

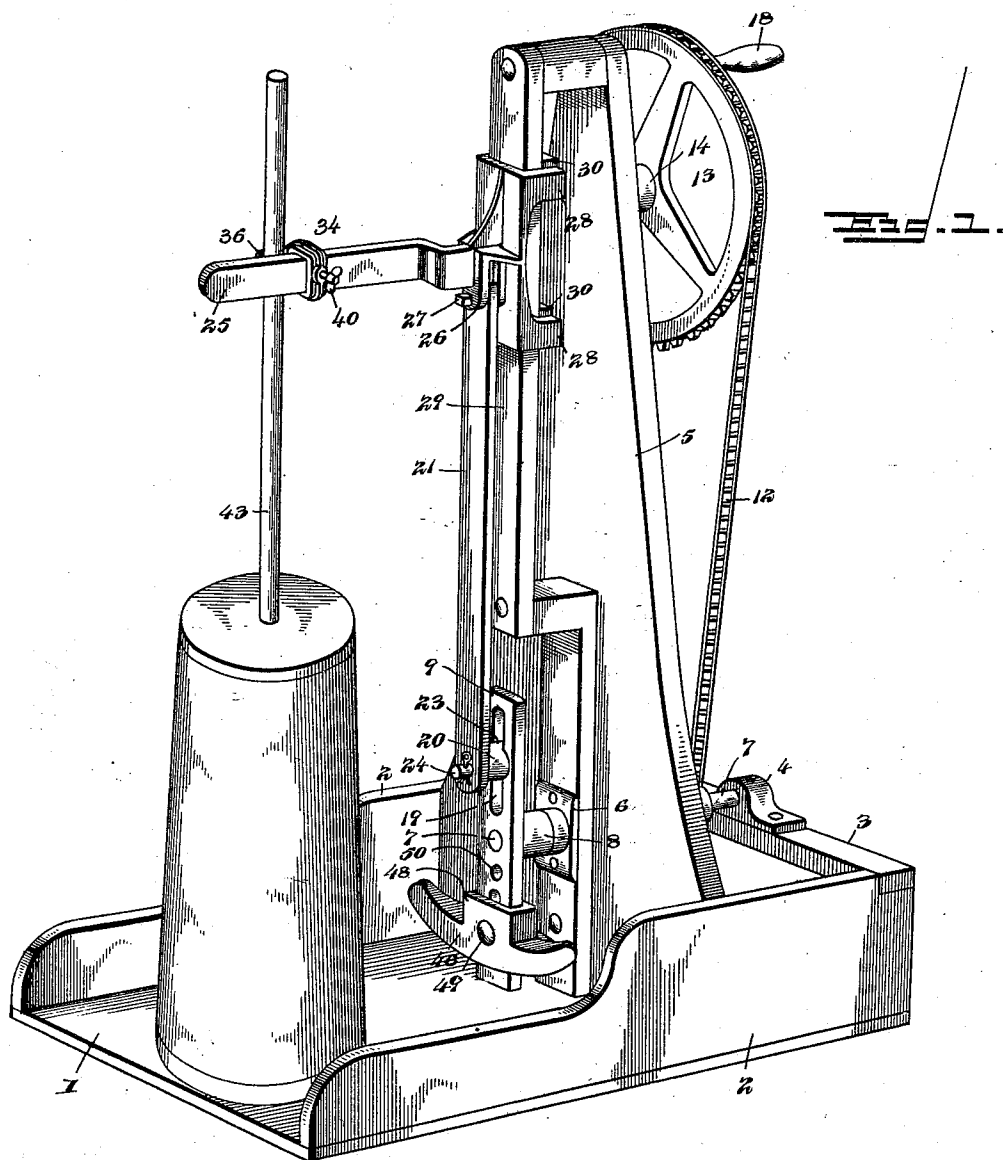
(No Model.)

2 Sheets—Sheet 1.

H. L. HOLT.
CHURN.

No. 562,186.

Patented June 16, 1896.



Inventor

Henry L. Holt

By his Attorneys.

Witnesses
E. H. Stewart
R. M. Smith

Cadnow & Co.

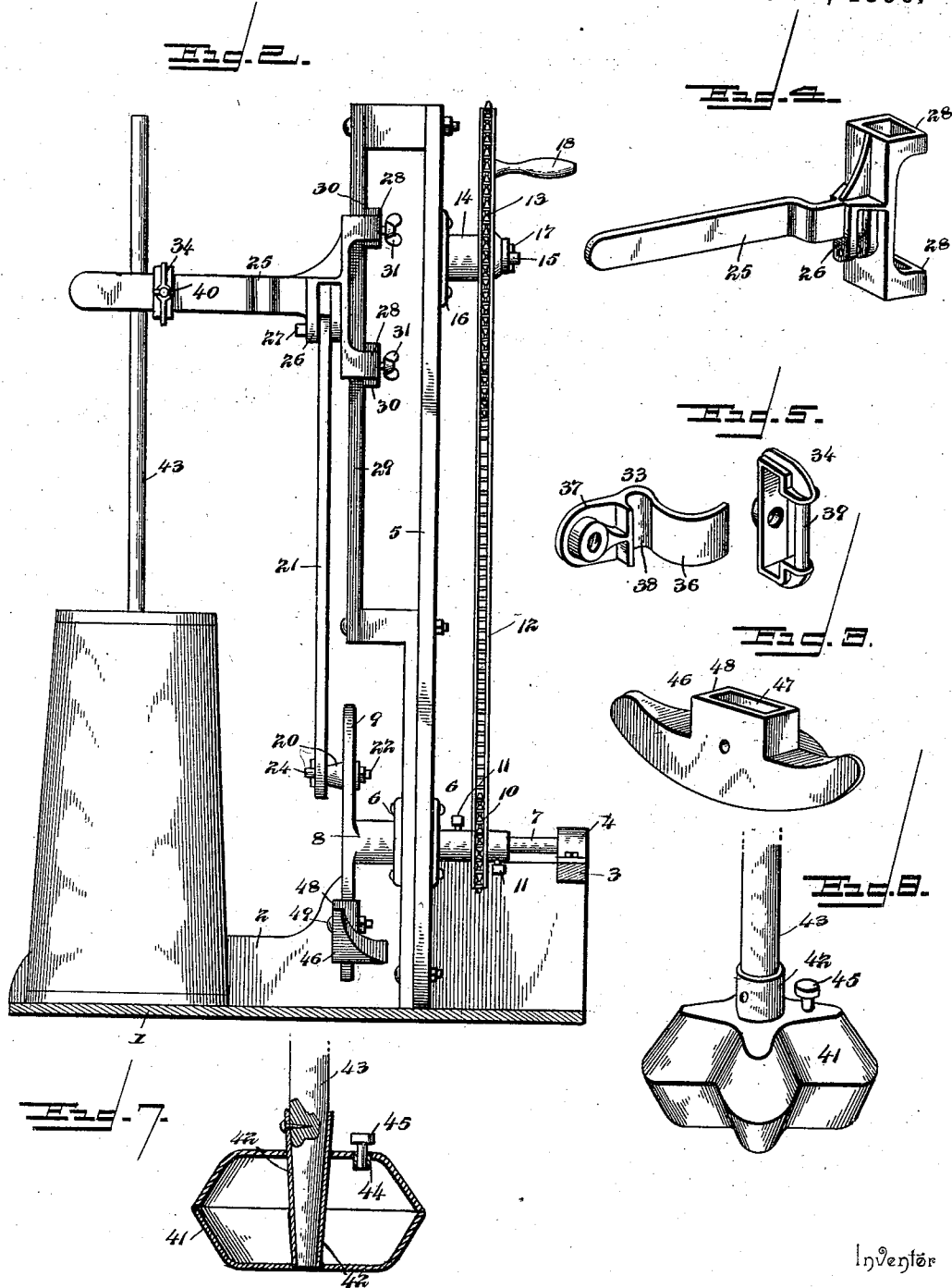
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UNITED STATES PATENT OFFICE.

HENRY LEE HOLT, OF RANDOLPH, TEXAS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 562,186, dated June 16, 1896.

Application filed May 25, 1895. Serial No. 550,681. (No model.)

To all whom it may concern:

Be it known that I, HENRY LEE HOLT, a citizen of the United States, residing at Randolph, in the county of Fannin and State of Texas, have invented a new and useful Churn, of which the following is a specification.

This invention relates to an improvement in churns.

The object of the present invention is to provide a simple and efficient construction of churn and operative mechanism therefor, whereby the process of churning is rendered easier, the resultant product firmer, and butter obtained in a shorter space of time than heretofore, while at the same time the milk is left in better condition and rendered free from water.

With the above end in view the invention consists in certain novel features and details of construction and arrangement of parts as hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a complete churn constructed in accordance with this invention. Fig. 2 is a side elevation of the same with the adjacent side of the base partly broken away to better show the construction and arrangement of the parts of the driving mechanism. Fig. 3 is a detail perspective view of the adjustable weight. Fig. 4 is a similar view of the reciprocating dash-rod-operating arm. Fig. 5 is a detail perspective view of the adjustable clamp for securing the dasher-rod with relation to the reciprocating arm. Fig. 6 is a similar view of the dasher, showing also a portion of the dash-rod. Fig. 7 is a vertical section taken through the dasher, showing the construction thereof.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates a suitable base, which is composed of a flooring at either side of which are arranged upwardly-extending side boards 2, the latter being connected at their rear upper corners by a transverse cross-bar 3, upon which is secured the rear bearing 4 of the main driving-shaft of the machine.

5 designates the main post or standard upon

which is mounted the entire operative mechanism of the churn. Said post or standard is provided upon opposite sides with bearing-plates 6, arranged in horizontal alinement with the rear bearing 4, the main driving-shaft 7 being mounted in said bearings and extending through the post or standard sufficiently in advance thereof to receive the hub 8 of a revolving arm 9. Between the post or standard 5 and the rear bearing 4, the main driving-shaft is provided with a small sprocket-wheel 10, having a hub extension upon either side thereof through which pass set-screws 11 for securing the sprocket-wheel fixedly to its shaft. From the sprocket 10 an endless drive-chain 12 extends upwardly and around a driving sprocket-wheel 13 of larger diameter, said large sprocket being formed with a suitable hub 14 whereby it is adapted to be mounted upon a rearwardly-extending stud-shaft 15, carried by a plate 16, secured to the rear face of the post or standard. The large sprocket 13 is held in place upon said stud-shaft by means of a suitable washer and split pin or cotter 17, or in other convenient or suitable manner, and said wheel is further provided with an operating-handle 18, by means of which motion is communicated, through the chain, to the other operative parts of the machine.

The revolving arm 9 is extended about equally upon either side of its central hub 8, being provided with a radially-elongated slot 19 upon one side of the hub for the reception of an adjustable boss or connection 20, by means of which the operating-pitman 21 is swiveled to said revolving arm. The boss or connection 20 has a rearwardly-extending threaded shank 22, which passes through the slot 19 in the revolving arm 9, where it receives a suitable washer and nut, by means of which said boss is adapted to be adjusted lengthwise of the slot and to be clamped firmly in place at any suitable point therein, said boss being prevented from turning by means of an extension in the form of a shoulder formed integrally therewith and projecting within said slot, as indicated at 23. The pitman 21 is mounted, as to its lower end, upon a forwardly-extending shank 24 of said boss, and by means of the construction just described

it will be apparent that the point of attachment of the pitman to the revolving arm 9 may be adjusted toward and away from the center, upon which said arm revolves for the purpose of regulating the length of stroke of the churn-dash and rod.

The pitman 21 is pivotally connected at its upper end to a reciprocating arm 25, which is provided with a downwardly-extending perforated lug 26, through which a pin or screw 27 passes, said pin or screw also engaging a perforation in the upper end of the pitman and passing into a socket in the sliding portion of said arm. The reciprocating arm 25 is extended upwardly and downwardly at its rear end and formed with an oppositely-disposed pair of eyes or loops 28, which surround and embrace a vertically-extending guide or track 29, secured to the main post or standard 5. The eyes or loops 28 are spaced a considerable distance apart for the purpose of forming a wide bearing for the reciprocating arm 25 with relation to the vertical guide 29, and each of said loops or eyes 28 is supplied with a wearing-plate 30, interposed between the rear walls of said loops and the rear face of the vertical guide or track, upon which the reciprocating arm moves. The wearing-plates 30 are formed with flanges above and beneath the loops 28 to prevent their escape and are capable of adjustment by means of set-screws 31, engaging threaded perforations in the rear walls of said loops, whereby provision is made for taking up the wear between the reciprocating arm and the vertical guide or track. The arm 25 may be extended forwardly any desired distance, and is adapted to have the churn-dash rod secured adjustably thereto by means of a clamp which is formed from two pieces of metal, comprising, essentially, a loop member 34, adapted to embrace the reciprocating arm 25, and a pivoted clamping member 35 for engaging the churn-dash rod and holding it in place upon the arm.

The clamp member is provided at one end with a semicircular extension or hooked portion 36, which is adapted to embrace and hold the churn-dash rod, and is further provided with an oppositely-disposed extension 37, having a screw-threaded perforation containing a set or thumb screw for manipulating said clamp. The clamp member is also formed with a concavity or bearing-socket 38, which embraces the vertical spindle-like portion 39 of the loop member and is disposed between the same and the adjacent face of the arm 25. After the churn-dash rod is placed within the hook 36 the screw of the extension 37 is turned and serves to vibrate the clamp in a manner that will cause said hook to firmly press the dash-rod against the reciprocating arm, thereby securely holding said dash-rod in place, and at any desired elevation with relation to said reciprocating arm. By means of a set-screw 40, passing through the side wall of the clamp 35 and en-

gaging the arm 25, the distance of the dash-rod from the operating mechanism may be regulated to suit the size of the churn vessel, the advantages of which will be readily seen.

The churn-dasher 41 is of peculiar construction, being made, preferably, of two X-shaped concave cups, which are soldered, or otherwise united at their edges, thereby forming a hollow body. A tube or sleeve 42 passes centrally through vertically-alined perforations in the hollow dash, being soldered, or otherwise secured in place in a manner that will form a tight joint. The sleeve or tube 42 is extended sufficiently above the hollow dash to receive the lower end of the dash-rod, (indicated at 43,) the latter being secured therein by means of one or more tacks or screws or in any usual or preferred manner. Extending downward from the upper wall of the hollow dash is a small annular flange or hub 44, surrounding a perforation leading into the chamber within said hollow dash, the same being internally screw-threaded to receive a screw-plug 45, by means of which water heated to any desired temperature may be introduced into said hollow dash and securely retained therein during the operation of the churn. The object of introducing heated liquid into the dasher is twofold. First, the weight of the liquid will render the operation of the churn more smooth and even, and, secondly, the heat radiated by said dasher will have a beneficial effect upon the material within the churn-body, serving to effect a quicker separation of the butter and also to free the milk from water.

46 designates a weight which is preferably made in the form of an arc, the outer face being approximately in the circle of the center around which it swings. The weight 46 is provided with an aperture 47, corresponding, substantially, in shape to the shape of the revolving arm 9 in cross-section, and said weight is further provided with a hub extension 48, adapted to receive the revolving arm 9 and provided with alined perforations through which is inserted a screw-bolt 49, the latter being secured in place by means of the usual nut upon the opposite side of the weight. The bolt 49 may be passed through any one of a series of perforations 50 in that portion of the arm opposite to the end containing the radially-extending slot 19.

The purpose of the adjustable weight 46 is to counterbalance the weight of the churn-dash when filled with water, and also the resistance on the churn-dash, when operating within the milk or cream in the churn-body. The weight 46 is preferably made of such size that when adjusted to its limit on the revolving arm 9 it will just equalize the weight of the churn-dash and the resistance thereof when operating in a full churn and when the stroke is adjusted to its greatest limit.

When the churn-body is only partially filled, and the stroke of the dash reduced to cor-

respond, the weight 46 may be adjusted inwardly toward the center upon which it revolves until it will equalize the resistance, as above described, and render the operation of the churn smooth and even.

By means of the construction described a simple and efficient form of churn is produced by means of which the operation of churning is rendered easier, the butter of a firmer character, less time is required to effect the separation of the butter, and the milk is left in better condition, being comparatively free from water.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a churn, the reciprocating arm which actuates the dasher-rod, and operating mechanism for said arm, in combination with a dasher-rod clamp slidingly mounted on said arm and adapted to be adjusted longitudinally thereof, said clamp comprising two members, one member embracing the reciprocating arm and having a set-screw for holding the same fixed, the other member comprising a hook for engaging the dasher-rod and being fulcrumed on the first-named member and having a set-screw, whereby it may be vibrated and caused to engage the dasher-

rod between its hook and the reciprocating arm, substantially as described.

2. In a churn, a reciprocating arm, and suitable operating mechanism therefor, in combination with a detachable and independent dasher-rod clamp mounted upon said reciprocating arm and adapted to slide and be adjusted longitudinally thereof, said clamp comprising a loop member surrounding said arm, and a separable hook member fulcrumed thereon and adapted to embrace and clamp the dasher-rod, a set-screw carried by the hook member for vibrating it and causing it to engage the dasher-rod between the hooked portion thereof and said arm, and a set-screw carried by said loop member, for adjusting the clamp as a whole longitudinally of the reciprocating arm and holding it at the desired adjustment, both members of the clamp being slidingly mounted on said arm, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY LEE HOLT.

Witnesses:

J. K. JOHNSON,
J. S. COLVIN.