

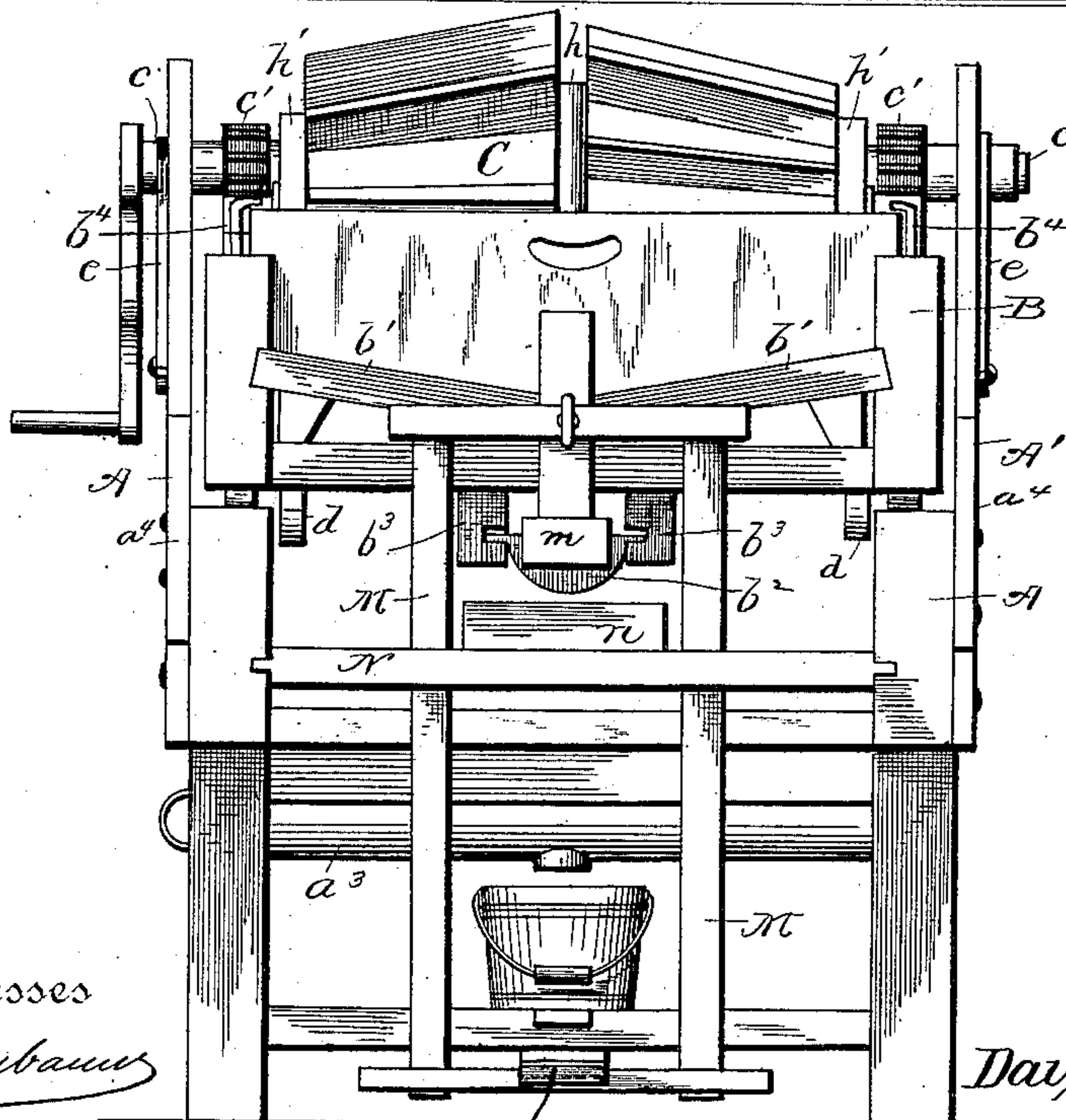
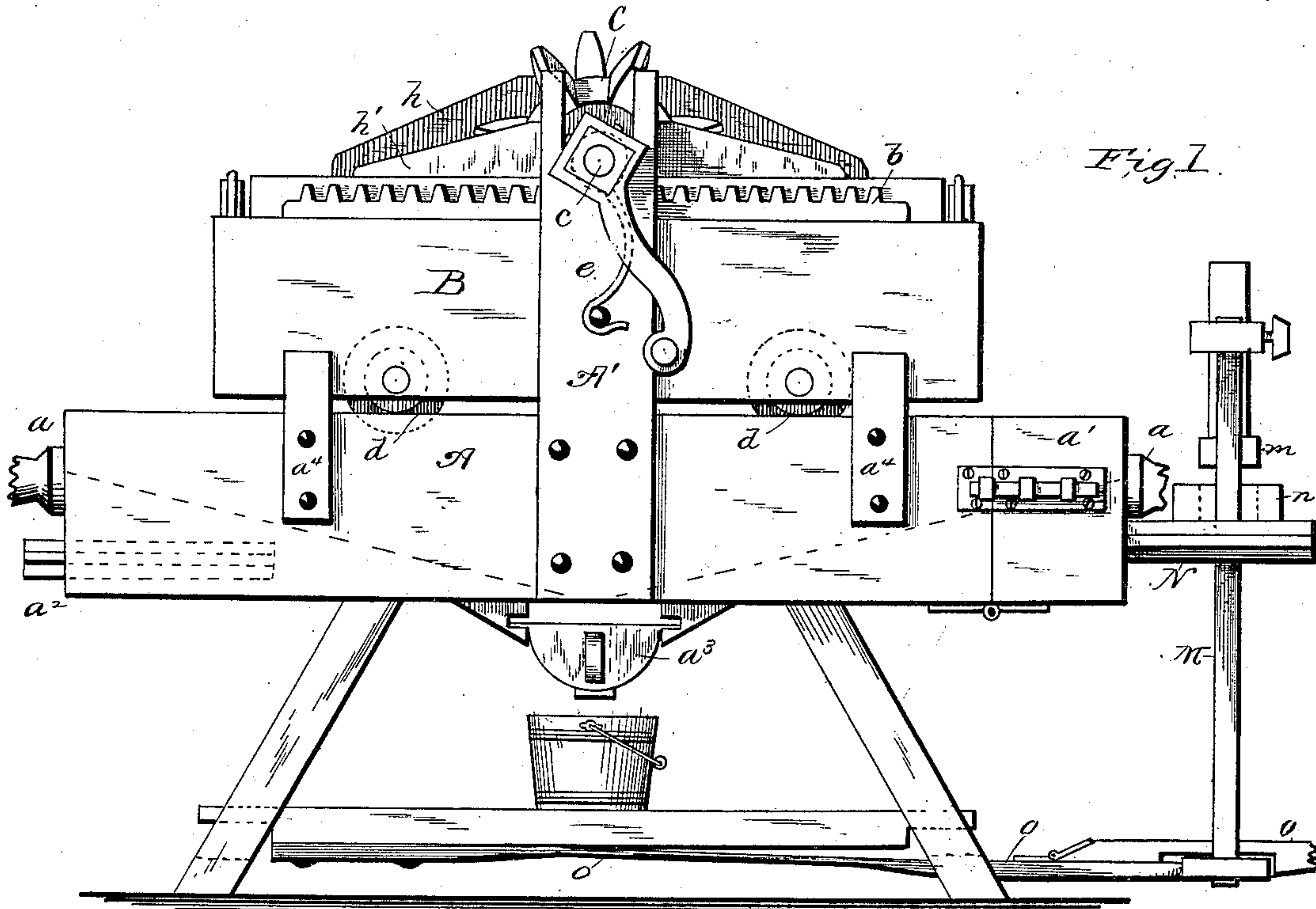
(No Model.)

2 Sheets—Sheet 1.

D. B. WOODWARD.  
BUTTER WORKER AND MOLD.

No. 343,684.

Patented June 15, 1886.



Witnesses  
*M. Rosenbaum*

*J. S. Ober*

Inventor

*Davis B. Woodward.*

By his Attorney

*V. D. Stockbridge*

(No Model.)

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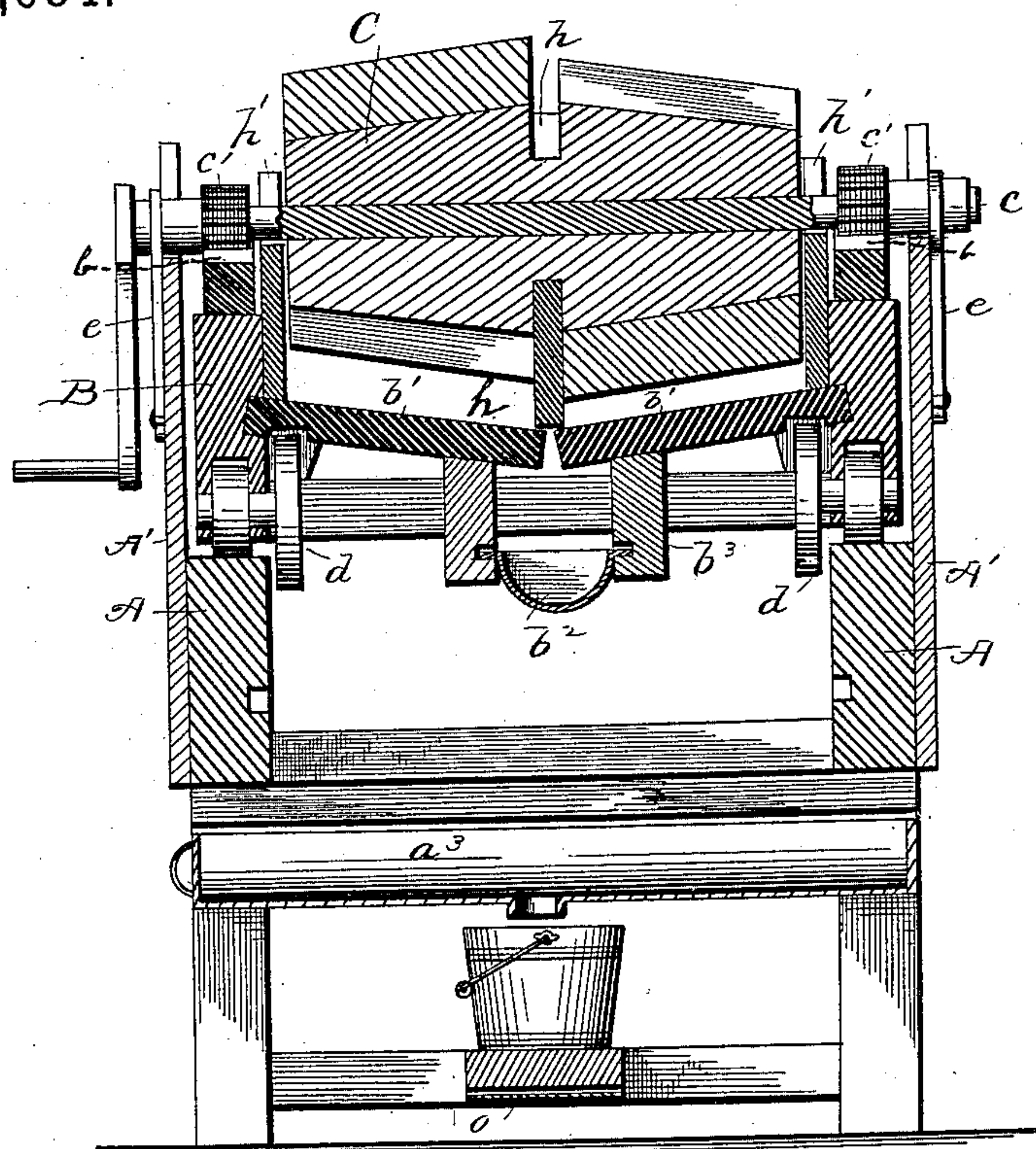


Fig. 3.

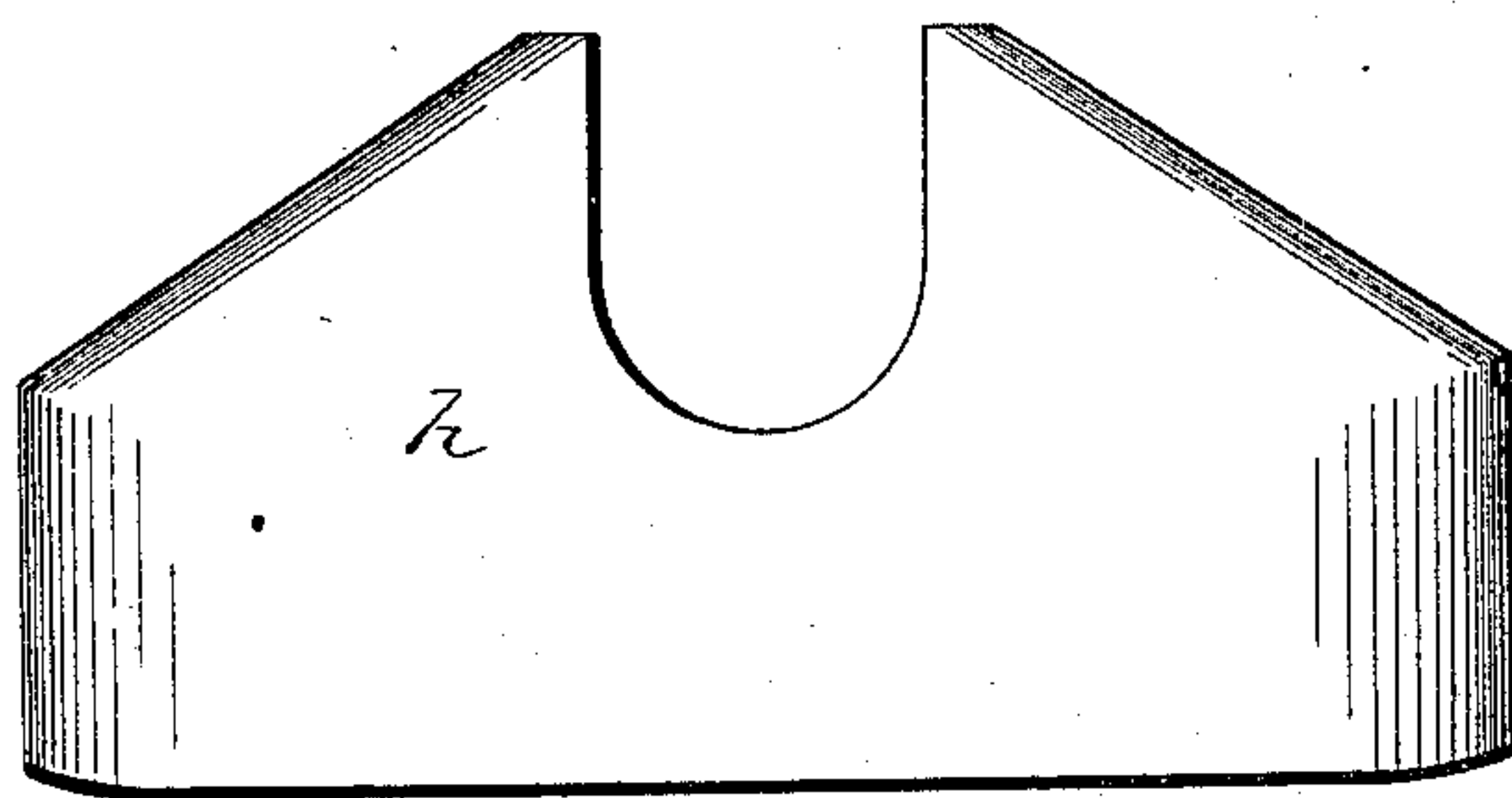


Fig. 4.

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# UNITED STATES PATENT OFFICE.

DAVIS B. WOODWARD, OF MARSHALLTON, PENNSYLVANIA.

## BUTTER WORKER AND MOLD.

SPECIFICATION forming part of Letters Patent No. 343,684, dated June 15, 1886.

Application filed March 25, 1886. Serial No. 196,447. (No model.)

*To all whom it may concern:*

Be it known that I, DAVIS B. WOODWARD, a citizen of the United States, residing at Marshallton, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Butter Workers and Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the class of butter-working machines in which the butter is kneaded in a tray by a roller hung within such tray, and with which there is a relative traversing movement.

The objects of my invention are to provide an efficient machine, which shall be simple of construction, easily kept clean and in working order, and adapted to the wants of either large or small producers.

To this end my invention consists in certain construction of parts of the machine, as well as in certain new and useful combinations of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, making a part of this specification, Figure 1 is a side elevation of my improved machine. Fig. 2 is a front elevation. Fig. 3 is a vertical central section showing parts in elevation, and Fig. 4 is a detail view of one of the guards or clearers.

A is a bench or frame, which constitutes a support for a traversing-tray. The frame is supported on legs, which may be permanently or detachably connected therewith, and it is provided with handles  $a$ , by which it may be moved or carried from place to place. This frame may be also provided with extension parts  $a'$ , which furnish a larger track for the tray, which may be either folded or detached when not required. I also provide, for convenience, a sliding shelf, N, which may be drawn out or pushed in at will.

For large-sized machines I propose to arrange within the frame inclined bottom boards, as shown in dotted lines in Fig. 1, so that whatever drippings come from above may be conducted to a trough,  $a^3$ , and thence through a neck thereof to a bucket or other receptacle.

$A' A'$  are standards fixed to the bench in

which is mounted the roller-shaft  $c$ . Guide-pieces  $a^4 a^4$ , for preventing the tray from jumping its track, are secured to the frame, as particularly shown in Fig. 1.

B is a tray or receptacle in which the butter to be worked or kneaded is placed. This tray is mounted on tracks, and runs on the upper edges or rails of the frame A. The tray is caused to reciprocate by means of pinions  $c' c'$  on the shaft  $c$ , which mesh with the racks  $b$  on the tray. The tray is provided with removable inclined bottom boards,  $b' b'$ , a narrow space being left between their adjacent edges for the buttermilk to drip through to the pan  $b^2$ . The bottom boards have depending from them grooved brackets  $b^3$  for holding the dripping-pan  $b^2$ . This dripping-pan, as well as the trough  $a^3$ , is readily removable for scalding and other purposes. The tray is also provided with removable end boards, which are made to fit in grooves in the sides of the tray, and are held in place by catches or hooks  $b^4$ . The end boards and bottom boards are made removable for the purpose of convenience in scalding and keeping the parts clean. Obviously, however, a part of the benefits of my invention may be obtained if these parts were not removable.

$d d$  are rollers or trucks for the tray. They are made up of different-sized disks or wheels, having a neck or shaft between them, which also projects on one side of the smaller disk or truck. This shaft fits in bearings in the side pieces of the tray, so that the smaller tracks roll on the edge of the frame A, and the larger disks act as flanges to keep the tray on the track.

C is a double conical roller having blades or vanes, the bases of the cones being adjacent to each other, as shown. The pitch of the cones corresponds with the inclination of the bottom boards of the tray. This roller is preferably made with a circumferential groove or space between the two cones to carry a central guard and clearer,  $h$ . (Shown in detail in Fig. 4.) The blades or vanes of the roller are arranged on the cones so that a space on one cone shall always be opposite a blade on the other, thus bringing the blades on the two cones alternately into operation. By reason of this arrangement of alternating blades the kneading of large masses of material may be



accomplished with less power than would be required to break down the materials entirely across the tray at once, while the facility of cleaning the roller is not materially diminished. The roller is secured to the shaft *e*, which is hung in the tops of the standards *A'*.

*h* is a thin piece of wood made of the general shape shown in Fig. 4, and chamfered or beveled to an edge at the opposite ends. This device is adjusted in the circumferential groove between the cones and operates to clear and guard the space between the edges of the inclined bottom boards and prevent the butter from working through, while permitting the free exit of the buttermilk.

*h' h'* are guards between the ends of the roller and the sides of the tray, similar in shape to the guard or clearer *h*. They are, however, beveled on one side only, the other or flat side resting against the sides of the tray. These guards prevent the access of butter to the gearing for reciprocating the tray, and are readily removable for cleaning and scalding.

*e e* are hooks the arms or shanks of which are spring metal, and curved, as shown, so that they may operate as springs to pass over a stud under tension, as well as to afford a yielding locking or fastening device. Each of these hooks is provided with an eye at one end, which embraces the shaft *e*, and the whole constitutes a means for holding the shaft in its bearings under spring-tension, so that the shaft and roller yield under undue pressure.

The operation of this part of my machine is as follows: The machine being assembled, as shown in Figs. 1 and 2, the butter from the churn is placed in the tray. The crank on the roller-shaft is then given a backward and forward motion, which causes a reciprocation of the tray and partial rotation of the roller with each motion of the crank. This causes a continuous kneading of the butter. The central guard or clearer, *h*, cuts the butter as the tray slides, and keeps the central opening in the bottom of the tray clean, so that the buttermilk may pass off into the trough beneath. The side guards protect the ends of the roller and keep the butter from working up into the shaft and gearing.

The mold consists of a frame, *M*, carrying a plunger, *m*, a removable table, *N*, and a mold, *n*. The frame is supported by a spring-board or other suitable spring, *o*, the outer end of which forms a pedal. The sides of the frame are guided and supported by passing loosely through the table *N*.

The operation of this device is as follows: The proper quantity of butter having been placed into the mold, a pressure with the foot on the pedal brings down the plunger, which forces the butter into the mold and imprints the stamp which is cut in the face of the plunger.

The convenience of the mold adjacent to the butter-tray is obvious.

Having described my invention, what I claim is—

1. In a butter-worker, the combination of a double conical roller provided with blades arranged on the cones so that the blades of one shall be opposite the spaces between the blades on the other, with a tray having bottom boards inclined to be parallel with the sides of the roller, as set forth.

2. In a butter-worker, the combination of a double conical roller provided with blades arranged as described, and a circumferential groove, a guard or clearer constructed to fit into said groove, and a tray having inclined bottom boards arranged to allow a space between their adjacent edges, as described.

3. In a butter-worker, the combination of a tray, a roller, and removable sliding side guards or clearers, *h' h'*.

4. In a butter-worker, the combination of a double conical roller provided with a circumferential groove, a tray having a central longitudinal opening, a central guard and clearer, *h*, and side guards, *h' h'*.

5. In a butter-worker, the combination of a suitable roller, a tray whose bottom boards incline downward, with a space or longitudinal opening between their adjacent edges, and a drip pan or trough, substantially as described.

6. In a butter-worker, a tray provided with inclined bottom boards, and an opening for draining off buttermilk and other liquids, in combination with a suitable roller, and a guard or clearer for keeping said opening free, as set forth.

7. In a butter-worker, the combination of the reciprocating tray *B* and the dripping pan or trough *b'* with the bench or frame *A* and the supplemental pan or trough *a'*.

8. In a butter-worker, a truck or roller consisting of two disks or wheels of different sizes having a shaft or neck between them, in combination with a supporting-frame provided with a track and a reciprocating tray.

9. In a butter worker and mold, the combination of the frame *A*, the sliding detachable table *N*, and the frame *M*, carrying a plunger or stamp, as set forth.

10. The combination of frame *A*, sliding detachable table *N*, and spring-mounted frame *M*, carrying plunger, substantially as described.

11. In a butter-worker, a kneading-roller provided with wings, blades, or flutings extending from the ends toward the middle thereof, the blades on each end being opposite a space on the other end, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVIS B. WOODWARD.

Witnesses:

WM. P. MERCER,

DAVID M. MCFARLAND.