G. W. CROSBY.

CHURN.

No. 190,010. Patented April 24, 1877.

Fig. 1.

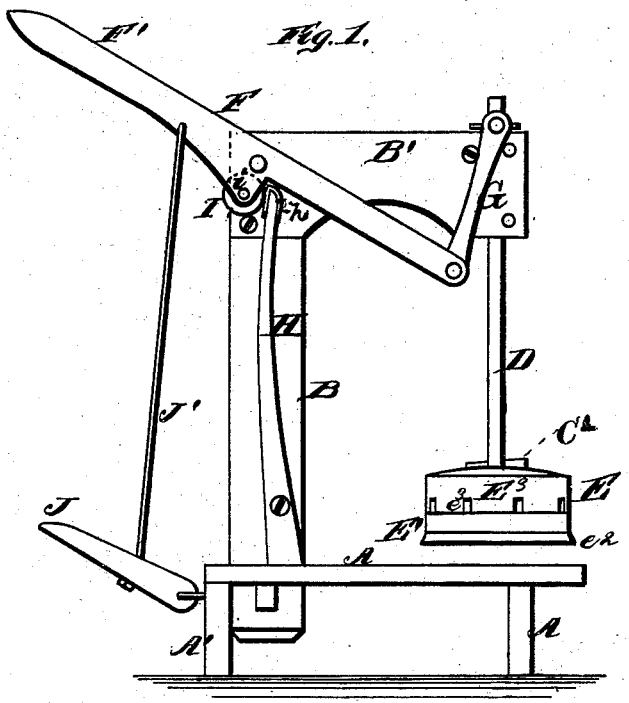


Fig. 2.

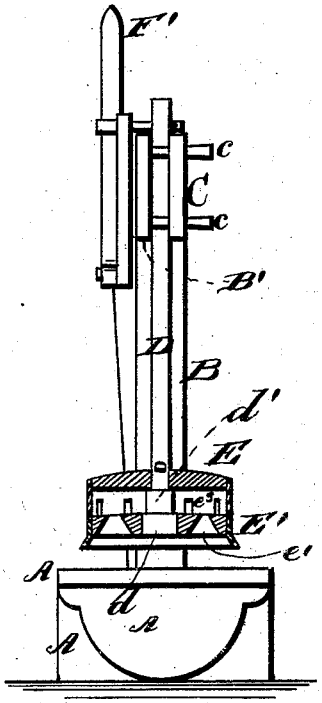


Fig. 3.

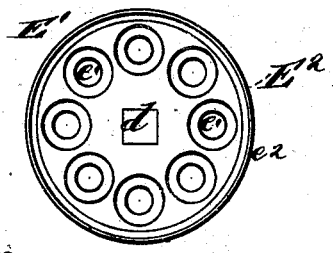
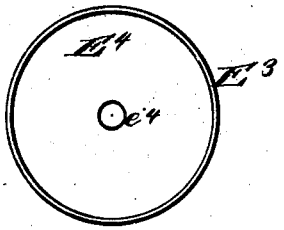


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE W. CROSBY, OF BRADFORD, ARKANSAS.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **190,010**, dated April 24, 1877; application filed February 3, 1877.

To all whom it may concern:

Be it known that I, GEORGE W. CROSBY, of Bradford, in the county of White and State of Arkansas, have invented a new and valuable Improvement in Churns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my churn; and Fig. 2 is a front view of the same, part sectional. Figs. 3 and 4 are detail views thereof.

This invention relates to that class of churns which are provided with vertically-reciprocating dashers. The nature of said invention consists in the peculiar construction of said dashers, and in the combination of an operating-lever with a spring-bar, which automatically forces the dasher downward.

In the accompanying drawings, A designates the base-piece or platform of my apparatus, which rests upon short legs or blocks A′ A′. Said platform is elongated, and supports at one end an ordinary upright churn-box, (not shown,) and at the other end a vertical standard, B. The upper end of said standard is provided with a rigid horizontal arm, B′, extending out over the said churn-box like the horizontal arm of a crane. To one side of the outer end of said horizontal arm B′ is secured a vertical box or case, C, which is open at top and bottom, so as to form a guideway for vertically-reciprocating dasher-rod D. One side of said guideway is closed only by detachable pins *c c*, which prevent the accidental displacement of said dasher-rod, but allow it to be readily removed for the purpose of cleansing.

To the lower end of said dasher-rod is secured a dasher, E, constructed as follows: E^1 designates a bottom disk, provided with perforations e^1, as shown in Fig. 3, and secured to a terminal enlargement, *d*, of said dasher-rod. E^2 designates an annular plate or ring secured to said disk E^1, and provided with an outwardly-flaring flange, e^2, that extends below the same. E^3 designates a short cylindrical casing resting on said disk E^1, and provided with openings e^3 at its bottom and around its circumference. The top of said cylinder is closed by a cap-piece, E^4, (shown in detail in Fig. 4,) which is held in place by a key, C′, that is passed transversely through dasher-rod D, immediately above said cap-piece E^4. The said cap-piece is disk-shaped, and perforated centrally at e^4, and it rests upon an enlargement, *d′*, of said dasher-rod D. After removing key C′ the said dasher may be readily withdrawn from rod D.

The said dasher incloses an air-space, e^5, which has bottom openings e^1 and side openings e^3, as already described, but no top opening. When said dasher is plunged downward into the contents of the churn the milk or cream is forced up through openings e^1 into said air-space e^5. The compressed air in said space then, expanding, forces the said cream or milk out through side openings e^3, being aided in so doing by the pressure of the liquid below. The said cream is thus violently brought into contact with successive sharp edges, and effectually churned, so as to separate the butter-making globules therefrom. Flange e^2 increases the area of disturbance. The said dasher E, as a whole, operates to effectually churn the cream or milk.

The vertical reciprocation of said dasher E is produced by a lever, F, which is pivoted, by its middle, to standard B, at or near the top thereof. One end of said lever is shaped into a convenient grasping-handle, F′, and the other end thereof is connected, by a doubly-pivoted link-bar, G, to the upper end of the dasher-rod D. The said link-bar extends downward from said upper end of said dasher-rod D to said operating end of lever F, its position being vertical when said dasher E is at its highest point, and more or less inclined when said dasher is descending. The depression of handle F′ elevates said dasher. The elevation of said handle depresses the same. The former movement is effected by hand, the latter by the action of a vertical spring-bar, H, which is secured at its lower end to standard B, near the bottom thereof. The free tapering upper end of said spring-bar H is provided with a smooth metal cap, *h*, which the said spring presses against a small anti-friction roller, I, turning between

the jaws of a cleft bearing-block, *i*, on the under side of said lever F, just below the pivotal point thereof. The action of said spring-bar H throws handle F′ upward as soon as the pressure thereon is removed, and plunges dasher E downward, churning the milk or cream, as described. By means of this construction and arrangement of the operating devices the greater part of the churning is automatically effected, while the resistance of spring-bar H is reduced to a minimum (when the dasher is being lifted) by the anti-friction devices above described. There is no need to directly lift the dasher-rod, as in operating ordinary churns of this class.

Instead of depressing handle F′ by hand, I may employ a treadle, J, which is pivoted to one end of platform A, or the support thereof, and connected, by a cord or rod, J′, or equivalent attaching device, to said handle. If preferred, the pressure of the operator's foot on said treadle, and the downward draft of his hand on said handle, may be employed conjointly for the same purpose. The form of spring-bar H may be varied considerably, or any suitable form of expanding or contracting spring may be substituted therefor, without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of bottom disk E^1, perforated at e^1 e^1, with casing E, perforated at e^3 e^3, and cap-piece E^4, with dasher-rod D, having enlargements *d d′*, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE WASHINGTON CROSBY.

Witnesses:

GEO. W. MCCAULEY,

J. C. OVERSTREET.