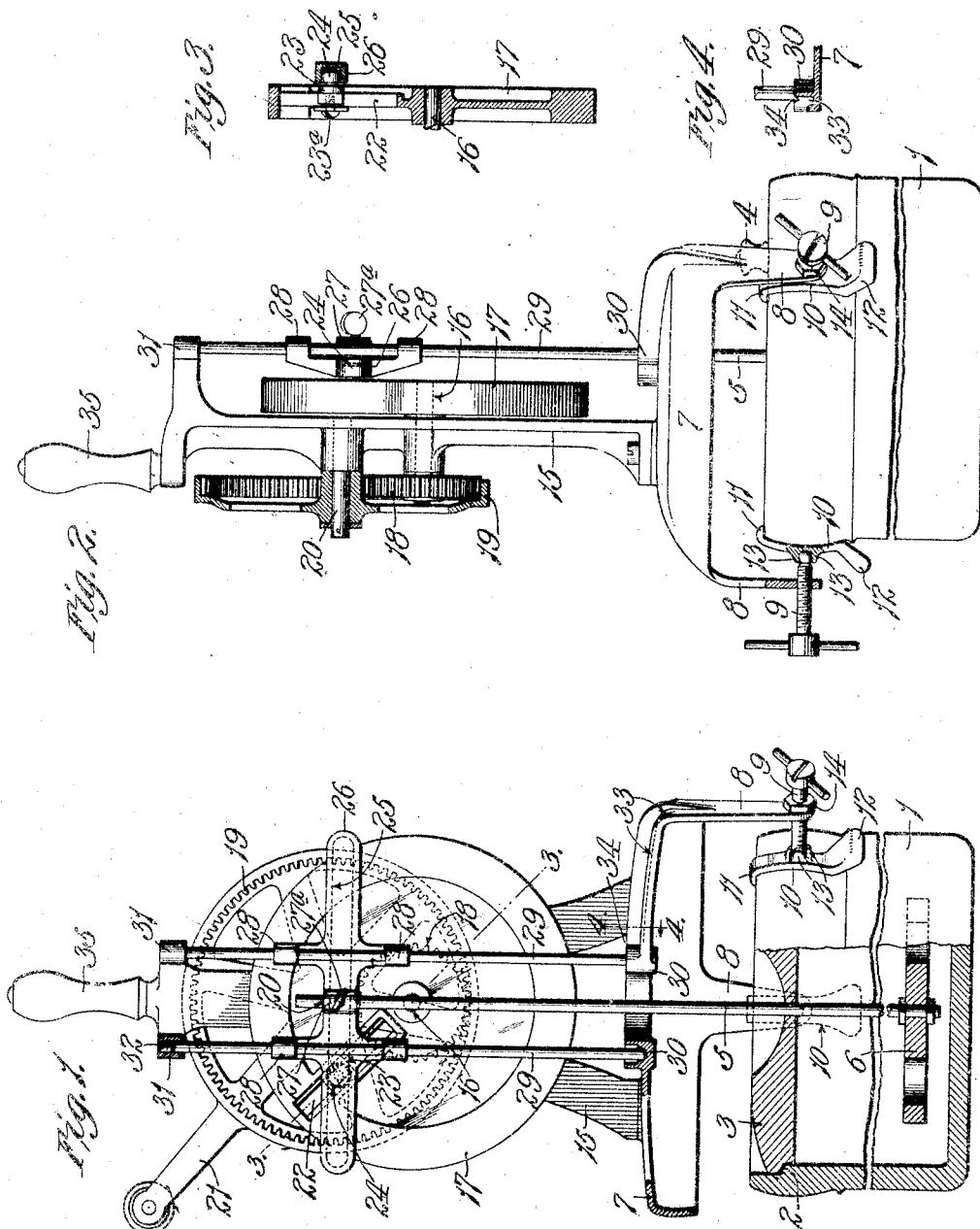


J. R. GILDA.
CHURN.

APPLICATION FILED JULY 5, 1911.

1,023,075.

Patented Apr. 9, 1912.



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UNITED STATES PATENT OFFICE.

JOHN R. GILDA, OF ST. LOUIS, MISSOURI.

CHURN.

1,023,075.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed July 5, 1911. Serial No. 636,834.

To all whom it may concern:

Be it known that I, JOHN R. GILDA, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have
5 invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof, in which—

13 Figure 1 is a front elevational view, partly in vertical section, of a churn constructed in accordance with and embodying my invention; Fig. 2 is a side elevational view, partly in section, of the same; Fig. 3 is a
15 detail sectional view on the line 3—3, Fig. 1, illustrating particularly the means for varying or adjusting the vertical travel of the cross-head and the stroke of the dasher carried by the cross-head; and Fig. 4 is a
20 detail sectional view on the line 4—4, Fig. 1, illustrating particularly the means for draining surplus lubricant away from the top of the liquid-receptacle.

This invention relates to certain new and
25 useful improvements in churns, and more particularly to that class of churns having reciprocatory dashers, such as shown and described in United States Letters Patent No. 989,776, dated April 18, 1911.

30 The objects of my invention are to provide a dasher-operating mechanism for churns of the kind stated, in which not only is the dasher adjustable with relation to its operating mechanism to accommodate liquid-
35 receptacles of various or different depths, but in which also the stroke of the dasher is adapted to be adjusted or varied—shortened or lengthened—to accommodate in a particular liquid-receptacle different quantities of the liquid (usually milk or cream)
40 to be churned; to provide a dasher-operating mechanism for churns of the kind stated which may be used in connection with, and which may be readily, easily, and quickly
45 arranged and held in, or removed from, operative position on, liquid-receptacles of various sizes; to provide a dasher-operating mechanism for churns of the kind stated in which certain parts (more fully herein-
50 after described) of the dasher-operating mechanism may be maintained in a thoroughly lubricated condition without any liability of such lubricant entering the liquid-receptacle to the consequent damage or injury
55 of its contents; to provide a churn of the kind stated in which the dasher-operat-

ing mechanism is spaced away from the top of the liquid-receptacle and in which the lid for the liquid-receptacle may be raised and the contents of said receptacle inspected
60 without necessitating or requiring the removal of the dasher-operating mechanism; and to improve generally upon churns of the kind stated.

With these objects in view, my invention
65 resides in the novel construction, arrangement, and combination of the several parts of my dasher-operating-mechanism and in the novel arrangement and combination of the same with a liquid-receptacle, all as will
70 herein be described and afterward pointed out in the claims.

In the drawings, wherein like reference numerals refer to like parts throughout the several views, 1 indicates a receptacle for
75 the liquid, such as milk or cream, to be churned, this receptacle being of any suitable material and preferably cylindrical in shape. Receptacle 1 is preferably provided adjacent its upper inner edge with an an-
80 nular shoulder or off-set portion 2 adapted to provide a bearing or support for a lid or closure 3 for the open end of receptacle 1 adapted to prevent the contents of the receptacle from splashing out during the op-
85 eration of churning. Cover 3 is provided with a suitable manipulating-knob 4 and also with a central aperture through which a dasher-rod 5 having a suitable dasher 6
90 secured on its lower end is adapted to pass and in which said dasher-rod 5 is adapted to move on the reciprocation thereof, as will be well understood. As shown particularly in Fig. 1, cover 3 is preferably formed or
95 made slightly concaved on its upper or top surface around said central aperture, so that, should any of the contents of said receptacle 1 pass or be splashed up through said central aperture during the act or operation of
100 churning, the same will be drained back into said receptacle.

7 indicates what might be called the base or supporting-member upon which the dasher-operating mechanism is mounted. This base or supporting-member 7 is pro-
105 vided, as shown particularly in Fig. 1, with a plurality of depending supporting-legs 8, of which there are preferably three, arranged equidistantly apart, each of said legs being provided adjacent its lower end with
110 a threaded opening adapted to receive an adjusting-screw 9 having pivotally mounted

on its inner end a clamping-member 10 adapted to operatively engage the upper rim of receptacle 1 and thus maintain said base or supporting member 7 in operative position above and spaced away from said receptacle. As shown clearly in Figs. 1 and 2, each of said clamping members 10 preferably comprises a hook-shaped portion 11 adapted to extend over and engage the rim of the liquid-receptacle and a comparatively heavy lower portion 12 adapted to act as a counter-balance to maintain the clamping-member in an upright position with the hook-shaped portion 11 on top ready at all times to properly engage with said liquid-receptacle; each of said clamping-members being also provided on its outer face and at a point above the center of weight thereof with a plurality of prongs or projections 13 adapted to be bent over so as to embrace the ball-shaped end on the screw 9. By this construction, a strong and simple swiveled connection is obtained between the adjusting-screws and their clamping-members 10.

Preferably the diametrical width, as it might be called, of base 7 is such that the same with its depending legs 8 may accommodate, or be arranged in operative position on, liquid-receptacles of various diameters, whereby the said supporting base 7 and the dasher-operating mechanism mounted thereon may be used in connection with liquid-receptacles of various sizes, it being only necessary to adjust the said adjusting-screws 9 with their clamping-members 10 to fit the particular liquid-receptacle upon which it is desired to operatively arrange said base 7 and the dasher-operating mechanism mounted thereon. It will also be noted that, after said base 7 and the dasher-operating mechanism mounted thereon have been arranged upon, and the said adjusting-screws 9 and their clamping-members 10 have been adjusted to fit, any certain sized or particular liquid-receptacle, two of said adjusting-screws are preferably releasably locked or maintained in such adjusted positions by any suitable means, preferably such as the jam-nuts 14 shown particularly in Figs. 1 and 2, the other or remaining adjusting-screw being unlocked, as it might be said, in said adjusted position. Due to this construction, it will be further noted that, should it afterward be desired to remove or dismount said base 7 and the dasher-operating mechanism thereon from operative position on said receptacle, it is merely necessary to unscrew said unlocked adjusting-screw 9, so as to loosen or disengage its clamping-member 10 from said receptacle 1, when said base and the dasher-operating mechanism thereon may be readily dismounted, and that, when it is again desired to operatively mount the base 7 with its dasher-operating mechanism upon said

receptacle, it is merely necessary, after mounting said base 7 with its operating mechanism on the receptacle and arranging said locked clamping-members 10 in proper position on the rim of said receptacle, to manipulate and tighten said loosened or unlocked adjusting-screw, so as to again also clamp its said clamping-member 10 upon said rim. It will further be noted that in my new construction the said supporting-legs 8 are preferably elongated, as it might be said, or of such a length that, when said base 7 with its dasher-operating mechanism is arranged in operative position on a receptacle 1, the same will be spaced above the top of said receptacle, whereby a space is provided between said base and the top of said receptacle in which the cover 3 may be vertically raised, should it be desired to inspect the contents of the receptacle, without requiring or necessitating the removal from said receptacle of said base 7 and the dasher-operating mechanism mounted thereon.

The dasher-operating mechanism comprises a suitable standard 15 mounted upon said base 7 and having suitably journaled therein a short horizontally-disposed shaft 16, as shown particularly in Fig. 2. Mounted upon and suitably secured to one end, which we will call the forward end, of the shaft 16 is a crank wheel 17, and mounted upon and suitably secured to the rearward end of said shaft is a pinion 18, said pinion meshing with an internal gear wheel 19 journaled upon a stub shaft 20 mounted in and projecting rearwardly from said standard 15 at a point above said shaft 16, as shown clearly in Fig. 2. An operating handle 21 is, as shown clearly in Fig. 1, provided on said gear wheel 19, and a suitable handle 22 is preferably arranged on the top of said standard 15, whereby the dasher-operating mechanism and the liquid-receptacle 1 upon which the same is mounted may be firmly held during the act of churning, as will be clearly understood. The crank wheel 17 is preferably provided with a somewhat heavy rim, it being adapted to act as a fly wheel when the dasher-operating mechanism is being operated, and is also provided with a radially-disposed slot 22, in which slot is adjustably mounted a block 23 having a clamping-screw 23^a and carrying a roller 24 adapted to engage and roll in a horizontally-disposed groove 25 formed on the rearward face of a cross-head 26. This cross-head 26 is, as shown particularly in Fig. 1, provided with a plurality of bearing-lugs 28, which are adapted to slidably fit on or engage with a pair of vertically-disposed guide-rods 29 having their lower ends removably seated in preferably cup-shaped bearings 30 formed on said base or supporting-member 7 and their upper ends removably supported

in arms 31 projecting forwardly from said standard 15 adjacent the upper end thereof. Short screws 32 are preferably threaded into said arms 31, as shown clearly in Fig. 1, above the upper ends of said rods 29, so as to removably hold said rods firmly in position. Said cross-head 26 is centrally provided, as also shown in Fig. 1, with a perforated boss 27 adapted to receive said dasher-rod 5 and in which said dasher-rod 5 is adjustably held in any suitable manner, as by means of a set-screw 27^a. In operation, on the rotation of said gear wheel 19, the rotary movement thereof will be imparted to said pinion 18, and through said shaft 16 to said crank wheel 17, and on the rotation of said crank wheel 17, the roller 24 engaging said groove 25 in said cross-head 26 will impart a reciprocatory movement to said cross-head 26, and consequently also to the dasher-rod 5 and its dasher 6 connected to or carried by said cross-head, as will be clearly understood.

Not only is it desirable in churns of the kind stated that the dasher be adjustable relatively to its operating mechanism, so that the dasher-operating-mechanism may be used with or accommodate receptacles of various or different depths, such adjustment being particularly provided for by the said set-screw 27^a, as will be seen, but I have found that it is also desirable in churns of the kind stated that the stroke of the dasher-rod be such that, on the end of the up-stroke of the dasher-rod, the lower face of the dasher shall preferably be flush with, or but slightly above, the surface of the liquid to be churned in the receptacle 1, so that there shall be no lost motion between the dasher and the contents of said receptacle and so that the dasher on the down-stroke will enter such contents without much splashing, and, for this reason, that the stroke of the dasher be also adjustable relatively to the quantity of the contents of said receptacle. By having the stroke of the dasher-rod so adjustable, it will be seen that the stroke of the dasher-rod may be varied—shortened or lengthened—so that, depending upon the quantity of the contents of the liquid-receptacle, the lower face of the dasher will, on the end of the up-stroke of the dasher-rod, be flush with, or but slightly above, the surface of said contents. Now in my construction it will be seen that by adjusting said block 23 radially or inwardly or outwardly from the center of said crank wheel 17, the stroke of the dasher-rod 5 will be shortened or lengthened, for, as will be clear, the nearer said block 23 may be to the center of said crank wheel 17, the less the travel of said roller 24 in said groove 25, and likewise the less the reciprocatory travel or stroke of said cross-head and of said dasher-rod 5 and dasher 6 carried thereby. It will

further be seen that this adjustment may be easily and quickly had by merely unscrewing said clamping-screw 23^a and moving said block 23 inwardly or outwardly in said slot 22, as may be desired, the clamping-screw 23^a being afterward again tightened. By this adjustment, not only will it be seen, as stated, that the stroke of the dasher may be so varied or adjusted—lengthened or shortened—to accommodate varying quantities of liquid in said receptacle, so that, on the end of the up-stroke of the dasher-rod 5, the lower face of dasher 6 may be flush with, or slightly above, the surface of the liquid in said receptacle 1, but it will further be seen that, since the dasher-rod 5 makes one complete stroke—up and down—for each revolution of said crank wheel 17, the shorter the stroke of said dasher-rod, the less power will be required to reciprocate or operate the same and the less the relative reciprocatory speed of the dasher-rod 5 and its carried dasher 6. In order that said cross-head 26 carrying said dasher-rod 5 may reciprocate or slide on said guide rods 29 without undue friction, said rods 29 are, as is usual, well lubricated, but heretofore such lubricant has frequently escaped into the receptacle 1, to the consequent damage or injury of its contents. In my construction, however, to obviate this, the said rods 29 being mounted at their lower ends, as described, in the cup-shaped cavities or bearings 30, these cavities will receive and collect any surplus or excess lubricant from said rods 29 and thus prevent the same dripping or running down therefrom into said receptacle 1; and, as a further precaution, I prefer to provide on the upper surface of said supporting-member or base 7 adjacent each of said cup-shaped bearings or cavities 30 a channel-shaped groove 33 inclining downwardly and extending outwardly away from the center of said receptacle, each of said cup-shaped bearings 30 being preferably provided in its upper edge, as shown particularly in Fig. 4, with a small notch 34 arranged directly above or in alinement with its said groove 33, so that, should said bearings overflow, the surplus lubricant will be directed into said grooves 33 and thence downwardly and outwardly away from said receptacle 1. In my construction, it will further be noted that said guide-rods 29, being, as it might be said, loosely mounted on said standard and base, may be readily removed and replaced whenever necessary or desired.

From the foregoing, it will be seen that my new churn is comparatively simple, may be easily constructed, and fulfils in every respect the objects hereinbefore stated.

I am aware that minor changes in the arrangement, construction, and combination of the several parts of my new dasher-op-

erating mechanism and in the arrangement and combination of the same with a liquid-receptacle may be made and substituted for those herein shown and described without
5 in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

- 10 1. A churn or the like comprising a liquid-receptacle, a dasher reciprocable in said receptacle, means adapted to reciprocate said dasher in said receptacle, a base upon which said means is mounted, elongated supporting-legs depending from said
15 base, and liquid-receptacle attaching-members on said legs secured to said receptacle, said legs and their said attaching-members being adapted to support said base above and away from the top of said receptacle;
20 substantially as described.
2. A churn or the like comprising a liquid-receptacle open at one end, a cover in said receptacle adapted to removably close
25 the open end thereof and having a laterally-disposed aperture, a dasher reciprocable in said receptacle, a dasher-rod to which said dasher is connected passing through and movable in said cover-aperture, a
30 dasher-operating-mechanism supporting-base, means mounted on said base to which said dasher-rod is connected adapted to reciprocate said dasher-rod and its carried dasher, elongated supporting-legs depending
35 from said base, and liquid-receptacle attaching means on said supporting-legs secured to said receptacle, said supporting-legs and attaching-means being adapted to support said base above and away from the
40 top of said receptacle, thereby providing a space between the top of said receptacle and said base wherein said cover may be vertically raised on said dasher-rod; substantially as described.
- 45 3. An operating-mechanism for churns and the like comprising a reciprocable dasher, means for reciprocating said dasher, a base upon which said means is mounted, elongated supporting-legs depending from
50 said base, and liquid-receptacle attaching-means adjustably mounted in said legs; substantially as described.
4. An operating-mechanism for churns and the like comprising a reciprocable
55 dasher, means for reciprocating said dasher, a base upon which said means is mounted, legs depending from said base, screws adjustably arranged in said legs, and clamping-members on the inner ends of said legs adapted to be clamped upon a liquid-receptacle to support said base thereabove;
60 substantially as described.

5. An operating-mechanism for churns and the like comprising a reciprocable
65 dasher, means for reciprocating said dasher,

a base upon which said means is mounted, supporting-legs depending from said base, screws adjustably arranged in said legs, and liquid-receptacle clamping-members pivotally mounted on the inner ends of said
70 screws; substantially as described.

6. An operating-mechanism for churns and the like comprising a reciprocable dasher, means for reciprocating said dasher, a base upon which said means is mounted,
75 supporting-legs depending from said base, screws adjustably arranged in said legs, and hook-shaped weighted liquid-receptacle clamping-members pivotally mounted on the inner ends of said screws; substantially as
80 described.

7. In a churn or the like, the combination with a liquid-receptacle, of a dasher and operating-mechanism therefor, a supporting-
85 base upon which said mechanism is mounted, and means adapted to hold said base and said liquid-receptacle in operative engagement, said means comprising screws adjustable radially on said base relatively to
90 said receptacle and clamping-members pivotally mounted on said screws; substantially as described.

8. In a churn or the like, the combination with a liquid-receptacle, of a dasher and operating-mechanism therefor, a supporting-
95 base upon which said mechanism is mounted, and means adapted to hold said base and said liquid-receptacle in operative engagement, said means comprising screws adjustable radially on said base relatively to said
100 receptacle and clamping-members having hook-shaped upper ends for engaging said receptacle and weighted lower ends adapted to maintain said hook-shaped upper ends in
105 engaging position pivotally mounted on said screws; substantially as described.

9. An operating-mechanism for churns or the like comprising a base, a standard on
110 said base provided with outwardly-extending arms, and a pair of vertically-disposed stationary guide-rods having their upper ends removably secured in said arms and their lower ends loosely mounted on said
115 base; substantially as described.

10. An operating-mechanism for churns
120 or the like comprising a base provided on its surface with a plurality of bearing-cavities, a standard on said base provided with outwardly-extending arms, and a pair of vertically-disposed stationary guide-rods having their upper ends removably secured in said arms and their lower ends loosely mounted in said bearing-cavities; substantially as described.

11. A churn or the like comprising a
125 liquid-receptacle, a dasher reciprocable therein, a reciprocable cross-head to which said dasher is connected, guide-rods on which said cross-head is slidably mounted, means adapted to slidably move said cross-
130

head on said guide-rods, and a supporting-base arranged above said receptacle and on which said guide-rods are mounted, said base being provided on its surface with means adapted to prevent excess lubricant from said guide-rods entering said receptacle; substantially as described.

12. A churn or the like comprising a liquid-receptacle, a dasher reciprocable therein, a reciprocable cross-head to which said dasher is connected, guide-rods on which said cross-head is slidably mounted, means adapted to slidably move said cross-head on said guide-rods, and a supporting-base arranged above said receptacle and on which said guide-rods are mounted, said base being provided with cavities around the lower ends of said guide-rods adapted to receive excess lubricant therefrom; substantially as described.

13. A churn or the like comprising a liquid - receptacle, a dasher reciprocable

therein, a reciprocable cross-head to which said dasher is connected, guide-rods on which said cross-head is slidably mounted, a base arranged on said receptacle and on which said rods are mounted, and means adapted to slidably move said cross-head on said guide-rods, said base being provided on its surface with cup-shaped cavities around the lower ends of said rods and with outwardly-extending grooves communicating with said cavities adapted to receive and deflect outwardly away from said receptacle excess lubricant from said rods; substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN R. GILDA.

Witnesses:

RUTH PETERSON,
O. E. PIXBERG.