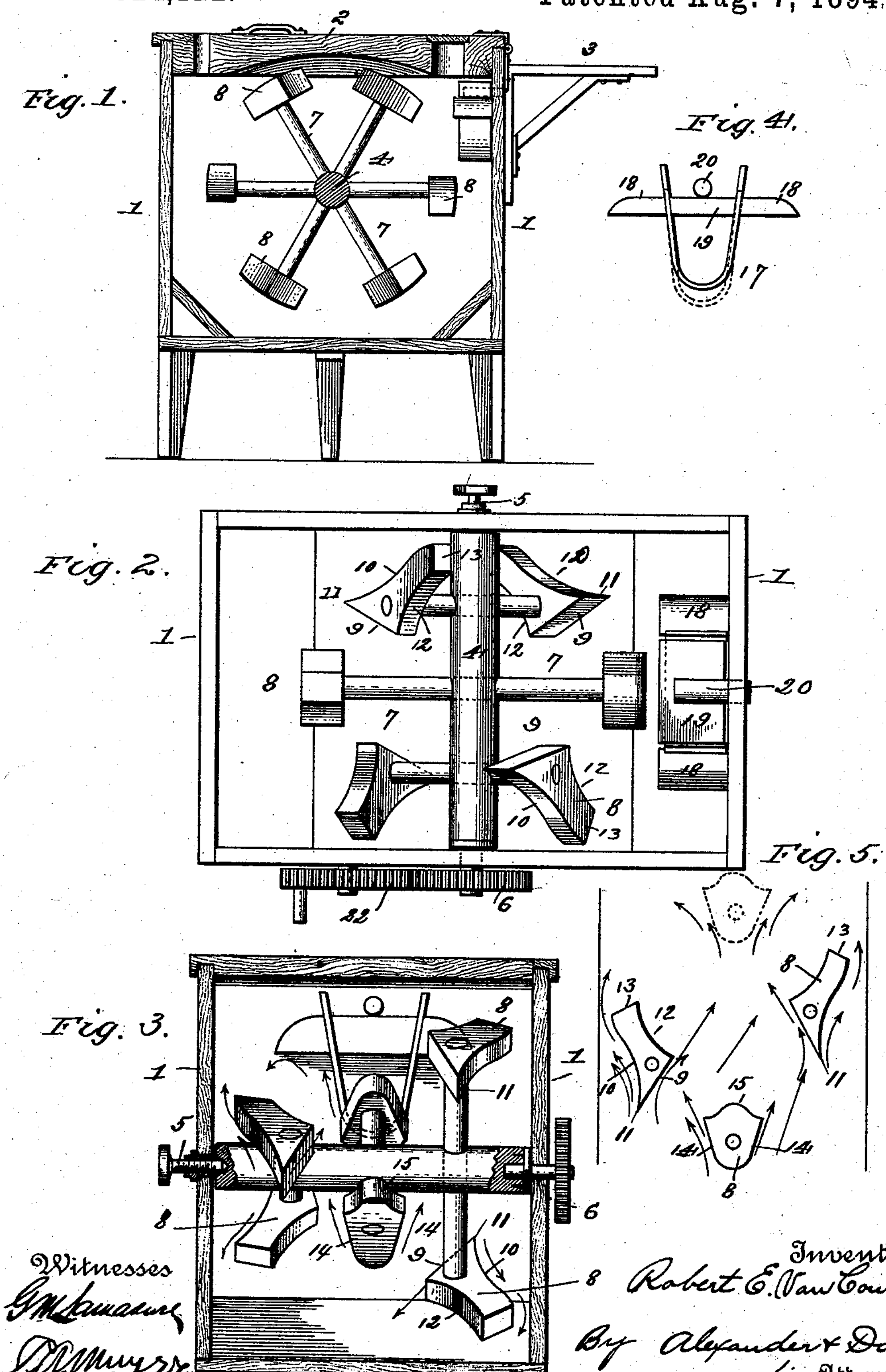
(No Model.)

R. E. VAN COURT.

CHURN.

No. 524,122. Patented Aug. 7, 1894.



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UNITED STATES PATENT OFFICE.

ROBERT E. VAN COURT, OF ELKTON, VIRGINIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 524,122, dated August 7, 1894.

Application filed April 19, 1894. Serial No. 508,149. (No model.)

To all whom it may concern:

Be it known that I, ROBERT E. VAN COURT, a citizen of the United States, residing at Elkton, in the county of Rockingham and State of Virginia, have invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a transverse sectional view of my improved churn; Fig. 2 a plan view thereof, the cover being removed; Fig. 3 a longitudinal sectional view; Fig. 4 a detail of the adjustable breaker; and Fig. 5 a diagram showing the action of the beaters and the currents of cream caused by them.

The invention relates to a new and improved churn, and it has for its object to provide a device of simple construction which will greatly agitate the cream and produce butter therefrom very quickly.

The invention consists in the novel construction of the beaters, and their arrangement on the revoluble shaft; the construction and arrangement of the breaker or deflector which is located on the side of the churn; and certain other novel features of construction and arrangement of parts which will be hereinafter more fully described and particularly pointed out in the claims appended.

Referring to the various parts by numerals, 1 designates the box or body of the churn; 2 the cover therefor, said cover being hinged to the churn body and rabbeted to fit down over the upper edge of the box, an air hole and a peep-hole being also formed in the cover; 3 a bracket secured to the side of the churn-body in a position to support the cover in a horizontal position when the churn is open; 4 the horizontal dasher-shaft journaled transversely of the churn body, one of its ends being journaled upon an adjustable trunnion 5, its other end being provided with a rigid journal which projects through the churn-body and is provided on its outer end with a gear wheel 6; 7 the beater arms which are secured to the shaft 4, and are located equal distances apart on the same, said arms being staggered or set out of line around the shaft, as shown; 8 the beaters or agitators which are secured on the outer ends of the arms 7.

The beaters or agitators which are secured on the arms 7 nearest the sides of the churn have a peculiar formation, and are designed to produce certain currents in the cream. These beaters are each formed with one inner straight side 9 and one outer curved side 10, which sides converge and meet in a sharp point 11 at the front end of the beater. The straight side 10 extends rearward slightly beyond the point of attachment of the beater to the beater arm 7 and from the rear end of this straight side a curved side 12 extends rearwardly and outwardly, and from the rear end of this side 12 a short straight side 13 extends outwardly and slightly forward, its forward end meeting the rear end of the curved outer side 10 as shown clearly in the drawings.

The beaters or agitators carried by the central arms 7 are of a different form from those carried by the outer arms, and are each formed with a blunt or curved forward end and two diverging, rearwardly-extending sides 14, whose rear ends are connected by the curved rear side 15. As many sets of these beaters may be employed as are desired, but I have found the use of three sets very efficient in operation.

By reference to Fig. 5 of the drawings their operation will be understood. The central beater divides the cream and causes it to flow outwardly along its diverging sides, and these outwardly flowing currents are again diverted and divided by meeting the outer beaters 8 which beaters by reason of their straight inner sides cause part of the current to flow inwardly toward the center of the churn and in the path of the next central beater, and by reason of their curved outer sides cause part of the current to be dashed against the sides of the churn. The next central beater again divides the current and the above described movement of the cream is repeated as the dasher-shaft is revolved, thereby producing a great agitation of the cream, as is manifest. As the beaters are revolved the cream is lifted toward the rear side of the machine and in order to prevent it rising to the cover I provide a breaker or deflector which

is secured to the rear side of the churn and deflects or returns the cream into the churn. This deflector consists of the flexible strip 17 bent into U-shape and secured between two rigid blocks 18 by means of a removable block 19. A removable pin 20 is inserted in the churn side directly above the block 19 to prevent the withdrawal of the block. The adjacent edges of the blocks 18 and the removable block 19 are beveled inwardly and downwardly to receive the diverging upper ends of the strip 17. As will be readily understood the block 19 may be readily removed by removing the pin 20, and the strip 17 may then be adjusted up or down according to the amount of cream in the churn. As will be readily understood the rising of the cream will be arrested and the cream returned to the churn by the strip 17 and the blocks 18, the curved lower end of the strip 17 dividing the current and breaking its upward tendency and aiding materially in agitating the cream. The blocks 18 also act as a stop and will break the upward movement of the cream if the curved piece 17 does not. The strip 17 and block 19 may be readily removed for cleaning when desired.

When the butter has formed and it is desired to gather it it is simply necessary to reverse the direction of the movement of the dasher shaft, and the curved rear sides 12 of the beaters will gather the butter to the center of the machine.

Any suitable means for revolving the dasher shaft may be employed, but I have shown a gear 22 provided with an operating handle and journaled on the side of the churn body and meshing with the gear 6 of the dasher-shaft.

The under side of the cover is concaved to form a butter bowl or tray, as shown in Fig. 1 of the drawings, and when the cover is open and resting upon bracket 3 the butter may be worked and printed in said concaved portion, as is manifest.

Having thus fully described my invention, what I claim is—

1. A churn consisting of a churn body, a dasher shaft journaled therein, beater arms carried by said shaft and staggered thereon, beaters being arranged in an inner and two outer series, the inner series being formed with the outwardly curved forward end and the diverging sides, and the two outer series being formed with the straight inner sides, the curved outer sides and the curved rear sides, substantially as described and for the purpose set forth.

2. A churn consisting of a churn body, a horizontal dasher-shaft journaled therein, beaters carried by said shaft, and a breaker or deflector, said deflector consisting of the flexible U-shaped strip and means for adjustably supporting it in position, substantially as described.

3. A churn consisting of a casing, a horizontal dasher-shaft journaled therein, beaters carried by said shaft, said beaters being arranged to form an inner series and two outer sets or series, one on each side of the inner series, the inner series dividing the cream and throwing it outwardly from its sides, and the two outer series throwing it inwardly into the path of the inner series and outwardly against the sides of the churn, and an adjustable breaker or deflector secured to the end of the churn in the path of the ascending currents of cream, substantially as described.

4. A churn consisting of a churn-body a horizontal dasher-shaft journaled therein, beaters carried by said shaft and an adjustable breaker or deflector secured to the end of the churn in the path of the ascending currents of cream, said breaker consisting of the flexible U-shaped strip, stationary blocks 18, removable block 19, and the removable pin 20, substantially as described and for the purpose set forth.

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

ROBERT E. VAN COURT.

Witnesses:
W. K. JENNINGS,
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