

F. G. BUTLER.
Churn.

No. 219,387.

Patented Sept. 9, 1879.

FIG.1.

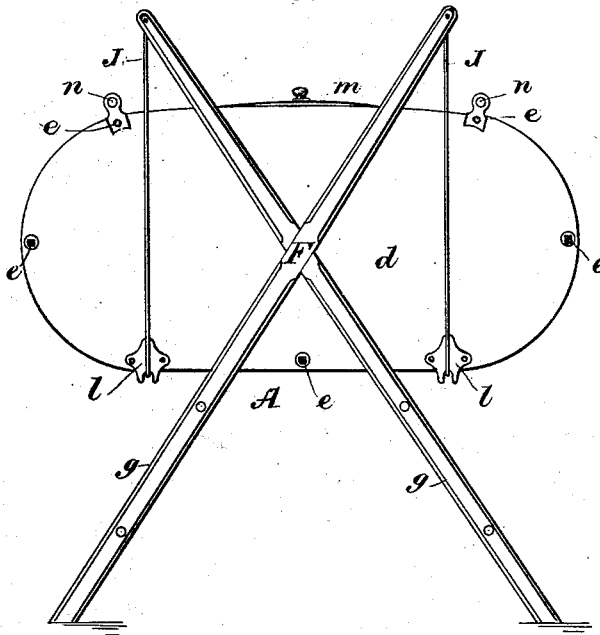


FIG.2.

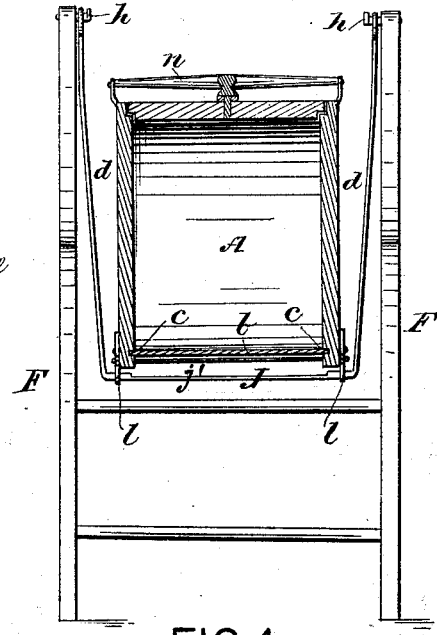


FIG.3.

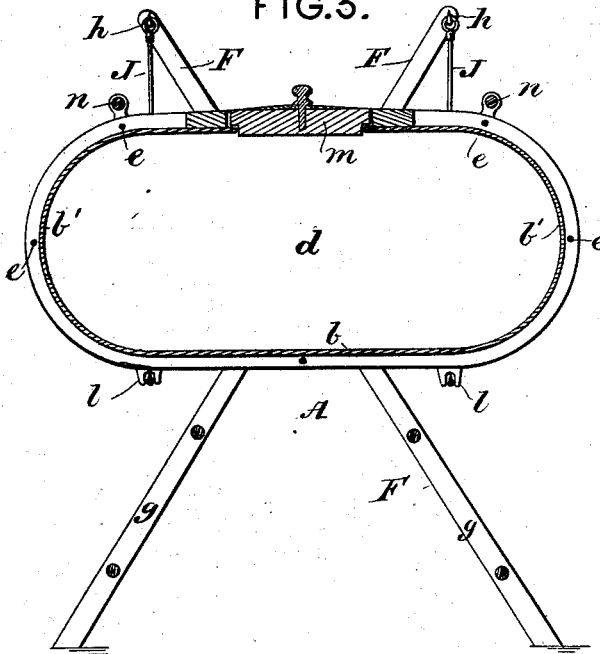


FIG.4.

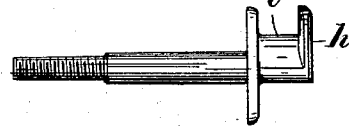
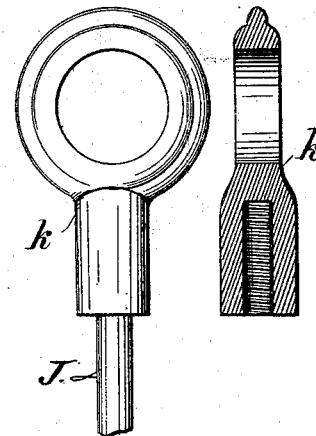


FIG.5.



WITNESSES.

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INVENTOR
Francis G. Butler.
by *John J. Halsted,*
his ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANCIS G. BUTLER, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO VERMONT FARM MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. 219,387, dated September 9, 1879; application filed January 31, 1879.

To all whom it may concern:

Be it known that I, FRANCIS G. BUTLER, of Bel lows Falls, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Churns; and I do hereby declare that the following is a full, clear, and exact description of the invention, 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 letters of reference marked thereon, which form a part of this specification.

My invention belongs to that class of churns in which no dashers or paddles are employed, but in which the required agitation is given to the cream by a reciprocating or oscillatory movement of the churn body or box; and it relates to a novel means for suspending the same, to secure a more regular and efficient action, and affording anti-friction bearings, and to the combination, with the supporting-frame, of two swing-bails and a removable churn-box resting thereon, all as more particularly hereinafter described.

Figure 1 is a side elevation, Fig. 2 a central transverse vertical section, and Fig. 3 a central vertical longitudinal section, of a churn illustrating my invention; and Figs. 4 and 5, detail views enlarged.

A is the churn-box, the body of which is, in the main, similar in shape to that shown in the Davis patent, No. 190,199; but its construction is essentially different, its bottom *b* and its rounded ends *b'* *b'* being made all in one piece, as shown, bent to the desired form, and the edges of such piece are fitted into grooves or crozings *c c* made in the sides *d d* of the box. These sides and the bent piece are then secured firmly together by rods *e e*, or by any other equivalent or suitable fastenings.

The advantages of making the parts *b b'* all in one piece are that all joinery-work or tongue-and-grooving together of many staves or pieces of wood to build either the ends or the bottom is avoided, and consequently there can be no gaps caused by shrinkage, and hence no seams or joints in these parts to become soaked with cream, and therefore difficult or

impossible to be kept strictly clean. I thus prevent all sourness in the churn and damage to the cream or butter which might result therefrom; and, besides, the labor of construction is materially reduced—say, to about one-half—and the cost is also less, and the continuously uniform surface of the inside face of these parts contributes to the securing of the required predetermined movements of the fluid when the churn is in action.

The mode of and means for suspending the box are as follows: A cross or other frame, F, capable of supporting itself when resting upon the floor or ground, is provided near its top, on the inner sides of each of its four legs *g* with a hook, *h*, made with a sharp edge, *i*, such edges forming anti-friction bearings, from which the bails J are suspended, and on which pendent bails the churn-box A is hung. These bails are metallic, and sufficiently rigid to prevent the lateral or sidewise swaying of the box, and to which it would always be subject if it were hung in open space upon cords, chains, or other flexible suspensories.

Each bail has two points of suspension, and the bails hang both inside the frame. The eyes *k* of the bails in a full-sized machine are preferably made, as shown in Fig. 5, in the form of a ring, and with a screw-thread nipple, whereby they may be screwed to the ends of the metal composing the main part J of the bail.

The churn-box is not hung or suspended by its top; but, as shown in the drawings, it is placed and rests directly upon the lowermost and horizontal part, *j'*, of the two bails, as shown, and sharp edges for anti-friction bearings may be used at these lower as well as at the upper bearings, and such edges may either be on the bails or on the bottom of the box, or on both. Such anti-friction bearings never require oiling. I prefer to attach notched plates *l* to the box at its bottom, the notches receiving and spanning the bails, as shown. This prevents the box becoming dislodged from the bails when in motion.

The box is provided with any suitable cover, *m*, and has handles *n*, whereby it may be carried or lifted on and off of the bails, or by which it may be swung.

The horizontal portion of the bails between the bearings on the churn-body may be dispensed with, and the two vertical portions or suspensories may in such case be connected at their bottoms directly to the bottom of the box, but, of course, so as to permit it to swing.

It will now be seen that no beam or elevated structure is needed from which to hang and swing the churn; that it always hangs plumb after proper adjustment; that it cannot swing out of line and in various directions, but must move in substantially the same vertical planes, because of the stationary frame and of the rigidity of the pendent bails, and does not need to be guided and steadied by hand; that the apparatus may be placed wherever convenient, the points of suspension being within the frame itself; that the churn is not and need not be positively attached to the bails, and therefore is readily removable to and from them for any purpose, and that the bails are also readily removable from the frame; that the regularity of the movements prevents inequalities in the treatment of the cream and of the grain of the butter; and that an unskilled person can work it satisfactorily, because it works automatically when caused to

swing, and keeps itself in the true line of motion without being or needing to be constantly steered or guided by the operator for this purpose, who needs only to push or pull the box.

Of course it will be understood that this churn or any desired number of them, and of any desired size or capacity, may be driven by power as well as by hand.

I claim—

1. The frame adapted for the reception between its opposite sides, of a swinging churn or body, and provided with sharp-edged hooks *h*, serving as metallic anti-friction bearings for bails or suspensories *J J*, each hung vertically, and each supporting one of the ends of the body.

2. In combination, a supporting-frame, two swinging bails hung thereto at points distant from each other, and a removable unattached churn body or box adapted to rest at or near its opposite ends upon such bails, substantially as shown and described.

FRANCIS G. BUTLER.

Witnesses:

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SUSIE E. BUTLER.