(No Model.)

P. L. KIMBALL.

CENTRIFUGAL MACHINE.

No. 565,278. Patented Aug. 4, 1896.

FIG. 1.

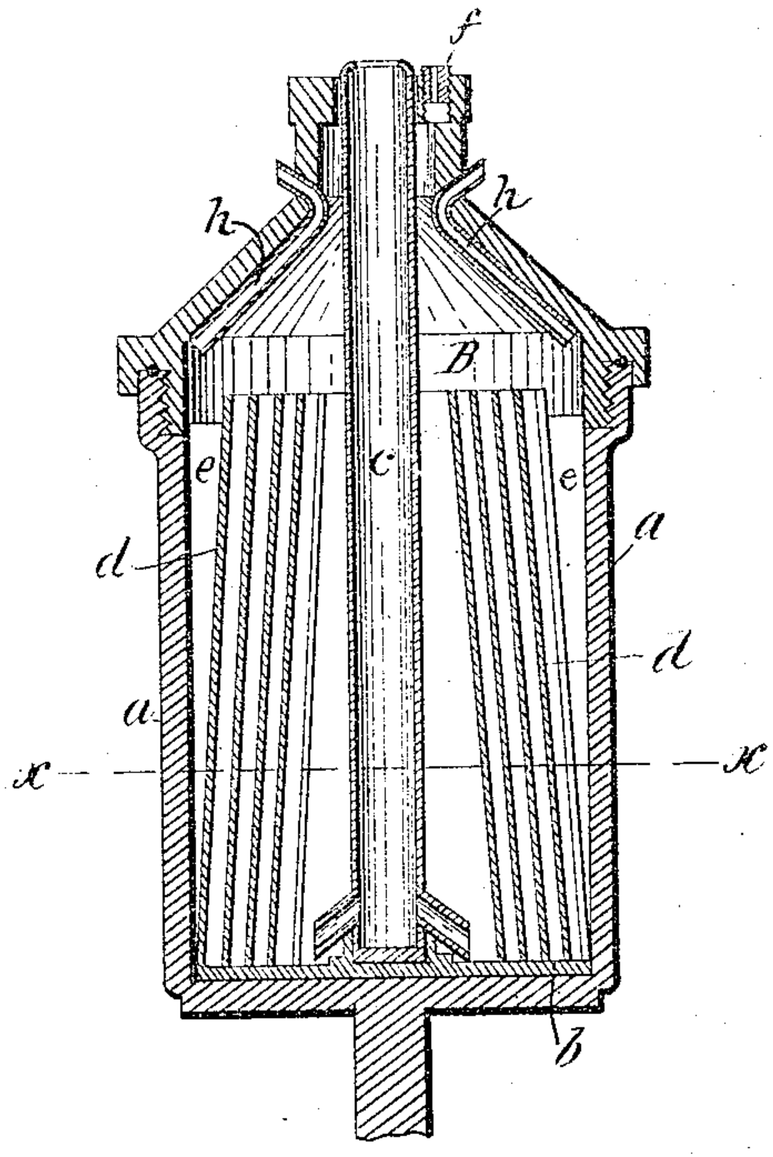
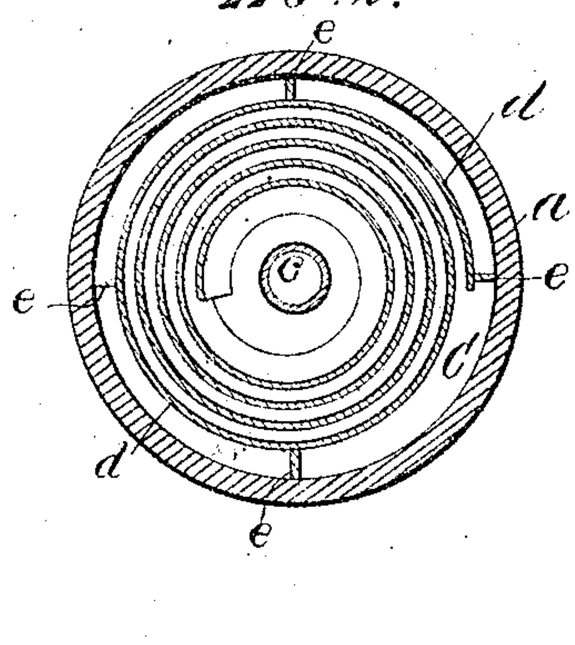


FIG. 2.



Witnesses:
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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 MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,278, dated August 4, 1896.

Application filed March 21, 1894. Serial No. 504,495. (No model.)

To all whom it may concern:

Be it known that I, PERLEY L. KIMBALL, of 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 Applicable 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 mechanism in horizontal section upon plane *x x*, looking upward.

This mechanism will be described herein as applied to the separation of cream from whole or new milk. The whole milk may enter the rotary separating-bowl *a* by gravity from a feed vessel over the bowl. The feed-tube *c* conducts the milk downwardly and delivers it near the bottom of the bowl. The letter *d* denotes a sheet of metal formed into a roll, with the sides of the sheet out of contact with each other, with the result of producing a continuous eccentric liquid-channel having a plurality of convolutions. This continuous eccentric liquid-channel rotates with the bowl *a*, and the part *d* bears on its exterior the wings *e*, whose function is to cause the milk to rotate. The milk escaping from the feed-tube enters the mouth of the continuous eccentric liquid-channel and gradually works its way entirely through the same into the chamber C, where are the wings *e*. The effect of the centrifugal force upon the liquid as it traverses the continuous eccentric liquid-channel is to tend to force the watery and heavier portions of the liquid against the outer wall, which in turn forces the cream-globules against the inner wall, where they are free to rise, and do rise, into the chamber B.

In the operation of the machine the larger and more buoyant cream-globules are separated from the heavier and watery portions of the milk, to begin with. As the liquid progresses along the liquid-channel it gets farther and farther from the axis of rotation, with the result that it is continuously exposed to an increased degree of centrifugal force, which operates to separate the smaller cream-globules, those which cling the more tenaciously to the watery portions of the liquid. As the cream-globules are thus separated from the heavier and watery portions of the liquid, they rise along the inner walls of the channel and all mass together in the upper chamber B and escape through the cream-outlet *f* into an annular cream-pan. When the liquid finally arrives in the chamber C, it is nearly or quite devoid of cream particles, and this skimmed milk rises along the wall of the separator and flows out from the separator through the milk-tubes *h* into an annular milk-pan.

The wall of the continuous eccentric liquid-channel is made separable as a whole from the separator-bowl *a* in order that it may be taken out for cleansing purposes. Likewise the feed-tube *c* is separable both from the separator-bowl and the walls of the liquid-channel for a like purpose.

The coils *d* may be secured together by the floor *b*, or in any other convenient manner.

I claim as my improvement—

In a centrifugal separator, the rotary bowl, having central feed-conduit with branch conduits near the bottom, blue-milk conduits *h h*, cream-conduits *f*, and a single spiral or convolute partition *d*, slightly contracted from the bottom upward, forming within its convolutions a continuous spiral channel, substantially as and for the purpose specified.

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Witnesses:

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