(No Model.)

J. H. BECK & E. E. REILLY.

MILK COOLER.

No. 492,183. Patented Feb. 21, 1893.

Fig. 1.

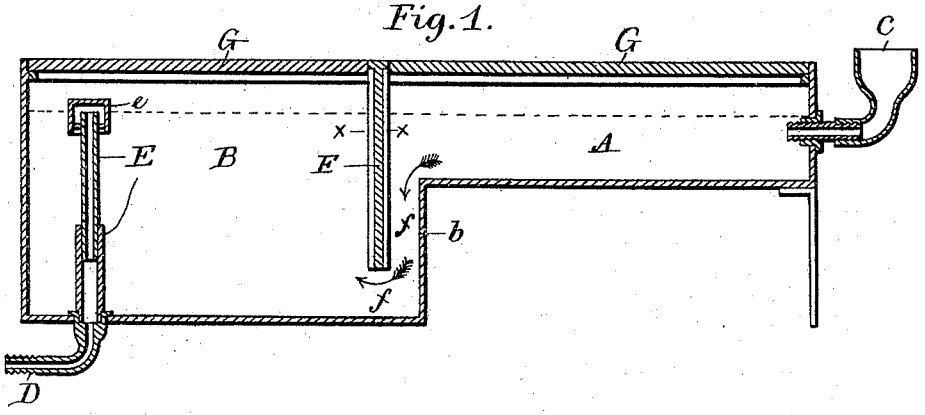


Fig. 2.

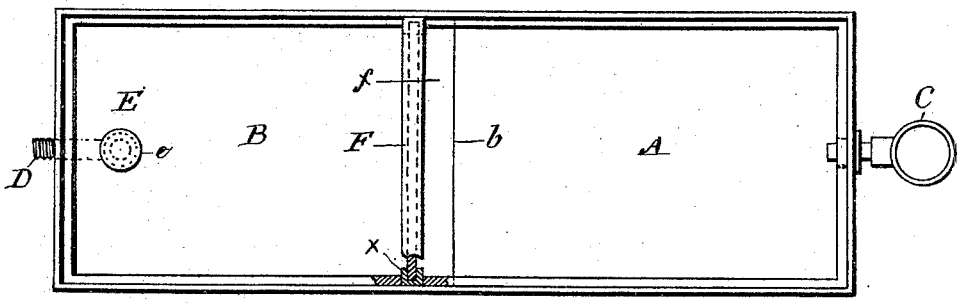
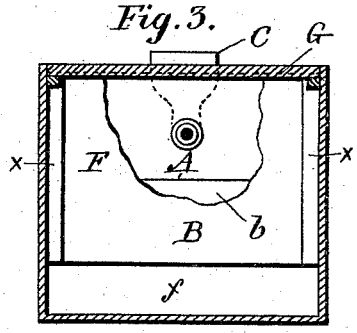


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN H. BECK AND EDWARD E. REILLY, OF PERU, INDIANA.

MILK-COOLER.

SPECIFICATION forming part of Letters Patent No. 492,183, dated February 21, 1893.

Application filed June 1, 1892. Serial No. 435,147. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. BECK and EDWARD E. REILLY, of Peru, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Milk-Coolers, of which the following is a specification.

The invention relates to milk-cooling vats, adapted to receive cans or other vessels containing new milk, and so constructed that water can be passed therethrough to cool the milk. Such milk-cooling vats are known as creameries, since they are especially designed to aid in raising or producing cream.

The present invention is more particularly applicable to that class of milk-cooling vats which are formed with a shallow portion in which shallow vessels may be placed, and a deep portion for tall cans or jars. In such creameries, the water is introduced at the end of the shallow portion of the vat, and an overflow is provided at the opposite end of the deep portion, so that there is a continuous flow of water through the vat and around the vessels of milk therein.

This invention consists in a novel construction of such a creamery, whereby the proper circulation of the water through the vat is effected, and at the same time the thorough and complete cleaning of the apparatus is facilitated.

In the accompanying drawings is illustrated a creamery constructed in accordance with the invention.

Figure 1, is a central, longitudinal, vertical section of the creamery. Fig. 2, is a plan view, with covers removed, and one side partly broken away. Fig. 3, is a transverse section looking toward the water inlet, a part of the transverse partition (hereinafter described) being broken away to better illustrate the construction.

In the drawings, A is the shallow portion or compartment of the creamery, and B is the deep portion or compartment. At one end of the creamery, communicating with the compartment A, is arranged the water inlet C, through which water (from any convenient supply pipe) is introduced into the vat; and at the opposite end of the creamery a waste pipe D leads off from a waste opening at the bottom of the compartment B.

As shown, the water inlet C includes a hopper-like inlet-cup into which the water first flows and thence into the vat. The inlet pipe enters the vat a little below the water level, so that a certain amount of water will stand in the neck of the cup C, sealing the inlet and so separating the interior of the creamery from the outside air. The cup or hopper, however, is not necessarily employed. It screws onto the inlet pipe exterior to the vat, so that where desired it may be unscrewed and the inlet pipe connected directly with a pump or other source of water supply. An upright overflow pipe E, fits into the waste opening at the other end of the vat, and both closes the waste pipe D, and at the same time provides the overflow. To empty the creamery through the waste pipe D, it is only necessary to lift the overflow pipe.

The pipe E, is made in two or more telescoping sections, so that by a longitudinal adjustment of the sections the pipe may be made of such length as will give any desired overflow level in the vat. The pipe E, is trapped in some way, being either bent over at its upper end so that the open mouth of the pipe is below the water level, or else being provided with cap or inverted cup *e*, the open mouth of which is below the water level, and the diameter of which is sufficient to leave a water passage between it and the pipe E. This seals the entrance to the waste pipe.

Across the inner end of the compartment B, a short space from the edge of the shallow compartment A, is placed a vertical transverse partition F. The partition F, extends to the top of the vat, but its lower edge does not reach the bottom of the compartment B, so that there is left a narrow passage *f* affording communication between the two compartments of the vat. Consequently the water which has entered the compartment A, through water inlet C, will flow downwardly between the partition F, and the inner vertical wall *b* of the compartment B, and then, passing below the partition, will flow toward the overflow E. The partition F, is not permanently secured in place, but fits in suitable channel-guides *x x* on opposite sides of the vat, which hold the partition in place while the creamery is in use but permit its ready withdrawal when desired, as, for example, when it is nec-

essary to clean the vat. In the construction illustrated, the partition F, is shouldered along its upper edge, and is thereby supported upon the upper ends of the guides *x x*.

Each of the two compartments A B is covered (when the creamery is in use) by a cover G, the two covers fitting in snugly on either side of the partition F. The effect of the partition F, is to cause a proper circulation of the water through the vat. If the partition or its equivalent were not employed, there would be a straight current from the water inlet to the overflow. There would be practically no circulation in the vat except at the surface of the water, and certainly none in the lower part of compartment B, and consequently the apparatus would not be properly effective in cooling the milk. By introducing the partition F, the current of water from the inlet to the overflow is diverted from its naturally straight course, and made to descend to the very bottom of the deepest portion of the vat. In the compartment A, the current passes obliquely toward the passage *f;* and in the compartment B, the water, passing obliquely upward toward the overflow, circulates around the cans or jars of milk throughout their entire vertical extent, and effectively cools the milk therein. The partition F, moreover, forms a trap between the two portions of the vat.

Sometimes vessels containing meat or other food articles which it is desired to cool or preserve are placed in the shallow compartment A, and in that case such articles are kept from being tainted by heat or exhalations from the milk in the compartment B, because there is no communication between the two compartments except through the water-sealed trap or passage *f*. The effect of the water-sealed passage *f*, in connection with the water-sealed inlet-pipe and the water-sealed overflow, is to separate the two compartments of the creamery from each other and to separate each of the compartments from the outer air.

By making the partition F removable, and at the same time providing the removable interior overflow pipe E, the cleaning of the apparatus is very greatly facilitated. When the partition and overflow pipe have been removed, the apparatus is simply an open tank which can be very readily cleaned, and there are no inaccessible parts or passages.

While the improved apparatus is thus very simple and convenient in its construction, it affords a perfectly successful and satisfactory creamery for cooling milk and producing cream.

We claim as our invention—

1. A creamery or milk-cooling vat having a water-inlet and a water-overflow, in combination with a removable partition having a normal operative position between said inlet and overflow where it extends entirely across the vat and to near the bottom thereof so that water flowing from the inlet to the overflow must first pass below said partition, and provisions for maintaining said partition normally in its operative position but permitting its withdrawal when desired, substantially as set forth.

2. A creamery or milk-cooling vat having a shallow portion A, and a deep portion B, a water inlet entering the shallow portion, and a water overflow leading from said deep portion, in combination with a removable partition F, extending across the deep portion B, of the vat close to the meeting line of the two portions A and B, said partition permitting the passage of water beneath it, substantially as set forth.

3. A creamery or milk-cooling vat having a water inlet and a removable overflow pipe constituting the water outlet, in combination with a removable transverse partition extending across said vat between said water inlet and said overflow and reaching to near the bottom of the vat so that water passing from the water inlet to the water overflow must pass below said partition, substantially as set forth.

4. A closed creamery or milk-cooling vat having a uniform water-level therein, and having the water-inlet C and water-overflow E which communicate with said vat below the water-level, in combination with a partition F extending across the vat between said inlet and overflow to form the milk-cooling compartments A, B, said partition permitting the flow of water beneath it from the inlet to the overflow but closing communication above the water level between the two portions of the vat, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN H. BECK.
EDWARD E. REILLY.

Witnesses:
MOLLIE O. CONNELL,
ETHAN T. REASONER.