F. G. BUTLER.
Butter-Worker.

No. 202,516. Patented April 16, 1878.

Fig. 1.

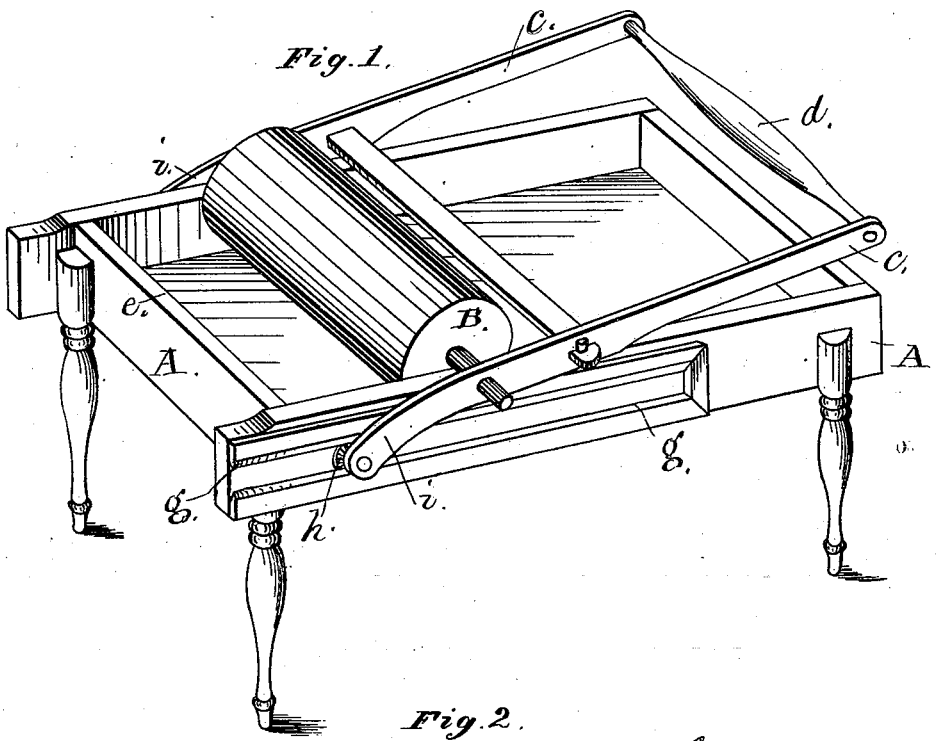
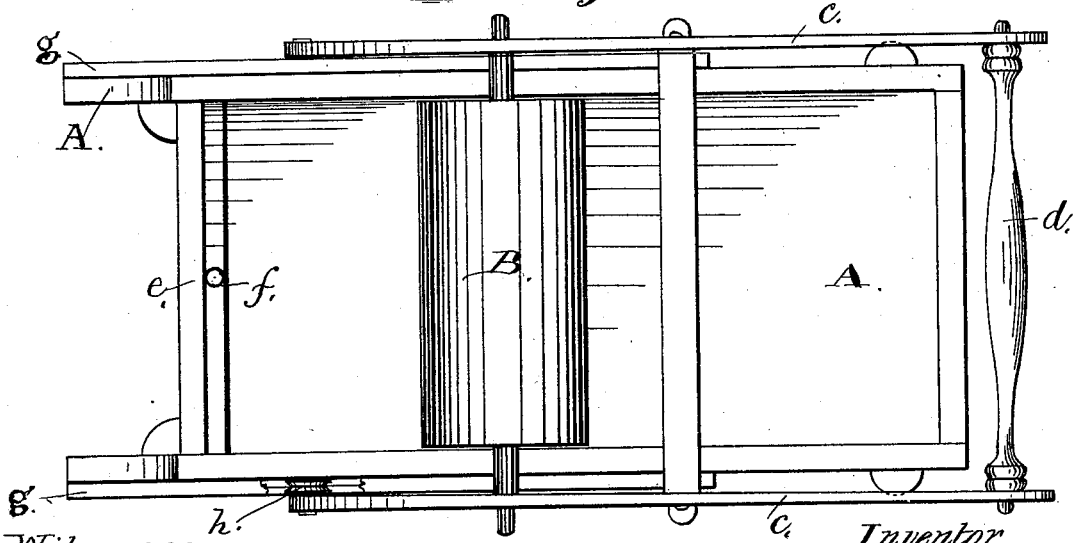


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANCIS G. BUTLER, OF BELLOWS FALLS, VERMONT.

IMPROVEMENT IN BUTTER-WORKERS.

Specification forming part of Letters Patent No. **202,516**, dated April 16, 1878; application filed August 24, 1877.

To all whom it may concern:

Be it known that I, FRANCIS G. BUTLER, of Bellows Falls, in the State of Vermont, have invented certain new and useful Improvements in Butter-Workers, which I name "The Rolling-Pressure Worker;" and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention consists in making the tray with open-ended guide-tracks for the roller-frame, such tracks being made by securing to the exterior surface of the solid or unslotted sides of the tray V-shaped or equivalent bars to form tracks for grooved guide-rolls, one of such guide-rolls being placed on the inner side of each arm of the roller-frame, the roller being cylindrical and extending across the tray, and its journals, while supported by the arms, being so hung that they may rest upon the top edge of the tray during the traverse of the roller, there being no cross-bar through or beneath the table to connect the arms of the frame, nor any bar forward of the roller to limit or restrict its action, and no slots or cuts in the boards which form the sides of the tray, the whole construction being simple, strong, and durable, permitting the thorough treatment of every part of the butter in the tray, facilitating the revolution of the squeezing-roller, and also permitting the ready removal of the roller with its carrying-frame, that they may be put away for safe-keeping until again needed for use.

Figure 1 is a perspective view, and Fig. 2 a plan, of a machine embodying my improvements, a portion of the upper guide-track being broken away to show the friction-roller.

A is the tray, having its four walls solid—that is, with no slots or openings therein through which the butter could be squeezed out by the action of the roller. The front and rear walls are straight across, or at right angles to the sides, so that when the roller B may be at either extremity of its range of traverse movement it shall come in contact with such ends, particularly the forward one.

The roller B is supported in bars or arms *c*, which are placed entirely outside the tray, and these arms are rigidly connected together only by the handle *d* at their rear ends, and there is no connecting-rod, roll, or cross-bar forward of the roller B, the latter therefore having free play for acting upon the butter until the forward movement of such roller is arrested by coming in contact with the front wall *e* of the tray, a hole, *f*, in the bottom of the tray permitting the escape of water or liquid in a well-known manner; and this extended forward movement of the roller up to the front wall (or as near to it as may be desired) admits of the squeezing or pressing of the butter at a point in the closest possible proximity to such water-outlet, instead of being restricted to a point some distance to its rear, as must be the case where a cross-bar forward of the roll extends across the tray and within its butter-holding space.

Another practical advantage due to my construction is, that the location of the bars *c* entirely outside the tray (while permitting the roller to have an operative squeezing-periphery extending all across the tray, so that the butter may not be squeezed out at each end of the roll) avoids any need of making open slots in the sides of the tray to admit a cross-bar for traversing the roll.

Instead of making any side openings whatever for this or any purpose, I leave the side walls intact and solid, and provide on the outside of each side wall tracks or grooved ways *g*, adapted to receive and guide friction-rollers *h*, one of which is placed at the free or forward end of each bar *c*, these rollers having preferably a groove, flange, or equivalent at their periphery adapted to a corresponding V shape or other form given to the ways or tracks, so as to prevent the friction-rolls accidentally getting off their tracks when in action. These tracks extend forward far enough to permit the roller B to come against the forward end wall of the tray.

As the arms *c* are entirely outside the tray, the journals of roller B must be above the top edges of the sides of the tray, and they may rest or run upon such sides. Incident to this are several advantages and necessary details of construction, viz: It allows the use of a squeez-

ing-roller of larger diameter, and consequently better squeezing capacity; it keeps the journals high up and out of the mass of butter; it gives more action on the butter in each revolution of the roller; and as there is no cross-bar forward of the roller, and the latter can move entirely up to the front wall *e*, and the ways *g* must be below the top line of the tray, the forward ends of the arms *c* are made with a downward curve, as seen at *i*. By this means the arms and their handle *d*, while having the proper inclination and elevation for the operator to work the machine conveniently, are not prolonged forward to a needless distance, as would be necessary if such arms projected throughout in a straight line, and which would also necessitate the needless lengthening of the frame or tray and of the guideways or tracks. I thus get the advantages of the large roll and its full traverse the whole length of the tray, dispense with a cross-bar forward of the roll, and with the side slots in the tray, and secure the elevation of the axis of the roll and the increased efficiency of the machine without increasing the length of the tray or frame.

Inclined transverse grooves in the bottom of the tray facilitate the guidance of the liquid to the hole *f* and its discharge from the tray, and therefore there is no liability that such liquid, after being expressed from the butter by the working, shall again get worked into it.

The journals of this roller B being made and applied so that they may, when their supporting-arms *c* are pressed down, rest and roll upon the top edges of the tray, there is afforded just so much more frictional contact to insure the revolution of the roller in case the mass of butter or its oily nature prevents the turning of the roller, these journals and their bearings being elevated above and away from the body of butter within the tray.

The grooved ways *g* being entirely open at their forward ends, and there being no cross-bar or roller connecting the arms *c* at their forward ends, and no other impediment in the way, it will be seen that when the butter-working has been ended for the day this whole frame-work to which the roller is attached may be instantly slid out of the ways *g* and removed from the tray, and be hung up or put away until again wanted, and thus no damage can be done to the apparatus by children or meddlers, who otherwise would be tempted to operate it whenever within their reach. The frame can again be applied to the tray just as easily as it can be removed from it, without any change of any part, and without the need of any tools.

I am aware that curved arms for carrying the squeezing-roller have been employed, the lower ends of such arms being connected by a cross-bar or roll extending from one arm to the other, and through open slots made through the frame-work. This I do not claim.

I am also aware that straight arms have been used from which hang bent bearers in which the squeezing-roller is journaled, and that from the end of each of such straight arms depends a bracket, to which brackets are connected long straight bars or runners, which run in grooves cut in the sides of the tray, the arms being held together by a cross-bar. These, therefore, I do not claim.

But I am not aware of any instance in which grooved friction guide-rollers are attached, one at the end of each curved arm, such rollers running severally in ways attached to the side of the tray, and having edges adapted to confine each roller to its proper path without the aid of cross-bars for this purpose, and also permitting the pressing-roller frame to be readily run out of such guideways and detached from the tray at will.

I am also aware that the arms which support the roller have been arranged to move inside the tray, and to be guided at their forward ends by pins projecting outward therefrom, such pins running in open slots cut entirely through the sides of the tray, and the roller-frame not being removable. I disclaim any such construction; but

What I do claim is—

The butter-worker described and shown, composed of the tray A, having the open-ended guide-tracks *g* secured to the exterior surface of its solid unslotted sides, and the levers or arms *c*, provided each with a grooved friction guide-roll, *h*, running severally upon such outside tracks, these arms also carrying a squeezing-roller, whose journals may rest or run upon the top edges of the tray, as set forth.

FRANCIS G. BUTLER.

Witnesses:

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A. S. UNDERHILL.