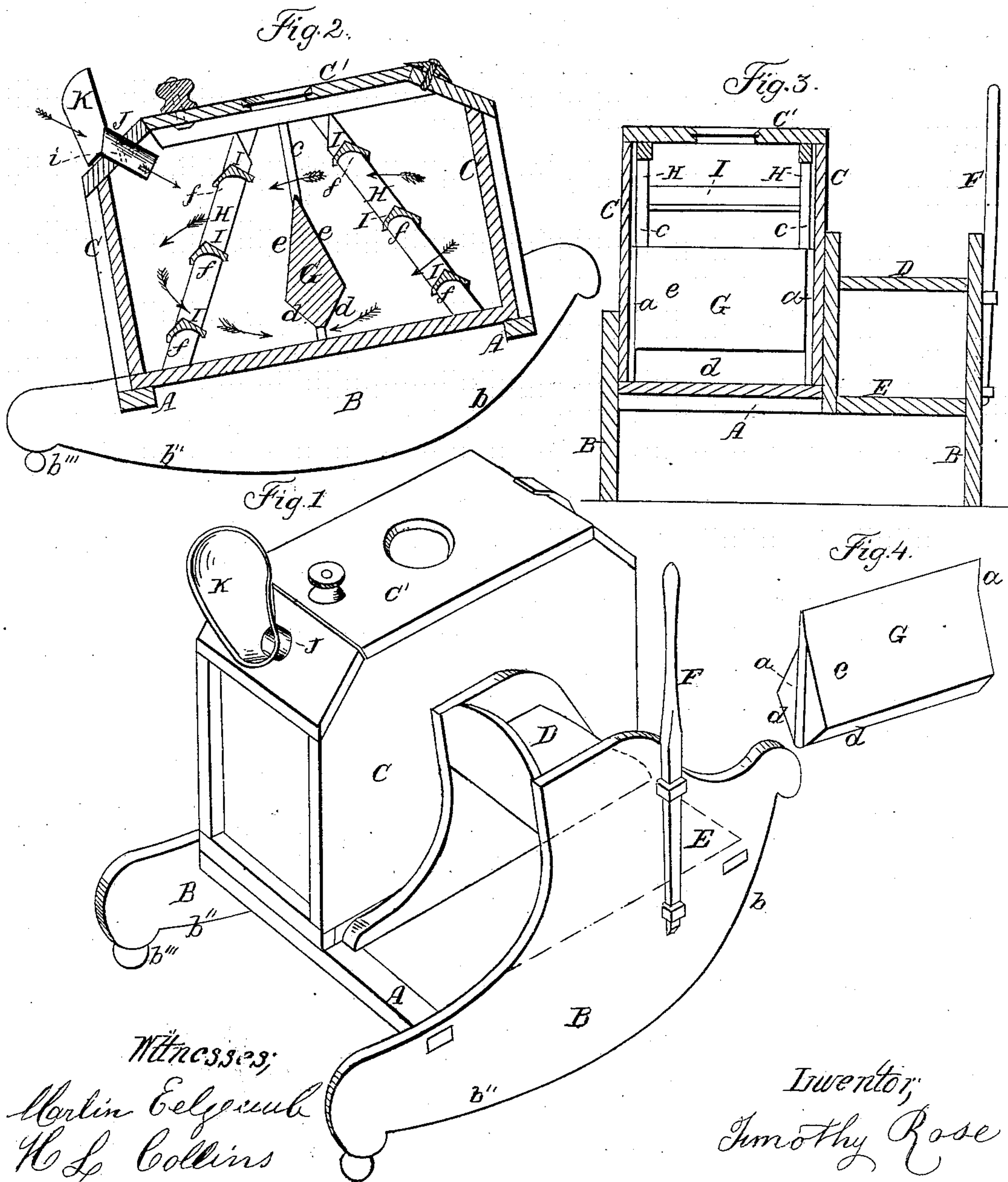


T. ROSE.

Churn.

No. 76,350.

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TIMOTHY ROSE, OF CORTLANDVILLE, NEW YORK.

Letters Patent No. 76,350, dated April 7, 1868.

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, TIMOTHY ROSE, of Cortlandville, in the county of Cortland, and State of New York, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings of the same, making part of this specification, and in which—

Figure 1 represents a view in perspective of a churn embracing my improvements.

Figure 2 represents a vertical section of the same, the churn occupying the position it does when thrown back upon its rockers.

Figure 3 represents a vertical transverse section through the middle of the same, and

Figure 4 represents a view in perspective of the central movable divider detached from the churn.

In the accompanying drawings, A represents the frame, supported by two rockers, B B, upon which the churn is mounted. The chamber for receiving the cream consists of an oblong box, C, seated upon the frame A, parallel to the rockers, so that it may be removed at pleasure, and is provided with a lid, C'. The frame is made wider than the churn-box C, for the purpose of supporting a seat, D, at the side thereof, and for forming a platform, E, to support the feet of the operator. The seat D is elevated above the platform E, and is so placed that the body of the operator will be in a line with the middle of the length of the churn, and the platform to support his feet will be at the end of the churn, while, intermediate between the seat and the platform, a vertical lever, F, is secured to the frame or rocker, so as to be in a convenient position to be seized and held by the right hand (or both hands) of the operator, so that by this arrangement of the seat D, platform E, and lever F, the operator will have three points of purchase whereby he will be enabled to continue the rocking motion by the combined leverage of the right arm, (or both arms,) of the body, and the feet, all being directly upon the frame, with far less labor and fatigue than if his feet rested upon the ground and formed the only point of purchase, which would cause the churn to move from its position at every effort of the feet. The lever F may be secured to the frame vertically, directly in front of the operator's body, so as to stand between his legs, and be in a position to be seized by both hands. In either position, it is found to be of great advantage to the operator. In order to produce an irregular motion of the churn, I make the rockers B of peculiar form; that is to say, I make their front ends of a curve, *b*, measured by shorter radii than the curve *b''* of their rear ends, and attach a rubber spring, *b'''*, at the rear end of each rocker, which, striking the ground, assists the return motion of the rockers on their shortest curve, while the shortest curves of the rockers give an impetus to the backward motion of the churn. By making the rockers B of the irregular shape described, I am enabled to place them parallel to each other and to the churn, and obtain an irregular rocking motion, for it will be seen that the short curve *b* of the front end of each rocker gives the backward motion of the churn an impetus which a regular curve would not impart, while the springs *b'''*, at the ends of the long curves *b''* of the rear ends, give an impetus to the forward motion of the churn, and thereby assist it in rocking on the short curves of the front ends of the rockers. Rockers of the irregular form claimed in the patent of William Newbrough, if placed parallel to each other and the churn, would produce no rocking motion whatever, and therefore must differ essentially from my improvement. The cream-chamber is divided vertically, in the middle of its length, into two compartments, by means of a double wedge-shaped divider, G, equal in height to about one-half the depth of the chamber, and is held in its position by means of tongues, *a a*, fitting into vertical grooves, *c c*, in the sides of the chamber, in such a manner as to allow it to have a vertical motion. The form of this divider resembles that of two wedges, of unequal length, joined together at their thickest ends, with the shortest one, about one-fourth the length of the divider, forming two short angular sides, *d d*, at the bottom thereof, sloping downward, while the upper angular sides *e e* slope upward to the point. On each side of this divider I place a rack of beaters, inclining with the sides of the divider, from the top to the bottom of the churn. Each rack consists of two side strips, H, between which the beaters I are secured horizontally. In the drawings, each rack consists of three beaters, but there may be more or less. The beaters are made concave on their under sides from end to end, and angular on their upper sides, as shown in fig. 2, and this construction I have found to be very advantageous in mixing air with the cream, as the hollow side of each beater forms an air-chamber

f, which distributes the air as the cream rises and falls over upon the angular backs of the beaters. The racks of beaters are secured in grooves in the sides of the churn, so that they can be removed, to facilitate the removal of the butter.

It has been stated that the divider is secured in grooves, so that it may rise and fall, and this motion is derived from the combined action of the cream against its angular sides and the motion of the churn, thereby rendering its motion self-acting. The special object of this divider is to prevent the cream from rushing from one end of the churn to the other in a body, while at the same time the cream may flow over and under the divider in sufficient quantities to produce a thorough agitation and mixture of the cream on both sides of the divider. The motion of the churn throws the cream against the divider, and the upper angles, *e e*, of its side, by their inclination, cause a portion to pass over it to the other side, while the motion of the churn and the action of the cream against the under, steeper angle *d*, of the same side, lift the divider from its seat a sufficient distance to open a communication between the two compartments beneath the divider, and thereby obtain a current of cream above and below, passing from one side of the divider to the other at each motion of the churn from end to end, while the divider, being solid, prevents the greater portion of the cream from passing over into the other end; the two currents of cream coming in contact at the opposite end, the upper one closing in the air, and thus mixing it thoroughly, and the lower one, meeting the upper one as it descends, with the air, is forced back again under the divider, and this action of the cream and divider takes place at each motion of the churn. The angles *d d* of the divider are of such inclination as to cause the action of the cream to lift it sufficient to open communication from end to end, and the motion of the churn itself will assist in producing this result. In this way the divider will rise and fall with each successive motion of the churn. If the motion of the churn be rapid and the cream thick, then the divider will be held up from the bottom of the churn almost entirely, but if the motion be slow and the cream thin, then it will rise and fall as the churn rocks back and forth; but whether the divider be up or down, it fulfills its chief object, that of preventing a portion of the cream, nearly equal in depth to the height of the divider, from rushing to the opposite end of the churn at each motion. The use of this solid divider, among other advantages, lessens the labor of the operator, in equalizing the cream at each end of the churn, while at the same time it affords ample passage for the cream from end to end, to insure its thorough agitation.

I am aware that tubes have been used in various ways to introduce air into the chambers of churns, but I am not aware that a tube, with a hood or funnel-shaped mouth and automatic valve, has been used in connection with a rocking-churn, the motion of which supplies the requisite air to the cream. To use the rocking motion of the churn, therefore, to supply the air so necessary to the formation of butter, I place a tube, *J*, in the rear end of the churn-box, having on its outer end a hood or funnel-shaped mouth, *K*, to gather the air into the tube as the churn rocks backwards, and a valve, *i*, hinged within its inner end, to admit the air within the cream-chamber, thus rendering the action of the valve, and consequently the admission of the air, dependent on the motion of the churn. Upon each backward motion of the churn, therefore, the valve is opened, and the cream-chamber is supplied with a fresh supply of air, while each forward motion closes the valve, and confines the air to be mixed with the cream. The tube *J* is set in an inclined position, and the valve is hinged, so that its weight tends to keep it closed.

Having thus described my improvements, I claim—

1. The solid divider, when of less height than the depth of the cream-chamber, in combination with a rocking-churn, for the purpose herein described.
2. The double wedge-shaped divider *G*, having an automatic rising and falling motion, derived from the combined action of the churn and cream, for the purpose of opening a passage beneath it from end to end of the chamber, as herein described.
3. The fixed beaters, made concave on their under sides, forming a series of air-chambers, as herein described.
4. The rockers, having their front ends made of curves, whose radii are less than the curves of their rear ends, and providing the latter with springs, for the purpose herein described.
5. The arrangement of the seat *D*, platform *E*, and vertical hand-lever *F*, in combination with a rocking-churn, as herein described.
6. The air-tube *J*, having a hood, *K*, at its outer end, and a valve, *i*, within its inner end, when applied to a rocking-churn, as herein described.

In testimony whereof, I have hereunto signed my name.

TIMOTHY ROSE.

Witnesses:

MARTIN EDGCOMB,
H. L. COLLINS.