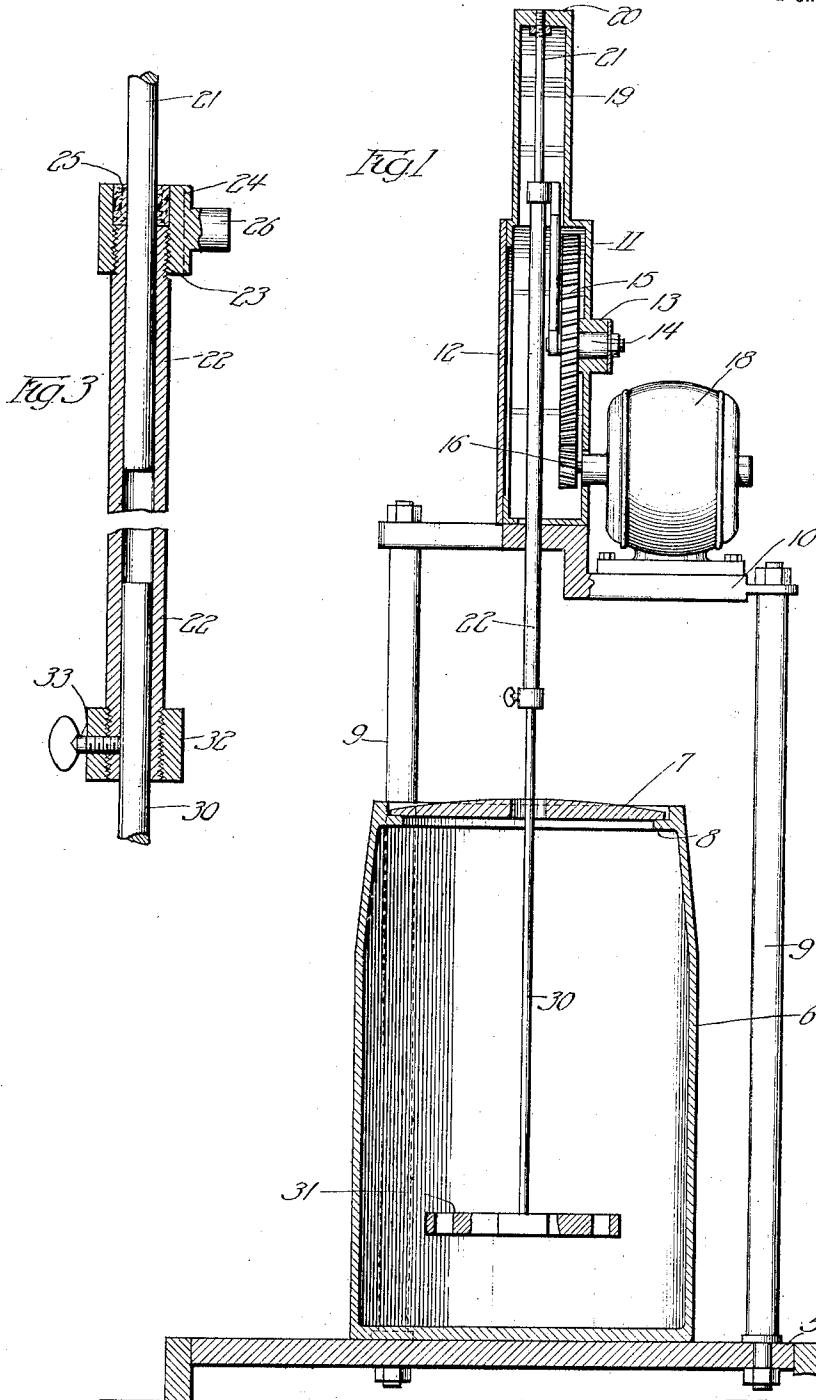


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POWER OPERATED CHURN.  
APPLICATION FILED JUNE 1, 1920.

1,373,674.

Patented Apr. 5, 1921.  
2 SHEETS—SHEET 1.



Inventor  
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Fig. 6

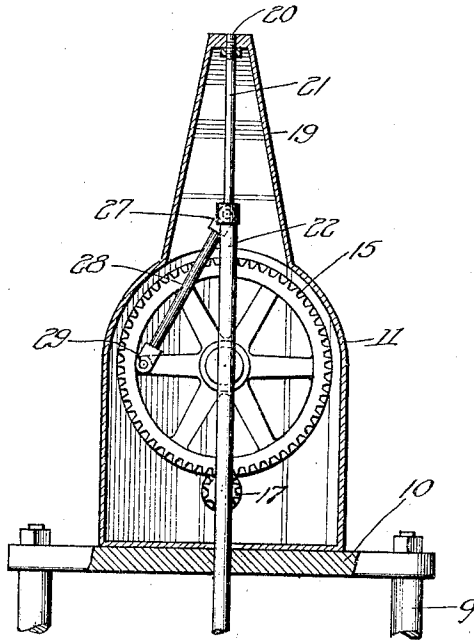
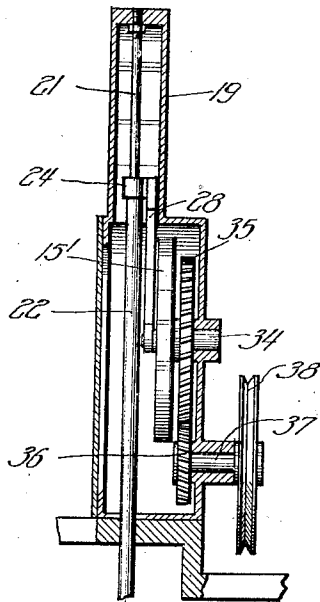


Fig. 4



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# UNITED STATES PATENT OFFICE.

JOHN M. RODGER, OF CHICAGO, ILLINOIS.

POWER-OPERATED CHURN.

1,373,674.

Specification of Letters Patent.

Patented Apr. 5, 1921.

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*To all whom it may concern:*

Be it known that I, JOHN M. RODGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Power-Operated Churns, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to power operated churns and has for its object the provision of a churn with the moving parts thereof inclosed within a casing so as to prevent the operator's clothing from becoming entangled with the same.

It is a further purpose of the invention to provide a power driven churn that is simple in construction, economical in the use of power, quiet running and durable. It is also an object of the invention to provide for a simple guiding means for the reciprocating dasher of the churn and to provide the dasher member with adjusting means whereby the length thereof can be readily adjusted. This is accomplished by a tubular dasher member that is adapted to receive the rod carrying the dasher adjustably and is adapted to slide on a guide rod mounted in the casing that incloses the moving parts of the device.

Other objects and advantages of the invention will appear as the description of the accompanying drawings proceeds, in which:

Figure 1 is a side elevation partly in section of the improved churn embodied in this invention;

Fig. 2 is a sectional detail view of the housing for the moving parts of the device;

Fig. 3 is a fragmentary view in longitudinal section of the tubular dasher member and associated parts;

Fig. 4 is a view similar to Fig. 1 of the upper portion of a modified form of churn, showing the driving mechanism employed when a belt pulley is used.

The improved churn comprises a base 5, preferably made of wood, upon which rests the container 6 which is preferably a stone jar provided with a wooden cover 7, seated on a shelf or flange 8 in the top of the container. The base 5 is provided with a plurality of vertical standards 9, preferably three in number, to the upper ends of which is secured the base 10 for the driving means

for the dasher mechanism. Upon the base 10 is mounted a casing 11 provided with a copper plate 12 which is removable for the purpose of gaining access to the moving parts contained within the casing. The casing is provided with a boss 13 providing a bearing for the shaft 14 carrying the gear 15 which gear is in mesh with the pinion keyed to the shaft 17 which is adapted to be rotated by an electric motor 18. The gear 15 and pinion 17 are preferably provided with helical teeth. The casing 11 is provided with an opening adapted to screw threadedly receive the rod 21 in the center of said flat portion. The rod 21 extends downwardly into the interior of the casing 11 and slidably receives a tubular member 22 upon the lower end thereof. The tubular member 22 is provided with a screwthreaded end 23 for securing a collar or sleeve 24 thereto. A suitable fiber packing 25 is placed in the recess between the rod 21 and the sleeve 24 and this packing makes it unnecessary to use any lubricant at this point. The sleeve 24 is provided with a boss 26 upon which is pivoted the enlarged upper end 27 of the link 28, the link 28 being secured on said boss 26 by any suitable means such as a cotter pin. The gear 15 is provided with a suitable pivot pin mounted near the outer periphery thereof for receiving the lower end 29 of the link 27.

It will be seen from the above that when the motor 18 drives the pinion 17, this, in turn, will drive the gear 15 and the rotation of the gear 15 will cause a vertical reciprocation of the upper end of the link 27, thus causing the tubular rod 22 to reciprocate on the rod 21 as a guide. The lower end of the tubular rod 22 receives within it the rod 30 to which the dasher 31 is secured, the dasher being of any well known type. The lower end of the tubular member 22 is provided with a collar 32 screwthreaded thereto and the collar and tube are provided with openings for the set screw 33 which is adapted to bear against the rod 30 to hold it in any desired position within the tube 22. The parts 22, 30 and 31 thus comprise a vertically reciprocating adjustable agitating or dasher member.

In operating the churn, the dasher 31 is so adjusted that it will be about an inch above the surface of the cream in the container 6 when the tubular member 22 is

in the uppermost point of its travel. The set screw is then tightened and the churn is properly adjusted.

It will be noted that all of the moving parts in which the operator's clothing might become caught, are inclosed within the casing 11. The rod 22 extends through suitable openings in the casing 11 and the base 10 and as the bearing at the sleeve 24 does not have to be oiled, there is no opportunity for any oil to run down the rod and all the other parts requiring oiling being suitably inclosed and separated from the churn container, this structure will produce a highly sanitary device.

In the form of the invention shown in Fig. 4, the motor 18 is eliminated and the wheel 15<sup>1</sup> which drives the link 28 is not provided with gear teeth. This wheel 15<sup>1</sup> is keyed on a shaft 34 which is keyed to the helical gear 35, this shaft being carried in a suitable gearing in the casing 11. The gear 35 meshes with a pinion 36 keyed on a shaft 37 that has the grooved belt pulley 38 keyed thereto. It will be seen that in this form of the device, any suitable source of power can be used to drive the belt pulley 38 which, through the pinion 36 and gear 35, drives the wheel 15<sup>1</sup> and will operate the churn in the manner described above in the form shown in Figs. 1 to 3 inclusive. It is to be understood that the same form of guide is used in the modified form as in the preferred form and that the tubular member 22 is provided with the sleeve 24 and the means for adjusting the dasher relative thereto.

From the above it will be seen that a very simple device with but few moving parts, has been provided which, due to the small number of moving parts and the helical gearing used, provides a smooth and quiet running machine with the parts suitably inclosed to prevent the operator from getting in contact with any movable part.

Having thus described my invention, I desire to have it understood that I do not intend to be limited to the exact details shown in the accompanying drawings and described in this specification, except as defined by the following claims:

1. In a churn, a dasher member, a guide for said dasher member and means to impart a vertical reciprocating motion to said dasher member comprising a rotatable gear, a link pivotally mounted at one end near the outer periphery thereof and having its other end pivotally mounted on said dasher member and means to impart rotation to said gear.

2. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivot-

ed to said dasher member at its one end and having its other end pivoted to a rotating circular member near the periphery thereof, said member being mounted in bearings in said casing, and means to rotate said member, whereby said dasher member is caused to reciprocate.

3. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivoted to said dasher member at its one end and having its other end pivoted to a gear wheel near the periphery thereof, said gear wheel being mounted in bearings in said casing, a pinion mounted in bearings in said casing and meshing with said gear and a shaft connected with a source of power to impart rotation to said pinion, whereby said dasher member is caused to reciprocate.

4. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, said dasher member being adjustable in length, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivoted to said dasher member at its one end and having its other end pivoted to a rotating circular member near the periphery thereof, said member being mounted in bearings in said casing, and means to rotate said member, whereby said dasher member is caused to reciprocate.

5. In a churn, a vertically adjustable dasher member, a guide for said dasher member and means to impart a vertical reciprocating motion to said dasher member comprising a rotatable gear, a link pivotally mounted at one end near the outer periphery thereof and having its other end pivotally mounted on said dasher member and means to impart rotation to said gear.

6. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member centrally mounted in the top of said casing, a driving link pivoted to the upper end of said dasher member at its one end and having its other end pivoted to a wheel near the periphery thereof, said wheel being mounted in bearings in said casing, and means to rotate said wheel, whereby said dasher member is caused to reciprocate.

7. A churn comprising a base, a casing mounted on said base, a guide rod centrally mounted on said casing at the top thereof, a dasher member slidably mounted on said guide rod and means to impart a vertical reciprocating movement to said dasher member, said dasher member comprising a tubular portion adapted to embrace said guide rod.

8. A churn comprising a base, a casing

mounted on said base, a guide rod centrally mounted on said casing at the top thereof, a dasher member slidably mounted on said guide rod and means to impart a vertical reciprocating movement to said dasher member, said dasher member comprising a tubular portion adapted to embrace said guide rod and a dasher carrying rod adapted to be adjustably mounted in said tubular portion.

9. A churn comprising a base, a casing mounted on said base, a guide rod centrally mounted on said casing at the top thereof, a dasher member slidably mounted on said guide rod and means to impart a vertical reciprocating movement to said dasher member, said dasher member comprising an upper tubular section embracing said guide, and a lower section telescoping within said tubular section and carrying a dasher at the end thereof, said lower section being adjustable lengthwise of said upper section to vary the length of the dasher member.

10. A churn comprising a base, a casing mounted on said base, a guide rod centrally mounted on said casing at the top thereof, a dasher member slidably mounted on said guide rod and means to impart a vertical reciprocating movement to said dasher member, said dasher member comprising an upper tubular section embracing said guide, said tubular section having a sleeve screw-threaded to the upper end thereof and having a driving link pivoted thereto, and a lower dasher carrying section telescoping within said tubular section and adjustable longitudinally thereof to vary the length of said member.

11. A churn comprising a base, a casing mounted on said base, a guide rod centrally mounted on said casing at the top thereof, a dasher member slidably mounted on said guide rod and means to impart a vertical reciprocating movement to said dasher member, said dasher member comprising an upper tubular section embracing said guide, said tubular section having a sleeve screw-threaded to the upper end thereof and having a driving link pivoted thereto, a fiber packing surrounding said rod and mounted in said sleeve and a lower dasher carrying section telescoping within said tubular section and adjustable longitudinally thereof to vary the length of said member.

12. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivoted to said dasher member at one end and to a driving wheel at its other end, said driving wheel and a gear wheel being keyed to a shaft mounted in bearings in said casing and a pinion in mesh with said gear and a belt pulley keyed to a second shaft extend-

ing through said casing and mounted in bearings therein, whereby said dasher member is reciprocated vertically when power is applied to said belt pulley to rotate the same.

13. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivoted to said dasher member at its one end and having its other end pivoted to a gear wheel near the periphery thereof, said gear wheel being mounted in bearings in said casing, a pinion mounted in bearings in said casing and meshing with said gear and a shaft connected with a source of power to impart rotation to said pinion, whereby said dasher member is caused to reciprocate, said gear and pinion being provided with helical teeth.

14. A churn comprising a base, a vertically reciprocating dasher member extending therethrough, a casing mounted on said base, a guide for said dasher member mounted in the top of said casing, a driving link pivoted to said dasher member at one end and to a driving wheel at its other end, said driving wheel and a gear wheel being keyed to a shaft mounted in bearings in said casing and a pinion in mesh with said gear and a belt pulley keyed to a second shaft extending through said casing and mounted in bearings therein, whereby said dasher member is reciprocated vertically when power is applied to said belt pulley to rotate the same, said gear and pinion being provided with helical teeth.

15. A churn comprising a base, a casing mounted on said base, driving mechanism within said casing, a guide rod mounted in the top of said casing, a tubular member slidably mounted on said guide rod for vertical reciprocating movement imparted thereto by a link forming a part of said driving mechanism and pivoted to the upper end portion of said tubular member, a dasher having a rod adjustably mounted in said tubular member, and means for holding said dasher rod in any desired position in said tubular member.

16. In a device of the character described, a vertically reciprocating member, a gear wheel, a driving link pivoted to said reciprocating member at one end and to said gear wheel near the periphery thereof at the other end thereof, a pinion meshing with said gear wheel, and a shaft connected to a source of power upon which said pinion is mounted, whereby said member is caused to reciprocate as said shaft is turned.

17. In a device of the character described, a vertically reciprocating member, a casing, a guide member mounted in the top of said casing, said reciprocating member compris-

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ing a tubular portion adapted to slide on  
said guide member, and a rod adjustably  
mounted in said tubular portion, whereby  
the length of said reciprocating member can  
5 be varied, a gear wheel, a driving link piv-  
oted to said reciprocating member at one  
end and to said gear wheel near the pe-  
riphery thereof at the other end thereof, a  
pinion meshing with said gear wheel, and a  
10 shaft connected to a source of power upon  
which said pinion is mounted, whereby said  
member is caused to reciprocate as said shaft  
is turned.

18. A churn comprising a base member, a  
15 plurality of standards on said base member  
supporting a base plate, a casing mounted

on said base plate, a guide rod centrally  
mounted in said casing at the top thereof, a  
dasher member slidably mounted on said  
guide rod and means to impart a vertical 20  
reciprocating movement to said dasher mem-  
ber, said dasher member comprising an up-  
per tubular section embracing said guide  
rod and slidable thereon passing through  
guide openings in the bottom of said casing 25  
and said base plate, and a lower dasher car-  
rying section telescoping within said tubu-  
lar section and adjustable longitudinally  
thereof to vary the length of said member.

In witness whereof, I hereunto subscribe 30  
my name this 20th day of May A. D., 1920.

JOHN M. RODGER.