2 Sheets—Sheet 1.

L. W. COLVER.

Rotary Churn.

No. 6,726.

Patented Sept. 18, 1849.

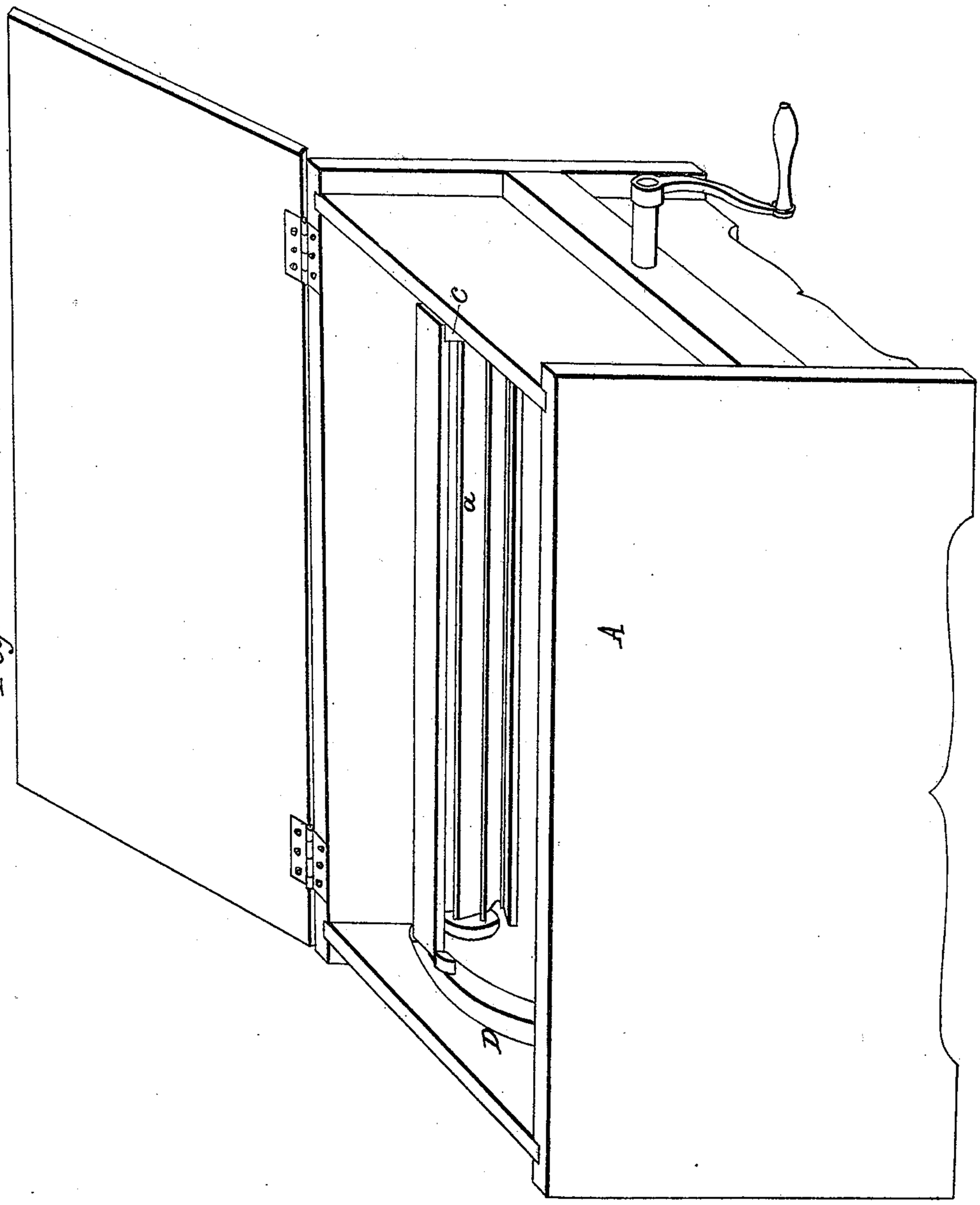

Fig. 1

2 Sheets—Sheet 2.

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Fig. 3

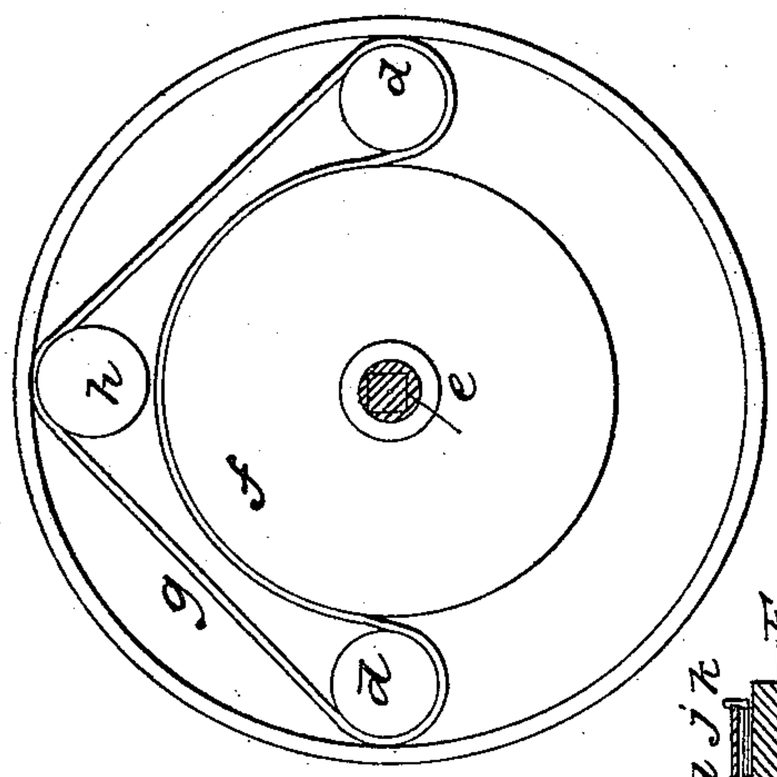

Fig. 4

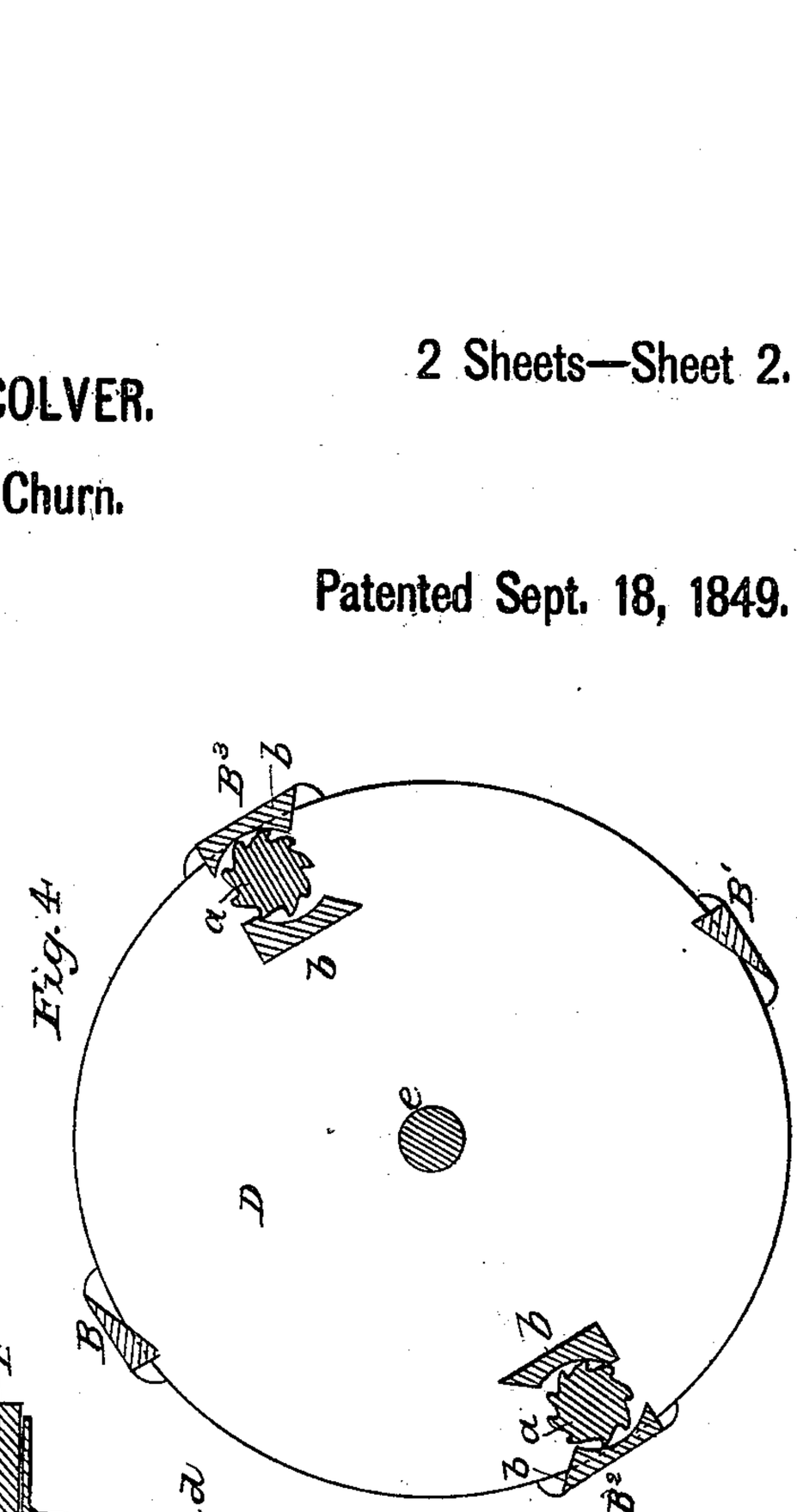

Fig. 1

UNITED STATES PATENT OFFICE.

LEWIS W. COLVER, OF ST. LOUIS, MISSOURI.

ROTARY CHURN-DASHER.

Specification of Letters Patent No. 6,726, dated September 18, 1849.

To all whom it may concern:

Be it known that I, LEWIS W. COLVER, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Churns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of my churn; Fig. 2 is a vertical longitudinal section through the axis of the churn dasher; Fig. 3 is a vertical transverse section at the joint 1, 1, (Fig. 2) of the flat case forming one end of the dasher; and Fig. 4 is a vertical transverse section at the line *x x* of Fig. 2.

The nature of my improvement consists in giving the beaters of a churn dasher a revolving motion on their own axis.

In the drawing, A is a rectangular box of any suitable dimensions to contain the cream. The churn dasher is composed of sets of horizontal beaters B, B^1, B^2, B^3 of peculiar form and construction, uniting the extremities of a cross C, at one end of the churn case, with a round flat case D at its opposite end. Two of these beaters B, B^1, have a wedge form, their edge first entering the milk. The other two B^2, B^3 are each composed of a horizontal fluted roller *a* and two edge-beaters *b*, *b*, the one on the inside and the other on the outside of the roller. The roller is supported by two gudgeons, the one working in the arm of the cross, and the other in the inner face of the round case; the periphery of the roller is covered with hook shaped flutes. The outer faces of the two edge beaters *b*, *b*, are flat, their inner faces are curved to receive the fluted roller, the surface of this curve is farthest from the roller at that part where the flutes by the revolution of the roller first approach the face of the beater, and gradually approaches the roller until at that part where the flutes leave the curved surface, there is just room for their outer edges to pass, the edges of these edge-beaters which first strike the cream are made flaring to receive a larger portion of the cream between them, and conduct it to the roller. The gudgeon *c* of the roller which is supported in the flat round case D is prolonged until its extremity enters the inner face of the outer side of the case, and a belt pulley *d* is attached to it. A short shaft *e* is passed horizontally through the center of the round case D and has a belt pulley *f* mounted upon it within the case; a belt *g* is passed around the two pulleys *d*, *d*, on the gudgeons of the fluted rollers *a*, *a*, and over the face of the central pulley *f*, and the two sides of this belt are prevented from rubbing against each other by a fourth pulley *h*, also contained in the flat case. The central pulley is held stationary and the dasher is revolved around it, and as the central pulley is much larger than the others the velocity of the rollers are proportionately increased.

The dasher thus constructed is supported and rotated in the following manner: A square socket is sunk in the center of the outer face of the four armed cross C, this socket receives the squared extremity of a short horizontal shaft *i* which passes through one end of the churn case and has a crank E secured to its outer extremity. The outer extremity of the shaft of the stationary belt pulley *f* is squared, and received in a square socket sunk in the inner end of a sliding horizontal bolt F which passes through the end of the box opposite to the crank shaft. By sliding the bolt outward the squared end of the belt pulley shaft is liberated from the socket and the churn dasher can be withdrawn from the case; the dasher is secured in place by a wedge *j* inserted between a stationary pin *k* in the case of the bolt and a bolt pin *l* passing through a longitudinal slot in this case. The roller gudgeons are packed to prevent the entrance of cream into the flat around case D by the insertion of a ring of packing in a socket formed around the gudgeon in the face of the case; this packing is kept in place by a ring follower, *m* surrounding the gudgeon and pressed against the packing by the end of the fluted roller which is forced toward the flat case by a set screw *n* acting on the end of the gudgeon at its opposite extremity. The sliding bolt F, and the shaft of the stationary pulley *f*, are also packed in the same manner to prevent leakage. The edge of one half of the flat around case is tongued, and the edge of the opposite half is grooved; a piece of packing is inserted between the two to prevent the cream from making its way into the case. I have hitherto described the fluted rollers as driven by a belt, that being most con-

venient in practice, but it is evident that cogwheels may be employed for the same purpose.

The dasher is turned by the crank in the direction indicated by the arrow, and the fluted rolls are revolved by the belt in the same direction; the rapid revolution of these last produces a violent agitation of the cream; the granules of butter are drawn by the hooked flutes into the converging spaces between the rolls and the edge beaters, thus compressing them together and quickening the agglomeration of the particles.

I wish it to be distinctly understood that I do not intend to confine myself to the precise construction and arrangement of parts herein described, but contemplate varying the same to any extent which may be deemed expedient.

What I claim as my invention and desire to secure by Letters Patent is—

Making the beaters of revolving churn dashers to turn upon their own axes substantially in the manner and for the purpose herein set forth.

In testimony whereof I have hereunto signed my name this ninth day of July 1849.

LEWIS W. COLVER.

Witnesses:

E. S. KENWICK,

P. H. WATSON.