C. M. OLIPHANT.

Rotary-Churns.

No. 147,344. Patented Feb. 10, 1874.

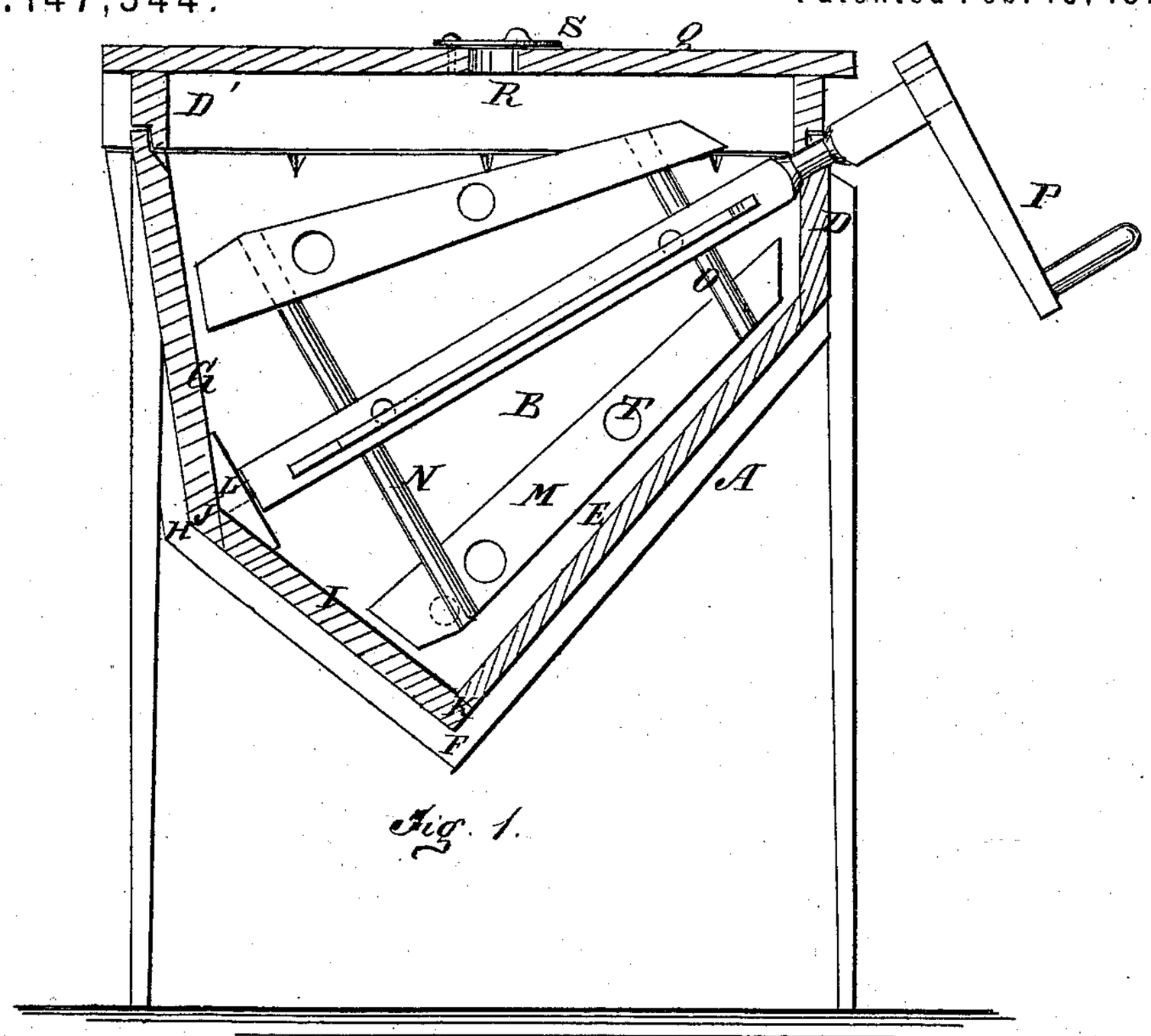
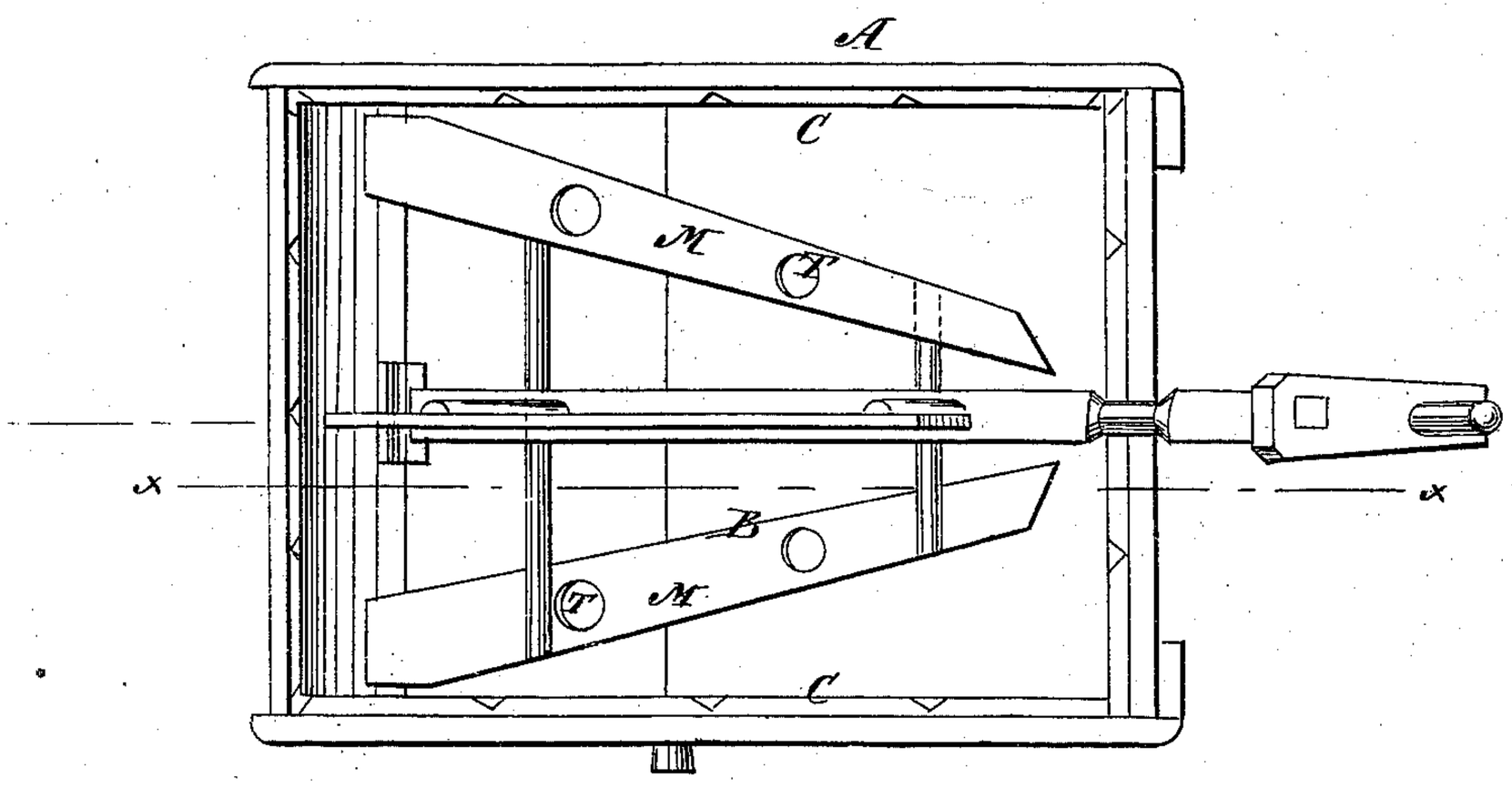


Fig. 1.

Fig. 2.



Witnesses.

Chas. Nida

A. Sedgwick

Inventor.

C. M. Oliphant

Per Munn & Co

Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES M. OLIPHANT, OF OCEOLA, IOWA.

IMPROVEMENT IN ROTARY CHURNS.

Specification forming part of Letters Patent No. **147,344**, dated February 10, 1874; application filed September 13, 1873.

To all whom it may concern:

Be it known that I, CHARLES M. OLIPHANT, of Oceola, in the county of Clarke and State of Iowa, have invented a new and useful Improvement in Churns, of which the following is a specification:

My invention is an improvement in the class of rotary churns in which the dasher is arranged obliquely, and relates to the relative construction of the dasher and churn-box, the former being composed of a series of bars which are arranged inclined to the shaft, forming thus the outline or skeleton of a truncated cone, and the latter being of irregular polygonal shape corresponding thereto, so that the dasher may be placed diagonally, and, in rotation, thoroughly agitate the cream from the bottom, and create interfering or cross currents, thereby speedily producing the desired result, as hereinafter more fully set forth.

In the drawing, Figure 1 is a vertical section of Fig. 2, taken on the line *x x;* and Fig. 2 is a top view with the cover off.

Similar letters of reference indicate corresponding parts.

A is the box in which the milk is placed and the dasher B revolves. The sides C C of the box are vertical. The end D extends down vertically a short distance and forms the bearing of the dasher-shaft, from the lower edge of which end the inclined bottom E extends to the point F. From the cover-flange D′ extends the board G, slightly inclined inward to the point H, and from this point H to point F the board I extends also in an inclined position, forming the angles J and K. The end bearing of the dasher-shaft L is placed in the angle J, and the angle K forms the extreme lower point of the box, to which the contents of the churn tend by their own gravity. The discharge-orifice for drawing off the buttermilk is placed near this angle. (Seen in dotted lines in Fig. 1.) The dasher B is placed in the box at an angle of about thirty-five degrees, the bars or wings M thereof being straight and parallel to the incline E when on the under side of the shaft. Said bars M are attached to radial arms N and O of the shaft, the former being double the length of the latter, so that, in revolving, the dasher describes the frustum of an inclined truncated cone. The dasher is revolved by means of the crank P. Q is the cover or top of the churn, in which there is an air-hole, R, provided with a sliding shutter, S, for closing the hole. By removing the cover Q, the dasher is readily taken out. T represents holes through the wings of the dasher.

The form of the box and dasher and the inclined position of the former render the operation of the machine very effective. The cream is violently stirred at the lowest point as the dasher revolves, and, since one end of the bars or wings describes a circle of nearly twice the radius of the other, it moves with correspondingly greater speed; hence a series of circular currents, moving with different velocities, tend to establish themselves, while other currents set along the shaft or axis of the dasher. The upper end of the bars also project above and break the surface of the cream at each revolution.

The effect is to create such interference as to rapidly and thoroughly commingle the different portions of the cream and effect its conversion into butter with great perfection, and like economy of labor.

Having thus described my invention, what I claim as new is—

The combination with the box A, formed chiefly of the sides C E G I, relatively arranged and inclined as specified, of the inclined dasher B, formed of the straight bars M, attached to the shaft by arms N O, differing in length, all as shown and described, for the purpose specified.

CHARLES M. OLIPHANT.

Witnesses:

WILLIAM H. PASCHALL,

BENJAMIN F. PARAMAN.