(No Model.)

J. F. SWAB.

CHURN.

No. 328,083. Patented Oct. 13, 1885.

Fig. 1.

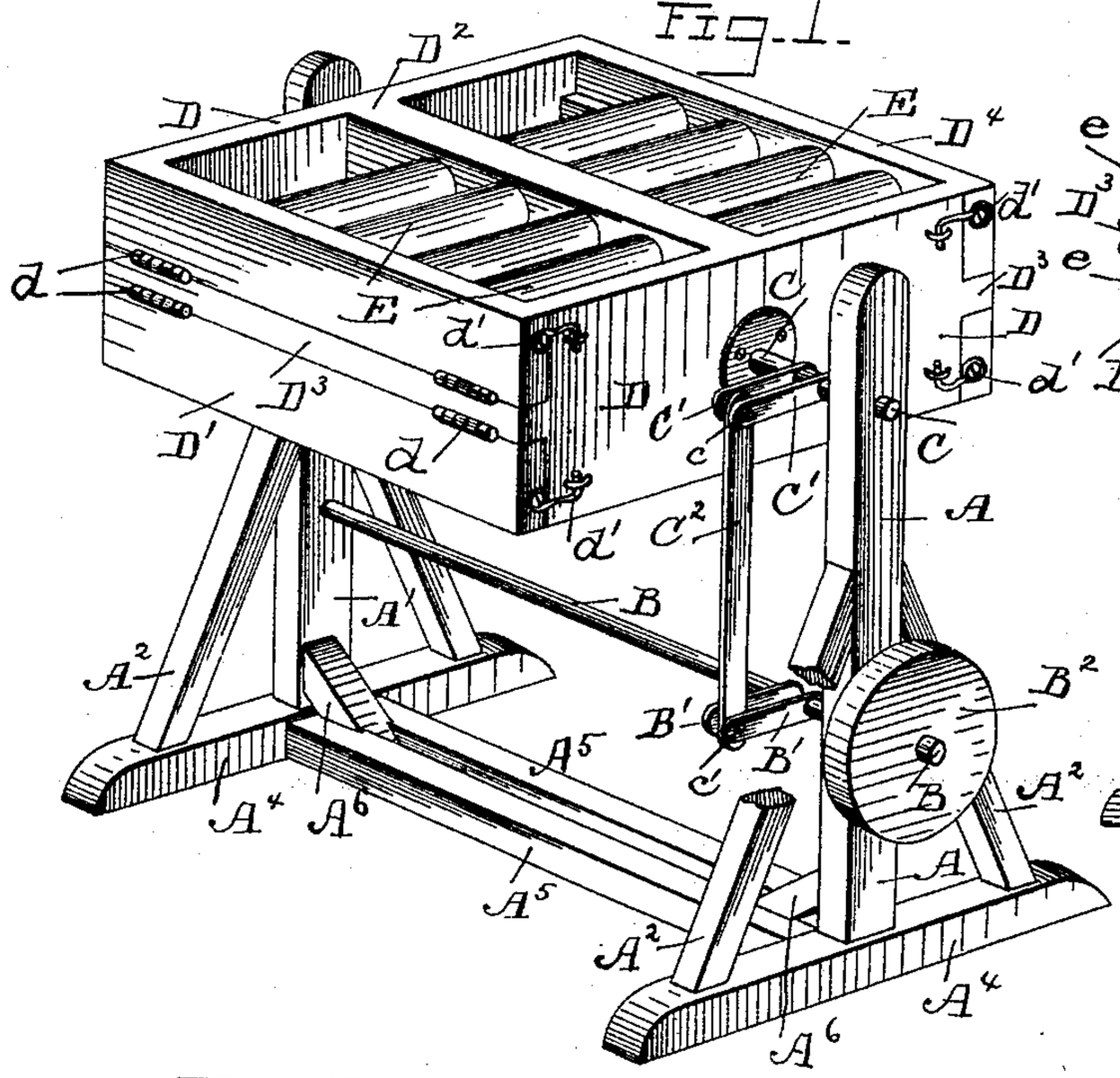


Fig. 2.

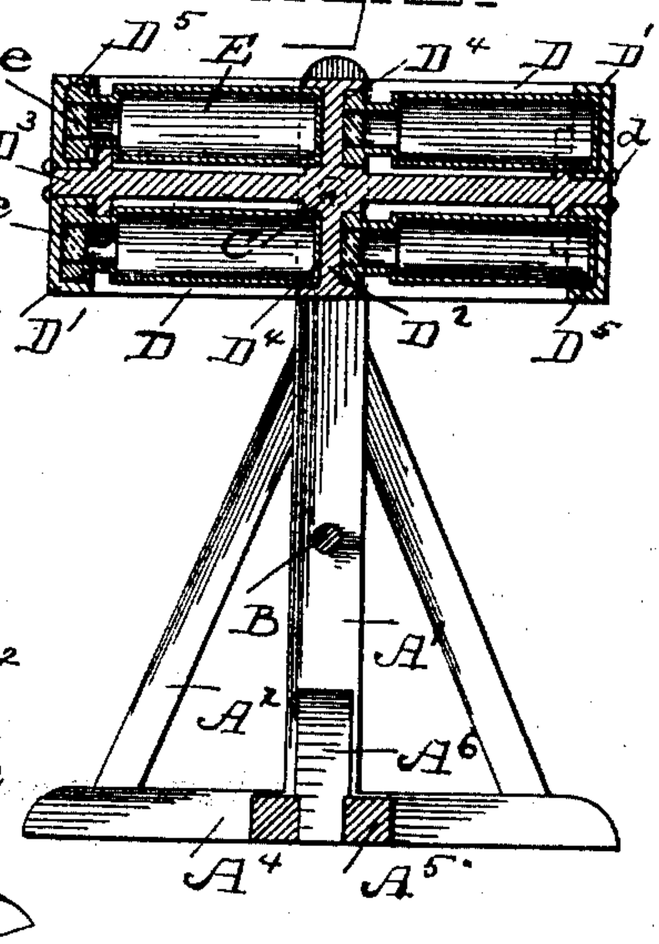


Fig. 4.

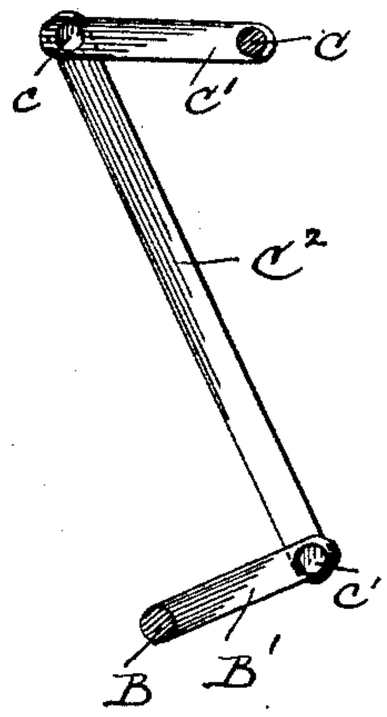


Fig. 3.

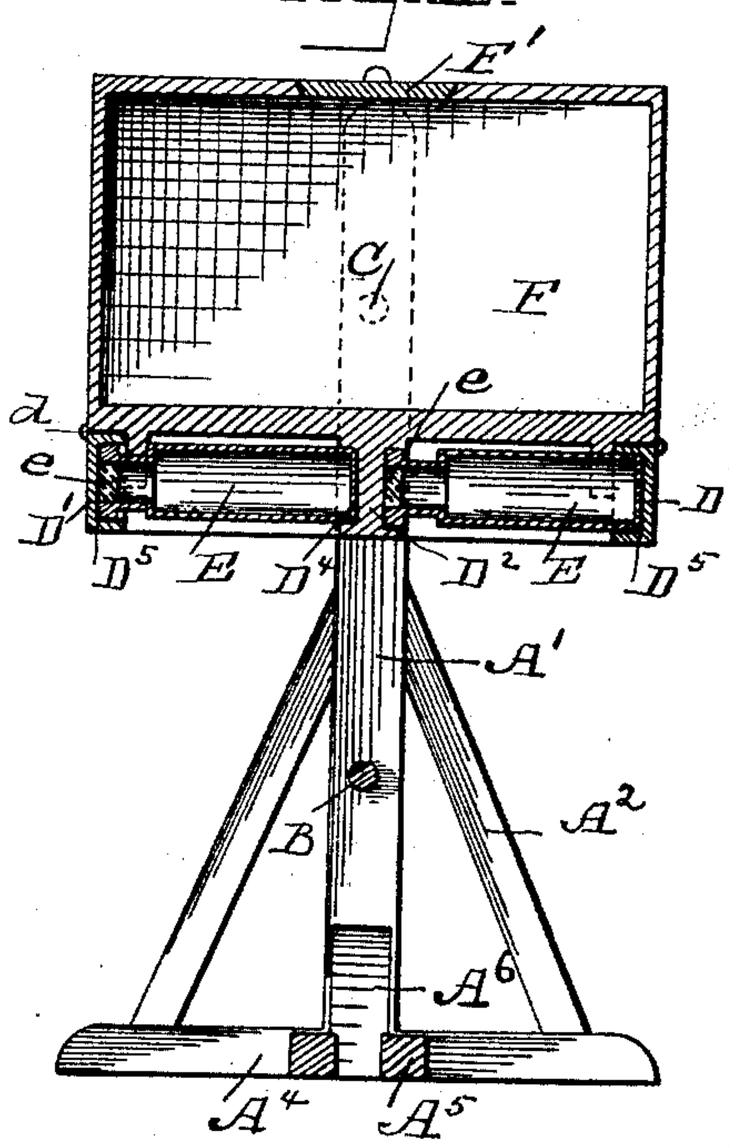
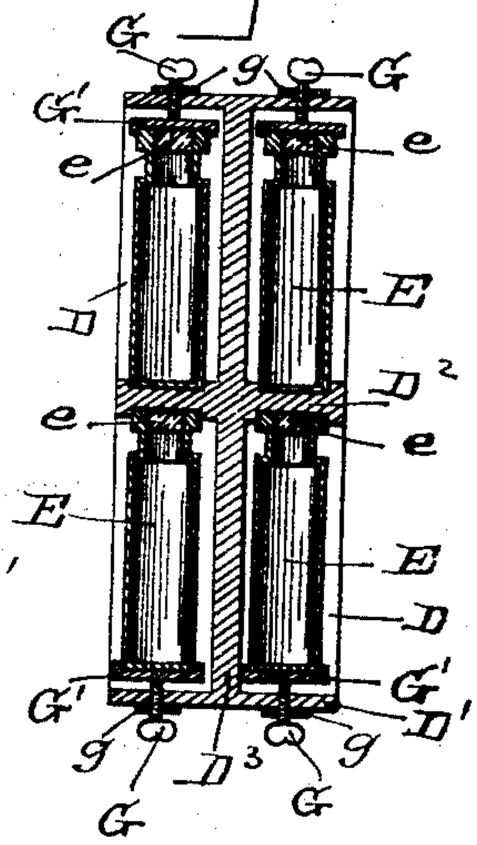


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH F. SWAB, OF CEDAR RAPIDS, IOWA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 328,083, dated October 13, 1885.

Application filed April 24, 1885. Serial No. 163,296. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. SWAB, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to creamery testers and churns; and the object of my invention is to provide devices for receiving cream, securing them by simple and efficient means in a churn, and giving a peculiarly combined rotary and oscillating motion to the churn. Cream-testers are used in creameries and butter-factories to ascertain the amount of butter in a quart of cream furnished by different farmers, the latter being paid during the following month, according to the proportion of butter obtained from said quart. The cream is put in half-gallon jars, properly numbered or marked with the name of each farmer, and churned for a given length of time. These jars in this case are secured in a double frame made for the purpose; but a single frame may also be secured to a churn and given the same peculiar motion.

The invention will first be hereinafter fully described, and then specifically set forth in the claims.

Figure 1 is a perspective view of my improved cream-tester and churn. Fig. 2 is a vertical section of the same. Fig. 3 is a modification of Fig. 2 in vertical section. Fig. 4 is a side elevation of the crank-arm as shown in Fig. 1, and Fig. 5 is a modification of the fastenings used to retain the jars in the cream-tester or churn shown in Figs. 1 and 2.

Like letters refer to like parts in all the figures.

In the drawings, A and A′ represent the two side uprights, provided with braces A^2, resting upon cross-beams A^4, connected together by two parallel beams, A^5, and braces A^6, to form a solid foundation for the tester and churn. Through the two uprights or other suitable bearings passes the crank-shaft B. Said shaft has adjacent to the inside of one of the uprights two crank-arms, B′, connected by a crank-pin, and on the outer side of the upright A the shaft is provided with a pulley, B^2, from which it receives its motion. The upper portions of the uprights A and A′ have perforations, which act as bearings for the journals C, secured to the sides of the tester or churn D. The journal C adjacent to the upright A is provided with and extends between the crank-arms C′, and the two crank-arms B′ and C′ are united by the connecting-bar C^2, the ends of which are perforated to receive the crank-pins *c* and *c′*.

The tester or churn can be made of different shapes. In Figs. 1 and 2 it is presented as having four compartments and as being oblong in form, having its journal-carrying sides D adjacent to the two uprights A and A′. The sides D′ are connected to a middle strip, D^3, by hinges *d*, and held in position by catches or hooks *d′*, engaging with eyes attached to the sides D. The tester or churn is provided with a partition, D^2, and a central floor or bottom, D^3. The partition D^2 is provided on both sides with a series of shallow circular pockets, D^4, to receive one end of a series of tin or glass cans or jars, E. The hinged sides D′ are also provided with a series of circular pockets, D^5, immediately opposite the pockets D^4 in the partition D^2. If tin cans are used instead of glass jars, they have a glass gage in one side and extending nearly the whole length of the can. Each can or jar is provided with a cork or stopper, *e*. The movement given by the crank-shaft B, connecting-rod C^2, and crank-journal C gives to the tester or churn a combined rotary and a jerky oscillating motion, that causes the cream placed in the cans or jars E to have its globules broken and be rapidly transformed into butter, as the churn, by means of its crank arms and rod, receives first an almost entire revolution in one direction until arrested by its connecting-rod striking against the shaft C, immediately followed by the same amount of revolution in the opposite direction, giving a very effective churning motion to the cream.

The crank-arms upon the shafts may be secured thereon by set-screws or may be made integral therewith.

In Fig. 3 the cream-tester or churn is represented as having a frame carrying series of cans or jars E and hinged sides D′, as in Fig. 2, and above it a water-tight box or cream-receptacle, F, provided with an opening hav-

ing a cover, F′, properly secured in, to retain the cream in the churn-box F. Said churn can be used as a cream-tester, with cans or jars E, and as an ordinary churn, and receive the same rotary oscillating motion explained in regard to Figs. 1 and 2.

To facilitate the removal of each jar independently of the others, the frame carrying the jars is represented in Fig. 5 as having pockets to receive one end of the jars, and thumb-screws G, passing through plates *g*, secured to the top and bottom D′, and covers or cap-pieces G′ are placed at the top or bottom of the cans or jars E, and by the aid of the thumb-screws G hold them in place until their removal is desired.

I am aware that churns have been mounted upon a crank-shaft to which motion has been transmitted through a connecting-rod from a crank-shaft of smaller radius, and that said churns have thus been made to oscillate within an arc of about one-third of a circle, and do not claim, broadly, the use of crank-shafts connected in that manner.

Having now fully described my invention, I claim—

1. The combination of the body of a cream-tester or churn and its supports, the shaft B, provided with crank-arms B′, and the churn-shaft C, having crank-arms united by said shaft, with a connecting-bar, C^2, uniting the cranks of the shafts B and C, whereby said bar is arranged to strike and be arrested by the shaft C before completing each revolution, first in one direction and then in the opposite, substantially as and for the purpose described.

2. The combination of a frame, having compartments provided with fixed sides, hinged ends, and catches, with the shaft C, having a crank-arm, the shaft B, having a crank-arm, and the connecting-bar C^2, uniting the cranks of the shafts B and C and arrested by the latter shaft, whereby said bar is arranged to strike and be arrested by the shaft C before completing each revolution, first in one direction and then in the opposite, substantially as and for the purpose described.

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

JOSEPH F. SWAB.

Witnesses:
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