



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ROTARY CHURNS.

Specification forming part of Letters Patent No. 192,869, dated July 10, 1877; application filed May 14, 1877.

To all whom it may concern:

Be it known that I, CEYLON ISBELL, of the town of Homer, in the county of Cortland and State of New York, have invented a new and useful Improvement in Churns, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a sectional view of the churn-box, with the break or agitator therein. Fig. 2 is a sectional view of the cover and its appendages.

My invention relates to that class of churns commonly known as "revolving-box churns," in which the vessel containing the cream revolves.

The object of my invention is twofold, viz: first, to render the cover of the churn air-tight by means of making said cover in the form hereinafter described, and also in the using of a rubber packing to render the said cover air-tight, as hereinafter shown; and, second, in inserting within the churn a break or agitator, this agitator being free to revolve, and not connected with any motive power from the outside.

In the drawing, Fig. 1, A is the agitator or break, which has journals *c* and *c'*, which revolve in the journal-boxes shown in the drawing. The said journal-boxes are so constructed that the agitator A can be removed and taken out of the hole B, and cleaned.

The agitator may have two or more wings, with perforations in each, one of said perforations being shown at *l*.

The whole box-churn revolves on the journals *a* and *a'*, which have similar bearings, composed of two small wheels, as seen on a common grindstone. Motion is given to the churn by a crank, belt, or their equivalent, connected with one or both of the said journals *a* and *a'*.

The construction of the cover to the opening B of the said churn is shown in Fig. 2, D being the cover. This cover is made circular in form. The opening B of the churn is also made circular in form. The upper surface of the cover is made convex, the crown being in the center, as shown in Fig. 2, at *e*. The opening B is rabbeted out so as to leave a flange,

*n n*, for the parts *f f* of the cover to rest on. Between the said parts of the cover and *n n* of the churn is placed a circular ring of thin rubber, *d d*, in a manner similar to the way a thin ring of rubber is used on an ordinary fruit-jar.

The said rubber may be placed in loose or attached either to the cover or to the flange *n n*. The cover is secured in its place by the bar E, held in the staple K, said staple being fastened into the side of the churn at I. The other end of the bar E is held by the rod F passing through it, the thumb-screw H being used to press the cover D down tightly.

It will be seen that the rubber *d d* thus operates as a packing to the cover, and renders the said cover perfectly air-tight.

It will also be seen that, by making the said cover convex the whole pressure is brought on the center *e*, and is equally distributed, and also the said cover is not so liable to warp.

In the old form of cover, which was of the same thickness throughout, the cover was made in the form of a frustum of a quadrangular pyramid, fitting into a corresponding opening in the churn, and would constantly leak, by reason of the cover warping and shrinking.

In the revolving box-churn as heretofore used there was no agitator A, and if the churn was run too fast the centrifugal force generated made the cream adhere to the sides of the churn, and, consequently, was not churned; but with the agitator A freely to revolve, the cream is agitated more powerfully, and the churn can be run at a high rate of speed.

I am aware that a revolving box-churn, without the agitator A therein, and without the air-tight cover D, is old; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The herein-described cover D, rubber *d d*, and agitator A, in combination with a revolving box-churn, all made and used substantially as and for the purpose herein described and shown.

CEYLON ISBELL.

Witnesses:

JNO. W. SUGGETT,  
WM. D. TUTTLE.