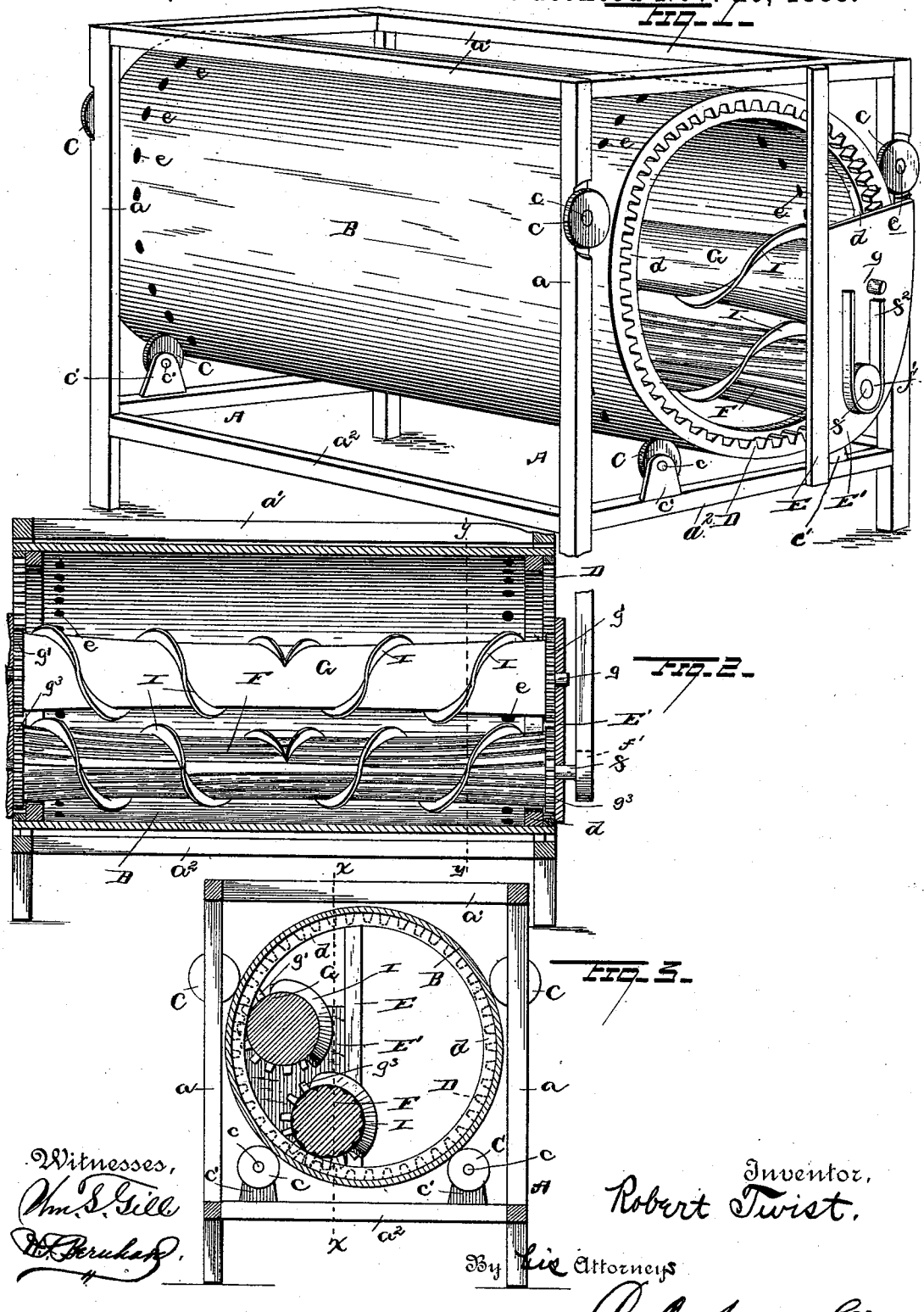
(No Model.)

# R. TWIST.

## BUTTER WORKER.

No. 393,043. Patented Nov. 20, 1888.



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# UNITED STATES PATENT OFFICE.

ROBERT TWIST, OF DUNDEE, ILLINOIS.

## BUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 393,043, dated November 20, 1888.

Application filed September 14, 1886. Serial No. 213,522. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT TWIST, a citizen of the United States, residing at Dundee, in the county of Kane and State of Illinois, have invented new and useful Improvements in Butter-Workers, of which the following is a specification.

My invention relates to improvements in butter-workers; and it consists of the peculiar construction and novel combination and arrangement of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The object of my invention is to provide an improved butter-worker which shall be very simple and durable in construction, easy and ready of operation, so that but very little exertion or power is required to run the machine, and which shall very effectively and thoroughly work the butter within a very short space of time, and without requiring the undivided attention of the operator.

The machine is so constructed that easy and ready access can be had to the operative parts at either end, in order to remove the butter or to supply the salt in proper quantities at any time without stopping the machine, and the butter can be supplied at either end and at any time while the machine is in motion, all as more fully described hereinafter.

In the accompanying drawings, which illustrate a butter-working machine embodying my invention, Figure 1 is a perspective view. Fig. 2 is a vertical central longitudinal sectional view on the line *x x* of Fig. 3, and Fig. 3 is a vertical transverse sectional view on the line *y y* of Fig. 2.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the main supporting-frame of my improved butter-working machine, which comprises the uprights *a*, the upper and lower horizontal connecting-pieces, *a'*, and the intermediate connecting-pieces, $a^2$, which are arranged a short distance above the base-pieces, the whole being very rigidly and firmly secured together by any preferable means.

B designates the revolving cylinder, which is arranged in a horizontal position within the main supporting-frame and is sustained or held by anti-friction rollers C, which are journaled on suitable shafts, *c*, that are fixed in brackets *c'*, which are rigidly secured to the main supporting-frame. Two of these anti-friction supporting-rollers C are arranged beneath the rotary cylinder at each end, so that the latter will rest thereon, and two of the rollers are arranged above the horizontal axis of the cylinder and on opposite sides of the main frame A, to prevent the rotary cylinder from accidental displacement. This arrangement of the supporting-rollers is provided at each end of the rotary working-cylinder, thus providing four rollers at each end; but the number and arrangement of the supporting-rollers can be varied without departing from the spirit of my invention. The rotary cylinder is made of staves, or in any other approved manner, and bound very firmly and strongly by suitable bands to insure strength and stability, and the ends of the cylinder are left open, so that free access can be had to the contents thereof from either end, and the necessary quantity of salt can be supplied to the butter through either end of the cylinder. The cylinder is provided at each end with an annular flange or rib, *d*, which projects inwardly and serves very efficiently to prevent the escape of the brine and other watery matters from the cylinder, while the latter is in motion, through the open ends of the same; and the cylinder is further provided with a circular rack, D, at each end, that is affixed thereto outside of the rim or ledge *d*, so that no brine or other watery matter can have access to the rack to rust the latter, and thus render the machine more difficult of operation. The cylinder is further provided with a row of exit-openings, *e*, at each end, which are formed transversely therein at any suitable point, for the escape of the brine and other like fluid in the butter, and which escapes from the same while it is being treated or operated upon in the rotary cylinder.

E designates a vertical standard or upright, which is rigidly affixed to the horizontal sills $a^2$ of the main frame at one side of the horizontal axis of the rotary drum, and to this upright or standard is affixed a supporting-piece, E', preferably of hard wood, through which passes the shafts *f g* of the working-rollers F G, respectively, which are arranged within the

drum and near the same, as shown. The shafts *f g* are extended entirely through the drum B and journaled at each end in suitable supporting-pieces, E', that are arranged exteriorly to the drum, and the shaft *f* of the roller F has a pulley, *f'*, affixed thereon, over which passes a band or belt, *f²*, which is driven by an engine or other suitable power-machine, so that the roller F will be rotated with a positive motion. For the purpose of readily distinguishing this shaft *f* from the other parts of the machine, I will hereinafter term the said shaft the "driving-shaft;" and it has a small gear-wheel or pinion, *g²*, at each end, which meshes with the geared racks on the rotary drum and serves to drive or rotate the latter. The shaft *g* of the roller G is likewise provided with a gear-wheel, *g'*, on each end, which meshes with the geared racks of the drum; but these pinions do not mesh with or derive their motion from the pinions of the driving-shaft. It will thus be seen that the driving-shaft is driven by external power and revolves the drum, and that the drum revolves the shaft of one of the working-rollers, the cylinder and rollers being thus rotated or driven together to more rapidly and effectively accomplish the working of the butter. The roller F is corrugated or fluted, while the roller G is left smooth or plain, and both of said rollers are gradually decreased in diameter from the ends thereof toward their middle portions, so that the space between the rollers is larger at the middle thereof than at the extremities of the same.

This being the construction of my improved butter-working machine, the operation thereof is as follows: The necessary amount of butter is first placed in the rotary cylinder and the machine started, or the machine can first be started and the butter supplied thereto afterward. The butter is caught by the lower fluted roller and carried around the latter between the same and the drum, and thence passed to the smooth roller, which also works the same. The butter that is not caught up by the rollers is carried around with the rotary drum and fed to the plain roller, which passes it onto the fluted roller, and during the passage of the butter between the working-rollers and the drum it is very thoroughly worked up and rendered fit for immediate use and for packing. The butter can be removed from either end of the drum without stopping the machine, and the salt can be supplied to the butter in like manner, as is obvious.

From the foregoing it will be seen that I provide an improved machine which is very simple and durable in construction, effective and reliable in operation, and cheap of manufacture. The machine does not require the undivided attention of the operator, it only being necessary for him to feed the butter and salt thereto at the proper time and then remove the butter, and while the butter is being worked in the machine he can be engaged in some other occupation.

In lieu of providing the driving-shaft with the band-pulley and driving the machine by power, a crank can be affixed to the end of the driving-shaft, so that the machine can be operated by hand.

Each of the working-rollers F G of the machine is provided with spiral blades I, which incline toward the middle thereof, and when the rollers are rotated they convey the butter from the open ends of the rotary drum toward the middle thereof to prevent the butter from escaping out of the open ends of the drum. The butter is worked up very thoroughly by the rollers conveying it from the ends toward the middle of the drum and by passing it through the spaces between the rollers and the drum. As the rollers are of less diameter at their middle portions than at their ends, and are provided with the spiral blades, the butter has a tendency to travel toward the middle of the drum and pass through the enlarged spaces at the middle of the rollers and the drum.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for working butter, the combination of a rotary cylinder, a driving-shaft geared to the cylinder for rotating the same and carrying a corrugated working-roller inclosed within the cylinder near the inner periphery thereof, and a positively-rotated working-roller having a smooth periphery and arranged in close proximity to the corrugated roller, substantially as described, for the purpose set forth.

2. In a machine for working butter, the combination of the rotary cylinder or drum, the friction-rollers arranged beneath and above the drum or cylinder and in contact with its outer periphery, the driving-shaft geared to the drum for rotating the same and carrying the corrugated working-roller, and the smooth working-roller geared to the drum to be rotated thereby and arranged in close proximity to the corrugated roller, substantially as described, for the purpose set forth.

3. In a machine for working butter, the combination of a rotary drum, a driving-shaft passing therethrough and geared to the drum to rotate the same, a corrugated working-roller fixed to the driving-shaft and arranged near the inner periphery of the drum, and the smooth working-roller arranged parallel with the corrugated roller and geared to the drum to be rotated thereby, the said corrugated and smooth working-rollers being gradually reduced in diameter from the ends thereof toward the middle, and each having a conveying-screw, substantially as described, for the purpose set forth.

4. In a machine for working butter, the combination of a rotary cylinder, the friction-rollers for supporting the same, the driving-shaft geared to the cylinder to rotate the same and carrying a corrugated working-roller, the smooth working-roller geared to the drum to be rotated thereby and arranged in close proximity to the corrugated roller, the said work-

ing-rollers being each provided with right and left hand conveying-screws I, which terminate at their inner ends at the middle of the rollers, substantially as described, for the purpose set forth.

5. In a machine for working butter, the rotary cylinder having the outlet-openings therein and the open heads, the circular rack D, arranged to one side of the outlet-openings, and the depending flange of greater width than the rack and arranged between the openings and the rack, in combination with a driving-shaft geared to the rack and carrying a corrugated roller, and the smooth roller, also geared to the rack to be rotated by the drum, substantially as described, for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ROBERT TWIST.

Witnesses:
M. QUACKENBUSH,
CHAS. BLOW.