# J. RENGEL.

## Churns.

No. 134,100. Patented Dec. 17, 1872.

Fig. I.

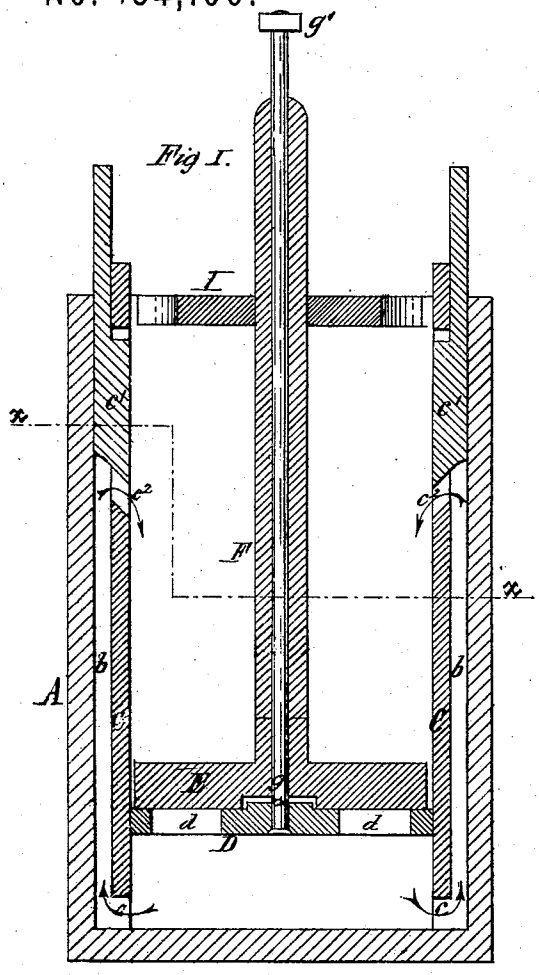
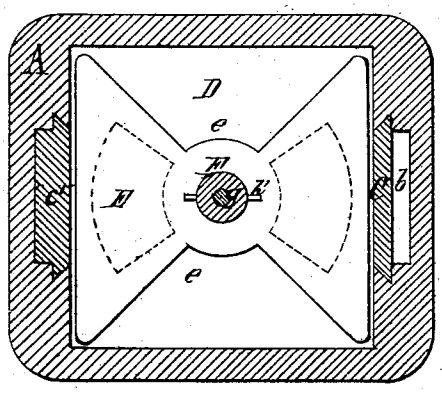



Fig. II.




Joseph Rengel Inventor.
by Jay Hyatt Atty.

Witnesses.
Edward Wilhelm
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# UNITED STATES PATENT OFFICE.

JOSEPH RENGEL, OF LANCASTER, NEW YORK.

## IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **134,100**, dated December 17, 1872.

*To all whom it may concern:*

Be it known that I, JOSEPH RENGEL, of Lancaster, in the county of Erie and State of New York, have invented certain Improvements in Churns, of which the following is a specification:

My invention relates to ordinary churns in which a vertically-reciprocating dasher is employed; and consists, first, in the combination, in a churn, of a reciprocating-valve dasher, so constructed that the liquid above the same passes through it into the space below as the dasher is raised, while it acts like a solid piston or plunger in descending, with one or more vertical passages arranged in the side of the tub or cream receptacle, and communicating with the interior thereof, near the top and bottom, so that at each downward stroke of the dasher the liquid below the same is forced upward through said passages and discharged into the space above the dasher, thereby causing all particles of the liquid to come in contact with the air; second, in the construction of the valve-dasher with the valve-stem extending upward through the hollow handle of the dasher, so that by removing the nut at the upper end of the handle the valve will remain at the bottom of the churn, whereby the dasher, now open during both movements, can be used in gathering the butter, the handle of the dasher reciprocating in such case on the valve-rod; third, in the combination, with the vertical circulating passage or groove of a churn, of a dovetail slide arranged to cover or close said groove so as to form a partition between the same and the interior of the tub, said slide being provided with an opening at the bottom for the influx of the liquid, and an adjustable gate near the top for regulating the discharge thereof.

In the accompanying drawing, Figure I is a sectional elevation of my improved churn, and Fig. II is a horizontal section in line *x x*, Fig. I.

Like letters designate like parts in each of the figures.

A represents the tub or cream receptacle, which may be of any ordinary shape, although shown in the drawing as square in cross-section. *b b* are the vertical passages or recesses formed in two sides thereof, and C the dovetail slide arranged in each passage so as to separate the same from the interior of the tub A. *c* is the opening provided in the lower end of the slide C for the influx of the liquid, and $c^1$ the adjustable gate arranged in the upper portion of each slide C so as to close the upper end of the passages *b b* and to regulate the size of the discharge-opening $c^2$. D represents the valve or lower part of the dasher, fitting snugly in the tub A, and provided with openings *d* for the passage of the cream. E is the upper part of the dasher, constructed with notches or recesses *e*, arranged at right angles to the openings *d*, and provided with an upwardly-extending hollow rod or handle, F, by which the dasher is operated. *g* is a rod secured to the lower part D of the dasher, and extending upward through the axial bore of the rod F, above which it projects so as to leave a short space between the nut $g'$ at its end and the end of the handle, to allow the required play or movement of the valve. I is a cover arranged in the top of the tub A and forming a guide for the dasher-rod F.

### *Operation.*

In forcing the dasher down it is held by the resistance of the liquid in close contact with the valve D, the aperture of which it closes so as to form a solid piston, the downward movement of which forces the liquid below the same, upward through the passages *b*, and out through the discharge-orifices $c^2$, as indicated by the arrows in Fig. I. Upon elevating the dasher it is separated from the valve D until the screw-nut $g'$ comes in contact with the end of the dasher-rod F. In this position the liquid above the dasher is allowed a free passage through the latter into the space below. The distance to which the two parts of the dasher may be separated is regulated by changing the position of the nut $g'$ on the rod *g*. The cream is discharged from the orifices $c^2$ in a narrow sheet, which insures a thorough commingling of the atmospheric air with the same, thereby facilitating and shortening the process of making butter. As the milk is discharged through the orifices $c^2$ in a downwardly-inclined direction, and as the dasher allows the cream to pass freely through the same during the upward stroke, the objectionable spattering of particles of cream and butter is entirely obviated.

The advantage of the valve-stem extending

through the handle and provided with a nut is that the space between the two dashers D E may be varied and also that after the butter "comes" the nut can be removed, which allows the dasher to work independent of the valve during the process of "gathering the butter," for which purpose this separate and ordinary operation of the dasher is essential.

What I claim as my invention is—

1. The combination, in a churn, of the vertical passages *b* with a reciprocating valve-dasher, which is closed during the downward stroke so as to force a circulation of the liquid through the passages *b*, substantially as hereinbefore set forth.

2. The combination of the churn-dasher E and hollow handle F with the valve D and adjustable stem *g*, extending upward through the handle and provided with a nut or equivalent, substantially as hereinbefore set forth.

3. The combination, with the vertical circulating passages *b* of a churn, of the dovetail slide C provided with influx-opening *c* and adjustable discharge-gate $c^1$, substantially as and for the purpose hereinbefore set forth.

JOS. RENGEL.

Witnesses:
GEO. HUBER,
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