J. S. LASH.

Butter-Working Machine.

No. 221,584. Patented Nov. 11, 1879.

Fig. 1.

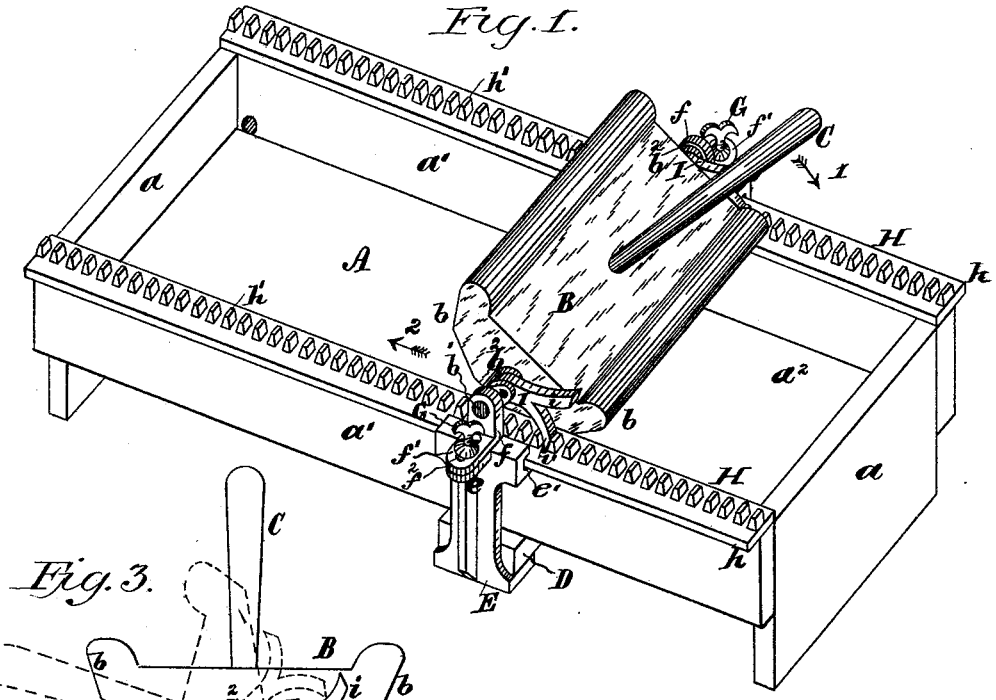



Fig. 3.

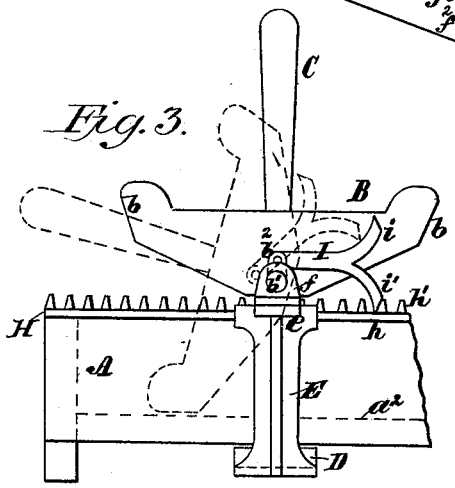



Fig. 2.

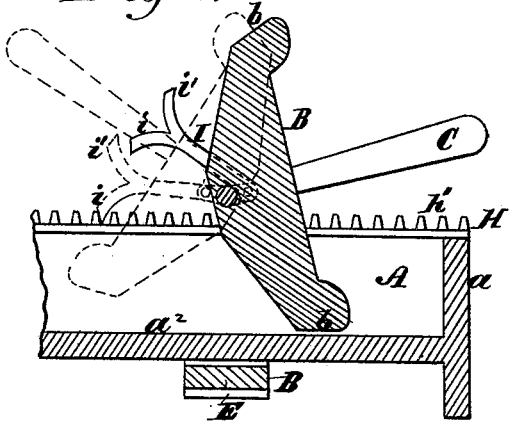
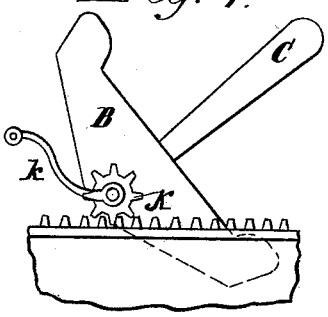



Fig. 4.

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## IMPROVEMENT IN BUTTER-WORKING MACHINES.

Specification forming part of Letters Patent No. **221,584**, dated November 11, 1879; application filed August 8, 1879.

*To all whom it may concern:*

Be it known that I, JOHN S. LASH, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Butter-Working Machines, of which the following is a specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective; Fig. 2, a vertical section; Fig. 3, a side elevation; and Fig. 4, detail view of a modification of my invention.

The object of my invention is to provide a mechanical appliance or apparatus in which butter may be worked in a mode similar to hand—that is, by successively taking off small portions from the mass and spreading out and pressing each such portion separately after removal from said mass.

My invention consists in the peculiar construction and combination of parts hereinafter fully set forth.

A in the annexed drawings indicates a tray, having ends *a a*, sides *a' a'*, and a bottom, $a^2$, which is inclined slightly toward one side, so as to permit the liquid worked out of the butter to run off. B represents the kneader, consisting of a head, which is double-ended, having at each end a flaring or beveled working-face, *b*, and is provided with journals *b' b'* and an operating-handle, C. This kneader-head is of such extent through its longest diameter—that is, from one of its working-faces *b* to the other—that it cannot be rotated over the trough A. Its method of operation, as hereinafter described, consisting in rocking and pressing down the butter upon the bottom of the tray, and, after such pressing is accomplished, rising backwardly therefrom, it will be manifest that its dimensions must be such as to avoid the possibility of its making a complete revolution, and therefore such that the bottom of the tray will form a stop to its rocking motion when the desired limit of vibration has been reached.

D represents a cross-bar located beneath the tray A, and adapted to be moved lengthwise of said tray below the bottom of the latter and in close contact therewith. E E are standards, secured to either end of the cross-bar D, and affording bearings for the journals *b' b'* of the head B, said journals being fitted to move in boxes *f f*, which rest on the heads *e e* of the standards E E.

The boxes *f* are formed on base-plates *f'*, which are slotted at $f^2$ for the passage of a set-screw, G, through each.

By slightly loosening the set-screws the boxes may be drawn away from the journals *b' b'*, thereby permitting the head B to be lifted out of position whenever desired.

H H are rack-bars, fastened on the sides *a' a'* of the tray A, said bars having each a rib, *h*, which enters a corresponding groove, *e'*, in the head *e* of each of the standards E E, thereby forming guides, and teeth *h'*, whereby, through the medium of pawls I I, the kneader is advanced, as hereinafter set forth.

Each of the pawls I I is bifurcated, as shown at *i i'*, at its free end, being pivoted at its opposite end in knuckles $b^2$, formed on the journal *b'*. The knuckles $b^2$ $b^2$ are perpendicular when the handle C is vertical, and one end, *i* or *i'*, of each of the pawls I I is then in engagement with one of the racks *h' h'*. Now, on moving the handle C in the direction to which the pawl points the kneader B will be moved with the cross-bar D and standards E E in the contrary direction. Thus, supposing the parts to occupy the position shown in Fig. 1 in full lines, on drawing the handle in the direction of the arrow 1 the ends *i' i'* of the pawls I will be pressed against the then engaging teeth of the racks *h' h'*, and the leverage being continued, the kneader B, with cross-bar and standards, will be moved in the direction of the arrow 2 or toward the opposite end of the tray A.

The operation is as follows: The mass of butter to be worked is placed on the bottom of the tray A, and as near the end as the convenient operation of the kneader will permit, resting on the elevated portion of the bottom $a^2$, so as to leave a passage-way on the most depressed part of said bottom for the expressed liquor. The kneader-head B is now rocked by taking hold of and moving the handle C until the parts occupy the position shown in dotted lines in Fig. 3, the face *b* removing from the mass of butter as the head is rocked a small portion, which it spreads out and firmly presses on the bottom $a^2$, thereby removing the liquid

contained therein. The motion of the handle C is then reversed, bringing the ends $i' i'$ of the pawls I again into engagement with the racks $h' h'$, and moving the head B, with the standards E E and cross-bar D, forward toward the mass of butter, so that when said head is again rocked in the direction of said mass, a portion of the same will be detached, as before. This operation is continued until the head B has moved the length of the tray, or until the mass of butter thereon has been all worked. Now, on throwing over the pawls I I, so as to point in the reverse direction, the ends $i\,i$ being thus brought into engagement with the racks $h' h'$, the kneader B may be caused to traverse the tray A in the contrary direction, the opposite face, $b$, then becoming the working-face.

Owing to the described location and arrangement of the knuckles $b^2$, at the moment the working-face of the kneader in its descent leaves the mass of butter from which it has detached a portion, or when the handle C has reached an angle of about forty-five degrees, the pawls I I are lifted out of engagement with the racks $h' h'$, resting upon the journals $b' b'$, and continue out of such engagement until by the movement of the handle C the kneader has been rocked so that its adjacent working-face in its ascent has cleared the mass of butter in front of it. This is necessary in order to prevent the working-face of the kneader in its ascent from scraping the mass of butter, such scraping being desired only on the descent of such face.

When the pawls are out of engagement with the racks, the head B is held up to its work by reason of the friction or binding between the cross-bar D and bottom $a^2$, and between the ribs $h$ and heads $e$, and to produce such friction or binding the bar D should be made to fit snugly against said bottom, while the standards E should incline outwardly slightly as they descend, so that their heads $e$ will bind firmly against the ribs $h$.

In lieu of the pawls I I, a pinion, K, shown in Fig. 4, and operated by a handle, $k$, may be employed to produce the advance of the kneader.

What I claim as my invention is—

1. The double-ended kneader B, having two working-faces, $b\,b$, journals $b' b'$, and a handle, C, in combination with tray A and double-ended pawls I I, said kneader being of such dimensions relatively to said tray A that when in its bearings it cannot be rotated over the latter, whereby said kneader is adapted to be rocked, substantially as described, for the purpose of detaching from a mass of butter a small portion, and spreading out and pressing such portion, substantially as described, and of operating in such manner at either end, or in contrary directions alternately, substantially as set forth.

2. The combination, with a tray, A, of cross-bar D, standards E E, double-ended pawls I I, and journaled kneader B, having handle C, whereby said kneader is adapted to be rocked over and on said tray, and with said cross-bar and standards may be caused to traverse said tray from end to end and reverse, substantially as shown and described.

3. The combination, with tray A, having rack-bars H H, of cross-bar D, standards E E, rocking kneader B, having handle C, and double-ended pawls I I, whereby, for each rocking of said kneader, it, with said cross-bar and standards, will be moved along said tray, and on throwing over pawls the oppposite working-face of the kneader will be brought into operation and the actuating parts moved in the reverse direction, as set forth.

4. The combination of tray A, having bars H, with ribs $h$ and teeth $h'$, kneader B, having two working-faces, $b\,b$, journals $b' b'$, and handle C, cross-bar D, standard E, having heads grooved at $e'$, boxes $f$, and double-ended pawls I I, constructed and adapted for operation substantially as shown and described.

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