J. W. McCLURE.

Improvement in Churn-Dashers.

No. 115,496. Patented May 30, 1871.

Fig.1.

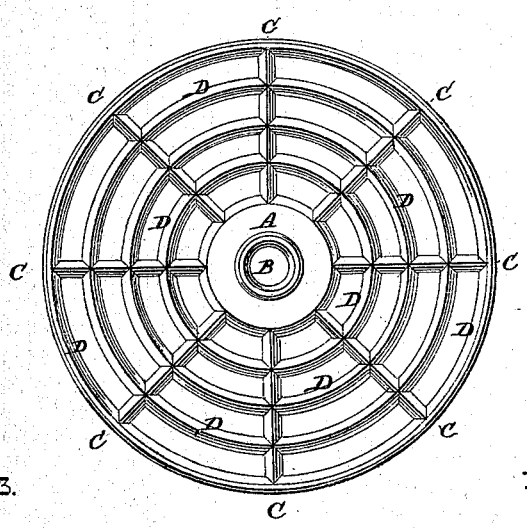
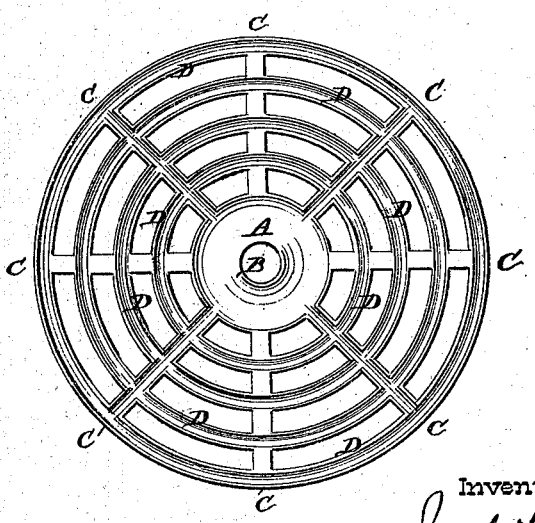


Fig.3.

Fig.4.

Fig.2.



Witnesses.

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UNITED STATES PATENT OFFICE.

JACOB W. McCLURE, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CHURN-DASHERS.

Specification forming part of Letters Patent No. 115,496, dated May 30, 1871.

To all whom it may concern:

Be it known that I, JACOB W. McCLURE, of St. Louis, in the county of St. Louis and in the State of Missouri, have invented certain new and useful Improvements in Churn-Dashers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of the upper side of the dasher; Fig. 2 is a like view of the lower side of the same; Fig. 3 is a cross-section of one of the radial ribs of the dasher; and Fig. 4 is a similar section of one of the concentric rings of the same.

Letters of like name and kind refer to like parts in each of the figures.

The object I have in view is the production of a dasher adapted for ordinary churns, which shall be cheap in first cost, easily operated, and effective in work; and my invention consists in the peculiar construction of my device, wherein a series of concentric rings is combined upon the same horizontal planes with a series of radial ribs, the former having Λ-shaped upper and concave lower surfaces, and the latter having similar upper and plain lower surfaces, and with a hub having an inwardly-beveled upper and a concave lower surface.

In the drawing, A represents the hub or central portion of the dasher, containing an opening, B, for the reception of the staff. This hub, upon its upper side, (shown in Fig. 1,) is beveled inwardly, and on its lower side (shown in Fig. 2) is hollowed or channeled in a circle between the center and circumference, leaving quite sharp outer edges. Projecting radially from this hub are the ribs C, Λ-shaped upon their upper surfaces, and plain or flat upon their lower surfaces; and connecting them are the concentric rings D, arranged regularly around the hub at equal distances apart, in such a manner that the sum of the several spaces between the ribs and rings shall be equal to the area occupied by the same. These rings D have Λ-shaped upper and concave lower surfaces.

In construction, the form of my dasher is adapted for casting, of suitable metal, in a single piece, and I prefer to manufacture them in this manner.

In operation, the dasher being raised at each stroke rapidly a little above the surface of the cream, and then returned with a downward motion, the effect of the construction is as follows, viz: Upon the downward stroke the globules of butter are ruptured by concussion, as well as separated from the body of the cream; at the same time a portion of air, carried in the grooves in the concentric rings and the hub, is thrown in contact with the particles of said globules, tending to increase their agitation, while it imparts a better color to the butter. Upon the upward stroke said globules are divided by the beveled upper surfaces of the ribs and rings, giving renewed agitation to their particles, while, from the configuration of the ribs, none of such particles will cling to them; and, from the same configuration, the labor of raising the dasher is much lessened.

The advantage of combining the plain-faced radial ribs with the concave-faced concentric rings is that the office of the latter is mainly to convey air into the cream, and by this aeration to increase, mechanically, the agitation and separation of the globules before spoken of, and, chemically, to heighten the color of the butter; but such ribs being cushioned, so to speak, with air, the rupture by direct concussion is not so perfect as with the use of the plain-faced radial ribs; combined, however, they effect both purposes admirably, and are aided in each by the construction of the hub.

The advantage of the equal area of spaces and ribs results from the more perfect agitation given in this construction to all the particles of cream in the churn; for if the spaces were more extensive than the ribs, too great bodies of cream would rise in such spaces without separation; and if the reverse were true too great bodies of cream would be forced downward unbroken, and would be unable to pass up through said spaces.

I do not pretend that I am the first who have employed radial ribs and concentric rings in the same dasher, or grooves on their under sides, or dashers, or sharp upper-cutting surfaces upon dashers, or who have made use of dashers to force air into the cream in the op-

eration of churning; but I do believe that I am the first to invent a dasher wherein these several parts and functions are combined; wherefore,

What I claim as new in my invention is—

The metallic churn-dasher above described, consisting of the hub A, beveled above and concave beneath, the radial ribs C having the triangular cross-section shown in Fig. 3, and the concentric rings D, spaced, as set forth, and having the cross-section shown in Fig. 4, all as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of January, 1871.

JACOB W. McCLURE.

Witnesses:

HENRY PETERS,

A. LOWRY.