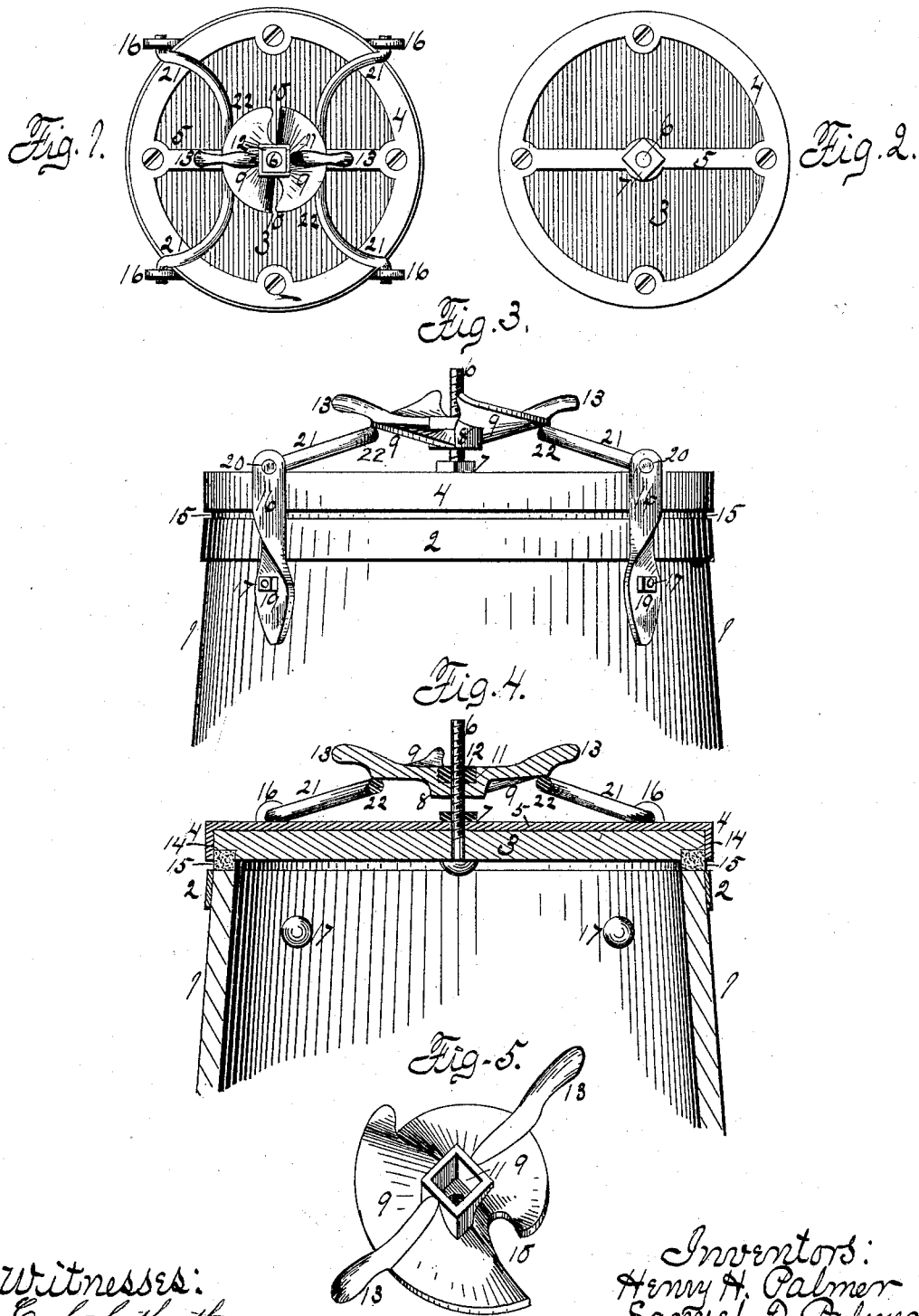


(No Model.)

H. H. & S. D. PALMER.
CHURN CLOSURE.

No. 418,354.

Patented Dec. 31, 1889.



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UNITED STATES PATENT OFFICE.

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CHURN-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 418,354, dated December 31, 1889.

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To all whom it may concern:

Be it known that we, HENRY H. PALMER and SAMUEL D. PALMER, citizens of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Churns, of which the following is a specification.

The object of this invention is to construct a churn provided with a removable head the packing of which rests upon the ends of the staves, and bails pivoted to the churn-body to press the removable head in the churn-body.

This invention further consists in a cam having a connection with the removable head to engage the free portion of the bails, said cam made vertically adjustable.

Figure 1 is a plan view of a churn embodying our invention. Fig. 2 is a plan view of the removable head. Fig. 3 is a side elevation of the churn shown in Fig. 1, on an enlarged scale. Fig. 4 is a vertical central section showing the removable head resting on the end of the staves. Fig. 5 is an isometrical representation of the cam employed in securing the removable head in position.

In the drawings, the churn-body consists of the staves 1, secured together by hoops in the usual manner. The upper or open end of the churn has a hoop 2, of suitable material, holding that portion of the churn in a true circular position. The end of the staves are beveled, so as to be at right angles to the lengthwise axis of the churn. A removable head, the main portion 3 of which is of wood, has a metallic ring 4 surrounding its periphery and a portion of its top, and is held to the wooden portion in this instance by screws. A brace-arm 5 spans the head and holds it from warping. A bolt 6 passes from the under side of the removable head up through said head, and a nut 7 holds the bolt in position and the brace-arm 5 to the head. This bolt is screw-threaded, which supports a cam for holding the bails to the removable head. A cam for pressing the bails in contact with the removable head consists of a central screw-threaded hub 8, from which project two wings 9, having a flat under face and extending spirally around the hub. The high-

est point of one wing is nearly over the lower portion of the other wing, leaving a radial opening 10. In the upper face of the cam is a socket 11, in which is placed a screw-threaded nut 12. Handles 13 project from the end of the wings and form the means for oscillating the cam. This cam with the screw-nut in the socket is turned onto the screw-bolt 6, thus making a connection between the cam and removable head. An annular groove 14 is formed in the under side of the removable head at the extreme outer edge of its periphery, and in said groove is placed a packing 15, of cork or other material, which extends below the under face of the removable head to rest upon the ends of the staves forming the body of the churn, thus making close connection between the parts, and being held in such a position by bails, to be hereinafter described.

To the outside of the churn-body are secured ears 16 by bolts 17, passing through the churn-body and ear, each bolt receiving a screw-nut 19 on its projecting end. The upper portion of each ear is perforated as at 20. Two pairs of these ears are secured to the churn-body, as above described, and set at four points, so that the holes of a pair of ears will be in line with each other, thus forming the bearings in which a pair of bails 21 are pivoted, so that said bails will rest upon the periphery of the removable head intermediate of their pivotal connections with the ears and their free portions 22, each bail pressing at two points upon the said removable head.

By the above construction I produce a churn with an opening the full size of the churn, and with a smooth interior face, thereby preventing all liability of milk and cream becoming rancid by clinging to the croze of the churns employing ring-heads.

In securing the head in position the bails are turned inward, and their free portion will pass under the highest points of the wings of the cam. By a partial revolution the bails are pressed downward, and by their engagement with the removable head will force the packing onto the upper ends of the staves, forming a close connection.

By having the radial opening between the wings of the cam it permits the use of bails

of different lengths, as there will be no end pressure brought to bear, and consequently there will be less liability of forcing the ears off of the churn, and by reason of the screw-thread connection of the cam with the removable head we are able to adjust the cam vertically, so as to allow the bails to pass under the highest portion of the wings, and in the oscillatory movements of the cam in pressing the bails downward we utilize the incline of the under face of the cam in addition to the distance the cam descends, thereby producing a downward movement with less rotary movement of the cam than heretofore employed, and by employing the screw-threaded nut in the upper portion of the cam there is less liability of breaking the tap in screw-threading the parts than if made of one piece.

We claim as our invention—

1. The combination of a churn-body, a removable head provided with a packing resting upon the ends of the staves forming the churn-body, and a pair of bails pivoted to the churn-body, each bail pressing at two points on the removable head to hold it in position, substantially as set forth.

2. The combination of a churn-body, a removable head provided with a packing resting upon the ends of the staves forming the churn-body, two pairs of ears secured to the churn-body, and a pair of bails pivoted in the ears, each bail pressing at two points on the removable head to hold it in position, substantially as set forth.

3. The combination of a churn-body, a removable head provided with a packing resting upon the ends of the staves forming the churn-body, a pair of bails pivoted to the churn-body, each bail pressing at two points on the removable head, and a fastening located on the removable head to engage the free portion of the bails, substantially as set forth.

4. The combination of a churn-body, a removable head provided with a packing rest-

ing upon the ends of the staves forming the churn-body, a pair of bails pivoted to the churn-body, and a cam located on the removable head to engage the free portion of the bails, substantially as set forth.

5. The combination of a churn-body, a removable head provided with a packing resting upon the ends of the staves forming the churn-body, a pair of bails pivoted to the churn-body, and a cam located on the removable head to engage the free portion of the bails, said cam made vertically adjustable, substantially as set forth.

6. The combination of a churn-body, a pair of bails pivoted thereto, a screw-threaded bolt passing through the removable head, a cam provided with two inclined surfaces which engage the free portion of the bails, and a screw-threaded central hub which is held in place on the removable head by engaging the screw-threaded bolt, and means for operating the cam, substantially as set forth.

7. The combination of a churn, a pair of bails pivoted thereto, a removable head and a cam-fastening for the bails consisting of two inclined surfaces, a central screw-threaded hub, a socket in its upper face, and a screw-threaded nut located in the socket to engage a screw-threaded bolt projecting from the upper surface of the head, substantially as set forth.

8. The combination of a churn, a removable head, bails pivoted to the churn, a fastening located on the removable head to engage the free portion of the bails, said fastening consisting of a central hub with two wings having a flat under face and of spiral form, and radial openings at the junction of the wings to allow the bails to pass under, and means for oscillating the cam, substantially as set forth.

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