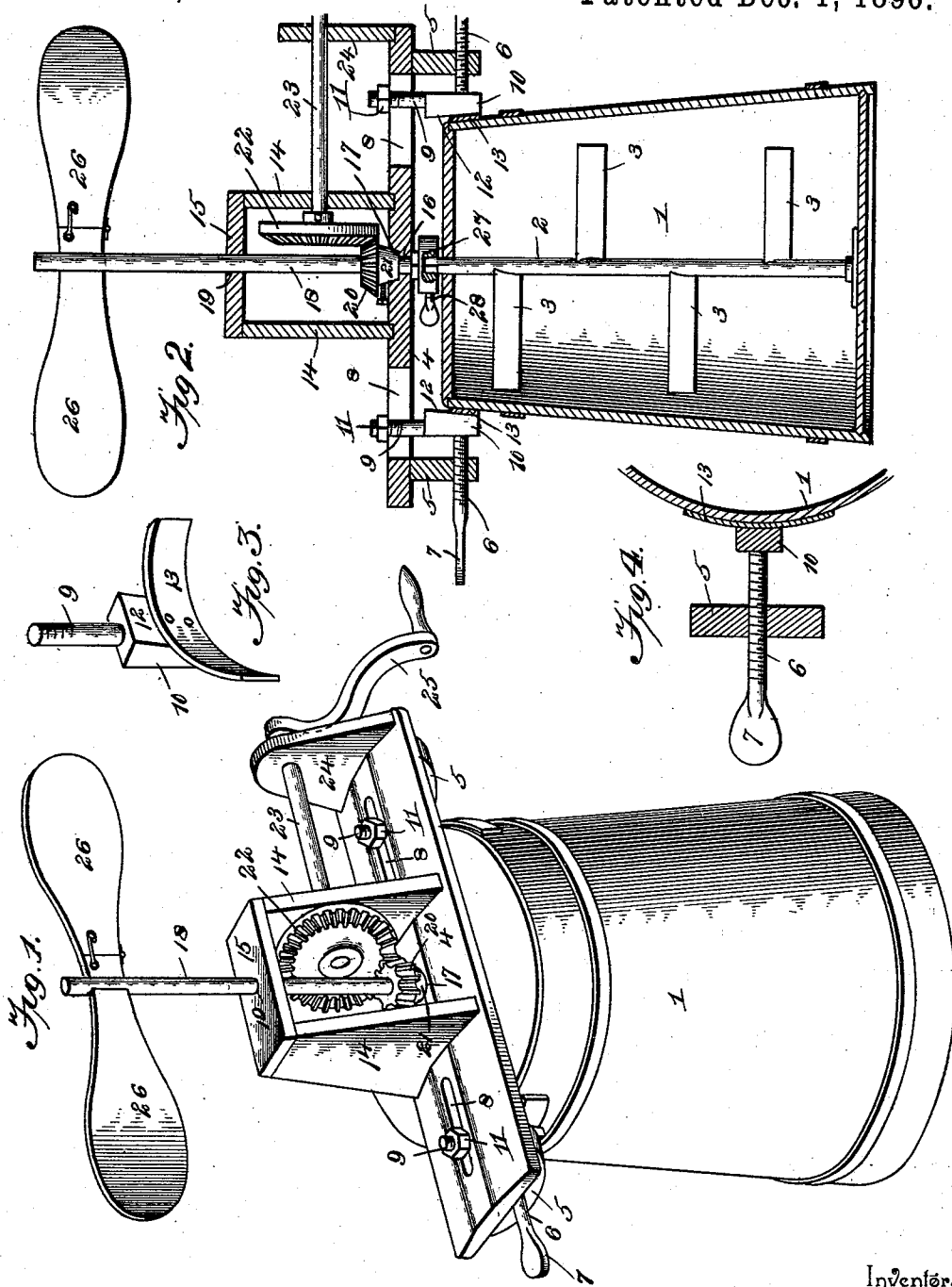


(No Model.)

J. A. D. HARPER & D. R. SMITH.
CHURN.

No. 572,484.

Patented Dec. 1, 1896.



Inventors

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JOHN A. D. HARPER AND DANIEL R. SMITH, OF MAGNOLIA, ARKANSAS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 572,484, dated December 1, 1896.

Application filed November 23, 1894. Serial No. 529,761. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. D. HARPER and DANIEL R. SMITH, citizens of the United States, residing at Magnolia, in the county of Columbia and State of Arkansas, have invented a new and useful Churn Driving-Gear, of which the following is a specification.

The invention relates to churns, and particularly to means for attaching to a receptacle the dasher-operating mechanism, suitable adjustment of the parts being attainable to suit the receptacle and the length of the dasher-staff.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 represents a perspective view of a dasher-operating mechanism embodying our improvement applied to a receptacle. Fig. 2 is a vertical section of the same. Fig. 3 is a detail in perspective of one of the clamp-shoes which engage the receptacle. Fig. 4 is a detail section, taken horizontally, of a clamp-shoe and operating means, showing the contiguous portion of the receptacle.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a receptacle, which may be of any preferred form, but which is preferably cylindrical with a tapering body, and 2 a dasher-staff having the usual dasher-blades 3, said staff projecting slightly above the top or cover of the receptacle. The dasher-operating mechanism is carried by a frame, including a horizontal base-plate 4, disposed transversely across the top of the receptacle and out of contact therewith. This plate is provided at each end with a depending lug 5, which are spaced apart a greater distance than the diameter of the receptacle and form bearings for the clamping-screws 6, which are threaded in openings therein. The screws 6 terminate at their outer ends in enlargements or heads 7, by which they may be grasped for adjustment.

Formed in the base-plate at each end adjacent to the inner sides of the lugs 5 are longitudinal slots 8, to receive the stems 9 of

clamp-shoes 10, said stems being of a length to provide for vertical adjustment of the shoes and being held at the desired adjustment by nuts 11. The stems are also capable of movement longitudinally in their respective slots. The shoes 10 are formed integral with the stems 9 and have their inner faces downwardly and outwardly beveled, as at 12, for the reception of the arc-shaped sheet-metal shoe-plates 13.

Rising vertically from the plate 4 are the side plates 14 of a bracket having a closed upper end formed by a bar 15. The bracket is open front and rear to give access to its interior.

Formed in the center of the plate 4 is an opening 16, which is counterbored to form a rabbeted seat 17, and mounted revolvably in this opening 16 is a spindle 18, which extends upwardly through an alined opening 19 in the top of the bracket. Fixed to the shaft 18, at a point just above the plate 4, is a bevel-gear 20, provided on its lower side with a depending boss 21, to fit revolvably in the seat 17, said gear being secured to the spindle by a set-screw or its equivalent, whereby the spindle may be extended more or less below the base-plate to suit the position of the upper end of the dasher-staff. This gear 20 is adapted to mesh with a driving-gear 22, fixed to the inner end of the driving-shaft 23. The driving-shaft is journaled in one of the side plates 14 and in a similar terminal plate 24, which rises vertically from the base-plate, said shaft terminating at its outer end in a crank-arm 25.

The shaft 18 extends above the cross-bar 15 and is provided at or near its upper end with fan-blades 26, preferably two in number, to furnish a draft of air calculated to cool the atmosphere surrounding the person operating the churn.

Below the plate 4 the shaft 18 is provided with a socket 27 to receive the upper squared end of the dasher-shaft 2. This socket consists of a circular head having an angular recess adapted for the reception of the upper end of the dasher-shaft, a set-screw 28 being provided, whereby the two parts are rigidly connected.

The dasher-operating mechanism embodying our invention may be employed in connection with any ordinary construction of re-

ceptacle and dasher in which the dasher-staff projects above the plane of the top or cover of the receptacle, and the adjustment of the collar 21 on the spindle 18 is arranged to allow the necessary projection of the lower end of the spindle below the plane of the base-plate 4 to suit the extent of projection of the upper end of the dasher-staff above said top or cover.

- 10 If desired, the operation of securing the collar 21 to the spindle may be postponed until after the base-plate has been secured to the receptacle by means of the clamping-shoes provided for that purpose, and the bearing of
15 the shoes upon the desired portions of the exterior surface of the receptacle may be attained by the adjustment of the nuts 11, which are threaded upon the stems of said shoes. Subsequent to this vertical adjustment of the
20 shoes the set-screws 6 should be turned to cause the necessary frictional contact of the shoes with the sides of the receptacle to lock the base-plate in place. This relative adjustment of the spindle and collar 21, together
25 with the vertical adjustment of the shoes and the means for forcing the shoes against the side of the receptacle at any vertical adjustment thereof, provides for accurately fitting the dasher-operating mechanism to the receptacle to insure the proper operation of the
30 parts without unnecessary friction.

We have provided one of the wings of the fan with a hinge and hook by which it may be lowered and allowed to swing in an approximately vertical position. The centrifugal force due to the rotation of the spindle will cause the hinged wing or blade to incline outwardly at an angle sufficient to avoid contact with the open-sided bracket 14, whereby
40 the current of air produced by the depending blade will be directed against the top of the receptacle.

From the above description it will be seen that the stems 9 and engaging nuts 11 merely
45 support the clamp-shoes 10 at the desired distance below the plane of the base-plate, and that the shoes, having the arc-shaped

shoe-plates 13, (which conform to the exterior surface of the receptacle,) are forced with the desired pressure against the receptacle by means of the set-screws 6, which are threaded in permanent terminal brackets 5, depending from the base-plate. After the adjustment of the clamp-shoes the stems 9 and engaging nuts 11 are practically relieved of strain, as the set-screws 6 and brackets 5 hold the base-plate firmly in position.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described our invention, what we claim is—

In a churn attachment, the combination with a receptacle having a tapering body and the dasher; of a horizontal base-plate adapted to be arranged transversely above the receptacle and provided with oppositely-located longitudinally-disposed slots, dasher-operating mechanism supported on top of the base-plate, oppositely-located clamp-shoes 10, arranged below the base-plate and provided with upwardly-disposed threaded stems carrying binding-nuts 11, and having a vertical and longitudinal adjustment in said longitudinally-disposed slots, said clamp-shoes being provided with inner beveled faces 12 corresponding to the taper of the body of the receptacle, segmental shoe-plates 13 fitted to the inner beveled sides of the clamp-shoes, fixed brackets depending from the extremities of the base-plate, and set-screws 6, mounted in said brackets and working against the outer sides of said clamp-shoes, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN A. D. HARPER.

DANIEL R. SMITH.

Witnesses:

W. H. WARNOCK,

J. A. ROBERTSON.