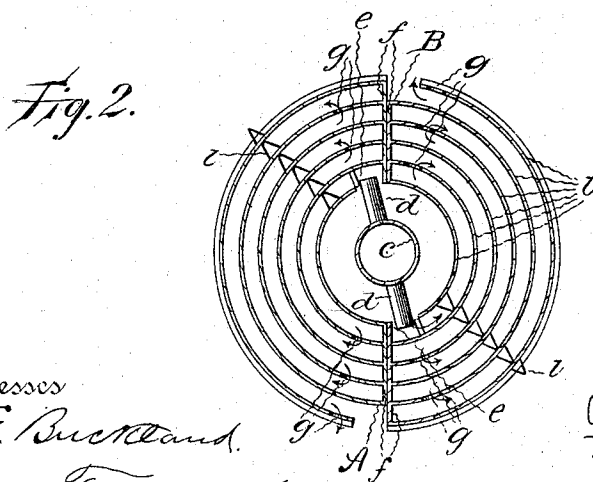
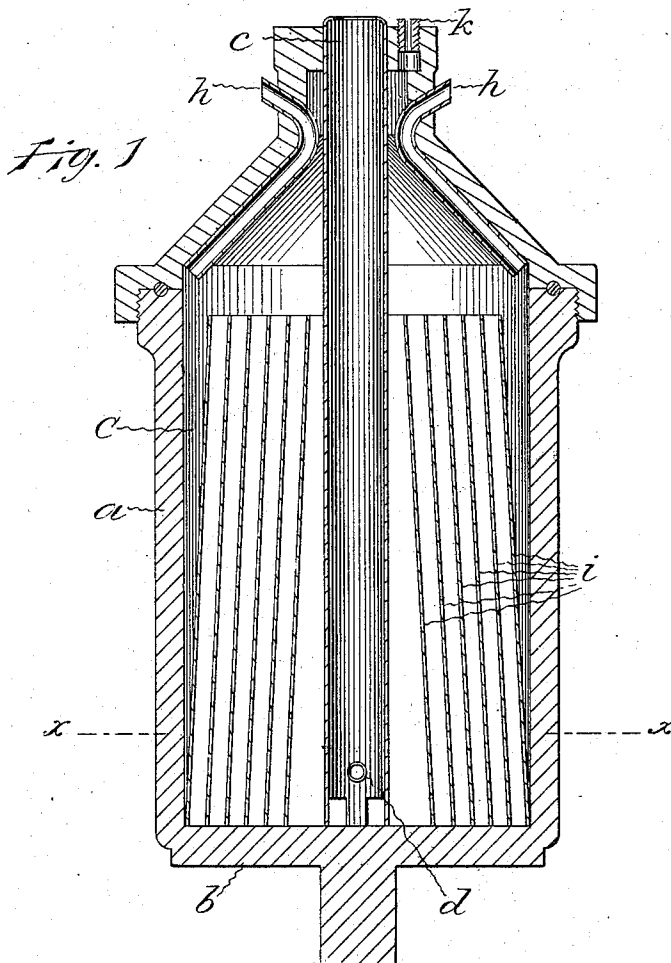


(No Model.)

P. L. KIMBALL.
CENTRIFUGAL SEPARATOR.

No. 566,457.

Patented Aug. 25, 1896.



Witnesses
C. E. Buckland.
Andrew Ferguson

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UNITED STATES PATENT OFFICE.

PERLEY L. KIMBALL, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO THE
VERMONT FARM MACHINE COMPANY, OF SAME PLACE.

CENTRIFUGAL SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 566,457, dated August 25, 1896.

Application filed April 21, 1894. Serial No. 508,445. (No model.)

To all whom it may concern:

Be it known that I, PERLEY L. KIMBALL, a citizen of the United States of America, residing at Bellows Falls, in the county of Windham and State of Vermont, have invented a certain new and useful Improvement in Centrifugal Machines for Separating Liquids of Different Densities, specially adaptable to the separation of cream from milk, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a view in central vertical section of a mechanism embodying said improvement. Fig. 2 is a view of the same—bowl omitted—in horizontal section upon the plane *x x*, looking downward.

The improvement will be herein described as applied to the separation of cream from new milk.

The letter *a* denotes the ordinary rotating separator-bowl, and *b* the bottom of floor thereof.

The letter *c* denotes the feed-tube, constituting a central feed-inlet which takes the new milk from an overhead vessel and conducts it into the separator. It is provided with as many delivery-tubes as the machine has separate sets or sections of canals. These canals are passages or channels formed between a series of concentric circular partition-walls *i*, surrounding the central delivery-tube and concentric also therewith. Abutments, stops, or dams are provided between the partitions, as at *f f*, to prevent the fluid from circulating entirely around the passages. As shown in Fig. 2, there are two sets of these abutments, dividing the machine into two operative halves A B; but there may be more if desired. The semicircular partition-walls thus formed have openings or passages *g g* through them at alternately opposite ends of the semicircular canals, beginning with the innermost partition at *e*. The fluid being delivered from the side delivery-tubes *d* into the innermost of

the canals its denser portion is pressed outward by the centrifugal action and is caused to traverse successively each of the canals in that section, following a zigzag course, and finally arriving in the outside chamber C, next the wall of the separator, where it rises and escapes from the bowl through blue-milk outlets *h* into an annular milk-pan. In all the course of the milk through the canals the cream particles are being constantly forced against the inner walls of the canals. From thence it rises, flows out of the top of the canals, and gathers into a central cream mass and escapes through the cream-outlet *k* into an annular cream-pan provided for that purpose.

The letters *l* denote wings on the exterior of the sections, which aid in causing the milk to rotate.

It will be readily understood by those conversant with the art that the sections A B and the canals which they embody rotate with the separator-bowl. This rotation is caused partly by the contact of the sections with the floor of the drum, but it is made positive by the side delivery-tubes.

What I claim, and desire to secure by Letters Patent, is—

In a centrifugal separator, the rotary cylindrical bowl, having therein the circular concentric partitions or walls *i*, and abutments *f*, forming curved channels or canals between the said abutments and partitions, the latter being provided with apertures or passages *g g*, located at alternately opposite extremities of the curved canals, in combination with the central feed-tube, the lateral delivery-tubes *d d*, the conduits *h h* for the egress of the blue milk, and the cream-conduit *k*, all substantially as shown and described and for the purposes set forth.

PERLEY L. KIMBALL.

Witnesses:

A. J. HOLLEY,
FRANK G. DAY.