(No Model.)

W. H. H. SPRADLIN.

CHURN.

No. 385,828. Patented July 10, 1888.

Fig. 1.

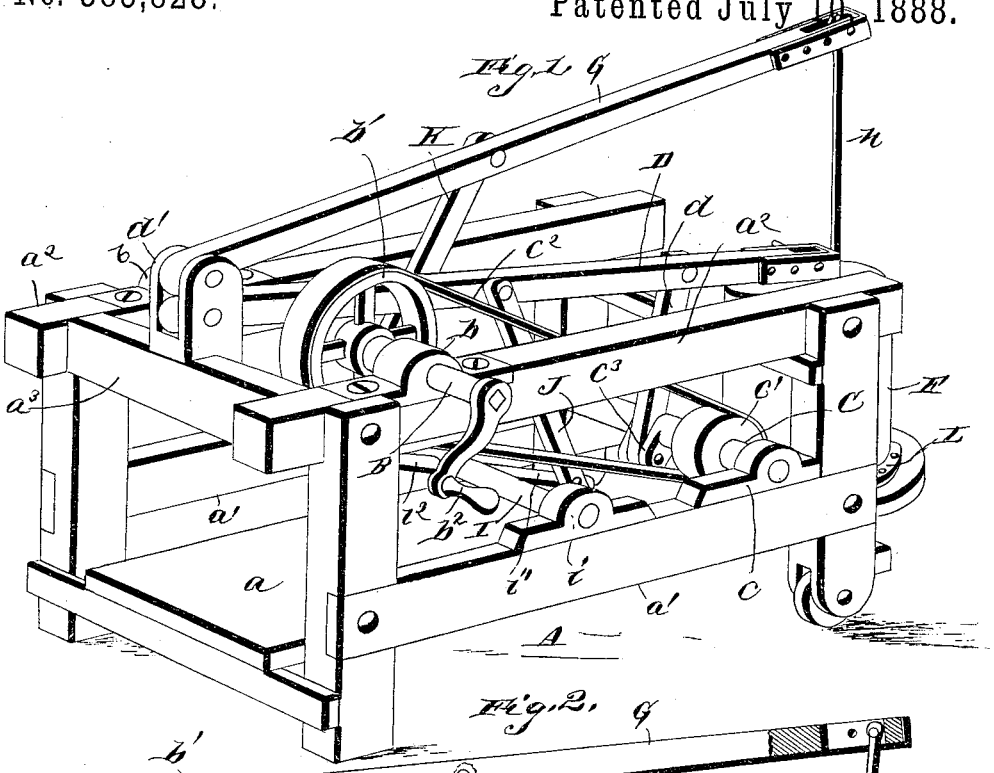
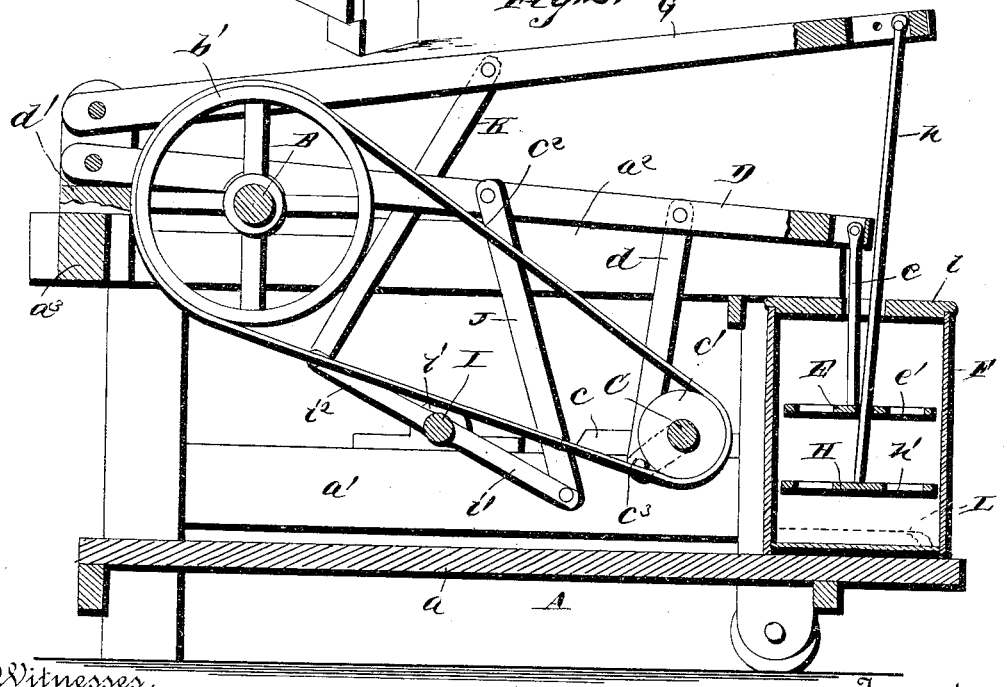


Fig. 2.



Witnesses.
O. L. Taylor,
R. J. Marshall Jr.

Inventor,
William H. H. Spradlin,
By his Attorneys
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM H. H. SPRADLIN, OF SOUTH FORK, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 385,828, dated July 10, 1888.

Application filed April 4, 1888. Serial No. 269,590. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. SPRADLIN, a citizen of the United States, residing at South Fork, in the county of Howell and State of Missouri, have invented a new and useful Improvement in Churns, of which the following is a specification.

The invention relates to improvements in churns having reciprocating dashers; and it consists in the construction and novel combination of parts, hereinafter described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a churn embodying the invention. Fig. 2 is a central vertical longitudinal section.

Referring to the drawings by letter, A designates the main frame of the machine, composed of the base-board *a*, the standards, the lower side rails, *a' a'*, the upper side rails, a^2 a^2, and the upper end rail, a^3, at the end of the frame opposite that on which the churn-barrel is seated.

B is a transverse shaft journaled in bearings *b b*, secured to the upper side rails, a^2, a short distance from the end rail, a^3, and carrying the large pulley *b'*. One journal of said shaft is extended and squared for the attachment of the crank-handle b^2, by means of which the machine is actuated.

C is a transverse shaft journaled in bearings *c c*, secured to the lower side rails adjacent to the churn-barrel and carrying the pulley *c'*, smaller than the pulley *b* and connected therewith by the belt c^2.

c^3 is a crank on the shaft C, to which crank is journaled the lower end of a pitman, *d*, pivoted at its upper end to a vibratory arm, D. One end of the arm D is pivoted between the arms of a bifurcated standard, *d'*, rising about centrally from the end rail, a^3, and to the other end is loosely hung the dasher-rod *e* of the upper dasher, E, which is suspended within the cylindrical churn-barrel F.

G is a vibratory arm pivoted at one end between the arms of the standard *d'* above the pivotal point of the arm D and having loosely hung to its other end the dasher-rod *h* of the lower dasher, H, similar to the dasher E, the said dasher-rod *h* passing through a suitable opening in the dasher E. The dashers E and H are respectively provided with the similar series of openings, *e'* and *h'*.

I is a transverse rock-shaft journaled in bearings *i*, secured to the lower side rails, *a'*, at suitable opposite points, which shaft has extending from it in opposite directions the arms i' i^2. The arm i', which extends toward the churn-barrel, has its end connected with the arm D by a pivoted link-rod, J, and the arm i^2 has its end connected with the arm G by the pivoted link-rod K.

L is a circular flanged seat on the outwardly-extended end of the base-board *a*, to receive and steady the lower end of the churn-barrel, and *l* is a lid or cover for said barrel, provided with openings for the passage of the dasher-rods.

It is evident from the above that when the crank-handle is turned the crank-shaft C is rotated by means of the pulleys and belt and the arm D vibrated by means of the crank c^3 and pitman *d*.

As the arms of the rock-shaft extend in opposite directions and are connected, respectively, with the arms D and G by the link-rods J and K, the motion of the former arm will be communicated to the latter in the reverse direction, and the dashers suspended from the ends of said arms will alternately approach and recede from each other, creating very strong and abruptly alternating up and down currents in the cream and causing the butter-globules to separate rapidly therefrom.

Having described my invention, I claim—

1. The combination of the horizontally-vibrating arms, the rock-shaft arranged below said arms and having independent connection therewith, the crank-shaft arranged below the said arms and to one side of the rock-shaft, the link connecting the crank-shaft with one of said arms, and mechanism for rotating the crank-shaft, as set forth.

2. The combination, in a churn, of the barrel, the dashers E H, having the rods *e h*, the oppositely-vibrating arms D G, the rock-shaft I, having the oppositely-extending arms i' i^2, the link-rod J, connecting the end of the arm i' with the arm D, and the link-rod K, connecting the end of the arm i^2 with the arm G, substantially as specified.

3. In a churn, the combination, with the bar-

rel, the similar upper and lower dashers E H, having the rods *e h*, the oppositely-vibrating arms D G, the rock-shaft provided with the oppositely-extending arms *i' i²* and the link-rods J K, of the crank-shaft C, the pitman *d*, the pulleys *c' b'*, the belt *c²*, and the crank-handle *b²*, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM H. H. SPRADLIN.

Witnesses:

J. E. SPRADLIN,

J. SCOLLINGER.