

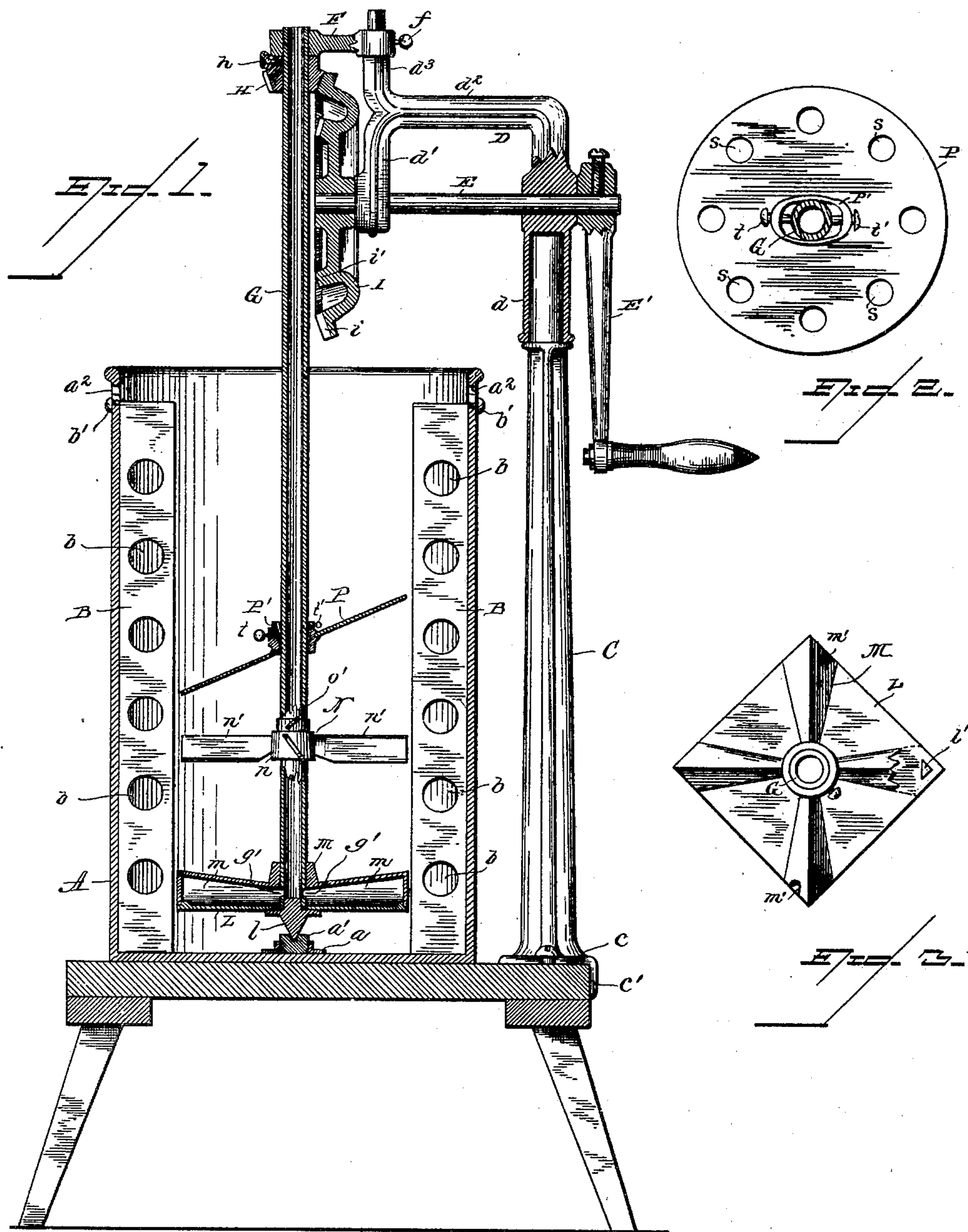
**No. 697,152.**

**Patented Apr. 8, 1902.**

**F. W. LIPPOLD.  
CHURN.**

(Application filed June 20, 1901.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

FREDERICK W. LIPPOLD, OF LOUISVILLE, KENTUCKY, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO TOM J. LANDRUM, OF LOUISVILLE, KENTUCKY.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 697,152, dated April 8, 1902.

Application filed June 20, 1901. Serial No. 65,312. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. LIPPOLD, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention relates to churns, and has for its object to provide certain improvements in that class of churns which embody means for the aeration and agitation of the cream at one and the same operation, whereby the cream will be thoroughly purified and separated and rapidly converted into butter, the parts which act directly upon the cream being readily removable from the barrel.

A further object of the invention is to provide a supporting-frame for the operating parts of light and durable construction.

With the above objects in view the invention consists in the particular construction and combination of parts constituting my improved churn, all as will be hereinafter fully described in the following specification and the novel features more specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification, and in which like letters of reference indicate like parts in the several views, Figure 1 is a side elevation, partly in section, illustrating a churn constructed in accordance with my invention. Fig. 2 is a detail plan view of a disk which is mounted upon the hollow dasher-rod. Fig. 3 is a detail view of the aerating device located at the lower end of the dasher-rod.

Referring to said drawings, A designates a barrel or receptacle for the cream, which is mounted upon a suitable bench or stand, and in the bottom of said vessel at the center thereof is located a socket *a*, in which is held a block of wood (designated by the letter *a'*) and adapted to form the step for the hollow dasher-rod, hereinafter referred to. Within this barrel or vessel A, at either side thereof, are located breaks B B, consisting each of a flat strip of wood having a vertical line of holes *b* therein, the said breaks being held in place by outwardly-projecting pins *b'*, which engage vertical keyhole-slots *a<sup>2</sup>* in the upper part of the barrel or vessel A.

Located at one side of the vessel A is a standard or metal post C, having a footpiece *c* and depending toe *c'*, by which it is secured to the top of the bench or stand, the footpiece having slots through which the retaining-screws pass. The upper end of this standard or post is rounded to enter a socket *d*, formed on the frame D, which supports the gearing mechanism of the churn. Above the socket the frame D is enlarged to provide a bearing for one end of a main driving-shaft E, the other end of said shaft bearing in the lower end of a depending member *d'* of a horizontal arm *d<sup>2</sup>*, the said arm being also provided with an upwardly-projecting member *d<sup>3</sup>*, supporting a casting F, which forms a bearing for the upper end of the dasher-rod G, and in order to provide for readily moving this dasher-rod, for either withdrawing it from the vessel or adjusting the pinion H, for the purpose hereinafter specified, the said casting F is slidable vertically upon its support and held in place by a set-screw *f*. The casting F presents at one end a sleeve in which the dasher-rod revolves and at its other end an enlarged portion having a square opening which receives the squared upper end of the member *d<sup>3</sup>* of the supporting-frame, a shoulder being formed at the lower end of said squared portion to provide a seat for the casting.

At the outer end of the main driving-shaft E is attached a crank-handle E', and upon the inner end of said shaft is keyed a large gear-wheel I, having two sets of teeth *i* and *i'*, adapted to provide two different speeds for the dasher-rod, the said teeth being disposed at a slight angle, as shown. This large gear-wheel is adapted to mesh with the pinion H, mounted upon the dasher-rod, the said pinion being movable upon the dasher-rod to engage either set of teeth of the gear-wheel and when adjusted upon the rod is held by a pin *h*.

The dasher-rod G is hollow throughout its length, being left open at its upper end, and near its lower end provided with holes *g'*, opening out at the sides thereof. Upon the lower end of this dasher-rod is mounted a plate L, at the center of which is formed or attached a plug *l*, fitting the end of the dasher-rod and forming a cone-shaped gudgeon, which is stepped in the block at the center of



the vessel A and forms the bearing for the rod. The plate L is preferably square and in opposite corners is provided with lugs  $l'$ , adapted to engage the upper part of the aerating device, of which said plate is the lower part. The said upper part M is bent, as shown, to provide radial passages  $m$ , which communicate with the holes in the dasher-rod, and two of said passages open out at their ends through holes  $m'$ , located as shown. The air-passages  $m$  are formed by V-shaped projections formed in the plate M, and the holes  $m'$  are located with respect to the rotation of plate so as to form a suction that will draw the air down through the dasher-rod and discharge it into the body of cream—that is to say, the holes are located in that side of the projection opposite the side that pushes against the cream.

N designates what I term a "flutter-wheel," which is mounted above the aerating device a suitable distance and comprises a hub  $n$ , from which project radial blades  $n'$ , the latter being disposed at an angle, the disposition of said blades being such with respect to the rotation of the dasher-rod as to lift the cream and effect a thorough agitation of the same, also assisting the operation of the aerating device. This flutter-wheel is adjustable vertically upon the dasher-rod, being held in an adjusted position by means of a set-screw  $o'$ .

Upon the dasher-rod above the flutter-wheel is a disk or "wabbler" P, the said disk being disposed at an inclination in order that it may produce a wobbling motion during the rotation thereof. This disk is provided with holes  $s$ , through which the cream forces its way as the disk is rotated. The disk is provided centrally with a hub P', having a transversely-elongated opening therethrough to receive the dasher-rod and provide for changing the inclination of the said disk. Through the hub passes set-screws  $t t'$ , by which the disk is secured in place upon the shaft.

From the foregoing description in connection with the accompanying drawings the

construction and operation of my improved churn will be readily understood, and it will be noted that I provide an apparatus of this character which is not only simple and inexpensive in its construction, but possesses the more important advantage of greatly facilitating the operation of churning by effecting a thorough agitation of the cream and purifying the same during the churning operation by causing currents of air to pass upward through the body of cream, the several devices mounted upon the dasher-rod coacting to bring about this result.

Having thus described my invention, I claim—

1. In a churn, the combination with a dasher-rod, and means for rotating the same, of a disk having a central hub with a transversely-elongated opening therethrough, and set-screws for securing the disk to the dasher-rod, by which said disk is disposed at an angle with respect to the rod, substantially as shown and described.

2. In a churn, the combination with the vessel and rotary dasher-rod located therein, of a standard having a reduced upper end, a frame supported by the standard and having a socket to receive said reduced end, bearings in the frame for the driving-shaft, a vertical member on said frame having a reduced upper end, and a casting slidable upon the reduced end of said vertical member and secured thereto by a set-screw, said casting forming a bearing for the upper end of the dasher-rod, together with a large gear-wheel on the driving-shaft having two sets of teeth, a pinion slidable upon the dasher-rod and a set-screw for holding the pinion in an adjusted position, substantially as shown and described.

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

FREDERICK W. LIPPOLD.

Witnesses:

N. J. TUBBS,  
S. C. CAMP.