H. D. WISWELL.

CHURNS.

No. 180,086. Patented July 18, 1876.

Fig 2

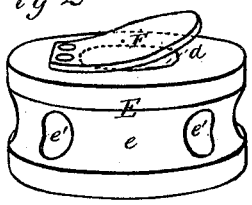


Fig. 3.

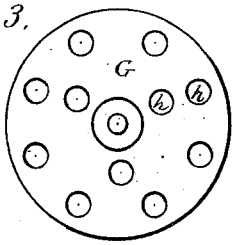


Fig. 1.

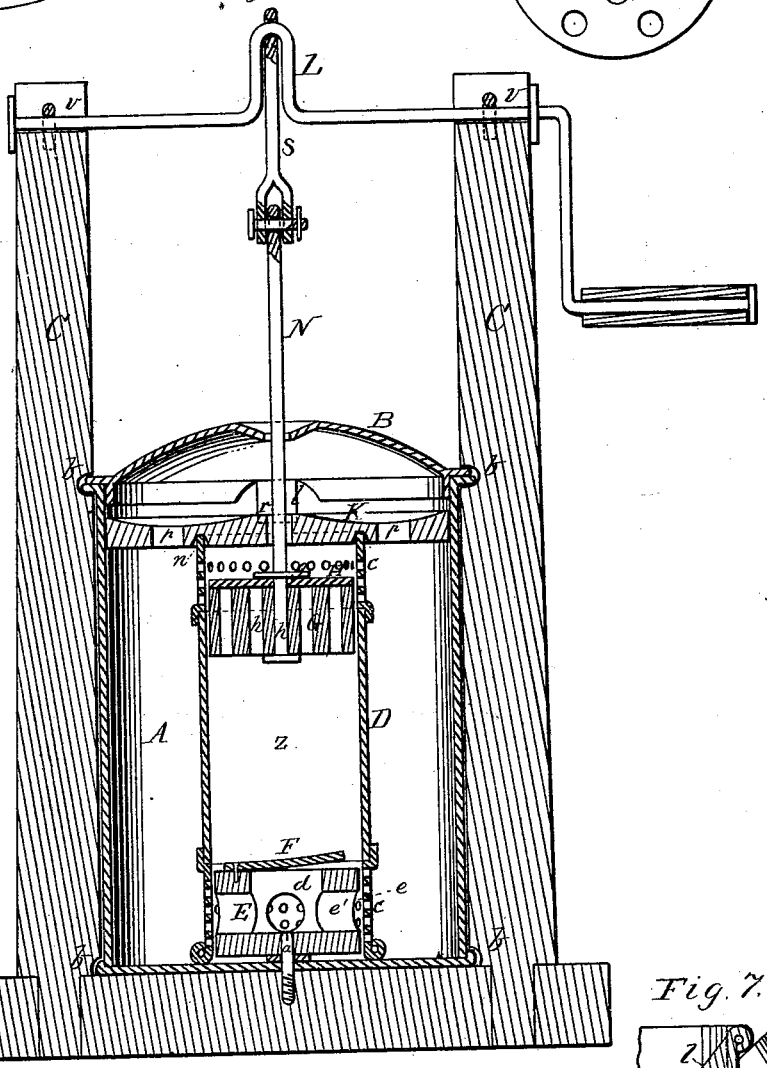


Fig. 4.

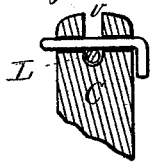


Fig. 5.

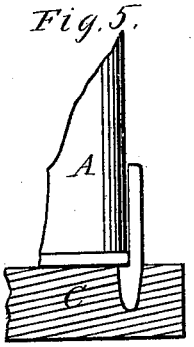


Fig. 6.

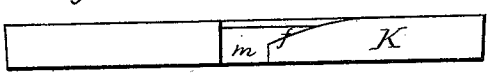
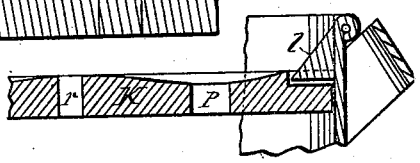


Fig. 7.



WITNESSES

Villette Anderson

Francis J. Masi

INVENTOR

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ATTORNEY.

UNITED STATES PATENT OFFICE.

HENRY D. WISWELL, OF BELLE PLAINE, IOWA, ASSIGNOR OF PART OF HIS RIGHT TO OLIVER B. CONE, WILLIAM L. HESS, AND F. A. FAUSKA, OF SAME PLACE.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **180,086**, dated July 18, 1876; application filed April 29, 1876.

To all whom it may concern:

Be it known that I, HENRY D. WISWELL, of Belle Plaine, in the county of Benton and State of Iowa, 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 central vertical section of the churn. Fig. 2 is a perspective view of the lower valve-seat and valve. Fig. 3 is a bottom view of the piston-dash. Figs. 4, 5, 6, and 7 are details of the construction.

This invention has relation to churns; and it consists in the construction and novel arrangement of the central pump-cylinder, perforated at its ends, and provided with a piston and valves, designed to draw the cream through one set of perforations, and force it through the other set, into the chamber of the churn; also, in the construction and arrangement of the diaphragm top of the pump-cylinder and its locking devices; and of the lower valve-seat and piston-head, as hereinafter fully shown and described.

The object of the invention is to churn the cream or milk by drawing it through one set of small perforations, and forcing it out through another set of similar perforations, which are designed to thoroughly break up the butter-cells, this result being promoted by a third set of tubular passages through the piston-head.

In the accompanying drawings, the letter A designates the churn-case, which is provided with a suitable lid, B, and in its base a central pin or stud, *a*, designed to fix the bottom of the pump-cylinder, which is designed to be placed within the churn-case. C represents a frame, having suitable notches *b*, to receive the flanges on the upper edge of the churn-case, and thereby secure it in position, so that it will not be thrown out of place when the piston is in operation. D indicates the pump-cylinder, which is preferably a hollow cylinder, of metal, open at both ends, so that it can be readily scoured when necessary. The middle portion *z* of the cylinder is imperforate, and forms the working-barrel of the pump. Each end of the cylinder is provided with a set of perforations, *c*, which extend around its circumference at the bottom and top, and are designed, respectively, to admit the cream into the cylinder, and to form an exit therefor out of the cylinder into the chamber of the churn-case. E represents the valve-seat, which is a short cylindrical block, designed to fit into the lower end of the cylinder D, and form the bottom thereof. This block is centered upon the stud *a* of the base of the churn-case. Its sides are concave vertically, forming a kind of chamber back of the perforations of the cylinder. The center of the block is hollow, forming a chamber, *d*, into which lead radial passages *e'* from the annular chamber *e*, back of the perforations above mentioned. The valve F is attached to the top of the block, and covers the central recess *d*. G designates the piston-head, which works in the cylinder D, moving in the middle or imperforate portion, to draw the cream through the lower perforations and valve into the body of the cylinder, and to force it therefrom through the upper perforations, back into the chamber of the churn.

The piston-head consists of a cylindrical block, having vertical tubular passages *h* through it, said passages being open at both ends.

A circular valve, H, which may be secured by the collar *g* of the piston-dash-rod centrally upon the upper surface of the piston head or dasher, serves to close the upper ends of the passages *h*, when said dasher is rising, and forcing the cream out through the upper set of perforations. K indicates a splatter-board and locking diaphragm, which is located within the chamber of the churn-case upon the upper end of the cylinder, an annular groove, *n*, being formed in its under side for engagement therewith. Perforations *p* are made through this board to admit air to the churn-case, but

not to the cylinder. A central passage, *r*, is provided for the passage of the dash-rod, and through this some of the cream will be forced. The upper surface of the diaphragm is made annularly concave, as indicated in the drawings, so that the cream will be collected, and will run down into the chamber of the churn through the perforations *p*. Marginal notches *m* are made in the diaphragm, said notches having each the opposite side *f* beveled in the manner shown in Fig. 6 of the drawing. The wall of the churn-case is provided with lugs *l*, which can pass through the notches *m*, when the diaphragm is introduced or removed. The diaphragm, being in position upon the top of the dasher-pump, is turned circularly, and the bevels *f*, engaging under the lugs *l*, lock it firmly upon the top of the cylinder, and hold the latter securely in position.

To operate the churn, a crank-shaft, L, is seated in bearings *v* at the upper part of the frame, and connected by a pitman or connecting-rod, *s*, with the dash-rod N.

This churn is designed to distribute the air thoroughly through the cream or milk. It requires but little time and labor to produce the butter, which is left after the churning upon the top of the milk. Its parts are readily separable for scouring, and for ordinary cleaning warm water may be churned through the pump-cylinder.

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

1. A dash-cylinder for a churn, arranged in an outer case, perforated at its ends, and provided with a valved piston-dash and an induction-valve, whereby cream is drawn through one set of perforations and forced through the other, substantially as specified.

2. The diaphragm K, constructed as described, and fitting snugly into the churn-case, in combination with the cylinder D, substantially as and for the purposes specified.

3. The valve-block E, having concave side walls, and passages *e'* leading into its hollow center *d*, in combination with the cylinder D, perforated at its upper and lower edges, and the valved plunger G, working therein between the said perforated parts, substantially as specified.

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

HENRY DANIEL WISWELL.

Witnesses:
FRANK G. CLARK,
WILLIAM L. HESS.