W. H. BROWN.

CHURN.

APPLICATION FILED MAY 27, 1909.

948,004. Patented Feb. 1, 1910.

Fig. 1.

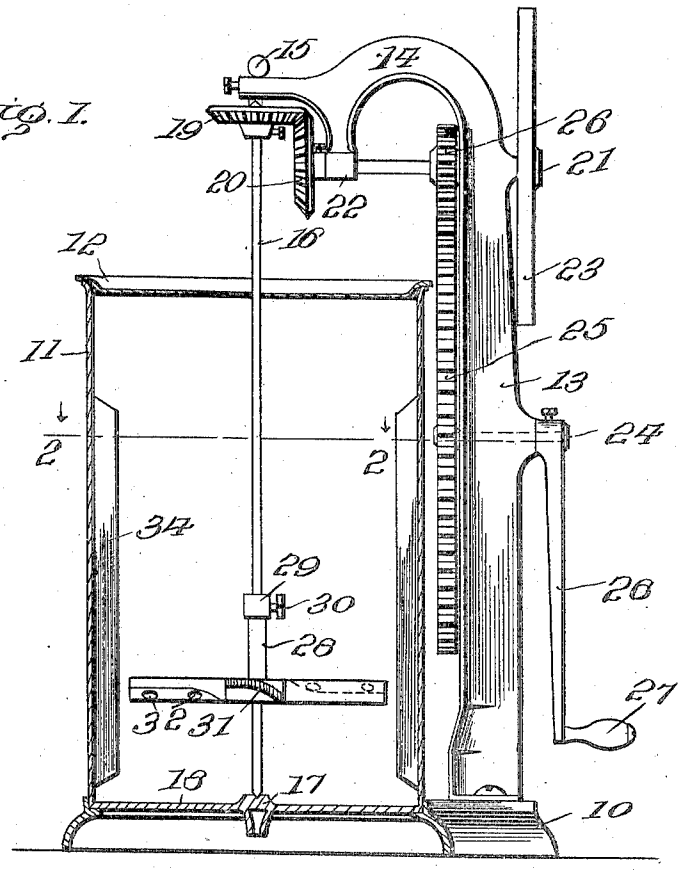


Fig. 2.

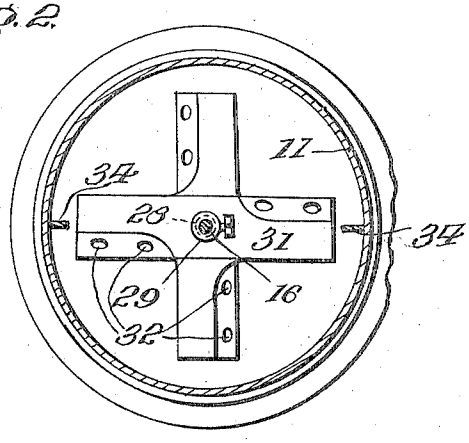
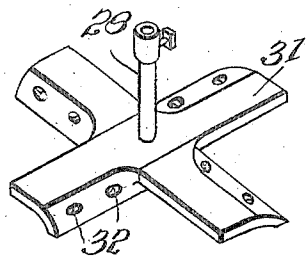


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM H. BROWN, OF NEWARK, OHIO.

CHURN.

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Application filed May 27, 1909. Serial No. 498,657.

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention relates to churns and has particular reference to an improvement upon churns of the rotary type.

An object of this invention is to provide a novel form of dasher whereby the liquid will be thoroughly agitated and the cream and the butter will be quickly and thoroughly separated during the operation of the same.

The invention further contemplates an improved dasher which will force a downward flow of the liquid and will thereby cause the violent agitation of the same as it is kept in constant circulation upwardly through the body portion of the churn thereby causing the complete and quick separation of the butter from the cream.

The invention still further aims at the production of a churn which embodies the above advantages and which at the same time is of simple construction and operation and one which may be quickly cleaned without the disassembling of the parts of the same.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a vertical section through the churn body disclosing the dasher mounted in the same and the operating mechanism connected thereto. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1, and Fig. 3 is a detailed perspective view of the improved dasher which is employed in connection with the device.

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 10 designates a suitable base upon which the body 11 of the churn is mounted, the body 11 comprising a cylindrical bottom which is formed of any suitable material, preferably metal, and which is provided at its upper open end with a cover 12. The base 10 carries an upwardly extended standard 13 which is mounted adjacent the cylindrical body 11 and which is provided with an inwardly extended arched arm 14 which overhangs the body 11 and which carries at its inner extremity a suitable bearing 15 which supports the upper extremity of an operating shaft 16. The operating shaft 16 extends downwardly and centrally through the cover 12 into the body 11 where it is mounted in a suitable bearing 17 positioned upon the bottom 18 of the churn. The operating shaft 16 is actuated by the provision of a beveled gear 19 which is rotated upon the upper end thereof adjacent the bearing 15 and which is meshed with a second beveled gear 20 keyed upon the inner extremity of a counter-shaft 21 which is rotatably disposed in the upper end of the standard 13 and a depended journal 22 which is carried intermediately upon the arm 14. The counter-shaft 21 extends outwardly from the face of the standard 13 and is provided with a balance wheel 23 for the purpose of retaining the uniform rotation of the counter-shaft 21. A main shaft 24 is journaled through the standard 13 at a point intermediately thereof and is provided upon its inner extremity with a large gear 25 which meshes with a pinion 26 disposed upon the counter-shaft 21 inwardly of the standard 13. The outer extremity of the shaft 24 is provided with a crank-arm 26 which serves as a means for rotating the shaft 24 and is provided with a handle 27 of any suitable formation for engagement by the hand of the operator to facilitate the operation of the crank-arm 26.

The operating shaft 16 is provided intermediately with a dasher which comprises a sleeve 28 which carries upon its upper end a collar 29 suitably retained upon the operating shaft 16 by the employment of a suitable set-screw 30. The lower end of the sleeve 28 is provided with a plurality of radially extended arms 31 which are formed of metal being curved downwardly and longitudinally at their edges in order to form a plurality of curved blades, the flanged or downturned portions of the same being provided with apertures 32 for the purpose of permitting of the passage of air therethrough and a portion of the liquid.

For the purpose of damming the liquid during the rotation of the dasher and to prevent the revolving of the same in the body, the churn is provided with a plurality of breakers 34 which are positioned against the inner sides of the body 11 and extended cen-

trally therefrom to a point distanced from the outer extremities of the dasher arms 31.

The operation of the device is as follows:—The crank arm 26 is rotated to actuate the counter-shaft 21 through the medium of the gear 25 and pinion 26 to revolve the shaft 16 through the medium of the beveled gears 19 and 20 and to thereby rotate the dasher. As the dasher is rotated the arms 31 of the same are engaged through the liquid, and owing to the provision of the flanges the liquid is given a downward movement causing the liquid to be forced downwardly and violently through the churn body 11. During this operation of the dasher the liquid is carried about the same and such action is broken by the provision of the breakers 34 which prevent the movement of the liquid in the body and cause the same to flow centrally under the action of the dasher which in turn forces the liquid downwardly against the bottom 18. It is thus observed that in a device of this construction the liquid will be caused to travel downwardly at the central portion of the body 11 and there be permitted to rise adjacent the wall of the same. This circulation of the liquid will be further increased by the provision of the breakers 34 which will prevent the movement of the entire mass in a circle. Should a tendency to form a vacuum be created by the rotation of the dasher the openings 32 through the flanges admits air to the under faces of the arms 31 to thereby prevent the formation of such vacuum and to permit of the flow of a quantity of the liquid therethrough under the pressure exerted by the train of gears which is propelling the same.

Having thus described the invention what is claimed as new is:—

1. A churn including a body, a shaft mounted vertically in said body, a train of gears carried by the body to actuate said shaft, and a dasher disposed upon the lower end of said shaft, said dasher comprising a pair of arms crossed at right angles intermediately of their lengths and secured at such points of intersection to said shaft, the two edges of said arms being horizontally disposed, and the rear edges thereof being curved downwardly to form pockets to receive liquid disposed in the body and to deflect the liquid downwardly, the downwardly curved portions of said arms being apertured to admit of the escape of air from the pockets.

2. A churn including a dasher comprising a pair of crossed arms being bent longitudinally to form angular pockets for receiving and deflecting a liquid, said arms being apertured to admit of the escape of air from the pockets and to prevent the backward suction of the liquid which is passed through the same.

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

WILLIAM H. BROWN.

Witnesses:
MARGARET WILLET,
A. J. MORRIS.