J. E. KEITH.

CHURN.

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1,271,581.

Patented July 9, 1918.

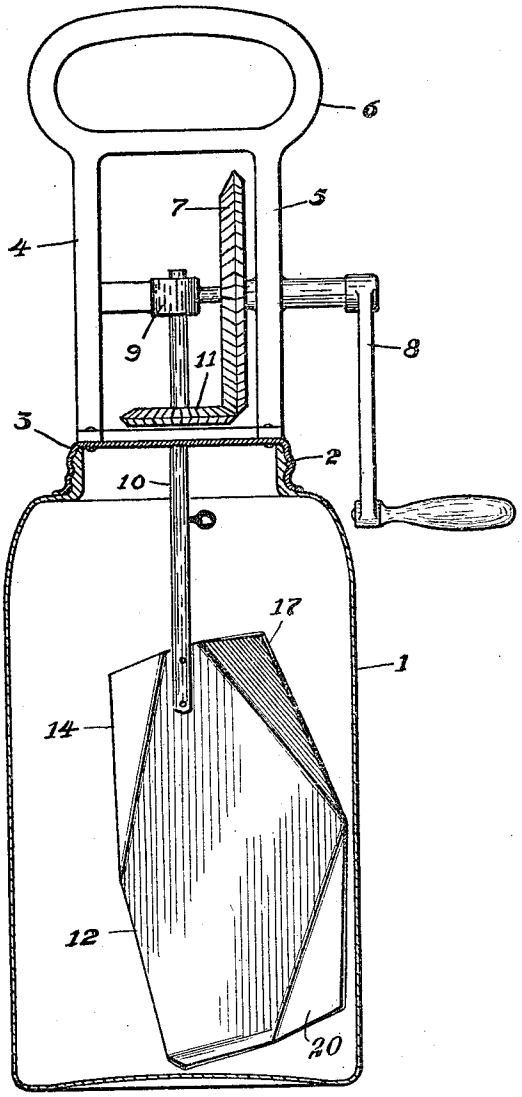


Fig. 1.

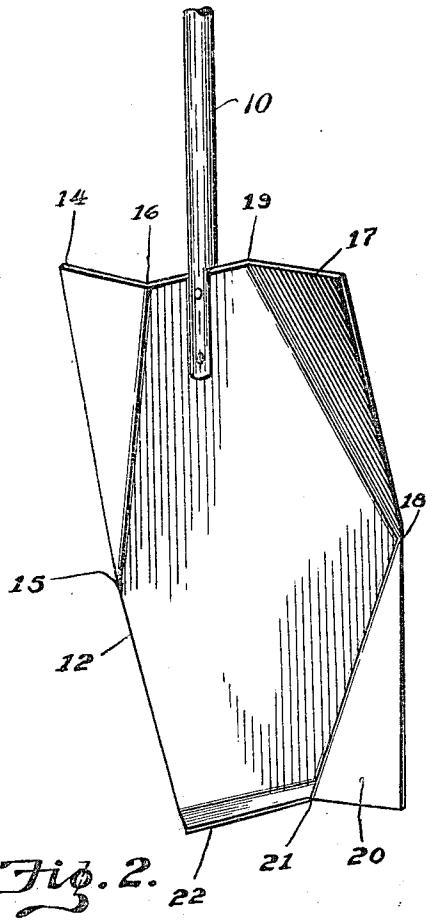


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN E. KEITH, OF CANTON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE NOVELTY CUTLERY COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

CHURN.

1,271,581. Specification of Letters Patent. Patented July 9, 1918.

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To all whom it may concern:

Be it known that I, JOHN E. KEITH, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Churn, of which the following is a specification.

This invention relates to churns and more especially to dashers for churns, the object being to provide a dasher that will have a maximum sweep in agitating the mass within the churn.

With this object in view the invention consists in the novel construction and arrangement of parts, hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of construction may be made within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a longitudinal sectional view through a churn with the dasher shaft and dasher shown in elevation and constructed in accordance with my invention.

Fig. 2 is a perspective view on a somewhat enlarged scale of the churn dasher and the lower portion of the dasher shaft connected thereto and constructed in accordance with my invention.

Similar numerals of reference indicate corresponding parts throughout the several figures of the drawings.

At 1 is indicated a churn cylinder, which, in this instance takes the form of a glass jar with the threaded portion 2, upon which is fitted a threaded cap 3. Riveted to the said cap is a casting with upright portions 4 and 5 and terminating in a hand grip or handle 6. Journaled in a bearing formed in the upright 5 is a shaft carrying a large beveled pinion 7, which shaft is adapted to be rotated by means of the crank 8 and extending inwardly from the upright 4 is a short arm terminating in a rounded portion 9 through which is formed a vertical bearing for the upper end of the dasher shaft 10 and secured to the dasher shaft and meshing with the beveled pinion 7 is a relatively smaller pinion 11. It is obvious from the foregoing that the rotation of the crank 8 will cause the dasher shaft 10 to be rotated through the pinions 7 and 11. Secured to the dasher shaft 10 is a dasher 12 which is formed of a sheet of metal or other suitable material and in blank is made in the form of a simple oblong piece. The corner 14 from the point 15 at approximately the vertical center at the right of the blank to the point 16 at the upper edge and slightly at the right of the horizontal center is then stamped at a slight angle to the plane of the body of the dasher and the opposite corner 17 from the point 18 at the vertical center at the left to the point 19 at the upper edge and spaced slightly to the left of the horizontal center is stamped in substantially a parallel plane to the corner 14 thus throwing one corner at an angle to one face of the dasher and the opposite corner at a similar angle to the other face of the dasher. The lower corner 20 is also stamped from the point 18 to the point 21. The last named point being approximately the horizontal center of the bottom edge of the dasher. The corner 20 is inclined in the same general direction as the corner 17 that is, it is bent toward the same face of the dasher as the corner 17. From the point 21 to the right hand side of the bottom of the dasher the edge is turned slightly in the same general direction as the corners 17 and 20 forming a lower flange 22.

The dasher thus formed is then attached to the shaft 10 at a point at the horizontal center at the top edge of the oblong and with the right lower corner 24 of the oblong in substantially an exact vertical line beneath the center of the top edge. It is obvious that this means of attaching swings the majority of the dasher body to one side of its axis. The advantage gained by this construction will be apparent when it is pointed out that where the dasher body is symmetrical, or concentrically arranged so to speak with the shaft with which it rotates, the greatest diameter of the dasher would be determined by the width of the opening to the cylinder body and as in the case of a glass cylinder body of the fruit jar type, in which the aperture through which the dasher must be inserted is approximately two-thirds of the greatest width of the jar, the dasher can only be made of sufficient diameter to agitate approximately

two-thirds of the mass. It is obvious that a dasher formed in accordance with my invention can be made to extend the full radius between the axis and the inner surface of the jar or churn barrel and thus cause the entire mass to be agitated, at the same time allowing the said dasher to be easily inserted through the opening at the top.

To operate the churn the crank 8 is designed to be rotated in the direction that would bring the crank forwardly and then upwardly from the position shown in Fig. 1, which operation of the crank would cause the dasher shaft to be rotated in the direction of the arrow in this figure. Assuming that a mass, to be churned has been placed in the cylinder portion, the movement of the dasher in the direction just described will cause the in-turned corner 20 to begin moving the mass inwardly from the lower right hand corner of the cylinder in Fig. 1. As the dasher is moved the mass will be forced away from the side of the churn by the outer edge of the corner 20 and will move upwardly on the top face of the said in-turned corner toward the point 18, describing a substantially spiral course. The upper in-turned corner 17 is meanwhile moving substantially above the corner 20 but slightly nearer the axis of the dasher and is therefore spaced slightly from the side of the jar at this point and contacting as it moves, with the mass it forces it first downwardly whence the said mass comes in contact with a portion of the mass being fed upwardly by the corner 20 as indicated by the arrows in Fig. 1, the two currents of the mass merging and being forced past the corner 17 in the direction indicated by the arrows. The corner 14 which is meanwhile rotating on the opposite side of the axis contacts with the current of the mass passed over the corner 17 and because of the inclination of its under-face forces the mass downwardly toward the bottom of the cylinder where it will be caught by the corner 20 on its next revolution and forced upwardly as previously described. The flange 22 formed upon the bottom edge of the dasher from the corner 24 to the point 21 is pitched at an angle to tend to force the mass downward and to thoroughly assist in agitating the entire substance being churned.

From the foregoing it will be obvious that my dasher will obtain the maximum agitation possible in a churn of the given size and while it is especially adapted for use upon churn barrels or cylinders with an opening of less diameter than the churn barrel itself it will be clear that it may be also used upon churns with parallel sides up to and through the point of entrance.

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

1. A churn having a centrally rotating shaft therein, a dasher mounted upon the said shaft, means upon one side of the said dasher for forcing the mass inwardly and upwardly from the lower corner of the body of the said churn, superposed means upon the same side of said dasher for forcing the mass inwardly and downwardly, the opposite side of said dasher being arranged to describe a circle of less diameter than said first named side of said dasher and means upon said second named side of said dasher for forcing the mass within the churn inwardly and downwardly.

2. A churn having a centrally located shaft therein, means upon the said churn for rotating the said shaft, a dasher eccentrically secured to said shaft and adapted to be rotated therewith, a vane upon the longer radius of said eccentric dasher designed to force the mass within the churn inwardly and upwardly, a superposed vane upon the longer radius of said eccentric dasher designed to force the mass within the churn inwardly and downwardly, a vane upon the shorter radius of said eccentric dasher designed to force the mass inwardly and downwardly and a flange upon the bottom of said dasher designed to force the mass within the said churn downwardly.

In testimony that I claim the above, I have hereunto subscribed my name.

JOHN E. KEITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."