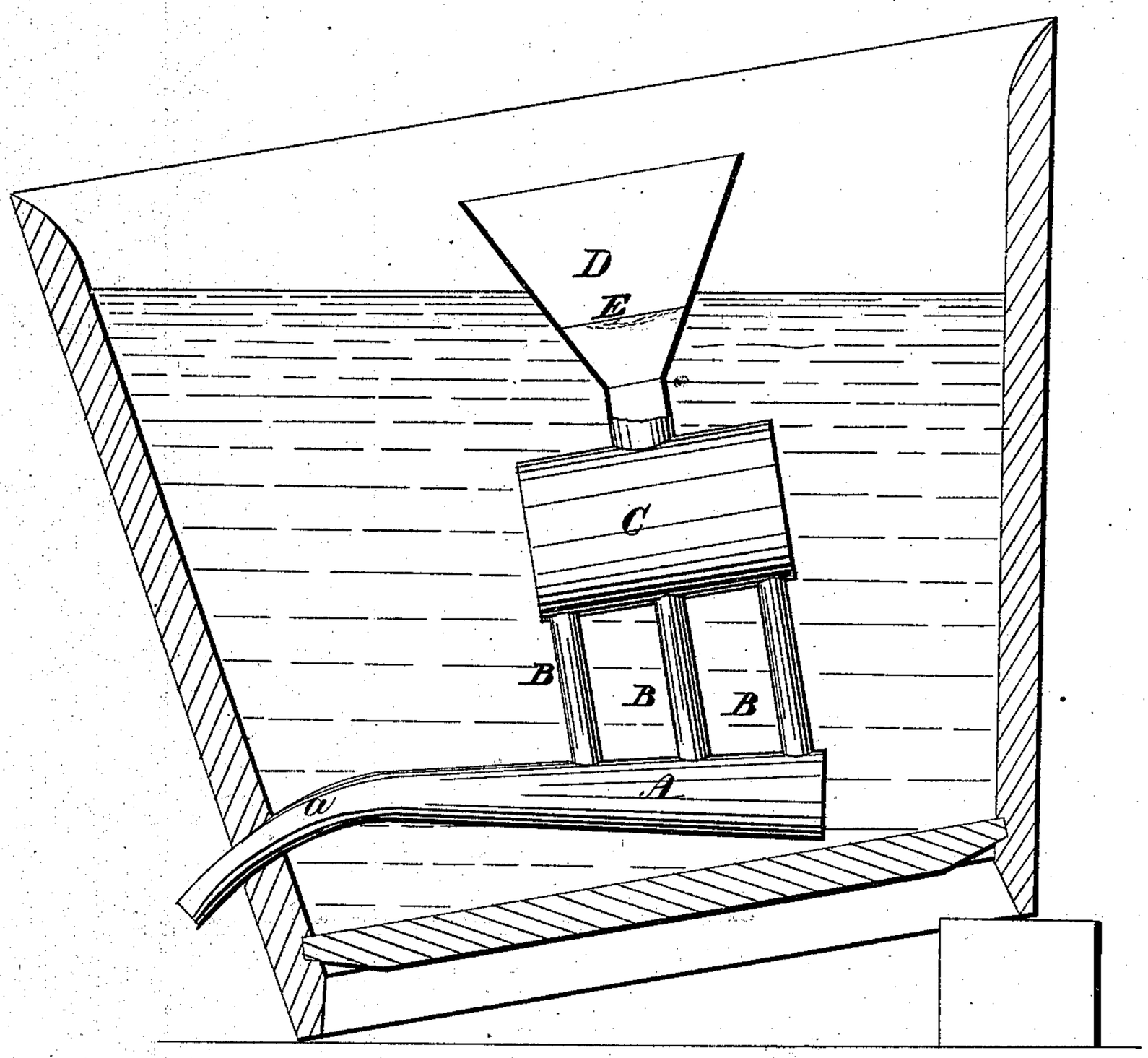
J. M. SANBORN.

Portable Milk Cooler.

No. 35,569. Patented June 10, 1862.



Witnesses:

John Bridgman

Oren. B Hall

Inventor.

Jubal M Sanborn

UNITED STATES PATENT OFFICE.

JUBAL M. SANBORN, OF HARDWICK, ASSIGNOR TO HIMSELF, AND E. M. GIFFORD, OF WOLCOTT, VERMONT.

IMPROVED PORTABLE MILK-COOLER.

Specification forming part of Letters Patent No. **35,569,** dated June 10, 1862.

To all whom it may concern:

Be it known that I, JUBAL M. SANBORN, of Hardwick, in the county of Caledonia, in the State of Vermont, have invented a certain new and useful article which I term a "Portable Cooler for Milk and other Liquids," but which may also be used to raise as well as to lower the temperature of the liquids; and I do hereby declare that the following is a full and exact description of the same, which has been prepared with a view to the obtaining of Letters Patent therefor.

The accompanying drawing forms a part of this specification, and represents a vertical section of a wooden bucket or tub with my invention applied thereto in the manner which is obvious—to wit, by inserting it within the tub and thrusting its nose or discharging-tube tightly into and through a hole near the base of the side of the tub.

The drawing represents my invention partly in elevation and partly in section, as will be readily distinguished on inspection.

My invention is a portable vessel or hollow case presenting a large amount of surface within a small compass, and provided with a funnel and strainer for receiving the liquid and a discharging-tube adapted to fit tightly to a hole in its containing-vessel, so as to discharge exterior thereto, the intermediate portion being adapted to the ready conduction of heat between the liquid within and that exterior to my invention, and the whole adapted to be readily drained, rinsed, applied to its containing-vessel, used, and removed, in the manner hereinafter set forth.

To enable others to make and use my invention, I will proceed to describe its construction and operation by the aid of the drawing and of the letters of reference denoted thereon.

A is a tapering tube, closed at its largest end and bent at the point *a*, as represented. B B B are tubes communicating therewith, opening at their lower ends into A and at their upper ends into a transverse pipe, C, which latter is of larger diameter and closed at each end.

D is a flaring funnel communicating with the center of C, as represented, and open at the top to receive the milk or other fluid the temperature of which is to be changed.

E is a strainer of wire-cloth or other suitable material, fitted within the funnel D, as represented, and adapted to insure the entrance into C of only the properly-strained liquid.

The hole for the nose of A is bored in the tub in an inclined direction, as represented, and the taper of A allows it to be fitted tightly therein without difficulty.

To use my invention it is fixed within the tub in the manner represented and the tub filled or nearly filled with water, as indicated by the blue lines. If the milk is too warm, the water poured into the tub to surround the several tubes or chambers in my invention should be as cold as it is practicable to obtain. The milk or other liquid to be cooled is now poured at a moderate rate into the open funnel D, and allowed to flow out at the nose of A into a pail or other suitable vessel placed beneath to receive it.

I make my several parts, A B C D, of thin brass, iron, or any suitable material. I prefer for ordinary purposes common tinned iron, or "sheet-tin," as it is frequently termed.

If the water outside is very cold and it is liable to lower the temperature of the milk too much, I hasten the flow of the latter through my invention by inclining the entire tub with its contents in the direction which tends to bring the funnel D more nearly over the nose of A, thus increasing the "head" and consequently the velocity of the flow of the liquid in my invention. If, on the contrary, the water outside is partially warmed—a condition certain to be attained if the process is so long continued as to cool a large quantity of milk—it will ultimately lower the temperature of the milk too little unless the position of my invention be changed so as to bring the funnel D more nearly down to the same level as the discharging-nose. This I effect by changing inclination of the tub as the work proceeds, first inclining the tub in one direction, then allowing it to stand level, and finally inclining it in the direction opposite to that assumed at first. The varying of the position of my invention in this manner changes the rapidity with which the milk flows through the structure without materially varying the amount of effective cooling-surface, and therefore gives, within certain limits, a complete control of the final temperature of the milk, whatever may

be the initial temperature of the milk and of the water, and this without a necessity for any stop-cock or other expensive contrivance.

My invention is applicable for any use where it is desired to cool one liquid to a moderate extent by means of another—as, for example, the cooling of milk just drawn from the cow, or the cooling of fresh water from a cask standing in the sun, the first of which is of great importance in dairy operations in summer, and the latter a great addition to the comfort of a sea voyage at the same season. I have realized an increase of about one-third in the quantity of the cream obtained from milk in hot weather by cooling it through the means herein shown.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

The new article of manufacture herein described, adapted to the filtering of milk or other liquid through water, so as to change its temperature, and to be readily applied to and removed from an ordinary vessel, substantially as and for the purpose herein set forth.

JUBAL M. SANBORN.

Witnesses:
JOHN BRIDGMAN,
ORREN B. HALL.