No. 629,806. Patented Aug. 1, 1899.

W. H. McCORMICK.

CHURN.

(Application filed Feb. 28, 1899.)

(No Model.)

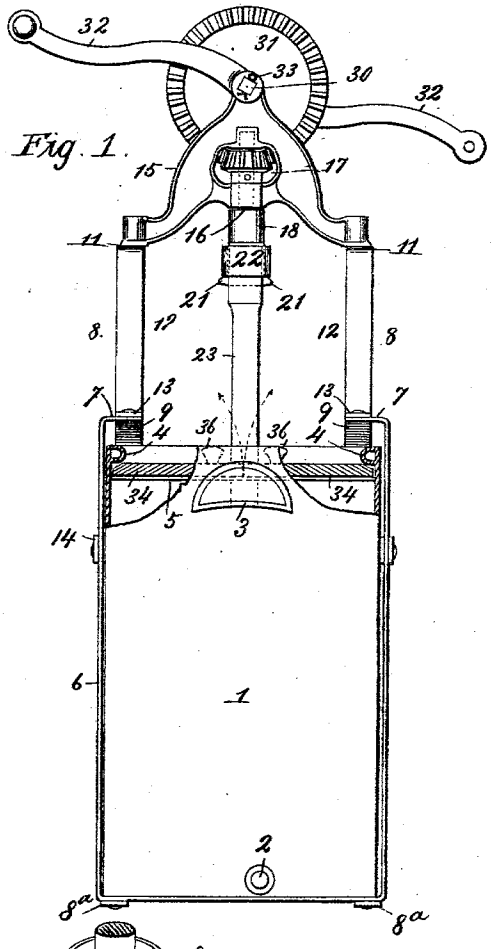


Fig. 1.

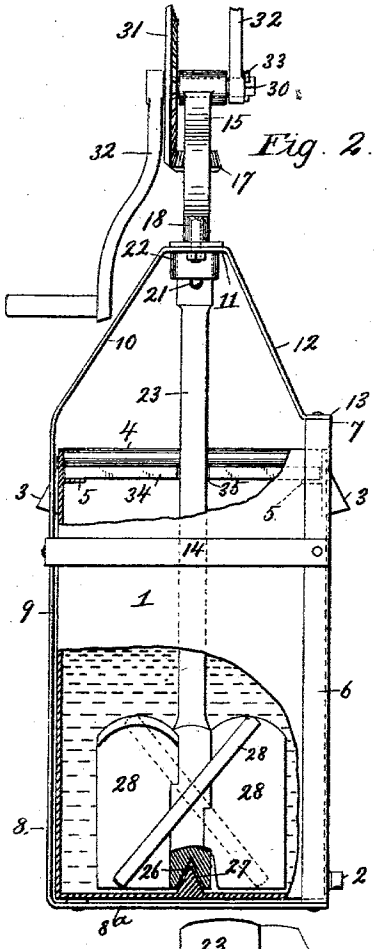


Fig. 2.

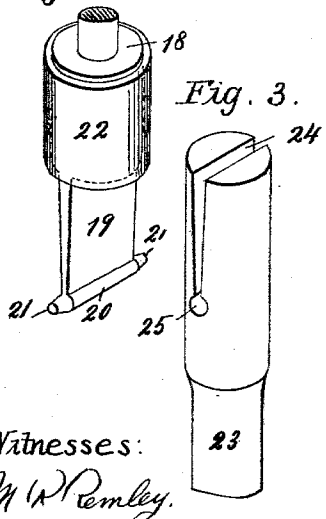


Fig. 3.

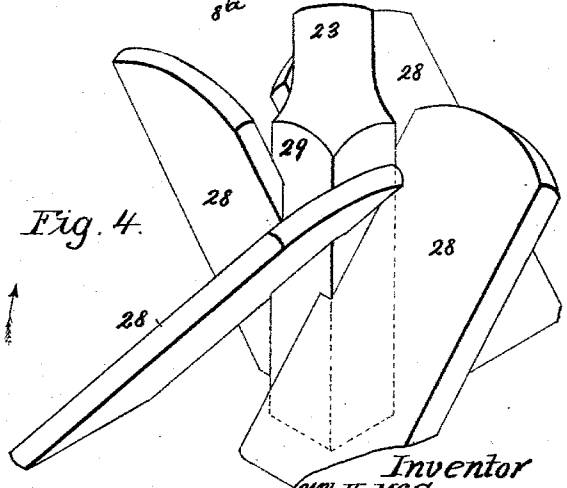


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM H. McCORMICK, OF KANSAS CITY, KANSAS, ASSIGNOR OF ONE-HALF TO WILLIAM D. MYERS, OF KANSAS CITY, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 629,806, dated August 1, 1899.

Application filed February 28, 1899. Serial No. 707,151 (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. McCORMICK, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented new and useful Improvements in Churns, of which the following is a specification.

My invention relates to churns, and more particularly to that class embodying a removable receptacle and dasher; and the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

The object of my invention is to produce a churn of the character above outlined which is positive and reliable in action and of simple, strong, durable, and cheap construction.

In order that the invention may be fully understood, reference is to be had to the accompanying drawings, in which—

Figure 1 represents a front view of the churn, partly broken away, embodying my invention. Fig. 2 represents a side view of the same, partly in section. Fig. 3 represents a perspective view of the dasher-shaft sections uncoupled. Fig. 4 represents a perspective view of the dasher at the lower end of the dasher-shaft.

In the said drawings, 1 designates a receptacle or churn-body, provided at its lower end with a removable cap 2, closing an opening (not shown) utilized to draw off the buttermilk and water in which the butter is washed.

3 designates handles near the upper end and at opposite sides of the receptacle for convenience in conveying it from place to place.

4 designates flanges or shoulders formed at the inner sides of the side walls, and 5 flanges projecting inward from the front and back walls below the flanges or shoulders 4, for a purpose which will hereinafter appear.

The receptacle or churn-body fits snugly in a skeleton frame constructed as follows: A bar is bent to provide a U-shaped frame, as shown at 6, slightly wider and higher than the churn-body, so that the latter may fit upon the cross-bar and between the vertical arms of said frame, the upper ends of the arms being bent inwardly to form the short horizontal arms 7. 8 designates a pair of bars which are bent to form the short horizontal arms 8^a, underlying the receptacle and secured at their front ends to the cross-bar of the U-shaped frame. Coincidental with the rear side of said receptacle said bars extend vertically upward, as shown at 9, extending upward to a point about in the same horizontal plane as arms 7, from which point said bars are bent to approximately inverted-V shape, said bent portions providing the upwardly-converging arms 10 12, united by the horizontal arms 11, the arms 12 terminating in short horizontal arms 13, which are riveted or otherwise rigidly secured to the horizontal arms 7. This skeleton frame is made rigid and strong by means of a horizontally-arranged U-shaped bar 14, which extends around the back and side walls of the receptacle and is riveted to arms 9 and at its front ends to the arms of the U-shaped frame 6, leaving the front side of said frame completely open, (see Fig. 1,) so that the churn-body can be easily placed in or removed from said frame.

15 designates an approximately A-shaped frame, and 16 the short vertical shaft journaled centrally in said frame and carrying rigidly a small beveled cog-wheel 17. Said shaft forms, practically, the upper member of the dasher-shaft and at its lower end terminates in a cylindrical enlargement 18, reduced to form the vertically-depending tapering tongue 19, said tongue being provided at its lower end with a cylindrical enlargement 20, having its ends projecting outward beyond the side edges of the tongue and of tapering form by preference, as at 21. 22 designates a locking-sleeve which is mounted to slide vertically on the cylindrical enlargement 18 and the tongue 19 of said shaft, and 23 designates the lower member of the dasher-shaft, said member being provided with a wedge-shaped slot or bifurcation 24 in its upper end, having its lower end terminating in a passage 25 of greater cross-section than the communicating end of the slot.

Supposing the receptacle and dasher-shaft occupy their proper relative positions in the frame, the members of the shaft may be coupled together by first raising the locking-sleeve 22 from the position shown in Fig. 1 to the position shown in Fig. 3 and then slipping the wedge-shaped tongue 19 laterally into the wedge-shaped slot 24, the enlarge-

ment 20 of the former fitting snugly in the passage 25 at the lower end of the latter, the pointed extremities of the enlargement 20 facilitating the insertion of the tongue in said slot. When the tongue is properly adjusted in the slot, the sleeve 22 is pushed down upon the shaft so as to embrace or encircle the tongue 19 and the slot or bifurcation in the upper end of the lower member 23 of the shaft and in said position obviously prevents the accidental uncoupling of the shaft members.

The lower end of the lower member of the dasher-shaft is formed with a conical recess 26, encircling the conical projection 27, the latter simply entering the recess 26 in order to prevent the lower end of the shaft from moving laterally. In other words, the conical projection simply serves to centralize the dasher, so that the best possible results may be obtained in the operation of the latter, and in this connection it might be stated that the distance between the bottom of the receptacle or churn-body and the dasher-blades may be varied, this being a proof of the fact that the conical projection does not form a bearing for said shaft. For convenience in securing the dasher-blades 28 to the shaft the lower end of the latter is of rectangular formation, as at 29, said blades extending at an angle of about fifty degrees, more or less, to the shaft and secured thereto as shown or in any other suitable or preferred manner.

30 designates another shaft journaled in the frame at its apex, and 31 a beveled gear-wheel mounted upon said shaft and meshing continuously with the bevel-gear 17, hereinbefore described. The shaft 30 carries a crank-handle 32 at each end for convenience of operation, secured in position by means of a spring-cotter or key or any equivalent means.

The top or cover of the receptacle or churn-body is preferably in two halves 34, which rest upon the flanges 5 and below flanges 4 and are formed with registering notches 35, which form a central opening through which the dasher-shaft extends. Near their inner edges the covers are provided with knobs or handles 36, which being grasped enable said covers to be raised pivotally in the direction indicated by the arrows, Fig. 1, preliminary to their removal. This operation is reversed to secure them in position, as will be readily understood.

In practical operation, supposing the cream is in the receptacle and the parts properly assembled for operation, the handles 32 are grasped, or one of them, and turned in the proper direction to rotate the dasher in the direction indicated by the arrow, Fig. 4, the dasher being driven at a high speed, obviously, through the instrumentality of the gearing shown and described. This operation, by reason of the peculiar construction and arrangement of the dasher-blades, causes a thorough and complete agitation of the cream, and at the same time the said blades dash it against the walls of the churn-body, which, being square, breaks the volume of the cream and throws the globules of butter-fat together in such manner that they are formed into granules. The buttermilk is then drawn off by removing the cap 2, and, the latter being replaced, water is introduced and the butter quickly freed by a few revolutions of the dasher from the buttermilk and the buttermilk acids. The washing of the butter being accomplished quickly and the butter being in granular form, the fine flavor and aroma that should always be found in good butter are retained.

In order that granular butter may be properly made with this churn, the tank or churn-body is constructed of metal, as hereinbefore stated, so that in case the cream is too warm its temperature may be reduced to the proper point in any suitable manner, or in case the cream is too cold its temperature may be raised to the required degree. In either case the dasher is turned slowly for a short time in order that such required temperature may be fixed or established.

It will be noted that by means of the arrangement of the dasher-blades a very small quantity of cream—a quart, for instance—may be churned as effectively as a larger quantity, and in this connection it will be noted that the bottom of the receptacle or churn-body is relieved of any downward pressure of the shaft, such pressure being sustained wholly by the upper stationary member, as hereinbefore stated.

From the above description it will be found that I have produced a churn which embodies the features of advantage enumerated as desirable in the statement of invention, and it is to be understood that I reserve the right to make all changes which properly fall within its spirit and scope.

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

In a churn, the combination of an angular churn-body having a projection 27, a dasher-shaft 23 extending vertically and provided at its lower end with a recess 26, and dasher-blades 28, and formed at its upper end with a bifurcation 24, having an enlargement 25, and a shaft 16, provided with a depending tongue 19, having an enlargement 20; the tongue and enlargement fitting respectively in the bifurcation 24 and enlargement 25, thereof, and a sliding sleeve 18, to encircle the upper end of the shaft 23, and the tongue 19, and rest upon the enlargement of the latter, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM H. McCORMICK.

Witnesses:
M. R. REMLEY,
G. Y. THORPE.