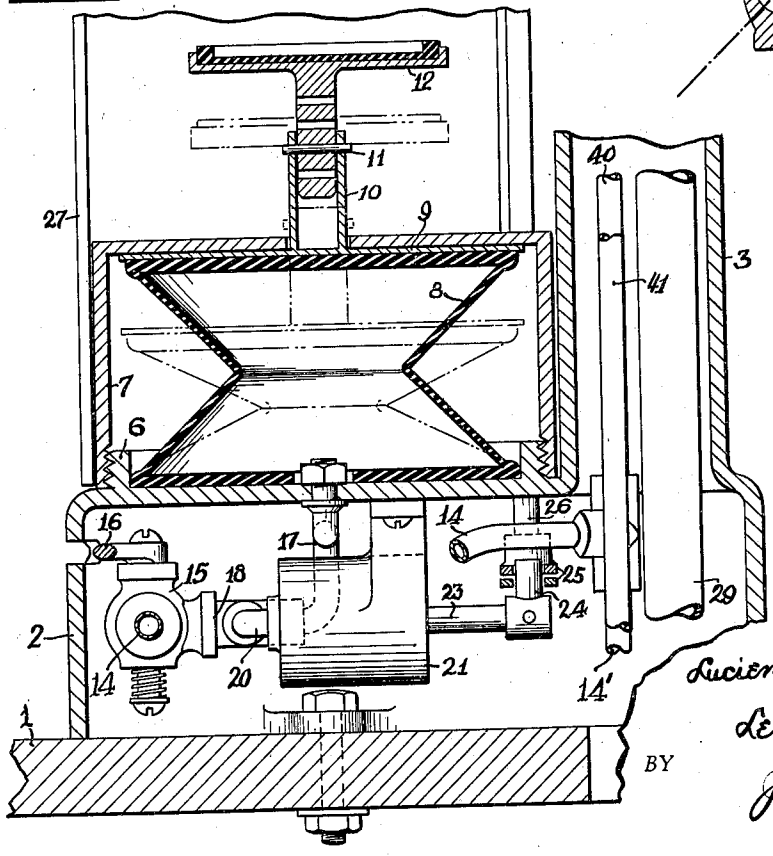


Fig. 9.



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UNITED STATES PATENT OFFICE

2,127,615

BEVERAGE DISPENSER

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Application April 30, 1935, Serial No. 19,069

4 Claims. (Cl. 225—8)

This invention relates to improvements in dispensing apparatus for beer or beverages of a similar nature.

An object of our invention is to provide improved dispensing apparatus of the kind characterized, by which beer may be drawn without undue foaming.

Another object of our invention is to provide improved beer dispensing apparatus capable, among other things, of maintaining air pressure in a glass suitable to prevent undue foaming while the beer is being drawn.

A further object of our invention is to provide improved apparatus of the kind characterized, enabling steam beer or other "live" beverage to be dispensed without the usual loss which ordinarily results from excessive foaming.

Other objects more or less apparent will present themselves or will be specifically pointed out in the description of our invention which is to follow.

In the accompanying drawings:

Fig. 1 is a side elevation of a beer dispenser constructed in accordance with our invention;

Fig. 2 is a front view of the same;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4;

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 4;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 1;

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 8; and

Fig. 10 is a transverse sectional view of the valve for controlling the flow of compressed air or gas to and from the glass elevating means.

Referring to the drawings, the numeral 1 designates a table or bar having secured thereto as by bolts and nuts, a casing which is made up of a substantially circular base 2, an upright hollow column 3 extending upwardly from the base, and a top part 4 joined to the said column and positioned directly over the base. The top part 4 of the casing is provided with a removable cover 5.

The top side of the base 2 is provided with a circular threaded flange 6 to which is screwed a housing 7, and located inside the latter is a resilient diaphragm 8 having its top side underlying a disc 9. The disc 9 is provided with an upstanding hollow projecting part 10 which movably extends through a central opening provided in the top side of the housing 7. Adjustably secured as by a pin 11 to the part 10 is a support 12 for a glass 13 to be filled with beer.

Leading into the base 2 from a pipe 14' connected to a source of compressed air is a pipe 14 connecting with a three way valve 15, the operating handle 16 of which extends through a horizontal slot in the said base. The casing of the valve 15 is provided with an inlet opening through which air supplied by the pipe 14 may enter, an outlet opening which is connected by a pipe 17 to the inside of the diaphragm 8, and an exhaust port or means 18 which permits the escape of air when it is released from the diaphragm. When the operating handle 16 is turned to a position indicated by the full lines in Fig. 8, the exhaust port is closed and the compressed air is permitted to proceed to the diaphragm 8. As the diaphragm becomes inflated the disc 9, the glass support 12 and the glass 13 are elevated. A check valve 19 connected to the pipe 14 at a point adjacent the valve 15 stops the air admitted to the diaphragm from proceeding in a reverse direction, thereby preventing the lowering of the glass 13 if the back pressure of the air becomes greater than the forward pressure. The back pressure of the air from the diaphragm might become greater than the forward pressure from the source of supply when the glass is filled with beer, or when the air pressure in a downward direction upon the glass overcomes the air pressure exerted in an upward direction against it. In either event the check valve 19, stopping a back flow of the air from the diaphragm, prevents the lowering of the glass. When it is desired, however, to lower the glass 13 after its becoming filled, the handle 16 of the valve 15 is turned to the left (indicated by the dotted position in Fig. 8), thereby causing the exhaust port 18 to be opened so the air from the diaphragm may be discharged therethrough.

Connected by means of a conduit 20 to the pipe 17, is a cylinder 21 secured as by bolts to the top side of the base 2, the said cylinder having an air actuated piston 22 therein which is provided with a piston rod 23. The free end of the piston rod 23 is provided with an upstanding lug 24, and extending around the latter are two forked bars 25, each of which is rigidly secured to an upstanding pivot rod 26. The pivot rods each carry arcuate shaped doors 27 which are adapted to enclose the glass 13 so as to prevent the possibility of splashing when the beverage is being

drawn. When the handle 16 is turned so as to admit air to the diaphragm 8, the piston 22 in the cylinder 21 is simultaneously actuated by the compressed air entering the latter, thereby causing the doors 27 to be moved to closed positions. A pair of springs 28 in the cylinder 21, which are compressed when the piston is actuated by the air pressure against it, serve to return the said piston to its normal position when the air pressure is released by the opening of the exhaust port 18 in the valve 15, thereby causing the doors 27 to be again moved to their normal open positions.

Leading from a suitable beer or beverage supply is a pipe 29 which extends through the hollow column 3 and connects with one of two diametrically opposed apertures 30 in a housing 31. Positioned in alignment with and at opposite sides of the apertures 30 are two pairs of smaller diametrically opposed apertures 30*a* and 30*b*. The housing has a longitudinally disposed tapered bore within which a taper cock 32 is rotatably mounted. The cock has three channels extending diametrically therethrough, each being adapted to register with a certain pair of apertures in the housing 31. The cock 32 is maintained inside the housing by means of a nut 33 and a washer 34 secured to a threaded axial projection on the end of said cock. The cock is formed with a hollow axially disposed end part 35 which extends externally of the top part 4 of the casing and is provided with an operating handle 36. Secured to the underneath side of the top part 4 of the casing is a plate 37 having an outwardly and inwardly disposed flange 38 at its periphery which serves to removably support a resilient rubber disc 39, the said disc being provided with three aligned holes that register with three similar holes in the said plate. The rubber disc 39 serves to seal the top of the glass 13 when the latter is moved upwardly into engagement therewith. The registering holes in the disc and plate also register with the apertures in the housing 31, thereby permitting a fluid to pass through certain of the apertures 30*a*, 30*b* or 30 in the housing at a given time, depending upon which of the holes in the cock 32 happens to be in registry with the said apertures. The aperture 30*a* in the housing connects with a pipe 40 leading from the pipe 14' connected to a source of compressed air, and the aperture 30*b* connects with an exhaust pipe 41 through which compressed air from the glass 13 may escape. So as to regulate the rapidity at which the compressed air is released from the glass 13, a needle valve 42 is positioned with its stem located in the axial opening in the hollow end part 35 and its pointed end in close proximity to the particular opening in the cock 31 which registers with apertures 30*b* of the housing. Thus by turning the handle of the needle valve 42, the pointed end of its stem may be moved into or out of the said hole in the cock through which the exhaust air passes, thereby regulating the amount of air passing through the same in a given time.

So as to prevent a return of the beverage from the glass 13 to the source of supply in the event the pressure of air supplied to the glass by the pipe 40 is greater than the pressure behind the beverage carried by the pipe 29, a check valve 43 is provided on the said pipe 29.

The holes in the cock 32 are arranged so that when the handle 36 is in a vertical position all ports are closed; when it is positioned rearwardly and at an incline the apertures 30*a* are the only ones open and compressed air is allowed to flow into the glass 13; and when the said handle is positioned forwardly and horizontally the central apertures 30 and also the apertures 30*b* are opened, thereby allowing the beverage to flow into the glass at the same time the compressed air is escaping therefrom. The various positions of the handle are also shown by the dotted lines in Figs. 5, 6 and 7.

It is not only desirable from an economy standpoint that the foaming of beer be controlled during the drawing operation, but it is also advantageous in so far as taste and quality are concerned that the natural gases in the beer be not allowed to escape in the form of foam. By means of the present invention, the operation of which will now be described, any kind of beer or similar beverage may be drawn and dispensed without undue foaming.

After a glass of suitable size is placed on the support 12, the handle 16 is turned to the right, thereby allowing compressed air or gas to enter the diaphragm 8 and the cylinder 21. The diaphragm, upon becoming inflated, causes the support 12 and the glass 13 to be elevated until the top edge of the said glass firmly engages with the rubber disc 39. Simultaneously, the piston 22 in the cylinder 21 is actuated so as to close the doors 27. The handle 36 is thereupon moved rearwardly so as to allow compressed air to enter the glass. The handle is thereupon moved forwardly to a horizontal position, thereby allowing the beverage to enter the glass 13 and the compressed air to proceed therefrom. The gradual escape of compressed air from the glass 13 as the beverage flows into it keeps the foam from collecting, this being due to the fact that there is a suitable air pressure at all times upon the top surface of the beverage as it rises in the glass. The maintenance of a proper air pressure in the glass is accomplished by the proper adjustment of the needle valve 42 which controls the outflow of compressed air or gas through the pipe 41. After the drawn beverage has filled the glass and the handle 36 is turned to an off position, the other handle 16 is manipulated so as to open the exhaust means 18 in the valve 15, thereby causing the deflation of the diaphragm 8 and the consequent lowering of the glass 13.

The ordinary time required in drawing and dispensing beverages of the beer type is considerably lessened when our improved apparatus is used. The positioning of the pin 11 in different openings in the shank of the support 12 serves to adjust the height of the said support in accordance with the particular size of the glass being used.

It is apparent to those skilled in the art that our invention is susceptible to various changes in regard to form, shape and minor details of construction, so for this and other apparent reasons we desire it understood that the appended claims shall define the limits our invention may assume rather than the exact disclosures herein made.

Having described our invention what we claim is:

1. In beverage dispensing apparatus, a support for a glass to be filled, a superposed member having a seal with an exposed face for engagement with the rim of such glass, said member having fluid inlet and outlet means within the area defined by such engagement, means for raising the support, whereby the glass top may be brought into engagement with the superposed member,

and door means synchronized with the support raising means for enclosing the glass.

2. In beverage dispensing apparatus, the combination comprising a casing having a base part, a widened upper part superposed over the base part and a single hollow column part connecting the base and upper parts, a beverage glass support mounted on the base part, a sealing member in the upper part of the casing having beverage inlet means, air inlet and air outlet means all within the area of the glass rim when the said glass rim is in engagement with the sealing member, pneumatic means in the base part for elevating the glass support so as to move the glass, whereby its rim is moved into engagement with the sealing member, valve control means mounted in the upper part of the casing for controlling the flow of beverage to the glass and for controlling the flow of compressed air to and from the glass, hinged enclosure means enclosing the glass, and fluid pressure operated means for actuating the last mentioned means.

3. In a beverage dispensing apparatus, a support for a glass to be filled, a superposed member having an exposed face adapted to engage and seal the rim of the glass, the said member having beverage discharge means and air inlet and outlet means opening through said face within the area defined by such sealing engagement, compressed air actuated means for raising the support, control means for regulating the flow of air to and from the said compressed air actuated means, means for enclosing the glass, and compressed air actuated means for actuating the enclosure means.

4. In beverage dispensing apparatus, the combination comprising a frame having a base part, an upper part superposed over the base part, and a hollow column part connecting the base and upper parts, beverage glass supporting means mounted on the base part, means on the upper part for sealing the rim of a glass positioned on the glass supporting means, means for changing the relative positions of the glass supporting means and the sealing means, whereby the sealing means may be positioned in a closing position engaging the glass rim, means connected to a source of compressed air for admitting air to the glass while its rim is engaged by the sealing means, means for releasing air from the glass, and means connected to a source of liquid supply for admitting liquid to the inside of the glass, means for selectively controlling the flow of compressed air to the glass, for controlling the flow of liquid to the glass and the flow of air from the glass, hinged enclosure means for enclosing the glass, and fluid pressure operated means for actuating the last mentioned means.

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