(No Model.)

J. BURL.

CHURN.

No. 299,459. Patented May 27, 1884.

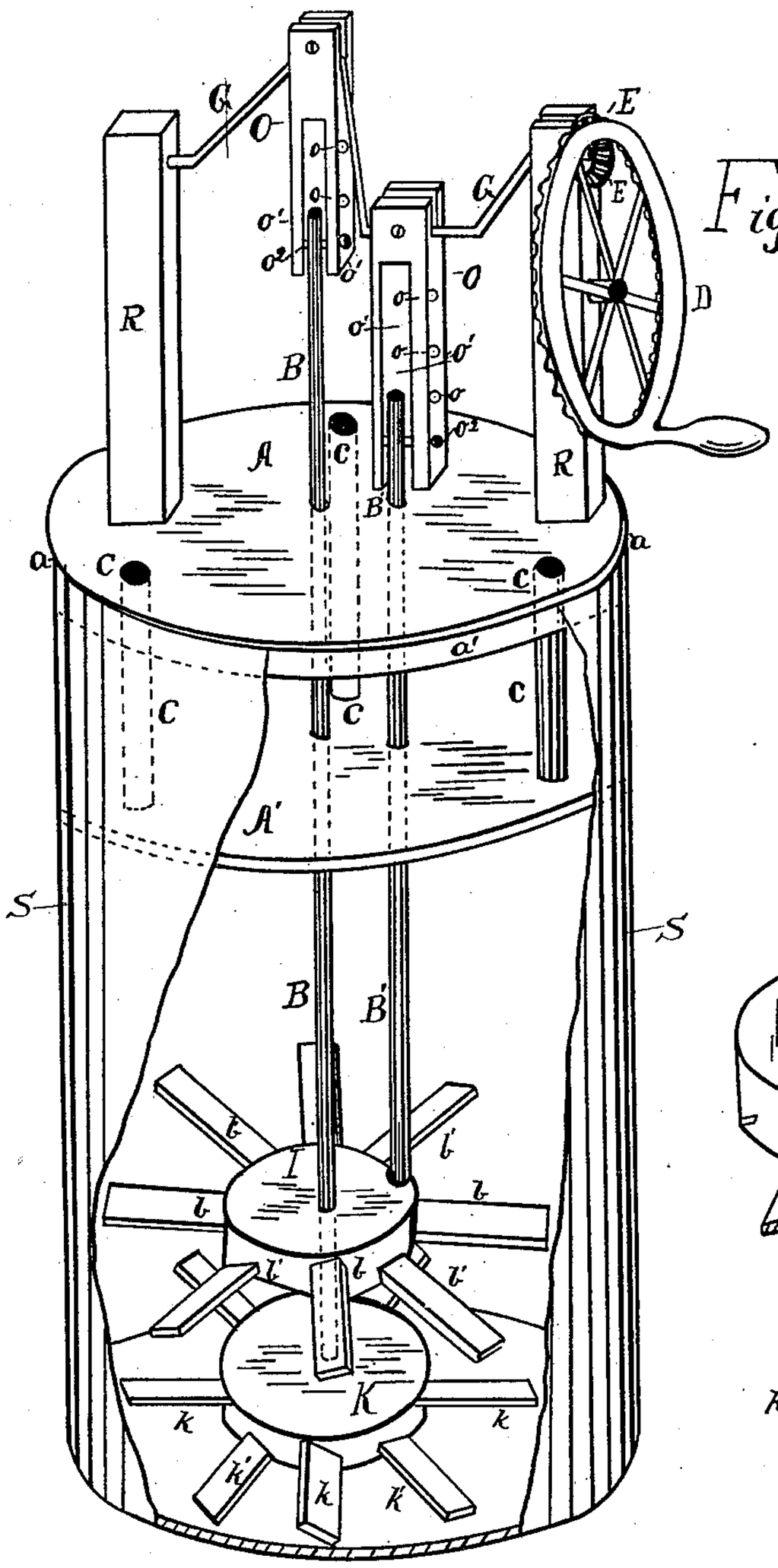


Fig. 1.

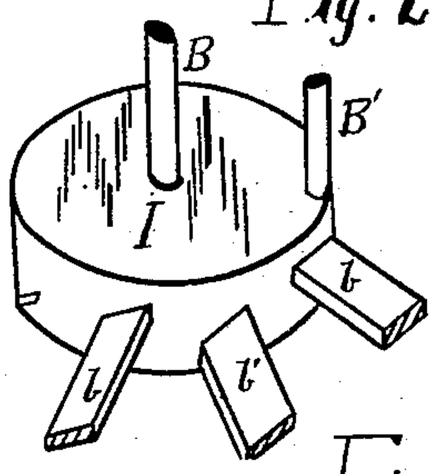
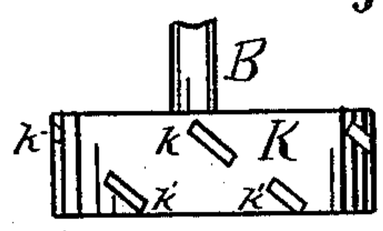


Fig. 2.

Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN BURL, OF SPRINGFIELD, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 299,459, dated May 27, 1884.

Application filed December 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN BURL, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in churns having two or more dashers, the object of which is to provide means for obtaining butter from cream by churning in a short space of time and with a small amount of labor, and also at the same time to provide a churn that combines the perpendicular dash movement with a partial circular motion of the cream. These objects I attain by means of the device illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation with a part removed to show the entire device. Figs. 2 and 3 are detailed views.

The distinctive features of my invention consist in two heads in and for a churning-vessel through which the dashers work; two dasher-heads, each having one or more rows of oblique paddles; a pinion attached to a double crank or eccentric rod, and operated by a large drive-wheel; adjustable arms attached to the double eccentric rod and dashers, and other novel features hereinafter more fully set forth.

S is a vessel; A, a cover supported upon and in said vessel. This cover has two holes near the center for the dasher-rods B B′, and also holes for attaching the posts C C C. The lower ends of the said posts are firmly attached in and support a secondary head, A′. These two heads are preferably placed three or more inches apart, to facilitate cleaning the same, and to prevent the cream from splashing out when greatly agitated by the twofold motion given by the dashers, as hereinafter explained; and for this purpose the secondary head is made to fit closely the inside of the vessel. The upper head is made to fit closely by a groove, *a*, and flange *a′*, and any suitable device for firmly attaching it to the vessel. Upon this head are rigidly attached uprights R R, for supporting the bearings of a crank-shaft, G, and the attachments of the bearings to the drive-wheel D. The crank-shaft G is made with a double eccentric or crank, and attached to one end is a small pinion, E, which is operated by a large drive-wheel, D, to impart great velocity to the dashers, the dashers being attached to the crank-shaft G by means of adjustable arms O. The arms O O have suitable bearings on the crank-shaft G, and are made forked at *o′ o′* from a point near the bearings on the shaft to the lower ends, said forks being of sufficient width to freely admit the upper ends of the dasher-rods B B′. These arms are made adjustable in length by means of a bolt, o^2, which is placed through the end of the dasher-rods and up or down in the holes *o o o*, as desired. These arms, together with the double head A A′, cause the dashers to work up and down perfectly true, so that the dasher-heads cannot strike against the sides of the vessel. The primary dash-rod B passes through the center of the head I of the secondary dasher, the secondary dash-rod B′ being attached to one side of the said head. The heads I K are each preferably made with two rows of paddles, *b b′ k k′*, and with four or more of the said paddles in each row. These paddles are placed in the heads obliquely, or so as to form an acute angle with the horizontal. The paddles are preferably slanted in the same direction in the two rows of the head, to start the cream to rotating as they pass through it. As the dasher-heads when in operation move in opposite directions, toward and from each other, it is preferable to place the paddles *k k′* so as to slant in the opposite direction from *b b′*, so as to start the entire mass of cream to circulating in the same direction as the dashers move from each other, and then to throw it in the opposite direction as they approach each other, and thus create a great agitation in the entire mass of cream, and herein is one of the great advantages of the novel construction of my dasher-heads.

By means of the adjustable arms O O the dashers are so placed that one will reach almost to the bottom of the vessel, so as to agitate the cream in the bottom, while the upper head, I, is so adjusted as to rise above the

cream, and then, by its great velocity, strike the cream flowing in one direction and cause it to rapidly flow in the other, and thus thoroughly aerify the same, and produce butter in a very short time, while at the same time the double head keeps all the cream in the vessel, and thus it is perfectly clean outside.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a double-dash churn, the combination of a double head, A A′, two dasher-heads, I K, having paddles *b b′ k k′* placed in two rows in each head and in oblique positions, pinion E, crank-shaft G, drive-wheel D, and adjustable arms O O, having slots *o′ o′*, bolts o^2, and holes *o*, all substantially as shown and described, for the purpose set forth.

2. The combination, in a churn, of a vessel, S, having two heads, A A′, with two dasher-rods B B′, having heads I K and paddles *b b′ k k′*, adjustable arms O O, crank-shaft G, drive-wheel D, and pinion E, all substantially as shown and described, for the purpose set forth.

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

JOHN BURL.

Witnesses:

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