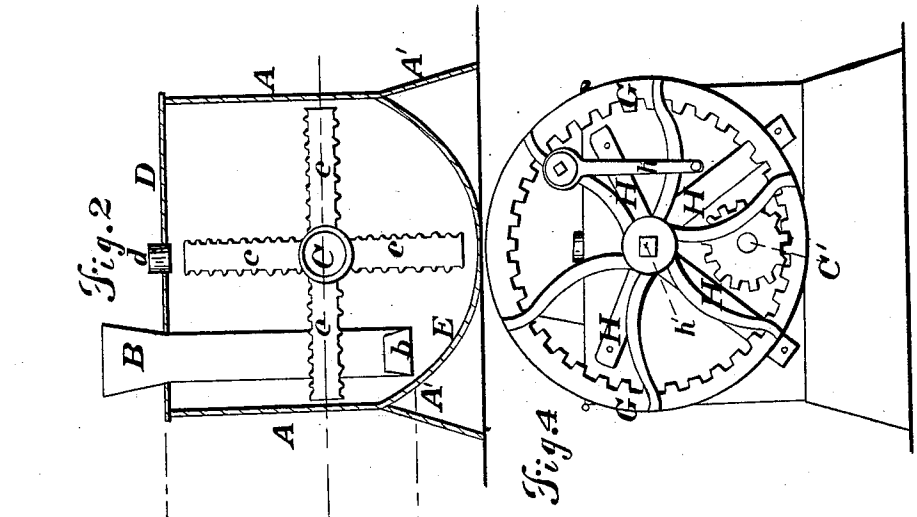
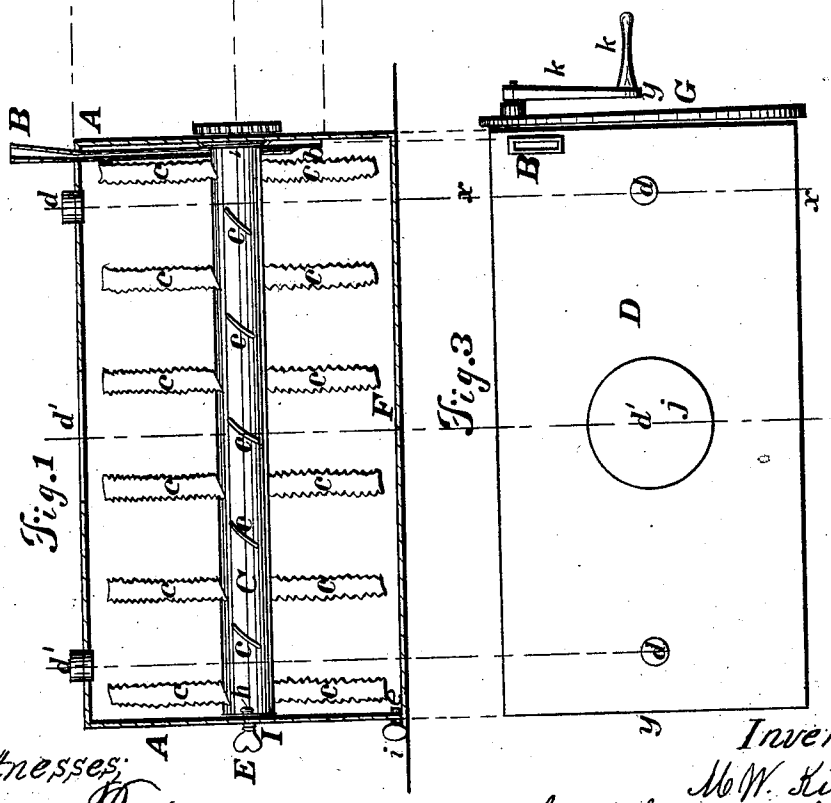
M. W. KILGORE.

Churn.

No. 71,182. Patented Nov. 19, 1867.





Witnesses:
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Letters Patent No. 71,182, *dated November* 19, 1867.

IMPROVEMENT IN CHURNS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, M. W. KILGORE, of the city of Baltimore, county of Baltimore, and State of Maryland, have invented certain new and useful Improvements in Churns, which I term the Iron Monitor Churn; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a longitudinal sectional view on the line *y y*.

Figure 2 is a transverse sectional view on the line *x x*.

Figure 3 is a top view, and

Figure 4 is an end view, showing the gearing mechanism by which the dasher is operated.

The nature of my invention consists in constructing the entire churn of cast or wrought iron, galvanized.

The great advantages resulting from the substitution of metal for wood, which is now universally used, will readily occur to any one who is practically acquainted with the construction and operation of the churns now in the market.

Of the advantages resulting from the substitution of metal for wood, the following may be mentioned as among the most prominent: Its great durability; the facility with which the churn can be cleaned of all impurities; the impossibility, from the very nature of the material used, for the churn to become musty; thus insuring a pure article of butter instead of the sour and fetid article often met with, which not only smells disagreeably, but also has a stale, ill flavor, and which is attributable to the fact that the churn was not pure, but musty and impure, in which the butter had been made.

It is hardly necessary to enumerate the disadvantages which are unavoidably associated with the use of the wooden churn. All who are familiar, no matter how slight the experience may be, with the duties and labors of the dairy, know how difficult it is to keep clean and pure the ordinary churn. No matter how great the degree of care, they will soon become offensive, which renders them entirely valueless for further use, for butter of a sweet and pleasant flavor cannot be made in a churn that is musty or mouldy, for it will of necessity impart to the butter a strong and rancid scent and taste. And again it is almost impossible properly to clean a wooden churn, even when the same is new and but little used, for after the churn is washed; to dry it, you are compelled to expose it to the rays of the sun, and in consequence of the natural tendency of the wood to warp when so exposed, you are obliged to remove the churn before it is thoroughly dried; and thus, at the very commencement of its use, you lay the foundation for that musty condition which will sooner or later render it worthless.

Another most important feature of my invention consists in the novel and practical method of constructing the "dasher," which is as follows: To a horizontal cylinder or rod I attach a number of paddles or blades. The edge of these paddles or blades is serrated. The great advantage of this is, that as the series is revolved briskly through the mass of cream, it will destroy all the globules and completely separate all the particles of the cream, thus, as it were, cutting it, and not simply slopping and moving the body of cream from side to side, as is the case with the ordinary blade and "fan" now in general use. With a "dasher" constructed on my plan, it only requires one minute to make good butter. The blades or paddles may be secured to the cylinder or rod in the manner shown, or in any other convenient manner. They may be arranged either straight across the cylinder or rod, or diagonally, or in any direction desired; and they may be either flat, curved, or of any other form.

My invention also consists in inserting, through a suitable opening in the top of the churn, a pipe. This pipe extends a short distance above the top, and is provided with funnel-shaped mouth, which admits the air, and which is conveyed by the pipe down through the cream to the lower portion of the churn, and is there introduced at the bottom of the entire mass, and insures a continuous supply of fresh oxygen during the entire operation, which prevents the milk from becoming too much heated while being churned.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the case or box of the churn, the ends and sides of which are straight, and constructed in the usual manner. The bottom F of the box A is of a curved or cylindrical form. The box A is firmly secured to the base-frame A′. C is a hollow horizontal cylinder. *c c* are a series of blades or paddles, which extend radially

from the cylinder C. The edges of these blades or paddles *c c* are serrated, as clearly shown in figs. 1 and 2. C′ is a cylinder-shaft, which passes through the cylinder C, and to which the cylinder is firmly attached. E is a thumb-screw, which works in a female screw, I, arranged in the side of the box A. This screw E has a hollow head, *h*, which furnishes the bearing for one end of the shaft C′. The shaft C′ extends through the opposite side of the box A, having a suitable bearing in said side. To the projecting end of the shaft C′ a spur-gear wheel, *g*, is firmly bolted. To one end of the box A there is permanently secured the clamp-plate H. On the centre of this plate H there is a stud or pin, *h*′, on which revolves the main driving-wheel G. The teeth of the spur-gear wheel *g* engage with or mesh into an internal or rein gear, which is formed on the inner face of the driving-wheel G. D is the top of the box A. To the top D there are attached two short escape pipes, *d d*. These pipes *d d* afford a free exit for the air that becomes heated and impure during the operation of churning. In a suitable opening in the top D, there is secured a pipe, B. This pipe extends a short distance above the top, and down nearly to the bottom F of the churn. The pipe B supplies the entire mass of milk with a continuous stream of fresh air, the air entering the pipe B by means of its funnel-shaped mouth, and being discharged at a point which is nearly under the entire body of milk at the side opening *b*. In the top D there is a centre opening, *d*′. Around this opening, there is a projecting flange, in which is fitted a glass, *j*. By means of this glass *j* the operator is enabled to observe the entire process of churning. In an opening in the lower end of the box A there is secured a discharge pipe, *e*, by means of which the buttermilk can be drawn off as occasion requires. This pipe is closed by means of a cork or plug, *i*. A small plate, *l*, is arranged immediately in front of the shaft opening in the side of the box A, in order to prevent the cream from being ejected through said opening.

The operation is as follows: Power is applied to the handle *k*, which communicates motion to the main driving-wheel G, thence to the spur-wheel *g*, which turns the crank-shaft C′, which causes the dasher to revolve. The diameter of the driving-wheel G being so much greater than that of the spur-wheel *g*, enables me to acquire great speed, which, being applied to the dasher, causes the same to revolve with immense rapidity. In the rapid revolution of the dasher, the serrated blades or paddles cut the globules and separate all the particles of the cream, and to the entire mass insures the most perfect and complete agitation. By means of the pipe a continuous current of fresh air is supplied to the churn, which, entering near the bottom, ascends through the cream, permeating the entire mass.

It will be observed that I have represented the serrated paddles or blades of the dasher as flat, and have only shown one method of attaching the same; but it will readily occur to any one skilled in such matters that they may be made of different forms and attached in various ways. I do not desire to be understood as limiting myself to any specific form of blade or paddle, nor to any specific method of arranging or securing the same.

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

1. A churn, each and every feature of which being made of galvanized iron, substantially as described and for the purpose specified.

2. Constructing the blades or paddles of the dasher with their edges serrated, substantially as described and for the purpose set forth.

3. So arranging the pipe B entirely independent of the dasher, that a continuous current of air is fed to the cream, and introduced at a point which is near the bottom of the churn. substantially as described and for the purpose specified.

4. The combination of the pipes B and *d*′ *d*′, when the same are arranged substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

M. W. KILGORE.

Witnesses:

W. H. MASSON,

GEO. K. VEAZEY.