(No Model.)

# E. W. COFFIN.

## APPARATUS FOR AERATING AND COOLING MILK.

No. 379,051. Patented Mar. 6, 1888.

Fig. 1.

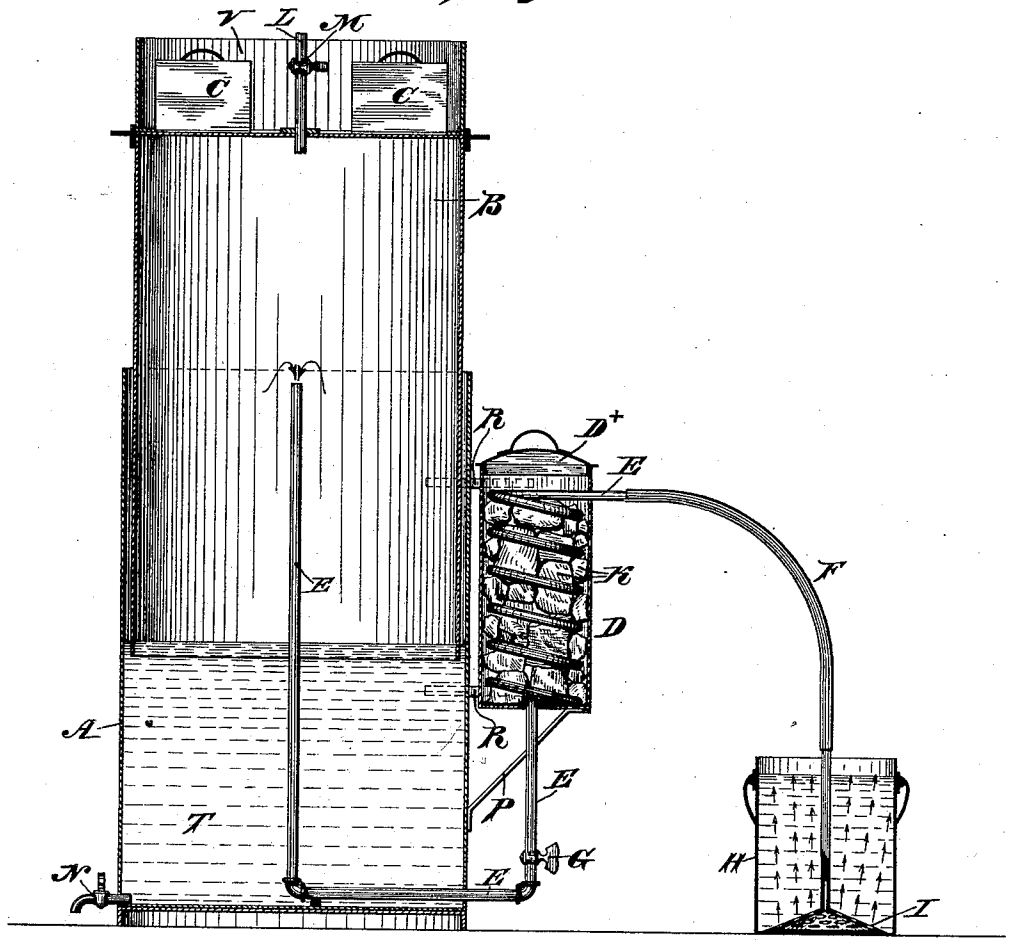
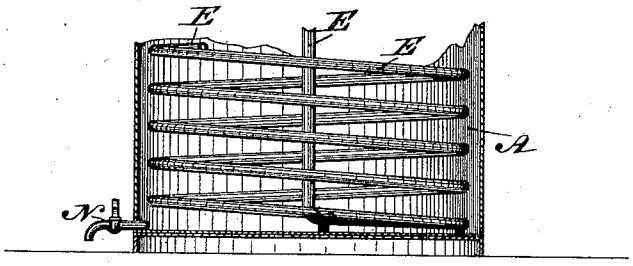



Fig. 2.

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# UNITED STATES PATENT OFFICE.

EDWARD W. COFFIN, OF ASHLAND, NEW JERSEY.

## APPARATUS FOR AERATING AND COOLING MILK.

SPECIFICATION forming part of Letters Patent No. 379,051, dated March 6, 1888.

Application filed August 4, 1887. Serial No. 246,153. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD W. COFFIN, a citizen of the United States, residing at Ashland, in the county of Camden, State of New Jersey, have invented a new and useful Improvement in Apparatus for Aerating and Cooling Milk and Analogous Liquids, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in devices for aerating and cooling milk and other liquids; and it consists in an apparatus having a water-chamber provided with a weighted air-vessel working therein, and a pipe leading from said air-chamber through an ice-chamber and having connected therewith a flexible hose, as hereinafter set forth.

It further consists in the combination and arrangement of parts, as described and claimed.

Referring to the drawings, Figure 1 is a vertical section showing my invention in detail. Fig. 2 is a vertical section of the cooling-chamber of a modified form.

A is a can of usual construction, provided with a snugly-fitting air-chamber, B, adapted to slide freely up and down and to rest upon the surface of the water T, as shown, thus compressing the air within it when loaded with weights C C.

L is a pipe in the top of the air-chamber B, provided with a cock, M, adapted, when open, to allow the air-chamber to be lifted up easily when it is desired to renew the supply of air in the chamber.

N is a cock for drawing off the water T from the can A, and E is an air-pipe fixed to the bottom of the can and having its free end always above the level of the water T in the can. This pipe passes to the outside of the can, as shown, and thence in coiled form through an ice-chest, D, filled with ice, K. It passes thence to a flexible rubber tube, F, to the end of which is affixed an aerating-nozzle, I, of conical shape, full of perforations, as shown.

G is a cock for controlling the air-flow, and H is a pail for holding the milk.

The ice chest or chamber D is attached to the can A by straps R R and brace P, but may be detachable, if desired.

$D^{x}$ is the lid to the ice chest or chamber.

In Fig. 2 I have shown a modified form, in which the exterior ice-chest, D, of Fig. 1 is done away with. In this instance the pipe E is coiled or disposed in any desirable manner in the water tank or can A, and ice is placed in the water, thus cooling the water directly. The pipe E in this construction passes to the outside of can A, as before, direct to the flexible tube F.

The operation is as follows: Cock N having been closed, the tank or can A is filled partially with water, T, and then the air-chamber B is set in position, as shown, the cock M having first been closed, as shown. Weights C C are now placed in the chamber V at the top of the air-chamber, the ice chest or box D having been filled with ice, K. The aerating-nozzle I, which fits the bottom of the pail, is now placed in the bottom of the pail or vessel containing milk or other liquid to be aerated and cooled, and the cock G opened, as shown. The weighted air-chamber B now descends and forces the air in it through the pipe E, as shown by the arrows, and ultimately through the cooling-chamber or ice-chest to and through the milk. As it bubbles up through the milk it thoroughly aerates and cools it, as will be understood on inspection of the drawings.

I am aware that it is old to aerate and cool milk by forcing air through it, and I do not therefore, claim broadly, to be the inventor of such process, my invention lying in my novel apparatus alone.

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, in an aerating and cooling device for milk or like liquids, of a vessel containing water, a chamber resting therein containing air, a pipe extending from a point in the air-chamber above the water to and through an ice box or chest, and a flexible tube having a perforated nozzle, substantially as described.

2. A combined aerating and cooling device consisting of the vessel A, containing water, the air-vessel B, having the weight-chamber V, and pipe L, with valve M, the weight C, the ice-chest D, the pipe E, extending from within the air-vessel B through vessel A and ice-chest D, and the flexible pipe F, substantially as described.

3. In a device of the character named, a water-vessel, an air-vessel within said water-vessel and provided with a weighted chamber, a pipe leading from the air chamber to the atmosphere and having a valve therein, an ice-chest and a pipe leading from the air-chamber through the water-vessel and the ice-chest and provided with a cock, and a flexible pipe secured to said last-mentioned pipe, said parts being combined and arranged substantially as and for the purpose set forth.

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Witnesses:
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