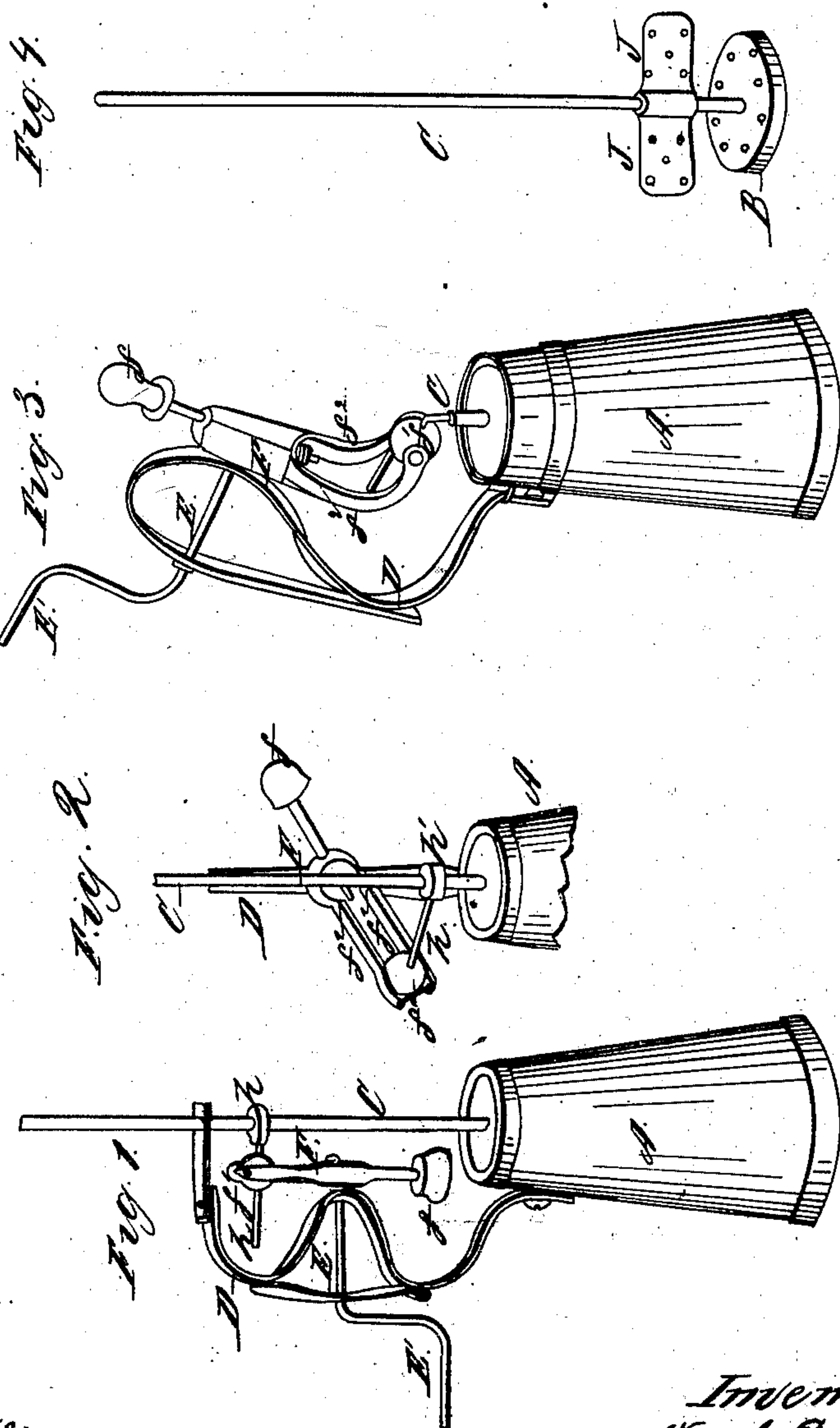


W.C. Douthett,

*Churr.*

No. 77.873.

*Patented May 12, 1868.*



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# United States Patent Office.

WILLIAM C. DOUTHETT, OF ROCHELLE, ILLINOIS.

*Letters Patent No. 77,873, dated May 12, 1868.*

## IMPROVEMENT IN CHURNS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM C. DOUTHETT, of Rochelle, in the county of Ogle, and State of Illinois, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a perspective view of a churn, and operating-devices therefor, illustrating my invention.

Figure 2 is a similar view of a portion detached, showing the parts in a different position.

Figure 3 is a perspective view, showing a modification.

Figure 4 is a perspective view of the dasher and its rod detached.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to provide a churn which shall require but little power to operate it, and which shall be effective and expeditious in converting the cream into butter.

To attain this end, I attach the dasher-rod, by a universal-joint connection, to a revolving arm, having weighty or weighted extremities, and mounted upon an axis, to which the operating-handle is applied; and, in conjunction with a perforated disk-like dasher, I employ twisted or spiral blades, to operate as hereinafter explained.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in connection with the accompanying drawings.

A may represent an upright churn, of any suitable structure and material. B is the dasher, and C the rod to which it is attached. D is a supporting-standard or frame, suitably clamped, or otherwise fastened, to the churn. This frame affords a bearing for the axis or rod E, upon which is mounted the arm F. The handle E' may be a continuation of, or it may be attached to, the rod E. The axis upon which the arm F revolves may be at its centre, or at any desirable point between its ends. One extremity of the arm F may be formed or cast with the enlargement  $f$ ; but for the latter a separate weight may be substituted, the effect and intention, in either case, being to make that end of the arm weighty. The other end of the arm F is made weighty by the ball  $f^1$ , which is held between the jaws  $f^2 f^2$ , which constitute a portion of said arm F. The ball  $f^1$  may be retained in the position shown by the springing of the jaws  $f^2 f^2$  upon the same, there being sufficient elasticity in the jaws to adapt them to perform the office.

The jaws  $f^2 f^2$  may, as shown on fig. 3, be curved, and the axis E may have such horizontal inclination as to cause the ball  $f^1$  to move completely around the dasher-rod C at every revolution of the arm F. Under this arrangement, the dasher-rod C is bent at top, and its bent end fits and plays within an aperture in the ball  $f^1$ , so that, as the arm F is revolved by means of the handle E', the ball  $f^1$ , being free to turn in its seat in any direction, and being made to describe a circle in a nearly vertical plane, both raises and simultaneously rotates the dasher-rod C, and this duplex motion is, consequently, imparted to the dasher B.

As shown in figs. 1 and 2, the axis E may occupy a position at right angles to the dasher-rod C, and the arm F, thus mounted, impart a semi-rotating or reciprocating motion to the dasher-rod and dasher, as well as a simultaneous vertical reciprocating motion.

In figs. 1 and 2, the ball  $f^1$  is represented as being connected to the dasher-rod C, through the medium of the rod  $h$ , whose socket  $h'$  is firmly secured upon the rod, so that the horizontal vibrations and vertical movements imparted to the rod by the revolution of the ball  $f^1$  shall, conjointly, actuate said dasher-rod C. In this case, however, the connection between the dasher-rod C and ball  $f^1$  may be the same as shown in fig. 3; or, conversely, the dasher-rod C and ball  $f^1$ , shown in fig. 3, may be connected in the manner represented in figs. 1 and 2.

The length of stroke of the dasher is determined by the distance between the axis E and the point of connection  $f^1$ . In order to vary the stroke of the dasher B, I provide means for extending that portion of the arms  $f^1$  which is constituted by the jaws  $f^2 f^2$ , so as to increase the distance between the point of connection  $f^1$  and



the axes. A mode is shown in fig. 3,  $i$  being an adjusting-screw, fitted to turn in a female screw in the solid portion of the arm F, and serving to hold the part comprising the jaws  $f^2 f^2$  in any desired position, so as to place the ball  $f^1$  further from or nearer to the axes E, according as the dasher's stroke is to be increased or diminished.

The supporting-frame or standard D may be readily detached from the churn, to enable the parts which operate the dasher, as well as the dasher itself, to be disjoined from the churn, in order to facilitate cleaning and transportation.

The dasher B consists of a disk perforated vertically, which disk is made fast to the lower extremity of the dasher-rod C.

Secured upon the dasher-rod C, just above the disk B, are blades or wings J J, which are twisted or bent in such a manner that, as said wings are carried round with the dasher-rod C, they serve to force the cream downward. Said wings are also perforated, to admit the passage of the cream through them as they revolve.

It will be seen that the cream is not only acted upon by the vertical and rotary motion of the disk B, producing concussion and friction, conducive to the breaking of the pellicles composing the cream, and rapid formation of butter, but it is also effectively acted upon by the wings J J, which greatly expedite the churning-operation.

In the absence of elasticity in the jaws  $f^2 f^2$ , a set-screw may be applied to the latter, for the purpose of retaining ball  $f^1$  between the same.

The revolving arm F, together with the ball  $f^1$ , may be employed as a means for communicating motion to the cutting-device for a harvesting-machine, and for an analogous purpose in any other machine to which it may be desirable to apply the same.

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

1. The provision, in a churn-operating mechanism, of a weighted arm, F, applied substantially as and for the purpose described.

2. The combination, with the arm F, of the ball  $f^1$  and jaws  $f^2 f^2$ , substantially as set forth.

3. The combination of the bent or twisted blades or wings J J with the disk or dasher B, substantially as and for the purpose set forth.

4. I claim, in a churn, the herein-described mechanism, by means of which a complete rotary movement of the churn-dasher is produced, while it shall, at the same time, be caused to rise and fall, as herein set forth and described.

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Witnesses:

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