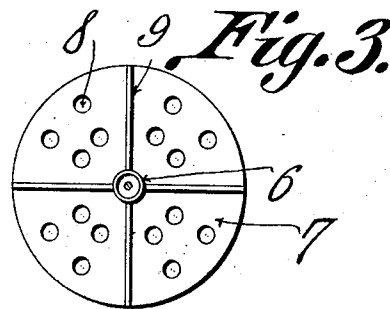
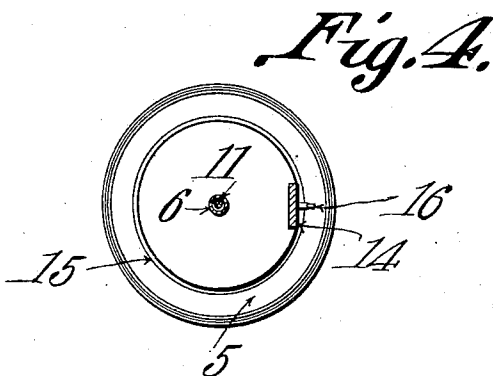
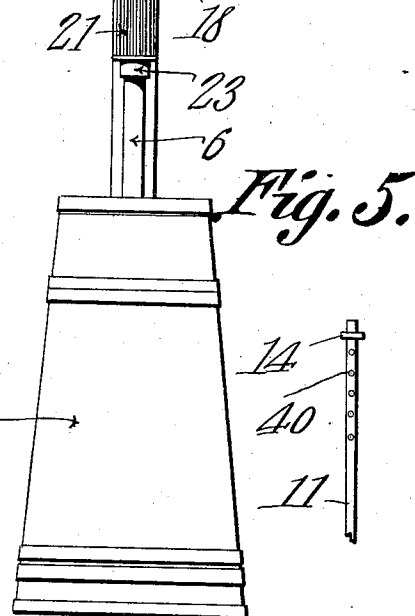
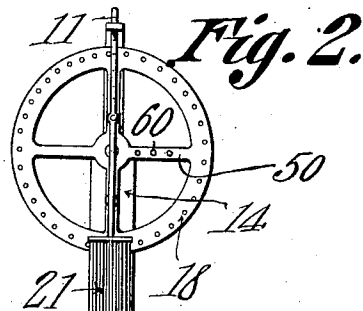
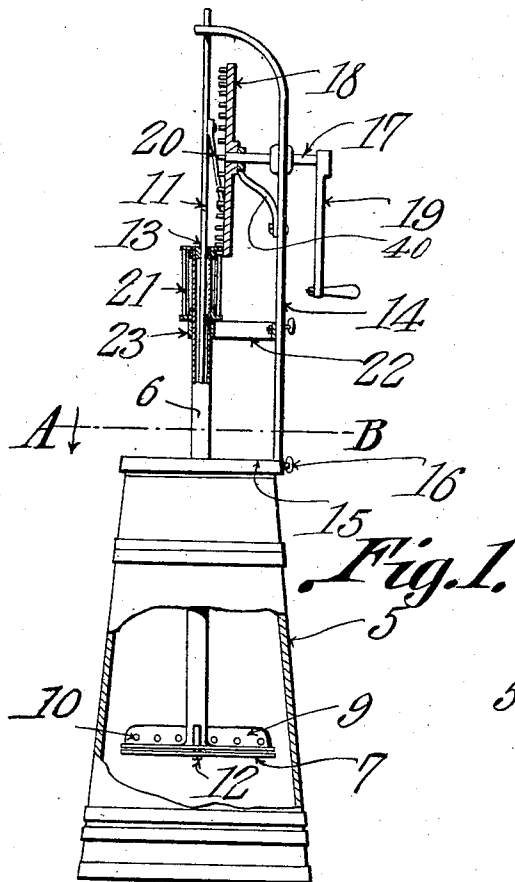


J. L. DANGERFIELD.
CHURN.
APPLICATION FILED JAN. 25, 1910.

968,135.

Patented Aug. 23, 1910.



Witnesses
E. J. [Signature]
Francis Boyle

Inventor
John L. Dangerfield.
By *Cash & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN L. DANGERFIELD, OF PRINCETON, WEST VIRGINIA.

CHURN.

968,135.

Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed January 25, 1910. Serial No. 540,009.

To all whom it may concern:

Be it known that I, JOHN L. DANGERFIELD, a citizen of the United States, residing at Princeton, in the county of Mercer and State of West Virginia, have invented a new and useful Churn, of which the following is a specification.

This invention relates to churns and has for an object to provide a simple actuating mechanism that will simultaneously rotate and reciprocate the churn dasher.

Another object is to provide an actuating mechanism that may be applied to any churn and will be composed of a few simple parts that will not easily get out of order.

To obtain the above ends the invention consists of certain novel details of construction and combination of parts which will be hereinafter more fully described and claimed.

In the accompanying drawing forming part of this specification, Figure 1 is a side elevation of a churn equipped with my improved actuating mechanism, the latter being shown partly in section. Fig. 2 is a front elevation of a churn equipped with the improved actuating mechanism. Fig. 3 is an enlarged plan view of the dasher head. Fig. 4 is a sectional view taken on the line A—B Fig. 1. Fig. 5 is a fragmental elevation of the reciprocating rod and the bracket in which it is mounted.

Referring now to the drawing in which like characters of reference designate similar parts in the views shown, 5 designates a churn receptacle of the usual and well known kind. Within the receptacle is carried a dasher comprising a tubular shaft 6 and a movable disk like head 7 the latter being pierced by a plurality of openings 8 which permit the flow of milk through the head when the latter is reciprocated. Disposed upon the top face of the dasher head is a plurality of radial blades 9 which are provided with suitable openings 10 which permit the flow of milk through the blades when the dasher is rotating. Carried within the bore of the tubular shaft 6 is a rod 11 which is threaded on its lower extremity and provided with a retaining nut 12 that holds the head 7 in position, the rod being

rigidly secured to the bore of the shaft by friction collars 13 or other equivalent means.

It is not intended to limit the construction of the dasher to the form above described as the above is of the ordinary kind and forms no part of the present invention. For actuating a dasher of this kind in a churn receptacle I provide a mechanism which will now be described. Mounted upon the top of the receptacle is a bracket 14 having at its lower end a circular collar 15 which is adapted to be tightly wedged upon the outer periphery of the churn and secured in position thereupon by a set screw 16. The upper end of the bracket is provided with a suitable bearing to engage the free end of the rod 11 as shown. Journaled in a suitable bearing in the bracket 14 is a horizontal stub shaft 17 having keyed or otherwise rigidly secured to one end a gear wheel 18, and is suitably formed at its opposite end to receive a crank 19 or other suitable actuating means. A pitman 20 is swiveled at one end on a spoke of the actuating gear and at its opposite end on the dasher rod 11 above the center of the gear, this pitman imparting a reciprocating movement to the dasher rod when the gear 18 is rotated.

A pinion 21 is keyed or otherwise rigidly secured upon the dasher shaft 6 and is of such length as to be in mesh with the teeth of the actuating gear at every point in the stroke of the dasher shaft. The teeth of the pinion 21 must be of such size as to be easily slid vertically between the teeth of the gear 18 when the latter is rotated without binding of the parts, and without lost motion during this movement. A particular method of accomplishing this is to form the teeth of the pinion 21 of pins as shown and the teeth 18 of the gear of lugs or stub pins so spaced apart that any particular tooth when in mesh with the pinion will not completely fill up the space between the pinion teeth, this construction giving a little play to the parts to prevent any tendency to bind when in operation. It is not intended to limit the construction of either the actuating gear or pinion to the form illustrated and any form of gear that will affect the desired

movement of the parts may be employed. An arm 22 is secured at one end to the bracket 14 and is provided at its free end with a suitable bearing box 23 for retaining the dasher shaft 6 and maintaining the latter in proper position. The pinion 21 rests upon the arm 22, the arm 22 thus constituting a means for upholding the dasher within the receptacle in which it is mounted.

As shown in Fig. 5, the rod 11 may be provided with a plurality of openings 40. These openings 40 are adapted to receive successively one end of the pitman 20, so that the dasher may be raised or lowered to accommodate a large or a relatively small churning. As seen in Fig. 2 one of the arms 50 of the gear wheel 18 is provided with a plurality of openings 60, adapted to receive successively the other end of the pitman 20.

By this construction the length of the stroke which is made by the dasher of the churn, may be varied to suit the exigencies of the particular case.

From the foregoing description taken in connection with the accompanying drawing it is thought that the construction and operation of my invention will be easily understood without a more extended explanation it being understood that various changes in the form, proportion, and minor details of construction may be made within the scope of what is claimed.

As seen best in Fig. 1, the structure includes an inclined brace, the lower end of which is secured to the bracket 14, the upper end of which is adapted to serve as a bearing for the stub shaft 17. Moreover, the upper end of this inclined brace 40, bears against the gear wheel 18, and serves to

maintain the same in mesh with the pinion 21.

What is claimed is:—

A device of the class described comprising a bracket; means upon the lower end of the bracket for securing the same to a churn receptacle; a tubular shaft; a dasher head disposed upon the lower end of the shaft; an arm secured at one end to the bracket and at the other end provided with a bearing to receive the tubular shaft; a pinion secured to the tubular shaft and resting upon the arm; a rod journaled at its upper end in the bracket, the rod being extended through the shaft and through the dasher head; means upon the lower end of the rod for binding the dasher head against the tubular shaft; friction collars uniting the rod with the tubular shaft against independent movement; a stub shaft journaled for rotation in the bracket; a gear wheel upon the stub shaft and meshing slidably with the pinion to secure both a rotary movement and a longitudinal reciprocation of the tubular shaft and the dasher rod; an inclined brace secured at its lower end to the bracket and having its upper end constituting a bearing for the stub shaft, the brace bearing against the gear wheel to hold the same in mesh with the pinion; and a pitman adjustably connecting the rod and the gear wheel.

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

JOHN L. DANGERFIELD.

Witnesses:

JOHN R. PENDLETON,
EULALIA SCOTT.