No. 636,630. Patented Nov. 7, 1899.

A. O. BUTLER.

BUTTER WORKER.

(Application filed Jan. 12, 1899.)

(No Model.)

Fig. 1.

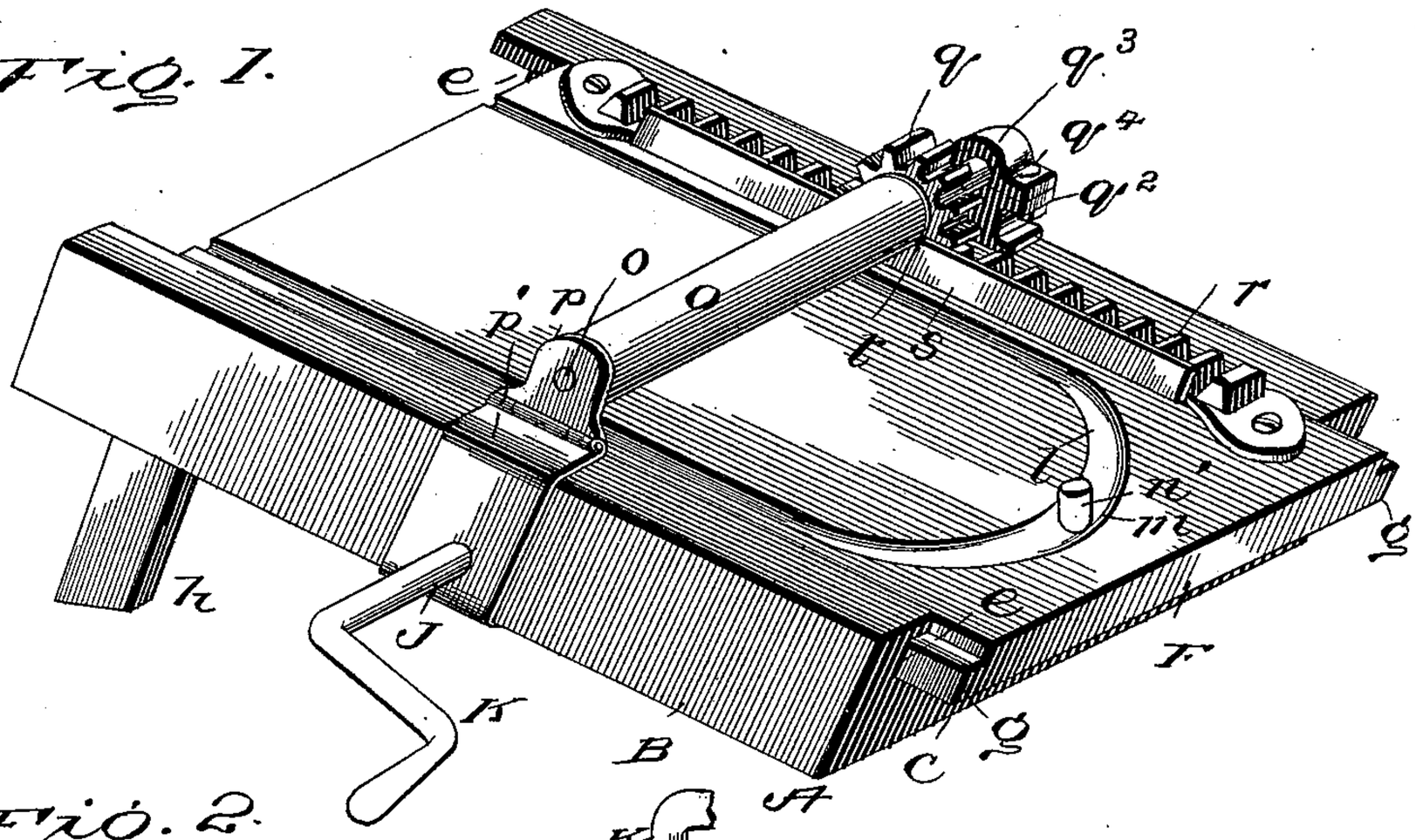

Fig. 2.

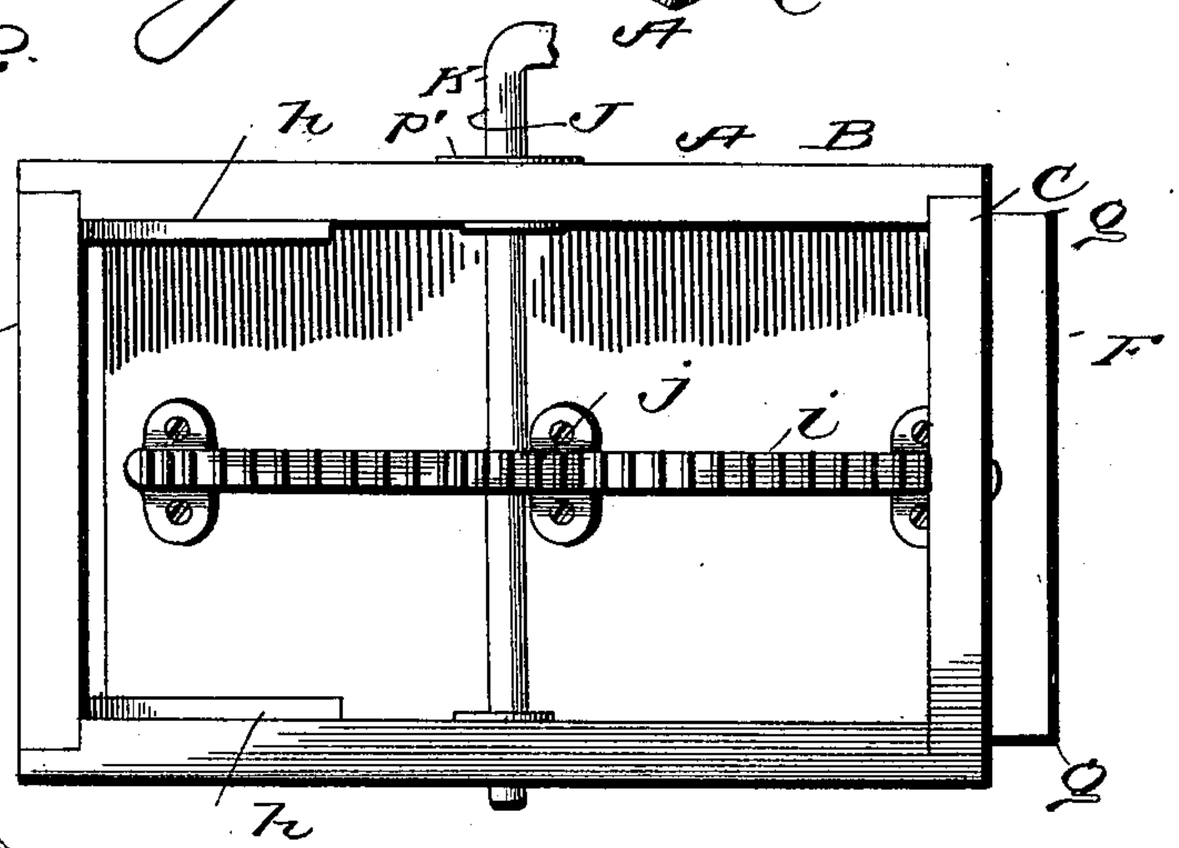

Fig. 5.

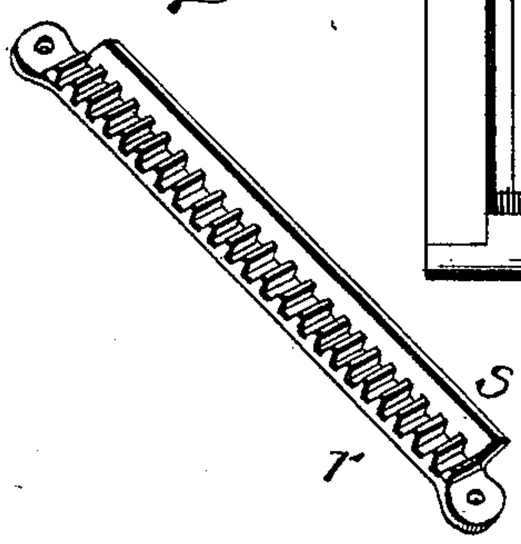

Fig. 3.

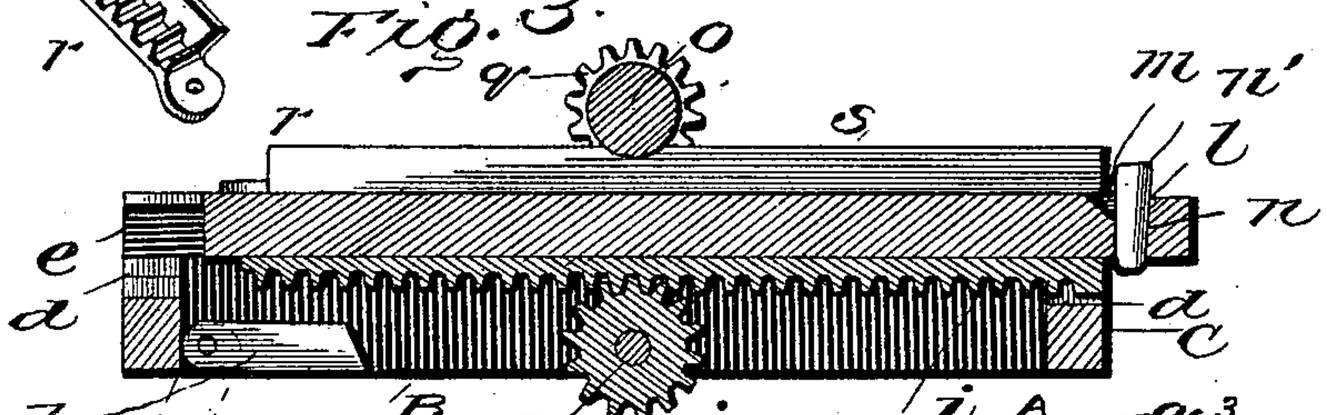

Fig. 4.

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UNITED STATES PATENT OFFICE.

ALFRED O. BUTLER, OF JUMBO, OHIO.

BUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 636,630, dated November 7, 1899.

Application filed January 12, 1899. Serial No. 701,941. (No model.)

To all whom it may concern:

Be it known that I, ALFRED O. BUTLER, a citizen of the United States, residing at Jumbo, in the county of Hardin and State of Ohio, have invented certain new and useful Improvements in Butter-Workers; 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.

This invention relates to improvements in butter-workers of that class which employ a roller for pressing and rolling the butter to free it of the buttermilk; and the purpose of the same is to provide a simple and inexpensive construction of device which does away with the objectionable back-and-forth travel of the roller and whereby the operation of working the butter may be speedily and effectively accomplished with less exertion on the part of the operator.

A further object of the invention is to so arrange and shield the parts of the operating mechanism as to avoid all liability of the hands of the operator being caught therein and the butter coming in contact therewith, to mount the roller so that it may be readily turned up to permit of the parts being conveniently cleaned, to provide for the ready drainage off of the buttermilk and prevent splashing of the same when the device is in operation, and to otherwise generally simplify and improve the construction and increase the efficiency of apparatus of this character.

With these ends in view the invention consists in certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a butter-worker embodying my invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a central vertical longitudinal section. Fig. 4 is a cross-section. Fig. 5 is a perspective view of the upper rack which meshes with the gear of the roller.

Referring now more particularly to the drawings, wherein like letters of reference designate corresponding parts throughout the several views, A represents a rectangular wooden frame open at top and bottom and consisting of sides B and ends C permanently connected. The end pieces are provided in their upper edges with notches *d*, for a purpose hereinafter described, and the side pieces project above the end pieces and are formed on the inner surfaces of their projecting portions with longitudinal grooves or ways *e*. Slidably mounted in the frame is a reciprocating table or work-board F, which is provided at its side edges with tongues *g*, arranged to travel in the ways, and pivoted to the inner sides of the said side pieces at the rear of the frame are legs *h*, which may be turned down to support the frame, so that it will incline downward from the rear to the front, as shown in Figs. 1 and 3, and folded up on the interior of the frame when the apparatus is not in use. The table is reciprocated through the medium of a rack-bar *i*, secured to the under side thereof and which meshes with a pinion *j*, mounted upon a transverse shaft J, journaled in the sides of the frame and having one end projecting beyond the same and provided with a crank-handle K. By turning this crank-handle to the right the table will be moved forwardly and by turning it to the left the table will be moved rearwardly in a manner that will be readily understood. When the table is reciprocated, the rack-bar slides in the notches *d* of the end pieces, thus enabling the table to be closely fitted down on said end pieces and providing a compact frame. It will be noted that all of the gearing which operates the table except the crank-handle is inclosed within the frame, and thus all liability of the hands or clothes of the operator being caught therein and injured is entirely avoided. The table is provided in its upper surface with longitudinal drain grooves or channels *l*, which are arranged adjacent to and extend parallel with the side edges thereof. At the front end of the frame these grooves or channels are connected and deepened to form a catch-basin *m*, in which is arranged a discharge-opening *n*, normally closed by a suitable plug or stopper *n'*. A pressing-roller O extends transversely across the frame at the

center thereof and above the table. This roller is provided at one end with a stub-shaft *o*, which is fitted in an opening in the center of a bearing-plate *p*, hinged at its lower edge to the inner edge of the bent upper end of a plate *p'*, which laps over upon the upper edge of one of the side pieces B. This plate *p'* is secured to the outer surface of the side piece and forms a wear-plate and bearing for the reception of the adjacent end of the transverse shaft J, and thereby relieves said side piece of excessive strain and wear. The opposite end of the roller is formed with a rectangular stud or boss *o'*, which enters a correspondingly-shaped socket formed in the inner face of a pinion *q* and connects said parts, so that they will turn together, but may be attached by sliding one away from the other, and this pinion is provided with a journal *q'*, which normally has bearing in the notched upper end of a pillow-block q^2, secured to the other side piece of the frame and having a cap q^3, connected thereto by a key or analogous device q^4 and serving to hold the journal in place. By removing this key the cap and journal may be released and the roller turned upon the hinged bearing-plate to enable the roller and work-board to be readily and conveniently cleaned, and in this operation the bearing-plate *p* tilts down on the bent overlapping end of the plate *p'* and forms a seat upon which the roller may stand upright. The roller is operated directly from and simultaneously with the work-board by a rack-bar *r*, which meshes with the said pinion thereon, and this bar is provided on its inner side with a vertically-arranged shield or guard flange *s*, whose upper edge enters a groove *t*, formed by the space between the inner side of the pinion contiguous to the end of the roller. The purpose of this guard is to shield the rack-bar and pinion and prevent the hands of the operator from being caught therein during the operation of working the butter, as well as to prevent the butter as it is spread out under the action of the roller or turned by the operator from coming in contact with the rack-bar and choking the same. When oil or some other lubricant is used to insure the easy and noiseless operation of the rack-bar and pinion, the guard also serves to prevent the same from splashing onto or working toward the butter, which is a desideratum in devices of this character.

In operation the apparatus is placed upon a table or some other suitable support, the folding legs turned down to elevate the rear end thereof, and the work table or board moved rearwardly to its fullest extent. The butter to be worked is then packed down on the table between the drain grooves or channels and the crank operated to reciprocate the table back and forth and at the same time turn the roller, the butter being thereby pressed and rolled between two oppositely-working surfaces, which serve to press out the buttermilk and water in the most effective manner. After the butter has been passed under the roller until it is spread out and the roller no longer exerts the required pressure thereon it is cut up and turned over by means of a suitable paddle and packed to double its former thickness and the crank again operated to pass it under the roller until worked to the desired extent. By working the butter in this manner between two oppositely-working surfaces composed of a cylindrical roller and a flat reciprocating work-board and avoiding the cutting up of the butter while it is being worked practically all of the buttermilk is expressed and the texture of the butter rendered closer, firmer, and finer by the frictional action set up. The buttermilk and water forced out run into the side grooves or channels and then flow by gravity to the catch-basin. When this basin is full, the plug is removed and the contents allowed to discharge through the drain-opening into a suitable receptacle placed beneath the frame. The drain-hole is normally closed by the plug to prevent the buttermilk from escaping and from being splashed about while the table is in operation.

From the foregoing description, taken in connection with the drawings, it will be seen that the invention provides a butter-worker which is simple in construction, efficient in operation, and capable of being manufactured at small cost.

While the preferred embodiment of the invention is herein shown, it will of course be understood that changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. In a butter-worker, the combination of a rectangular frame open at top and bottom, a reciprocating work-board permanently mounted in said frame, a wear-plate upon one of the side bars of the frame and having its upper end bent laterally and lapping over upon the upper surface of said side bar, a bearing-plate hinged to said overlapping end of the wear-plate, a pillow-block upon the other side bar of the frame and having a detachable cap and a key confining the same, a pressing-roller mounted in said hinged bearing-plate and pillow-block and carrying a pinion, a rack-bar upon the top of the work-board meshing with said pinion, a rack-bar upon the bottom of the work-board, and a transverse shaft mounted in the side bars of the frame and wear-plate and carrying a pinion meshing with said latter rack-bar.

2. In a butter-worker, the combination of a frame, a work-table mounted therein and

carrying a rack-bar, a hinged bearing upon one side of the frame and a fixed bearing upon the other side thereof having a removable cap, a pressing-roller having a stub-shaft at one end journaled in the hinged bearing and a rectangular stub or boss at its other end, and a pinion provided with a rectangular socket to receive said stud or boss and a journal removably mounted in said fixed bearing.

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

ALFRED O. BUTLER. [L. S.]

Witnesses:

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O. J. SWANDER.