No. 724,998. PATENTED APR. 7, 1903.

G. GEER.

CHURN.

APPLICATION FILED DEC. 17, 1902.

NO MODEL.

Fig. 1.

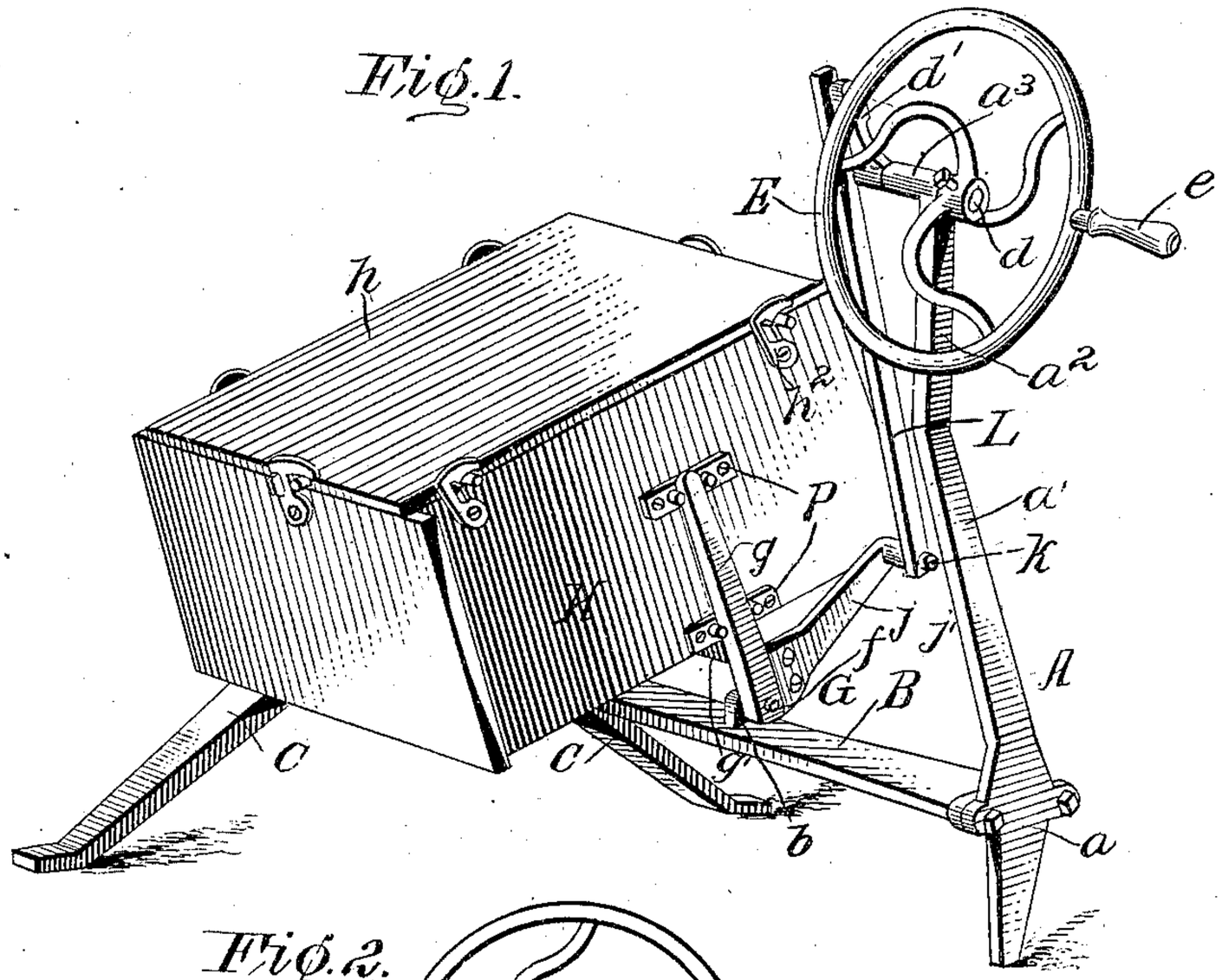


Fig. 2.

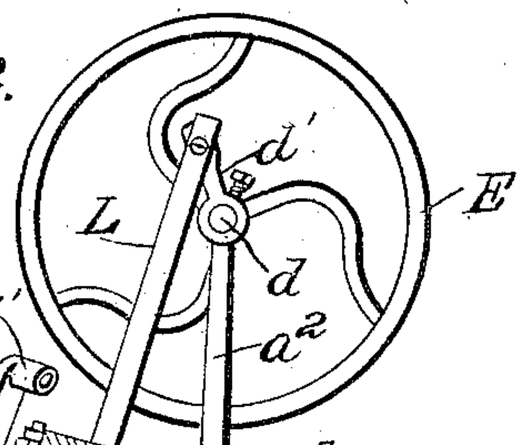


Fig. 3.

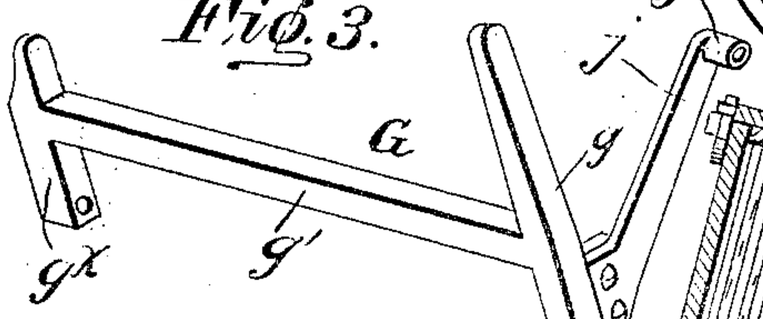
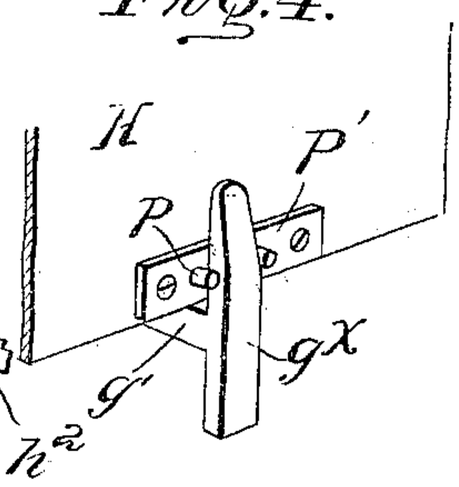
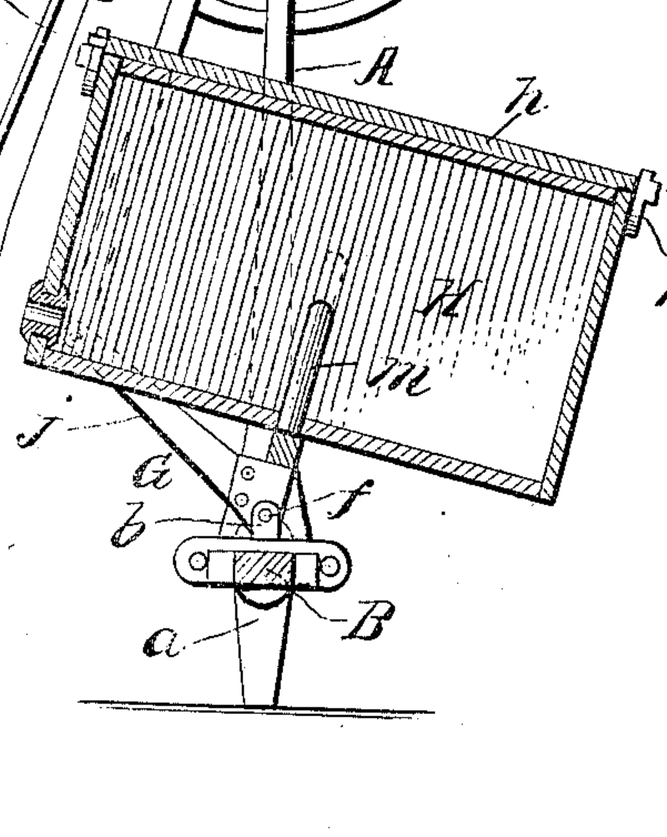


Fig. 4.





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GEORGE GEER, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO CHARLES E. BUEK, OF RICHMOND, VIRGINIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 724,998, dated April 7, 1903.

Application filed December 17, 1902. Serial No. 135,514. (No model.)

To all whom it may concern:

Be it known that I, GEORGE GEER, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and Improved Churn, of which the following is a specification.

My invention relates to improvements in that type of churns in which the churn-body is supported for a vibrating or reciprocating motion in the arc of a circle; and it primarily seeks to provide a churn of this character of a simple and inexpensive construction adapted to convert the cream rapidly and economically into butter at the expense of a minimum amount of labor.

My invention in its generic nature comprehends a peculiar arrangement of supporting-frame, whereby it can be readily made up of cast metal, and an oscillating support for the churn-body detachably mounted upon the frame and coöperatively joined with the pitman that transmits the motive power from the crank or operating shaft.

In its more complete nature my invention embodies a special construction of an oscillating support for the churn-body and means mounted upon the churn-body for engaging said support, whereby the said churn-body can be quickly and with great ease adjusted in position on the support and interlocked therewith and is readily removed when it is desired to take out the butter from the churn-body or clean the said body.

In its more subordinate features my invention consists in certain details of construction and peculiar combination of parts, all of which will hereinafter be fully explained, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved churn. Fig. 2 is a longitudinal section thereof taken through the churn-body. Fig. 3 is a perspective view of the oscillating member that supports the churn-body. Fig. 4 is a detail view illustrating the single set of interlocking lugs on the outer side of the churn-body and the bearing portion with which they coöperate.

In the practical construction of my improved churn the same comprises a cast-iron frame, which includes a side standard A, the foot portion a of which extends vertically a short distance above a horizontally-disposed cross-bar B, bolted at one end to the portion a and to a longitudinally extending Λ-shaped support C. From the portion a the standard A extends upwardly and inwardly, as at a', and terminates in a vertical extension a^2, having an integral inwardly-projecting horizontal bearing a^3 to receive the shaft d, provided with a crank d' on its inner end, and fixedly joined at the outer end to the power and balance wheel E, which is provided with an operating-handle e, as shown.

The cross-bar B has a pair of upwardly-projecting apertured lugs $b\ b$ to receive the removable pintles $f\ f$, that form the fulcrums for the oscillating churn-body-supporting frame G, which is also an iron casting and includes the parallel-disposed end members g $g^\times$, joined by the integral cross-bar g', upon which the churn-body H, presently again referred to, rests. The member g extends up a greater distance than the member $g^\times$, which rests only a short distance above the cross-bar g sufficient to extend up over the lower end of the churn-body, the reason for which will presently appear, and both the members g and $g^\times$ extend a like distance below the cross-bar g' and have their lower ends apertured to engage the pintles $f\ f$, as shown. To the long member g is fixedly secured or integrally formed therewith a laterally-projecting bracket j, which extends upwardly from the member g at an angle of about forty-five degrees, and the outer end of the said bracket j has an apertured hub j' to receive the wrist-pin k, to which pivotally joins the lower end of the operating-pitman L, the upper end of which pivotally connects with the crank d' of the power-shaft, as shown.

The churn-body H is of a rectangular shape, has its ends vertical to the bottom, and is provided with a removable cover h, secured by fastening devices h^2 of any approved construction, preferably of the kind shown, whereby the cover can be readily removed or locked in place, as desired. While it is not absolutely necessary, I find the best results are obtained in the use of my form of churn by providing a series of short pins m, se-

cured to and projected up from the bottom of the churn-body, as the said pins in operation facilitate the thorough agitation of the milk and the rapid breaking up of the butter-globules and the formation of butter.

The churn-body H is detachably but firmly mounted on the oscillating supporting-frame G, and to provide for quickly removing or setting the body H upon the said frames plates P P′, cast with studs or pins $p p'$, are secured to the opposite sides of the said churn-body in such manner that the pins will straddle and interlock with the members g and $g^{\times}$. As before stated, the member $g^{\times}$ is much shorter than the member g and that but a single plate P′, with the studs p', is secured to the outer side of the churn-body to engage with the member $g^{\times}$. The object in making the arms g $g^{\times}$ of different lengths is to permit of quickly removing the churn-body H, which is accomplished by raising the said body sufficiently to bring the plate P′ above the member $g^{\times}$ with which it coöperates, and when thus elevated the body can be pulled away from engagement with the opposing long member g'. Furthermore, my peculiar arrangement of devices for connecting the churn-body to the supporting-frame g materially facilitates the operation of setting the said body in place, as it can be moved on the frame in the direction of its length and requires no special care in fitting it in its place. The operation of fastening the churn-body in an operative position and removing it by my improved construction of supporting the fastening means is rendered so simple that it can be readily accomplished by the housewife or a child old enough to turn the crank-shaft.

From the foregoing, taken in connection with the accompanying drawings, it is believed the advantages and the ease of operation of my invention will be readily apparent.

In operation the milk is thrown in alternate directions with great velocity against the opposite ends and is quickly agitated to such an extent as to produce its quick turning into butter. The relative connection between the oscillating frame, the crank-shaft, and the pitman is such that as the crank-shaft reaches the extremity of its throws and reaches the dead-center the backlash of the contents turn against the last downgoing end of the churn-body, materially assisting in causing the crank-shaft to pass the said point and to throw the said churn-body in the opposite direction, and thereby reduce the applied power necessary to impart motion to the oscillating frame G.

The churn-body is provided with the usual plugged outlet for the discharge of the butter-milk.

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

1. In a churn of the character described, a main supporting-frame comprising a longitudinally-extending base at one side, a cross-bar joined therewith, a standard at the other side connected to the said cross-bar, said standard having a horizontal bearing at the upper end, a crank-shaft journaled in said bearing, a churn-body-supporting frame detachably mounted on the cross-bar of the main frame and secured to oscillate transversely thereof, said supporting-frame including a cross-bar in a plane above the fulcrums thereof, and a bracket projected transversely therefrom, a pitman pivotally connected to the said bracket and the crank-shaft, and a churn-body detachably mounted on the cross-bar of the supporting-frame, and means on the churn-body for interlocking with its supporting-frame, as specified.

2. In a churn of the character stated, the combination with the main frame comprising a longitudinal base member at one side, a standard at the other side, a horizontal cross-bar joined to the base member and the standard, the latter being extended inwardly and having a horizontal bearing, a crank-shaft journaled in said bearing, the rocker-frame G detachably mounted on the cross-bar of the main frame, said frame G including the vertical end members g $g^{\times}$ of different heights, an integral cross-bar g', a laterally-extended bracket fixedly connected to one of the end members, a pitman joining the outer end of said bracket with the crank-shaft, the churn-body H adapted to rest upon the cross-bar of the frame G, said body having projecting pins or studs at opposite sides adapted to straddle the upwardly-projecting ends of the members g and $g^{\times}$, all being arranged substantially as shown and for the purposes described.

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