

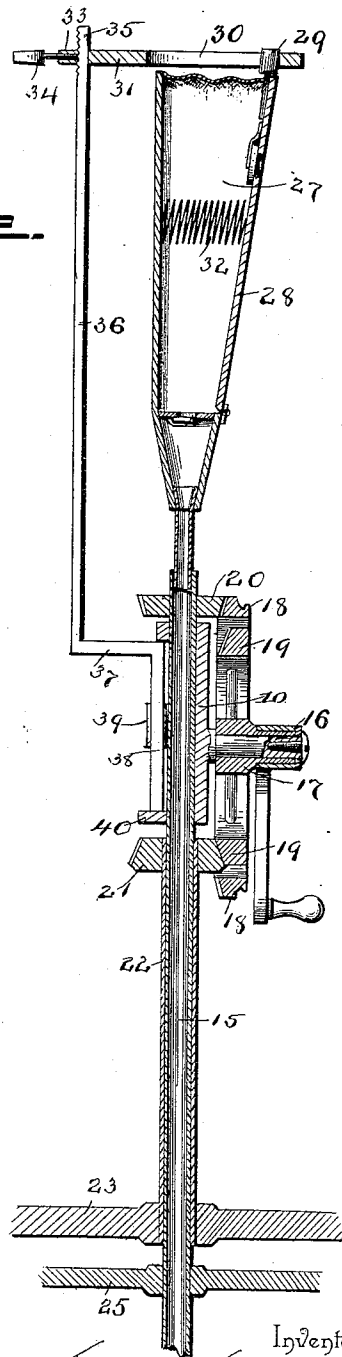
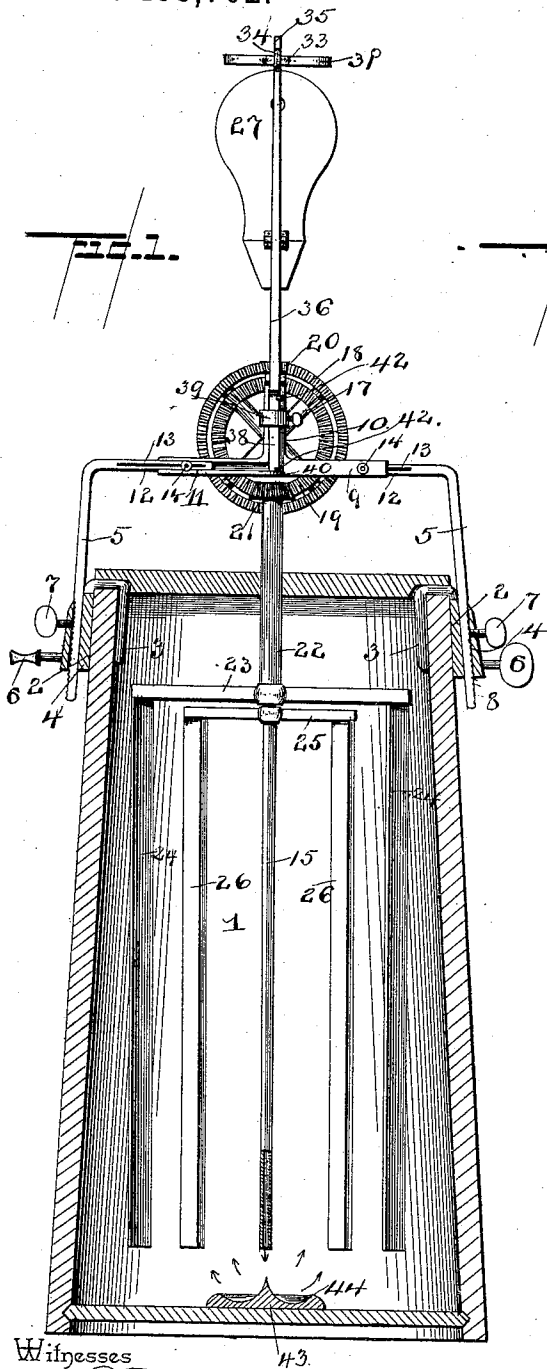
(No Model.)

J. JAQUE.
CHURN.

2 Sheets—Sheet 1.

No. 469,702.

Patented Mar. 1, 1892.



Witnesses

J. G. Seitz
J. H. Riley

By his Attorneys,

Chas. H. & Co.

Inventor

Joseph Jaques

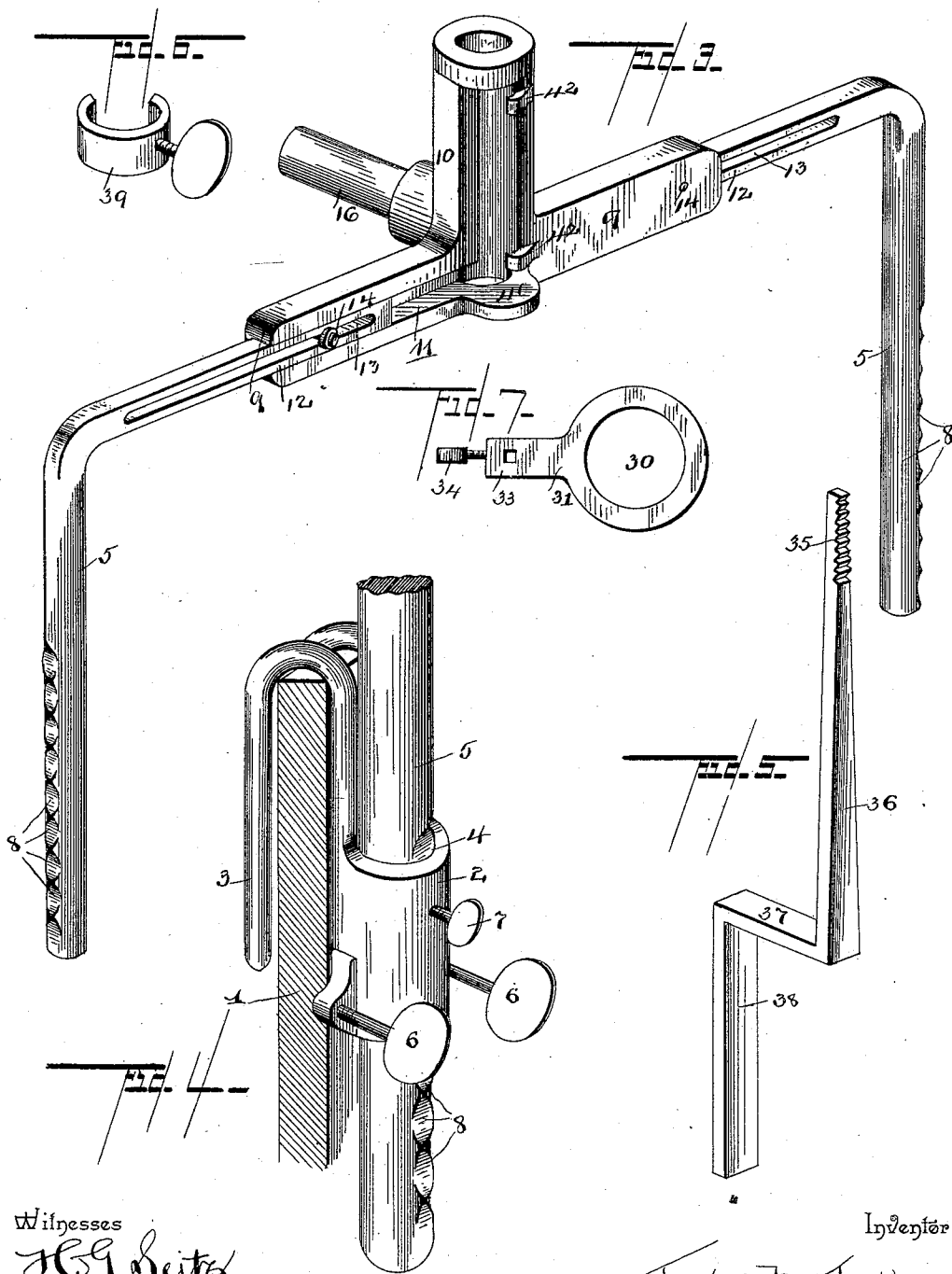
(No Model.)

2 Sheets—Sheet 2.

J. JAQUE.
CHURN.

No. 469,702.

Patented Mar. 1, 1892.



Witnesses

H. G. Lutz
H. G. Lutz

Inventor

By His Attorneys,

Joseph Jaques
Attorneys,
Cahoon & Co.

UNITED STATES PATENT OFFICE.

JOSEPH JAQUE, OF DEEP WATER, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 469,702, dated March 1, 1892.

Application filed August 14, 1891. Serial No. 402,641. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH JAQUE, a citizen of the United States, residing at Deep Water, in the county of Henry and State of Missouri, have invented a new and useful Churn, of which the following is a specification.

The invention relates to improvements in churns.

The object of the present invention is to simplify and improve the construction of rotary double-dasher churns having concentric shafts to enable the operative parts to be readily adjusted to a churn-body and to convert cream into butter in a short time.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a vertical sectional view of a churn embodying the invention. Fig. 2 is a similar view taken at right angles to Fig. 1. Fig. 3 is a detail perspective view of the supporting-frame. Fig. 4 is a detail perspective view illustrating the manner of securing the angle arms or sections to the churn-body. Fig. 5 is a detail perspective view of the supplemental standard. Fig. 6 is a similar view of the clip. Fig. 7 is a detail plan view.

Referring to the accompanying drawings, 1 designates a churn-body having secured to opposite sides of it at the upper edge brackets, which are provided with hooks 3 to engage the body and have vertical sockets 4 to receive angular arms or sections 5 of a frame for supporting the operative parts of the churn. The brackets are provided on opposite sides of the sockets with set-screws 6 to engage the churn-body and with set-screws 7, arranged at the sockets and adapted to engage the vertical portions of the angular arms or sections 5, the lower portions of which are provided with recesses 8 to enable the set-screws to obtain a firm hold and to prevent the angle arms or sections slipping.

The supporting-frame consists of a horizontal bar 9, the said angle arms or sections 5, and a central vertical standard 10, preferably formed integral with a horizontal bar 9, and said supporting-frame is preferably con-

structed of metal. The horizontal bar 9 is provided on opposite sides with longitudinal grooves 11, in which are arranged and adapted to slide the horizontal portions 12 of the angle arms or sections 5. The horizontal portion of the angle arms or sections 5 have longitudinal slots 13, in which are arranged set-screws 14 of the horizontal bar 9 for securing the angle arms or sections at any adjustment and to adapt the supporting-frame to any churn-body, said frame being capable of both horizontal and vertical adjustment.

The vertical standard is tubular and is provided at its ends with bearings, in which is journaled a vertical tubular-shaft 15, and the standard is provided intermediate its ends with a stub-shaft 16, on which is mounted a cog-wheel 17. The cog-wheel has two sets of cogs or teeth 18 and 19, the former set of which meshes with a pinion 20, secured to the upper end of the hollow shaft 15, and the other cogs 19 mesh with a pinion 21, arranged at the upper end of a sleeve 22, which is mounted on the shaft 15. The lower end of the sleeve 22 has secured to it a cross-bar 23, from the outer ends of which depend vertical blades 24, and the tubular shaft 15 is provided a short distance below the cross-bar 23 with a similar cross-bar 25, from which depend vertical blades 26, arranged within the blades 24 of the cross-bar 23. The blades 24 and 26 are set at an angle and rotate in opposite directions.

On the upper end of the tubular shaft 15 is mounted a bellows 27, the hinged section 28 of which is provided with a roller 29, arranged to engage a circular opening 30 of a plate 31, the latter being eccentrically arranged, whereby a cam-track is provided, and when the bellows is located the roller travels on the track and the hinged section of the bellows is compressed, thereby forcing air down the hollow shaft into the churn-body. The bellows is distended by a spring 32, arranged within the bellows and having one end secured to the rigid section of the bellows and the other end engaging the hinged section. The plate 31 is provided with an eye 33 and a set-screw 34 and is adjustably secured to the upper end 35 of the supplemental standard 36, which is provided intermediate its

ends with an angular bend 37, and has its lower end 38 secured to the standards by a clip 39, and is supported by a projection 40, and is braced against lateral movement by 5 lugs 42, arranged near the ends of the standard.

The blades 24 and 26 are set at an angle, and the inner blades 26 rotate faster than the outer ones and throw the cream toward the 10 sides of the churn-body, while the outer blades, which rotate in a direction opposite the inner blades 26, tend to throw or force the cream inward toward the inner blades. The outer blades impart to the cream a long heavy swell, 15 and the inner blades, which move more rapidly than the outer blades, break up the heavy swell, thereby increasing the agitation.

Air descending in the hollow shaft strikes against a deflector 43, which is secured to the 20 bottom of the churn-body and is provided with a concave annular groove 44 and throws the air upward and outward and causes the same to mix thoroughly with the cream, thereby bringing the oxygen of the air in contact 25 with the sugar in the milk and producing lactic acid, which produces curding of the milk and rapid separation of the butter therefrom, and at the same time sweetens and removes from the butter to a great extent impurities and rancidness arising from old or 30 musty cream and wild or strong vegetation; also the force of the air in the bottom of the churn causes a rising agitation in the center under the quick motion of the blades and falls 35 to the outside on the low heavy swells of the slow blades, which gives the whole contents of the churn a vertical and a horizontal rotation combined with great agitation.

What I claim is—

40 1. In a churn, the combination of a churn-body, a vertical tubular shaft, means for rotating the shaft, a stationary eccentrically-arranged plate located above the shaft and having a circular opening, and a bellows mounted 45 on the shaft and carried by the same and having its hinged section engaging the opening of said plate, substantially as described.

2. In a churn, the combination of a body, a 50 supporting-frame, a tubular shaft journaled in the frame, dashers carried by the shaft, means for rotating the shaft, a standard secured to the supporting-frame, a plate secured adjustably to the upper end of the stem and 55 provided with an eccentrically-arranged circular opening, and a bellows mounted on the

shaft and carried by the same and having its hinged section engaging the circular opening of the plate, substantially as described.

3. In a churn, the combination of a body, a vertical tubular shaft, dasher-blades carried 60 by the shaft, a bellows arranged on the upper end of the tubular shaft and adapted to direct a blast of air through the same, means for operating the bellows and rotating the shaft, and a deflector arranged beneath the lower 65 end of the shaft, substantially as described.

4. In a churn, the combination of a body, a vertical tubular shaft, dashers carried by the shaft, a bellows mounted on the shaft and arranged to direct a blast of air through the 70 same, means for operating the shaft and the bellows, and the deflector arranged beneath the lower end of the shaft and provided with a concave annular groove, substantially as described. 75

5. In a churn, the combination of a body, a supporting-frame mounted on the body, a vertical tubular shaft journaled in the frame and carrying blades, a supplemental standard secured to the frame and provided with an angular bend, a plate having an eccentrically- 80 arranged opening and provided with an eye to receive the supplemental standard and having a set-screw to engage the same, the bellows arranged on the shaft and having its 85 hinged section provided with a roller arranged to engage said plate, and means for rotating the shaft, substantially as described.

6. In a churn, the combination of a body, a supporting-frame having a vertical standard 90 provided with lugs and having a projection, a supplemental standard-clip to said standard and supported on the projection and arranged adjacent to the lugs, the tubular shaft carrying dashers and carrying in the frame, 95 a bellows mounted on the shaft and having a hinged section, the plate secured to the supplemental standard and having an eccentrically-arranged circular opening engaged by the hinged section of the bellows, and means 100 for rotating the shaft, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH JAQUE.

Witnesses:

JAS. A. DOUGLAS,
HENRY SPECKMAN.