

(No Model.)

2 Sheets—Sheet 1.

G. FLEMING.

COMBINED REFRIGERATOR AND WATER FILTER.

No. 421,689.

Patented Feb. 18, 1890.

Fig. 1.

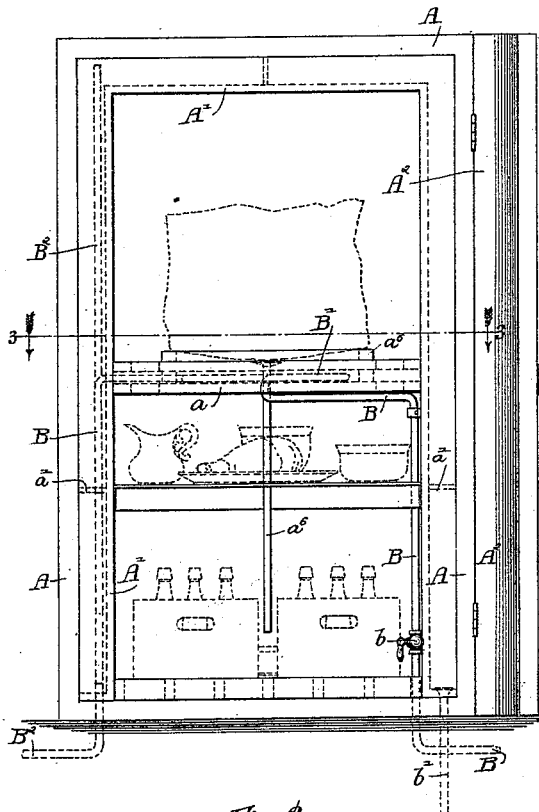


Fig. 2.

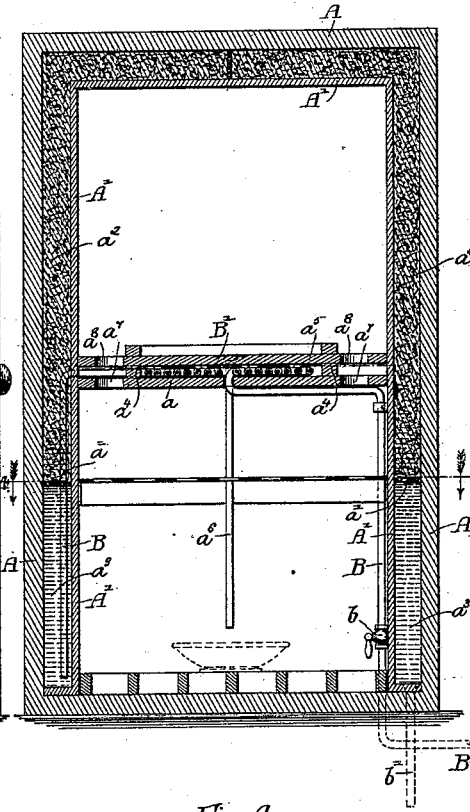


Fig. 3.

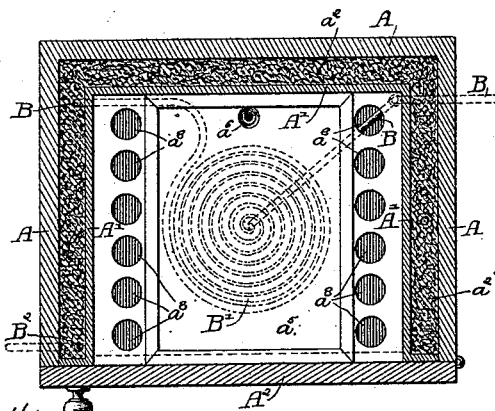
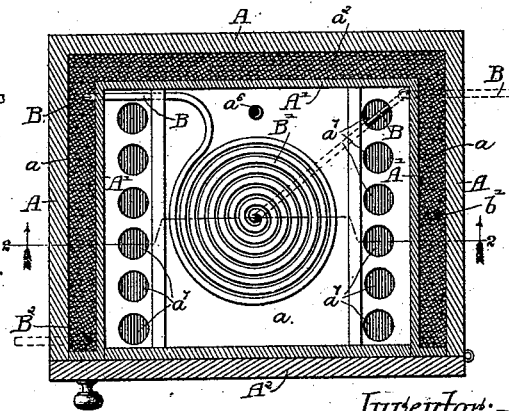


Fig. 4.



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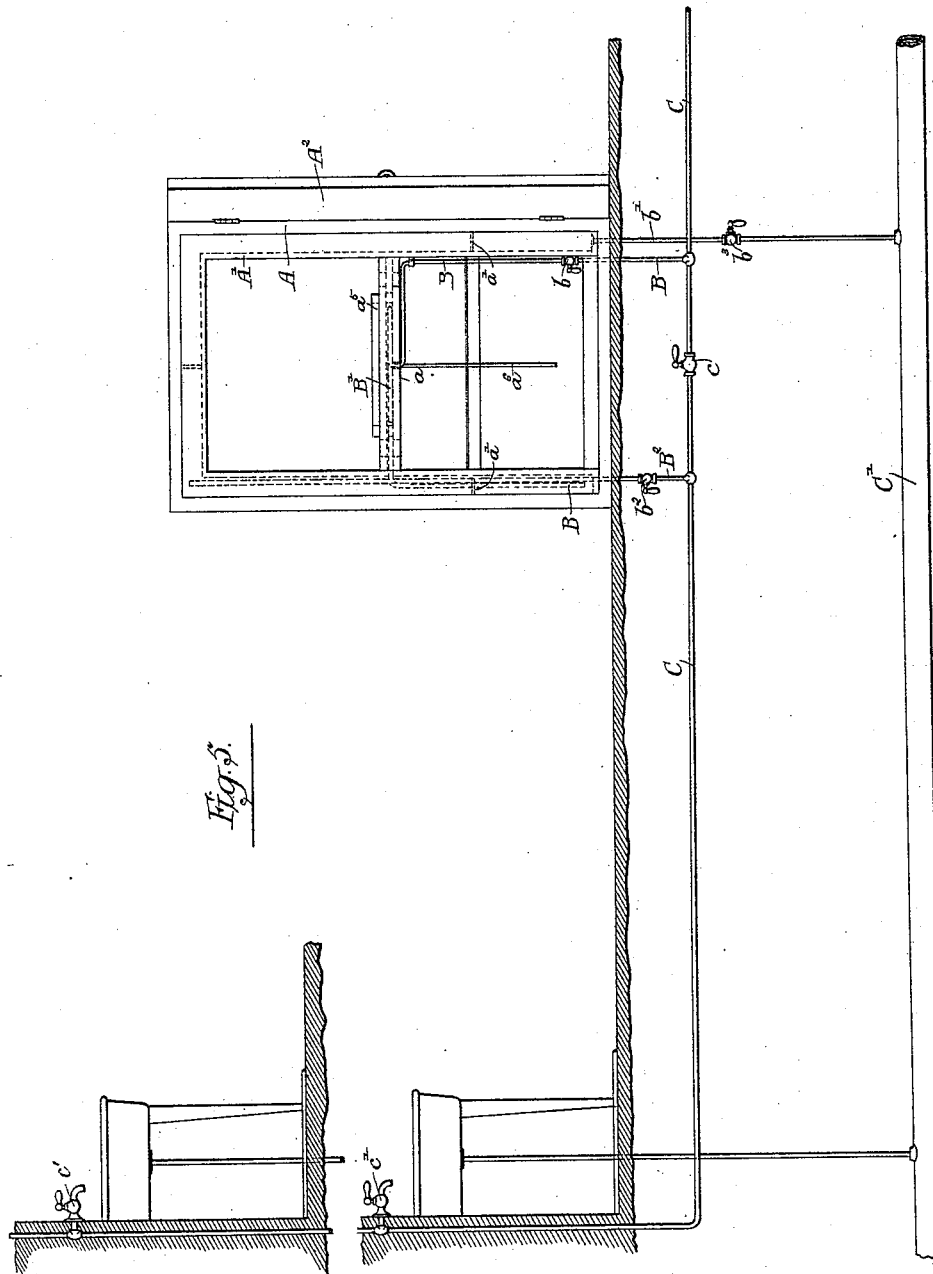
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UNITED STATES PATENT OFFICE.

GEORGE FLEMING, OF LAKE, ILLINOIS.

COMBINED REFRIGERATOR AND WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 421,689, dated February 18, 1890.

Application filed June 18, 1889. Serial No. 314,712. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FLEMING, of the town of Lake, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Refrigerator and Water-Filter; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel construction in refrigerators or cooling apparatus; and it consists in the features of construction and combination of parts hereinafter fully described, and pointed out in the appended claims.

This apparatus is designed to be used for cooling purposes with or without the employment of ice as a cooling medium, but is designed more particularly to be used without the employment of ice for the purpose set forth. It has been found by experiments that the temperature of the water which is taken from lakes or rivers to supply cities with is sufficiently low to make it pleasant for all drinking purposes or for the purpose of refrigeration or preservation of articles of food. The difficulty heretofore has been that during the winter and summer, when consumers open faucets in their houses and draw water off which has been standing in the pipes for a long time, this water is warm and of an unpleasant taste; but if it is allowed to run for some time it would gradually become very cool, so that it could be utilized for refrigeration and for usual drinking purposes. The apparatus which is the subject of this invention is designed to utilize this normally-low temperature of the water supplied to cities from such reservoirs for refrigeration or other cooling purposes.

In the drawings, Figure 1 is a view of the apparatus in front elevation with the door open. Fig. 2 is a view in central vertical section on the line 2 2 of Fig. 4. Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 1. Fig. 4 is a horizontal sectional view on the indirect line 4 4 of Fig. 2. Fig. 5 is a view in front elevation of the apparatus, showing a convenient manner of connecting

it with the source of water-supply and with a drain-pipe.

In said drawings, A is the outer box of the refrigerator or cooling apparatus, which is provided with an inner box A' and a door A². The inner box A' is divided into an upper and lower chamber by means of a horizontal partition or tray *a*. The inner box A' is made small enough to allow a space between its walls and the walls of the outer box, which space is divided by a horizontal partition *a'*, of wire open-work or other reticulated material, thus dividing the space between the walls of said box into an upper chamber *a*² and a lower chamber *a*³, as clearly shown in Fig. 2. The upper chamber *a*² extends from the partition *a'* to the top of the outer box and is filled with any suitable filtering material.

B indicates a water-supply pipe, which passes into the inner box A' and is led to a point about the center of the partition or tray *a*, where it is formed into a coil B' and passes out through the wall of the inner box into the upper chamber *a*², where it is turned, passes downwardly, and terminates near the lower end of the lower chamber *a*³. *b* is a cock arranged in said pipe to regulate the flow of water therethrough.

The tray *a*, which divides the inner box, is provided with ribs *a*⁴, projecting upwardly from its surface a slight distance above the top of the coil B, and which are adapted to support an ice-tray *a*⁵, which is provided with a drip-pipe *a*⁶ to carry off the water from the melted ice.

*a*⁷ *a*⁷ indicate a plurality of holes or perforations formed in the tray *a*, which register with the plurality of holes *a*⁸ *a*⁸ in the ice-tray *a*⁵. These holes are provided so as to permit the free circulation of air between the upper and lower chambers of the inner box A', which box is provided with suitable shelves or similar devices, upon which articles of food or other articles to be cooled are placed.

B² indicates an overflow-pipe having one end located near the upper end of the upper chamber *a*² and its opposite end passing outside of the outer box A and led to any desired point. An exhaust-pipe *b'* is located at the bottom of the lower chamber *a*³, and by means of which the water within the chambers *a*²

and a^3 is adapted to be drawn off when the apparatus is not designed to be used.

The operation of the apparatus is as follows: When it is desired to use this apparatus, the water is turned on by means of the cock b and allowed to pass through the coiled pipe B' , from whence it passes through the continuation of the pipe B into the chamber a^3 between the boxes A and A' . As the flow continues the water will rise within said chamber, and also through filtering material in the chamber a , until it reaches the upper end of the overflow-pipe B^2 , which is arranged near the upper end of said chamber a^3 . The water will then flow into said pipe and will be carried off to be used for drinking and other purposes, as will be more clearly described hereinafter.

Upon using the device, in the first instance it is preferable to place a piece of ice upon the ice-tray, so as to thoroughly effect the cooling operation, although this is not necessary, as the same end can be attained by permitting the water to flow through the pipe B , the coil B' , and the chambers a^3 and a^2 a sufficient length of time, the normally-low temperature of the water having the desired cooling effect and keeping the interior of the inner box at a temperature sufficiently low for the purpose of refrigeration or preservation.

I have found it desirable to pack saltpeter and common salt around the coil B' between the partition a and ice-tray a^5 , as said ingredients tend to absorb the heat, and hence assist in keeping the said coil cool. It will also be noted that the water, after passing through the upper chamber a^2 , is filtered, so that it forms a better article for drinking purposes.

In Fig. 5 I have shown the manner in which said cooling apparatus or refrigerator will commonly be connected with the source of water-supply and with the drain-pipe, although it is obvious that other forms can be employed equally as well. C indicates a pipe which supplies water to a house, and which is provided with a stop-cock c . The pipe B of the cooling apparatus communicates with the pipe C , preferably at the opposite side of the stop-cock c from which the faucets of the house are placed, and the overflow-pipe B^2 communicates with the pipe C at the opposite side of said stop-cock c to which the pipe B communicates therewith. b^2 indicates a stop-cock arranged in said overflow-pipe B^2 . The exhaust-pipe b' in this instance communicates with the drain-pipe C' of the building, and is also provided with a stop-cock b^3 . c' indicate faucets arranged within the building and communicating with the pipe C .

In the construction above described when the apparatus is in use the stop-cock c is closed, the cocks b and b^2 are open, and the stop-cock b^3 in the exhaust-pipe, which communicates with the drain-pipe, is closed. Thus it will be seen that the water flowing through the pipe C will pass into the pipe B through the coil and filtering-chamber, and then outwardly through the overflow-pipe B^2 into the main pipe C , from whence it will pass through the pipes in the house and be used for ordinary purposes; but when it is desired to discontinue the use of the apparatus the stop-cocks b and b^2 are closed and the cocks c and b^3 opened. The water will then pass into the house directly without passing through the pipes B and B^2 and the water remaining within the chambers a^2 and a^3 between the outer and inner boxes of the apparatus will drain off through the exhaust-pipe b' .

It will be noted that I provide a refrigerator having a greater capacity than an ordinary refrigerator that would occupy the same space, owing to the fact that the ice-box can be utilized as a receptacle for storing articles. I claim as my invention—

1. A refrigerator comprising an outer box and an inner box, a water-space between said boxes, a perforated partition arranged within said water-space and adapted to divide the same into an upper and a lower chamber, said upper chamber having a filling of filtering material, a pipe leading from a source of water-supply and terminating near the lower part of said lower chamber, and an overflow-pipe having its upper end arranged near the upper part of said upper chamber, substantially as described.

2. A refrigerator comprising an outer box and an inner box, a water-space between said boxes, a pipe leading from a source of water-supply into the inner box and provided with a coil B' , which is suitably supported within said inner box, a pipe leading from said coil and terminating near the lower part of the water-space, and an overflow-pipe arranged within said water-space and having its upper end near the upper end thereof, substantially as described.

In testimony that I claim the foregoing as my invention, I affix my signature in presence of two witnesses.

GEORGE FLEMING.

Witnesses:

TAYLOR E. BROWN,
HARRY COBB KENNEDY.