

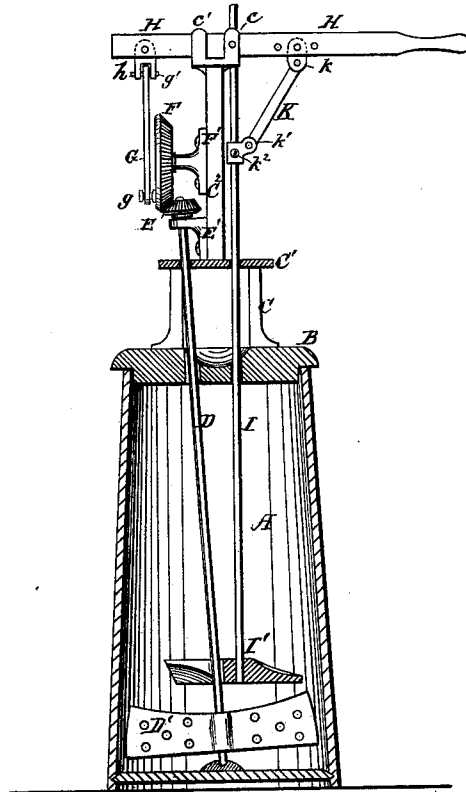
(No Model.)

A. MEARNS.  
Churn.

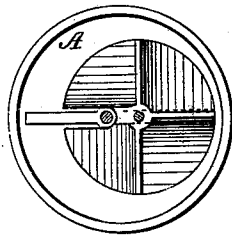
No. 229,729.

Patented July 6, 1880.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*W. W. Hollingsworth*  
*John Kemmer*

INVENTOR:

*A. Mearns*  
BY *Wm. C. ...*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ANDREW MEARNS, OF TOLESBOROUGH, ASSIGNOR TO WILLIAM BOWMAN, S. A. DAY, AND THOMAS JEFFERSON BARKLEY, OF SAME PLACE, AND H. C. BARKLEY, OF MAYSVILLE, KENTUCKY.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 229,729, dated July 6, 1880.

Application filed March 16, 1880. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MEARNS, of Tolesborough, in the county of Lewis and State of Kentucky, have invented a new Improvement in Churns; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to compound rotary and reciprocating churns in which are employed a rotary dasher to whip the milk, in combination with a reciprocating dash to displace the liquid, so that the entire liquid contents of the churn may be quickly and continuously presented to the action of the rotary paddle or dash by the movement of the reciprocating dash.

My invention consists in the construction and combination of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical section, and Fig. 2 a horizontal section, through the body of the churn, to show more clearly the relative arrangement and connection of the dashers.

The churn-body A is of the pattern known as the "barrel-churn," and is of the most simple and well-known construction. The cover B has bolted to its upper side a light cast-iron pedestal, C, to support the working parts. The pedestal C is bifurcated at its lower end, and each of its feet is securely bolted to the churn-cover. A rectangular plate, *c'*, connects the legs of the pedestal with an upright post, *c<sup>2</sup>*, for supporting the gearing and lever mechanism. The dash-rods pass through this plate *c'*, and also through the churn-cover, which are separated sufficiently to form an extended steady bearing for the dash-rods, in order that an easy movement of the parts may be obtained. The dash-rod D is provided at its lower end with a perforated dash paddle or blade, D', and passes through the bearings of the pedestal-plate *c'* and churn-cover B, as above described, and is stepped at its lower end, so that a rotary motion may be imparted to it. The upper end of the dash-rod D is keyed to a bevel-gear pinion, E, supported by a bracket, E', upon the pedestal-post *c<sup>2</sup>*, and meshes with a larger beveled-gear wheel, F,

supported by a bracket, F', also secured to the pedestal-post. 50

The gear-wheel F is driven by a connecting-rod, G, and pivoted hand-lever H. A crank-pin, *g*, serves to connect the end of the connecting-rod with the gear-wheel F, and a wrist-pin, *g'*, passes through the ears of a metal block, *h*, pivoted to the end of the hand-lever H. The bearing in the lower end of the connecting-rod is slightly rounded on its sides to admit of a slightly lateral vibration of the connecting-rod, caused by the movement of the end of the lever H in the arc of a circle. 55 60

The upper end of the post *c<sup>2</sup>* is provided with jaws *c c*, to one of which the lever is pivoted. The lever H passes through slits in the jaws to prevent it from twisting, and is pivoted by a bolt that is secured to the jaws *c* of the post. The connecting-rod would form a tangent with the arc of vibration of the end of the lever to which it is attached, and a slight movement of the lever upon its pivot would readily compensate for the divergence from a straight line that would be caused by a rigid connection. The jaws *c'* at the end of the pedestal simply serve to steady the movement of the end of the lever. 65 70 75

The dash-rod I passes vertically through the churn-cover and pedestal-plate, as described, and is attached at its lower end to a dasher, I', perforated or slotted to allow the dash-rod to pass through it, and is preferably formed of four wings, disconnected at their edges, and which bear downwardly to form a propeller-wheel, which will not only stir but reverse the milk and effectually gather the butter-globules as they are formed. The milk may pass through the radial spaces between the blades, which offer but partial obstruction to the passage of the milk from one side to the other of the dasher. 80 85 90

The dash-rod is adjustably secured upon the handle end of the lever H by a pin that passes through one of a series of holes in the lever, to give the rod the required movement and allow the movement of the dasher to be regulated. 95

The link K is pivoted at *k'* to a sliding sleeve adjustably secured upon the dash-rod I, so that it may be clamped thereon at any

desired point, by means of a set-screw,  $k^2$ , so that the dasher I' may be raised or lowered in the churn and its position varied to suit the amount of milk contained therein.

5 The link K forms an acute angle with the upper end of the dash-rod, so that as the handle end of the lever H is raised or lowered the link will lift or depress the dash-rod I and dasher I', and the opposite end of the lever  
10 will at the same time operate upon the rotary dasher, through the dash-rod gearing and connecting-rod, to cause a joint operation of the rotary and reciprocating dashers, as described.

15 In operation the rotary dasher may be revolved at a high speed by an easy movement of the hand-lever, the relative diameters of the beveled-gear connection determining the speed of the rotary dasher and the relative number of vibrations of the handle to produce the speed  
20 required, and also the comparative number of movements of the reciprocating dasher to the number of revolutions of the rotary dasher.

A considerable difference in the relative speed of the rotary and of the reciprocating dasher is deemed necessary, as the one requires 25 a rapid movement and the other a slow one, the object of the reciprocating dasher being simply to stir or reverse the liquid and prevent its partaking of the rotary motion of the dasher D', and also to aid in raising the butter- 30 pellicles as they are formed and thrown off by the whipping action of the rotary dasher.

What I claim as new is—

The combination of the dasher D', dasher-rod D, beveled gears E F, connecting-rod G, 35 lever-handle H, link K, dash I', and reciprocating dash-rod I, substantially as described, for the purpose specified.

ANDREW MEARNS.

Witnesses:

HUGH MEARNS,

JAS. D. STUBBLEFIELD.