(No Model.)

2 Sheets—Sheet 1.

J. McILWAIN.

CHURN.

No. 342,622. Patented May 25, 1886.

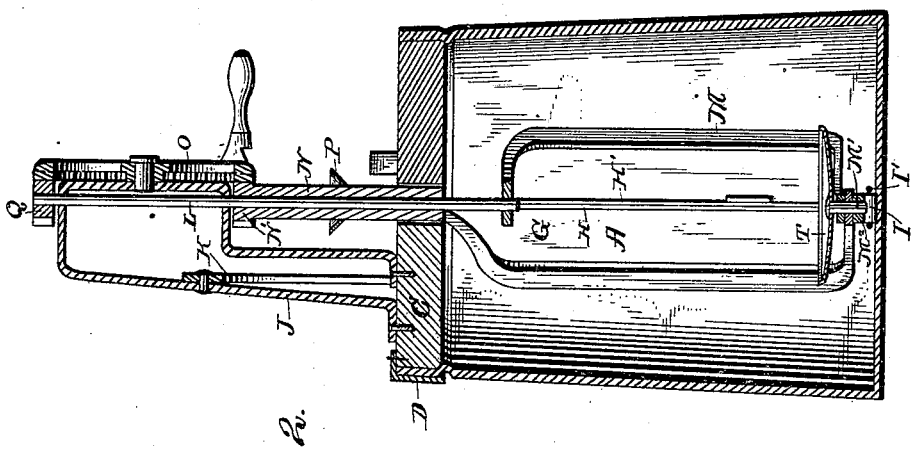

Fig. 2.

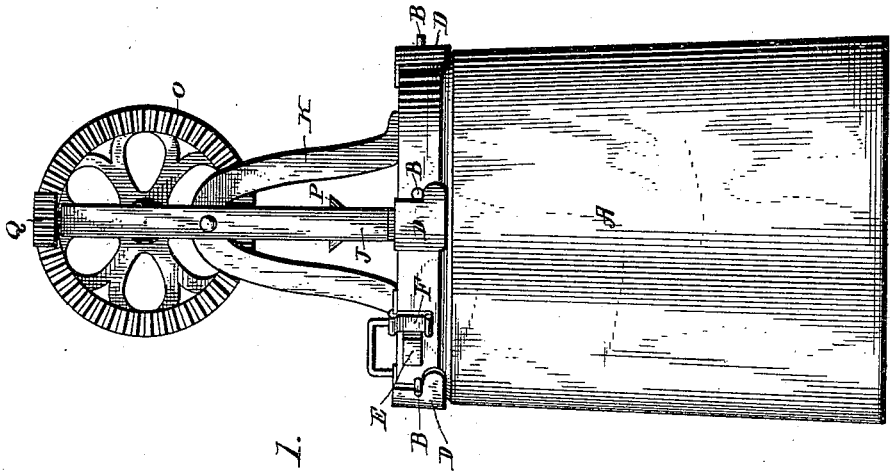

Fig. 1.

WITNESSES

P. Pugitt.
Phil. Mason.

INVENTOR

James McIlwain
by Anderson & Smith
his ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

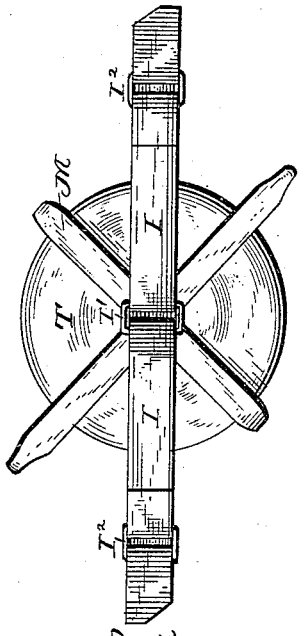
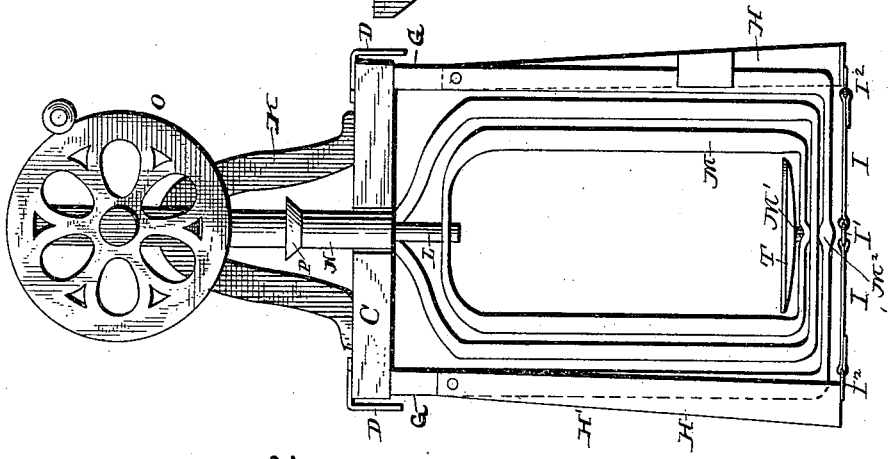


Fig. 3.



WITNESSES

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Phil. Masi.

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UNITED STATES PATENT OFFICE.

JAMES McILWAIN, OF OKAWVILLE, ASSIGNOR OF ONE-HALF TO ANDREW J. MORGAN, OF WASHINGTON COUNTY, ILLINOIS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 342,622, dated May 25, 1886.

Application filed February 11, 1886. Serial No. 191,637. (No model.)

To all whom it may concern:

Be it known that I, JAMES McILWAIN, a citizen of the United States, residing at Okawville, in the county of Washington and State of Illinois, have invented certain new and useful Improvements in Churns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked theron, which form a part of this specification.

Figure 1 of the drawings is a side view of my mixer and beater. Fig. 2 is a vertical section of the same. Fig. 3 is a view of the beater-frame. Fig. 4 is a detail view.

My invention has relation to beaters and mixers for mixing and agitating fluids; and it consists in the construction and novel combination of parts, as hereinafter described, and pointed out in the claims.

Referring by letter to the accompanying drawings, A designates the receptacle for receiving the fluid to be beaten or mixed. This receptacle A is a vessel constructed of any suitable material, and is of the same diameter throughout its entire height; or it may taper inwardly from the bottom to its top, so that its lowest diameter will be greater than its upper diameter. The vessel A is preferably a permanent part of the mixer; but it is not essentially necessary that it should be such, as the mixer may be constructed to fit vessels of different sizes, and may be removed from the vessel and stored away when not in use, or may be used in another vessel or vessels after having been used in the first one. It is, however, essentially necessary that each vessel should be provided with laterally-projecting studs B on its outer face near its mouth, in order to secure the sectional cover, one part of which supports the beating and mixing mechanism in place.

C designates the half or portion of the cover to which the beaters and their holding and operating mechanism is secured. This half or portion C is provided with bayonet lugs or catches D, which engage the studs B when the portion or section C of the lid or cover is in place on the vessel A. These studs B and catches D hold the lid firmly in place while the gearing is being operated in one direction; but in order to prevent movement of the half-lid when the gearing is being operated in the opposite direction a stop or stud, E, is provided on the outer face of the vessel A at any desired place, and a hinged catch, F, is secured to the section C of the cover, which catch, when turned down and brought into engagement with the stud or stop E, prevents the cover from slipping or turning on the mouth of the vessel A when the mixing mechanism is being operated thereon.

To the under face of the section C of the cover is secured a frame, G, which forms a stationary beater when in place in the vessel A. Near the upper ends of the vertical arms of this stationary beater or frame G are pivoted the upper ends of the vertical arms H of the adjustable beater H′, the lower ends of said arms H being connected by links or arms I, hinged to each other at their inner or meeting ends by a link, I′, or otherwise, and hinged to the lower ends of said arms H by links I^2. The link-arms I permit the adjustment of the arms of the beater H′, to effect the entrance of the agitators into the vessel A, and to permit their removal therefrom when necessary. Furthermore, the arms H, when thus connected, may be moved or projected apart after having been entered into the vessel A, to cause their outer edges to fit closely to the inner side of the vessel A, so that the fluid subjected to agitation cannot pass between the arms H and the side of the vessel, but will strike said arms H and be deflected thereby inwardly upon or against other portions of the fluid under agitation.

J designates a bracket secured to the upper face of the section C of the cover. Said bracket J is strengthened by a brace, K, and forms the bearings in which the beater-shaft L revolves.

To the lower end of the beater-shaft L is rigidly secured an inner open beater or frame, M, which has its lower bearing on a stud or short shaft, M′, rising from the cross-arm M^2 of the frame G. The shaft L revolves within a vertical sleeve, N, having a pinion, N′, at its upper end, which pinion N′ engages the drive-wheel O, having teeth on one face thereof, said engagement being effected at the lower side of the wheel O. About midway of its

length the sleeve N is provided with a drip-cup, P, which prevents oil from passing from the gearing down into the vessel A. At its upper end the beater-shaft L is provided with a pinion, Q, which engages the drive-wheel O and rotates the beater-shaft and inner beater in a direction opposite to that in which the outer beater-frame is rotated. The drive-wheel is provided with a handle by which to turn it, and by this handle the drive-wheel may be turned in either direction to impart motion to the beaters. The lower ends of the beater-frames are journaled on a short central stud or pivot, M′, and upon the upper end of this stud a disk, T, is secured, and forms a friction-plate near the bottom of the vessel, whereby the currents may be first concentrated, and then thrown upward and outward.

This entire device may be used as a beater and mixer of fluids, batters, and the like, or it may be used as a churn, and will act with rapidity and positiveness in either capacity.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the section C of the cover, provided with the bracket J, of the beater-shaft provided with a pinion at its upper end and the inner rotary beater at its lower end, the sleeve incasing the beater-shaft and provided with a pinion at its upper end and the outer rotary beater at its lower end, the stationary beater G, and the adjustable beater H′, connected by the link-arms I, and the drive-wheel for moving the rotary beaters in opposite directions, substantially as specified.

2. The combination, with the vessel A, having outwardly-projecting studs near its mouth, of the sectional cover provided with the bayonet-fastenings and the hinged catch F, substantially as specified.

3. The combination, with the vessel A, of the stationary dasher, the adjustable dasher or frame pivoted to the stationary dasher near the upper ends of its arms and connected at their lower ends by the link-arms I, the outer and inner rotary dashers, and the stationary disk or friction plate T on the lower journal of the rotary dashers, substantially as specified.

4. The combination, with the stationary dasher and rotary dashers, of the adjustable frame or beater H′, having the hinged connecting-links at its lower end, substantially as specified.

5. The combination, with the stationary dasher, of the adjustable vertical arms pivoted thereto and connected at their lower ends by the links, substantially as specified.

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

JAMES McILWAIN.

Witnesses:
G. A. EPPEL,
J. J. NUSSBAUMER.