(No Model.)

H. F. BATCHELLER.

CHURN CLOSURE.

No. 438,263. Patented Oct. 14, 1890.

Fig. 1

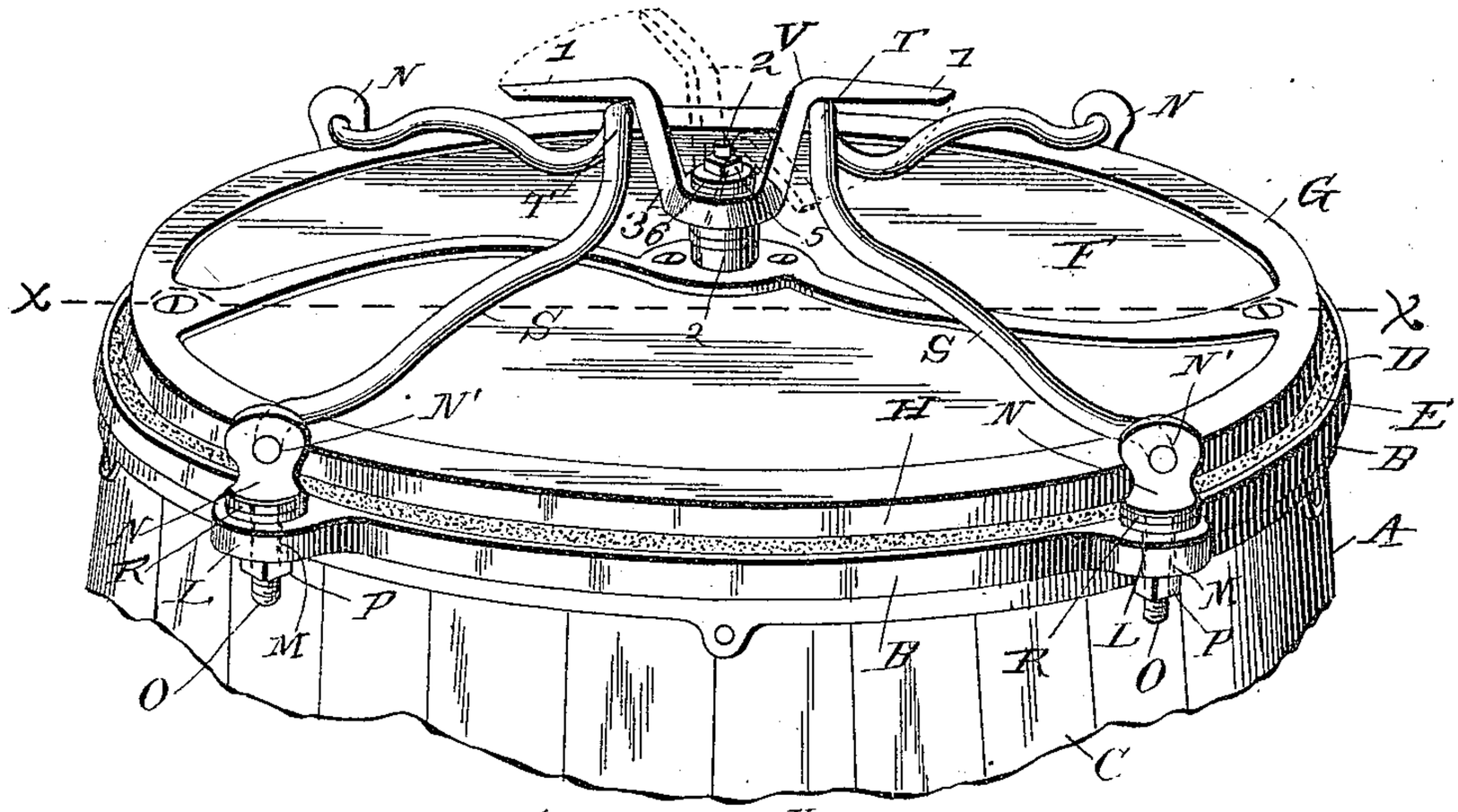


Fig. 2

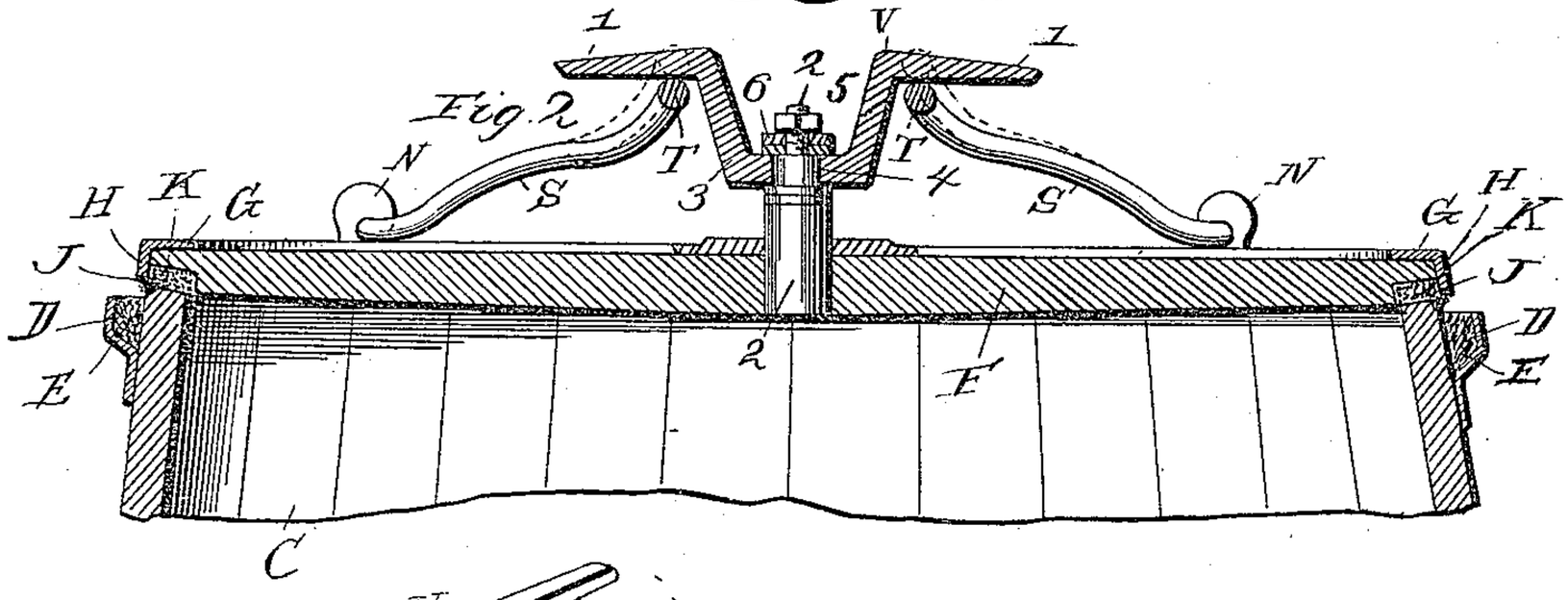


Fig. 3

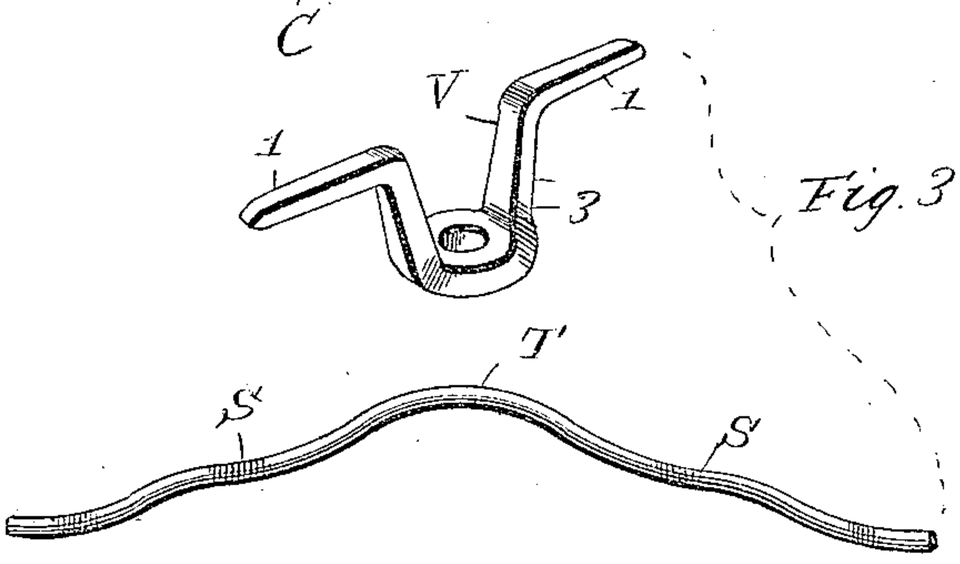
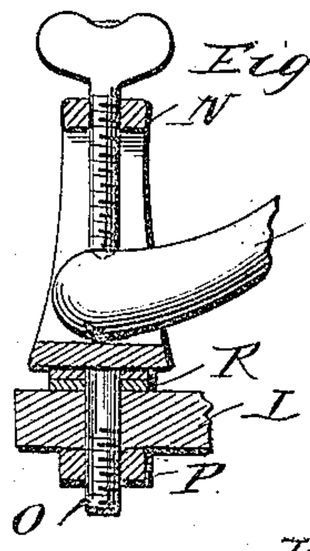


Fig. 4



Witnesses:
Geo. Yeiser
Geo Yeiser

Inventor
Henry F. Batcheller

By
John G Manahan
his Attorney

UNITED STATES PATENT OFFICE.

HENRY F. BATCHELLER, OF ROCK FALLS, ILLINOIS.

CHURN-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 438,263, dated October 14, 1890.

Application filed January 23, 1890. Serial No. 337,853. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. BATCHELLER, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, 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 letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in churns; and it consists, essentially, of improvements upon the structure shown and described in United States Letters Patent No. 243,350, granted to me June 28, 1881, for improvements in churns.

The objects of my present invention are, first, to provide an expeditious and effective method of tightening and holding the lid upon the churn-body around the entire periphery of the lid, and, second, to render said fastening adjustable at its outer attachment to the churn-body, so as to readily compensate, in the first use of the churn, for any inequalities in the contactual surfaces of the lid and churn-body, and to adjust said fastenings at any desired point or points to remedy any inequalities occasioned in the subsequent use of the churn by shrinkage or stretching of any of the parts. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the upper end of a churn body and lid embodying my invention, the movements of the tightening-lever being indicated in dotted lines. Fig. 2 is a vertical cross-section in the line $x\,x$ of Fig. 1. Fig. 3 contains details of the parts employed. Fig. 4 exhibits a modified form of bail-seat.

My invention is especially applicable to barrel-churns, and is intended for use in that type of churns in which the churning is accomplished by rotating the churn from lateral central pivotal supports, and as my invention is adapted for use with any form of barrel-churn, and the construction and mode of rotating the latter are well known, I do not deem it necessary to show or describe more than the end of the churn to which my invention is applied.

A is the body of the churn, provided at its upper or open end with an external ring B, seated slightly below the upper end of the staves C.

In the upper portion of the ring B, and next to the outside of the staves C, there is formed an annular recess D, to receive and retain cork or other moisture-retaining filling E, the purpose of which is to impart dampness to the upper ends of the staves during the interval that the churn is not in use, and thereby prevent shrinking of the upper ends of the staves C, and said staves from opening or leaking between their contiguous sides.

F is the lid of the churn, around the margin of which, on the upper side thereof, there is placed a metallic ring G, having a downwardly-projecting flange H, which extends downwardly over the periphery of the lid F nearly, but not quite, to the lower surface of the latter. In the lower surface of the lid F next to the flange H of the ring G there is formed an annular recess J, which is filled with cork or other sealing material K. The diameter of the lid F is such that when the latter is in place the recess J and filling K are directly over the upper ends of the staves C, and when the lid is tightened in position the staves C are forced slightly into the filling K, and thereby there is effected a joint sufficiently tight to prevent the escape of the contents of the churn.

The parts above mentioned are substantially those described and secured in my patent before referred to.

At equal distances in the ring B are provided exterior projections L, through which are formed vertical walls or openings M.

In the openings M are seated upwardly-projecting ears N, provided at their upper ends with bail-openings N′ and having a downwardly-extending shank O, which projects through the hole M and is provided with an exterior thread, upon which below the projection L is screwed the ordinary nut P.

On the shank O, above the projections L and between the latter and the upper end of the ears N, are placed a suitable number of washers R, and by removing the nut P the

number of washers may be increased or diminished and the vertical altitude of the ears N thereby changed, as desired.

S S are bails pivoted at their outer ends, respectively, in two of the ears N and adapted to fold over and from the lid F.

In the center or loop of the bails S there is formed an upward projection T; having a convex crest adapted to be respectively engaged by the rotating arms 1 of the lever V.

A bolt 2 extends centrally upwardly through the lid F, and is provided on its upper end with a thread which projects upwardly through the centrally-depressed portion 3 of the lever V. The lever V is provided with the central opening 4 and is pivotally seated on the upper end of the bolt 2 by being passed thereon and secured by the nut 5, screwed on said bolt. Washers 6, placed on the bolt 2 above or below the lever V, serve to adjust the altitude of the latter, as may be desired.

The arms 1 serve as levers in turning the levers V on and from the bails S, and also serve, when turned thereon, as engaging-arms to force and hold said bails at or near their outer extremities down upon the upper edge of the ring G.

The advantage of the projections T on the bails S consists in the fact that there is no contact between the arms 1 and said bails until the lever V has been turned so far that said arms project over beyond said bails sufficiently to enable the operator to grasp the ends of said lever, when they are readily forced into position perpendicular to the center of said bails. In the ordinary construction of said bails—that is, with a uniform curvature—the initiative engagement of the arms with the bails S would be at the outer extremities of said arms, and there would be therefore no space beyond the bails to grasp the outer ends of said arms, and neither would there then be exerted any leverage upon said bails, while in my construction the arms 1 of the lever V do not engage the bails S until they strike the rise of the projections T, in which position the said arms extend sufficiently beyond the bails S to afford space for grasping and leverage upon the point of contact with said bails.

To correct any inequalities in the fitting of the lid F, either inherent in the original construction or resulting from subsequent use, the altitude of the ears N can be severally changed. In the means heretofore employed for adjusting the pressure of the bail-levers S such adjustment was located solely at the center of the lid, and therefore equally operative upon all of the pressure-points of said bails, so that to tighten one or more points in the periphery of the lid at which the pressure was too slight an excess of pressure had to be created at all of the other points to bring the pressure at the deficient points up to the necessary degree, while in my invention the adjustment can be accomplished at the locality where there is a lack of sufficient pressure without changing the pressure at those localities where it may be already sufficient.

It is obvious that the altitude of the pivotal seat of the bails S can be changed in various modes. One modification of my method is shown in Fig. 4, in which the pivotal portion of the bail S is seated in a vertical slot formed in the ear N, and a set-screw projected downwardly into said slot changes the altitude of the pivotal end of said bail by being inserted or withdrawn.

The operation of my invention is as follows: After the bails S are thrown outward the lid F is placed over the staves C, so that the upper ends of the latter are covered by the filling K in the ring G. The bails S are then thrown inward, lever V being parallel with the adjacent surface of said bails. The said lever is then turned with its arms over the projections T to a position perpendicular thereto. In the last-named operation as the arms 1 of the lever V come in contact with the incline of the projections T the pressure begins and is continued, gradually increasing until the lever is perpendicular to the bail as aforesaid and rests upon the apex of projections T, when the pressure of the lid F upon the churn A is sufficient.

A small notch may be made in the apex of one of the projections T, which, being forced by the upward pressure of the bail against the lower surface of the contiguous arm 1, serves to secure the lever V against any casual displacement.

I am aware that bails having substantially flat or slightly-upward curved apices have been used in connection with a bail-button and thumb-screw; but my invention differs therefrom in giving the projections T such degree of curvature that in the turning of the lever V there is a sufficient downward forcing of its bails S to accomplish the requisite tightening without any supplementary tightening device.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the churn-body A, lid F, vertically-adjustable ears N, bails S, pivotally seated at their outer ends in said ears, and means, substantially as shown, for forcing and holding downward the inner ends of said bails, for the purpose described.

2. The combination of the churn-body A, the lid F, the external ring B, attached to said churn-body, ears N, vertically adjustable in said ring, bails S, pivotally seated in said ears at their outer extremities, and means, substantially as shown, for forcing and holding downward the central portion of said arms, for the purpose described.

3. The combination of the churn-body A, lid F, external ring B, attached to said churn-body, bail-ears N, vertically adjustable in said ring, bails S, pivotally seated at their extremities in said ears and provided centrally with the upward projections T, and lever V, piv-

oted centrally on the lid F and provided with arms 1, adapted to exert downward pressure upon the projections T, substantially as shown, and for the purpose described.

4. The combination of the churn-body A, lid F, external ring B, attached to said churn-body and provided with projections L, ears N, vertically adjustable in said projections, bails S, pivotally seated at their outer extremities in said ears, and means, substantially as shown, for exerting downward pressure upon the central portion of said bails, for the purpose described.

5. The combination of the churn-body A, lid F, vertically-adjustable ears N on the exterior of said churn-body, bails S, pivoted at their extremities in said ears, and means, substantially as shown, for exerting downward pressure on the central portion of said bails, for the purpose described.

6. The combination of the churn-body A, provided with exterior moisture-retaining annulus E, the lid F, provided with filling K, adapted to engage the upper end of the churn-body A, vertically-adjustable ears N, attached to the upper portion of the churn, bails S, pivotally seated at their extremities in said ears, and means, substantially as shown, for exerting downward pressure upon the central portion of said bails, for the purpose described.

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

HENRY F. BATCHELLER.

Witnesses:

ADDISON M. BATCHELLER,

ADDA E. WARD.