(No Model.) 2 Sheets—Sheet 1.

C. E. GALE.

CHURN.

No. 384,518. Patented June 12, 1888.

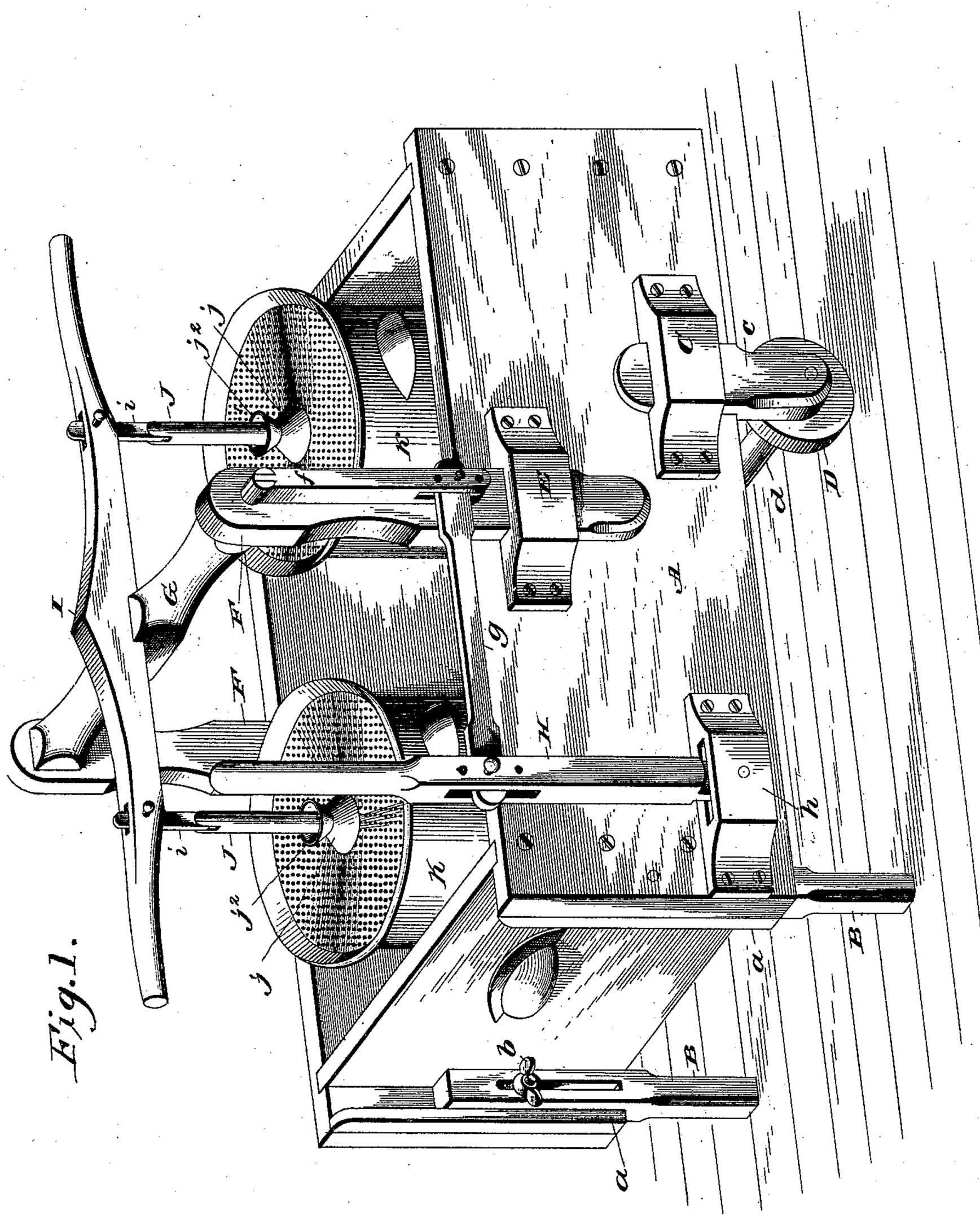

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

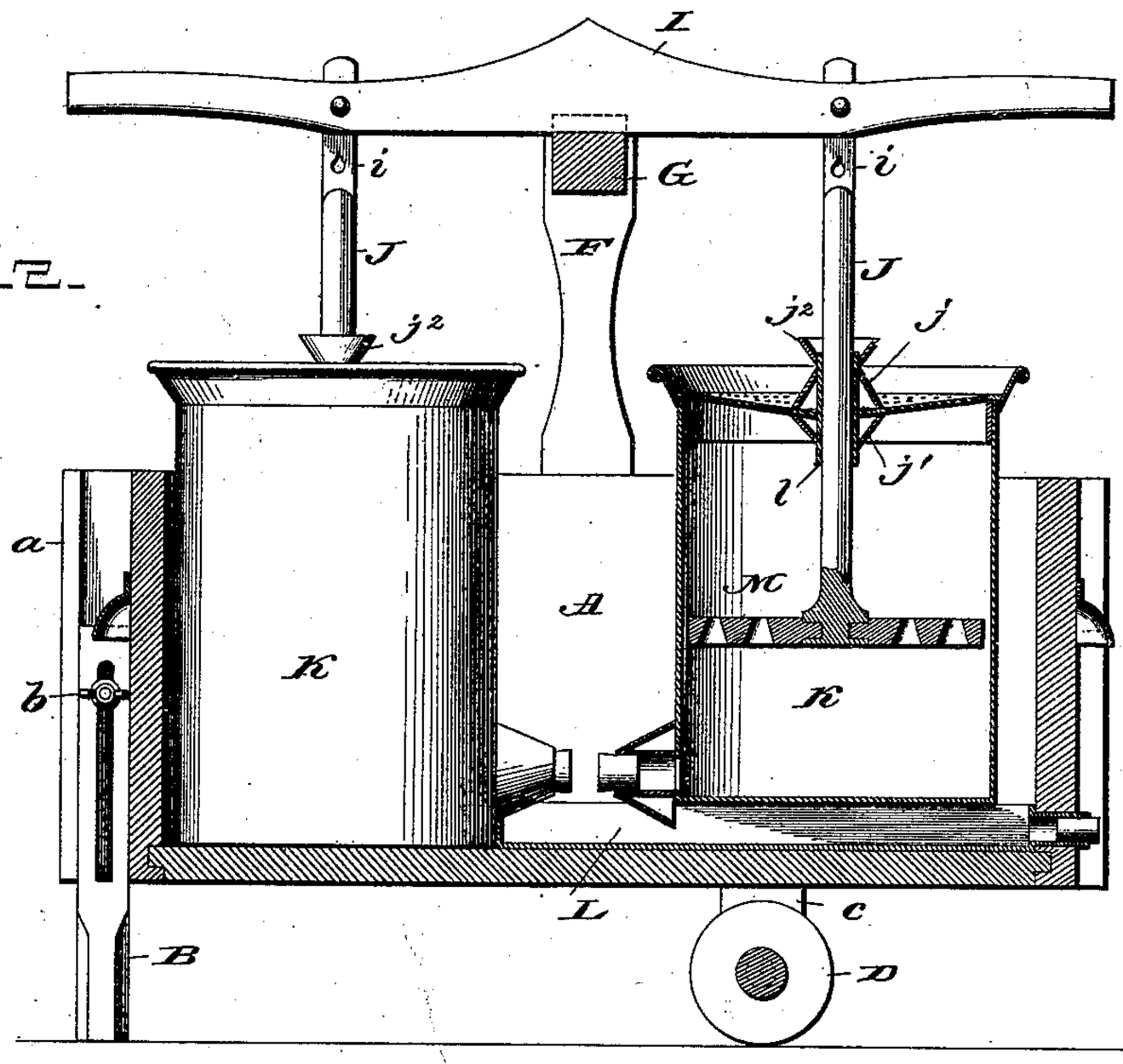


Fig. 3.

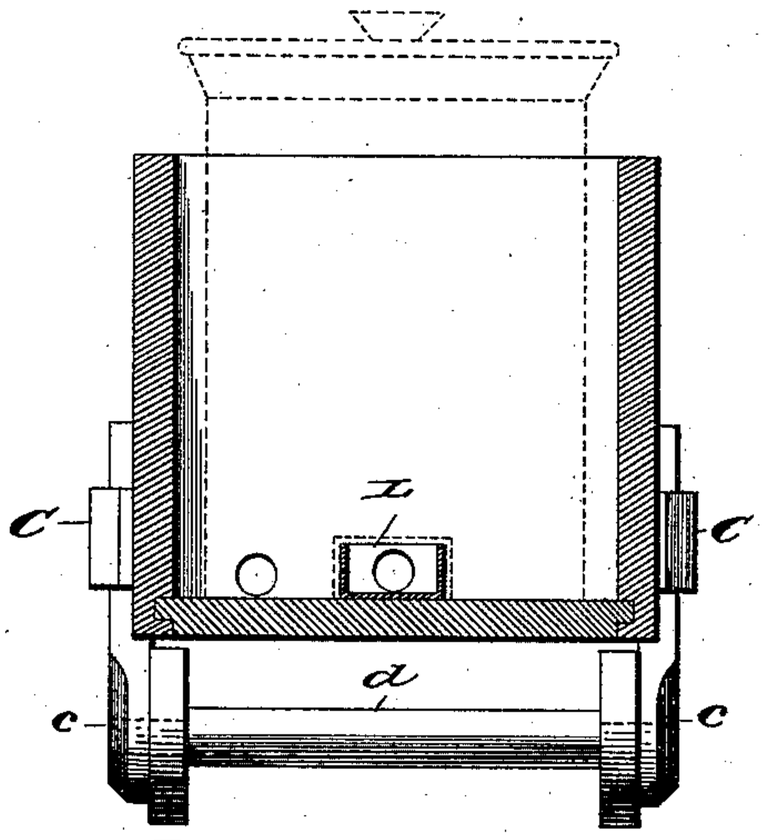
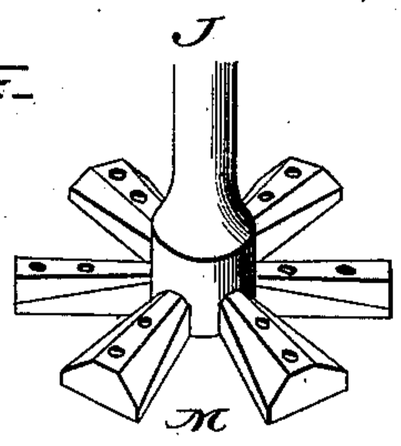


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES E. GALE, OF PLATTSBURG, NEW YORK, ASSIGNOR OF ONE-HALF TO CHARLES W. VAUGHN AND EDWARD H. WOOD, BOTH OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 384,518, dated June 12, 1888.

Application filed November 23, 1887. Serial No. 255,997. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. GALE, a citizen of the United States of America, residing at Plattsburg, in the county of Clinton and State of New York, have invented certain new and useful Improvements in 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 or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in churns; and it consists in the novel construction and arrangement of the parts thereof, which will be more fully hereinafter described and claimed.

The object of my invention is to provide a device of this character wherein the churning process is greatly facilitated, the mechanism used being simple and effective in its construction and operation, strong and durable, and easily handled and readily understood. I attain this object by the construction illustrated in the accompanying drawings, wherein like letters of reference are used to designate similar parts in the several views, and in which—

Figure 1 is a perspective view of a double-acting reciprocating churn and lever operating mechanism constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a transverse vertical sectional view. Fig. 4 is a detail perspective view of one of the churn-dashers.

A refers to a box or tank, two sides of which project beyond one of the end pieces, said sides being provided with vertical cleats or strips *a*, which, with the end pieces, form recesses within which lie the upper ends of the legs B B, said legs being slotted and provided with set screws *b*, whereby they can be adjusted so as to support the box in an inclined position when desired.

The sides of the box are provided with blocks C C, which have vertical recesses, said blocks being located between the center of the receptacle and the end opposite to which the legs are attached. Through the recesses in the blocks C pass the upper ends of vertical standards *c*, which project on their inner sides beneath the side pieces of the receptacle, and their lower ends are provided with bearings through which the transverse axle *d* passes, said axle carrying supporting-wheels D. By raising one end of the receptacle, which is provided with a suitable handle, it may be moved from place to place upon the wheels D.

The receptacle A is adapted to be filled partially with water, either warm or cold, so as to bring the cream which is contained in the churns to the proper temperature, and said water may be removed through an opening, which is closed by an ordinary plug in the end of the receptacle, to one side of the longitudinal trough, which is secured to the bottom of said receptacle.

The sides of the receptacle at their centers and near their upper edge have securely attached thereto blocks E, which have vertical recesses through which pass the lower ends of the standards F, said standards having bearings at their upper ends for the reception of the ends of the rock-shaft G. One end of the rock-shaft G projects beyond its standard, and has rigidly secured to said projecting end a depending bar, *f*, which is bifurcated at its lower end for the reception of a link, *g*, which is secured thereto by a pivot-pin. The link *g* is also connected by a pivot-pin to the operating-lever H, the upper end of which is formed into a handle, while the lower end is pivotally attached to a block, *h*, which is secured to the churn body.

The rock-shaft G, hereinbefore referred to, is provided with a cross-bar, I, the ends of which are formed into handles. This cross-bar is provided with vertical slots, within which are pivotally secured links *i i*, the lower ends thereof being pivoted to the churn-dashers J J. The bar *f* and the pivoted lever H are each provided with a series of perforations, so that the link *g* can be adjusted to rock the bar I to a greater or less extent, as may be desired, according to the quantity of cream placed in the churns.

The churns are ordinary cylindrical vessels,

such as are usually used in dairies for the reception of cream, and the downwardly-extending flange on the bottom of one of the churns is cut away, so as to permit the trough in the bottom of the receptacle A to pass into said cut-away portion, and these churns are also provided with outlet-openings, which project from their bodies so as to be over the trough, strainers being attached over said openings on the inner side of the churns. The openings in the churns K K are closed by ordinary plugs, which can be removed when it is desired to let the contents or buttermilk out of said churns into the trough L, and from thence into a suitable receptacle. The churns K K, hereinbefore referred to, are provided with concave perforated tops, which are re-enforced centrally by conical caps *j j' j²*, which are each connected to a central sleeve, *l*, through which the dasher-rod J passes. The upper inverted conical portion, *j²*, will collect what cream may work through the sleeve *l* and lead it back into the churn. By means of the perforated tops air is allowed free access to the interior of the churns, while the cream is prevented from splashing out of the same. This perforated top gives much better results than an ordinary closed top.

With the churn herein described I employ a dasher, M, which consists of a series of radial arms, each arm being provided with two or more conical openings, the larger portion of said openings being at the bottom of the dasher, and the upper portion of said arms are beveled, so that the cream will be but little agitated on the upstroke of the dasher, but will be greatly agitated on the downstroke, a large portion being forced upward in separate streams through the conical openings in the dasher, thus assisting greatly in aerating the cream while churning.

In practice the cream is placed in the churns and the dasher-rods are passed through the openings in the covers and connected by the links *i* to the cross-bar I, and when the lever H is moved backward and forward the rock-shaft will be operated, so as to reciprocate the dashers in the churns. Water at the proper temperature is placed in the receptacle, and after the cream has been churned this water is removed, and by removing the plugs from the openings in the churn-bodies the buttermilk will flow out of the churns into the trough L into a suitable receptacle, and, if desired, the receptacle may again be partially filled with water, which will enter the churns through the openings, for washing or working the butter prior to removing the same from the churns.

I am aware that prior to my invention it has been proposed to employ lever mechanism for operating two churn-dashers in connection with cylinders having openings, so that the cream is drawn alternately from one cylinder to another and thus agitated, and I do not claim such as my invention. Neither do I claim, broadly, the immersing of a churn-body in water, so as to maintain the cream at the proper temperature; but

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

1. The combination, in a churn, of two independent cream-receptacles having independent dashers and perforated inwardly-depressed tops, the bar connecting said dashers, the rock-shaft to which said bar is centrally attached, provided with an operating-lever whereby the dashers are reciprocated, and a containing box or receptacle for the cream-receptacles having a centrally-arranged trough with which outlets from said receptacles engage, one of the cream-receptacles having side flanges which fit over the said trough, substantially as described.

2. The combination, with a receptacle, A, provided with a longitudinal centrally-arranged trough, L, having an end opening, of independent churn-bodies K K, having independent dashers mounted in said receptacle A, and having outlet-openings communicating with the said trough, one of said churn-bodies K having side flanges cut away to snugly fit over the said trough, substantially as described.

3. In a churn, the combination, with the receptacle or box A, adapted to receive churns having independent dashers, of the slotted blocks E, secured to the upper part of the side of the said receptacle or box A, the slotted block *h*, secured adjacent to the lower edge and one end of one of the sides of the receptacle or box, the standards F, removably secured in the blocks E, having a rock-shaft, G, mounted in their upper ends, to which an operating-bar, I, is centrally attached and connected to the dasher-rods of the churns, the depending arm or bar *f*, secured at its upper end to the rock-shaft G and having its lower end slotted and provided with a series of apertures, the slotted operating-lever H, pivotally secured at its lower end in the block *h*, and a link-bar, *g*, connecting the lower end of the arm or bar *f* with the lever H, whereby the churn-dashers may be operated either by the rod I or from one side of the box or receptacle by the lever H, substantially as described.

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

CHARLES E. GALE.

Witnesses:
ELMER F. BOTSFORD,
J. M. SWINYER.