

J. E. HIRES.
DISPENSING CARBONATOR FOR BEVERAGES.
APPLICATION FILED MAY 5, 1919.

1,437,306.

Patented Nov. 28, 1922.
2 SHEETS—SHEET 1.

Fig. 1.

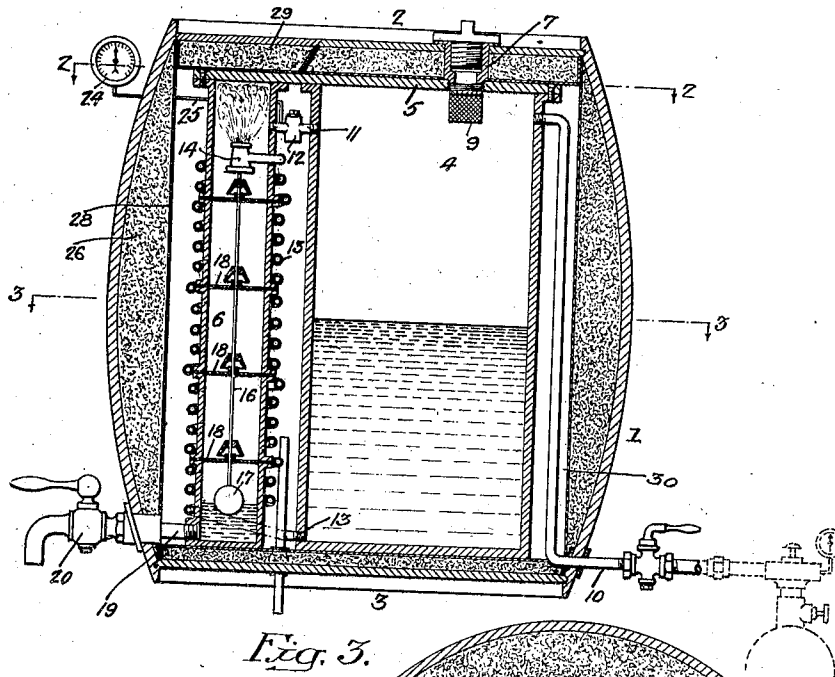


Fig. 3.

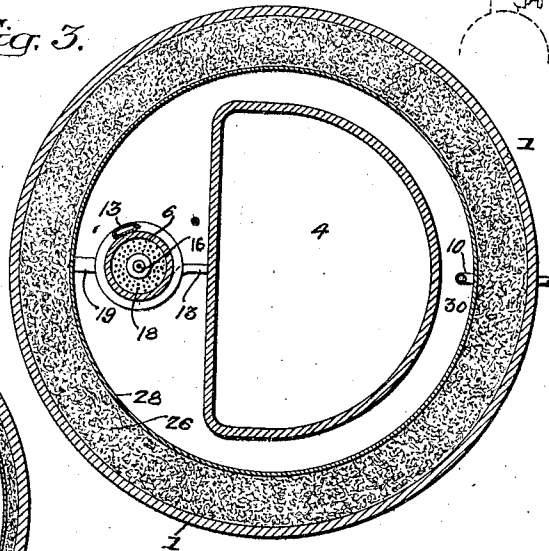
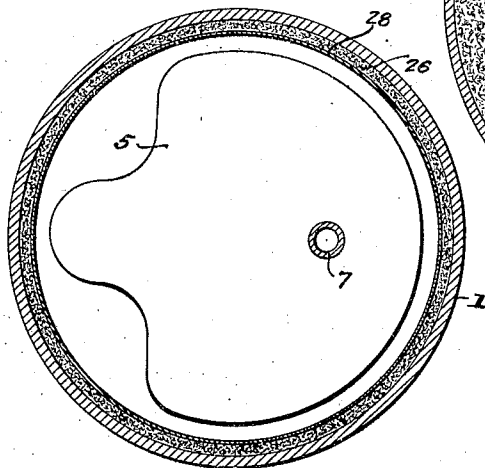


Fig. 2.



Inventor,
John Edgar Hires,
by *Wm. A. Hires*
Hires & Hires

J. E. HIRES.
DISPENSING CARBONATOR FOR BEVERAGES.
APPLICATION FILED MAY 5, 1919.

1,437,306.

Patented Nov. 28, 1922.
2 SHEETS—SHEET 2.

Fig. 4.

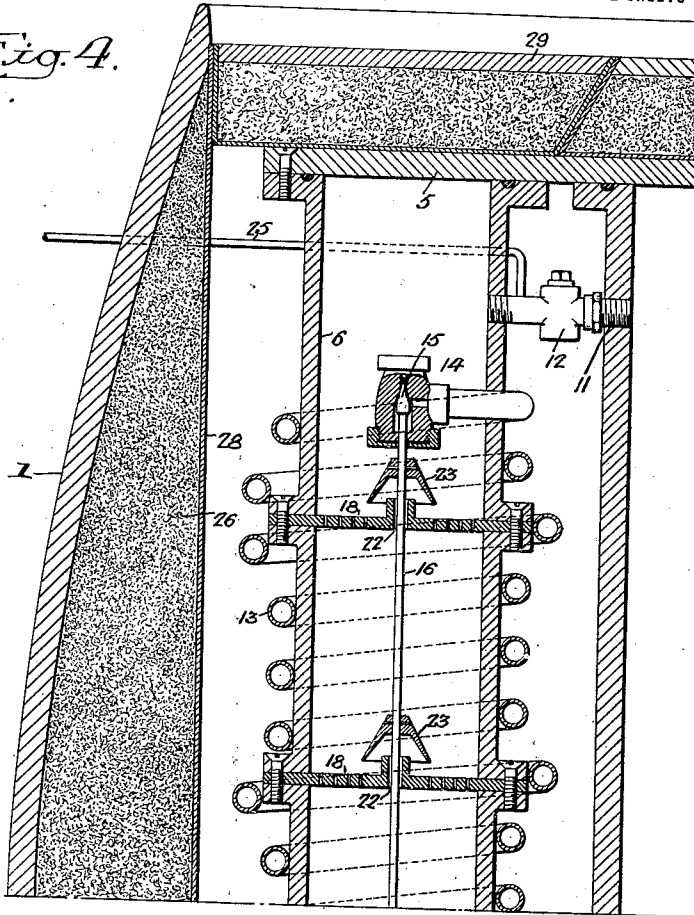
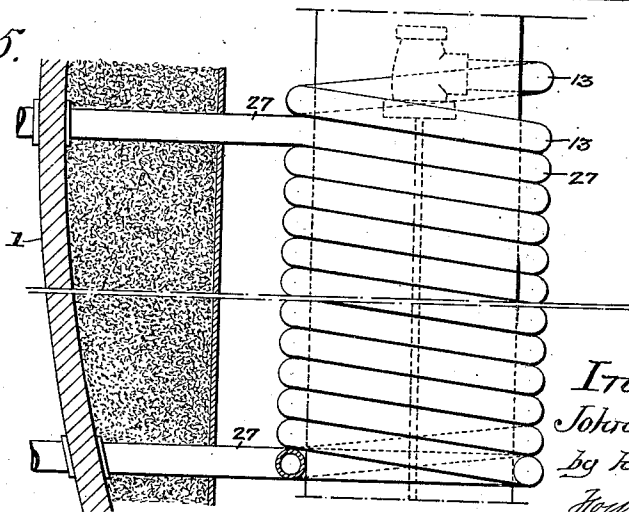


Fig. 5.



Inventor,
John E. Hires.
By his Attorneys,
Johnson & Hines

UNITED STATES PATENT OFFICE.

JOHN EDGAR HIRES, OF ARDMORE, PENNSYLVANIA.

DISPENSING CARBONATOR FOR BEVERAGES.

Application filed May 5, 1919. Serial No. 294,745.

To all whom it may concern:

Be it known that I, JOHN E. HIRES, a citizen of the United States, and a resident of Ardmore, county of Montgomery, State of Pennsylvania, have invented certain Improvements in Dispensing Carbonators for Beverages, of which the following is a specification.

The object of my invention is to provide a dispensing apparatus for beverages with a carbonator, so that uncarbonated liquid can be placed in the apparatus and carbonated as it is drawn from the receptacle.

In the accompanying drawings:

Fig. 1 is a vertical sectional view of my improved carbonator for beverages;

Fig. 2 is a sectional plan view on the line 2—2, Fig. 1;

Fig. 3 is a sectional plan view on the line 3—3, Fig. 1;

Fig. 4 is an enlarged sectional view illustrating in detail the construction of the carbonator, and

Fig. 5 is a view showing a refrigerating coil surrounding the carbonating chamber.

1 is a container made in the form of a barrel in the present instance, having a bottom 3 and a top 2. The top has a removable section 29, as shown, for the introduction of ice. The container has a lining 28 and between the lining and the body of the container is a filling 26, preferably of cork. The top and bottom are also lined and filled, as shown. Located within this container is a vessel 4 closed at the bottom and having a removable cover plate 5. Adjoining this vessel is a carbonating device consisting of a tubular chamber 6 of the same length as the vessel 4 and, in the present instance, closed by the same plate 5.

7 is a nipple attached to the cover plate 5 and extending through the top 2 of the barrel. The vessel 4 is filled through this nipple, which is closed by a screw cap. Extending from the nipple is a strainer 9.

The space 30 surrounding the vessel 4 and chamber 6 is filled with ice through the opening in the top closed by the section 29, as the liquid must be cool.

10 is a pipe leading from a gas pressure tank, shown by dotted lines in Fig. 1, which extends through the space 30 and is connected to the upper part of the vessel 4. The chamber 6 is connected to the vessel 4 through a pipe 11 in which is a reducing valve 12 so as to keep the pressure in the

carbonating chamber below that in the vessel 4. Communicating with the lower portion of the vessel 4 is an outlet pipe 13, which is coiled around the chamber 6, as shown in Figs. 1 and 4, and is connected to a spray nozzle 14 located in the upper portion of the chamber 6. This nozzle has a valve 15 which is connected by a rod 16 with a ball float 17 in the lower portion of the chamber 6. This float regulates the amount of liquid passing the carbonator.

18, 18 are a series of perforated disks, which tend to break up the flow of liquid so that it will be fully carbonated by the time it reaches the bottom of the carbonating chamber. Communicating with the bottom of this chamber is an outlet pipe 19 having a spigot 20.

The rod 16, connected to the valve, passes through enlarged openings 22 in the disks 18 and there is a bonnet 23 on the rod above each disk, which prevents the liquid running down the rod and through the openings 22. By this construction, the several spaces between the disks contain gas of the same pressure, while the liquid must pass through the small perforations in the disks 18, accumulating in the bottom of the carbonator. The valve of the spray nozzle is the ordinary needle valve and the nozzle is preferably arranged so as to give a twirling action to the spray.

I preferably provide a pressure gage 24 connected by a pipe 25 with the pipe 11 between the reducing valve 12 and the carbonating chamber 6, so that the attendant can ascertain the pressure in the said chamber.

Where a refrigerating coil 27 is used, as in Fig. 5, I preferably coil it around the chamber 6 in close contact with the liquid coil 13, and I may return the coil to form a double coil, if found desirable, as it will be understood that the liquid must be cool before it can be properly carbonated. The coil is connected to any suitable refrigerating apparatus.

In operation, the liquid to be carbonated, as a fountain beverage for instance, is poured into the vessel 4 through the filling opening in the nipple 7. Gas is then admitted to this vessel through the pipe 10 at about 30 lbs. pressure. The reducing valve 12 in the pipe 11 is set so as to reduce the gas passing through the pipe from the vessel 4 into the carbonating chamber 6 to about

20 lbs., so that when the spray valve 14 is opened there will be sufficient pressure to cause the liquid to be sprayed through the nozzle into the carbonating chamber. The
 5 finely divided liquid as it falls will pass through the perforating disks 18 and become thoroughly carbonated by the time it reaches the bottom. As the liquid accumulates in the bottom, the float will rise and
 10 will close the valve in the spray nozzle and the flow of liquid will cease. When the spigot 20 is open, then the liquid in the bottom is removed and the float is lowered and the valve in the spray nozzle is opened,
 15 which will allow the liquid to be again sprayed into the carbonating chamber until the liquid in the bottom of the chamber rises to a certain height, which will close the valve.

20 While I have shown the container in the form of a barrel, it will be understood that it can be made of any suitable material and form. The barrel construction is especially adapted for use where the dispensing apparatus is installed in fair grounds, and similar places, but where used at a soda fountain a more attractive and ornamental structure may be provided. In some instances, the vessel 4 may be located in one container and
 25 the carbonating chamber may be located in another container without departing from the essential features of the invention.

I claim:

1. The combination in a dispensing carbonator for beverages, of a vessel containing
 35 the liquid to be carbonated; a pressure pipe communicating with the upper portion of the vessel for admitting a gas under pressure thereto; a carbonating chamber; a pipe
 40 forming communication between the upper part of the vessel and the upper part of the carbonating chamber; a reducing valve in the said pipe; a pipe leading from the bottom of the vessel and encircling the carbonating chamber and terminating within the
 45 upper portion of the carbonating chamber in a spray nozzle; means for regulating the passage of liquid through the spray nozzle into the carbonating chamber controlled by
 50 the level of the liquid in the bottom of the carbonating chamber; and means for drawing the liquid from said carbonating chamber.

2. The combination of a container; a vessel located in the container; a carbonating
 55 chamber at the side of the vessel and also in the container; a pipe forming communication with the upper end of the vessel and the chamber; a reducing valve in the pipe; a pressure pipe communicating with the vessel; a spray nozzle in the carbonating chamber communicating with the bottom of the

vessel; a valve in said spray nozzle; a float attached to the valve located in the lower portion of the carbonating chamber; an outlet
 65 pipe at the bottom of the carbonating chamber so that as the liquid is drawn off the level of the liquid in the carbonator is lowered and the valve of the spray nozzle is opened, allowing additional liquid to be
 70 sprayed into the carbonating chamber.

3. The combination in a dispensing carbonator for beverages, of a container; a vessel in said container; a carbonating chamber of less size than the vessel, also located in
 75 the container; a gas pipe communicating with the upper portion of the vessel; a second pipe connecting the upper portion of the vessel with the upper portion of the carbonating chamber; a reducing valve in said
 80 second pipe; a third pipe leading from the bottom of the vessel and coiled around the carbonating chamber; a nozzle within the upper portion of the carbonating chamber connected to said third pipe; a valve in said
 85 nozzle; a float connected to the valve and arranged to be raised and lowered according to the amount of liquid in the bottom of the carbonating chamber; and a series of perforated disks in the carbonating chamber
 90 over which the liquid passes from the nozzle.

4. The combination in a dispensing carbonator for beverages, of a container; a vessel in said container; a carbonating chamber of less size than the vessel, also in the container; a gas pipe communicating with the
 95 upper portion of the vessel; a pipe connecting the carbonating chamber with the upper portion of the vessel; a reducing valve in said pipe; a pipe leading from the bottom of the vessel and coiled around the carbonating
 100 chamber; a nozzle within the carbonating chamber connected to said valve and arranged to be raised or lowered according to the amount of liquid within the bottom of the carbonating chamber; and a pipe
 105 coiled around the carbonating chamber and connected to a refrigerating apparatus so as to cool the liquid as it is being carbonated.

5. The combination in a dispensing carbonator for beverages, of a vessel; a carbonating chamber; a spray nozzle in the chamber communicating with the bottom of the
 110 vessel; a series of perforated disks spaced apart and located in the carbonating chamber, each disk having an enlarged opening and having a flange around said opening; a valve in the spray nozzle; a rod connected to the valve and extending through the enlarged openings in the disks; a hood on the
 115 rod above each disk; and a float at the lower end of the rod.

In witness whereof I affix my signature.
 JOHN EDGAR HIRES.