No. 755,373. PATENTED MAR. 22, 1904.

E. M. KYLE.

DOUBLE RECIPROCATING DASHER CHURN.

APPLICATION FILED OCT. 24, 1903.

NO MODEL.

Fig. 1

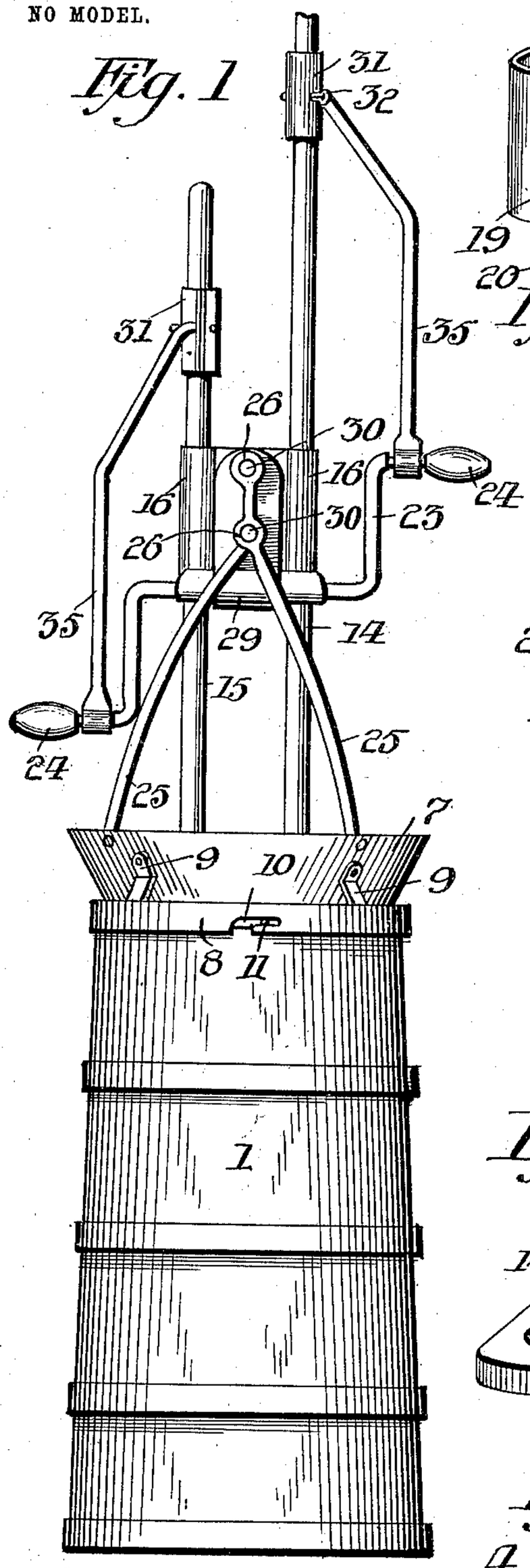


Fig. 3.

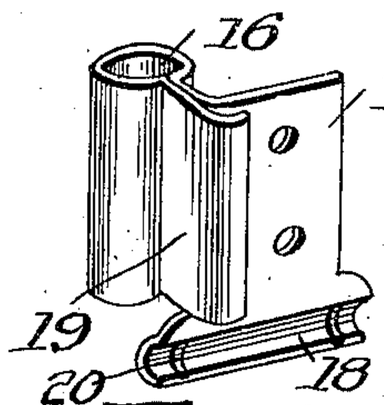


Fig. 4

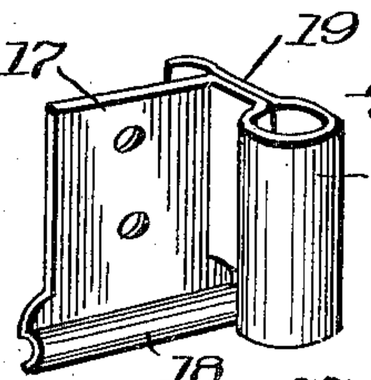


Fig. 5.

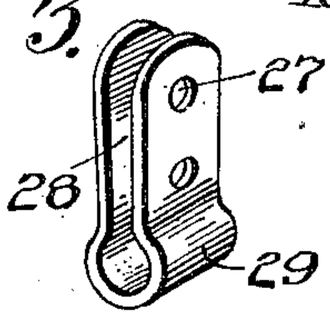


Fig. 6.

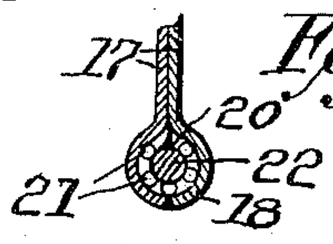


Fig. 2.

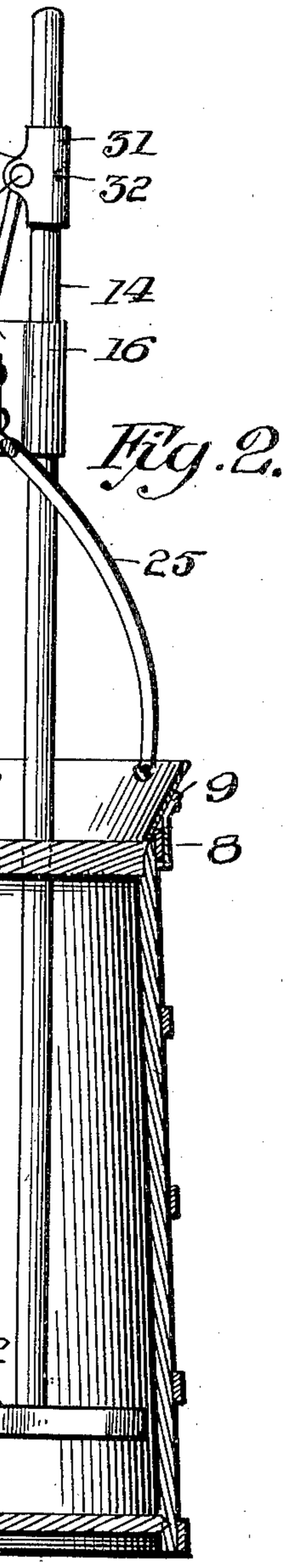


Fig. 7.

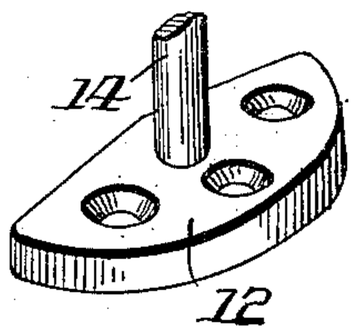
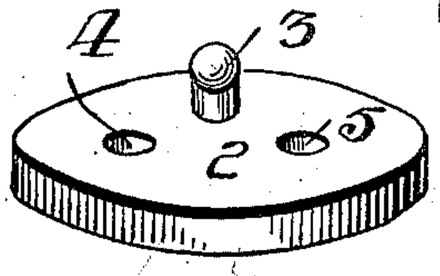


Fig. 8.



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No. 755,373. Patented March 22, 1904.

UNITED STATES PATENT OFFICE.

EDMUND M. KYLE, OF NORTH BELLE VERNON, PENNSYLVANIA.

DOUBLE-RECIPROCATING-DASHER CHURN.

SPECIFICATION forming part of Letters Patent No. 755,373, dated March 22, 1904.

Application filed October 24, 1903. Serial No. 178,432. (No model.)

To all whom it may concern:

Be it known that I, EDMUND M. KYLE, a citizen of the United States of America, residing at North Belle Vernon, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Double-Reciprocating-Dasher Churns, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in churns, and relates more particularly to that type known as "double-reciprocating-dasher churns," the invention having for its object the provision of novel means for operating the two dashers simultaneously and alternately in the receptacle, and, furthermore, to provide means whereby the operating-handles may be rotated to impart a reciprocatory movement to the dashers or operated with a double reciprocating movement, as may be desired.

My invention is an improvement on my Patent No. 713,891, issued November 18, 1902; and one of the objects of the present invention is to materially simplify and cheapen the cost of construction.

Briefly described, the invention comprises a churn-body or receptacle in which a pair of dashers are adapted to be reciprocated alternately. The driving means in the present invention for reciprocating these dashers comprises a pair of cranks carried by a common shaft, which shaft is journaled in a bearing carried by the coupling member through which both of the dasher-rods operate, this coupling member being supported by brace-rods attached at their lower end to the frusto-conical shield, the lower edge of which fits into the upper end of the churn-body or receptacle and which carries a rim that fits around the outer side of the churn-body or receptacle, at the top thereof, and locks the shield and other parts in proper relation. The cranks are set at the half with respect to each other and are connected by the coupling rods or links to the dasher-rods.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this application, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a side elevation of a churn constructed in accordance with my invention. Fig. 2 is a central vertical sectional view thereof. Figs. 3 and 4 are detached detail perspective views of the two members of the coupling through which the respective dasher-rods operate. Fig. 5 is a detached detail perspective view of the clamp or clevis member of the coupling. Fig. 6 is a transverse vertical sectional view of a part of the coupling and of the shaft. Fig. 7 is a detail perspective view of one of the dashers, showing the dasher-rod broken away. Fig. 8 is a detail perspective view of the lid of the churn.

To put my invention into practice, I provide a churn-body or receptacle 1, which may be of any desired form of construction in the main and is provided with a suitable lid 2, having a handle 3 and openings 4 5 therethrough, this lid being adapted to fit neatly in the upper end of the churn-body or receptacle. In practice I have generally constructed the churn-body so that the lid when in position lies slightly below the upper end of the staves of the churn-body or receptacle, which extending portion has a bevel-seat 6, adapted to receive the lower end or edge of a substantially frusto-conical shield 7, which is carried by a securing band or hoop 8, being suitably connected thereto, as by straps 9, formed integral with the securing band or hoop 8 and riveted or otherwise suitably secured to the shield 7. The securing band or hoop 8 fits neatly around the uppermost hoop of the churn-body or receptacle and is locked in position by providing the hoop 8 with a bayonet-shaped slot 10 for engagement with a pin 11, carried by the uppermost hoop of the churn-body or receptacle.

The dashers 12 are substantially semicircular in shape and are suitably connected to the dasher-rods 14 15. These dasher-rods reciprocate through a coupling which guides the same in their vertical movement and carries

the driving means. For convenience and cheapness of manufacture this coupling is preferably made in two sections or members similar in construction and each comprising a sleeve 16, apertured plate 17, bearing 18, and overlapping flange-plate 19. These two members or sections of the coupling are placed together, with the plates 17 overlapping one on the other and the free edge of each plate 17 received back of the flange on the plate 19. The section 18, forming a part of the bearing for the drive-shaft, is provided with ball-races 20 to receive antifriction-balls 21, whereby to decrease friction with the drive-shaft 22. This drive-shaft 22 is provided with cranks 23, set at the half with respect to each other and the drive-shaft and provided with suitable handles 24. One sleeve 16 receives dasher-rod 15, and the other sleeve 16 receives dasher-rod 14, and the coupling is supported at each side by means of brace-rods 25, brought together and joined at their upper ends and provided with eyes 26, that register with the openings in plates 17 and also with openings 27 in the side straps 28 of a clevis 29, which straddles the plates 17 and members 18 of the coupling, as seen in Figs. 1 and 2, and the parts are securely fastened and held by bolts or rivets 30.

To the dasher-rods 14 15 are secured near their upper ends sleeves 31, which may be securely held by pins 32, passed through the sleeves and dasher-rods, or in other desirable manner. The sleeves are formed of a sheet of material bent into circular form, with the edges brought together and bent outwardly, and these edges are provided approximately central of their length with lugs 33, apertured to receive the upper end 34 of the links 35, which connect the sleeves to the cranks 23, the said links having strap ends engaging said cranks. The upper ends of the links are secured to the sleeves 31 by bending said ends at right angles and passing them through the apertured lugs and then heading the ends. It will of course be evident that this particular construction may be varied. In practice the links are usually of the form shown herein, a portion of the same being straight and the upper portion bent in toward the dasher-rods in order that a better pivotal connection may be had with the sleeves 31. The lower ends of the brace-rods 25 are preferably riveted to the shield 7, and when the shield is lifted or elevated from the churn-body or receptacle the coupling slides up on the dasher-rods unless the latter are lifted with the lifting of the shield.

In operation it will be observed that when the cranks are rotated one of the dasher-rods and dasher will be driven downward while the other is being elevated, and vice versa. The cranks may, as will be observed, be reciprocated to impart the same movement to the dasher-rods and dashers. The links and cranks will always retain their relative position toward one another irrespective of the position or direction in which they are rotated or reciprocated, and two persons may operate the churn, each actuating one crank. The lower edge of the shield extending into the churn-body or receptacle and the shield being rigidly secured to the securing band or hoop embracing the churn-body or receptacle, the coupling is always properly alined with the openings 4 5 in the lid, and the provision of the antifriction-bearings in the bearing makes the cranks easy to operate.

In the accompanying description of my invention I have described and have shown a practical embodiment of the invention as it has been practiced by me; but it will be evident that various slight changes may be made in the details of construction without departing from the general spirit of the invention.

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

1. A churn comprising a churn-body or receptacle having a lid provided with openings, a shield fitted in the upper end of the churn-body or receptacle and secured to the periphery of said churn-body, brace-rods supported by said shield, a coupling supported by said brace-rods and provided with a pair of sleeves, a shaft journaled in said coupling and having a pair of cranks, dasher-rods operating through said sleeves and carrying dashers operating in the churn-body, and links pivotally connected to the cranks at one end and to the dasher-rods at the other end, substantially as described.

2. A churn comprising a churn-body or receptacle having a lid provided with a pair of openings, a frusto-conical shield fitted in the upper end of the churn-body or receptacle, brace-rods secured at their lower ends to said shield, a coupling secured to the upper ends of said brace-rods and having sleeves alining with the openings in the lid, a shaft journaled in the coupling and provided with antifriction-bearings, cranks carried by said shaft, and links connected at one end to the cranks and at their other end to dasher-rods, and dasher-rods operating through said sleeves and openings in the lid, and provided on their lower end with dashers, substantially as described.

3. A churn comprising a churn-body or receptacle provided with a lid having a pair of openings, a supporting-shield engaging in the upper end of the churn-body or receptacle, a securing-band connected to said shield and embracing the periphery of the churn-body at the top thereof, a coupling supported from the shield and provided with a pair of sleeves alining with the openings in the lid, dasher-rods operating through said sleeves and open-

ings and provided with dashers on their lower ends, a shaft journaled in the coupling and having cranks on its ends set at the half with respect to each other, sleeves secured to the dasher-rods above the coupling, and links connecting said sleeves to the respective cranks, substantially as described.

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

EDMUND M. KYLE.

Witnesses:
SYLVESTER LEHEW,
ALFRED HENDRICKSON.