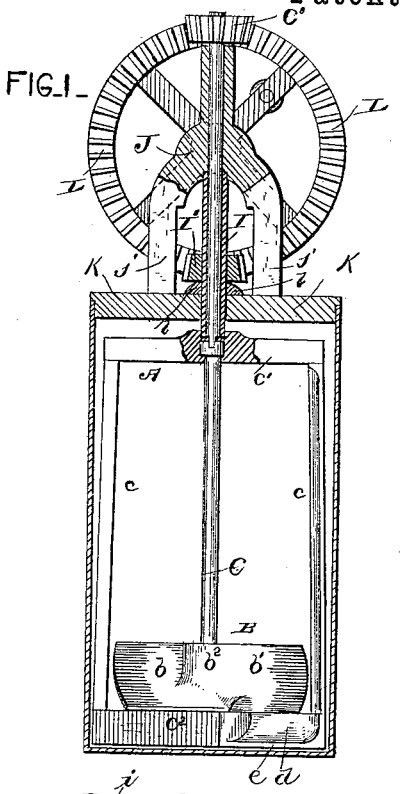
(No Model.)

L. A. & J. A. TROUT.

CchurN.

No. 346,518. Patented Aug. 3, 1886.

FIG. 1.



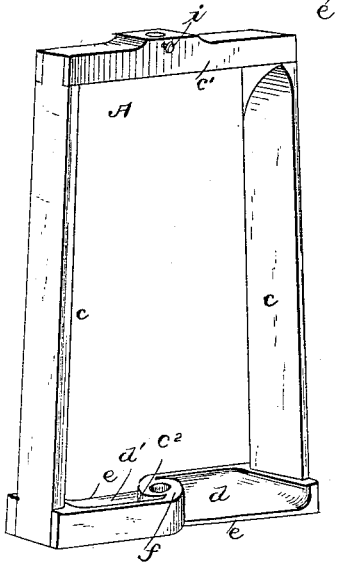
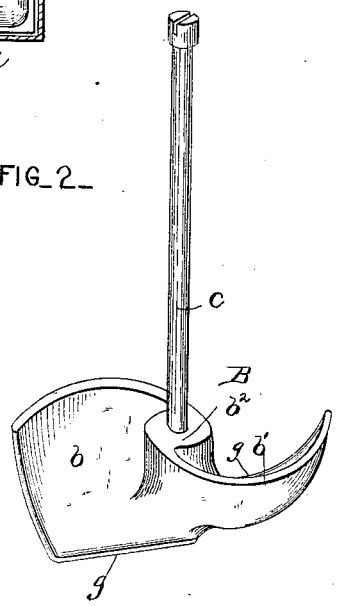


FIG. 2.



Witnesses
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By their Attorneys
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UNITED STATES PATENT OFFICE.

LEWIS AMOS TROUT AND JAMES ARCHER TROUT, OF LAMAR, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 346,518, dated August 3, 1886.

Application filed May 6, 1886. Serial No. 201,382. (No model.)

To all whom it may concern:

Be it known that we, LEWIS AMOS TROUT and JAMES ARCHER TROUT, citizens of the United States, residing at Lamar, in the county of Barton and State of Missouri, have invented a new and useful Improvement in Churns, of which the following is a specification.

Our invention relates to improvements in churns; and it consists of the peculiar combination and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claim.

The object of our invention is to provide an improved churn-dasher, which shall violently agitate the cream to induce upward and central currents therein and strike the cream edgewise, whereby the churning will be more rapidly and uniformly accomplished, and the friction between the parts will be reduced, to render the operation less tedious and more rapid; and a further object of our invention is to provide means which shall be simple and strong in construction, effective in operation, and cheap and inexpensive of manufacture.

In the accompanying drawings, Figure 1 is a side elevation of a churn embodying our invention, showing the inclosing churn body or case in section. Fig. 2 is a detail perspective view of the rotating dasher-frame and the oppositely-revolving dasher.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A and B designate the dashers, which are supported or carried by vertically-disposed concentric shafts, and are rotated or driven in opposite directions, as will be more fully described presently.

The dasher A is made in the form of an open frame, and it comprises the vertical bars or blades *c*, which are made thin and presented edgewise to the cream, the upper transverse bar, *c'*, and the lower transverse or cross bar, c^2, all of which are suitably secured together very firmly and rigidly. The lower transverse or cross bar, c^2, of the revolving dasher-frame A is cut away on its upper edges and on opposite sides, as at *d d'*, to provide the cutting-edges *e*, which are arranged at opposite ends of the said bar c^2. The cutting-edges are located on opposite sides of the bar c^2, and the cut-away faces of the said bar are inclined or curved transversely of the bar, while the ends of the said cut-away portions are curved. These cut-away portions are so arranged and curved that they resemble a section or portion of a spiral, and are thus caused to assume the shape of a screw-blade, and a central hub, *f*, is provided between the spiral faces *d d'*, for the reception of the solid shaft C, that extends vertically through the center of the dasher-frame A, and serves to guide the same in the churn-vessel.

The dasher B comprises two spirally-formed blades *b b'*, which are curved or inclined in opposite directions to form a central hub, b^2, and present their cutting-edges *g* on opposite sides, and so that they strike the cream successively and edgewise. The inclined faces of the spirally-formed blades *b b'* are curved and inclined upwardly, so as to induce an upward current in the cream, and strike the same with considerable force. The dasher B is carried by a vertical solid shaft, C, that extends through the dasher-frame, and the central hub, b^2, of the dasher B rests or bears on the hub of the cross-bar c^2 of the dasher-frame A. The dasher-frame is carried by a short tubular shaft, I, the lower end of which is clamped to the frame by means of a set or binding screw, *i*, that works in a threaded opening in the upper cross-bar of the frame, and the solid shaft C extends through the tubular shaft, and also through a supporting bracket or frame, J.

The frame J is secured to a base or carrying bar, K, and it is provided with bifurcated standards *j*, between which a bevel gear-wheel, I', of the tubular shaft I is arranged. The tubular shaft I is also supported or journaled in the frame or bracket J, and it has a collar, *l*, that bears on the carrying-base K, to prevent longitudinal play of the said shaft. The upper end of the solid shaft C extends through the tubular shaft and the bracket J, and it is provided with a bevel-pinion, C', that is rigidly secured thereon, and these pinions I' and C' of the dasher-staffs I and C are rotated or driven by a large bevel gear-wheel, L, that is journaled on the frame or bracket J, and provided with a suitable crank for its convenient manipulation.

The dashers are driven or rotated in opposite directions and at great speed, and the spirally-arranged blades thereof strike the cream

edgewise and successively, and force or create an upward-whirling current of cream toward the center of the churn-body, so that the separating of the butter from the cream is rapidly and thoroughly accomplished, and a small surface of the dasher is brought in contact with the cream, to reduce the resistance and friction between the dasher and cream, and thus render the rotation of the dashers less laborious.

The operation of our invention will be readily understood from the foregoing description.

We are aware that it is not new to provide a churn-dasher with a vertical open frame having its side bars recessed, and a shaft provided with projecting recessed arms that are arranged to rotate within the open frame; also, that a dasher-frame has been provided in which vertical depending blades have been arranged, and also that a screw-blade has been arranged with a dasher-frame of similar construction. We are further aware that the open frame of a churn-dasher has been provided with an inner dasher, the blades of which are twisted slightly in straight lines, and we therefore confine ourselves to the construction hereinafter pointed out in the claim.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination of a tubular shaft, a dasher-frame, A, carried thereby, and having a closed upper end and a cross-bar, c^2, at its lower end, provided with the cut-away portions *d* on opposite sides and ends, and forming a central hub, *f*, a shaft, C, fitted at its lower end in the hub *f* of the cross-bar c^2, the oppositely-revolving dasher B, inclosed within the frame A in close proximity to or in contact with the bar c^2 thereof, and comprising the spiral blades *b* *b'*, having their working-faces inclined in reverse directions, and arranged on opposite sides of the shaft C, and means, substantially as described, for rotating the dashers simultaneously and in opposite directions, as and for the purpose set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

LEWIS AMOS TROUT.
JAMES ARCHER TROUT.

Witnesses:
P. J. LAWLESS,
H. HANSEN.