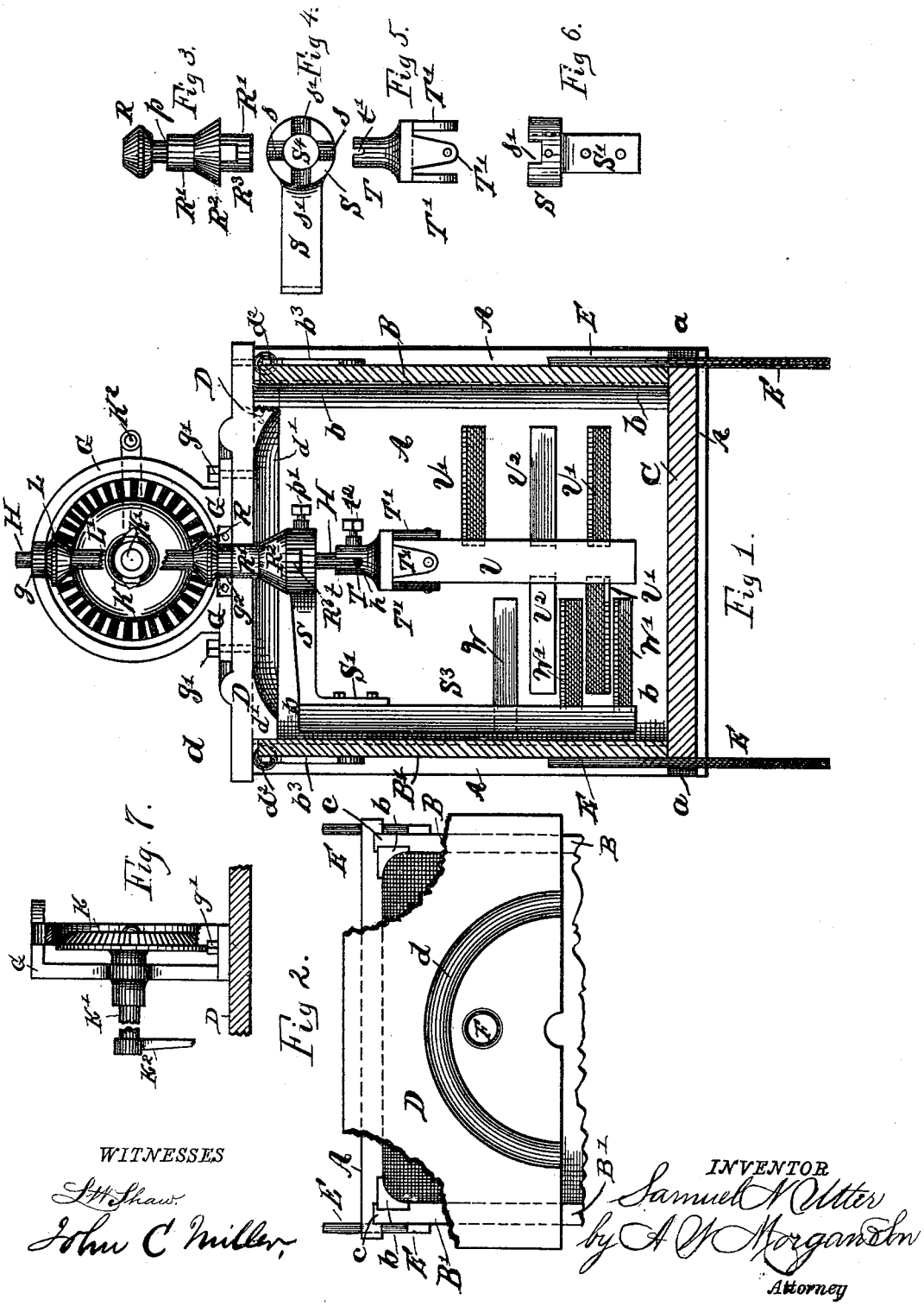
(No Model.)

S. N. UTTER.

ROTARY CHURN.

No. 346,180. Patented July 27, 1886.



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ROTARY CHURN.

SPECIFICATION forming part of Letters Patent No. 346,180, dated July 27, 1886.

Application filed November 20, 1885. Serial No. 143,370. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL N. UTTER, a citizen of the United States, residing at Franklin, in the county of Johnson and State of Indiana, have invented certain new and useful Improvements in Rotary Churns, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this improvement is a double rotary or concentric churn-dasher of economical construction, the parts of which can be conveniently detached from each other for the purpose of being thoroughly cleaned, and that can be adjusted perpendicularly for the purpose of extending or shortening the dasher, and thereby adapting it for use in churns of greater or less depth, and also to provide a churn of simple construction not liable to leak from shrinkage of the wood of which it is made. These results are attained by the mechanism illustrated in the drawings herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a side elevation, partly in section, of a churn embodying the features of my improvement. Fig. 2 is a top view of a section of the churn-box. Fig. 3 is a side view of one of the parts detached. Fig. 4 is a top view of one of the parts detached. Fig. 5 is a representation of one of the parts, as seen from a different direction to that shown in Fig. 1. Fig. 6 is a front view of one of the parts detached. Fig. 7 is a sectional detail representation more fully showing the construction and relation of the parts.

AA represent two parts of the churn-box wall, provided at their lower ends with transverse grooves for the reception of the edges of the bottom C, and with vertical grooves for the reception of the edges of the wall-pieces B B′, as more fully shown at *c*, Fig. 2, for the purpose of making the churn-box liquid-tight, a result which is additionally secured by vertically rabbeting the corner parts of the wall-pieces A B B′, for the reception of the concaved rectangular pieces *b b*, more fully shown in Fig. 2, secured in position by any suitable means. These corner-pieces *b b* are extended slightly above the top of the churn-box, as shown in Fig. 1, for a purpose hereinafter set forth.

D is the churn-lid, made in two equal parts, extended inward, as shown at *d*′, and arranged to fit closely and prevent the issue of cream from the box during the operation of churning. The churn-lid D is provided with eyes d^2, for the reception of hooks b^3, pivoted to the churn-walls B B′, for securing the connection of the lid and the churn-box.

E E are legs or supports affixed to the churn-walls B B′ by screws or otherwise, at any suitable angle thereto.

G G G is a gear-supporting frame of ordinary construction, secured to the lid-piece D by means of bolts or thumb-screws *g*′ *g*′.

K is a bevel-gear secured to a shaft, K′, which is supported by the frame G G G. The shaft K′ is provided at its outer end with an operating-crank, K^2.

L is a beveled gear rigidly secured to the shaft H, and arranged to mesh with driving-wheel K, secured to the front end of the shaft K′.

R is a beveled gear forming part of a sleeve, R′ R′, having an inclined enlargement, R^2, and provided with lugs R^3 on opposite sides, all made integral and arranged to fit over the shaft H, and be suspended in the frame G G G, by means of a reduction, *p*, and a corresponding cap, g^2, in a manner to cause the beveled gear R to engage with the gear-wheel K.

L′ is a sleeve fitting over the shaft H, intermediate of the beveled gearing L and R.

S is an adjustable arm provided with an eye, S^4, corresponding in size with the part R′ of the sleeve above described, and provided with deep recesses *s*, for the reception of the sleeve-lugs R^3, as shown in Fig. 1, and shallow recesses *s*′, as more fully shown in Fig. 6, for a purpose hereinafter set forth. The arm S is rigidly but detachably secured to the sleeve R′ by means of a set-screw, P′.

S′ is a perpendicular extension of the arm S, provided for the purpose of securing thereto, by bolts or other suitable means, substantially as shown, a dasher-beam, S^3, provided with ordinary agitating-blades, W W′ W′.

T is a casting provided with perpendicular extensions T′, for the purpose of being secured by screws or otherwise to a dasher beam or shaft V, and is also provided with a central ver-

tical socket corresponding in size to the shaft H, to which the piece or casting T T′ is rigidly but detachably secured by means of the set-screw t^2. The casting T T′ is provided with a deep slot, *t*, (shown in Fig. 1,) and on its opposite side with a shallow slot, *t′*, (shown in Fig. 5,) for a purpose hereinafter explained. The shaft H is provided with a pin, *h*, which will engage with the lower part of the slot *t* in the casting T T′, and additionally secure the connection of the same to the shaft H, against the strain produced by the agitation of the cream. V′ V′ and V^2 are ordinary dasher-blades secured to the beam or shaft V.

By reason of the deep and shallow recesses *s s′* in the body of the arm S, and the set-screw *p′*, the dasher may be detached from the position shown and affixed to the sleeve R′ R′ with the lugs R^3, in the shallow recesses *s′*, and the dasher thus made to extend deeper into the cream, or the dasher shortened or lengthened to suit churns of different depth, as occasion may require, and the parts may also be readily detached from each other for the purpose of being thoroughly scalded and otherwise kept in proper order.

By reason of the deep and shallow slots *t* and *t′* in the casting T T′, and the set-screw t^2, the dasher may be detached from the position shown and affixed to the shaft H, with the pin *h* in the shallow slot *t′*, and the dasher-blades V′ V′ V^2 V^2 thus made to extend deeper into the cream, or the dasher shortened or lengthened to correspond with the extension of the dasher S^3 W W′ when lengthened to suit churns of different depths, or the dasher-shaft V may be lowered on the shaft H sufficiently to make the lower blade V′ pass below the lower blade W′ on the dasher-beam S^3, and the other blades, V^2 V^2, on the central dasher-shaft, V, pass between the dasher-blades W W′ on the dasher-beam S^3, by adjusting the arm S to the sleeve R′ R′, with the lugs R^3 in its deep recesses *s*, and the dasher mechanism may thus be adapted to churns of different depth. The gearing K, operated by the crank K^2, will drive the gearing L and R, and their connections in opposite directions, and produce an efficient agitation of the cream and rapid production of butter.

Having explained the construction and operation of my improvement, what I claim as new, and desire to secure by Letters Patent, is—

In a churn, the combination, with the driving-gear K, of the shaft H, provided with the pinion L at its upper end and pin *h* at its lower end, the sleeve R′, provided with pinion R and enlargement R^2, having lugs R^3, the dasher-arm S S′, provided with an eye for the sleeve R′ and recesses for the reception of the lugs R^3, the shaft V, provided with the cap T T′, having a socket for the reception of the lower end of the shaft H and deep and shallow slots for reception of the pin *h*, and set-screws *p′* and t^2, as shown, for the purpose set forth.

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

SAMUEL N. UTTER.

Witnesses:

R. A. ALEXANDER,

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