L. A. DISBROW.

COMBINED CHURN AND BUTTER WORKER.

APPLICATION FILED DEC. 23, 1909.

971,178.

Patented Sept. 27, 1910.

Fig. 2

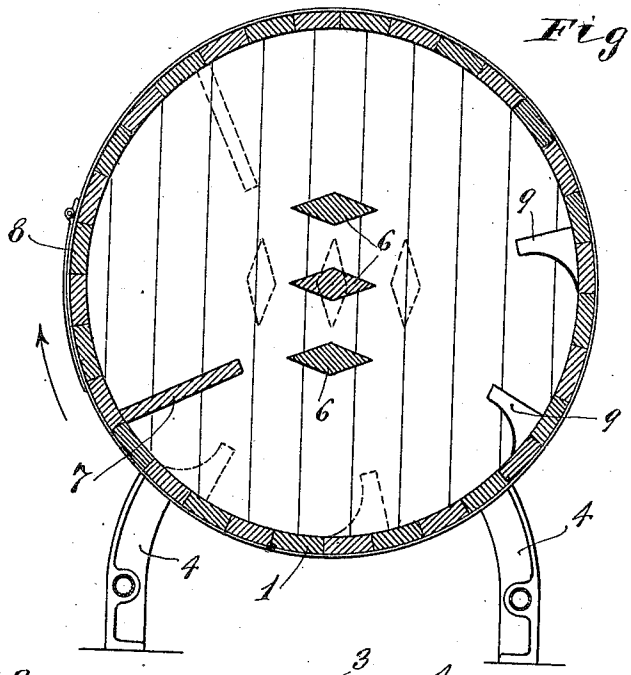


Fig. 3.

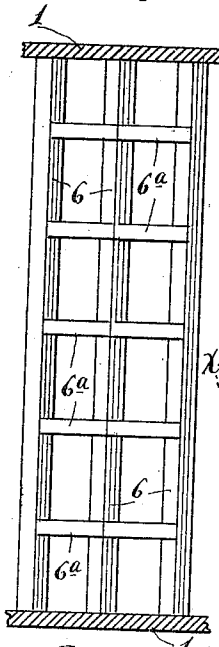
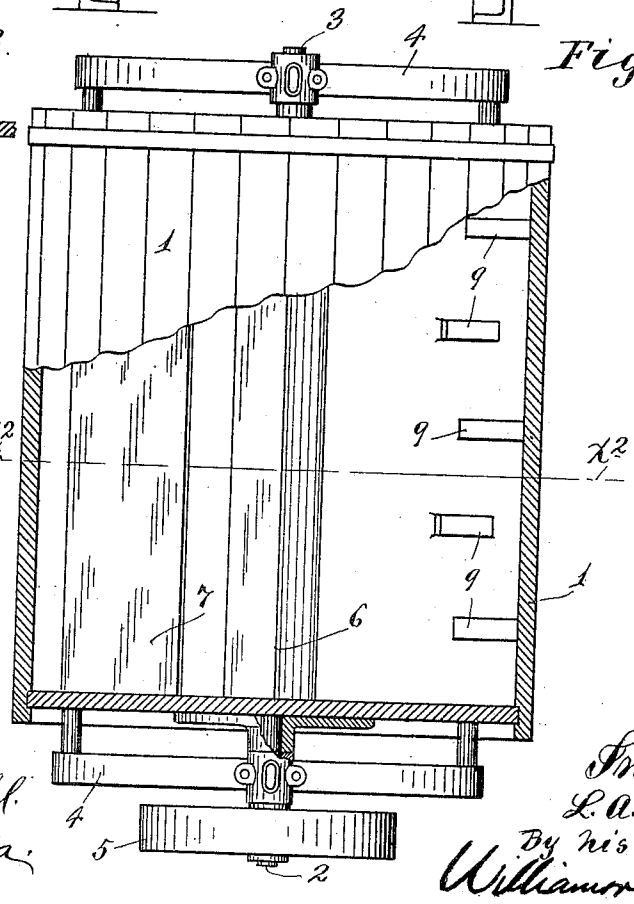


Fig. 1



Witnesses.
A. H. Opsahl.
W. H. Souba.

Inventor.
L. A. Disbrow.
By his Attorneys
Williamson & Merchant

UNITED STATES PATENT OFFICE.

LEVI A. DISBROW, OF OWATONNA, MINNESOTA.

COMBINED CHURN AND BUTTER-WORKER.

971,178. Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed December 23, 1909. Serial No. 534,591.

To all whom it may concern:

Be it known that I, LEVI A. DISBROW, a citizen of the United States, residing at Owatonna, in the county of Steele and State of Minnesota, have invented certain new and useful Improvements in Combined Churns and 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.

My invention is particularly directed to the improvement of combined churns and butter workers, and has for its object to simplify the construction and to improve the operation thereof.

The improved machine is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view with some parts broken away and some parts sectioned, showing the improved machine; Fig. 2 is a transverse vertical section taken on the line x^2 x^2 of Fig. 1; and Fig. 3 is a detail in plan, illustrating a modified arrangement of the divider bars which are located within and carried by the drum.

The horizontally disposed drum 1 is provided with axially alined trunnions 2 and 3, journaled in suitable bearings on end brackets of a suitable supporting frame 4. In the construction illustrated, the long trunnion 2 is provided, on its projecting end, with a driving pulley 5, but so far as the present invention is concerned, the drum may be driven in any suitable way, either by one-speed or two-speed driving mechanism.

Located within the drum, extending longitudinally from end to end thereof and rigidly secured to the heads of the drum are sharp edged so-called divider bars 6. As shown, these bars are made diamond-shaped in cross section and they are three in number, with the center one located at the axis of the drum, and with the outside members laterally spaced therefrom, one on each side of the axis of the drum.

For lifting the butter in the butter-working action, on the rising side of the drum, and for delivering the same onto the divider bars 6, a lifting shelf or wide lifting flight 7 is extended from head to head of the drum and inward from the shell of the drum. This lifting shelf, in respect to the direction of the rotation of the drum (indicated by the arrow marked adjacent thereto on Fig. 2), extends inward to a point at the rear of the axis of the drum and approximately in line with the sharp upper edge of the nearest divider bar 6. At a point above the shelf 7, the drum is provided with a segmental door 8, which, of course, is normally closed with a water-tight joint. At a point which is below the divider bars 6, when the shelf 7 is moved to a point above said divider bars, the drum is provided with a multiplicity of longitudinally staggered inwardly projecting punching fingers or blades 9. In the churning action, the cream will be dashed about and thoroughly agitated by the combined actions of the shelf 7, the bars 6 and the fingers 9, and will be especially agitated by the said shelf 7, which, under each rotation of the drum, raises a large portion of the cream and drops the same against the divider bars 6. In the butter-working action, the butter will be collected and raised in mass by the shelf 7, and will be delivered onto the sharp upper edges of the divider bars 6 and, by said divider bars, will be divided or cut into long sections so that the butter will freely slide between the said bars and drop to the bottom of the drum and onto the so-called punching fingers 9. These punching fingers, therefore, also assist in the working of the butter and are especially useful in insuring a thorough mixing of the salt with the butter.

The churn described, as is evident, is of very simple construction and has no parts that can get out of order.

In Fig. 2, the full lines indicate approximately the position of the drum when the worked butter is supported on the shelf 7 in a position to be removed through the opening normally closed by the door 8. The dotted lines in Fig. 2 indicate the position in which the butter will be delivered from off the shelf onto the divider bars, but it will, of course, be understood that the butter will commence to fall onto and pass between the divider bars very soon after the shelf has passed the position shown by the full lines and the butter will continue to fall between the bars some little time after the said shelf has passed the position indicated by the dotted lines in said Fig. 2.

Fig. 3 illustrates a modified arrangement, in which the divider bars 6 are connected at

intervals by sharp edged transverse tie bars 6^a, which serve to cut the long rolls or strips of butter longitudinally into sections.

What I claim is:

1. In a machine of the kind described, a rotary drum provided with longitudinally extended divider bars in the vicinity of its axis, and a lifting shelf extending inward from the shell of the drum, for raising the butter onto said divider bars, substantially as described.

2. In a machine of the kind described, a horizontal rotary drum provided within with a multiplicity of divider bars located in the vicinity of the axis thereof, with their ends rigidly secured to the heads of the drum, and a lifting shelf extending inward from the shell of the drum and operative to raise the butter onto the divider bars, substantially as described.

3. In a machine of the kind described, a horizontally disposed rotary drum provided within with a multiplicity of laterally spaced sharp edged divider bars located in the vicinity of the axis of said drum, and a lifting shelf extending inward from the shell of the drum approximately in line with the adjacent divider bar that is located eccentric to the axis of the drum, substantially as described.

4. In a machine of the kind described, a horizontal rotary drum provided within with a multiplicity of laterally spaced divider bars located in the vicinity of the axis of the drum and rigidly secured to the heads of the drum, the said divider bars being approximately diamond-shaped in cross section, the said drum having a lifting shelf extending inward from its shell and adapted to raise the butter onto said divider bars, substantially as described.

5. In a machine of the kind described, an approximately horizontal rotary drum provided within with a multiplicity of divider bars located in the vicinity of the axis thereof and rigidly secured to the heads of the drum, a lifting shelf extending inward from the shell of the drum for lifting the butter onto said divider bars, and a multiplicity of punching fingers projecting inward from the shell of the drum and onto which the butter, passed between said divider bars, is adapted to fall, substantially as described.

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

LEVI A. DISBROW.

Witnesses:
F. A. DUNHAM,
MARY KRAUSE.