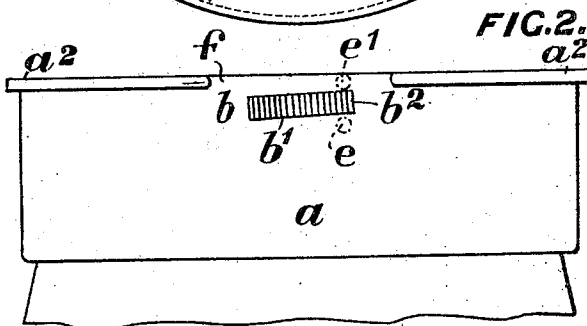
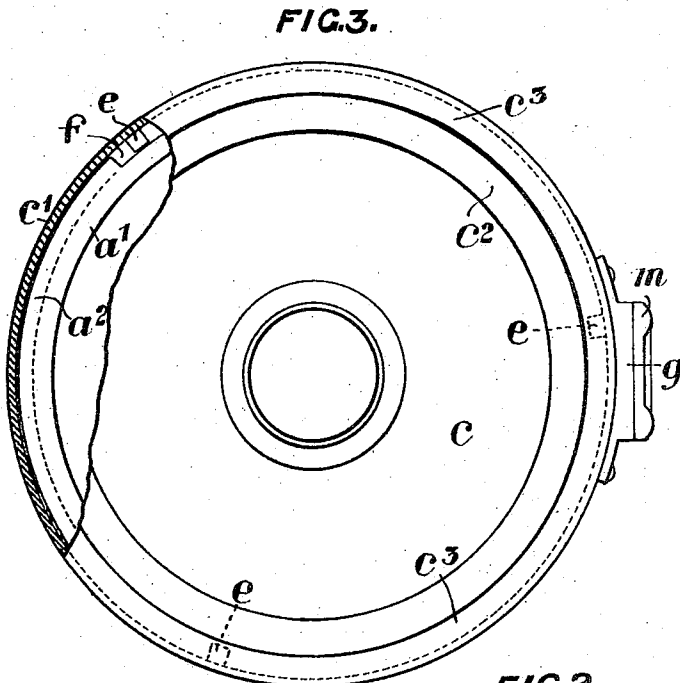
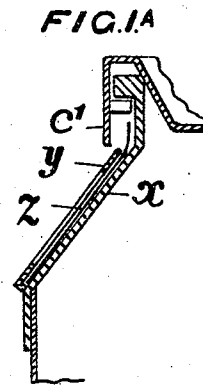
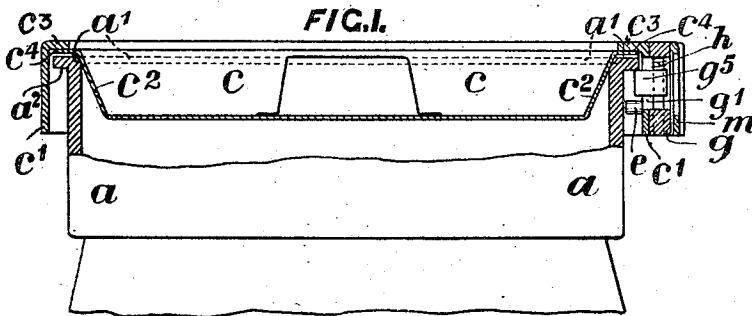


A. G. HUBBLE.
CLOSURE FOR RECEPTACLES.
APPLICATION FILED JULY 1, 1919.

1,414,569.

Patented May 2, 1922.

2 SHEETS—SHEET 1.



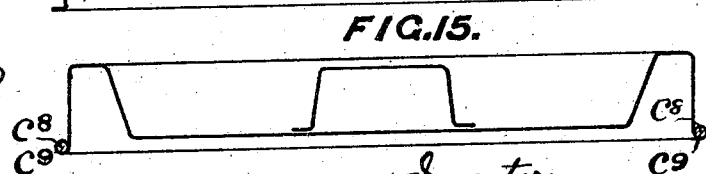
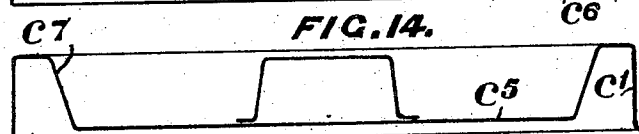
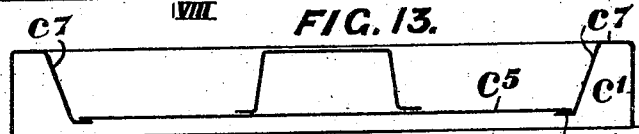
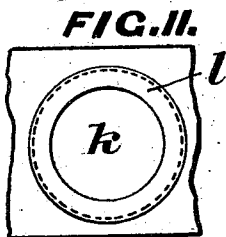
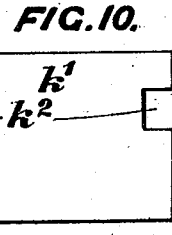
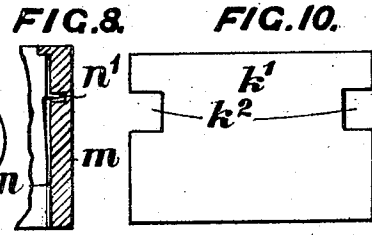
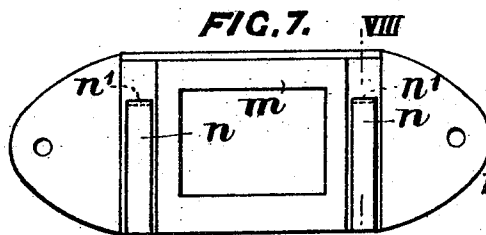
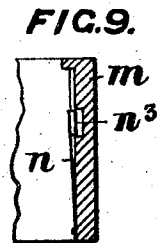
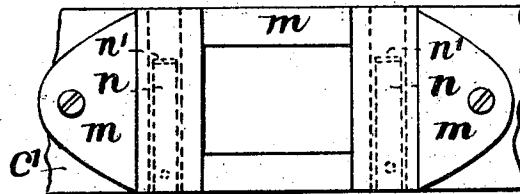
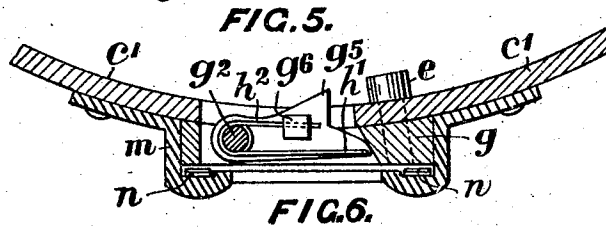
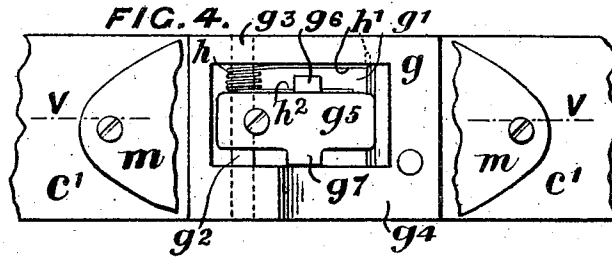
Inventor
Alfred George Hubble.
By Henry Orth & atty.

A. G. HUBBLE.
CLOSURE FOR RECEPTACLES.
APPLICATION FILED JULY 1, 1919.

1,414,569.

Patented May 2, 1922.

2 SHEETS—SHEET 2.



Inventor
Alfred George Hubble
By Henry Orth for atty.

UNITED STATES PATENT OFFICE.

ALFRED GEORGE HUBBLE, OF LONDON, ENGLAND, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE NATIONAL SAFETY CHURN COMPANY LIMITED, OF LONDON, ENGLAND.

CLOSURE FOR RECEPTACLES.

1,414,569.

Specification of Letters Patent.

Patented May 2, 1922.

Application filed July 1, 1919. Serial No. 308,007.

To all whom it may concern:

Be it known that I, ALFRED GEORGE HUBBLE, a subject of the King of Great Britain, residing at No. 28 Poplar Walk, Herne Hill, London, S. E. 24., England, have invented certain new and useful Improvements in Closures for Receptacles, of which the following is a specification.

This invention comprises improvements in and connected with closing means for containers and vessels, being particularly applicable to milk churns.

One object of the invention is to provide a closing means of a simple nature, capable of withstanding rough usage, not costly to manufacture and capable of affording security against tampering with the contents of the container during transit.

A further object is to combine with tightening means carried upon a skirt or overhanging portion of the lid a locking means adapted for having locking engagement with co-operative means on the churn. In achieving this object, it is advantageous to provide the tightening means on the churn with the said co-operative locking means as will appear.

Yet another object is to provide a locking means on the lid adapted for being retained in a retracted position while the operation of tightening or loosening the lid takes place and for being automatically thrown into locking engagement when released from said retracted position. Also to adapt said locking means for being sealed by means of a card or the like, so that the locked churn cannot be tampered with without the fact being disclosed.

These and other objects are achieved by the constructions hereinafter described, by way of example, with reference to the accompanying drawings, the said constructions being capable of modification in various ways without departing from the essential features of the invention hereinafter claimed.

In the drawings:—

Figure 1 is a vertical section through the upper part of a churn and its lid or cover, these parts being constructed and fitted with tightening and locking means according to the present improvements.

Figure 1^a is a similar view of a modified construction of churn in which a seal card

frame is mounted upon a coned portion of the top of the churn.

Figure 2 is an elevation of the upper part of the churn seen in Figure 1 and showing one of the inclined or helical tightening ribs.

Figure 3 is a plan of the lid or cover seen in Figure 1.

Figure 4 is an elevation of the lid showing the lock.

Figure 5 is a horizontal section on the line V—V of Figure 4.

Figure 6 is a front elevation of a seal card frame for the lock.

Figure 7 is a rear elevation of the same.

Figure 8 is a vertical section on the line VIII—VIII of Figure 7.

Figure 9 is a view similar to Figure 8 of a slightly modified construction.

Figure 10 is a view of a seal card for insertion into the frame in Figures 6 to 8 or Figure 9.

Figure 11 is an elevation of another form of seal card frame.

Figure 12 is a view of a tool for opening the lock.

Figures 13 to 15 are vertical sections of modified constructions of lid or cover.

According to the present improvements, and as shown in Figures 1 and 2, the churn is formed or fitted around the neck portion *a* with single or double short lengths of inclined or helical ribs or threads *b* and the lid *c* is made conical in vertical section and furnished with a relatively rigid skirt *c'*. The coned portion *c''* of the lid is conveniently made relatively flexible and is adapted to fit in a taper seating *a'* at or near the top of the neck portion *a* of the churn. As seen in Figure 1, the skirt portion consists of a flanged ring, the flange *c''* being at the top and inwardly turned and the lid proper consists of a dished sheet metal disc, the peripheral flange or rim *c''* of which is suitably joined to the flange *c''*. Furthermore, the inner side of the skirt *c'* of the lid *c* is fitted with studs or projections *e* and there is one set of studs *e* all round the skirt or there may be two sets of studs at different distances from the plane containing the bottom edge of the skirt *c'*. The number of studs *e* around the circle suitably corresponds with the number of lengths of rib or thread *b* disposed around the neck *a* of the churn, this number being usually three.

There may be notches or gaps f , as shown in Figures 2 and 3, formed in a rim or bead a^2 around the top of the churn so that, in presenting the lid c to the churn, the studs e within the skirt c' of the lid must first pass through respective notches, or gaps f , in order that the coned part c^2 of the lid c may descend to its seating a' . In this condition of the parts, each stud e of the lower set will be found just beneath the upper extremity of an inclined or helical rib b and each stud e' of the upper set, if used, will be found just above such extremity, as seen in Figure 2. If the lid c be now turned so that the studs e e' approach respective ribs or threads b , the lower studs e will engage the under surface b' of the ribs and the lid c will be tightened on its seating a' and by reversely turning the lid c , the upper studs e' will ride up the ribs b and the lid c will be loosened. Now the above described means of tightening the lid enables a very efficient and simple locking means to be employed as will now appear. In the first place a locking rack b^2 may be formed on the peripheral surface of a rib, or of each rib, b , so that three surfaces of a rib b are utilized, namely, the lower surface b' of a rib for tightening, the upper surface b^s for loosening, and the peripheral surface b^2 for locking. The lock or latch for engaging with the rack b^2 is carried by the lid c and is conveniently fitted in the skirt portion c' , the bolt or tooth being operated by elastic means which force it inwards into engagement with the outwardly projecting teeth b^2 of the peripheral rack on a rib b .

Referring to Figure 1^a, the upper portion of the churn is formed with a conical part x and a frame y on the exterior of the cone receives an address card or the like z . As will be seen, the frame y is secured so that the opening at the top into which the card is inserted is covered by the skirt c' when the lid is in position. It follows, therefore, that the card z cannot be withdrawn while the lid is in position on the churn.

An advantageous construction of lock shown in Figures 1 to 5, comprises a rectangular framing or casing g adapted to be suitably secured in or over an aperture g' in the skirt portion c' of the lid c . For example, the said frame may be rivetted to the ring. Towards one vertical side of the rectangular frame g a vertical pivot pin g^2 is loosely mounted, the upper end of this pin taking into a hole in the top horizontal member g^s or side of the frame or casing and the lower end passing through and projecting downwardly from the bottom horizontal member g^4 or side of the frame or casing. Upon this pin g^2 is fixed a wing-like latch g^5 formed with a tooth on its inner surface for engaging the peripheral teeth b^2 of a rib b on the churn. The latch g^5 may be formed

with a projection g^6 on its upper edge, this projection being engaged by a spring h which constantly tends to force the wing-like latch g^5 inwardly into engagement with the teeth b^2 of the rack b . For example, a spring h may be coiled around the top part of the pivot pin g^2 and the two ends of the coil may project, one an upwardly inclined portion h' , engaging by its extremity with a part of the fixed frame or casing g and the other, a straight portion h^2 engaging the said projection g^6 . The lower edge of the wing-like latch g^5 may be formed with a downwardly directed tooth or projection g^7 which normally rests upon the floor or bottom member of the casing or frame g . The arrangement is such that if the free end of the latch g^5 be pulled out to disengage its tooth or projection from the rack b , the coiled part of the spring h , being in compression, tends to depress the latch g^5 so that as soon as the bottom projection g^7 of the latch moves off the floor of the casing g , the latch is depressed by the spring h and the bottom projection g^7 is then below the said floor level. The descent of the latch g^5 causes the pivot pin g^2 to project appreciably through the bottom frame member g^4 . In this condition the latch g^5 cannot be thrown by the spring into engagement with the rack b^2 , because the bottom projection g^7 engaging the bottom g^4 of the casing g , acts as a stop to prevent this. In this condition of the latch g^5 , the lid c may be freely operated for loosening or tightening. When it is desired to return the latch g^5 into locking engagement, the downwardly projecting end of the pivot pin g^2 is pressed upwardly and thus lifts the latch g^5 so that its bottom projection g^7 is raised just above the said floor level, whereupon the spring h throws the latch g^5 inwardly into locking engagement with the rack b^2 .

The locking device g may be so contrived that it is only possible to get at the latch g^5 to withdraw it by using a tool or key device of particular construction, as for example a hook device i (see Figure 12) which can be inserted and the hooked end i' engaged with a free end of the latch. Or it might be desirable to provide a key, pin or the like device which could be inserted to turn the wing-like latch. For example, it is possible to so arrange the latch that it can be released only by the insertion of a key for engaging with and turning the pivot pin g^2 . On the other hand, the latch may be so fashioned as to be capable of being withdrawn by a finger.

To prevent the latch g^5 from being released from the rack without disclosing the fact, a sealing label or card may be inserted in a frame or recess in or on the front of the casing g . For example, and as shown in Figure 11, a disc k of card may be

pressed into a circular frame 7 after the manner of the disc stoppers used on milk bottles. Alternately, a rectangular card k' , Figure 10, may be used and there may be two notches k^2 cut in opposite edges of such card. Within the frame m , Figures 1, 2, 7 and 8, there may be two blade spring devices n with ends n' bent angularly and these ends n' ride upon the edge portions of the card k' as the latter is being inserted from the bottom. When the card is pushed home, the notches k^2 come opposite the ends n' of the springs n , so that these ends engage the card. It is now impossible to remove the card k' without mutilating it, as any attempt to withdraw the card k' is resisted by the edges of the notches k^2 engaging the bent ends n' of the springs n . If desired, instead of bending the ends of the springs, the latter may be fitted with pawl-like teeth n^3 , Figure 9, the sloping portions of which permit the card k' to be inserted and the horizontal portions engage the edges of the notches k^2 when an attempt is made to withdraw the card.

In the modified construction of lid seen in Figure 13, the ring frame is of inverted trough section, being preferably made by stamping and pressing sheet metal, the sheet metal disc c^5 being joined to a flange c^6 of the ring which also comprises a cone part c^7 and a skirt part c' .

In Figure 14 all the parts of the lid are made by pressing and stamping one single sheet of metal, the bottom edge of the skirt being bent out for stiffening purposes.

In Figure 15 the bottom edge is stiffened by means of a wire ring c^8 enclosed in a pocket or tube formed by bending over the bottom edge c^9 .

It will be seen from the foregoing that a very effective and simple form of closing, tightening and locking means is provided, involving the employment of very few working parts, none of which is liable to injury even when the churn is roughly handled as frequently happens. Also the parts are easily manufactured, are not costly, and do not create any difficulty in regard to maintaining the degree of cleanliness desirable. All these are important points when considering the transport of, and protection against tampering with, a commodity such as milk.

I claim:

1. A closure for receptacles comprising a lid having an overhanging skirt portion surrounding the top portion of the receptacle, a plurality of co-operative tightening members on the said top portion of the receptacle and on the skirt, said members comprising an inclined rib on the said top portion, a locking member on the skirt adjacent to one of said tightening members, and peripheral means

on said rib adapted for engaging said locking member.

2. A closure for receptacles comprising a lid having an overhanging skirt portion surrounding the top portion of the receptacle, spaced projections on the inner side of said skirt portion, inclined ribs spaced around said top portion and having lower surfaces adapted for having tightening engagement with said projections, and a latch device carried upon said skirt portion adjacent to one of said projections, one of said ribs having its outer lateral surface adapted for interlocking with the latch device.

3. A closure for receptacles comprising a lid having an overhanging flange surrounding the top portion of the receptacle, inclined wedge members on the latter, a plurality of teeth on the outer lateral surface of one of said wedge members, inwardly directed projections on the flange for engaging said wedge members for tightening the lid on to the receptacle, and a latch on the flange movable into locking engagement with said teeth.

4. A closure for receptacles comprising a lid having an overhanging flange surrounding the top portion of the receptacle, short inclined ribs spaced around the outer surface of the top portion of the receptacle, a series of projections on the lateral outer surface of one of said ribs, inwardly directed projections on the flange for engaging the lower surfaces of said inclined ribs, and a spring actuated tooth on the flange for engaging the peripheral projections on said rib.

5. A closure for receptacles comprising a lid having an annular depending flange, a casing mounted on the latter, a peripherally toothed inclined rib on the receptacle, and a latch pivoted in the casing and adapted to swing through an aperture formed in the flange for the purpose of engaging the toothed inclined rib to lock the lid to the receptacle.

6. A closure for receptacles comprising a lid having an annular depending flange, a casing mounted on the latter, a peripherally toothed inclined rib on the receptacle, a spring actuated latch pivoted in the casing and adapted to swing through an aperture formed in the flange for the purpose of engaging the toothed rib on the receptacle to lock the lid to the latter, and means for holding the latch in a retracted position.

7. A closure for receptacles comprising a lid having an annular depending flange, a casing mounted on the latter, a toothed tightening rib on the receptacle, a latch pivoted in the casing and adapted to swing through an aperture formed in the flange for the purpose of engaging the toothed tightening rib to lock the lid to the receptacle, means whereby the latch is retracted,

and means including the latter means brought into operation by the retracting movement of the latch to automatically lock it in the retracted position.

- 5 8. A closure for receptacles comprising a lid having an annular depending flange, a casing mounted on the latter, a toothed locking and tightening rib on the receptacle, a pivoted latch mounted in the casing and ca-

pable of a sliding movement in the direction 10 of the axis of its pivot, a spring operable upon the latch to press it into engagement with said toothed locking and tightening rib and to depress the latch when out of engaging position, and means to support the latch 15 against depression by the spring when the latch is in its engaging position.

ALFRED GEORGE HUBBLE.