(No Model.)

A. M. BLANCHARD.

REFRIGERATING VESSEL FOR COLD STORAGE.

No. 332,584. Patented Dec. 15, 1885.

Fig. 1.

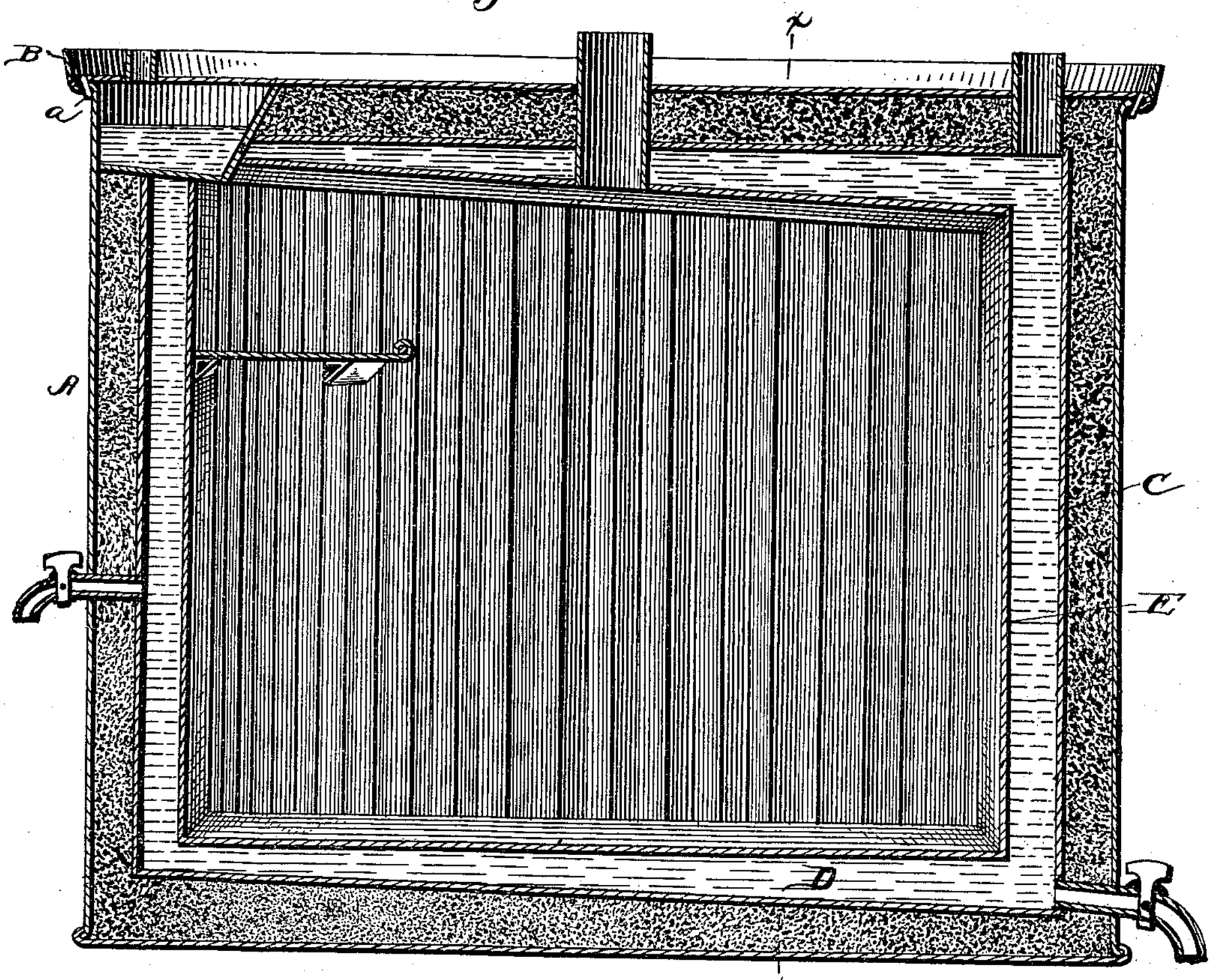


Fig. 2.

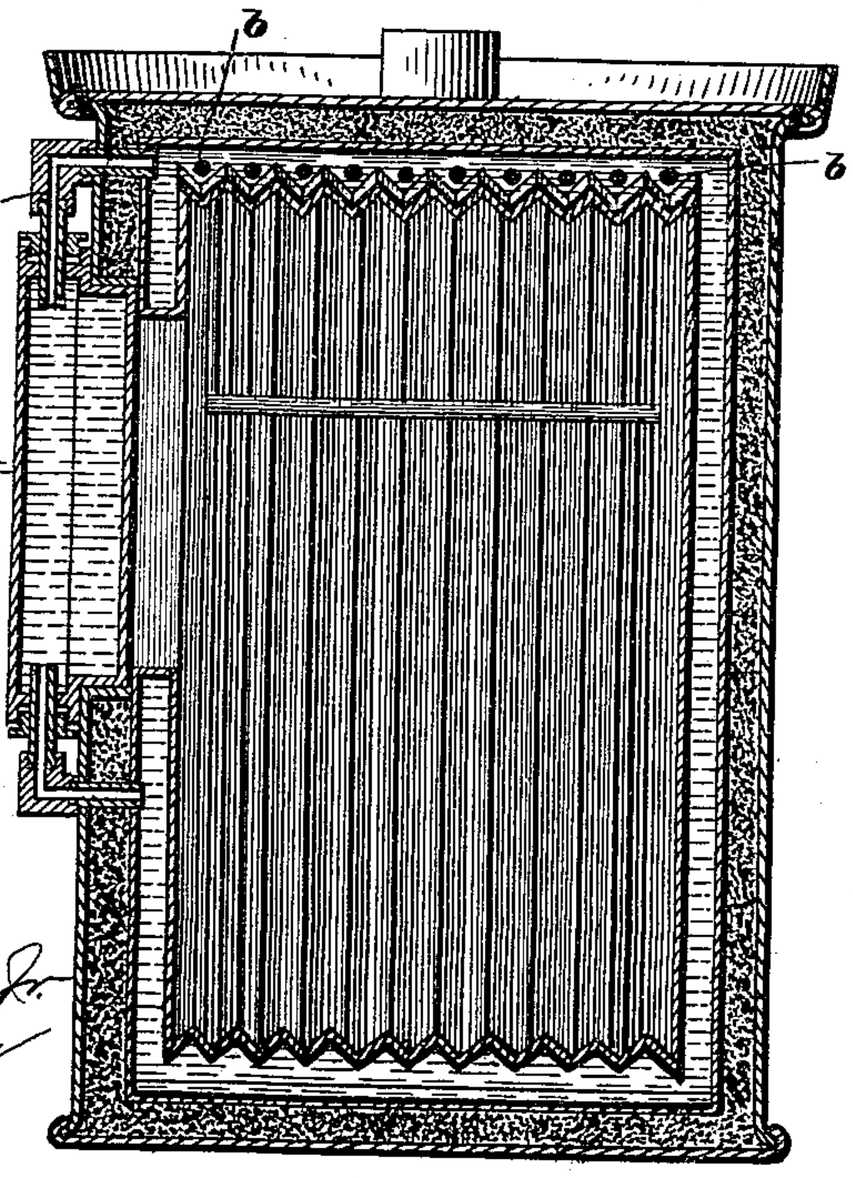
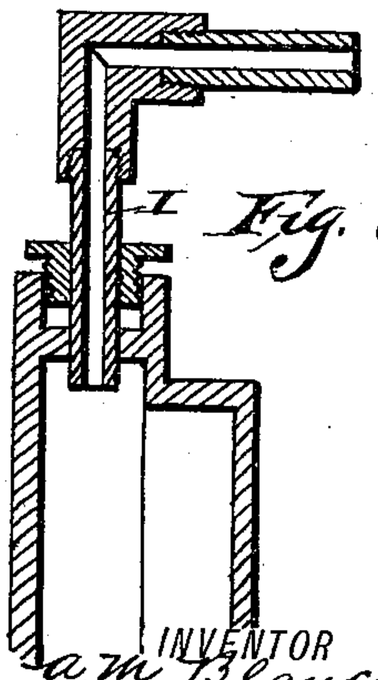


Fig. 3.



WITNESSES

John Enders Jr.

Harry Rohde

INVENTOR

A. M. Blanchard

O. E. Duffy

By Attorney

UNITED STATES PATENT OFFICE.

ALBERT M. BLANCHARD, OF ELLINGTON, NEW YORK.

REFRIGERATING-VESSEL FOR COLD STORAGE.

SPECIFICATION forming part of Letters Patent No. 332,584, dated December 15, 1885.

Application filed July 11, 1885. Serial No. 171,352. (No model.)

To all whom it may concern:

Be it known that I, ALBERT M. BLANCHARD, of Ellington, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Refrigerating-Vessels for Cool Storage; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to refrigerating-vessels for cool storage, in which articles of food are kept at a low temperature without the aid of ice.

The object of the invention is to construct a vessel for cool storage and for preserving articles of food in a cheap and simple manner, to meet the demand of country people and people generally who cannot get ice, but can utilize water as the cooling or refrigerating agent, particularly where there are streams or water running above the ordinary level, or where there are pumps, or where the water is accessible to a large number of people where ice cannot be had.

To these ends my invention consists in constructing a vessel having three walls forming two chambers, the inner one of which is corrugated on all sides. The top of the inner corrugated casing is slightly inclined toward one side, so that the water, mud, or sediment may run off to one side. This top has also a trough arranged transversely across the end, so that the water, when admitted, will spread equally and run down each corrugation alike. Thus each part of the top is equally cooled at the same time. The same effect is produced on the rear of the inner casing. The bottom of the center casing is also inclined toward the same end as the top of the inner casing, and for the same purpose of having the sedimentary deposit run and settle toward the draw-off cock. In this way the vessel is kept clean of any foreign substances that may run in with the water. It is, however, preferable to have the water constantly run into the vessel at the top and out through an aperture at the other end thereof.

It further consists in making the door hollow and connecting it by means of hollow hinges to the body of the water in the vessel, whereby a clear circulation of water is maintained throughout the entire vessel.

It is well known that water constantly circulating has a much more cooling effect than water standing still, and therefore transmits to the inner side of the vessel in this case a greater degree of refrigeration than if the water were in a quiet state, and the sides smooth instead of corrugated, all of which will be more fully hereinafter described, and pointed out in the claims.

Referring to the drawings hereto annexed, Figure 1 represents a vertical section through my refrigerating-vessel; Fig. 2, a vertical section taken on the line *x x*, Fig. 1, which clearly shows the hollow door and hinges, also the ends of the corrugated top and bottom; and Fig. 3, an enlarged view of the hollow door-hinge.

A represents the outside casing, having a crown-flange, B, extended up from its side—say, about an inch all around—into which water may be permitted to flow, and just about the bottom of the flange, on its edge, I arrange a row of small perforations, *a*, arranged at an inward inclination, so that, in addition to the inner circulation, there is also an outside dripping of water, the condensation of which assists in maintaining a low temperature.

C is the middle or center wall, which is horizontal on its top and has two vertical sides; but the bottom D is slightly inclined, as before stated, for carrying the sediment to one end. The inner casing, E, is the same on all sides, except the top, which also inclines downward, for the purpose of carrying off the sediment to the same side as the bottom. The outside casing is alike all around, and may be of any ordinary shape or contour. The trough is provided with holes *d*, corresponding to the number of corrugations, so that each corrugation is supplied with water. Shelves may be arranged within the vessel at suitable positions. To protect the water from becoming warm, and also to prevent the temperature from falling within the vessel, I fill the space between the outer jacket and the center casing with pulverized chalk, coal, or other non-heat-conducting material, and between the center wall and the inner casing with water, prefer-

ably kept in circulation. Thus by these two mediums the temperature within the vessel is regular and sufficiently low and cool for all ordinary practical purposes.

Having particular reference to the door G, it may be said that it is an important feature of my invention. Heretofore the doors have been simply packed with non-conducting material, which while it answered the purpose very well, still the hot air leaked in both from transmission and otherwise, which makes the temperature very irregular. Furthermore, the condensation of the hot air produced by said door causes the air to become moist, and therefore detrimental. To avoid this I provide my door H with hollow hinges I, which form a communication between the door and the water-body of the vessel, and through which is kept up a circulation, so that the door is as cold as any other portion of the vessel; hence its importance. The hinge I may be made in various ways; but I make it of a hollow elbow and two short sections of pipe.

Of course, it is evident that the inner casing may be made of plain sheet metal; but its good results would lessen in a corresponding degree.

The vessel may be ventilated through a central aperture or by other means, as may be preferred.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, in a refrigerating-vessel, of the outer casing, a center casing or vessel having an inclined bottom, and an inner corrugated vessel having its top wall inclined, for the purpose set forth, with the trough arranged transversely, substantially as described.

2. The combination, in a refrigerating-vessel for cool storage, which consists of three casings, each concentrically arranged within the other at a suitable distance apart, the center one having an inclined bottom and the inner one an inclined top provided with a distributing-trough and inlet and outlet conductors, substantially as set forth and shown.

3. In a refrigerating-vessel of the character described, the combination of the hollow water-door provided with the hollow hinges for circulating purposes, whereby the cooling-liquid is made to circulate through the door, in the manner and for the purpose set forth.

4. The combination, in a refrigerating-vessel made up of an outer casing, a central casing, and an inner casing, the central casing having an inclined bottom, the inner casing an inclined top, the bottom having a trough arranged transversely at one end to the corrugations formed on said top, the outer casings having an outer upturned flange provided with perforations for the escape of water along the sides, all operating together in the manner and for the purpose set forth.

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

ALBERT M. BLANCHARD.

Witnesses:
O. E. DUFFY,
F. R. HARDING.