W. STOVER.
Churns.

No. 196,498. Patented Oct. 23, 1877.

Fig. 1.

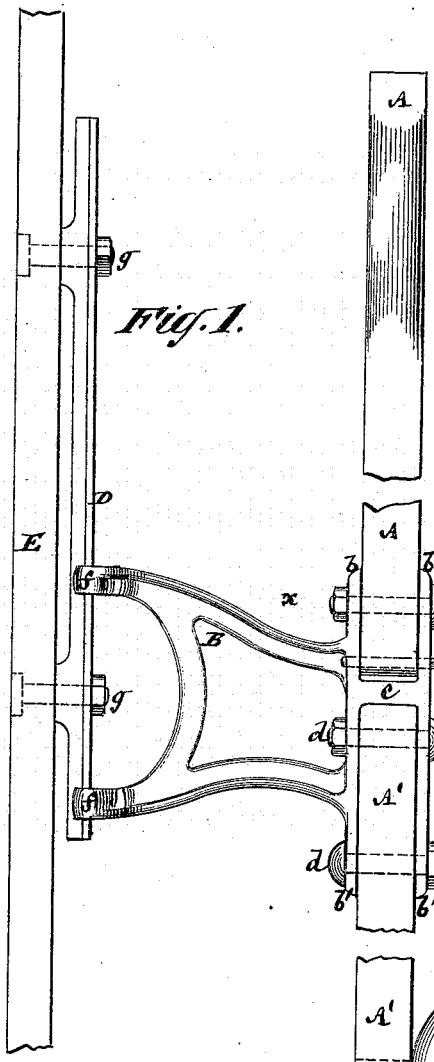


Fig. 2.

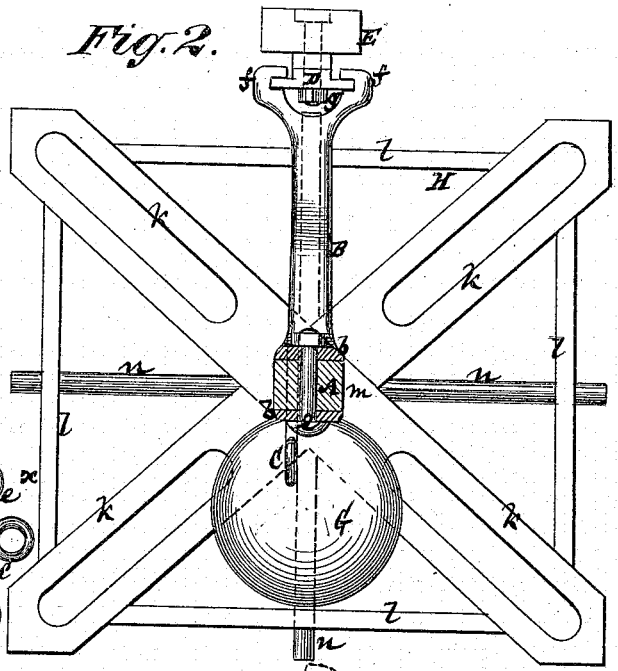


Fig. 3.

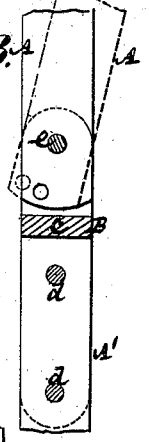
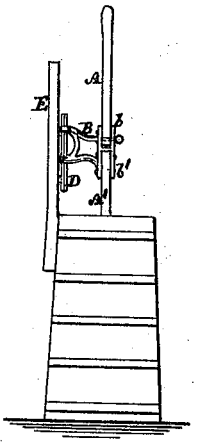


Fig. 4.



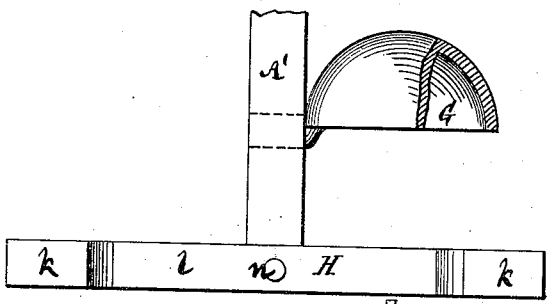
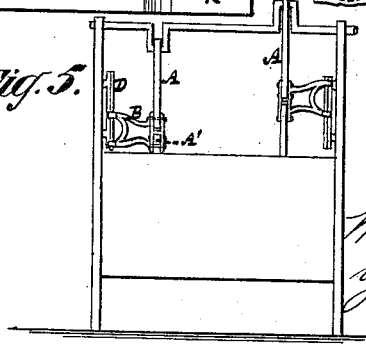


Fig. 5.



Witnesses
John Becker
Fred. Haynes

Inventor
William Stover
by his Attorneys
Brown + Allen

UNITED STATES PATENT OFFICE.

WILLIAM STOVER, OF AUBURN, NEW YORK.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **196,498**, dated October 23, 1877; application filed August 28, 1877.

To all whom it may concern:

Be it known that I, WILLIAM STOVER, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Churns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification.

This invention is applicable to box, barrel, and other shaped churns, both when the latter have rigid staffs, which are worked up and down direct in a straight course by hand, and when said churns have one or more jointed staffs, which receive motion from a crank-shaft operated either by hand or by power.

The invention consists in a socketed staff-holder, in combination with means for guiding the dasher-staff by said holder in its up-and-down motion, and for adapting said holder either to a rigid or to a jointed staff.

These devices, which constitute a simple attachment to a churn, conduce very materially to the easy working of the dasher, and add to the strength of the churn, as well as to the adaptability of different mechanical movements to actuate the dasher staff or staffs; and the invention furthermore consists in a novel construction of the dasher, to insure the working out of the buttermilk, and to gather the butter in a mass, as well as to secure a perfect agitation of the cream.

Figure 1 represents a side elevation of a churn-dasher with its staff and attached means in accordance with my invention. Fig. 2 is a partly-sectional plan of the same on the line *x x*; and Fig. 3, a sectional elevation of the staff-holder with a divided and jointed staff applied thereto. Fig. 4 is an elevation of an upright barrel-churn having a rigid staff, and my improved staff-holder and guide applied thereto; and Fig. 5 is a similar view of a box-churn having duplicate dashers and jointed staffs actuated by a crank-shaft.

A and A′ indicate the dasher-staff, made in two sections or pieces, one above the other. The upper one, A, of these sections forms the handle, to which the hand of the operator is applied when working the dasher up and down direct by the staff, as in the churn illustrated in Fig. 4 of the drawing; or said upper section A of the staff may be connected at its top end, by a strap, with the crank of a rotating shaft, as shown in Fig. 5, in which the churn is represented as having duplicate dashers connected by their staffs with duplicate and reversely-set cranks of a driving-shaft, which may be rotated either by hand or by power.

As each dasher has the invention applied to it, the invention is the same whether the churn have one or more dashers.

B is the dasher-staff holder. It is made of metal, and not only serves to unite the adjacent ends of the staff-sections A A′ together, but also to steady and guide or direct the staff in its up-and-down movement. To these ends said holder B is constructed as follows: It is formed at its staff-holding end with an upper socket, *b*, and a lower socket, *b′*, composed of inner and outer flanges, united by a tie bar or piece, *c*, which latter constitutes the the bottom of one socket and the top of the other. The lower one, *b′*, of these sockets serves to receive within it the upper end of the lower staff-section A′, which is firmly secured within said socket by means of duplicate bolts *d d*. The upper one, *b*, of said sockets receives within it the lower end of the upper staff-section A, which is secured within it by means of a joint pin or bolt, *e*, on or with which said staff-section is free to rock when such staff-section is connected with a driving-crank at its upper end. When, however, said staff-section A is required to be rigid in the socket, as when working the staff up and down directly by hand, then a ring or locking-pin, C, is inserted at any suitable distance from the bolt *e*, through the socket *b* and staff-section A, as the latter is brought in line with the lower staff-section A′. Thus secured, the socket *b* ceases to form a working joint or jaw for the upper staff-section, and the locking-pin C, in conjunction with the joint-pin *e*, makes the upper staff-section a rigid continuation of the lower staff-section. In this way the staff is readily transformed from a rigid into a jointed one, and vice versa.

Said holder B, which may be of an open and bracket-like construction, carrying the sockets *b b′* at its forward end, is, furthermore, constructed at its outer or opposite end with duplicate upper and lower vertically-grooved jaws or boxes *f f*, which embrace, in a close

but sliding manner, the opposite edges of an upright bar or standard, D, or are free to work up and down in or on ways formed by said bar. This bar D is stationary, and is secured by bolts *g* to an upright, E, on the outside of the box or barrel of the churn, and projecting up from it.

Said upright may either be an independent piece or an extension of one of the staves or side pieces of the churn, and when two staff-holders, B, are used on opposite sides of the churn, as in Fig. 5, the uprights E will also be duplicated, and may serve as the supports for the operating crank-shaft of the churn.

The bar D, which operates as a fixed rail or guide for the holder B, may be constructed with a rib at its back, to give it the necessary projection from the face of the upright E, for the jaws or boxes *f* to freely embrace the edges of said bar.

Secured to the side or sides of the dasher-staff or lower section A′ thereof are one or more inverted cups, G, arranged to work under cover of the churn, and serving, as they are projected downward by the staff, to supply the cream with air, and to improve the condition and color of, and work out impurities from, the butter, which will be formed in a hard and solid mass, comparatively clear of buttermilk, and requiring but little subsequent hand labor.

There may be any number of these cups, according to the size of the churn, and they may be arranged one above the other, as well as on opposite sides of the dasher-staff, from which they form independent and lateral projections, not collecting the air about or around the staff, but distributing it through the cream.

H is the dasher, which is of a construction that also materially assists to form the butter in a solid mass, and, when combined with the inverted cups G, accelerates and perfects the production of butter of a superior quality and color. Furthermore, it not only thoroughly agitates the cream, but gathers the butter in a solid mass. To these ends said dasher H is constructed of a series of slotted radial arms, *k*, connected by side bars *l*, which, in their turn, are united with the hub or center *m* by solid radial arms *n*.

I claim—

1. The staff-holder B, constructed with upper and lower sockets *b b′* at its one end, and grooved jaws or boxes *f f* at its opposite end, in combination with the stationary bar D, up and down which said holder is free to slide, substantially as specified.

2. The combination of the locking-pin C with the joint-pin *e*, the upper and lower sockets *b b′* of the sliding staff-holder B, the staff-sections A A′, and the stationary bar D, essentially as and for the purposes herein set forth.

3. The dasher H, constructed of slotted radial arms *k*, side bars *l*, and solid radial arms *n*, essentially as described.

WILLIAM STOVER.

Witnesses:

HORACE T. COOK,

C. F. BARBER.