

March 15, 1927.

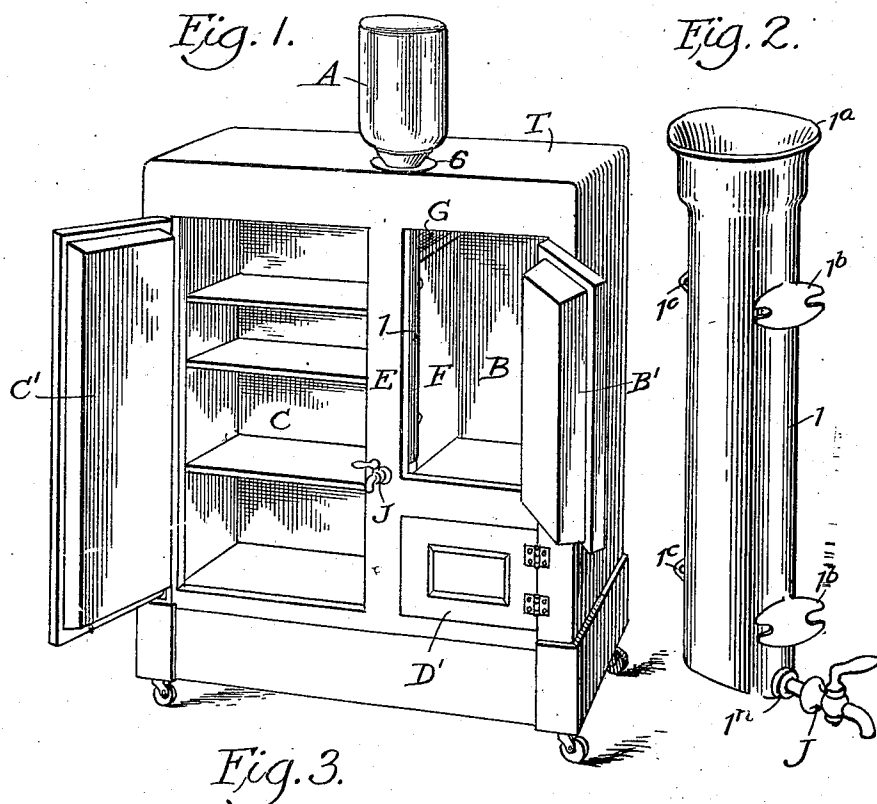
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WATER COOLER FOR REFRIGERATORS

Filed July 2 1925

2 Sheets-Sheet 1



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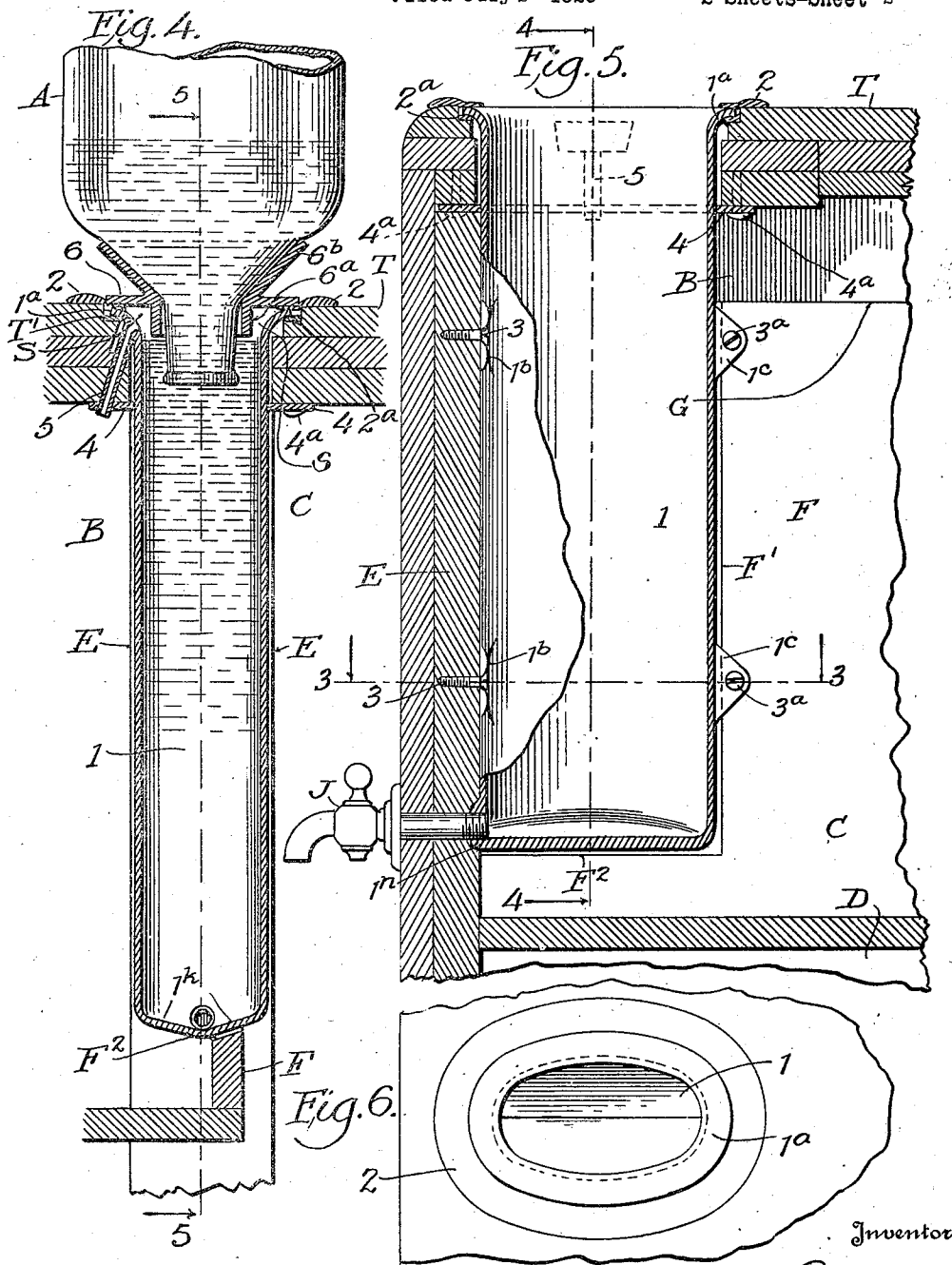
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2 Sheets-Sheet 2



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WATER COOLER FOR REFRIGERATORS.

Application filed July 2, 1925. Serial No. 41,094.

This invention is a novel improvement in drinking water coolers and has particular reference to water coolers for use in refrigerators, and includes the construction of the cooler itself and the novel method of installing same within a refrigerator without obstructing the ice or food compartments; that it will be chilled by the ice therein, can be easily filled when desired without removing it—and can be readily used in connection with an inverted bottle by which the water may be automatically supplied to the cooler as it is withdrawn therefrom. A further object is to so install this cooler in the refrigerator that it will not only cool water, but will remove all odors from water, such as from artesian wells or other sources of like nature.

I will describe the invention with reference to the accompanying drawings which illustrate one practical embodiment thereof and refer to the claims for summaries of the invention and essential features of construction and novel combinations of parts for which protection is desired. In said drawings:

Figure 1 is a perspective view of a refrigerator with my novel cooler applied thereto.

Figure 2 is a perspective view of the cooler detached.

Figure 3 is a transverse section on the line 3—3, Figure 5.

Figure 4 is a vertical section on the line 4—4, Figure 5.

Figure 5 is a vertical section on the line 5—5, Figure 4, with the bottle and bottle holder removed.

Figure 6 is a detail top plan view of Figure 5.

The refrigerator may be of any suitable construction and as shown has the usual ice compartment B and food compartment C, and also a smaller food compartment under the ice compartment as usual, and communicating therewith, access to which is had through a door D'; and the compartments B and C can be also closed by doors B', C', as usual. At the front of the refrigerator, and between the compartments B and C is a vertical stile E which may be of one or more thicknesses of material against which the doors B', C', D' close. The partition

wall F between compartments B and C has an opening G at top for the passage of air from the food chamber C into the ice chamber B. The particular construction of the refrigerator forms no material part of the present invention, and it may be of any suitable construction; as the invention is not limited to any particular make of refrigerator.

The novel water cooler 1 is preferably oval in cross section and, for use in a refrigerator of the type shown, its shortest diameter is preferably less than the width of the stile E, and such cooler is placed in the refrigerator in rear of the stile E, and can be inserted in position through an opening in the top T of the refrigerator, which opening is of a size to permit the cooler to be lowered therethrough into position, and an opening F' is made in the partition wall F to accommodate the said cooler, as shown in Figures 3 and 5 of the drawings.

The upper open end of this cooler is flared outwardly as at 1^a and this flange rests upon a gasket 2^a which is placed in and around a shoulder T' at the upper side of the opening in the top T, so that the top of the cooler is practically flush with the upper surface of the top T. The upper end of the cooler may be securely positioned in place by means of a collar 4 suitably secured to the under side of the top T around the opening therein, as by screws 4^a. The cooler is further supported in position by means of lugs 1^b, on the front side of the cooler which are secured to the inner face of the stile E by means of bolts or screws 3 as indicated in the drawings. The cooler is also preferably provided on its rear side with perforated ears 1^c which are fastened to the adjacent edge of the partition F by means of screws or bolts 3^a. The bottom of the cooler is preferably approximately V-shaped in cross section—as indicated at 1^k in Figure 4, and is provided at its front side with a nipple 1^a which may be engaged by the inner end of a faucet J of usual construction, extending through a suitable opening in the stile E.

An air space or chamber S is provided at the upper end of the cooler within the opening in the top T and between the flange 1^a and a bottle holder 6 hereinafter referred to.

This air chamber is important in the operation of the cooler. It is desired to maintain a higher temperature at the top portion of the cooler (and practically outside of the chambers B and C) than at the lower portion or bottom of the cooler within and between the chambers B and C. This air chamber S is in communication with the upper end of the ice chamber B by means of a duct 5 in the top of the refrigerator, see Figure 4, in which duct may be inserted a metal tube. This duct establishes communication between the air chamber S and the ice chamber B and all odors arising from the water as it is being cooled rise up into the chamber S and thence into the ice chamber B, and are condensed or precipitated therein. The construction shown has been made expressly to keep the circulation of air in a given direction so that cooling of the water will be gradual from top to bottom, and of such a temperature that the throwing off of odors will take place, and that the water will be fresh and cold for drinking without taking excess ice for its operation.

The duct 5 also serves an important function in the construction of a refrigerator with a cooler; for if in filling the cooler, any water overflows into the chamber S it is immediately drained out through duct 5, and does not penetrate into the wood construction, and the danger of damaging the top by water is overcome.

Preferably I employ in connection with this cooler an inverted water supply bottle, as shown at A and when this is used an inverted water bottle holder 6 is employed, such water bottle holder being of usual construction and large enough to cover the upper end of the cooler (and having an opening for the neck of the bottle) surrounded by an inwardly depending circular flange 6^a and by the upwardly extending outwardly flaring flange 6^b adapted to hold the inverted bottle in position above the holder, as indicated in Figures 1 and 4.

The lugs 1^b are of such construction that they can be quickly secured to the wooden stile E as shown, and are so small that the slight chilling of the stile caused thereby will not cause sweating of the wood, and they are also smaller at their junctions with the cooler than at their outer faces. The object of this is to not retard the flow of air down along the outer sides of the cooler. The air passes down to the bottom of the cooler. The object of the V-shape of bottom of cooler is to cause all water vapors condensing on the ice chamber side of cooler, or water from ice contacting the cooler, to drip inside of the ice chamber. The air can circulate under the cooler from the ice chamber to the provision chamber through the passage or space F² between the lower end of the

cooler and the partition F; this circulation facilitating the last stage of cooling, and the water will be colder at the bottom of the cooler, than at any other place in the cooler.

The partition F acts as a baffle around which air will circulate down through the opening in the partition below the cooler up on the provision chamber side, to the opening G above the partition.

In the construction shown the water cooler forms part of the wall between the chambers. It is preferably made of heavy cast iron, lined inside with porcelain.

The cooler may be used with or without the bottle holder, but it is much more satisfactory to use the bottle, as it serves as a water gauge and reservoir largely increasing the capacity of the cooler.

I do not consider the invention limited to details of construction or to the particular embodiment thereof, illustrated in the drawings. Essential features of the invention are a cooler built into and forming part of the partition between the ice and food compartments; a cooler in and forming part of the partition between ice and food compartments of a refrigerator; a cooler at the front of the refrigerator and immediately behind the center stile; a cooler and an air chamber adjacent the upper end of the cooler to receive odors from the water; and a duct connecting said air chamber and ice chamber; a cooler having a bottom of V-shape or the like; and a cooler having an upwardly inclined bottom part on the side opposite the ice chamber and adjacent an opening in the partition through which any cold air from the ice chamber to the provision chamber can pass.

I claim:

1. A water cooling apparatus comprising a refrigerator having food and ice compartments, and an opening in its top; a cooler in the refrigerator having its open upper end registering with said opening, and means for supporting the cooler in the refrigerator beneath the said opening, said means consisting in flaring the top of the cooler to engage a shoulder in the opening in the top of the refrigerator.

2. A water cooling apparatus comprising a refrigerator having food and ice compartments, and a water cooler supported within the refrigerator between the compartments, said cooler having an angular bottom, the apex of which is in the ice compartment.

3. A water cooling apparatus comprising a refrigerator having an ice compartment, a food compartment, an opening in its top intermediate the compartments, and a partition wall between the compartments provided with an opening in line with the opening in the top; and a water cooler in the refrigerator having an open upper end registering

with the opening in the top, said cooler forming part of the partition between the compartments.

4. In apparatus as set forth in claim 3, the cooler having an angular bottom the apex of which is in the ice compartment, for the purpose specified.

5. In apparatus as set forth in claim 3, the cooler having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

6. In apparatus as set forth in claim 3, the cooler having an angular bottom the apex of which is in the ice compartment, and having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

7. A water cooling apparatus comprising a refrigerator having food and ice compartments, and a cooler in the refrigerator; an air chamber at the upper end of the cooler; and a duct connecting this air chamber with the ice chamber.

8. In apparatus as set forth in claim 7, the cooler having an angular bottom the apex of which is in the ice compartment, for the purpose specified.

9. In apparatus as set forth in claim 7, the cooler having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

10. A water cooling apparatus comprising a refrigerator having adjacent food and ice compartments, and an opening in its top; a cooler having its open upper end registering with said opening, and means for supporting the cooler in the refrigerator beneath the said opening; an air chamber at the upper end of the cooler above the water line; and a duct connecting this air chamber with the ice chamber.

11. In apparatus as set forth in claim 10, the cooler having an angular bottom the apex of which is in the ice compartment, for the purpose specified.

12. In apparatus as set forth in claim 10, the cooler having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

13. In apparatus as set forth in claim 10, the cooler having an angular bottom the

apex of which is in the ice compartment and having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

14. A water cooling apparatus comprising a refrigerator having a food compartment, an ice compartment, a front stile, a partition between the compartments, and an opening in its top adjacent the stile and partition; and a cooler in the refrigerator having its open upper end adjacent said opening, and means for fastening the cooler to the stile and partition.

15. In a refrigerator as set forth in claim 14, the cooler having an angular bottom the apex of which is in the ice compartment, for the purpose specified.

16. In a refrigerator as set forth in claim 14, the cooler having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

17. In a refrigerator as set forth in claim 14, the cooler having an angular bottom the apex of which is in the ice compartment, and having its upper end flared to engage a shoulder in the opening in the top of the refrigerator.

18. A cooler for the purpose specified having an open upper end, an angular bottom, and means for attachment to a support, substantially as described.

19. A cooler for the purpose specified having an open upper end, an inclined bottom, and lugs on its front and rear faces for attachment to a support, substantially as described.

20. A cooler for the purpose specified having an outwardly flared open upper end, means for attachment to a support, an approximately V-shaped bottom, and an outlet opening in its front at bottom.

21. A cooler for the purpose specified having an open upper end outwardly flared, lugs on its front and rear for attachment to a support; an approximately V-shaped bottom, and an outlet opening in its front at bottom.

In testimony that I claim the foregoing as my own, I affix my signature.

FRED C. GREEN.