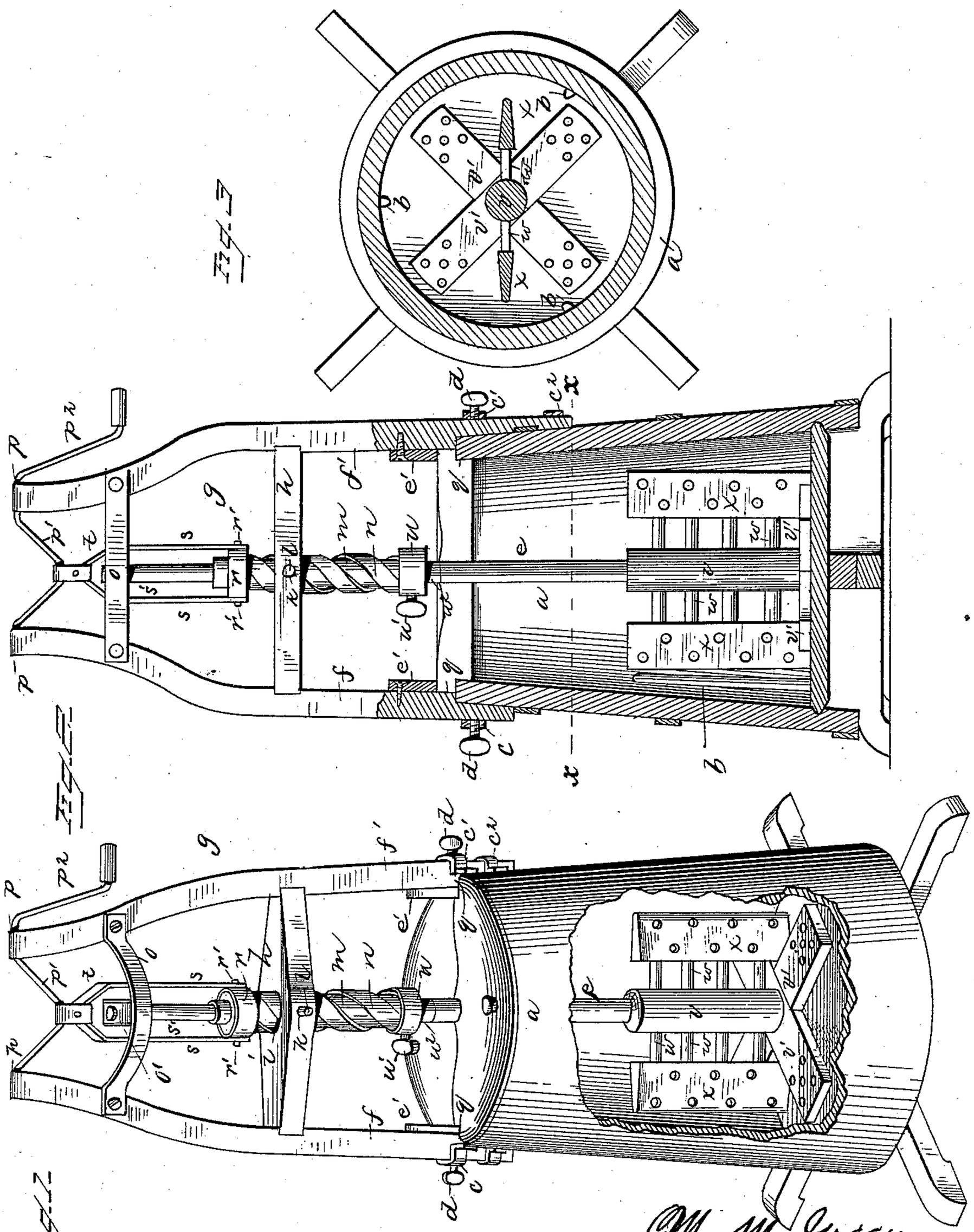
(No Model.)

M. M. GREEN.

CHURN.

No. 307,111. Patented Oct. 28, 1884.



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MICHAEL M. GREEN, OF SHELBY, OHIO.

CHURN.

SPECIFICATION forming part of Letters Patent No. 307,111, dated October 28, 1884.

Application filed March 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL M. GREEN, a citizen of the United States, residing at Shelby, in the county of Richland and State of Ohio, have invented a new and useful Churn, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to churns; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims hereto appended.

Figure 1 is a view in perspective of a churn embodying the improvements of my invention, a portion of the churn-body being broken away to show the churn-dasher. Fig. 2 is a transverse vertical sectional view, and Fig. 3 is a horizontal sectional view on the line *x x* in Fig. 2.

Referring by letter to the accompanying drawings, *a* designates the body of the churn, which is in the form of a tapering cylinder mounted on a cross-frame, the projecting arms of which form feet for the churn-body, and steady it in its position during the operation of churning. The inner face of the wall of the churn-body is provided with vertical tapering cleats *b*, triangular shape in cross-section, their bases resting on the bottom of the churn-body, and their points terminating a distance from the bottom equal to about two-thirds of the height of the churn-body. The churn-body is provided on its outside near the mouth of the churn with a staple, *c*, at one side, and diametrically opposite this staple with another staple, *c'*, and a short distance below the latter staple with a third staple, c^2, which is aligned vertically with the staple *c'*. Each of these staples is provided with a thumb-screw, *d*, by which the frame that carries the mechanism for operating the churn-dasher is removably secured to the churn-body. The lid is made in two equal parts, the meeting edges being notched to form the central opening for the stem *e* of the churn-dasher, and is held in place by buttons *e'* on the inner faces of the arms *f f'* of the frame *g*. The arms *f f'* of the frame *g* are slightly curved inwardly near their upper ends, and are connected about midway of their length by a cross-bar, *h*, having a vertical central opening, *i*, intersected by lateral perforations *k k* entering from opposite edges of the cross-bar *h*, which form seats for the guide-pins *l l*, the points of which enter the groove *m* of the screw portion *n* of the dasher-stem, for a purpose hereinafter explained. These arms *f f'* are further connected a short distance below their upper ends by a bowed metal cross-bar, *o*, having a central laterally-projecting arm, *o'*, extending inwardly from said bowed arm between the arms *f f'*. This arm *o'* is provided with a vertical perforation near its unsecured end to receive and guide the small upper end of the sectional dasher-stem, and may be metal-faced on its edges to give it additional strength. The upper ends of the arms *f f'* are provided with bearings *p p* for the journals of the bent crank-shaft *p'*, which is provided with a crank-arm, p^2, bent at an angle of about ninety degrees to the bend of the crank-shaft. The lower ends of the arms *f f'* are provided with shoulders *q q* on their inner faces, formed by reducing the thickness of the arms, to cause them to fit into their respective staples, the shoulders resting on the edge of the churn-body when the frame is in place, the thumb-screws being tightened to hold it, and the lid-sections notched to receive said arms. The arm *f'* is longer than the arm *f*, and its lower end is secured in the lower staple, c^2, this being the crank side of the frame, to give greater stability to the frame. The upper end of the screw-section *n* is provided with a collar, *r*, rigidly secured thereon, and from which extend short lateral arms *r' r'*, which have their bearings in the lower ends of the arms *s s* of the bifurcated pitman *s'*, connected at its upper end by a loop or eye connection, *t*, to the middle straight portion of the bent crank-shaft. The lower end of the screw portion *n* of the dasher-stem is provided with a coupling-socket, *u*, having a thumb-screw, *u'*, the point of which engages the metal-incased upper end of the dasher-stem proper, u^2, (when the latter is inserted into the socket,) and the screw *u'* turned up to hold the stem-sections together. The lower portion of the dasher-stem is enlarged and is cylindrical in form, and forms the middle portion of the dasher. To the lower end of the cylindrical portion *v* are secured the crossed flat beaters *v' v'*. They are in the form

of a Roman cross, and near their ends are provided with groups of vertical perforations, five in each group, arranged as shown. The cylindrical portion *v* is provided with four diametrical horizontal perforations, arranged one above the other at short intervals of space, in which are secured four small wooden rods or arms, *w*, which extend outwardly from the portion *v*, and on the ends of these rods are secured two laterally-perforated vertical beaters, *x x*, which are nearly wedge-shaped in cross-section, the head of the wedge or inner edge of the vertical beaters being bored to receive the ends of the wooden rods.

The operation of the churn is very simple, yet the best results have been attained by it. When the crank is operated, the crank-shaft revolves and carries with it the bifurcated pitman, which, being connected to the arms of the collar secured to the dasher-stem above the screw portion *n*, lifts the dasher-stem and forces it down again at every revolution of the crank-shaft. This movement of the crank-shaft imparts a vertically-reciprocating motion to the dasher, and at the same time the guide-pins in the groove of the screw portion *n* cause the screw portion to make a horizontal half-revolution forward during the upward motion of the screw, and a horizontal half-revolution backward to its first position when the screw moves downward, so that the churn-dasher has both a vertical reciprocating motion and a horizontal rocking motion.

It has been found by actual trial in competing with other churns that this churn will cause the butter to come quicker than any churn with which it has been placed in competition. It does not matter in which direction the crank is turned, the motion of the dasher will be the same. The parts can be readily and quickly disconnected when it is necessary to clean the churn. The butter is gathered on opposite sides of the dasher.

This churn possesses simplicity, durability, cheapness, and general efficiency.

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

1. In a churn, the combination, with the body thereof having the internal vertical pointed tapering cleats extending upward from the bottom of the churn, of the dasher-stem enlarged at its lower end and having the perforated horizontal beaters *v' v'*, secured thereto and arranged in the form of a cross, lateral rods passing through the enlargement, the perforated vertical beaters secured to the ends of the rods above the horizontal beaters, and mechanism for imparting to the dasher thus formed a vertical reciprocating and a horizontal rocking motion, as set forth.

2. In a churn, the combination, with the churn-body having a frame removably secured thereto, and comprising a central cross-bar, *h*, connecting upright side bars, *f f'*, and a bowed or curved frame, *o*, provided with the projecting guide-arm *o'*, which is perforated vertically, as shown, of the dasher-stem *e*, provided with a coupling-socket, *u*, to connect it with the screw portion *n*, the latter passing through the opening in the cross-bar, a collar, *r*, at the upper end of the screw portion, a pitman provided with arms *s s*, attached to the collar at their lower ends, and the bent crank-shaft *p'*, having an operating-handle, and connecting with the pitman by a loop or eye, *t*, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MICHAEL M. GREEN.

Witnesses:
A. J. MACK,
P. R. BRICKER.