W. F. GRAY.

CHURN.

No. 186,420. Patented Jan. 23, 1877.

Fig. 1.

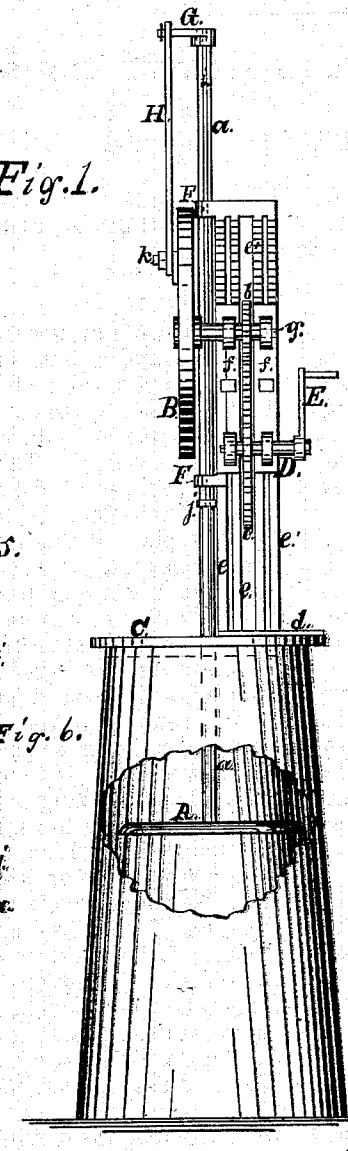

Fig. 2.

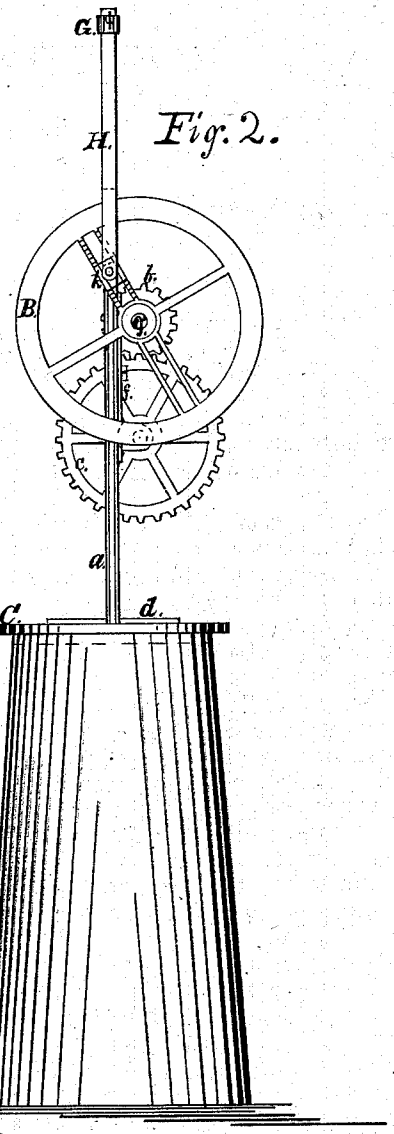

Fig. 5.

Fig. 6.

Fig. 3.

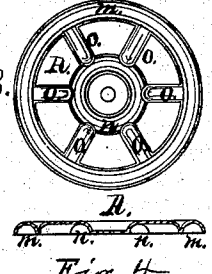

Fig. 4.

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UNITED STATES PATENT OFFICE.

WHITLEY F. GRAY, OF SHERMAN, TEXAS.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **186,420**, dated January 23, 1877; application filed May 19, 1876.

To all whom it may concern:

Be it known that I, WHITLEY F. GRAY, of Sherman, in the county of Grayson and State of Texas, have invented new and useful Improvements in Churns, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to combine in a churning-machine suitable mechanism, which shall easily and rapidly convert cream into butter, by the combination, in a churning-machine, of a circular dasher, A, and a dash-stem, *a*, with balance-wheel B and pinion *b*, and gear-wheel *c*, for driving the same, as shown in the front elevation, Figure 1, of the accompanying drawing. The machine is also illustrated in the side elevation, Fig. 2, in which it has not been deemed necessary to show the dasher, as it is clearly shown in detail by the sketches, Figs. 3 and 4, also the stem in Figs. 5 and 6.

I am aware that churns have been made square, round, and in many other forms; therefore I do not claim, broadly, any particular style for the churn proper, as it will be readily seen that my dasher and driving mechanism can be easily attached to the cover of any common churn, whether square or round.

To the churn-cover C is fastened, by screws or otherwise, the base *d*, which supports two pairs of uprights, *e e* and *e' e'*, that are secured together by a cross-bar at the top, from which downward, about one-half their length, are notches corresponding in shape to those upon the under side of the plates *f f*. One of each of these plates is secured to each pair of uprights by a bolt passing between them. At the upper end of each of these plates is a bearing supporting a horizontal shaft, *g*, at the end of which is secured the balance-wheel B; and between these said bearings, secured to the same shaft, is a pinion, *b*, which receives motion from a wheel, *c*, secured to another horizontal shaft, D, directly under it, that is turned by crank E. The dash-stem *a* is split through the center from the top downward more than one-half its length, into which is placed a piece of flat bar-iron, *i*, which projects out beyond the wood on either side, and is secured in place by bands *j j* at the top and bottom. (More clearly shown in Figs. 5 and 6.) The part of dash-stem thus ironed moves up and down in bearings F F, when motion is imparted to it through arm G, secured at its top, and connecting-rod H, connecting it with movable crank-pin *k* upon one of the arms of balance-wheel B. My annular dasher A is of metal. The outer ring *m* and inner one *n*, also arms *o*, connecting the same, are arched upon their under side, which, as it is raised up and down, causes more or less of the atmosphere within the churn to mix freely with the cream, the object of which is obvious.

I claim as my invention—

1. A metal dasher constructed with two annular arches, both being connected with two or more radial arms, that are also arched.

2. The dash-stem *a*, when split and provided with an iron bar, *i*, secured as shown and specified.

3. In a churn, the driving mechanism herein specified, consisting of crank E, shaft D, gear *c*, pinion *e*, and balance-wheel B, supported by notched uprights *e e* and *e' e'*, as herein shown, and for the purpose set forth.

WHITLEY F. GRAY.

Witnesses:

J. D. GEORGE,

I. Z. RANDOLPH.