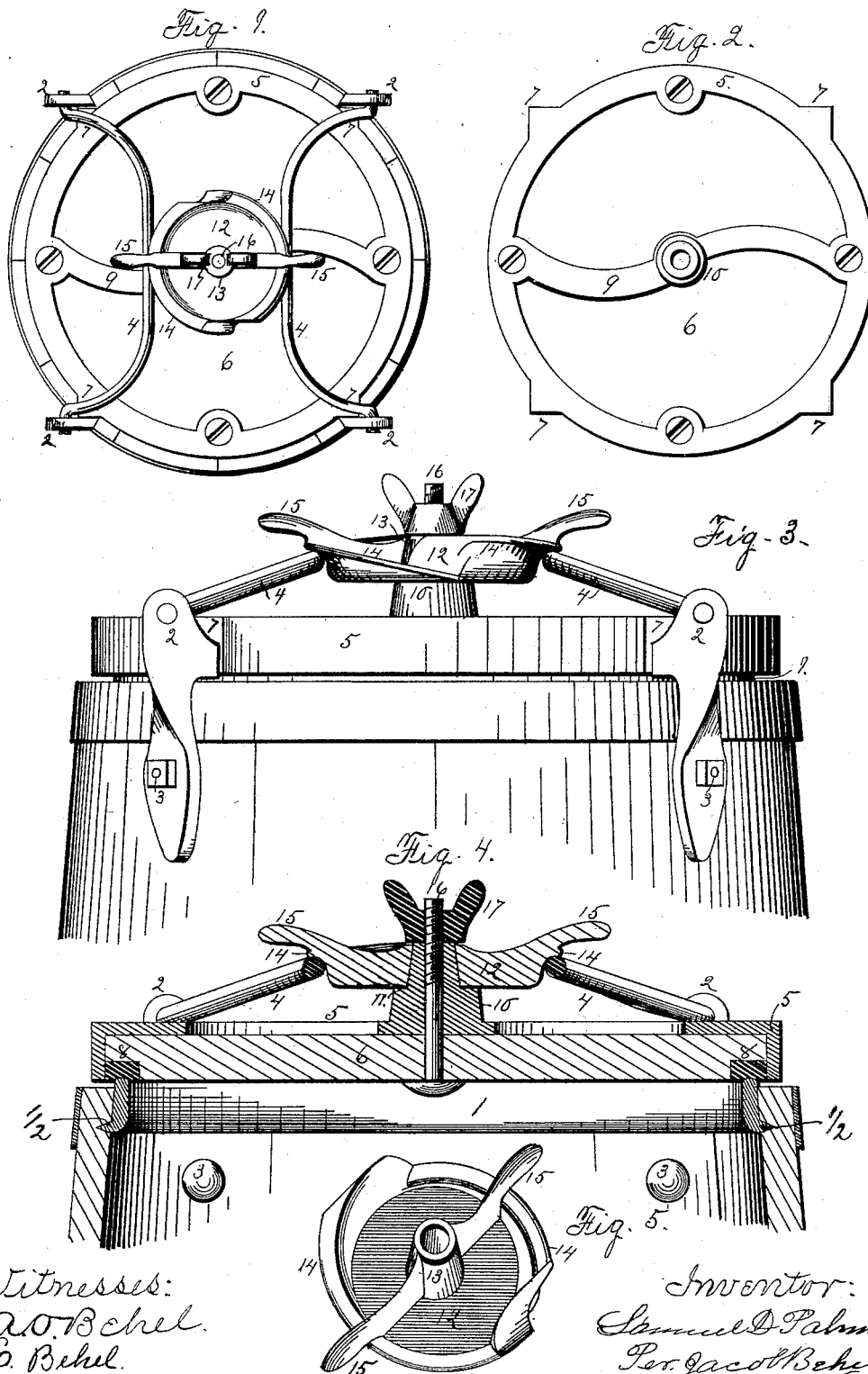


(No Model.)

S. D. PALMER.
CHURN.

No. 418,355.

Patented Dec. 31, 1889.



Witnesses:
A. O. Behl.
E. Behl.

Inventor:
Samuel D. Palmer
Per Jacob Behl
J. H.

UNITED STATES PATENT OFFICE.

SAMUEL D. PALMER, OF ROCKFORD, ILLINOIS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 418,355, dated December 31, 1889.

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To all whom it may concern:

Be it known that I, SAMUEL D. PALMER, a citizen of the United States, residing in the city of 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.

This invention relates to a class of churns known as the "revolving barrel-churn."

It consists in a churn having an annular metallic packing-ring inserted in the croze of the barrel, ears secured to the outside of the churn, a removable head, a cam-fastening located on the removable head, and bails pivoted in the ears to engage the cam-fastening, and in the various combinations of these parts.

In the drawings, Figure 1 is a top view of a churn embodying my invention. Fig. 2 is a top view of the removable head. Fig. 3 is a side elevation of the upper portion of the churn. Fig. 4 is a vertical central section. Fig. 5 is an isometrical representation of the cam-fastening.

The churn is of the usual barrel form, having an open end. In the open end is inserted an annular metallic ring-head 1. The ring-head 1 extends upward along the interior face of the chine sufficient to receive the packing in the removable head, and is provided with a projection $\frac{1}{2}$, which enters the croze. The ring-head 1 is in effect a packing-ring, and also serves to hold the staves of the churn in proper form. In this construction of the annular ring-head, in which I have omitted the usual ears rising therefrom, I am enabled to produce a larger opening in the churn, and the annular ring-head being of less depth than when ears are employed offers a less obstruction in discharging the contents of the churn.

Ears 2 are secured to the outside of the churn at proper intervals by a bolt 3, passing through the ear and churn, and a screw-nut on the outer end of the screw-bolt serves to fix the parts in place. These ears extend upwardly and are bored to receive bails 4, pivoted therein.

The removable head consists of an annular metallic ring 5, of angle-iron form in section, which receives the main portion 6 of the head. Projections 7 are formed on the periphery of the annular ring 5 at four equal points, to en-

gage the ears 2 on the churn. They also form a surface for the engagement of the bails with the removable head. The under face of the head at the outer edge is recessed, and an annular packing-ring 8, of cork or other suitable material, is placed within the recess in position to engage the metallic ring-head when the removable head is in place on the churn. The ring 5 is provided with a transverse center brace 9, from the center of which rises a tubular stud 10. This stud has a shoulder 11, for a purpose to appear hereinafter.

The double cam represented in Fig. 5 and at 12, Figs. 1, 3, and 4, is of circular dish form, with a central tubular hub 13 rising from its upper face. The periphery is divided into two equal flanged cams 14, having their highest points opposite. The highest points of the cam-flanges are cut away to admit the bails 4 to pass under the cams, and the lower end portions of the respective cam-flanges extend under the cut-away portions to receive the bails in position to be operated upon by the cam when oscillated. Hand-levers 15 extend beyond the periphery of the cam-flanges sufficiently to enable the operator to oscillate the cam.

A double cam constructed as above described is so placed upon the removable head that the reduced portion of the tubular stud 10 shall enter the opening in the hub 13 and project through to permit the easy oscillatory movement of the cam. The cam proper rests upon the shoulder of the stud 10, upon which it oscillates. A bolt 16 is passed through the removable head and tubular stud 10, and a thumb-nut 17 is then turned down to firmly clamp the parts together, but leaving the cam free to oscillate between the thumb-nut and shoulder of the tubular shaft.

Bails 4 are pivoted in the ears 2, and their free center portions engage the cam-fastening. These bails engage the removable head by resting on the projections 7, which forms a bearing-surface that will prevent the bails spreading and consequently the pushing out upon the ears, which would tend to separate them from the churn. When it is desired to fasten the removable head in position, the double cam is so placed that the bails may

pass under the highest point of the cams. Then, by turning the cams in a direction to cause the cam-flanges to override the bails, the flanges will operate upon the bails to compress the removable head to the ring-head to seal the churn, and the reverse movement of the cam will free the bails and will release the movable head.

In applications now pending before the United States Patent Office having serial numbers, respectively, 311,979 and 320,876 is shown, described, and claimed a churn having ears secured thereto, a removable head, a fastening on the removable head, bails pivoted in the ears and engaging the fastening, and also special means for securing the ears to the churn-body, and the various combinations of these elements, and I make such features the subject of claims in those applications and do not claim them in detail in this case.

I claim as my invention—

1. The combination of a churn, a removable head, and a ring-head, said ring-head fitted with a projection to enter the croze and extending upward along the interior of the churn and extending above the chine to receive the removable head, and a fastening located on the removable head for securing it to the ring-head, substantially as set forth.

2. The combination of a churn-body having a pair of bails pivoted thereto, a ring-head, a removable head, a cam secured to the removable head to engage the free portion of the bails, and means for operating the cam, substantially as set forth.

3. The combination, with a churn having bails pivoted thereto, of a removable head and a cam secured to the removable head to engage the free portion of the bails, said cam being provided with lever projections to form operating-handles, substantially as set forth.

4. The combination, with a churn provided with a ring-head fixed thereto, the said ring-head being fitted with a projection to enter the croze and extending upward along the interior of the churn to form a seat for a packing, of bails pivoted to the churn, a removable head, and a cam secured to the removable head to engage the free portion of the bails, substantially as set forth.

5. The combination, with a churn provided with a ring-head fitted to enter a croze and extending upwardly along the interior of the churn and forming a seat for a packing, of ears secured to the outside of the churn, bails pivoted to the ears, a removable head, and a cam secured to the removable head to engage the free portion of the bails, substantially as set forth.

6. The combination, with a churn, ears secured to the churn, a removable head with peripheral projections, and bails pivoted in the ears and engaging said projections, substantially as set forth.

7. The combination of a churn, a ring-head fitted to form a seat for a packing, ears secured to the outside of the churn, a removable head, a fastening on the removable head, and a pair of bails pivoted in the ears and engaging the fastening, substantially as set forth.

8. The combination of a churn, a removable head, a ring-head to form a seat for a packing, ears secured to the outside of the churn, a pair of bails pivoted to the ears, and a fastening holding the bails in contact with the removable head, substantially as set forth.

SAMUEL D. PALMER.

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A. O. BEHEL,
E. BEHEL.