

(No Model.)

D. W. CURTIS.
MILK VAT.

No. 494,916.

Patented Apr. 4, 1893.

Fig. 1.

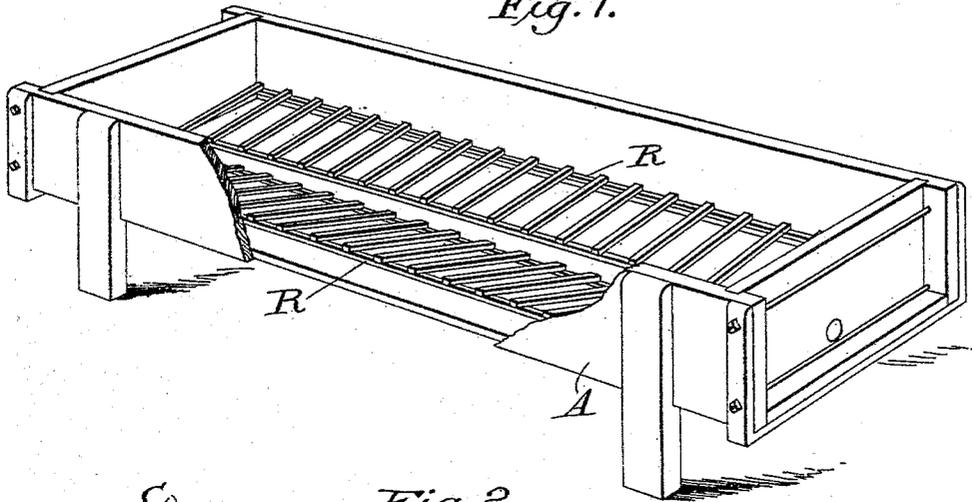


Fig. 2.

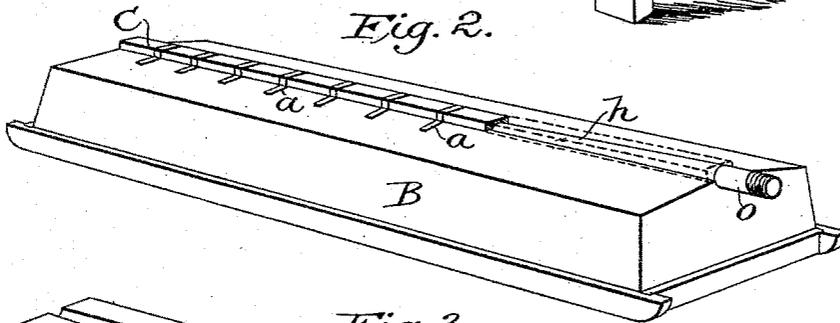


Fig. 3.

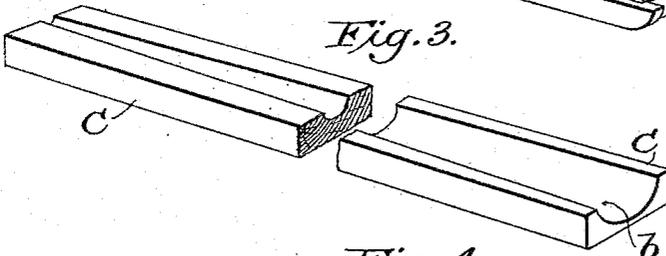
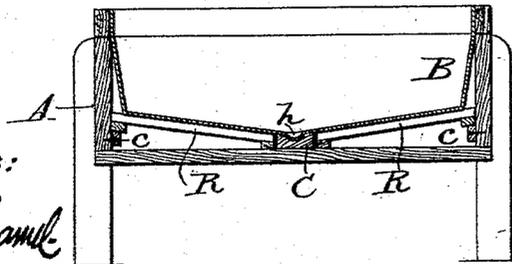


Fig. 4.



Witnesses:

James F. Duhamel
Hiram A. Dodge.

Inventor:
D. W. Curtis,
by Dodge & Sons
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UNITED STATES PATENT OFFICE.

DAVID W. CURTIS, OF FORT ATKINSON, WISCONSIN.

MILK-VAT.

SPECIFICATION forming part of Letters Patent No. 494,916, dated April 4, 1893.

Application filed December 29, 1892. Serial No. 456,719. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. CURTIS, a citizen of the United States, residing at Fort Atkinson, in the county of Jefferson and State of Wisconsin, have invented certain new and useful Improvements in Milk-Vats, of which the following is a specification.

My present invention relates to milk vats used in factories for the manufacture of cheese, and the invention consists in certain improvements on the vat for which a patent was granted to me April 15, 1890, No. 425,494, as hereinafter more fully set forth, and illustrated in the accompanying drawings, in which

Figure 1 is a perspective view of the tank in which the vat is set, with one side broken away. Fig. 2 is a perspective view of the vat detached and turned bottom upward. Fig. 3 is a perspective view of a part detached, and Fig. 4 is a transverse vertical section of the tank with the vat in position, as in use.

In my former patent, the vat is shown and described as having a central groove *h* formed in its bottom extending from end to end, with a continuously increasing depth toward the outlet end, where a short pipe *o* is secured for the attachment of a cock or faucet, this central groove or channel being shown in this case in Fig. 4, and reversed in Fig. 2. The bottom of these vats, which are from twelve to sixteen feet in length, is made of several sheets of tin or similar sheet metal soldered together.

It frequently is necessary to conduct the operation of forming the curd and draining the whey therefrom when the vat is not more than one third or one fourth filled with milk, and in such cases the pressure of the water and steam in the tank underneath the vat, causes the bottom of the vat to buckle or bend upward, and irregularly, from which two evils or difficulties result, viz: the breaking or rupturing of the joints of the sheet metal bottom, causing leaks; and second, this buckling or bending of the bottom destroys the regularity of the inclined channel or groove, and thereby interferes with the flow of the whey, and preventing the rapid draining of the whey from the curd, so essential to secure

the best results in the improved method of making cheese. To remedy or obviate these difficulties, I provide a rigid strip, *C* which may be either of wood or metal, and in its upper face form a groove or channel *b*, as shown in Fig. 3, of such a size as to permit the depressed portion which forms the channel *h* of the vat to rest therein, as shown in Figs. 2 and 4. This strip *C* I secure to the bottom of the vat by a series of metal strips *a*, which are soldered to the bottom as shown in Fig. 2, care being taken to arrange these at frequent intervals as shown, so there will be no bending or buckling of the bottom in the intervening spaces. By this means the difficulties above mentioned are entirely obviated, and the vat can be used with any quantity of milk or curd, however small, without injury to the joints and without obstruction to the flow of the whey along the channel *h*.

In order to support the bottom of the vat evenly from end to end, I provide two racks *R R* each composed of cross pieces secured to two longitudinal bars as shown in Figs. 1 and 4. These racks are secured or set in the tank in an inclined position as shown in Fig. 1, their inclination corresponding with the inclination of the bottom of the vat *B*, as shown in Fig. 2. Each is supported at its outer edge by a cleat *c* secured to side of the tank, while its inner edge or bar may rest on the bottom of the tank as shown in Fig. 4; or, if it be desired to leave more space under the vat, the racks may be raised and be supported on blocks set in the tank. These racks I make of such a width that when placed in position in the tank, there will be a space left between their inner edges of a width sufficient to receive the strip or bar *C* on the bottom of the vat, when the latter is set in the tank, as represented in Fig. 4, said strip resting on the bottom of the tank. As explained in my former patent, these vats as now made contain from one to two tons weight of milk, and unless evenly supported throughout their whole length, especially when the tank is not filled with water, this weight will cause the bottom to sag, and that tends to rupture the joints and also to prevent the rapid drainage of the whey. These racks constructed and arranged as shown overcome

or obviate these difficulties, as whatever the weight of milk in the vat, its bottom is supported evenly from end to end, thus preventing any sagging and consequent obstruction to the flow of the whey, and preventing also the rupturing of the joints. By means of these improvements, it will readily be seen that however large the vat, and however great the quantity of milk or curd, the bottom will retain its shape perfectly, so that when the curd therein is cut the whey will drain out rapidly and completely, and that the liability to injury by the rupture of the joints is practically eliminated; and as these vats are necessarily made of thin sheet metal this becomes the more important as they increase in size, it now being found necessary in order to meet the public demand to make them much larger than formerly, as it is far more economical to treat the milk in large quantities, a large batch requiring no more time than a small one, or but little if any more.

I am aware that strips have been applied to the bottom of a tank, and that a metal pipe has also been shown applied to the bottom of

a tank as a means for drawing off the contents, and with hooks to engage with cross-bars secured to the bottom of the tank, and I do not claim such, but

What I claim as my invention is—

1. In combination with a vat provided with a longitudinal groove or channel of continuously increasing depth from one end to the other, a grooved bar or strip C adapted to fit over the outer wall of said groove or channel and secured to the bottom of the vat substantially as and for the purpose set forth.

2. In combination with the vat provided with the central longitudinal channel and the strip or bar C, the inclined racks R R arranged within the tank to support the bottom of the vat, and leave a space between them for the strip or bar C, substantially as shown and described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

DAVID W. CURTIS.

Witnesses:

H. H. CURTIS,
O. B. CORNISH.