(No Model.) 2 Sheets—Sheet 1.

T. W. HAMBRIC.

CHURN.

No. 491,644. Patented Feb. 14, 1893.

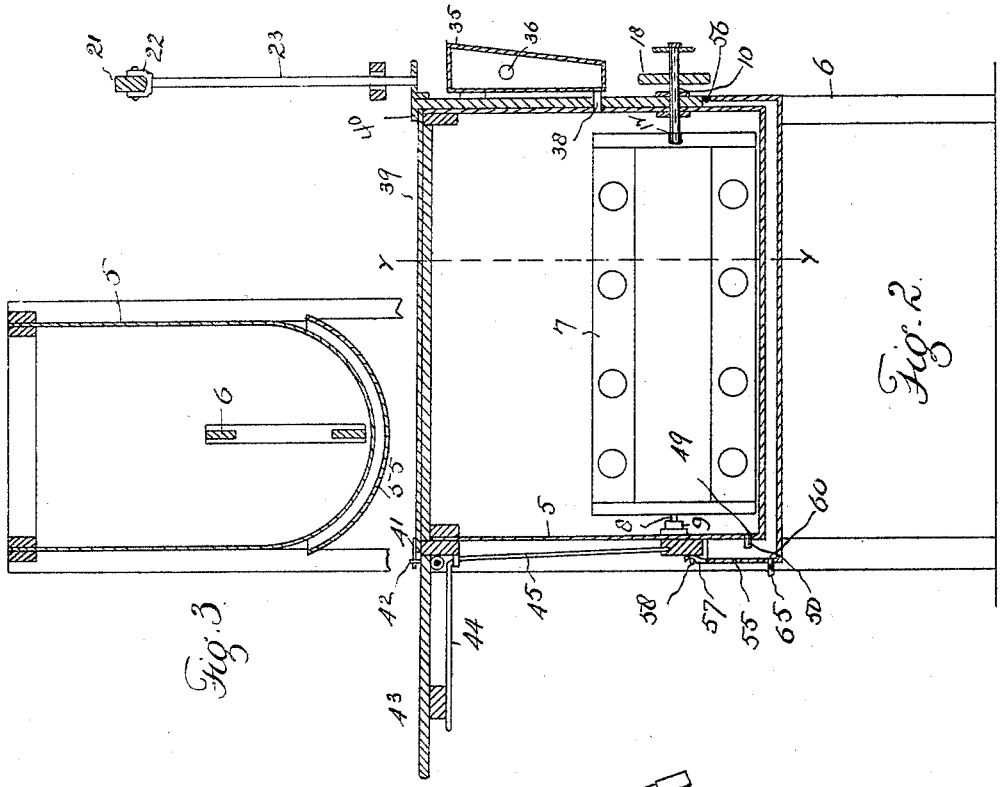


Fig. 2.

Fig. 3.

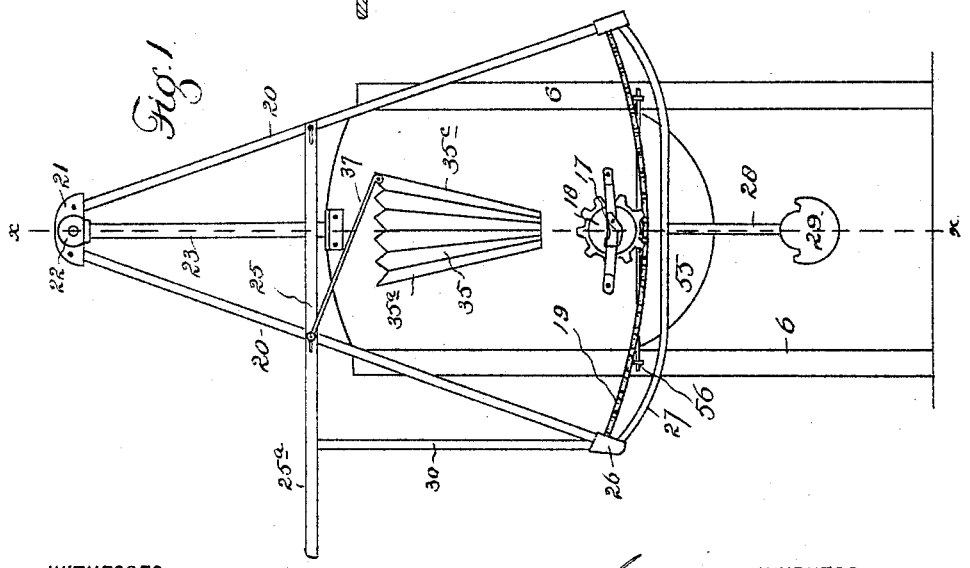


Fig. 1.

WITNESSES:
G. J. Rollandet
Wm. McConnell

INVENTOR
Thos. W. Hambric
BY
A. J. O'Brien
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

T. W. HAMBRIC.

CHURN.

No. 491,644. Patented Feb. 14, 1893.

Fig. 4

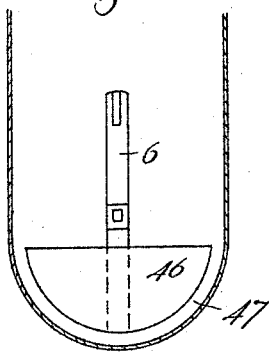
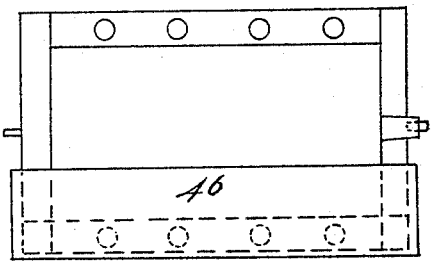


Fig. 6.



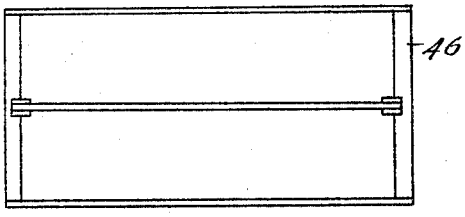


Fig. 5

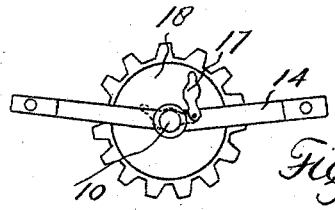


Fig. 7

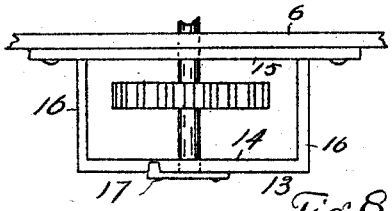


Fig. 8

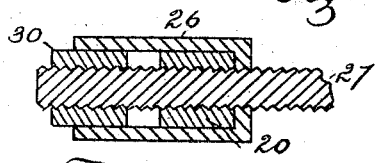


Fig. 10

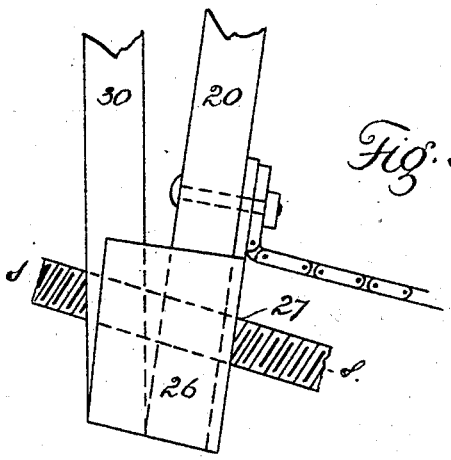


Fig. 9

WITNESSES:

G. J. Rollandet

Wm. McConnell

INVENTOR

Thos. W. Hambric

BY

A. J. O'Brien

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS W. HAMBRIC, OF DENVER, COLORADO.

CHURN.

SPECIFICATION forming part of Letters Patent No. 491,644, dated February 14, 1893.

Application filed April 11, 1892. Serial No. 428,594. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. HAMBRIC, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Churns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in churns and the object of the improvement is to provide a device of the class stated which shall be of simple and economical construction, reliable, durable and practicable in use.

To these ends the invention consists of the features, arrangements and combinations hereinafter described and claimed.

My improved churn will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment of the invention.

In the drawings, Figure 1 is an end elevation of the churn. Fig. 2 is a vertical longitudinal section taken on the line *x*—*x*, Fig. 1. Fig. 3 is a vertical transverse section taken on the line *y*—*y*, Fig. 2. Fig. 4 is a vertical transverse section taken through the cream tank showing the dasher and its "working" attachment. Fig. 5 is a top view showing the dasher and its attachment in detail, removed from the tank. Fig. 6 is a side elevation of the same. Fig. 7 is an elevation of the pinion mounted on one extremity of the dasher-spindle, the journal box of which is shown in place. Fig. 8 is a top or plan view of the same. Fig. 9 is a fragmentary view of the oscillating frame on an enlarged scale, showing its connection with the tension rod and the actuating chain. Fig. 10 is a section taken on line *s*—*s*, Fig. 9.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views let the numeral 5 designate the metallic cream-tank mounted upon and supported by a suitable framework 6. This tank may be so constructed or connected with its supporting framework as to be readily detachable therefrom, permitting the removal of one tank and the substitution of another in the same casing, when for any reason such action may be desirable.

Located within the tank is the removable rotating dasher 7 having a pivot 8 engaging a socket 9 at one end of the tank, the opposite end of the dasher being provided with an angular recess 12 forming a socket for one extremity of the spindle 10 which is correspondingly fashioned. This spindle passes through the tank and casing and is supported and journaled in a metallic frame or boxing 13 composed of the parallel side bars 14 and 15 connected by the end bars 16, thus affording two bearings for the spindle and giving it an independent support outside of the tank. This spindle has a lateral or horizontal movement within its bearing for the purpose of disengaging it from the dasher when it is desired to remove the latter from the tank. When one extremity of the spindle engages the dasher-socket, the spindle is locked in place against lateral displacement by a button 17 pivoted upon the outer bar 14 of the boxing and adapted to engage the outer end of the spindle when locking the latter in place. When it is desired to remove the dasher from the tank the locking button is raised to the position shown in Fig. 7, permitting the sliding of the spindle horizontally sufficiently to disengage its inner extremity from the dasher socket. The dasher is then moved in the same direction to disengage its pivot from its socket 9. The dasher is then free to be removed from the tank and may be replaced therein by reversing the operation of removal just described.

Rigidly secured to the spindle 10 and located between the bars 14 and 15 is the small sprocket pinion 18 which is engaged by the sprocket chain 19, the extremities of which are respectively secured to the lower extremities of bars 20 of the A-shaped oscillating frame. Bars 20 are connected at the top by a socket iron 21 which is pivoted in the fork 22 of the standard 23, having its lower extremity made fast to a flange 24 made fast to the top of the tank casing. Bars 20 of the oscillating frame are connected above the

tank by a bar 25 which is provided with a continuation forming a handle which is grasped or held while actuating the A-shaped frame or while operating the churn. The lower extremities of bars 20 are provided with stirrup-shaped clasps 26, which are provided with threaded apertures to receive the correspondingly threaded extremities of the tension rod 27 which pass through apertures formed in the clasped ends of bars 20. The tension of chain 19 is regulated by adjusting these clasps upon the tension rod and moving bars 20 outward or inward as may be desired. For this purpose these bars are pivoted in socket iron 21, and cross 25 is slotted at its intersection with the bars to allow the necessary movement as these parts are adjusted.

To the central part of the tension rod is attached a depending bar 28 having a weight 29 at its lower extremity, which weight assists in the manipulation of the actuating frame and conduces to the regular and steady oscillation thereof. Handle 25^a is provided with an upright supporting bar connected with the handle at one extremity and with one of the socket irons 26 at the opposite extremity.

From the foregoing description it will be seen that the oscillating movement of the actuating frame will impart to the dasher a rotary movement in reverse directions whereby the cream within the tank is subjected to any desired or necessary degree of agitation.

The end of the framework adjacent to the oscillating frame is provided with a small bellows or air-forcing apparatus 35 having a valve 36 and operated on the same principle as any ordinary mechanism of its class. The rigid side 35^a is stationary, being secured to the framework of the tank, while side 35^c is movable and actuated by a rod 37 pivoted thereto at one extremity and to cross bar 35 at the opposite extremity. As the folds of this device are expanded the air rushes in through the valve 36, and as these folds contract the air is forced into the cream tank through a small tube 38 leading from the interior of the bellows thereinto and being so located that the air enters above the cream. The object of this mechanism is to supply the tank with pure air.

The cover 39 of the tank may be provided with one or more apertures to allow the gases generated by the agitation of the cream to escape. One edge of the cover 39 slips under a lug or flange 40 connected with the frame while the opposite edge is provided with a pin 41, which enters an eye 42 secured to the hinged lid 43, which is supported by the horizontal arm 44 of the pivoted upright rod 45. The lid 43 may be lowered and the cover 39 released by turning arm 44 around next to the end of the tank.

The dasher may be provided with a concavo-convex device 46 provided with grooves in its ends to allow it to be slipped over one of the fans of the dasher as shown in Figs. 5 and 6. This device is only used to "work" the butter, so to speak, after the churning process is complete, hence during the operation of churning the cream device 46 is not in place. The function of part 46 is to separate the butter-milk from the butter by squeezing it between its convex surface and the bottom of the tank or in the space 47 shown in Fig. 4. This butter-milk is drawn off from the tank through an aperture 49 normally closed by a stopper 50.

The bottom of the cream tank is externally surrounded by a receptacle or trough 55, which is hinged at one end of the casing as shown at 56, its opposite extremity being provided with a catch 57 adapted to hook upon a lug or projection 58 secured to the frame, said catch being readily detachable from the lug, allowing the receptacle to drop down out of the way, when it is desired to remove the liquid contents from the cream tank through aperture 49 as before explained.

The object of trough 55 is to hold water or other substance which it may be desirable or necessary to use for the purpose of tempering the cream preparatory to or during the operation of churning. The liquid contents of this trough may be drawn off through an aperture 60 normally closed by a stopper 65.

Having thus described my invention what I claim is:—

1. In a churn the combination of a suitable cream tank, a dasher pivoted therein, a spindle engaging the dasher within the tank and carrying a sprocket pinion, and an oscillating frame having its axis supported upon the framework of the tank, and carrying a chain fashioned to engage said pinion and actuate the dasher and a tension rod to regulate the length of the chain, substantially as described.

2. In a churn the combination with the cream tank, the rotating dasher and the externally projecting spindle carrying a sprocket wheel, of the oscillating A-shaped actuating frame having its arms connected by a chain adapted to engage the sprocket wheel, and a tension rod connecting the lower extremities of its arms and means for moving the arms upon the rod whereby the tension of the chain is regulated, substantially as described.

3. In a churn the combination with the cream tank, the rotating dasher and the externally protruding spindle carrying a sprocket wheel, of the oscillating frame for imparting motion to the spindle, said frame being provided with a depending weighted arm, and a chain engaging the sprocket wheel and a tension rod to regulate the length of the chain, substantially as described.

4. In a churn the combination of the cream tank and dasher having an externally protruding spindle carrying a sprocket wheel, of the external oscillating frame provided with a chain and the tension rod for regulating

the same, the chain engaging the sprocket wheel on the spindle, and a bellows or other suitable air forcing apparatus supported upon the frame work of the tank and operated by the oscillating frame whereby the said tank is continually supplied with pure air, substantially as described.

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

THOMAS W. HAMBRIC.

Witnesses:
WM. MCCONNELL,
MURIEL STRODE.