

O. D. WELDS.

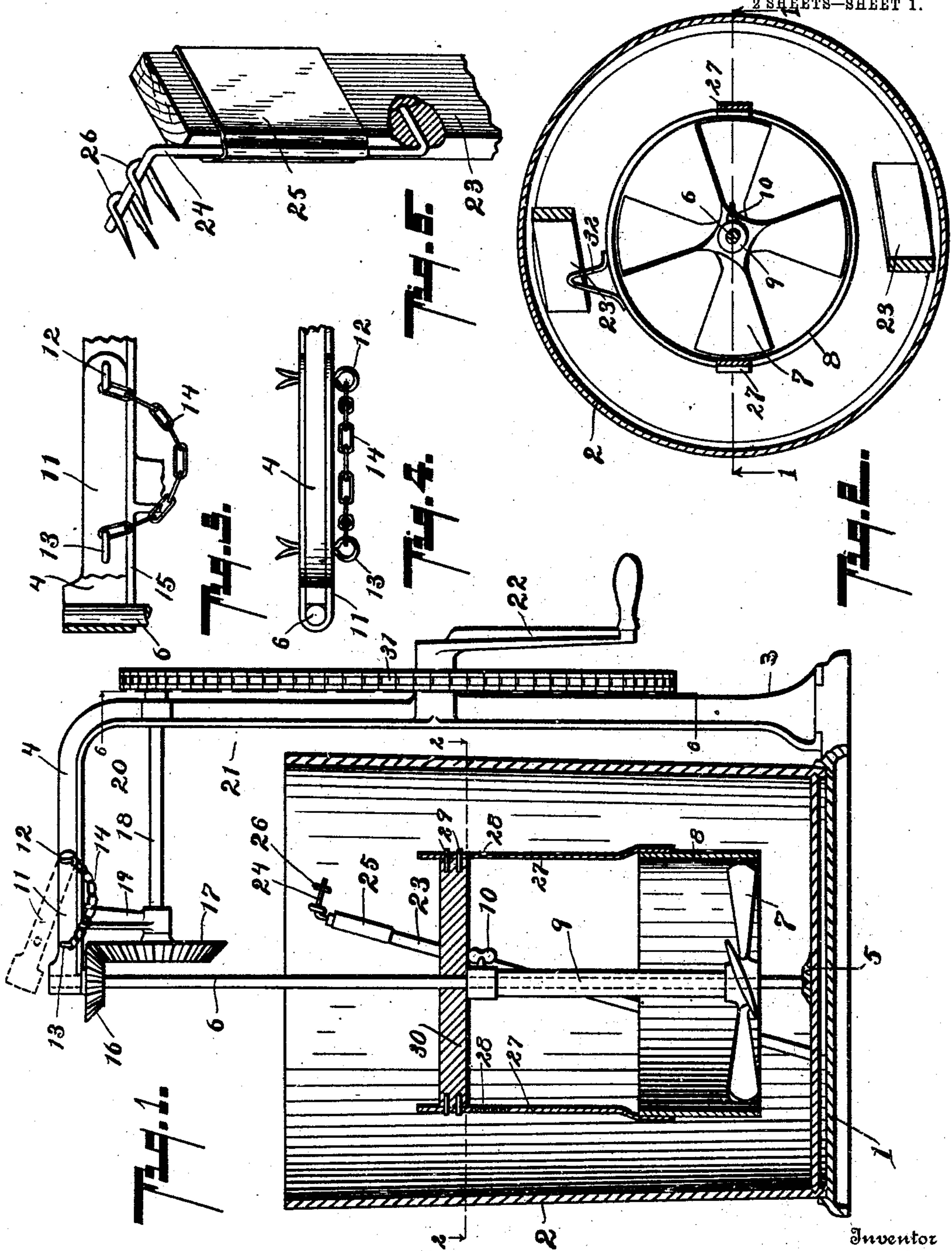
CHURN.

APPLICATION FILED JAN. 23, 1909.

940,099.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.



Witnesses

Gertrude Tallman  
Jessie McIlwaine

By

Otis D. Welds  
L. Russell Earl

Attorneys

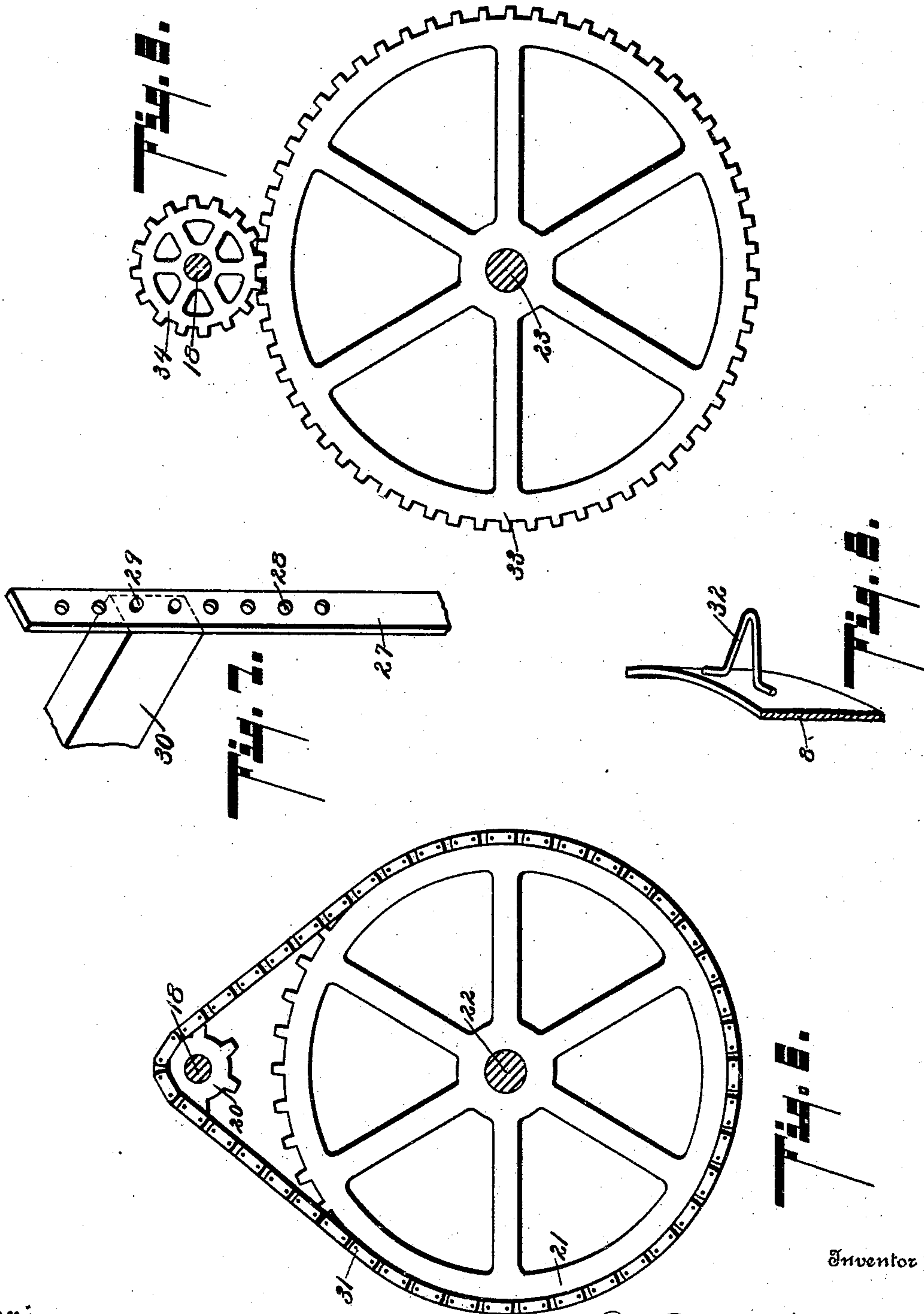
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# UNITED STATES PATENT OFFICE.

OTIS D. WELDS, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO FRED D. HANDY,  
OF JACKSON, MICHIGAN.

CHURN.

940,099.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed January 23, 1909. Serial No. 473,864.

*To all whom it may concern:*

Be it known that I, OTIS D. WELDS, a citizen of the United States, residing at Jackson, county of Jackson, and State of Michigan, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention relates to improvements in churns.

The main object of this invention is to provide an improved churn which may be very quickly set up for use or knocked down or disassembled when desired to clean, and at the same time to produce a structure which is very efficient, strong and durable.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a vertical section of my improved churn, taken on a line corresponding to line 1—1 of Fig. 2, the standard, dasher and shaft, and driving connections therefor being shown in full lines to better show their form and relation; Fig. 2 is a horizontal section taken on a line corresponding to line 2—2 of Fig. 1. Fig. 3 is an enlarged detail with parts broken away to show the bearing support for the upper end of the dasher shaft 6; Fig. 4 is a detail plan view of the parts shown in Fig. 3. Fig. 5 is an enlarged detail showing the structural details and support for one of the deflectors 23. Fig. 6 is a detail vertical section taken on a line corresponding to line 6—6 of Fig. 1. Fig. 7 is an enlarged detail perspective of one of the adjustable supports for the cylinder 8. Fig. 8 is a detail perspective of the stop for the cylinder 8 whereby its rotation is prevented when the churn is in operation. Fig. 9 is a vertical section corresponding to that of Fig. 6 of a tooth gear device.

In the drawings, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and

similar reference numerals refer to similar parts throughout the several views.

Referring to the drawings, the base 1 is preferably a casting, and provided with a suitable seat to receive the barrel or receptacle 2 of the churn. On one side of the case is an upright or standard 3, having a horizontally projecting arm at its upper end, the arm extending to a central point over the receptacle 2. In the bottom of the barrel or receptacle is a pivot bearing 5 for the dasher shaft 6. On the dasher shaft is the dasher, which is preferably provided with propeller-like blades 7. Arranged to surround the dasher blades is an open ended cylinder 8.

The dasher is secured to the sleeve 9, which is adjustably secured upon the shaft 6 by means of the set screw 10 so that it may be adjusted to bring the dasher to the proper position relative to the bottom of the receptacle. The dasher cylinder 8 is preferably adjustably supported relative to the dasher blades, so that it may be adjusted to suit the requirements, that is, it is found desirable to adjust the same as the consistency of the cream to be churned may vary. This I preferably accomplish by providing a pair of strap like hangers 27 for the cylinder, the hangers being provided with a series of perforations 28 to engage the pins 29 on the ends of the cross piece 30. The cross piece 30 is loosely mounted upon the shaft 6 and is adapted to rest upon the upper end thereof.

For the upper end of the dasher shaft I provide a U-shaped strap-like bearing 11 which is arranged to embrace the end of the arm 4, on which it is secured by the pivot 12, a cotter pin being shown as the pivot. This bearing is adapted to swing down over the end of the shaft, as appears in Figs. 1 and 3, for securing it in its operative position. It may be swung up, as shown by dotted lines in Fig. 1, to release the shaft so that the dasher may be removed from the receptacle. This forms a very secure and at the same time simple bearing, which can be readily adjusted to secure or release the dasher shaft.

The bearing is held in its engaging position by means of the cotter pin 13, which is arranged through the bearing and the



arm 4. This pin is preferably provided with a securing chain as 14, so that it will not be lost when disengaged.

The outer end of the arm coacts with the bearing 11 in supporting the shaft, as clearly appears from the drawing. The arm 4 is preferably provided with a flanged projection 15 at the bottom which serves as a rest to limit the downward movement of the bearing strap 11, the arm being substantially the shape of an inverted T-beam.

On the dasher shaft 6 is a beveled gear 16 adapted to mesh with the beveled gear 17 when the shaft is engaged by its bearing 11. The beveled gear 17 is mounted on a shaft 18, one end of which is journaled in the upright 3 and the other is carried by a suitable hanger 19. On the shaft 18 is a sprocket wheel 20 which is connected with the driving sprocket 21 on the crank 22 by means of the chain 31. Thus connected, the dasher shaft is adapted to be driven from the crank, and through the gear described, proper speed is secured.

Within the receptacle or barrel 2 I arrange deflectors 23. These are arranged in an inclined position, their lower ends resting on the bottom of the receptacle, preferably by means of the laterally turned pins 24, which are secured to the deflectors by means of clips 25, the pins being adapted to be engaged in the staples 26 on the inside of the receptacle. This effectively supports the deflectors and at the same time they can be readily and quickly removed or put in place.

In the operation of my improved churn with the parts assembled as shown in Fig. 1 the cream is placed in the receptacle and the crank turned. Owing to the propeller-like shape of the blades, the cream is circulated downwardly through the cylinder 8 and upwardly against the receptacle walls. The deflectors 23 overcome the tendency of the cream to travel around and around the receptacle walls, and assist materially in mixing and thoroughly agitating the same. Owing to the circulation through the cylinder 8, the cream is thoroughly aerated, which, in addition to the agitation, causes the butter to come very quickly. The dasher and cylinder may be adjusted on the shaft 6 and the cylinder may be adjusted relative to the dasher blades as the conditions may require. The dasher cylinder 8 is preferably secured against rotation and this I accomplish in the structure illustrated by means of the stop 32 on the cylinder which is arranged to engage the deflectors 23.

In the modified structure of Fig. 9 I substitute the tooth gear 33 and 34 for the sprocket gear 20 and 21 and the connecting chain 31 therefor.

My improved churn is very simple in construction, and can be readily and quickly

set up or taken down, and when taken down may be very quickly cleaned.

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

1. The combination with a base, of a barrel arranged on said base; a standard on one side of said base having an arm at its upper end projecting horizontally over said barrel; a dash shaft; a pivot bearing for the lower end thereof arranged on the bottom of said barrel; a U-shaped strap-like bearing pivoted on said arm by a transverse pivot and adapted to embrace the end of the same and be swung down over the upper end of said shaft, the end of said arm coacting therewith in forming the bearing for said shaft; a pin for securing said bearing in its engaging position; and driving connections for said shaft.

2. The combination with a base, of a barrel arranged on said base; a standard on one side of said base having an arm at its upper end projecting horizontally over said barrel; a dash shaft; a pivot bearing for the lower end thereof arranged on the bottom of said barrel; a U-shaped strap-like bearing pivoted on said arm by a transverse pivot and adapted to embrace the end of the same and be swung down over the upper end of said shaft, the end of said arm coacting therewith in forming the bearing for said shaft; and driving connections for said shaft.

3. In a churn, the combination with a barrel, of a vertically-arranged dasher shaft; a dasher, having propeller like blades, carried by said shaft; an open ended cylinder carried by said blades and projecting upwardly therefrom; a deflector arranged against the wall of said barrel in an inclined position with its lower end resting on the bottom thereof, having a laterally turned pin at its upper end; and staples on the inside of said barrel adapted to receive said pin, whereby said deflector is removably supported.

4. In a churn, the combination with a barrel, of a dasher; a deflector arranged against the wall of said barrel in an inclined position with its lower end resting on the bottom thereof, having a laterally turned pin at its upper end; and staples on the inside of said barrel adapted to receive said pin, whereby said deflector is removably supported.

5. In a churn, the combination with a barrel of a dasher comprising a shaft; dasher blades having a sleeve-like hub adjustably mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; a pair of strap-like hangers for said cylinder having a series of perforations therein; a crosspiece arranged on said shaft to rest on the hub of said dasher blades, said cross piece being provided with pins adapted to engage said perforations in



said cylinder hangers, whereby the said dasher cylinder is adjustably supported relative to said dasher blades; deflectors arranged in said barrel; and a stop on said dasher cylinder arranged to engage said deflectors.

6. In a churn, the combination with a barrel of a dasher comprising a shaft; dasher blades having a sleeve-like hub adjustably mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; a pair of strap-like hangers for said cylinder having a series of perforations therein; and a crosspiece arranged on said shaft to rest on the hub of said dasher blades, said crosspiece being provided with pins adapted to engage said perforations in said cylinder hangers, whereby the said dasher cylinder is adjustably supported relative to said dasher blades.

7. In a churn, the combination with a barrel, of a dasher comprising a shaft; dasher blades mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; a pair of strap-like hangers for said cylinder having a series of perforations therein; a cross piece arranged on said shaft, said cross piece being provided with pins adapted to engage said perforations in said cylinder hangers, whereby the said dasher cylinder is adjustably supported relative to said dasher blades; deflectors arranged in said barrel; and a stop on said dasher cylinder arranged to engage said deflectors.

8. In a churn, the combination with a barrel, of a dasher comprising a shaft; dasher blades mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; a pair of strap-like hangers for said cylinder having a series of perforations therein; and a cross piece ar-

ranged on said shaft, said cross piece being provided with pins adapted to engage said perforations in said cylinder hangers, whereby the said dasher cylinder is adjustably supported relative to said dasher blades.

9. In a churn, the combination with a barrel of a dasher comprising a shaft; dasher blades adjustably mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; means for adjusting said cylinder relative to said dasher blades; deflectors arranged in said barrel; and a stop on said dasher cylinder arranged to engage said deflectors.

10. In a churn, the combination with a barrel of a dasher comprising a shaft; dasher blades adjustably mounted on said shaft; a dasher cylinder open at each end arranged about said dasher blades; and means for adjusting said cylinder relative to said dasher blades.

11. In a churn, the combination with a barrel, of a dasher comprising a shaft; dasher blades; a dasher cylinder open at each end arranged about said dasher blades; means for adjusting said cylinder relative to said dasher blades; and means for preventing the turning of said cylinder.

12. In a churn, the combination with a barrel of a dasher comprising a shaft; dasher blades; a dasher cylinder open at each end arranged about said dasher blades; and means for adjusting said cylinder relative to said dasher blades.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

OTIS D. WELDS. [L. s.]

Witnesses:

B. E. BEGEL,  
F. H. HELMER.