May 14, 1935. D. SWEENEY 2,001,040

BEER DISPENSING EQUIPMENT

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Fig. 1.

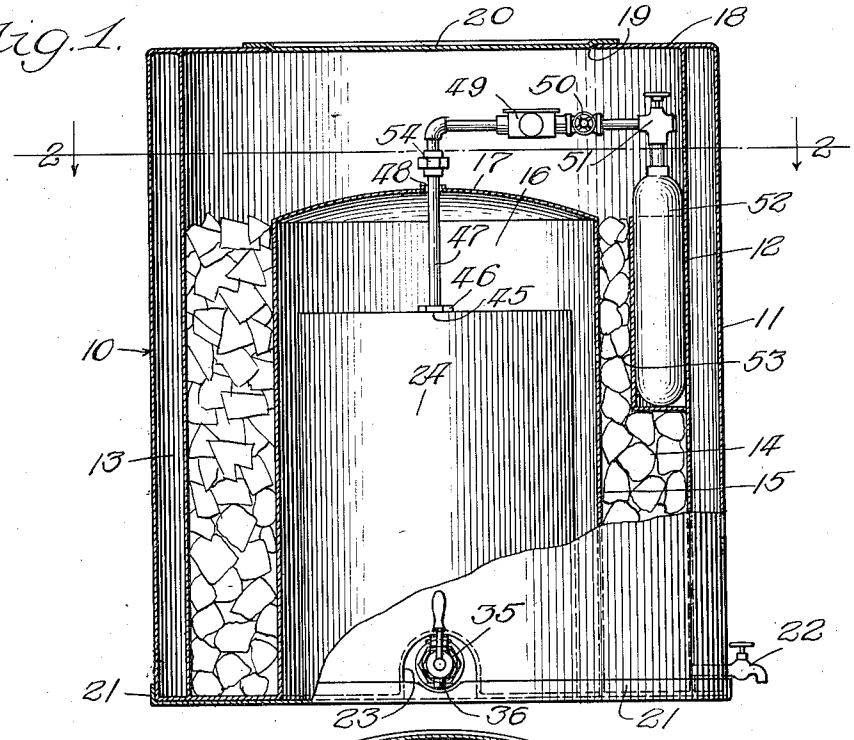


Fig. 2.

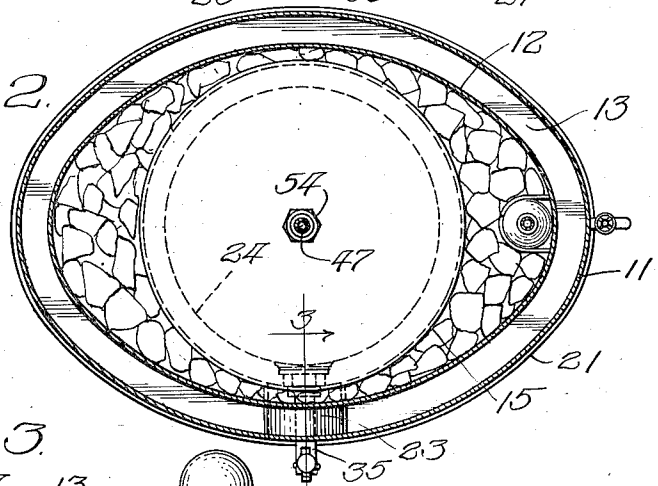
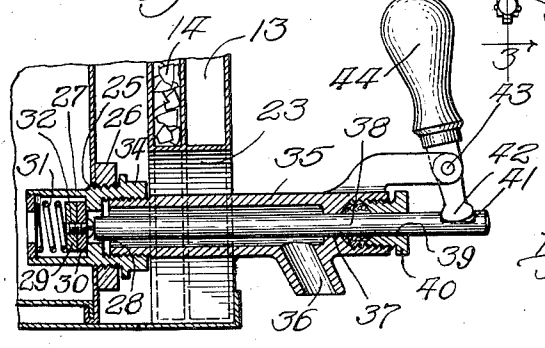


Fig. 3.



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BEER DISPENSING EQUIPMENT

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4 Claims. (Cl. 225—40)

This invention relates to beer dispensing equipment, and more particularly to equipment for handling, cooling, and dispensing beer or other liquids.

One feature of my invention is that it is adapted for easy handling of quantities of liquid up to ten gallons or more. Another feature of my invention is the provision of means for expelling liquid, for example, beer, from a container without exposing the liquid remaining in the container to air. This is especially useful in dispensing beer where one container may be more or less infrequently used. In the ordinary case, for example, if a beer container is partially emptied, and air allowed to enter the container to fill up the space previously occupied by the liquid drawn off, the liquid remaining in the container is likely to become spoiled by contact with the air, especially if not used rather promptly. All these objections are overcome by my invention. I apply an inert gas, for example, carbon dioxide gas, (or some gas which will not spoil the beer or other liquid in the container) to the top of the container under suitable pressure. This gas then serves not only to expel the liquid from the container as it is used, but also fills up the space in the container occupied by the liquid drawn off, so that no spoilage results to the liquid remaining in the container. Still another feature of my invention is the elimination of cooling coils with their tendency to spoil beer standing in them.

Still other features and advantages of this invention will appear from the following specification, and the drawing, in which—

Figure 1 is a vertical view, chiefly in section; Fig. 2 is a horizontal sectional view, along the line 2—2 of Fig. 1; Fig. 3 is a vertical sectional view along the line 3—3 of Fig. 2, showing the valve and discharge mechanism in detail.

The receptacle, cooler, or holder 10 has an outer wall 11 separated from a second wall 12 by an air space 13. The air space between the outer wall and the second wall serves as insulation to protect the cooling medium or refrigerant 14 which lies between the second wall 12 and an inner wall 15. This inner wall 15 forms a circular well 16 within the receptacle 10, said well being open at its lower end and closed by a dome or top 17 at its upper end. The receptacle 10 has a top 18 with an opening 19 adapted to receive a cover or lid 20. The receptacle 10 rests in a base 21, which serves to close the bottom of the well 16.

The receptacle has extending through the outer and second walls thereof a drain faucet 22, which faucet is adapted to conveniently drain off water resulting from the melting of crushed ice when crushed ice is used as the cooling medium 14. The receptacle 10 has also extending therethrough a tunnel or arched opening 23. This tunnel extends from the exterior of the receptacle into the well 16, but is so constructed as to afford no opening into the air space 13 or the space in which the cooling medium 14 lies.

The container 24 is of substantially cylindrical shape, and may be made of some form of tinned sheet metal. The container 24 has through the wall thereof near the bottom an opening 25 surrounded by a shoulder 26 into which is threaded a valve casing 27. The valve casing 27 has through the center thereof an opening which is normally closed by a valve member 29 held in contact with the valve seat 30 by the spring 31, which is fastened to the valve member by any convenient means, as the screw 32. The valve casing 27 has on the outside of the container a shoulder 34 adapted to receive a threaded discharge pipe 35, having a spout 36 opening therefrom. The discharge pipe has in it a guide 37 in which slides a thrust rod 38. This thrust rod extends the full length of the discharge pipe, and is adapted to engage the screw 32 in the valve member 29 at one end, and to project without the discharge pipe at its other end. The opening 39 through which the thrust rod projects outside of the discharge pipe is through a packing nut or gland 40, which is adapted to seal the opening against any discharge of liquid therethrough. The thrust rod has in its projecting end a slot 41 adapted to receive one end 42 of a lever mounted on a pivot 43. The other end of the lever is shaped as a handle 44 whereby manual control of the discharge may be effected.

The container 24 has in the top thereof an opening 45 surrounded by a shoulder 46 adapted to receive a pipe 47, or to be closed by any convenient means, as by a threaded plug not here illustrated. The pipe 47 extends through an opening 48 in the dome 17 and makes connection with an expansion or reduction valve 49. This expansion valve 49 is set to permit some convenient low pressure to pass therethrough, as for example a gage pressure of two pounds of gas. Immediately beyond the expansion valve is a shut off valve 50 and a pipe and coupling 51 which connect with a small tank 52, as for example a tank adapted to contain liquid carbon dioxide. The tank 52 is retained in a holder or clamp 53 on the second wall 12.

The container 24 may be filled with liquid by forcing it in through the opening 26 in the valve 27, the discharge pipe 35 having been unscrewed. The opening 45 is left open to the atmosphere while the liquid is being pumped into the container, thus permitting free escape of the air in the container. After the container is filled the opening 45 may be closed in any convenient manner, as for example by a threaded metal plug. The container is then ready for transportation, having no projections to interfere with easy handling, and being quite light in comparison with the amount of liquid contained.

When the container is received at the point where the liquid is to be dispensed, the threaded plug closing the opening 45 is removed and the pipe 47 is screwed in in its place. The discharge pipe 35 is screwed into the shoulder 34 of the valve casing 27, and so positioned that the handle 44 is upright. The container 24 is then placed in the well 16 with the pipe 47 extending through the opening 48 and the discharge pipe 35 extending through the tunnel 23 to the outside of the receptacle 10. The well is then closed by the base 21. The lid 20 is then removed and the pipe 47 connected to the expansion valve 49 by the coupling 54. The space between the inner wall 15 and the second wall 12 may then be filled with any convenient cooling medium, as ice or dry ice. The shut off valve 50 is then opened, permitting the liquid carbon dioxide in the container 52 to pass through the expansion valve 49 and exert a moderate pressure on the liquid in the container 24. Pressure on the handle 44 will now result in a discharge of liquid from the spout 36, which may be continued until the container is empty. When all the liquid has been dispensed the shut off valve 50 may be closed, the coupling 54 unscrewed, and the empty container removed. A new container may then be inserted by the process outlined above.

This particular arrangement keeps the entire quantity of liquid at a desirable temperature, and yet is economical in its use of cooling medium, since the air space 13 serves to insulate it from exterior heat. A relatively small quantity of liquid carbon dioxide is sufficient to discharge a large quantity of liquid at the low pressure employed. The use of the expansion valve insures the utmost safety, since at no time do the gas pressures rise to dangerous heights in the container 24. When the pressure has been exhausted, it is only necessary to remove the tank 52 and insert a new tank, or replace the same tank after refilling with liquid carbon dioxide.

While I have shown and described certain embodiments of my 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, in which it is my intention to claim all novelty inherent in my invention as broadly as possible in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. Apparatus of the character described, including; a container for liquid; a receptacle having a well adapted to receive said container, an outer wall, and a space between said well and said outer wall adapted to receive a cooling medium; a source of fluid pressure within said receptacle adapted to maintain a constant low pressure in said container; a spring pressed valve removably fixed in said container; a discharge pipe adapted to engage with said valve; a valve operating mechanism integral with said pipe; and a tunnel in said receptacle whereby said operating mechanism extends to the exterior of said receptacle.

2. A receptacle of the character described, including; an outer wall; a second wall immediately within said outer wall and separated therefrom by an air space; an inner wall forming a well in said receptacle, the well being open at one end thereof; an arched tunnel extending from the inner wall to the outer wall; a top for said receptacle; and a base for said receptacle adapted to close said well.

3. A receptacle of the character described, including; an outer wall of oval shape; a second wall immediately within said outer wall and separated therefrom by an air space; an inner wall forming a circular well in said receptacle, the well being open at the lower end thereof; an arched tunnel extending from the inner wall to the outer wall; a top for said receptacle having an opening therein; a lid for said opening; and a base for said receptacle adapted to close said well.

4. A receptacle adapted to contain a refrigerant and provided with a well, said refrigerant substantially surrounding said well; an air space surrounding said refrigerant; a liquid container in the well; a tunnel in said receptacle; a draw-off valve connected to the bottom of said container, extending through said tunnel, and provided with manually operable means outside of said receptacle; a container for compressed carbon dioxide gas inside of said receptacle; an expansion valve; and a connection between said gas container and the top of said liquid container, said connection including the expansion valve.

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