(Model.)

W. H. STERNS.

CHURN.

No. 285,174. Patented Sept. 18, 1883.

Fig 1

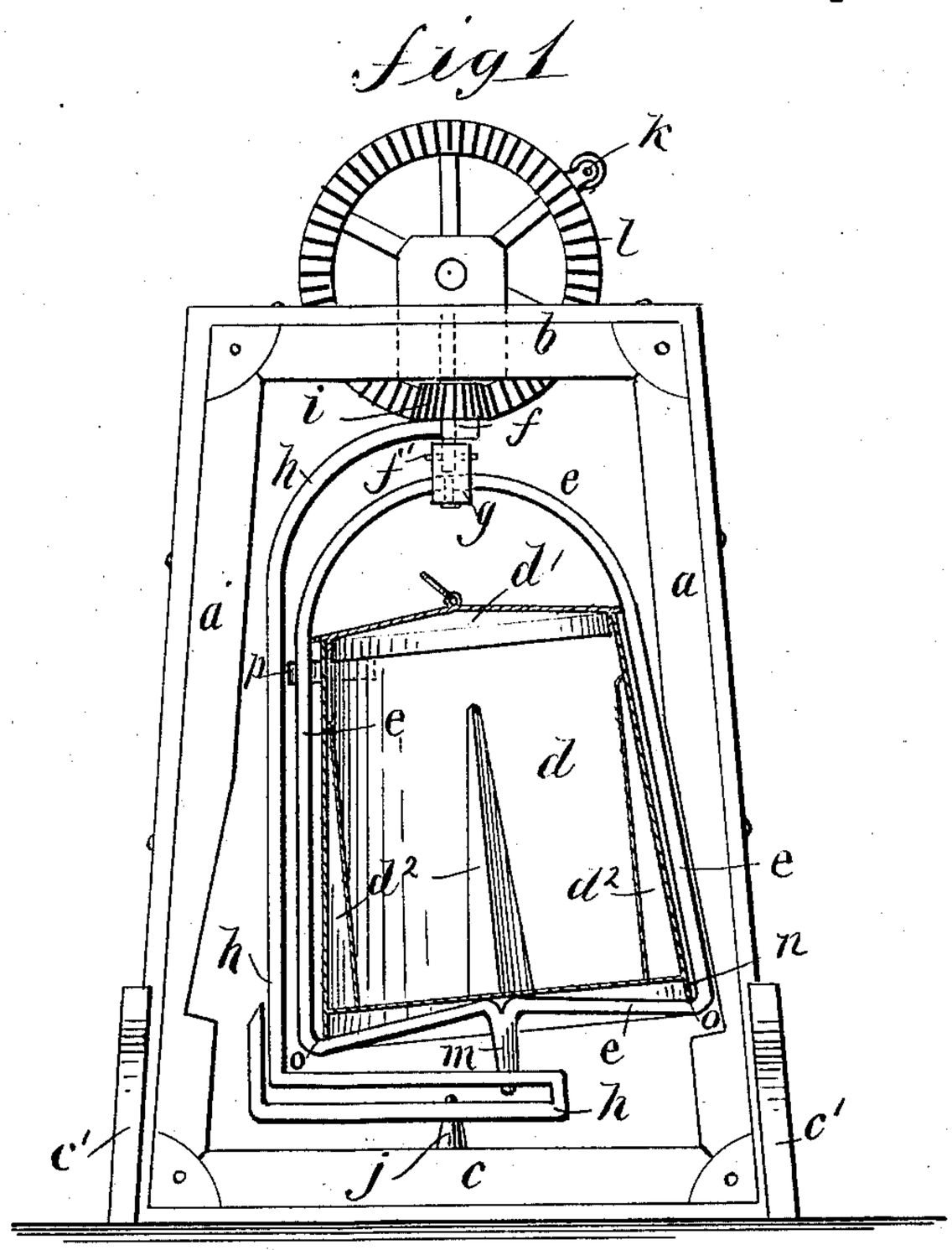


Fig 2

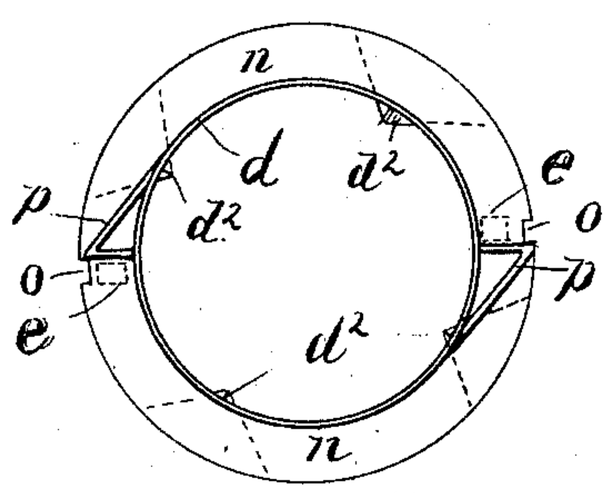
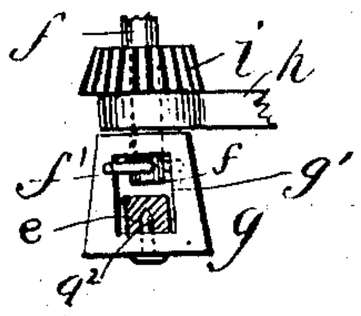


Fig 3



WITNESSES:

L. D. Garfield

C. Sedgwick

INVENTOR:

W. H. Sterns

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM H. STERNS, OF HUMBOLDT, NEBRASKA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 285,174, dated September 18, 1883.

Application filed May 22, 1883. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM H. STERNS, of Humboldt, in the county of Richardson and State of Nebraska, have invented a new and Improved Churn, of which the following is a full, clear, and exact description.

The object of this invention is to improve and simplify the construction of swing-body churns in a manner to secure their more perfect balance in action and greater convenience in adjustment and operation.

The invention consists in hanging the churn-body in a yoke or frame suspended from the main frame of the churn, and in the arrangement, with said yoke-frame for the churn-body, of an open-sided or bent yoke or bar connected with driving-gearing and the main frame, for rotation around the suspended churn-body, the yoke-frame of which is stepped in the open yoke-frame at one side of or eccentrically to the axis of rotation of the latter, to cause a movement of the churn-body in a circular horizontal orbit as the open yoke swings or rotates to the opposite side to balance the momentum of the churn-body, the open yoke acting as a counterpoise thereto, the churn-body having internal ribs or cream-breakers for thorough agitation of the contents for bringing the butter quickly.

The invention includes, also, special constructions and combinations of the parts of the churn, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improvement, with the churn-body in section. Fig. 2 is a plan view of the churn-body with the cover removed, and Fig. 3 is a detail view of the churn-body connecting clip or shackle.

To any suitable frame of side pieces, *a*, head-piece *b*, and sill *c*, having any approved transverse bar-rests on foot-braces *c'*, I hang the churn-body *d* by a yoke-frame, *e*, from a pin or stud, *f*, (fixed in the head-piece *b*,) by a clip or shackle, *g*, through the slot *g'* of which the head of frame *e* passes. Said frame *e* has a recess or socket in the under side of its arch or head, which bears upon a pin step-bearing, g^2, fixed in the yoke *g*, and rising in its slot *g'*, which allows a free limited swing of the yoke *e* on the pin g^2, the clip *g* being rigidly secured to stud *f* by a pin, *f'*, or in any other suitable manner, for sustaining the weight of the churn-body, while preventing the bodily axial rotation of yoke-frame *e* and the churn-body. An open yoke and counterpoise, *h*, has rigid connection at its top to a pinion, *i*, and is bent over or around one side, but free from the yoke-frame *e*, and beneath it said yoke *h* has a bearing on a stud-pin, *j*, fixed in sill-bar *c*, to form with pin *f* a vertical axis, upon or about which yoke *h* may be freely rotated by means of a crank, *k*, on a driving-gear, *l*, which meshes with the pinion *i*, to which yoke *h* has connection, as above described. A pin or stud, *m*, on yoke-frame *e* is stepped in the yoke *h* at a suitable distance from its axis *j*, whereby the lower end of the frame *e*, with its connected churn-body *d*, will be supported, and caused to describe, by the stud *m*, a circle around the axis *j* of a diameter equal to twice the eccentricity of stud *m* therefrom, when the yoke *h* is caused to revolve, so that the contents of the churn-body *d*, which has any suitable cover, *d'*, and ribs or cream-breakers d^2, will be thrown violently against the cream-breakers and walls of the churn-body, for interrupting the currents of the cream and disrupting its particles or globules in a most effective manner, causing the butter to come quickly. It will be noticed that when the churn-body is swung to one side the weight of the yoke *h* acts directly, by its opposite swing, to balance perfectly the momentum of the churn-body, keeping the parts in an equipoise, permitting a rapid working of the churn without bad effect upon the frame of the churn, and increasing its durability and capacity.

I have shown the yoke *h* as made of a bar of wrought or rolled metal bent upon itself at the bottom, as an example of economical and strong construction; but said yoke *h* may be made by casting it and with the weight of its various parts proportioned to suit the weight and capacity of the churn-body to be worked thereby, and the yoke *h* may also have removable and adjustable weights attached, as desired, to balance varying quantities of cream in the churn-body.

For a secure connection of the churn-body *d* to its yoke-frame *e*, which will allow quick and easy adjustment to the yoke of the body *d* and its like removal therefrom, I fit the base flange *n* of the body *d* over the bottom bar of the yoke *e* at each side by slots *o*, and provide brackets or ear-pieces *p* on the churn-body, to rest against opposite edges of opposite side bars of the yoke-frame *e*, as will be understood from Figs. 1 and 2; and I shape the head of the yoke-frame *e* so that when its covered churn-body is adjusted therein for working the churn the spring of the arched head of the yoke-frame will prevent opening of the cover by the movements of the churn-body by bearing against the top edges of the cover.

The drawings represent the side bars, *a*, as cut away to afford room for the swing of the churn-body; but this will be unnecessary with the parts in other proportion. My improvements thus provide a very simple, durable, and effective churn, which may easily be operated, and has great advantages, as to the ease with which it may by cleaned, over churns fitted with the ordinary dashers.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A churn whose body is suspended suitably to swing in a circular horizontal orbit, in combination with a counterpoise to the churn-body, arranged to swing around the churn-body, substantially as shown and described.

2. A churn constructed with a churn-body-carrying yoke-frame, suspended to allow the movement of the churn-body in a horizontal orbit, but secure against bodily axial rotation, and stepped at the bottom and eccentrically in a rotating counterpoise-yoke connected to suitable driving-gearing, substantially as shown and described.

3. The combination, with the swing-yoke *e*, having stud *m*, of the yoke *h*, fitted to rotate on axis *f j*, and to which yoke stud *m* is eccentrically connected, substantially as shown and described.

4. The combination of swing-yoke *e*, revolving driving counterpoise-yoke *h*, and a churn-body, *d*, fitted with vertically-ranging cream-breakers d^2, substantially as shown and described.

5. The clip or shackle *g*, open at *g'*, and supported rigidly by a pin fixed to the churn-frame, and having the bearing g^2, in combination with the yoke *e*, suspended on bearing g^2, substantially as shown and described.

6. The combination, with the swinging yoke-frame *e*, of the churn-body *d*, slotted at *o*, and fitted with ears or brackets *p*, substantially as shown and described.

7. The combination, with the swinging yoke *e* and churn-body *d*, of the cover *d'*, fitting for secure closure beneath the arch-spring of yoke *e*, substantially as shown and described.

WILLIAM H. STERNS.

Witnesses:
L. M. STERNS,
W. P. STERNS.