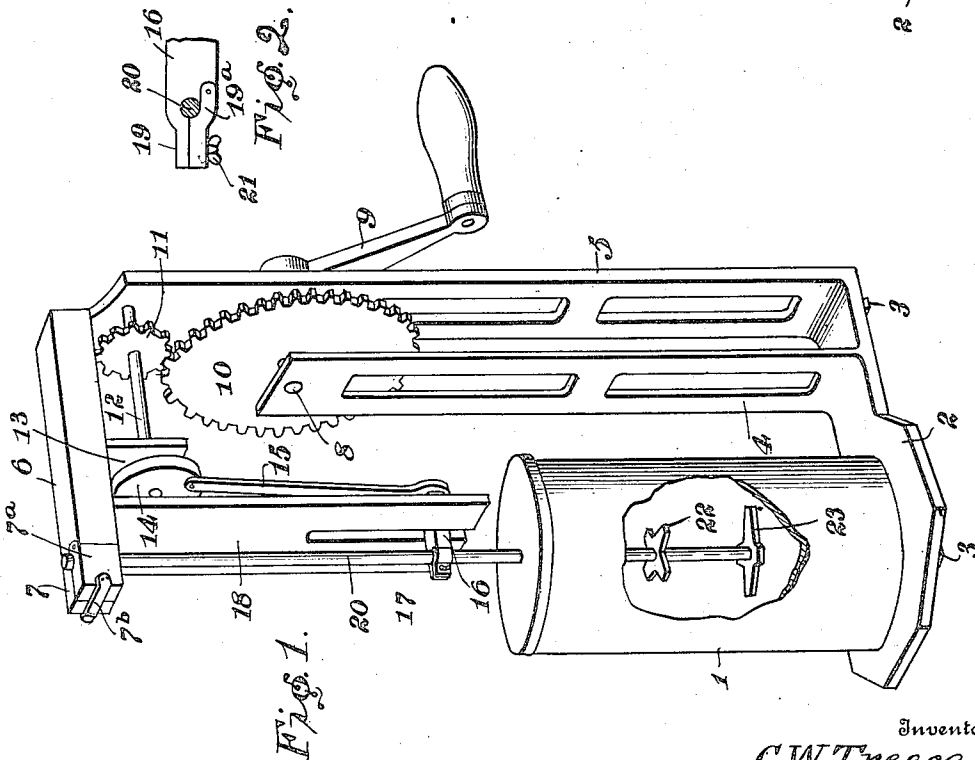
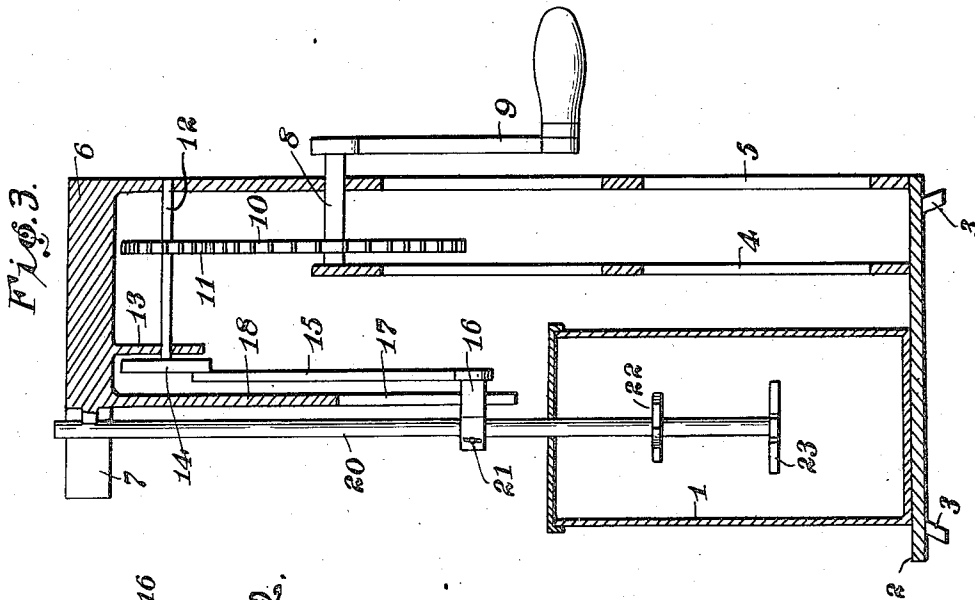


G. W. TREECE.  
CHURN.

APPLICATION FILED JULY 14, 1908.

949,864.

Patented Feb. 22, 1910.



Inventor

G. W. Treece,

Witnesses

J. E. Ballard

W. J. Woodson

By

H. M. Macey, Attorneys

# UNITED STATES PATENT OFFICE.

GEORGE W. TREECE, OF REEDLEY, CALIFORNIA.

## CHURN.

949,864.

Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed July 14, 1908. Serial No. 443,477.

*To all whom it may concern:*

Be it known that I, GEORGE W. TREECE, citizen of the United States, residing at Reedley, in the county of Fresno and State of California, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention contemplates certain new and useful improvements in churns of that type embodying a vertically reciprocating dasher, and the object of the invention is an improved device of this character in which the churning mechanism may be readily removed from the churn body, to permit the inspection of the contents of the latter, or for cleaning purposes or the like, and in which said mechanism may be readily adjusted within the churn body, so as to confine the movements of the dasher to the lower part of the churn body, and thus permit a small quantity of milk to be readily churned, without the loss of time or power. And a further object of the invention is an improved churn which embodies peculiar means for effectually beating and agitating the milk so as to induce the separation of the oily globules from the fluid, in the least possible amount of time and with a minimum exertion of power.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe, and then point out the novel features thereof, in the appended claim.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view partly broken away, of my improved churn; Fig. 2 is a vertical section thereof; and, Fig. 3 is a detail view of a section, showing the adjustable connection of the clamp with the plunger.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing, by the same reference characters.

Referring to the drawing, the numeral 1 designates the churn body which may be of any desired construction, size or design, and which is arranged to rest upon a base 2 that

is preferably provided with legs 3. This base is extended at one side, in the present instance, as shown, and is formed at such extended portion with inner and outer standards 4 and 5 which extend vertically upwardly from the base, and the outer standard 5 of which extends above the inner standard and has its end horizontally disposed to form a supporting arm 6 that overhangs the base above the churn body. A main or drive shaft 8 is journaled between the inner and outer standards, preferably near the upper end of the former, and is provided with a crank handle 9, by means of which it may be conveniently rotated. A gear wheel 10 is rigidly mounted upon the main shaft between the inner and outer standards and meshes with a relatively small pinion 11 that is mounted upon a driven shaft 12, the driven shaft being journaled at one end in the outer standard above the main shaft 8 and at its other end in an arm 13 depending from the supporting arm 6, as shown. The shaft 12 projects beyond the arm 13, and is provided beyond the same with a crank 14 to which a pitman 15 is pivotally connected at one end. To the other end of this pitman is swiveled a clamp 16 that extends through a longitudinal slot 17 opening through the lower end of a guide arm 18 which depends from the supporting arm 6 beyond the arm 13 and which is longer than the latter and terminates above and in proximity to the top of the churn body. The clamp 16 is provided with two jaws 19 and 19<sup>a</sup> which are arranged to clutch a vertically reciprocating plunger 20, the jaw 19 being rigid with the projecting end of the clamp, and the jaw 19<sup>a</sup> being laterally movable and carrying a set screw 21 that is also mounted in the rigid jaw 19 and is arranged to hold the movable jaw in operative relation to the latter to secure the clamp rigidly in the desired adjusted position upon the plunger. The upper end of this plunger is arranged to be slidingly mounted between two jaws 7 and 7<sup>a</sup> formed at the extremity of the arm 6 beyond the guide arm 18, the said jaws being substantially similar to the jaws of the clamp, in that one of the jaws 7 is rigid with the arm, while the other jaw is laterally movable and is adapted to be held in closed position by a flat spring 7<sup>b</sup> formed with an angular disposed end engaging the rigid jaw, as shown. The plunger slides through a removable

top or cap which is preferably provided for closing the upper end of the churn body, the plunger extending downwardly into the churn body and being equipped at its lower end with two vertically spaced dashers 22 and 23, the blades of which are disposed in staggered relation.

In the practical use of my improved churn, the crank handle 9 is rotated manually or otherwise, so as to effect the rotation of the main shaft and transmit the said rotary motion to the second shaft 12 by means of the intermeshing gear wheel and pinion, the pitman 15 transmitting the motion from the shaft 12 to the plunger 20, so as to effect the reciprocation of the dashers 22 and 23 within the churn body 1. These dashers are arranged to beat the milk so as to form the butter by concussion, but the arrangement of the blades of said dashers, whereby the blades of one dasher are in alinement with the spaces between the respective blades of the other dasher, also causes zig-zag currents in the liquid as the dashers pass back and forth therethrough, thereby effecting the maximum agitation of the milk and causing the rapid formation of the butter.

It will be observed that by connecting the pitman 15 with the plunger 20 by means of the clamp 16, it is possible to effect the vertical adjustment of the plunger by regulating the point at which the clamp is rigidly secured thereto, thus rendering it possible to confine the movements of the dashers to the lower portion of the churn body, and permitting a small quantity of milk to be economically churned.

From the above description, in connection with the accompanying drawing, it will be apparent that I have provided a simple, durable and efficient construction of churn in which the churning mechanism may be employed with churn bodies of any suitable construction and of different sizes, which is very light and may be readily carried from place to place with little physical exertion, and which consists of comparatively few parts that may be easily and cheaply manufactured so as to be placed upon the market at a price not too great to prevent the general adoption of the churn.

Attention is particularly directed to the fact that the spaced standards 4 and 5 serve primarily to provide bearings for the drive shaft 8, and in addition to this function also afford between the lower portions thereof, a compartment which is adapted to

receive and support the top of the churn body when the same is detached for cleaning purposes or the like. A rack is thus formed, in effect, which is quite convenient in use and materially enhances the attractiveness of the churn.

Having thus described the invention, what I claim is:

A churn comprising a base, standards rigid with the base and extending vertically at one side thereof and spaced apart to provide a compartment between their lower portions, the standards being provided in proximity to their upper ends with alining bearings, one of the standards being extended upwardly beyond the other standard, a horizontally disposed supporting arm secured to the extended portion of said standard and overhanging the base and provided at its extremity with a vertically disposed guide bearing, a guide arm depending from the supporting arm short of the guide bearing and formed with a longitudinal slot opening through its lower end, a bearing arm depending from the supporting arm intermediate of the extended portion of the standard and the guide arm and shorter than the latter, a churn body mounted on the base and open at its upper end, a removable top closing the upper end of the churn body, a vertically reciprocating plunger operating within the churn body and projecting upwardly above the same and slidably mounted in the top thereof and in the guide bearing at the extremity of the supporting arm, a member slidably mounted in the slot in the guide arm and extending horizontally therethrough and adjustably fixed at one end to the plunger, a pitman connected at one end to the other end of the member, a driven shaft journaled in the extended portion of the standard and in the relatively short bearing arm depending from the supporting arm, a crank wheel mounted on the driven shaft intermediate of said relatively short bearing arm and the guide arm and connected to the other end of the pitman, a drive shaft journaled in the alining bearings in the standards, and an operative connection between the drive shaft and the driven shaft.

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

GEORGE W. TREECE. [L. S.]

Witnesses:

THOMAS P. CAVANAUGH,  
E. A. M. WEBB.