(Model.)

M. O. STODDARD.

Churn-Cover.

No. 227,856. Patented May 18, 1880.

Fig. 1.

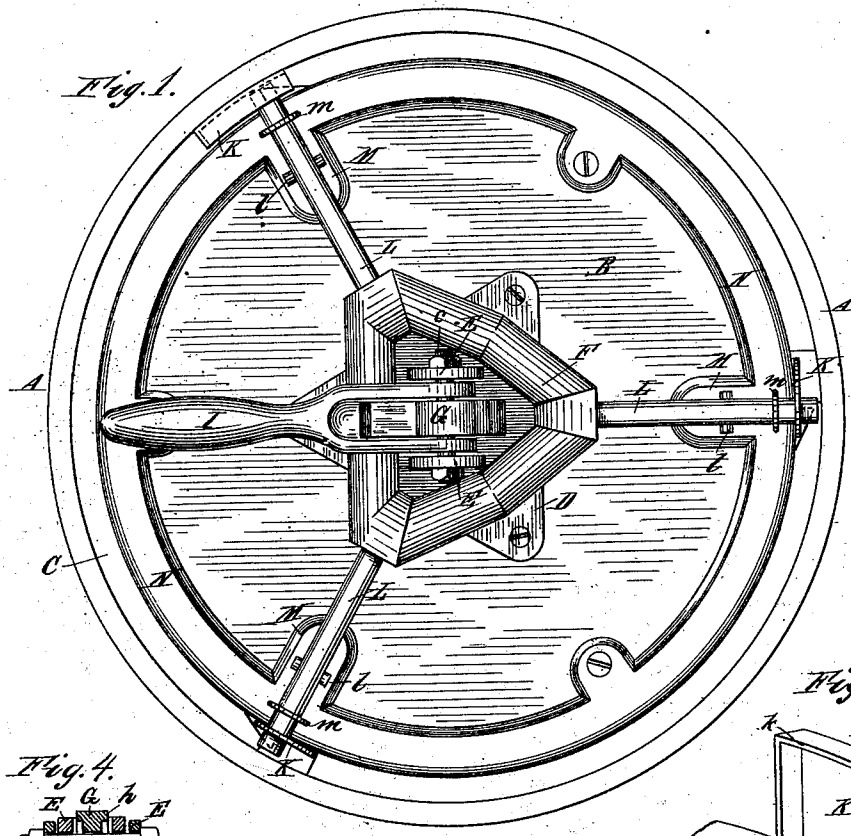


Fig. 3.

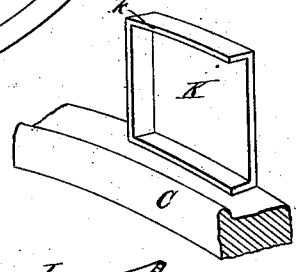


Fig. 4.

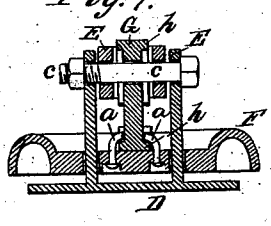
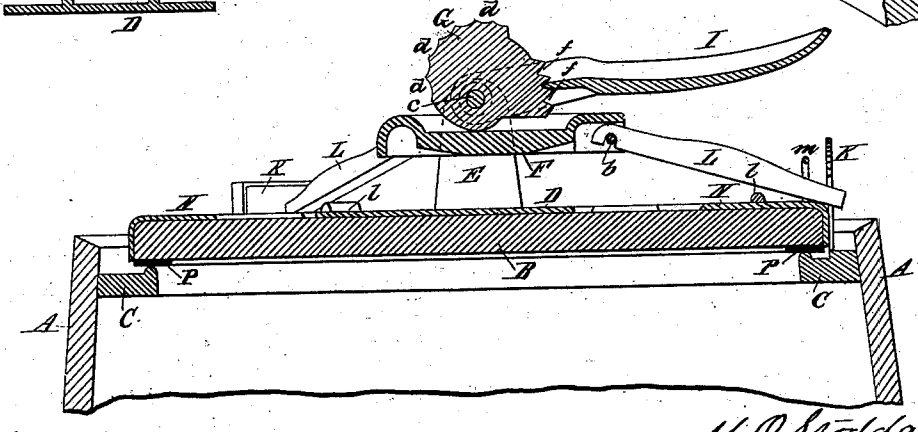


Fig. 2.



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UNITED STATES PATENT OFFICE.

MARVIN O. STODDARD, OF POULTNEY, VERMONT.

CHURN-COVER.

SPECIFICATION forming part of Letters Patent No. 227,856, dated May 18, 1880.

Application filed March 1, 1880. (Model.)

To all whom it may concern:

Be it known that I, MARVIN O. STODDARD, of Poultney, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Churn-Covers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and the letters of reference marked thereon, the same not having been, to my knowledge, heretofore patented in any foreign country.

My invention has special relation to covers intended for use upon churns which revolve end over end, in which class it is particularly necessary that the cover be made perfectly secure against leakage; but, as will hereinafter appear, the several advantageous features embodied in my improved construction may be applied to other churns, and generally to barrels and receptacles of any kind wherein a tight and easily-removable cover is desirable.

My improvements have for their most prominent objects the production of a simple, cheap, durable, and easily-operating locking device, whereby the cover may be quickly adjusted to place, securely locked by a convenient motion of the locking-lever, and as readily and easily unlocked and removed, while at the same time provision is made for an adjustment to compensate for any wear in the packing-gasket consequent upon long use of the cover; to accomplish all of which the invention involves a central or main vertically-movable plate or block, with which is combined the locking-levers, an eccentric or cam adapted to govern the motion of said block or plate, an adjustable handle connected with such cam or eccentric, an ear or hook upon the ring-head having an elongated inclined locking-surface, and also certain minor novel and useful peculiarities of construction and relative arrangements or combinations of parts, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan or top view of my improved churn-cover with the locking attachment shown in a position to hold the cover firmly down. Fig. 2 is a vertical central section, showing the operating lever or handle as thrown over in a position to unlock the cover; and Figs. 3 and 4 are detail views, the former illustrating my improved hook or locking-ear and the latter a section through the cam at right angles to the plane of Fig. 2.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

In the above-described drawings, in which I have represented a cover embodying the principle of my invention in the simplest and most convenient form which I have been able to devise, A represents the upper open end of the barrel or other vessel to be covered; B, the body of the cover, which is preferably made of wood, (though any desired material may be employed,) and C represents an open metallic ring-head secured to the barrel-chine, and forming a seat for the cover as well as a foundation or support for the locking ears or hooks, under the projecting portions of which the locking-levers are made to engage.

About centrally with respect to the top of the cover I locate and secure the stationary plate D, from which rise the two uprights E E, the latter serving as guides for the movable plate F, holding it against displacement, and being perforated for the reception of the bolt which forms the axis of the operating-cam and the connected handle.

The plate F is adjustable vertically upon the uprights E E, having suitable slots to fit over such uprights, and it is, as shown in the drawings, controlled in its vertical adjustment or different positions by means of the cam G, connected with it through the medium of the hooks *a a*.

At suitable points upon the under side of the plate or block F, I locate the axes *b*, &c., which serve as bearings for the inner ends of the locking-levers L L, and form, with these levers, a convenient hinge, which may be readily disjointed whenever, for any reason, it may be desired to unship the levers, or in assembling the locking device may be as readily reformed. The axes *b* serve also to elevate the inner ends of the levers when plate F is elevated by turning back handle I.

For convenience of construction and arrangement the outer portion of the block F is furrowed or channeled, as plainly shown, the

hinge-axis located in the space thus formed, and the levers rounded off on their inner ends as well as grooved upon their under sides, so that when the block is sufficiently elevated they may be dropped into their proper working positions and there held, when the remaining parts are in proper place, without danger of accidental displacement. This construction makes the locking-levers readily detachable; but in matter of mechanical detail it may be variously modified, so long as it is made to conform to the principles and purposes of the invention.

G is the operating cam or eccentric, mounted over the movable plate F and upon the bolt or axis *c* between the uprights E E. The face of the cam, or at least that portion of it which, in its movements or different positions, may come in contact with the top of plate F, is corrugated, fluted, or otherwise roughened, as at *d d*, so as to prevent its slipping, and thus obviate any tendency of the holding parts to become loosened—an important consideration in the construction of any satisfactorily-operating cover-locking contrivance.

The handle or principal lever I is hinged upon the bolt *c* and connected with the cam by engagement in one of a series of notches, *f f*, and the arrangement is such that the handle may be readily connected with any one of these notches, so as to give it a greater latitude of movement, and thereby increase the throw of the cam to compensate for any wearing away of the packing-gasket P. When located for use the handle should be so adjusted as to lie reasonably close to the cover when the lock is secured, in which position it is less liable to contact with extraneous objects by which the lock might be disturbed.

The movable plate F might be elevated by a coiled or other simple form of spring located beneath it, leaving for the cam only the office of forcing it down into its required position; but to insure a positive movement in the upward direction to unlock the cover, as well as in the downward direction, I prefer to connect the movable plate with the cam by means of the simple hooks *a a*, which engage with projecting rims *h h* upon either side of said cam. From these hooks the cam may be easily displaced by removing the bolt *c* and allowing the cam to slide along until the terminations of the rims pass the hooks.

The locking hooks or ears K are attached to or cast with the open ring-head C, and these are preferably formed substantially as indicated at Fig. 3, wherein the flange *k*, beneath which the outer end of the locking-lever is made to bear, is slightly inclined, so that as the packing-gasket wears down the end of the lever will pass farther along beneath the flange whenever the cover is properly adjusted.

This style of hook is firm and durable, and possesses several advantages over the usual forms of open hooks, especially in this, that the flange *k* affords a more extended bearing for the end of the lever, and, being at right angles to the body of the hook, contributes greatly to its strength. The flange *k* is continued down so as to close one side of the hook. All the advantages of the mere inclination of the lever-holding surface could be secured by cutting the tops of the ordinary flat hooks in an inclined direction.

The fulcrums *l l*, about which the locking-levers L L are made to move, are affixed upon the tangs M M, which are also used to connect the angular rim N with the body of the cover, instead of being formed upon the levers themselves, as has heretofore been proposed.

The outer ends of the levers L are confined by simple staples *m m*, which permit their free movement and ready withdrawal, while they prevent any accidental disarrangement.

The several parts being assembled substantially as above indicated and in the position shown at Fig. 2, the operator has only to grasp the handle I with one hand, turn the cover until the compressed ends of the locking-levers are located beneath the open hooks or ears, and then turn the handle over, forcing the cam down hard. This operation depresses the inner ends of the locking-levers, elevating their outer ends and pressing them firmly into contact with the bearing-surfaces of the hooks, thus completing the locking.

To remove the cover it is only necessary to reverse the handle and with one hand turn the cover until the ends of the levers are disengaged from the hooks.

The movable plate F carries the inner ends of the locking-levers with it, so that during the movements of the plate the levers are made to slide along a little beneath the staples, as well as to rise and fall with the plate.

I have shown a series of three levers, which possesses some advantages over sets of two, four, or more. In the event of two being employed the cover would not be sufficiently well held down, and if four or more be used the hooks and levers would have to be carefully fitted, so as to insure a corresponding pressure on each, necessitating much care and labor in the construction, all of which is obviated by the application of the series of three, though the invention contemplates the use of any desired number.

As thus constructed the improved device is well calculated to answer the several purposes and objects of the invention, as previously stated, and in the matter of simplicity of parts and facility of operation or handling is found in practice to recommend itself for adoption in preference to the more complicated and expensive devices heretofore commonly used, involving screws and revolving plates to accomplish the required movements of the locking-levers.

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

1. In combination with the detachable cover of a churn or other receptacle, the herein-described stationary plate secured to said cover

and provided with uprights which form the guides for the movable plate, and at the same time afford a support for the axis of the operating-cam located between said guides, and hinged upon the axle-bolt *c*, extending between the guides, substantially as shown and described.

2. The combination of the vertically-movable plate, hinged axles secured therein, and the locking-levers, grooved upon their under sides to fit said axles, the levers being detachable, substantially in the manner and for the purposes set forth.

3. The combination of the adjustable plate carrying the ends of the locking-levers, the rimmed cam, and the hooks secured to said plate and engaging with the rims upon the cam, substantially as shown and described.

4. In a cover-locking device, the combination, with the adjustable lever-carrying plate, of the operating-cam axled upon the horizontal bolt *c*, which extends between the two uprights, and being grooved or furrowed upon its bearing-face to prevent slipping, substantially as shown and described.

5. In combination with the cam which controls the movements of the adjustable lever-carrying plate, the handle embracing said cam and adjustable to engage in different notches cut in the edge thereof, substantially as and for the purposes set forth.

6. The herein-described locking hook or ear, connected with the open ring-head and provided with an overhanging flange, inclined in the manner and for the purposes set forth.

7. The combination, with the movable levers, of fulcrums therefor formed on the tangs connected with the cover-rim, substantially as shown and described.

8. In a cover-locking device, the combination of the vertically-moving central plate, the detachable levers hinged thereto, the operating-cam supported upon the axle-bolt *c*, and the adjustable handle having a common axis with the cam, these several parts being combined and arranged to operate substantially in the manner and for the purposes set forth.

In witness that I claim the above I have hereunto set my hand in the presence of two witnesses.

MARVIN O. STODDARD.

Witnesses:
J. H. TAY,
CYRUS GATES.