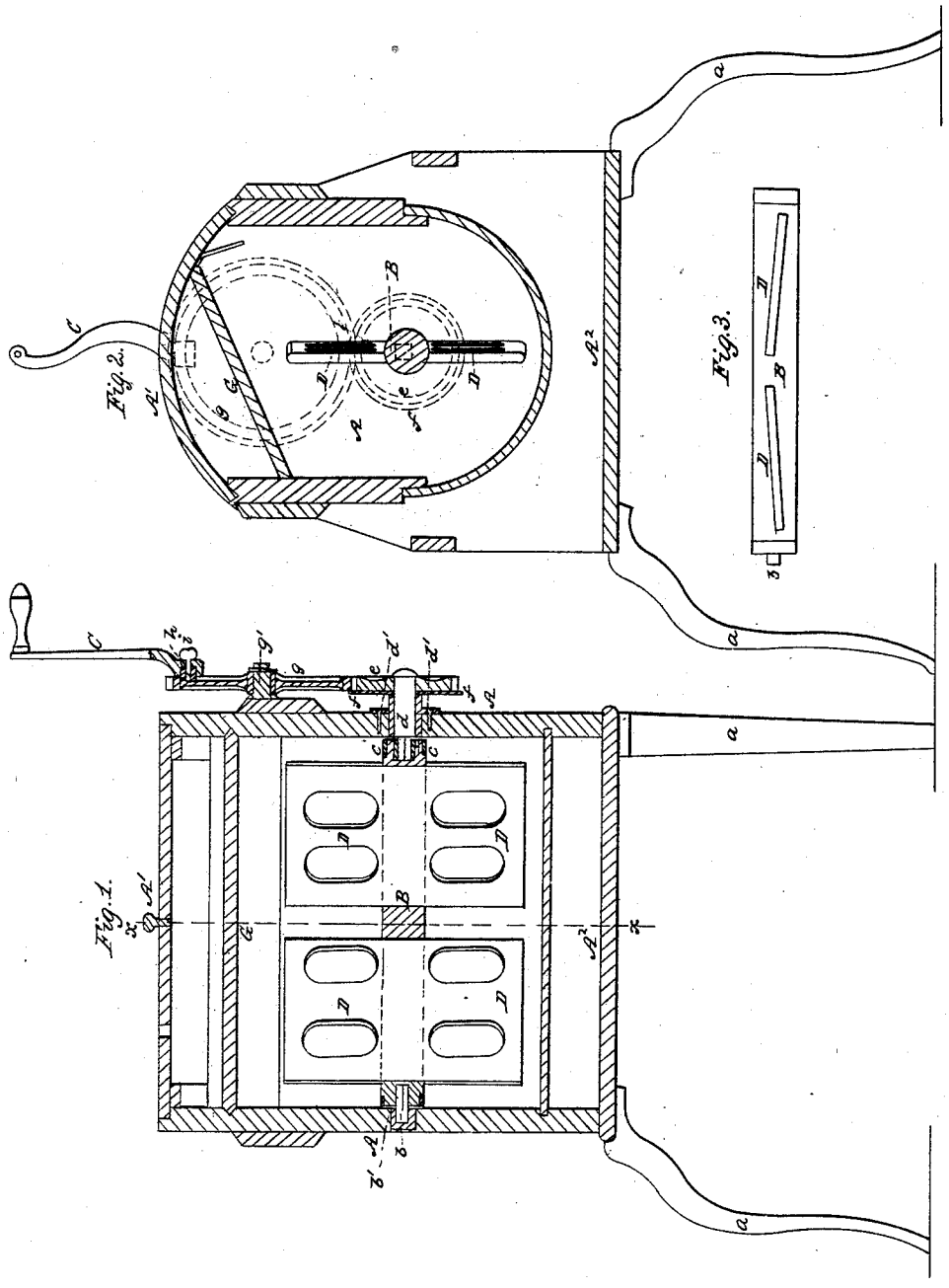
WARREN & BALDWIN.

Churn

No. 45,544. Patented Dec. 20, 1864.



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UNITED STATES PATENT OFFICE.

C. H. WARREN AND A. C. BALDWIN, OF TIFFIN, OHIO.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. 45,544, dated December 20, 1864.

To all whom it may concern:

Be it known that we, C. H. WARREN and A. C. BALDWIN, of Tiffin, county of Seneca, and State of Ohio, have invented a new and Improved Churn; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section taken in a vertical plane through the center of our churn. Fig. 2 is a vertical transverse section through Fig. 1, taken at the point indicated by red line *x x*. Fig. 3 is a view of the dash-shaft.

Similar letters of reference indicate corresponding parts in the three figures.

This invention and improvement in churns relate to a method of applying the dash-shaft within the churn-box which will admit of its ready removal from this box, and also admit of the shaft being rotated either to the right or to the left without detaching or loosening it from its driving-wheels; also, to a novel method of applying the hand-crank to the driving spur-wheel so that this crank can be readily removed therefrom or secured in any desired position to obtain greater or less leverage, at the pleasure of the operator; Also, to so arranging the dashers or paddles that they will each operate to force the cream laterally toward and from the center of the machine, and at the same time give to it a rotary movement.

Our invention relates, finally, to the arrangement of an inclined removable board beneath the cover of the churn-box and over the dashers in such manner as to assist in breaking up the butter globules, all as will be hereinafter described.

To enable others skilled in the art to make and use our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the churn-box, which is constructed with vertical sides and a semi-cylindrical bottom. The top of this box A is adapted to receive a curved cover, A′, which fits into a rabbet, and is held down in its place by means of thumb-buttons. The ends of the box A are continued down a short distance below the bottom thereof, and secured to a horizontal shelf or secondary bottom, A^2, to which the curved legs *a a a* are secured. The upper ends of these legs are formed with shoulders on them, which abut against the edges of the bottom board, A^2, and by the aid of screws these legs are secured very rigidly in place.

Within the box A, and concentric with its bottom, is a longitudinal shaft, B, arranged in a parallel plane with the bottom, as shown in Fig. 1. One end of this shaft has a pin, *b*, projecting from it and entering a metallic bearing-box, *b′*, which is seated into the end of the box A. The opposite end of the shaft B has a metallic cap, *c*, secured over it, in the center of which is formed a square recess or socket, adapted for receiving a square tenon that is formed on the inner end of the short driving-shaft *d*. This shaft *d* has its bearings in a tubular flanged box, *d′*, which is inserted through the end of the churn-box, and secured in place by inserting screws through the flange, as shown in Fig. 1. The shaft *d* has a spur-wheel, *e*, secured on its end, which engages with a larger spur-wheel, *g*, that has its bearing on a fixed pin, *g′*. This latter wheel serves as a means for keeping the shaft *d* and its pinion *e* in place, and also as a means for communicating a rapid rotary motion to the dash-shaft B. The flange *f*, which projects from the circumference of the wheel *e*, abuts against the wheel *g*; and hence it will be seen that the shaft *d* cannot be withdrawn without first removing the wheel *g* from its bearing-pin. The square enlargement *h*, which is cast on the outer face of the driving spur-wheel *g*, is intended for receiving one end of the crank-handle C, which end has a square recess formed in it to receive the enlargement *h*. A screw, *i*, is used for securing the handle in place, as shown in Fig. 1. By removing this screw the handle C can be detached from its wheel and applied to it again, so that its outer end will be brought much nearer the axis of this driving-wheel, as indicated in red, Fig. 1. By this method of applying the crank C to the wheel *g* there are four different positions in which the former can be arranged.

The dash-shaft has two slots cut diagonally through it, through which are inserted the blades D D, that project out from each side of their shaft equal distances, and have openings made through them to assist in agitating and breaking up the globules of butter. The oblique slots through which the blades D D are

passed serve as a means of securing them to their shaft, and also to give them such a position thereon as will cause one side of each blade to force the cream toward the center of the churn-box, while the opposite sides of the blades will force the cream toward the ends of the churn-box, at the same time giving to the cream a rotary motion around the shaft B. The space which is left between the paddles as well as the spaces at the ends of the shaft B facilitate the passage of the paddles or dashers through the body of cream.

Directly over the dashers D D is an inclined board, G, which is fitted into grooves formed in the end boards of the churn-box. This board is allowed to slide out and in when the cover A′ is removed, and it is intended, in connection with the paddles D D, to facilitate the breaking up of the butter-globules.

It will be seen from the above description that when it is necessary to clean the interior of the churn the dash shaft B can readily be removed by slipping off the driving spur-wheel *g*, which will allow the driving-shaft support *d* to be withdrawn.

The removable board G being inclined and arranged directly over the dashers, it serves as a deflecting-board to prevent the cream from being forced out at the joints of the cover during the operation of churning, and also serves to keep the cream within the scope of the dashers.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. Attaching the crank C to the wheel *g* by means of a tenon, *h*, formed on this wheel, and a socket formed in the crank, in combination with the screw-fastening *i*, substantially as described.

2. Applying the dashers D D to the shaft B in oblique planes to the axis of this shaft, substantially as shown in Fig. 3.

3. The removable inclined deflecting-board G, arranged within the churn-box, substantially as described.

4. The construction of the churn-box A with a secondary bottom or shelf, A^2, substantially as described.

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