2 Sheets—Sheet 1.

C. ISBELL & E. C. TAYLOR

Rotary Box-Churn.

No. 198,802. **Patented Jan. 1, 1878.**

Fig. 1.

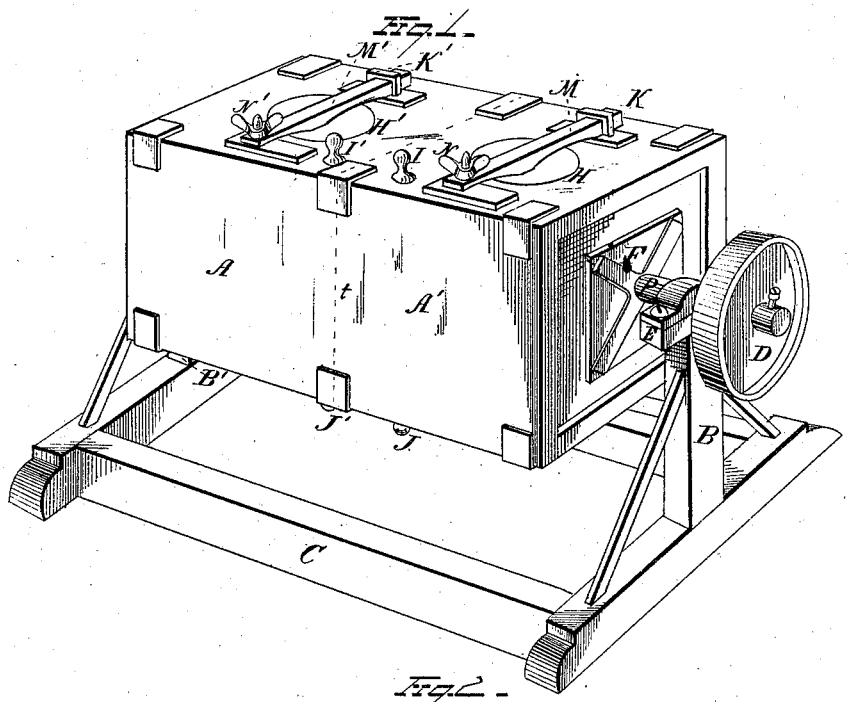
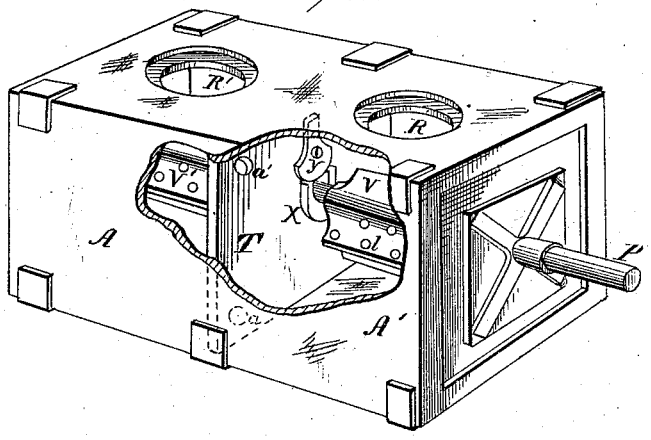


Fig. 2.



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2 Sheets—Sheet 2.

C. ISBELL & E. C. TAYLOR.

Rotary Box-Churn.

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Fig. 3.

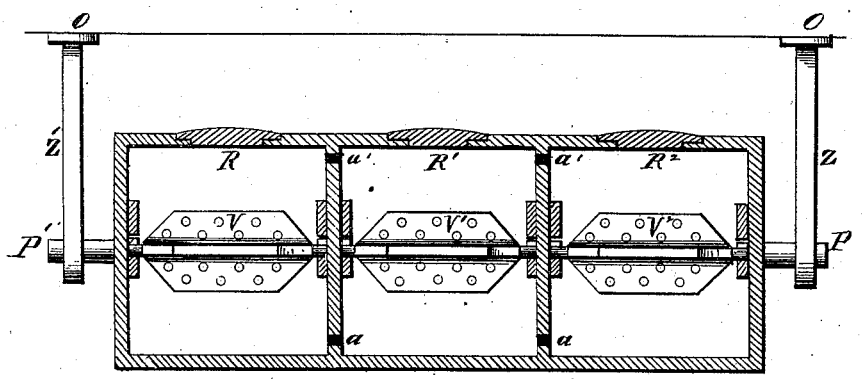
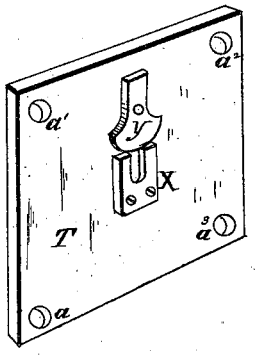


Fig. 4.



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UNITED STATES PATENT OFFICE.

CEYLON ISBELL AND ELHANAN C. TAYLOR, OF LITTLE YORK, NEW YORK.

IMPROVEMENT IN ROTARY BOX-CHURNS.

Specification forming part of Letters Patent No. **198,802**, dated January 1, 1878; application filed October 12, 1877.

To all whom it may concern:

Be it known that we, CEYLON ISBELL and ELHANAN C. TAYLOR, of Little York, in the town of Homer, county of Cortland, and State of New York, have invented a new and useful Improvement in Churns for Churning Large and Small Quantities of Cream, which improvement is fully set forth in the following specification, reference being always had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention more particularly relates to that class of churns which are commonly known as "revolving box-churns," the vessel in which the cream is placed revolving.

The object and purpose of our invention are to make a churn composed of two or more compartments, to be each used singly or together, each of the said compartments being a complete churn in itself, and all of the said compartments being so made and arranged that the cream or milk to be churned can, if desired, freely flow through the said compartments, thus accommodating varying quantities of cream; and our invention or improvement consists in thus making a gang-churn, composed of two or more compartments, and in making the partitions between the said compartments with perforations or holes therein, which can be opened or closed by plugs, so that the cream or milk can flow through any or all of the said partitions, if desired; and, further, in placing within each of the said compartments an agitator, free to revolve, and not connected with the axis of the churn.

In the drawings, Figure 1 is a perspective view of a rectangular revolving box-churn with two compartments, showing the frame-work and running-gear, covers, and plugs in the vent and buttermilk holes of the churn. Fig. 2 is a view of the rectangular revolving box-churn, with a part of the side broken away, showing the partition with the holes or perforations in it, and of the freely-revolving agitator. Fig. 3 shows a section of a rectangular revolving churn-box, with three compartments and two partitions and three agitators. This churn is run in hangers suspended from the ceiling. Fig. 4 shows a view of one of the partitions, showing the holes in the same; also shows the construction of a journal-box in which one of the journals of the agitator runs.

In the drawing the same letters on the different figures indicate the same parts.

In Fig. 1, B, B′, and C, and the braces and other parts connected to the same, as shown in the drawing, make up and constitute the frame-work for supporting the churn. The churn-box consists of a well-constructed rectangular box, about two feet square and from four to six feet long, according to the number of compartments desired, each compartment being cubical in form, each side thereof being about two feet square, although the dimensions may be varied, if desired. On each end of the churn are the journals P and P′, fastened to the said ends, substantially as shown at F, the said journals working in journal-boxes, one being shown at E. On the end of P is the pulley D. H and H′ show the covers, which fit in the openings R and R^1, Fig. 2, a similar cover being used on R^2, Fig. 3. Any of the known forms of covers can be used. K and K′, M and M′, and N and N′ show, respectively, the staple, bar, and thumb-screw used to retain the cover in its place. I and I′ and J and J′ show, respectively, the plugs stopping the vent and buttermilk holes to the said compartments.

The dotted line *t* shows where the partition is placed dividing the churn into the said two compartments, as shown at A and A′. The construction of this partition is shown in Fig. 4, T being the partition. *a*, *a*^{1}, *a*^{2}, and *a*^{3} show the perforations or holes, which holes pass through and are made near the corners of the partition. These holes *a*, *a*^{1}, *a*^{2}, and *a*^{3} are to be stopped with corks or plugs when it is desired to make a tight partition. X and Y show the construction of one of the journal-boxes, in which a journal of the agitator runs, as shown at *c*. The part Y can be turned up, so that the said agitator can be taken out and cleaned. This agitator can be composed of two or more wings, and is perforated, one of the perforations being shown at *l*.

A churn of three compartments is shown in Fig. 3, with the agitators V, V^1, and V^2 therein. This churn is suspended, and runs in hangers Z and Z′, which are fastened to the

ceiling O O in a manner similar to which shafting is suspended. A churn can be made of more than three compartments, but we prefer not more than three compartments.

Our churn-box need not be made square or rectangular, but may be made circular or hexagonal or octagonal in form, and the said partitions placed therein, dividing it into compartments, and said agitators placed therein, although we prefer and believe a rectangular churn-box is best.

Having thus described the construction of our improvement in churns, we will now proceed to describe its use and operation.

The number of compartments to be used depends upon the quantity of cream, each compartment being filled about half full. If one compartment, as A, is only used, the holes *a*, a^1, a^2, and a^3 are plugged or stopped up, and this compartment is then the same as a single-box churn. If two or more compartments are used the holes *a*, a^1, a^2, and a^3 are left open, and the cream seeks its level in all the compartments, and when the churn is run butter comes at the same time in all of the compartments, the air and cream passing and flowing continually through the said holes. Thus it will be seen that the churn can be made to accommodate the varying quantities of cream in a large dairy or creamery during a season, by using one or more of the said compartments.

It will also be seen that the churn-box need not be made as broad or as wide as one churn would be required to be made, and not so much power is required to run it, and it runs easily.

We are aware that a plain single-box revolving churn with an agitator therein is not new; but we believe that a revolving box-churn, made in the form as described and shown, and divided into the hereinbefore-described compartments by the herein-described perforated partition, and with the herein-described agitator in each compartment, all made, combined, and used as hereinbefore described and shown, is new, and therefore—

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In combination with a rectangular rotating churn, the partitions T, provided with apertures *a* a^1 a^2 a^3 at their respective corners, adapted to be closed by suitable plugs to cut off communication between the compartments, whereby the capacity of the churn may be varied at will, substantially as specified.

2. In combination with a rotating churn, divided into compartments, as described, the independent agitators, suspended in journals, and adapted to rotate freely in the churn, substantially as and for the purpose set forth.

3. The combination, in a rotating churn, of the partitions perforated at their corners, as described, the independent agitators, journaled in the compartments and capable of a free rotary movement within the churn-box, substantially as specified.

CEYLON ISBELL.
ELHANAN C. TAYLOR.

Witnesses:
H. HARRINGTON,
H. J. HARRINGTON.