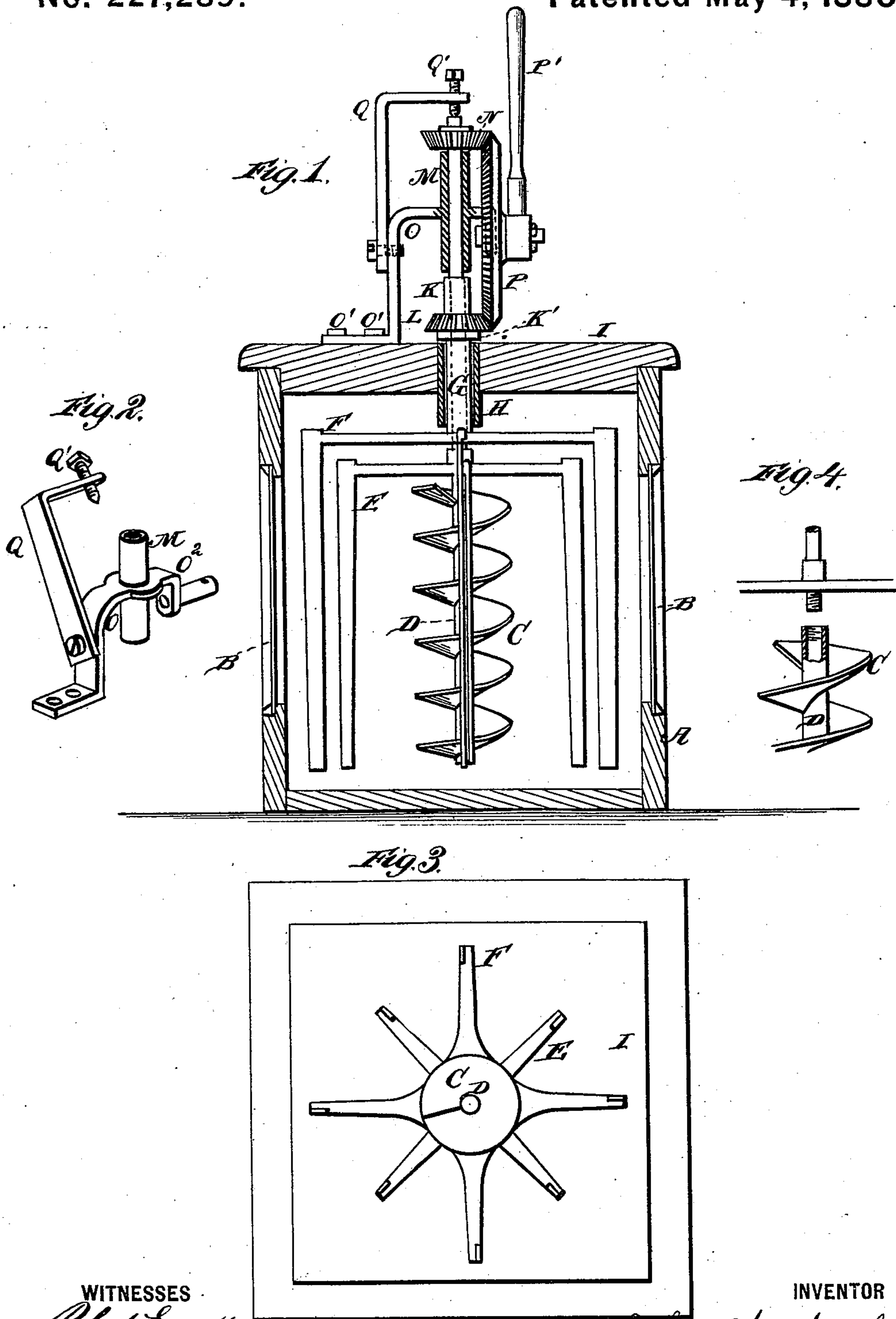


J. W. NEAL.  
Churn.

No. 227,289.

Patented May 4, 1880.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOHN W. NEAL, OF XENIA, KANSAS.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 227,289, dated May 4, 188C.

Application filed January 24, 1880.

*To all whom it may concern:*

Be it known that I, JOHN W. NEAL, of Xenia, in the county of Bourbon and State of Kansas, have invented certain new and useful Improvements in Churns; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical section of my churn. Fig. 2 is a detail view. Fig. 3 is a bottom view of the dasher and cover, and Fig. 4 is a detail view of the dasher.

My invention relates to churns; and it consists in the construction and arrangement of certain parts, as fully set forth in the following description, and particularly pointed out in the claims.

A designates the churn-body, which is provided with glass sides B, to admit of the inspection of the cream.

C represents a spiral conveyer, which consists of a metal strip arranged spirally upon a vertical shaft, D.

The inner dasher, E, which consists of four vertical slats or bars and four arms radiating in a horizontal plane from the shaft D, is secured to said shaft so as to rotate with it. The outer dasher, F, is constructed like the inner dasher, E, and is secured to a sleeve, G, through which the shaft D of the inner dasher is passed.

H designates a sleeve, which is secured in the churn-cover I, and through this sleeve passes the sleeve G of the outer dasher. The sleeve G is secured to a short sleeve, K, above the cover I in any suitable way—such, for instance, as by a pin or key—so that when desired it may be detached therefrom. This sleeve K is provided with a bevel-gear wheel, L, and is somewhat enlarged below said wheel, so as to form a shoulder, K', just above the cover I.

The shaft D, which passes through the sleeves G and K, extends up through a tubular bearing, M, and upon its upper extremity, which projects above said tubular bearing, is detachably secured a bevel-gear wheel, N.

The tubular bearing M is rigidly secured, at a point about midway of its length, to a bracket, O, which is fastened at its base to the cover I by means of screws O'. The upper portion of the bracket is extended so as to form a

bearing, O<sup>2</sup>, upon which is mounted the gear-wheel P, having a handle, P', by means of which a reciprocating partial rotation may be imparted to it. This gear-wheel P meshes with the bevel-gears L and N, so as to drive them in reverse directions; and hence, while a partial rotation is given to the spiral conveyer and inner dasher in one direction, the outer dasher will be rotated reversely to the same.

The tubular bearing M is of such length that the shaft D will be effectively steadied and centered during its operation, thus avoiding the necessity of stepping it in the bottom of the churn.

In order to protect the shaft D against vertical thrust during operation, I provide an arm, Q, with a set-screw, Q', which bears lightly upon the upper end of the said shaft. This arm Q is pivoted to the bracket O, so that when it is desired to detach the bevel-gear wheel from the shaft in order to unship the parts this arm Q may be swung round out of the way.

As illustrated in Fig. 4, the shaft D is formed with a joint, the two parts being secured together by means of a screw-coupling. During the reciprocating partial rotations of the dashers the conveyer C will have a similar movement, and hence carry the cream up and down during the process of churning.

What I claim as my improvement in churns is—

1. In a churn, the combination, with the bracket O, attached to the cover I and provided with the elongated tubular bearing M, and the bearing O<sup>2</sup>, of the shaft D, provided with the conveyer C and beaters E, the sleeve G, having enlargements K' K and miter-gear L, gears P and N, lever P', and bracket Q, carrying set-screw Q', all constructed and operating substantially as and for the purposes set forth.

2. In a reciprocating churn, the combination, with the conveyer C, secured to the vertical shaft D, of the bracket O, provided with the tubular bearing M, the bracket Q, carrying the set-screw Q', for steadying the shaft D and equalizing the pressure upon the gearing, as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN W. NEAL.

Witnesses:

J. R. ANDERSON,  
O. A. ABBEY.