

(Model.)

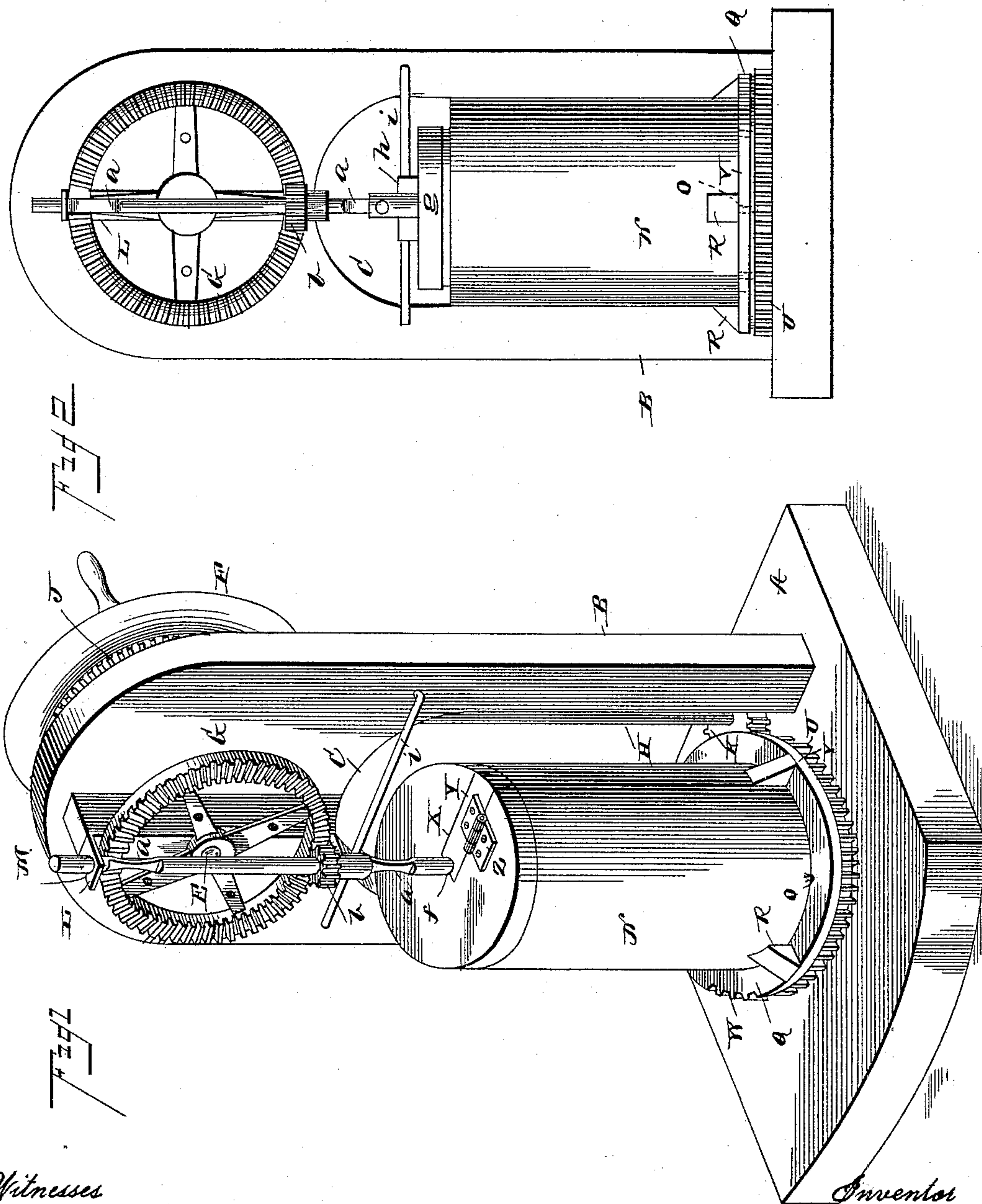
2 Sheets—Sheet 1.

W. H. CRAWFORD.

CHURN.

No. 413,175.

Patented Oct. 22, 1889.



Witnesses

John Irvine

R. W. Bishop.

By his Attorneys

William H. Crawford

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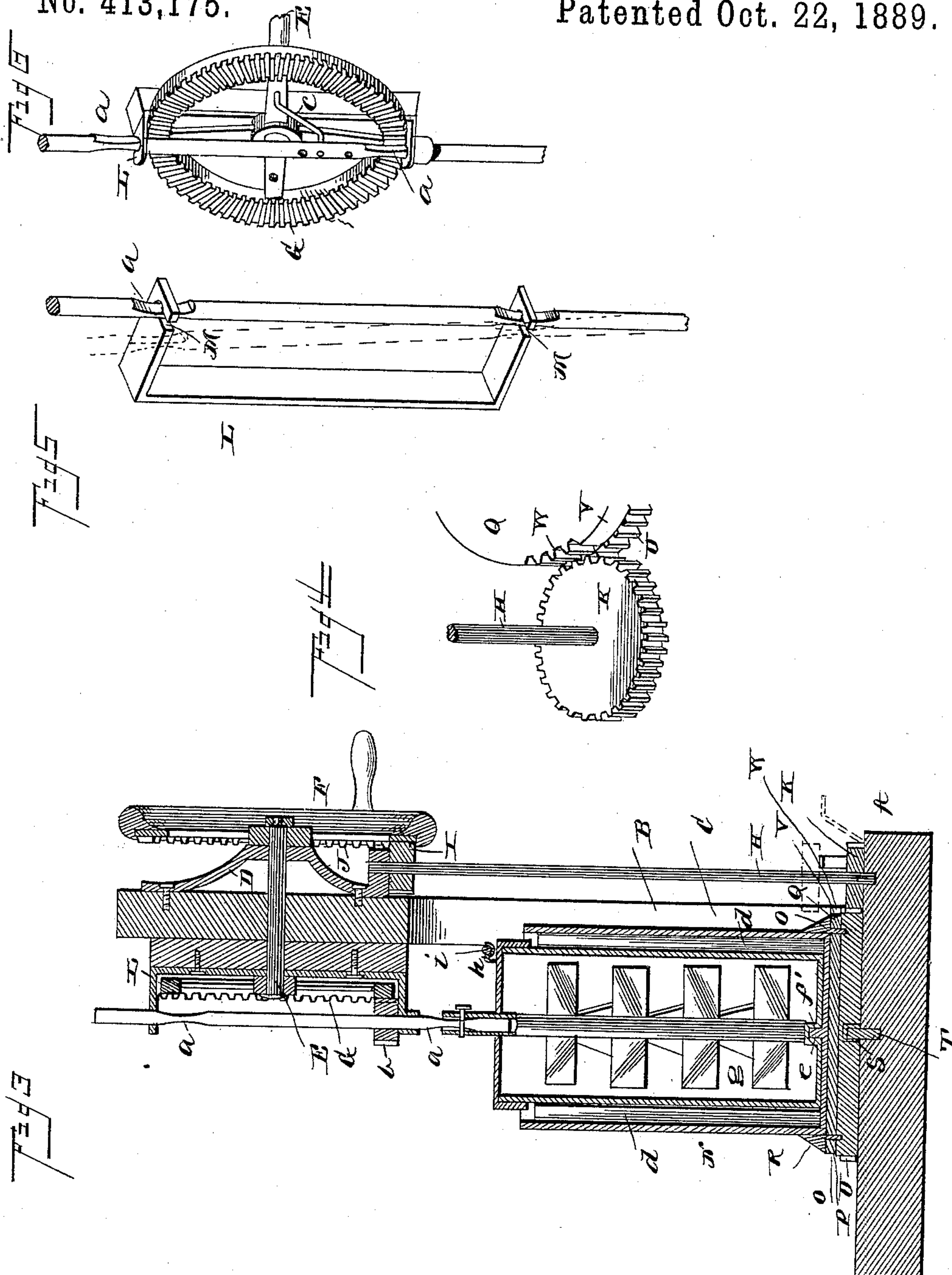
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Inventor

William H. Crawford

By his Attorneys

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# UNITED STATES PATENT OFFICE.

WILLIAM H. CRAWFORD, OF PARIS, TEXAS.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 413,175, dated October 22, 1889.

Application filed March 23, 1889. Serial No. 304,397. (Model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CRAWFORD, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented new and useful Improvements in Churns, of which the following is a specification.

My invention relates to improvements in churns; and it consists in certain novel features hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a churn constructed in accordance with my invention. Fig. 2 is a front view of the same, showing it arranged to serve as an ice-cream freezer. Fig. 3 is a sectional view of the same. Fig. 4 is a detail view showing the manner of disengaging the pinion on the vertical shaft from the revolving base of the body. Fig. 5 is a detail view showing the manner of inserting the dasher-shaft in position, and Fig. 6 is a view showing a reciprocating dasher instead of a rotary dasher shown in the other figures.

In carrying out my invention I employ a base A, on which I erect a standard B, having a vertical longitudinal slot C in its lower portion, as shown. On the rear side of the standard, at the upper end of the same, I secure a bracket D, and the main driving-shaft E is journaled in the said bracket and extends horizontally through the upper end of the standard, as shown. The driving-wheel F is secured on the rear end of this shaft E and a gear-wheel G is secured on the front end of the same, as clearly shown. A vertical shaft H is arranged in rear of the standard and has its lower end journaled in the base A and its upper end journaled in the lower end of the bracket E. This vertical shaft H is provided, near its upper end, with a pinion I, meshing with the gear-teeth J on the inner side of the driving-wheel, and is provided at its lower end with a pinion K, the purpose of which will presently appear. On the frontside of the standard I secure a bracket L, the ends of which project forward and are provided with the key-hole slots M, which form bearings for the dasher-rod.

The churn-body N may be of any desired size or shape, and is provided at its lower end with the downwardly-projecting teeth or

spurs O, which engage openings P in the base Q, and thereby secure the churn-body on said base. The said base Q is provided on its upper side with the lugs R, which serve to guide the churn-body into position on the base and aid the spurs or points O in holding the body on the base. This base Q is pivotally mounted on the base A of the frame by having a socket S in its under side engaging a stud or post T in the upper side of the said base A. The revolving base Q is provided on its edge with a series of gear-teeth U, which are engaged by the pinion K at the lower end of the vertical shaft H, so that rotary motion will be imparted to said base and the churn-body carried thereby. The gear-teeth U are somewhat less in height than the thickness of said base, and a rib or flange V is thus formed, which will project slightly over the edge of the pinion K and thereby prevent the said pinion moving upward on the vertical shaft H, and the said rib or flange is provided at a proper point with a short series of teeth W, which register with the teeth on the edge of the rotary base, so that when so desired the pinion on the vertical shaft can be slipped upward, so that the teeth of the said pinion will pass through the spaces between the teeth W to allow the pinion to be elevated above the base, when it is desired that the said rotary base remain stationary.

The lid is adapted to fit snugly in the upper end of the churn-body, and is provided with a central opening *f* for the passage of the dasher-rod, and a slot X leads from the said central opening to the edge of the lid to permit the lid to be slipped around the dasher-rod. The dasher-rod is maintained in the central opening of the lid by a small plate Y, secured by hinge Z to one side of the slot X, and adapted to fold over into said slot, as clearly shown.

The dasher-rod is provided near its upper end and about its center with the recesses *a* in its sides, which serve to reduce the diameter of the dasher-rod at those points, so that it can be passed through the straight portions of the key-hole slots M, to secure the dasher-rod in position. A pinion *b* is secured to the dasher-rod above the lower recesses, so that when the dasher-rod is inserted in the



key-hole slots of the bracket L the said pinion will rest on the lower end of said bracket and engage the gear-wheel G.

When the device is arranged as thus described, the cream to be churned is placed in the churn-body and the driving-wheel rotated. The motion of the driving-wheel will be communicated through the gear-wheel G and the pinion on the dasher-rod to the said rod, so as to rotate the dasher in one direction, and will be communicated through the vertical shaft and the pinion thereon to the rotary base, so as to rotate the same and the churn-body carried thereby in the opposite direction. The butter will thus be quickly formed with very little power.

The churn can be converted from a rotary churn to a reciprocating churn by removing the dasher-rod having the pinion and substituting therefor a dasher-rod carrying a pitman *c* and engaging said pitman in the gear-wheel G. The rotary motion of the gear-wheel will then impart a reciprocatory motion to the dasher-rod, as will be readily understood. The churn-body can be rotated or held stationary when either the rotary dasher or the reciprocating dasher is used, as will be readily understood.

It will thus be seen that I have provided a churn which can be operated in various ways, and in which the parts are compactly arranged.

The churn-body is provided at diametrically opposite points on its inner side with the vertical ribs or breakers *d*, which aid the dasher in agitating the cream and forming the butter.

The churn-body is provided on the upper side of its bottom with a stud or pivot *e*, which is engaged by a socket *f'* on the bottom of a can *g*, when the device is to be used as an ice-cream freezer. The lid of this can *g* is provided on its upper side with a spring-catch *h*, which is engaged by a lever *i*, pivoted upon the standard B, as shown.

When the device is used as an ice-cream freezer, the ice is placed in the churn-body around the can and the cream and sugar, &c., placed in the can, and the lever *i* turned down, so as to engage the latch *h*. The driving-

wheel being then rotated, the churn-body containing the ice will be carried around in one direction, while the dasher in the can will be carried around in the opposite direction. The ribs on the inner side of the churn-body in this case will prevent the body slipping around the ice and cause it to effectually carry the ice around the can. The ice cream will thus be rapidly and easily formed. The can will be held against movement by the lever engaging the spring-catch.

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

1. The combination of the vertical shaft, mechanism for rotating said shaft, the rotary base provided on its edge with gear-teeth, and a rib or flange above said gear-teeth, having a portion cut away, and the pinion mounted on the lower end of the vertical shaft engaging the gear-teeth on the rotary base and adapted to pass through the space in the rib or flange, as set forth.

2. The combination, with the standard, of the bracket L, having key-hole slots in its ends the dasher-rod having recesses in its sides, and cylindrical above said recesses, whereby the recesses are adapted to enter the key-hole slots, and the dasher-rod depressed until the cylindrical portions bear against the key-hole slots, and suitable mechanism supported by the standard for rotating the dasher, as and for the purpose set forth.

3. The combination of the standard, the rotary base having gear-teeth on its edge, the churn-body removably secured on said base, the driving-shaft mounted in the upper end of the standard, the dasher-rod, gearing between the driving-shaft and the dasher-rod, the vertical shaft provided at its lower end with a pinion engaging the gear-teeth on the edge of the rotary base, and gearing between said shaft and the driving-shaft, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM H. CRAWFORD.

Witnesses:

D. RIDLEY,  
M. F. PILLETT.