O. S. BLISS.
Milk-Cooler.

No. 199,404. Patented Jan. 22, 1878.

Fig. 1.

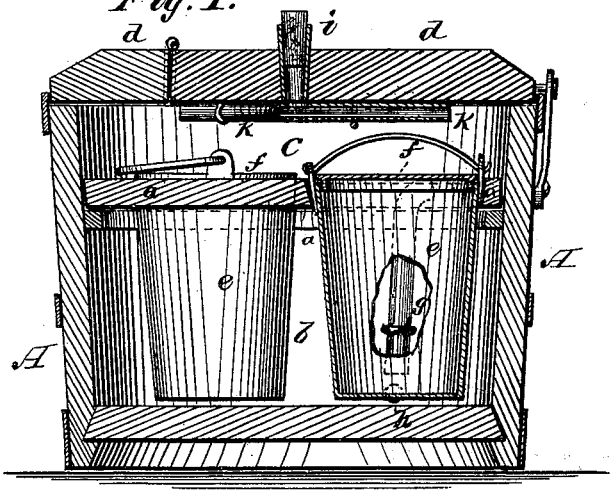
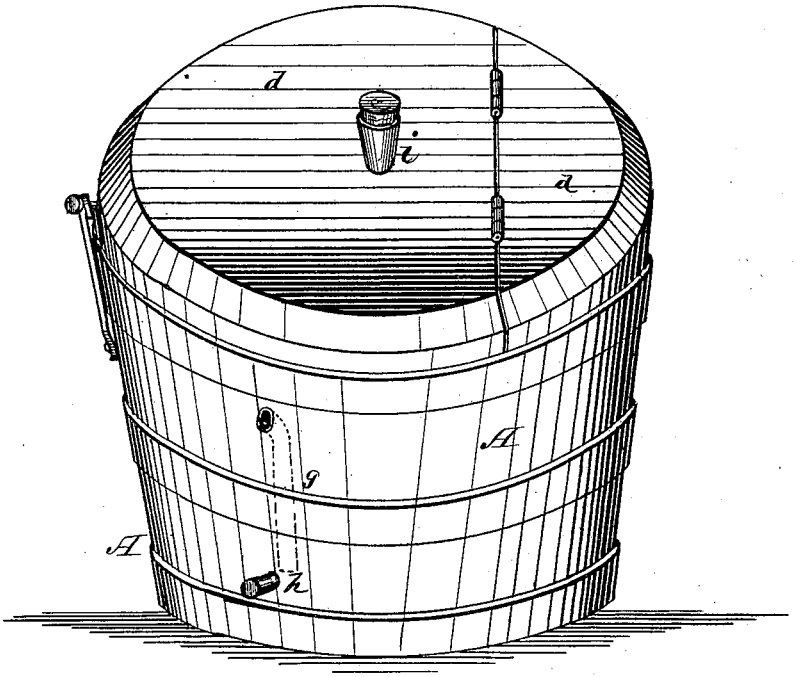


Fig. 2.



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UNITED STATES PATENT OFFICE.

ORVILLE S. BLISS, OF GEORGIA, VERMONT.

IMPROVEMENT IN MILK-COOLERS.

Specification forming part of Letters Patent No. **199,404**, dated January 22, 1878; application filed June 8, 1877.

To all whom it may concern:

Be it known that I, ORVILLE S. BLISS, of the town of Georgia, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in Milk-Coolers; and I do hereby declare that the following is a full, clear, and exact description thereof, 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 a part of this specification.

The object of my invention is to secure an improved construction and arrangement of an apparatus designed for a more rapid, effectual, and economical separation of the cream from the milk, and preserving the same sweet and pure for domestic and other uses.

In the drawings, Figure 1 is a longitudinal vertical section of the apparatus, showing its interior arrangement and construction. Fig. 2 is a perspective view of the same.

A is a wooden tank or reservoir, which may be lined with metal. It is divided horizontally by the shelf *a* into two sections or compartments, the lower one of which, *b*, is designated the "water-tank," and the upper section, *c*, the "ice-chamber." The hinged cover or lid *d* secures its interior from exposure to the outside air and heat.

e e are milk-cans, which are cylindrical in form, their upper diameters being greater than the lower. They are provided with air-tight covers *f f*, and are intended to stand on the bottom of the reservoir A.

In the shelf *a* openings are cut, of the shape and size corresponding with the can-covers *f f*, so that when the cans are placed on the bottoms of the reservoir A the tops of their covers fill the openings which are cut through the shelf *a*, and are slightly lower than the upper surface of the shelf. The covers *f f*, in connection with the shelf *a*, form the bottom of the ice-chamber C. A tube, *g*, open at each end, extends through the side of the reservoir A, immediately beneath the bottom of the shelf *a*, and thence runs down the inside of the water-tank *b* nearly to the bottom of the tank. It is intended to serve as an air-trap and an overflow, to prevent water in the tank from rising above the shelf *a*. The water in the tank *b* is drawn off through the faucet *h* at the bottom of the reservoir A. Passing through the cover *d* is a tube or funnel, *i*, which connects with water-pipes *k k* on the under side of the cover *d*, each leading in the direction of, and as far as, the center of the can-covers *f f* of the milk-cans *e e*. Through these pipes *k k* fresh water is first forced upon the tops of the several milk-cans, to induce a more rapid separation of the cream from the milk which is contained in the cans *e e* by cooling the same at the top of the cans.

In operation, the cans *e e*, being filled with fresh warm milk, are tightly covered, and are then placed in position in the reservoir A. The reservoir is then closed from the air without, except the overflow of the tube *g* and the funnel *i*. Into the latter fresh cool water is forced, through the pipes *k k*, directly upon the covers *f f* of the milk-cans, and from thence it falls into the tank *b* below. The effect of the cool water applied thus directly to the top of the cans *e e* is to reduce the interior temperature of the cans at that point, by which a system of currents is established through the milk, thereby causing the cold particles of the milk, which are composed of the more watery and cheesy portions of the same, to fall to the bottom of the cans, and the warmer and lighter portion of the same to rise to the top of the cans. As soon as this effect ceases the water in the tank *b* is entirely drawn off at *h*, the supply-pipe or funnel *i* is closed to exclude the air, and ice is then placed in the ice-chamber *c*, in direct contact with the top of the cans *e e*, to reduce still lower the temperature of the milk at the top of the cans, and induce a still more rapid and effectual separation of the creamy globules from the other portion of the milk, which process should continue until the cream is entirely separated from the milk, and is gathered at the top of the cans. The waste-water from the ice is drawn off through the faucet *h*.

What I claim, and desire to secure by Letters Patent, is—

1. The receptacle A, provided with a cover,

d, in combination with the pipes *k*, funnel *i*, cans *e*, and a water-overflow, substantially as described.

2. The combination of the receptacle A, shelf *a*, cover *d*, pipes *k*, funnel *i*, cans *e*, and a water-overflow, substantially as described.

3. The combination of the receptacle A, shelf *a*, cover *d*, cans *e*, and a pipe, *g*, substantially as described.

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

ORVILLE S. BLISS.

Witnesses:
CHARLES E. ALLEN,
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