

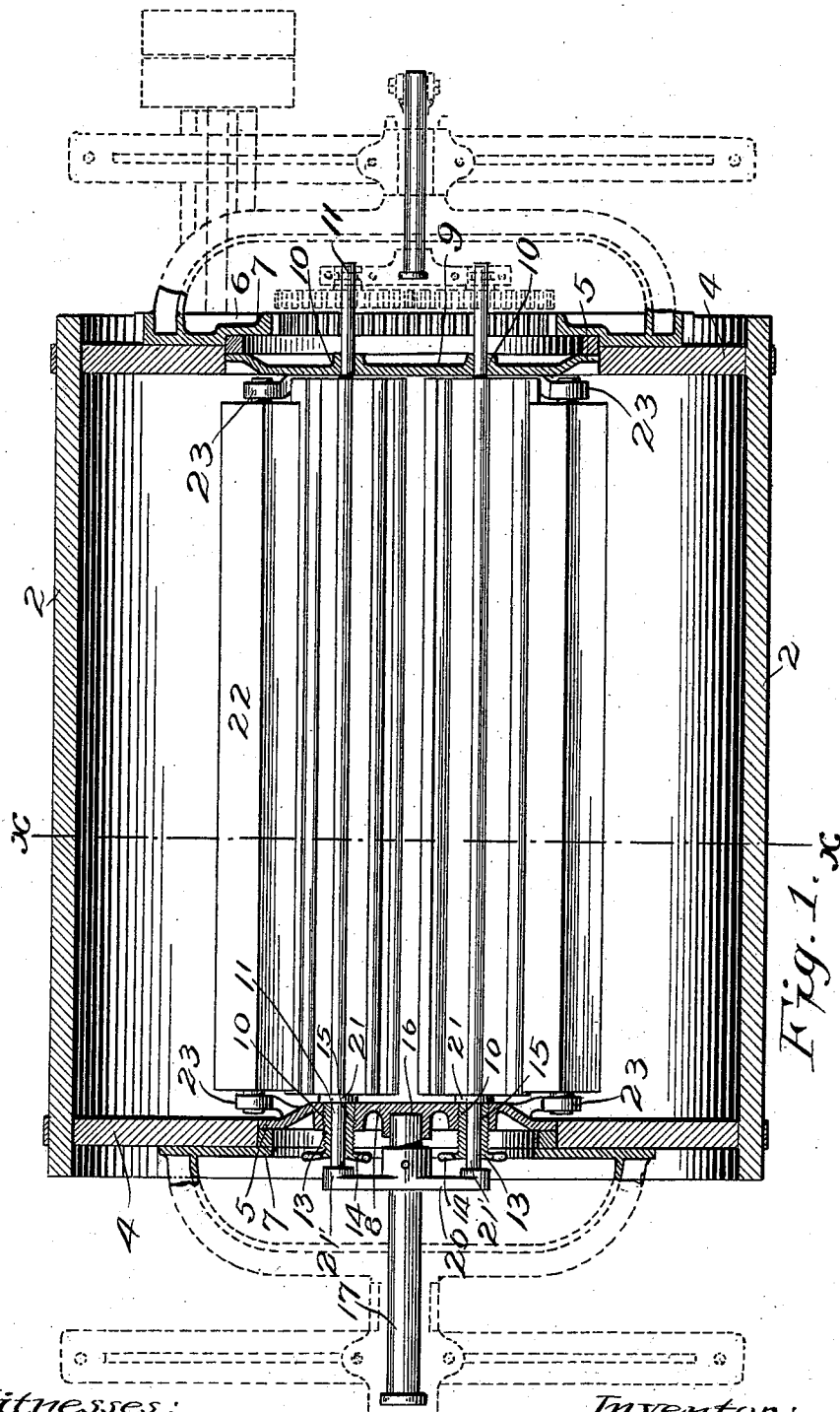
(No Model.)

2 Sheets—Sheet 1.

R. B. DISBROW.
BUTTER WORKER.

No. 527,673.

Patented Oct. 16, 1894.



Witnesses:
Chas. E. Van Dorn.
Frederick J. Lyon

Inventor:
Reuben B. Disbrow.
By *Paul H. Hawley*
his Attorneys.

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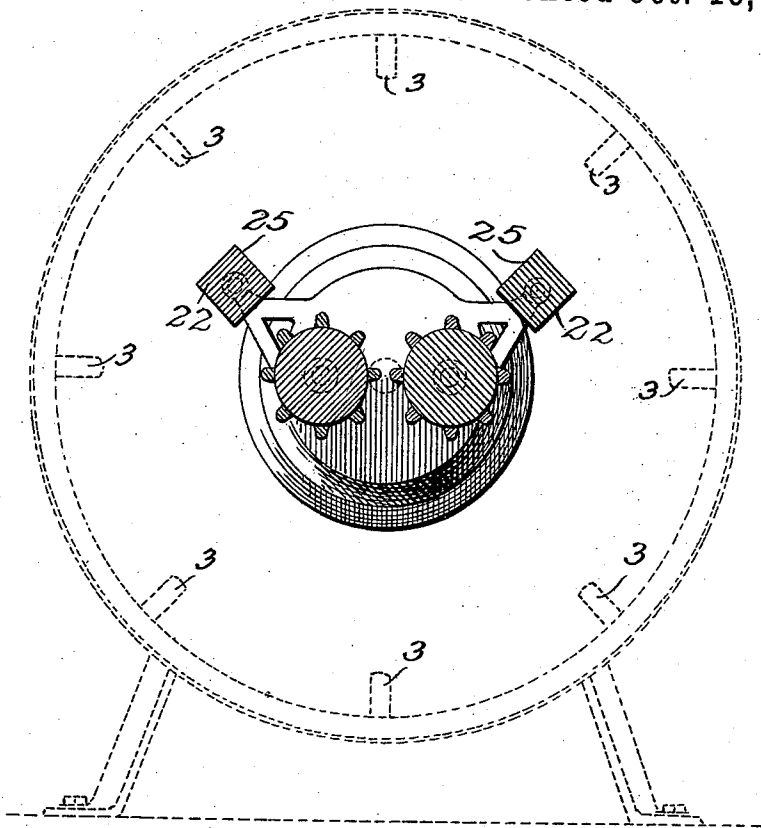


Fig. 2.

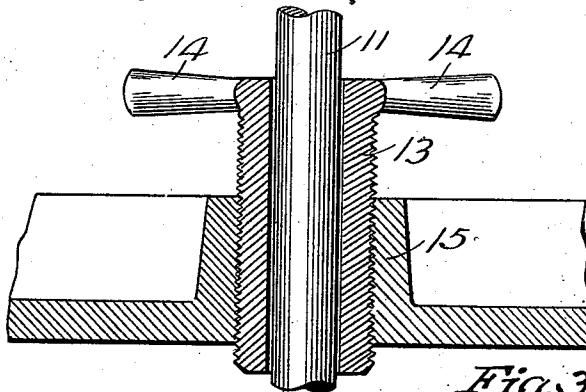


Fig. 3.

Witnesses.

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F. H. Lynn

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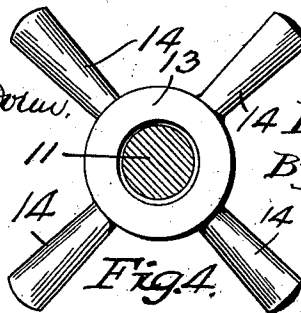


Fig. 4.

UNITED STATES PATENT OFFICE.

REUBEN B. DISBROW, OF CLAREMOUNT, MINNESOTA, ASSIGNOR TO THE
F. B. FARGO & COMPANY, OF LAKE MILLS, WISCONSIN.

BUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 527,673, dated October 16, 1894.

Application filed January 2, 1894. Serial No. 495,322. (No model.)

To all whom it may concern:

Be it known that I, REUBEN B. DISBROW, of the city of Claremount, Dodge county, State of Minnesota, have invented certain new and useful Improvements in a Combined Churn and Butter-Worker, of which the following is a specification.

This invention relates to improvements in machines adapted for use in both churning and working butter, and especially applicable for use in creameries and like places. The object of this invention is to provide improvements upon the combined churn and butter worker shown and described in my United States Letters Patent No. 390,105, granted to me January 17, 1893.

To this end my invention consists in general in the arrangement and construction of the working rolls and means for securing the same in the independent heads, all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional plan view of a combined churn and butter-worker embodying my invention. Fig. 2 is a transverse view thereof on the line $x-x$ of Fig. 1, the essential parts only being shown in full line. Fig. 3 is an enlarged longitudinal section taken through the independent head and through one of the binding or clamping screws. Fig. 4 is an end view of the clamping screw.

As shown in the drawings, 2 represents the revoluble cylinder which, as shown in Fig. 2, has the wings or ribs 3 for lifting the cream or butter as the cylinder or drum is revolved. The supports for the cylinder and also the means for driving the same are unimportant in the consideration of the present invention and are therefore shown in dotted lines. Each end or head 4 of the cylinder is provided with a central opening 5 and upon the outside of each head is a retaining ring 6 adapted to hold a circular ring or packing 7. Independent heads 8 and 9 are arranged to fill the central openings in the heads 4 and are adapted to engage the packing rings as shown. Each head is provided with two

bearings or holes 10 adapted to receive the shaft 11 of the corrugated working rolls 12. The bearings in the head 9 are formed in simple bosses thereon, while those in the opposite head 8 are formed in the short threaded sleeves 13, the outer end of which is arranged in the form of a hand wheel having the spokes 14. The screws are themselves carried in the internally threaded bosses 15 provided on the independent head 8. The head 8 is further provided with a central socket 16 to receive the end of the short shaft 17 which shaft extends through the stud bearing of the cylinder and is provided with a hole to receive the cross-pin 18, which being inserted through the same and through the bearing 19 prevents the shaft from revolving. On the inner end of this shaft is a fixed cross arm 20, in the outer ends of which are journals 21 for the ends of the shafts 11 of the working rolls. By locking the shaft 17 thereof, the rolls are prevented from revolving in the drum although in no wise prevented from being themselves rotated. To this end however, it is necessary to disengage the independent heads from their frictional engagement with the heads 4 of the cylinder, and to do this it is only necessary to screw out the two locking sleeves 13, which allows the independent head 8 to move inwardly, while at the same time by removing the pressure upon the ends of the two working rolls the opposite head 9 is liberated in a similar manner. Thus the independent heads are freed from the heads 4 at a time when there is no necessity for the revolving cylinder to be water tight, as at such times all of the water and cream is drawn off and butter alone remains in the cylinder. The power may then be applied and the cylinder and the two rolls both rotated; the one to carry the butter upward and to discharge it upon the rolls, while the rolls themselves revolving toward one another effectually work the particles of butter together in a solid mass. After the butter has been worked and is withdrawn from the cylinder the same may be again prepared for the reception of cream by simply tightening the locking sleeves 13 which, acting between the head 8 and the ends of the rolls, forces said head upon its

packing and at the same time forces the rolls forward against the opposite head thus forcing it upon its packing.

To prevent leakage between the shafts 11 and the locking sleeves I preferably interpose the flexible washers 21, as shown. After the pin in the end of the shaft 17 has been withdrawn, the independent heads and all of the parts secured therewith will revolve with the cylinder. The locking or unlocking of the heads also serves to lock or unlock the tilting or tumbling bars 22, which, as shown, have shafts which are carried in bearings 23 preferably secured upon the opposite independent heads. These tumbling bars are useful principally when the working rolls are being used, and at such times occupy positions above the rolls, as shown in Fig. 2. They are situated above and at some distance to one side of opposite working rolls and the pin which is carried up by the wing 3 within the cylinder falls upon the tilting or tumbling bars. After the same falls upon the inner sides 25 thereof its weight will cause the particular bar to roll inwardly and dump the butter upon the upwardly traveling outer side of the working roll, whence it will be carried in between the rolls. If, on the other hand, the butter falls upon the outside of a tumbling bar it will be simply dropped back into the bottom of the cylinder. In this way the greater part of the mass or masses of butter to be worked is directed upon and between the revolving rolls and all annoyance due to the sticking of butter upon stationary wings or sides placed above the rolls is avoided, such sides having been hitherto employed but now replaced by the tilting bars.

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

1. The combination, with the revoluble cylinder having heads 4 provided with the central openings, of the independent heads arranged to fill said openings, the working rolls arranged between said independent heads, and having shafts extending through said heads, means for rotating said cylinder and also for rotating said rolls at will, and the threaded locking sleeves 13 extending through one of said heads and adapted to engage the ends of said rolls, whereby upon being tightened said independent heads and said rolls are locked upon the heads of the cylinder to rotate therewith, substantially as described.

2. The combination, with the revoluble cylinder having the heads 4 provided with the central openings, of the independent heads arranged to fill said openings, the working rolls arranged between said independent

heads, and having shafts extending through said heads, means for rotating said cylinder and also for rotating said rolls at will, and the threaded locking sleeves 13 extending through one of said heads and adapted to engage the ends of said rolls, and the washers 21 interposed between the ends of said lockingsleeves and the adjacent ends of the rolls, substantially as described.

3. The combination, with the revoluble cylinder, adapted to contain cream or butter, and having the heads 4 provided with central openings, of the independent heads arranged to fill said openings, suitable packing arranged between said independent heads and the heads 4, the working rolls arranged between said independent heads and having shafts extending through the same, the tilting or tumbling bars arranged parallel with and in proximity to said working rolls, means for revolving said rolls, the threaded locking sleeves extending through one of said independent heads and around the shafts of the two working rolls and arranged to engage the ends of said rolls, whereby said heads may be forced apart to lock the same upon the heads 4 of the cylinder, or vice versa, as and for the purpose specified.

4. The combination, with the cylinder, of the working rolls arranged therein, means for revolving said cylinder and said rolls, and the tilting or tumbling bars 22 arranged above said rolls and adapted to revolve independently thereof, substantially as described.

5. The combination, with the revoluble cylinder having the ends 4 provided with central openings, of the independent heads 8 and 9, the working rolls extending between said heads and having shafts extending through said independent heads, a central shaft 17, means for locking the same against rotation, the arm extending from said central shaft and having bearings for the ends of the roller shaft, one of the independent heads being provided with threaded openings about the roll shafts and the threaded locking sleeves arranged in said openings and provided with handles, whereby said sleeves may be screwed against the ends of said rolls or away from the same to force said independent heads into or out of engagement with the heads 4 of the cylinder, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand, this 14th day of December, 1893, at Claremount, Minnesota.

REUBEN B. DISBROW.

In presence of—
W. H. RAND,
H. C. RAND.