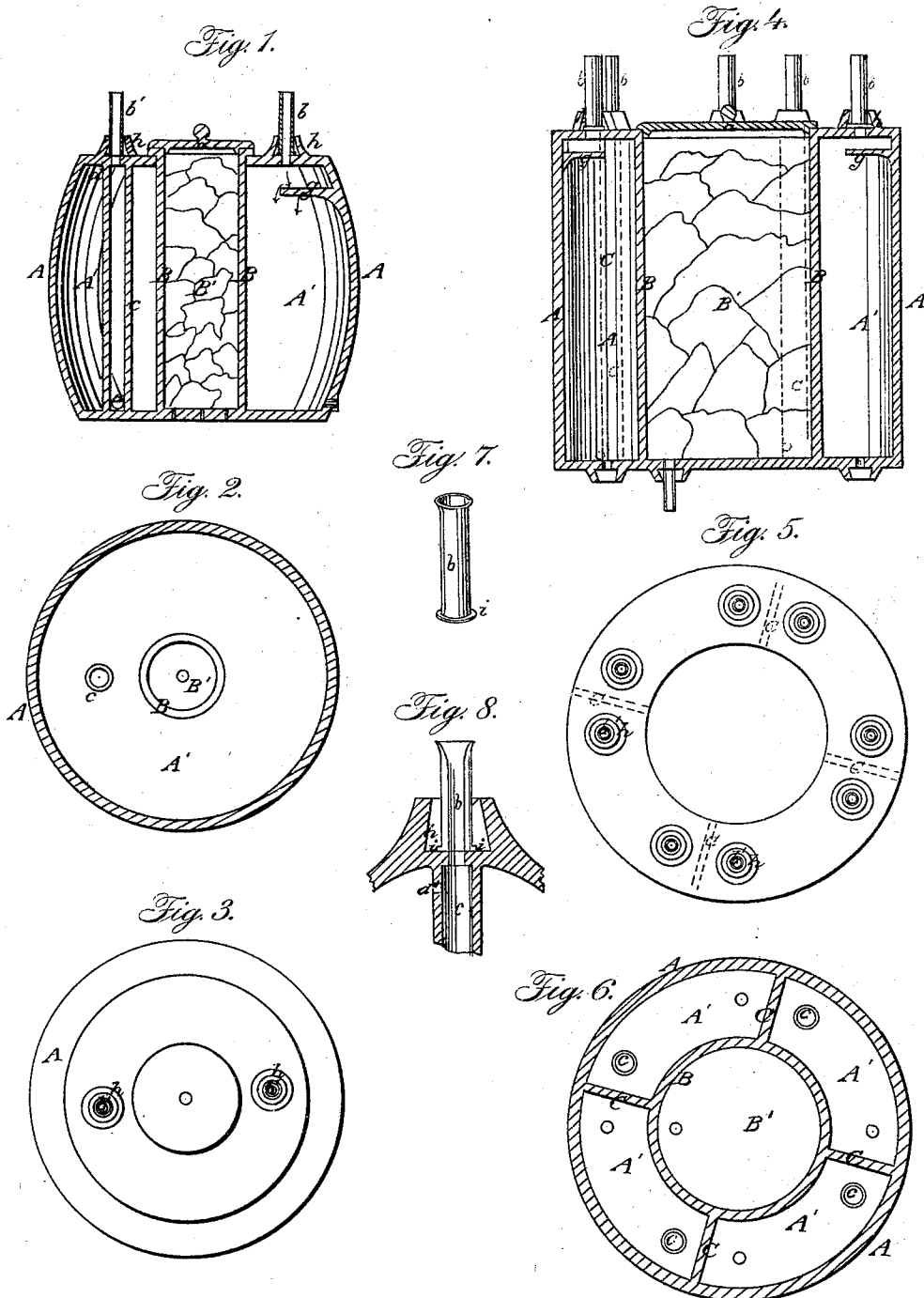


CARTER & ORCUTT.

Beer Cooler.

No. 44,514.

Patented Oct. 4, 1864.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN V. B. CARTER AND CHARLES F. ORCUTT, OF ALBANY, NEW YORK.

IMPROVED VESSEL FOR REFRIGERATING LIQUIDS.

Specification forming part of Letters Patent No. 44,514, dated October 4, 1864.

To all whom it may concern:

Be it known that we, JOHN V. B. CARTER and CHARLES F. ORCUTT, both of Albany, county of Albany, and State of New York, have invented a new and Improved Vessel for Refrigerating Liquids; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section through a cooler having a single liquid-vessels, surrounding an ice-chamber. Fig. 2 is a horizontal section through Fig. 1. Fig. 3 is a top view of Fig. 1. Figs. 4, 5, and 6 represent views of a cooler having a number of liquid-chambers surrounding a single ice receptacle. Fig. 7 is a flanged tube or nozzle which is used for connecting a pipe to the refrigerator when it is made of earthenware. Fig. 8 is an enlarged sectional view showing the manner of connecting this nozzle to the refrigerator.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved refrigerator through which liquids can be forced from a reservoir located in a cellar or other place, and cooled during their passage to the service-pipe.

The object of our invention is to arrange the ice-receptacle within a liquid chamber or chambers in such manner that there shall be a body of liquid surrounding a body of ice, yet separated from the latter by a partition, and receiving all the advantages which would arise from having the ice immersed in the liquid to be cooled without the disadvantages of having the dirt and water of the ice mix with this liquid, as will be hereinafter described.

Another object of our invention is to so arrange the service-pipe within one or more liquid-chambers which surround an ice-chamber that the liquid in said chamber or chambers can be drawn directly from the bottom or coolest point, at the same time providing for the escape of gas above the liquid during the act of drawing the same from the vessel, as will be hereinafter described.

Another object of our invention is to introduce the liquid to be cooled at the top of a chamber, which incloses an ice-vessel, and to check the flow of this liquid as it enters said

chamber in such manner that it shall not stir up the sediment therein, as will be hereinafter described.

Another object of our invention is to provide for attaching metallic pipes to the refrigerators, when they are made of earthenware, so that a permanent and tight joint can be readily and cheaply made, as will be hereinafter described.

To enable others skilled in the art to make and use our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the outer wall of our refrigerator, and B represents the inner wall thereof, which are closed at the top and bottom so as to form an ice-receptacle, B', and an annular liquid-receptacle, A', as shown in Figs. 1 and 2. The ice is introduced into the chamber B' through an opening in its top, and this opening is then closed by the cover *a*, fitting tightly thereon. The ice-water can be drawn off from the chamber B' by means of a pipe introduced into its bottom; or it may be drawn off at any other point where it would be most convenient. The liquid to be cooled is introduced into the chamber A at the top thereof by means of a pipe, *b*, as shown in Figs. 1 and 3, and the cooled liquid is drawn out of said chamber through a pipe, *c*, which leads down to the bottom of this chamber and communicates with a service-pipe, *b'*, which is secured to the top of the refrigerator, as shown in Figs. 1 and 3. The opening *d* near the bottom of the pipe *c* is located at this point for two reasons—viz., it conducts off the liquid which is at the lowest and consequently the coolest part of the chamber A', and being located above the bottom of said chamber, none of the sediment will be carried off with the liquid. The opening *d'* through the pipe *c* is located near the top of this pipe for the purpose of conducting the gas, which is above the liquid in chamber A, into and off through the service-pipe *b'* during the operation of drawing liquid through this pipe.

At a suitable distance below the end of inlet-pipes *b* a shelf, *g*, is fixed, which is intended to break the force of the liquid entering the chamber A', and prevent it from pouring directly down upon the liquid in this chamber, and thus stirring up the sediment. The shelf *g* will check the fall of the liquid and allow it

to flow gently but freely down the sides of the outer wall, A. This shelf does not retard the flow of liquid through the inlet-pipe, but merely breaks its fall, for the purpose above stated.

In carrying out our invention we propose to make the refrigerators of earthenware, making the walls surrounding the chamber A' very thick, so that the liquid in this chamber will remain cold very long. The inner and outer walls, as well as the shelf or bracket g, can all be made in one homogeneous piece, or they may be made in separate pieces and suitably cemented together.

When the refrigerator is made of earthenware, as represented in the drawings, conical chambers h are formed on the outer surface of the outer wall, A, surrounding the openings through this wall through which the liquid is conducted into or out of the chamber A' or B'. The object of these conical recesses is to receive the tubes b b', which are formed with flanges i on their lower ends, as shown in Figs. 7 and 8. When the tubes b b' are properly adjusted in their respective recesses, the latter are filled with cement, which hardens and not only secures the tubes in place, but forms permanently tight joints.

In Figs. 4, 5, and 6 we have represented a refrigerator which is constructed substantially like that of Fig. 1 above described, the difference in its construction being this: the liquid-chamber A' is subdivided by partitions, C, and each subdivision is furnished with inlet and outlet passages b c b', as represented in Figs. 1 and 4. The ice-chamber B' can be made somewhat larger in proportion to the size of the liquid-chambers, or the proportions may be such as we have shown in Fig. 1.

The advantages of having separate chambers surrounding a single ice-chamber are that several different kinds of liquid can be cooled and drawn off for use from a single refrigerator using only one ice-chamber inclosed or surrounded by the different liquids.

It will be seen from the above description of our invention that we obtain a cooling-trap for refrigerating and purifying the liquids which are passed through it; that the sediment in the liquid is precipitated as it is cooled,

leaving only the pure liquid to be drawn off for use, while in coolers which have hitherto been used the liquid-vessels is surrounded by a large body of ice, and the liquid forced through this vessel in a continuous stream, carrying with it all the sediment, &c. By surrounding the ice-chamber with the liquid to be cooled the apparatus can be made very compact and highly ornamented, at the same time the ice will rapidly cool the liquid impinging upon the chamber containing it.

Where ice is placed around a vessel of liquid to cool it, the ice is subjected not only to the warm sides of said vessel, but also to the warm sides of the vessel containing it. By our invention the result is different, and the ice cools the liquid surrounding it without melting very rapidly.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A refrigerator which is provided with an internal ice-chamber, B', an external liquid chamber or chambers, A', and inlet and discharge pipes b b', arranged substantially as described.

2. The arrangement of a pipe, c, within the chamber A', provided with openings near the bottom and a gas-vent near the top, substantially as described.

3. The combination of the inlet-pipe b with the internal pipe, c, and external discharge-pipe, b', substantially as described.

4. The bracket or shelf g, arranged in liquid-chamber A' beneath the inlet-pipe b, substantially as described.

5. The conical recessed projections formed on the outer surface of the wall A, in combination with the flanged tubes or coupling-pipes, substantially as described.

6. The combination of the internal ice-chamber, B', with a series of liquid-chambers arranged around it, each liquid-chamber being provided with an inlet-pipe and an outlet-pipe, substantially in the manner described.

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