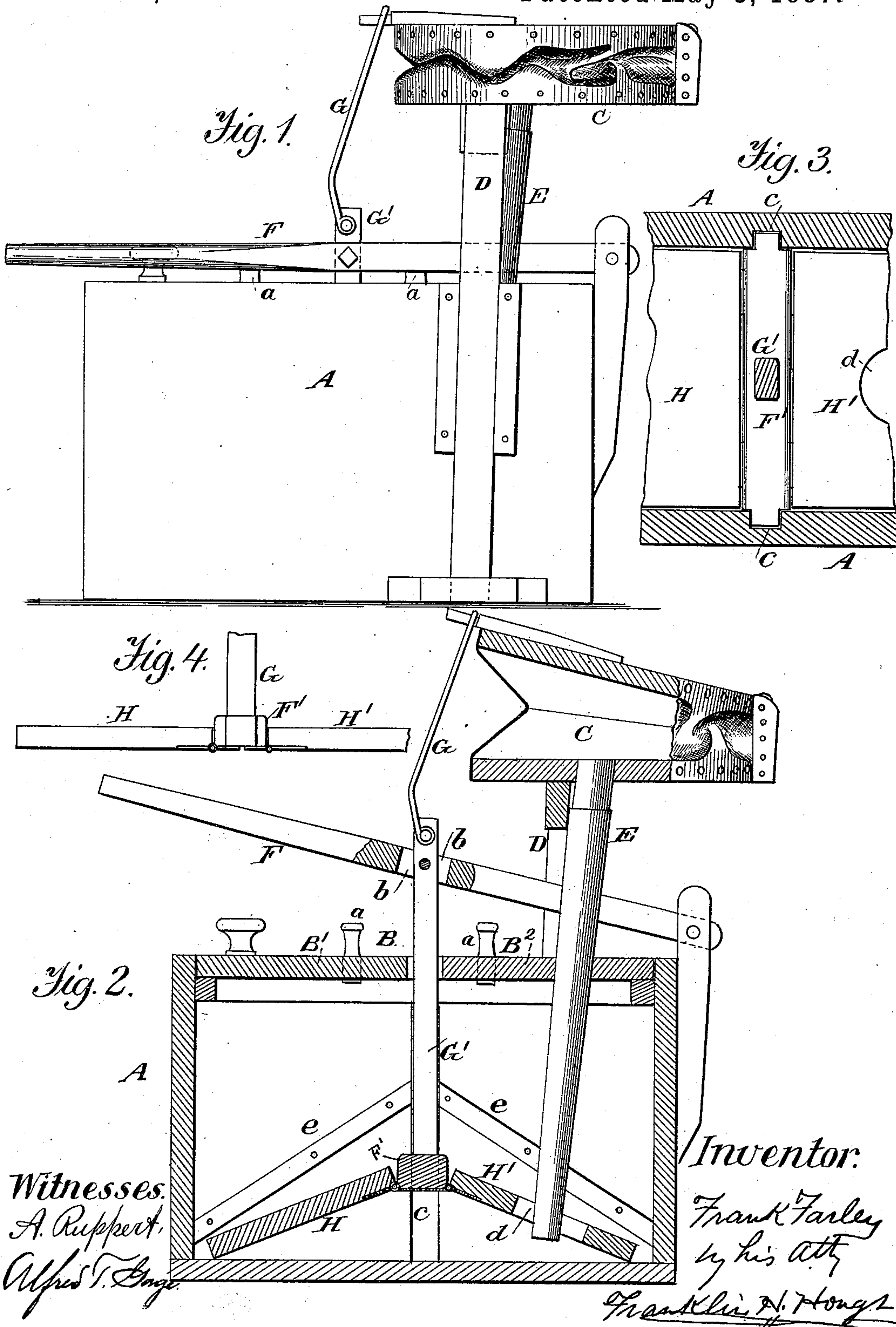


(No Model.)

F. FARLEY.
ATMOSPHERIC CHURN.

No. 362,373.

Patented May 3, 1887.



Witnesses.
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Inventor:

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UNITED STATES PATENT OFFICE.

FRANK FARLEY, OF WASHINGTON, KANSAS.

ATMOSPHERIC CHURN.

SPECIFICATION forming part of Letters Patent No. 362,373, dated May 3, 1887.

Application filed February 19, 1887. Serial No. 228,238. (No model.)

To all whom it may concern:

Be it known that I, FRANK FARLEY, a citizen of the United States, residing at Washington, in the county of Washington and State of Kansas, have invented certain new and useful Improvements in Atmospheric Churns; and I do hereby 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 of reference marked thereon, which form a part of this specification.

Like letters refer to the same parts throughout the several views.

My invention relates to that class of churns in which air is injected through the cream for the purpose of agitating and breaking up the butter-globules.

The object of the invention is to produce a churn which may be cheaply constructed and in which is combined the principles employed in the ordinary atmospheric churn with those of the dasher-churn, in the manner hereinafter described. I am thus enabled to produce better results than have heretofore been attained in the manufacture of butter.

To this end, and to such others as the invention may relate, the same consists in the peculiar combinations and in the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a churn constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section through the churn. Figs. 3 and 4 are details.

Referring to the details of the drawings, A represents the body of the churn; B, the cover, constructed in two sections, B' B², as shown, and provided with the usual air-vents, *a a*.

C is a bellows, which is supported upon the uprights D, directly over and at a suitable distance above the rear portion of the churn-body. The air-discharge pipe E extends from the bottom of the bellows downward into the churn-body, and has its outlet near the bottom of the same.

F is the operating-lever, which is hinged at the rear end of the churn-body, as shown.

G is a link or rod connecting the top of the bellows with the upper end of the dasher-stem G'. The upper end of the dasher-stem is pivotally connected to the operating-lever F within the slot *b*. The dasher-stem is provided at its lower end with a cross-bar, F', the ends of which fit within the vertical guide-slots *c c*, which are formed within the inner walls of the churn-body.

H H' are wings, which may be of either wood or metal, and are hinged to the lower side of the cross-bar F' and upon opposite sides thereof. The wing H' is provided with an opening, *d*, for the passage of the discharge-pipe E.

Strips *e e*, secured upon the inner faces of the side walls of the churn, serve to regulate, in a measure, the upward throw of the dasher, and thus prevent possible damage to the bellows from too violent upward movements of the operating-lever.

From the foregoing description the operation of the churn will be at once understood. By forcing the operating-lever downward, the air contained in the bellows is forced downward through the pipe E, where it escapes into the lower portion of the churn beneath the wings H H'. The same downward movement of the lever forces the dasher-stem downward, carrying with it the cross-bar F', to which are hinged the wings H H'. The wings are, by the downward movement, caused to open out into a horizontal position, thus suddenly compressing the air beneath and forcing the same upward through the body of the cream within the churn. The wings being solid, with the exception of the opening *d*, the air is forced to escape around the outer edges of the churn, and thus more thoroughly agitate the cream at the sides of the churn than would be possible with the ordinary form of dasher. The air, being thus forced directly through the body of cream, serves the double purpose of breaking the butter-globules, and also regulates the temperature of the cream.

I have found that butter manufactured by the process described is of a superior quality.

I attach importance to my cross-bar F', which serves not only as a support for the dashers, but also, in connection with the grooves *c*, serves as a guide for the dasher-stem. Importance is also attached to the manner of connecting the operating-lever, dasher-stem, and

bellows, giving me a direct connection and a positive simultaneous movement of the dasher-stem and bellows, and in this connection the stops *e* are important, preventing injury to the bellows by a too powerful or sudden upward movement of the dasher-stem.

Having thus described my invention and set forth its merits, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a churn, the combination, with the churn-body, the dasher-stem, and the bellows communicating directly with the interior of the said body, of the operating-lever having a slot within which the dasher-stem is pivoted, and the link *G*, attached at one end to the upper end of the dasher-stem and the other end attached to the bellows, substantially as described.

2. The combination, with the churn-body formed with guides *c* and the dasher-stem, of the bellows supported above said body, the cross-bar *F'*, secured to said stem and guided by said guides, the dashers *H H'*, hinged to said cross-bar and one provided with a slot, *d*, the

vertical pipe *E*, communicating with said bellows and extending into the churn-body with its free end passed through said slot, and means for operating said dasher-stem and bellows, substantially as described.

3. The combination, with the churn-body, the reciprocating dasher-stem, hinged dashers carried thereby, and the bellows communicating with said churn-body, of the lever *F*, fulcrumed at one end on said churn-body and provided with slot *b* substantially in the center of its length, within which slot the upper end of the dasher-stem is pivoted, the link *G*, connecting said stem directly with the bellows, and the strips *e* within said body, serving as stops, substantially as and for the purpose described.

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

FRANK FARLEY.

Witnesses:

ETTA FARROW,
J. B. BESACK.