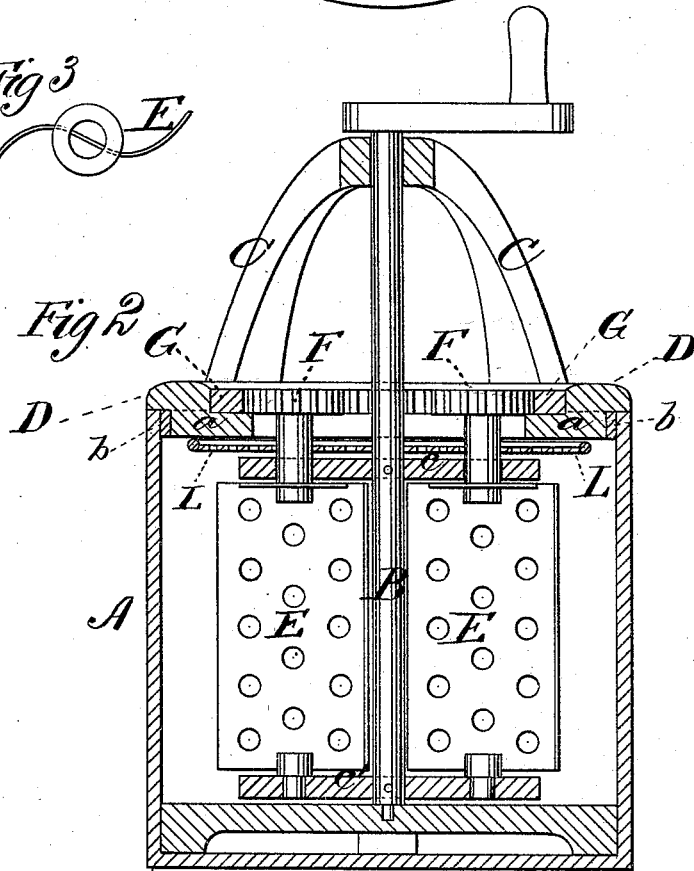
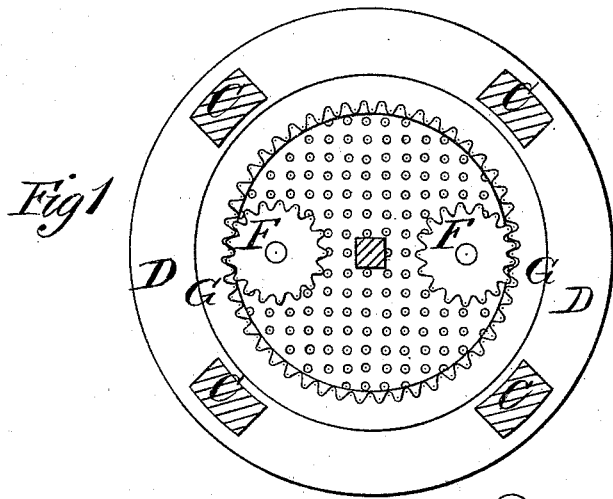


L. M. BOOKWALTER.

CHURN.

No. 182.156.

Patented Sept. 12, 1876.



WITNESSES

Mary P. Utley.  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

LEO M. BOOKWALTER, OF GREENVILLE, OHIO.

## IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. 182,156, dated September 12, 1876; application filed January 22, 1876.

*To all whom it may concern.*

Be it known that I, LEO M. BOOKWALTER, of Greenville, in the county of Darke and State of Ohio, 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 drawings is a representation of a horizontal section of my churn; and Fig. 2 is a vertical central sectional view of the same.

This invention has relation to improvements in churns; and the nature of the invention consists in perforated metallic dashers, having rotation around their own axes, and a common center, coincident with the long or vertical axis of the churn-tube, whereby a very effective action is given to the dashers. It also consists in the means, substantially as hereinafter explained, whereby this very desirable motion is obtained, and in a perforated metallic diaphragm or cover for the churn, all as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates a (preferably) glass cylinder or tube, having in its bottom a suitable bearing for the lower end of a shaft, B, the upper end of which extends through the point of intersection of two semicircular straps, C, which cross each other at right angles and are rigidly secured to a flat (preferably wooden) annulus, D. This annulus is provided on its under side with a rabbet, *e*, adapted to be received in the upper end of tube A, and is made to form a close joint therewith, by means of a suitable packing-ring, *b*. Shaft B, before alluded to, is provided, below annulus D, with two spaced cross-pieces, *c c'*, in which are journaled metallic dashers E, which, in practice, will be perforated, and in cross-section will be of serpentine form. The upper ends of the journals of these dashers are provided with pinions F, which mesh with an internally-cogged wheel, G, arranged within or secured to annulus D. When rotation is given

to shaft B, by means of a suitable motor, pinions F will travel around the circuit of wheel G, thus giving to the dashers E a rotary motion on their own axes, and an independent rotation around the axis of revolution of the said shaft. The effect of these rotations is that the cream is thoroughly mixed and beaten, and the oil-cells quickly and effectually broken up, allowing the butter to make very rapidly.

In all high-motion churns the necessity of air to facilitate the formation of butter is well known. This want is supplied by means of a reticulated sheet-metal plate, L, which closes the opening in annulus D, through which air will freely enter the interior of the churn, and the gases arising during the formation of the butter will have free exit. This perforated plate will, in case the necessity occurs, also permit hot or cold water to be poured into the churn, without lifting off the lid or in any other manner disturbing the arrangement of the operating mechanism.

As shown in Fig. 1, plate L rotates with shaft B; it rests upon arm *c*, and the journals of dashers E project through it. Consequently the entire operating mechanism of the churn may be removed bodily from the tub and the butter conveniently gathered.

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

1. In a churn, the combination, with the traveling pinions F and internally-cogged wheel G, of the shaft B, having arms *c c'*, and independently-journaled dashers E, said dashers having an independent rotation on their own axes, and a common rotation round the same center, substantially as described.

2. In combination with barrel or tube A and annular lid D, the perforated metallic plate L, closing the opening of the said annulus, substantially as specified.

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

LEO M. BOOKWALTER.

Witnesses:

CHAS. G. MATCHETT,  
W. H. MATCHETT.