2 Sheets--Sheet 1.

I. E. SMITH.
Churn.

No. 168,533. Patented Oct. 5, 1875.

Fig 1

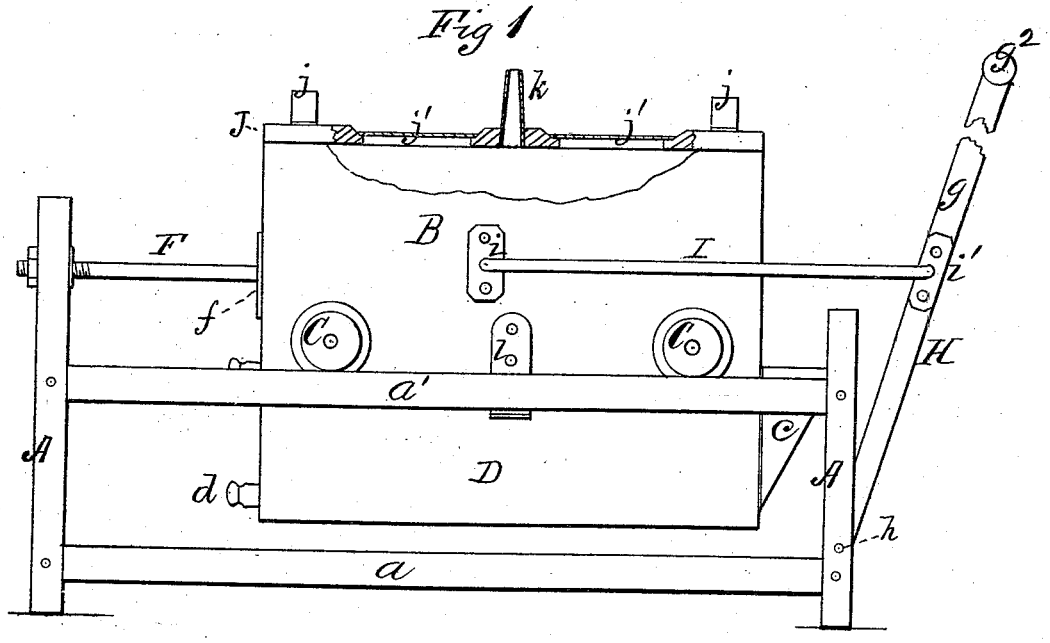
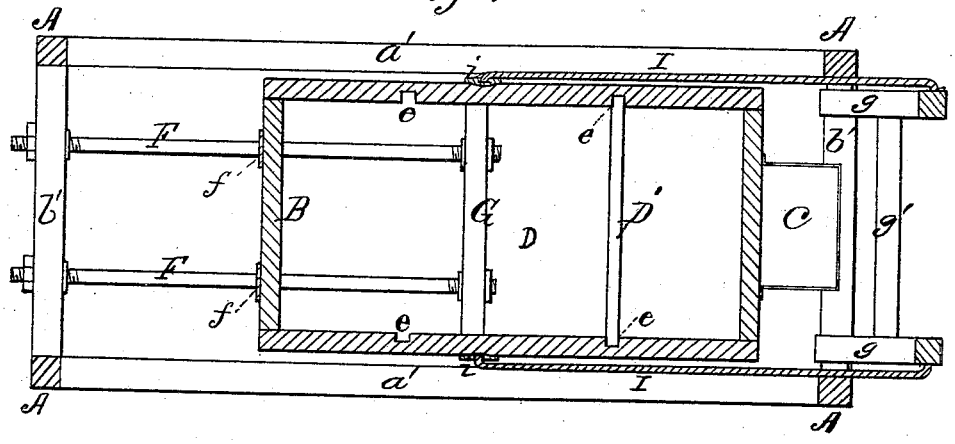


Fig 2



WITNESSES

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2 Sheets--Sheet 2.

I. E. SMITH.

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Fig 3

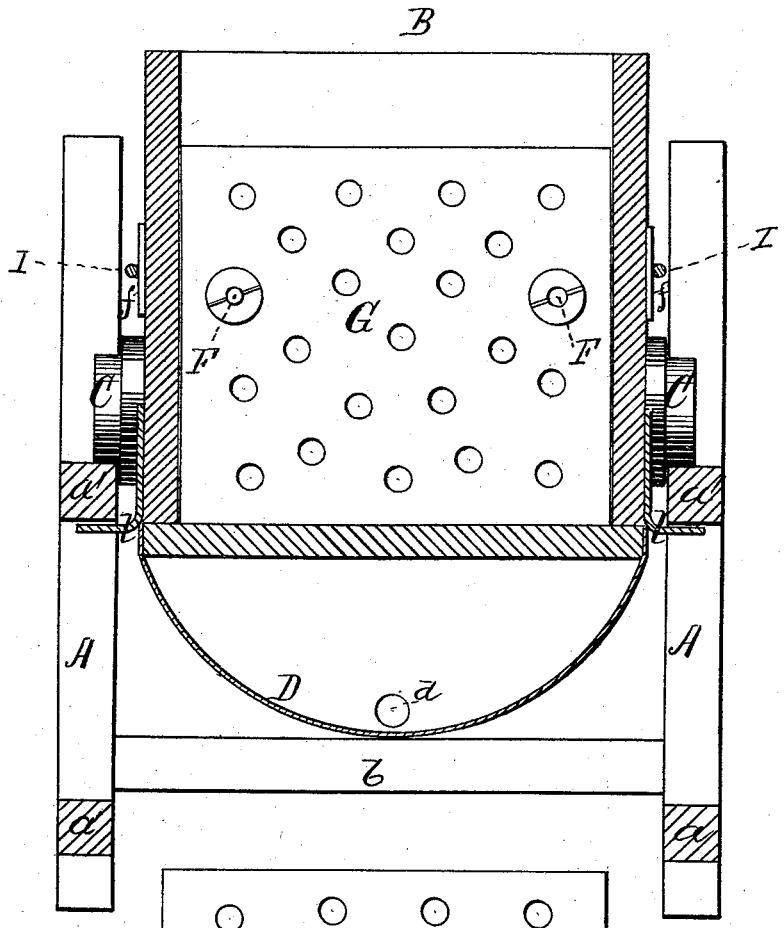
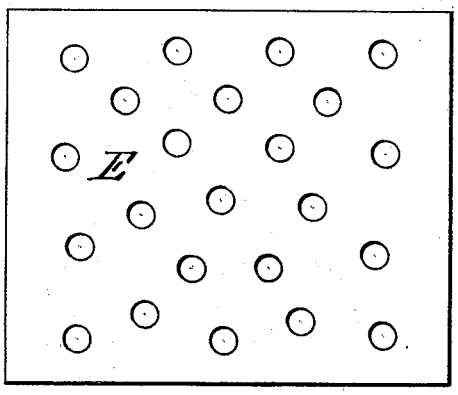


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

ISRAEL E. SMITH, OF YORK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO EMANUEL K. LECKRONE.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **168,533**, dated October 5, 1875; application filed December 5, 1874.

To all whom it may concern:

Be it known that I, ISRAEL E. SMITH, of York, in the county of York and State of Pennsylvania, have invented a new and valuable Improvement in Churns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side view of my churn. Fig. 2 is a horizontal sectional view of the same; and Fig. 3 is a transverse vertical view. Fig. 4 is a detail view.

This invention has relation to churning devices used in the manufacture of butter, wherein the cream-receptacle is mounted upon wheels, and is given a horizontal movement to and fro by means of a handle; and the nature of the invention consists in the employment of a cream-tub having rollers and hooks on its outer sides, in combination with ways on which the cream-tub reciprocates, as hereinafter more fully set forth.

In the annexed drawings, A designates the uprights of the supporting-frame of my improved churn, having lateral braces *a a'* and end braces *b b'*, the general appearance and form of the frame being that of a rectangle, and the upper lateral braces *a'* thereof serving as tracks upon which my churn-tub B is mounted by means of flanged wheels C. The churn-tub B is of rectangular form in horizontal section, with its sides and ends at right angles to each other and to its bottom, and is provided with a false metallic bottom, D, forming a hot or cold water chamber for tempering the cream, into which water is introduced, when desirable, by means of a chute or funnel, *c*, rigidly secured around a perforation in one of the ends of the said chamber, which may be depleted by removing a plug or stopper, *d*, in its other end. The inner faces of the sides of this chamber are provided with preferably vertical grooves *e*, which are adapted to receive within them supplementary dividing-walls D', for the purpose of reducing the size of the said chamber in accordance with the quantity of cream to be worked up. They also serve as receptacles for perforated walls E, whereby, in the event of a casual disarrangement of the dasher, hereinafter described, the churn will be transformed into an agitator and the process of making butter continued without unnecessary delay, which would cause the cream to sour. F designates two rods, rigidly secured at a suitable distance apart to the end brace *b'* of the frame, and extending through close-jointed metallic plates *f* on one end of the cream-chamber B into the interior, where their free ends are rigidly secured in any suitable manner to a perforated dasher, G, fitting snugly within the cream-tub B, as shown in Figs. 2 and 3. H designates a vertically-vibrating handle, consisting of two uprights, *g*, suitably braced near their lower ends by a cross-bar, g^1, and at the upper ends by a handle-bar, g^2, which is hinged to the supporting-frame of the churn-tub by means of a metallic rod, *h*, passing through the lower ends of the uprights A, and of the uprights *g* of the said handle. I designates metallic rods pivoting in metallic plates *i i'*, respectively secured to the sides of the tub and to the uprights *g*, by means of which a vertically-vibrating to-and-fro movement imparted to the said handle will communicate a horizontal to-and-fro movement to the churn-tub. During such actuation the dasher G will be stationary, and the cream in the tub will be dashed violently to and fro through the perforations in the dasher, speedily breaking open the oil-cells and allowing the butter to form. The lid or top J of the tub is detachable therefrom, and it is provided with handles *j*, whereby it may be conveniently lifted off or replaced on the tub, with glass-covered openings *j'*, whereby the progress of the formation of the butter may be observed without removing the lid, and with a tubular vent, *k*, through which air is allowed to penetrate into the interior of cream-chamber.

In order to prevent a casual upsetting of the cream-chamber during its actuation, caused by running off the track, I make use of hooks *l*, rigidly secured to its sides and engaged under the track-braces *a'*, as shown in Fig. 3.

In practice, instead of using two rods, F, I

may employ only a single one, and they may be of any suitable metal, or of wood. I may also use, instead of the plates *f*, devices in the nature of stuffing-boxes, if, in practice, it be found necessary or desirable.

What I claim as new is—

In a churn, the reciprocating perforated cream-tub B, having rollers C, hooks *l*, grooves *e*, and removable perforated partitions D′, in combination with the frame A, provided with ways *a*′, and rods F F, having a perforated stationary dasher, substantially as described, and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ISRAEL E. SMITH.

Witnesses:

GEORGE M. SHETTER,

SAML. HENGER.