(No Model.)

H. W. CRAIL.

CHURN.

No. 414,632. Patented Nov. 5, 1889.

Fig. 3.

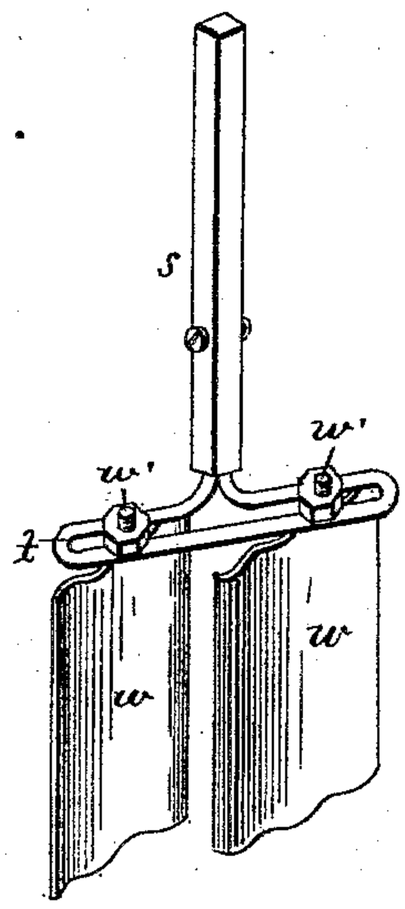

Fig. 2.

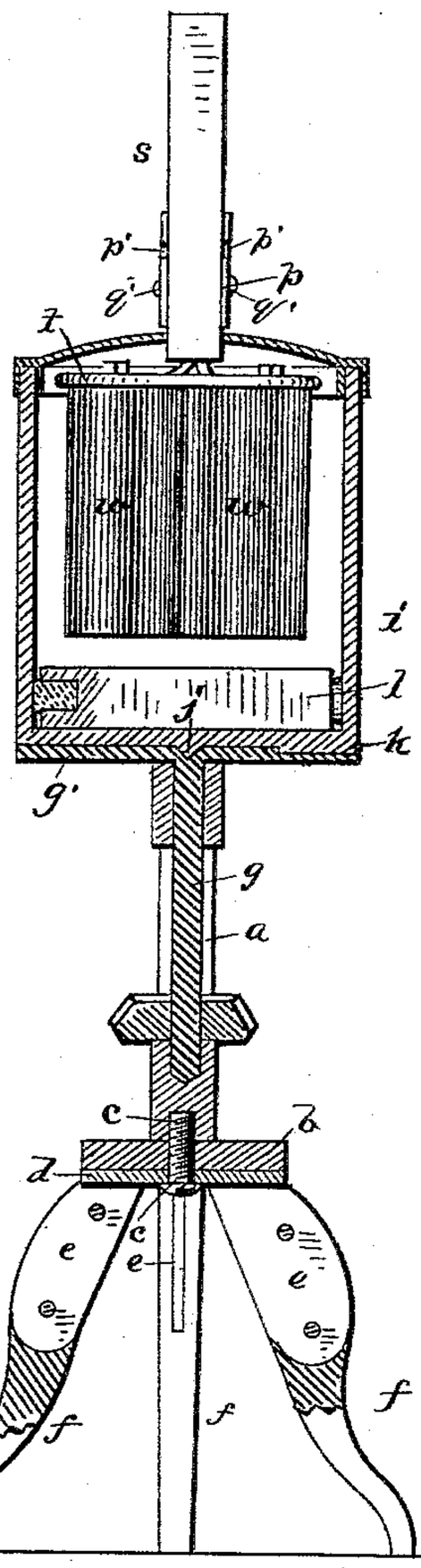

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

HENRY W. CRAIL, OF MATTOON, ASSIGNOR OF ONE-HALF TO GEORGE MORLAND, OF TOLEDO, ILLINOIS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 414,632, dated November 5, 1889.

Application filed August 5, 1889. Serial No. 319,740. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. CRAIL, a citizen of the United States, residing at Mattoon, in the county of Coles and State of Illinois, have invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a side elevation, partly in section, of my improved churn; Fig. 2, a vertical sectional view of the same, and Fig. 3 a perspective view of the stationary dasher.

The invention has relation to certain new and useful improvements upon that class of churns wherein the dasher is held stationary within a rotatable churn-vessel; and it has for its objects to improve the general construction of this class of apparatus and render it more efficient and simple, as will be more fully hereinafter set forth.

In the drawings annexed, *a* designates a cast metallic frame provided with a disk *b* at its lower end. To the disk *b* is secured, by a central screw *c*, a similar disk *d*, which is provided with a suitable number of depending radial wings *e*, to which are bolted the supporting-legs *f*, the upper ends of the legs being slotted for the reception of the said wings.

By removing the central screw *c* the lower disk and legs may be removed for convenience in transportation or for any other purpose.

A vertical shaft *g* is journaled in the frame, and is given motion by means of a pair of gear-wheels and a horizontal shaft *h*, also journaled upon the frame. The shaft *h* is rotated by means of an adjustable crank or handle *h'*, or by any other suitable means. The upper end of the shaft *g* is provided with a horizontal disk *g'* for the support of the churn-vessel *i*, this vessel being provided with a central pin *j* and a series of radial projections *k* upon its bottom, these projections and central pin fitting in similar sockets in the said disk *g'*. This construction causes the vessel to rotate with the disk, and permits of the use of larger or smaller vessels.

Within the vessel, transversely of its bottom, is removably secured a bar *l*, which assists in the churning process. This bar is provided with rubber cushions in its ends, which bear against the interior of the vessel and serve to hold the bar in any desired position without bulging or breaking the vessel.

Mounted and suitably secured on the main frame, to one side of the churn-vessel, is a vertical stationary rod *m*, which supports and forms a pivotal point for a tubular arm *n*, the rod *m* extending up in the vertical portion of the said arm *n*, and being held adjustably therein by means of a set-screw *n'*. The horizontal portion of the bowed arm *n* extends over the top of the churn-vessel, and is provided with a slotted cuff *p* at its end, this cuff being directly over the central opening in the churn-cover. This cuff is provided with coincident slots *p'* upon its opposite sides for the reception of pins *q'* upon the vertical dasher *s*, whereby the dasher-shaft is removably secured in said cuff without being permitted to revolve. The dasher-shaft and cuff are preferably formed rectangular in cross-section. The dasher-shaft extends down through the central opening in the churn-cover, and is provided at its lower end with a horizontal slotted arm *t*, to which are adjustably secured two or more vertically-corrugated blades *w*, these blades being secured to the arm *t* by nuts and bolts *w'*. By these nuts and bolts the plates may be adjusted along the arm, and their obliquity with respect to each other may also be varied as the exigencies of the case may demand.

By providing for the vertical adjustment of the dasher-supporting arm different-sized churns may be readily accommodated, and by providing for swinging it around to either side the churn-vessel may be readily removed from its support.

The operation of the churn will be evident from the foregoing.

Having thus fully described my invention, what I claim is—

1. The combination, with the main frame provided with a disk *b* at its lower end, of a similar disk *d*, provided with radial depending wings, a central screw *c*, for removably securing the disk *d* to the disk *b*, and legs *f*, bolted to the said radial wings *e*, substantially as described.

2. The combination of a rotary disk provided with central and radial depressions in its upper face, and a churn-vessel mounted upon the said disk and provided with corresponding projections, substantially as described.

3. The combination of a frame, a rotary churn-vessel mounted upon this frame, means for rotating this vessel, a bent arm *n*, mounted upon the frame, this arm being rotatively and vertically adjustable, whereby its horizontal portion may be swung around centrally of the said churn-vessel, and a depending churn-dasher removably secured to the bent portion of said arm *n*, this dasher extending into the churn-vessel, as and for the purposes set forth.

4. The combination, with a churn-vessel, of a transverse bar *l*, provided with elastic buffers in its ends, substantially as and for the purpose described.

5. A dasher-rod *s*, provided at its lower end with a horizontal arm *t*, having a longitudinal slot, in combination with a pair of vertically-corrugated blades *w*, provided with bolts and nuts whereby they are adjustably secured in the slot in arm *t*, these blades being thereby adapted to be adjusted rotatively and to or from each other, as and for the purposes set forth.

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

HENRY W. CRAIL.

Witnesses:

JOHN W. MCCARTNEY,

HY. F. NASH.