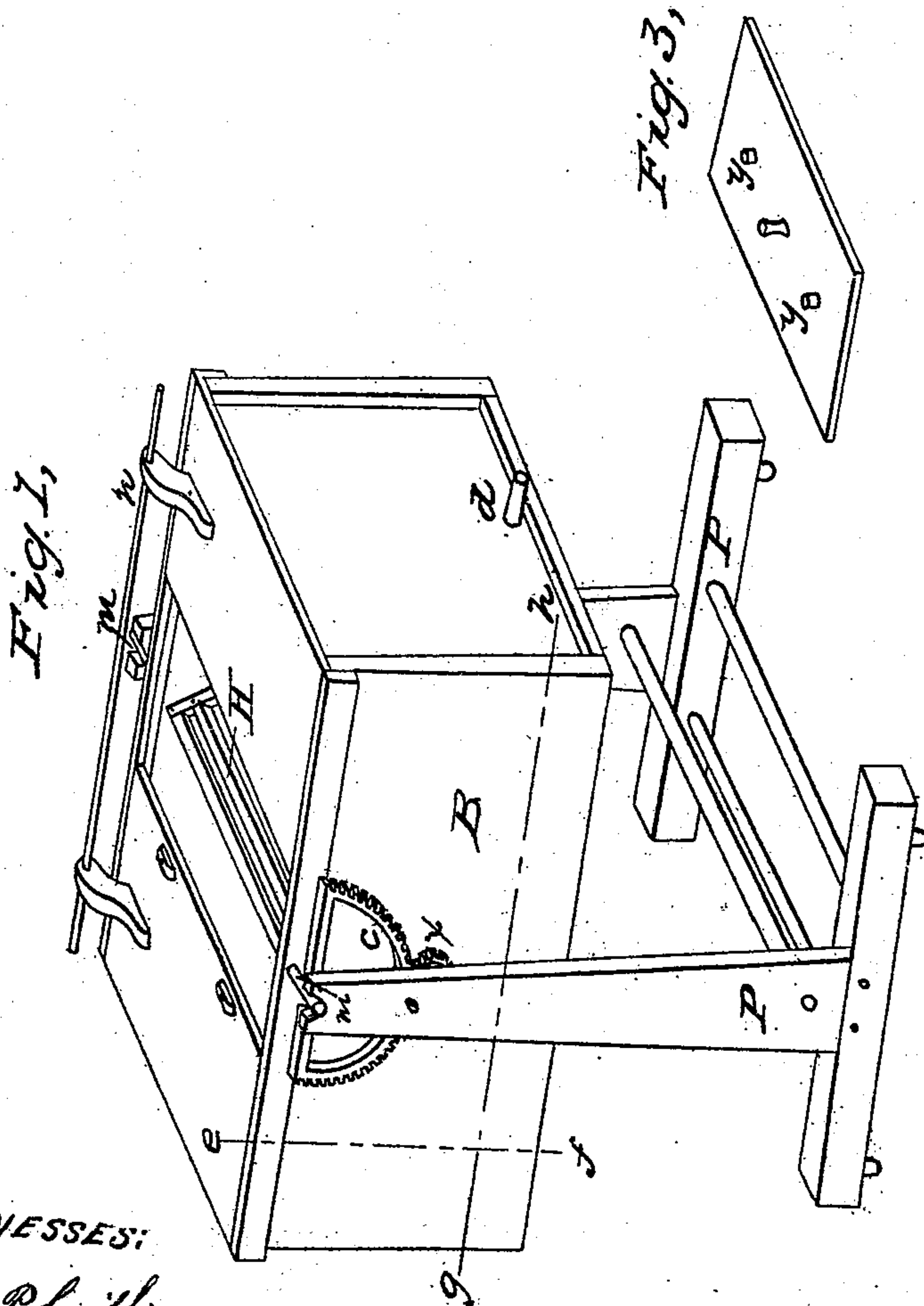
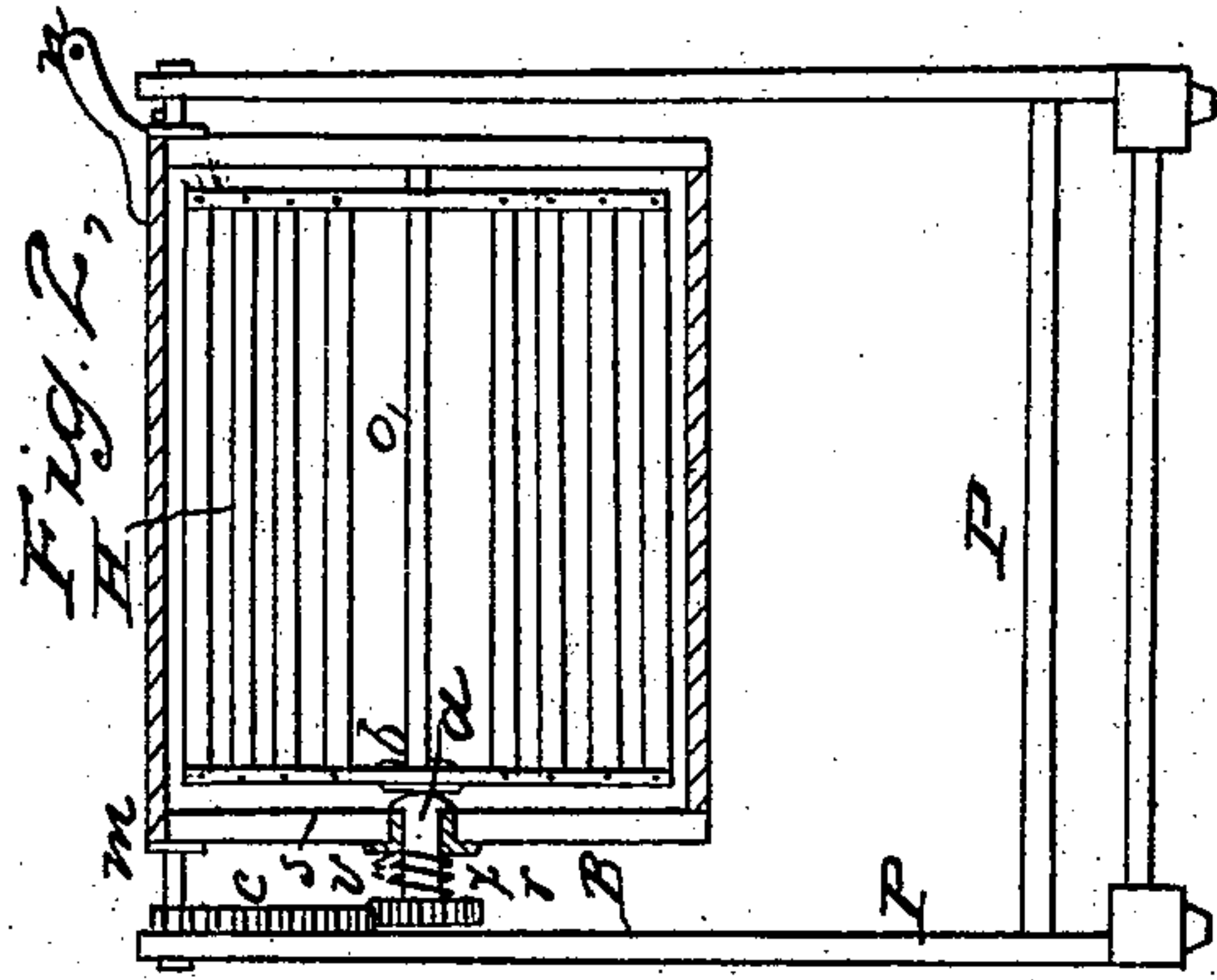


E. H. PHILO.

Churn.

No. 38,865.

Patented June 9, 1863.



WITNESSES:
Solomon P. Smith
Harmon Tschler

INVENTOR:
E. H. Philo

UNITED STATES PATENT OFFICE.

E. H. PHILO, OF HALF MOON, NEW YORK, ASSIGNOR TO HIMSELF AND SAMUEL PETERS.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. 38,865, dated June 9, 1863; antedated June 2, 1863.

To all whom it may concern:

Be it known that I, ELISHA H. PHILO, of the town of Half Moon, in the county of Saratoga and State of New York, have invented a new and useful Improvement in Churns; and I hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved churn with the lid removed. Fig. 2 is a centrally transverse section of the same, and Fig. 3 the lid.

The corresponding parts in all the figures are marked by the same letters.

The invention consists in doubly and powerfully agitating the cream with a kind as well as a degree of muscular action most favorable to the operator. Two motions are imparted to the cream, one of which is produced by reversing successively the ends of the cream-box when it is only partially filled, the other by a revolving paddle moving reciprocally with the reversing motion imparted to the cream-box. The former, by allowing the cream to fall of its own weight, produces a strong concussion of the particles against each other and against the ends and sides of the cream-box. The latter, moving in a direction contrary to the current of the cream, beats and stirs it effectually, at the same time lifting and dividing it, so as to thoroughly expose it to the air, which, by means of openings, is permitted freely to enter and escape.

The following description will enable those skilled in the art to fully understand my invention, as well as to construct the same.

B is a plain box for receiving the cream, of any required capacity, smooth, or nearly smooth, inside. The best proportions of said box are believed to be the following: The depth *e f* about one-half that of the length *g h*, width immaterial. Said cream-box is supported in any suitable frame, P P, by pivots *m m*, fixed centrally to the cream-box at or near its upper edge. In the interior of said cream-box is a revolving paddle, H, of any suitable construction, in the axis of which is a sliding axle, *o*, which is kept in its place by a pin,

b, an arrangement which permits the paddle to be removed and replaced with facility. Said paddle is made to revolve by being connected with the arbor *a* to the gear-wheel *x*, which, fitting into the toothed arc *c*, made stationary by being fastened to the frame, is made to revolve with the reversing or swinging motion imparted to the cream-box. The convexity of the arc *c* being toothed causes the paddle to revolve in a direction contrary to or against the current of the falling cream. The direction of the paddle may be reversed by constructing the arc with the teeth on the opposite or concavity side. The former, however, I think is much the best. The arbor *a* is formed with a turned shoulder, *s*, Fig. 2, which is made to bear lightly against the turned face of the iron bearing *r* by the coil-spring *v*. This arrangement, with or without a thin piece of packing material placed between the said shoulder and its bearing, effectually prevents the escape of the cream. Other arrangements may be made to accomplish the same result, but this is considered at once simple and effectual.

n indicates a suitable handle, which is readily grasped with the hands in giving the requisite motions to the cream-box.

d marks a spile fitted to an opening from which the buttermilk is readily drawn.

y y, Fig. 3, indicate openings in the lid, admitting air freely to the surface of the cream.

The operation is easily anticipated. The operator is seated near the churn, and, grasping the handle with one or both hands, causes the cream-box to swing or vibrate, elevating and depressing the ends successively, causing it to describe an arc of about one-third of a circle.

I am aware that vibrating churns have been constructed which impart a slight horizontal motion to the cream independent of the motion produced by the paddle, as in the case of I. R. Richardson, rejected June 28, 1850, and of Thomas Parkinson, rejected February 7, 1860; but I am not aware that any combine the strong reversing or falling motion perfectly with the motion imparted by a revolving paddle. The same may be said of

vibrating churns with upright dashers, which impart but one decided and efficient motion to the cream; therefore

I claim—

This arrangement for imparting two distinct efficient motions to the cream by means of the reversing cream-box B when the same is pivoted as described, in combination with

the revolving paddle H, when these are operated substantially in the manner and for the purposes set forth.

E. H. PHILO.

Witnesses:

SOLOMON P. SMITH,
ABRAM GICHLER.