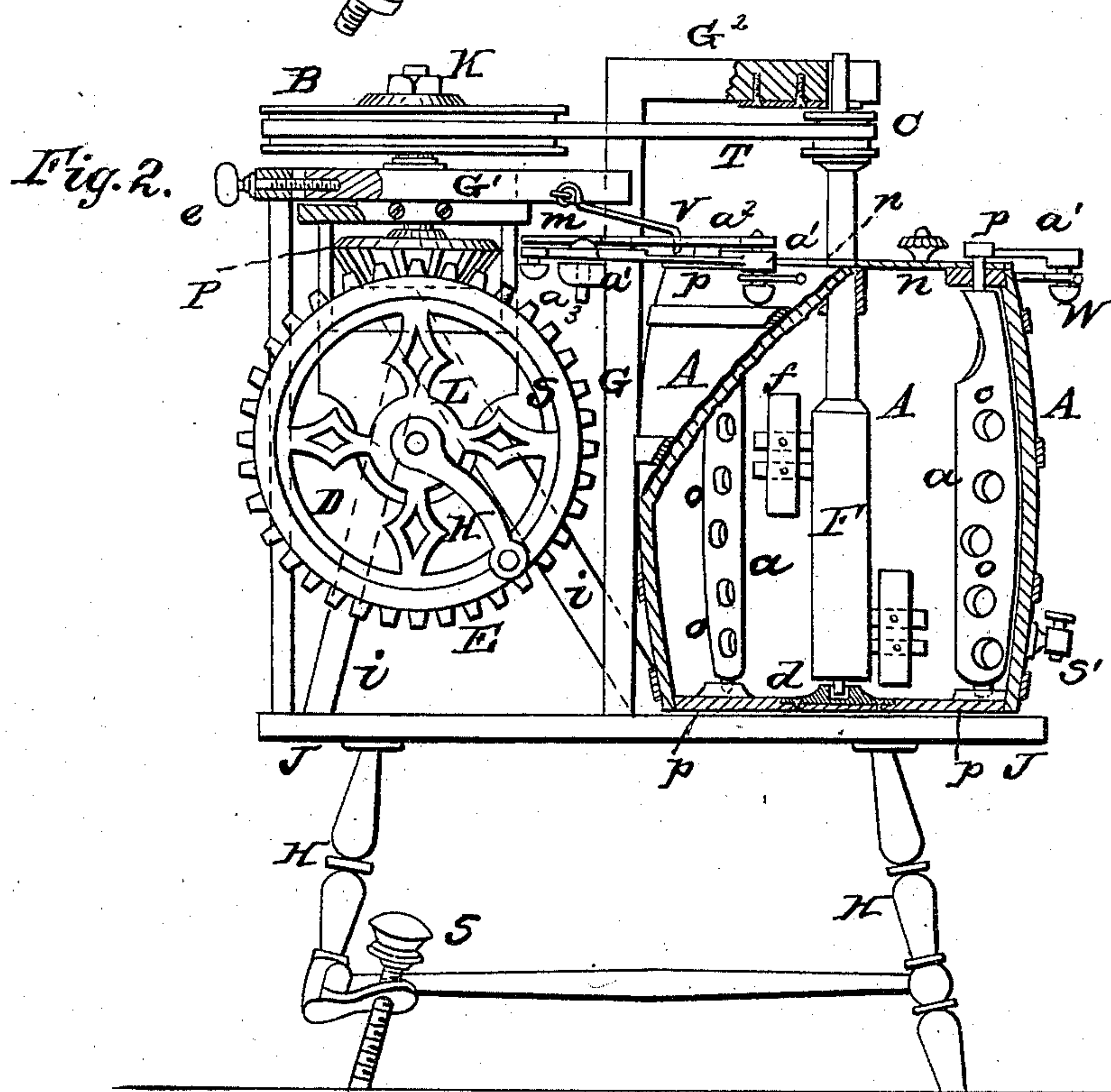
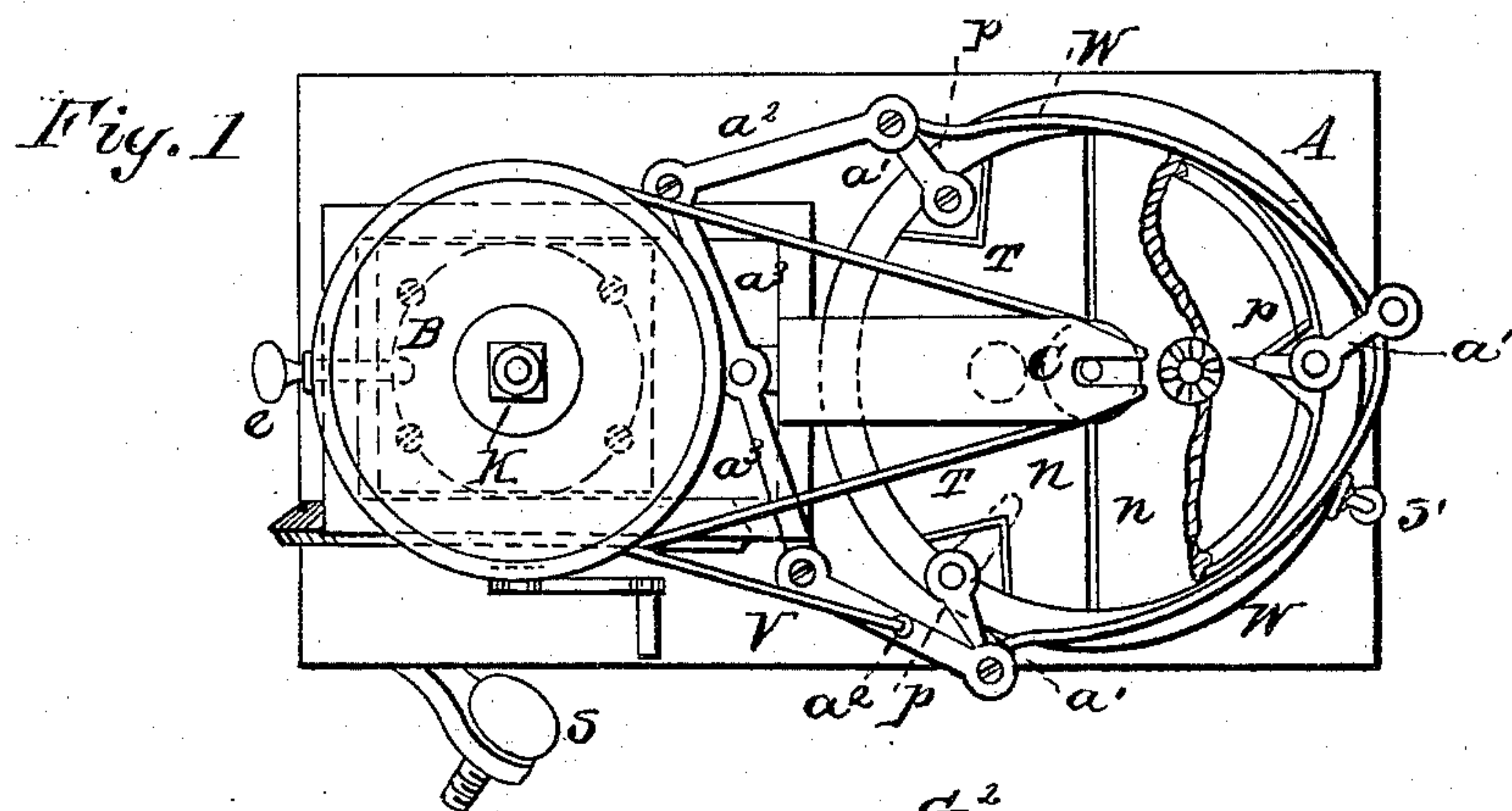


Churn.

Patented Aug. 11, 1868.



Witnesses:
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JOSEPH STADLER, OF DETROIT, AND GEORGE M. STRENG, OF PLYMOUTH, MICHIGAN.

Letters Patent No. 80,882, dated August 11, 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 we, JOSEPH STADLER, of Detroit, and GEORGE M. STRENG, of Plymouth, in the county of Wayne, and State of Michigan, have invented a new and improved Churn; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved method of constructing butter-churns, whereby butter is more quickly and economically made.

It consists of a churn, having, on the inside, a rotating dasher, and provided also, on the inside, with shifting wings, moved by levers on the outside of the churn, whereby greater or less resistance is offered to whirling contents of the churn.

In the accompanying plate of drawings—

Figure 1 represents a plan view of my invention.

Figure 2 is a front view of the same, having a portion of the churn broken out, to show the inside.

Similar letters of reference indicate corresponding parts.

A is the churn, F is the dasher-shaft, and f' are the dasher-wings and boards; a are the shifting wings, furnished with the holes o ; d is a step, in which dasher-shaft F turns; p are pivots, on which wings a turn; n are the lids, by which the churn A is covered; a^1 are cranks or levers, by which the wings a are adjusted; a^2 are connecting-rods, connecting two of the cranks a^1 to the lever a^3 ; a^3 is a lever, by means of which the wings a are moved; w is a connecting-wire, connecting all the cranks a^1 together; v is a hook, attached to cross-frame G^1 , which, engaging in one of the connecting-rods a^2 , holds the wings a in position.

C is a pulley on the dasher-shaft F, by means of which the same is rotated; J is the table; H are the legs; S is an adjusting-screw, whereby the whole is levelled; G are uprights or supports, secured to the top of table J; G^1 is a cross-frame, to support frame m , and in which said frame m slides; e is an adjusting-screw, through the upper part of one of the uprights G, working in a nut in the frame m , and by means of which said frame m is moved backwards and forwards.

i are braces, to strengthen the uprights G; m is a frame, sliding between two parts of the cross-frame G^1 ; K is a vertical shaft through the frame m , and turning in suitable bearings attached to the same; L is a horizontal shaft, supported by and turning in suitable bearings in the frame m ; D is a bevelled-gear wheel on shaft L; P is a pinion on shaft K, fitting into wheel D.

E is a crank, by means of which shaft L and wheel D are turned; B is a pulley on shaft K; T is a belt on pulleys B and C, communicating motion from B to C; G^2 is an arm on one of the uprights G, in the end of which is a slot, to receive and support the upper end of the dasher-shaft F, and in which said slot dasher-shaft F turns.

A portion of the arm G^2 is shown as broken away, that the slot in the end of said arm may be seen. A portion of the cross-frame G^1 is shown broken away, that the screw e , working in a nut in frame m , may be seen. S' is a faucet or stop-cock.

The table J is of any convenient size or form, and has, upon its upper side, suitable uprights or supports, G, and upon said uprights G is a cross-frame, G^1 , and an arm, G^2 , and attached to said table are suitable braces, i , by means of which the uprights G are strengthened and made stiffer, the said table J, and uprights G, and cross-frame G^1 , and arm G^2 , and braces i , constituting the frame of the churn, the whole being supported by the legs H, as shown in the drawings. Upon the foot of one of the legs H is an arm, through which is an adjusting-screw, S, by means of which the entire apparatus is levelled.

Upon the uprights G, and extending from one to the other of the same, is a cross-frame, G^1 , in which slides, towards and from the churn A, another frame, m , through the top of which frame m passes the vertical shaft K, and in which said frame m said shaft K rotates in suitable bearings attached to the said frame m , as shown in the drawing, fig. 2.

To the under side of said frame *m*, and rotating in suitable bearings attached to the said frame *m*, is a horizontal or main shaft *L*. Upon said vertical shaft *K*, and secured to the same by a key, in the usual way, is a bevelled-gear pinion, *P*, and upon said shaft *L*, and secured to the same by a key, in the usual way, is a bevelled-gear wheel, *D*, arranged in the usual way of changing a horizontal to a vertical motion, as shown in the drawing, fig. 2. Upon said vertical shaft *K*, and above the frame *G*¹, is fixed a horizontal pulley, *B*, provided with a groove upon its edge, to receive the belt *T*. The frame *m* is made of the proper form to support the main shaft *L* and the vertical shaft *K*, and is suspended between the two parts of the frame *G*¹, as shown in the drawing, so as to admit of the said frame being moved nearer to or further from the dasher-shaft *F*, so as that the belt *K* may be easily tightened without being cut.

Through one of the uprights *G*, as shown in the drawing, is an adjusting-screw, *e*, which, working in a nut in the frame *m*, moves said frame backward or forward, nearer or further from the dasher-shaft *F*, so as to shorten or lengthen the belt *T*, as above described.

Upon the table *J*, as shown in the drawing, is the churn *A*. Said churn is made of wood, in the shape of a barrel, or of any desired form and size. Said churn *A* is provided, on its upper end, with the lids *n*, by means of which it may be opened or shut.

Said churn *A* is also provided, near its lower end, with a faucet or stop-cock, *S'*, by means of which the buttermilk may be drawn off. In the inside of the churn *A*, and near the sides of the same, and turning upon the pivots *p*, in the top and bottom of said churn *A*, as shown, are shifting wings *a*, provided with the holes *o*.

To the end of the journals or pivots upon which said shifting wings *a* turn, at the upper end of the same, are attached, in the usual way, the arms or cranks *a*¹, which extend outwards and beyond the outside of the churn *A*.

Upon the end of said arms or cranks *a*¹ are crank-pins, to which are pivoted the connecting-rods or arms *a*², and around which passes the connecting-wire *w*, connecting all the arms or cranks *a*¹ together, so that all the shifting wings *a* may be shifted together, and also connecting said arms or crank *a*¹ to the lever *a*³.

The shifting wings *a* are upright strips, provided with the hole *o*, as shown in the drawing, fig. 2. Upon the upright, *G*, nearest the churn, and at about the height of the same, upon a projection therefrom for that purpose, as shown, is pivoted, in the centre, the lever *a*³, by means of which, as above described, the shifting wings *a* are shifted in position, so as to be folded up close to the side of the churn *A*, or to project into the same, so as to make a greater or less resistance to the whirling contents of the said churn *A*, and thereby more effectually separate the butter from milk.

The dasher-shaft *F* is a vertical shaft, and is provided with a journal at the lower end, which fits in a step, *a*, in the centre of the bottom of the churn *A*, and is supported, at its upper end, in a journal or slot in the arm *G*². Said shaft *F* passes through the lids *n* of the churn *A*, as shown in the drawing, fig. 2, and has upon its upper end, just under the arm *G*², a pulley, *C*, provided with a groove around the edge of the same, to receive the belt *T*, by means of which it is driven.

The wheel *D* is larger, and has more teeth than the pinion *P*, and the pulley *B* is larger than the pulley *C*, by means of which a very rapid motion is given to the dasher-shaft *F*.

Upon opposite sides of the dasher-shaft *F*, one near the top, and the other near the bottom, as shown in the drawing, fig. 2, are the dasher-boards or wings *f* and *f'*, not being on a vertical line with the shaft *F*; but the dasher-board *f* is inclined one way, and the dasher-board *f'* is inclined the other way, at a greater or less angle to the line of the shaft *F*, so that the one strikes upwards, and the other downwards.

Upon the shaft *L* is a crank, *E*, by means of which, through the wheel *D*, and pinion *P*, and pulley *B*, and belt *T*, and pulley *C*, the dasher *F f f'* is driven.

The operation is similar to that of churns now in use which have a rotating dasher, and is easily seen from the drawing.

The advantage of churns constructed as above is the ease and rapidity with which the butter is separated from the buttermilk in churning.

I claim as new, and desire to secure by Letters Patent—

1. The vessel *A*, in combination with the rotating dasher-shaft *F*, and revolving dasher-wings or boards *f f'*, and the shifting wings *a*, substantially as shown and described, and for the purposes set forth.
2. The shifting wings *a*, in combination with the vessel *A*, substantially as shown and described, and for the purposes set forth.

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GEORGE M. STRENG.

Witnesses:

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HENRY O. D. HEIDE.