J. JEFFRIS.

CHURN.

APPLICATION FILED DEC. 24, 1909.

989,783.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.

Fig. 2

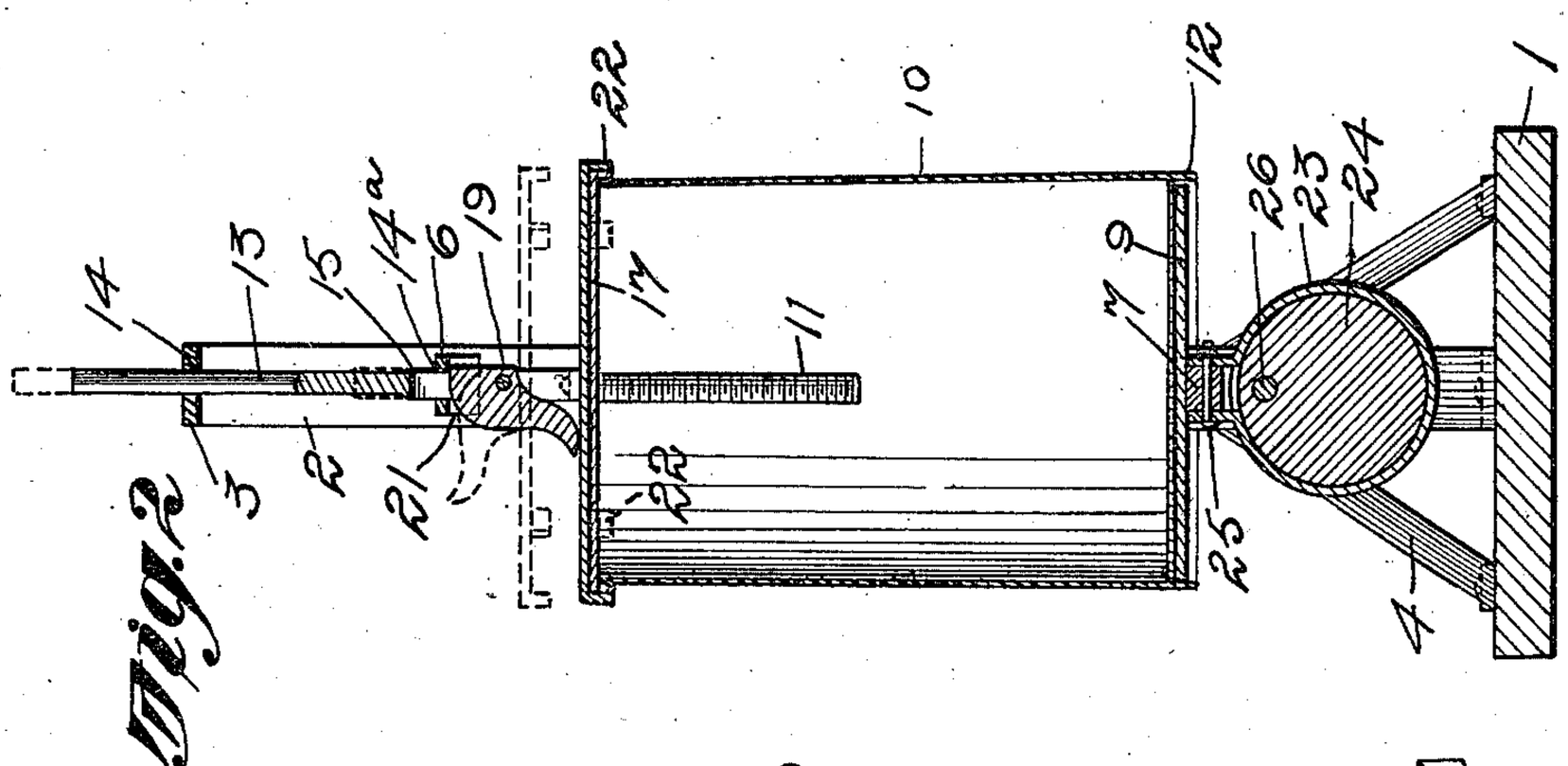
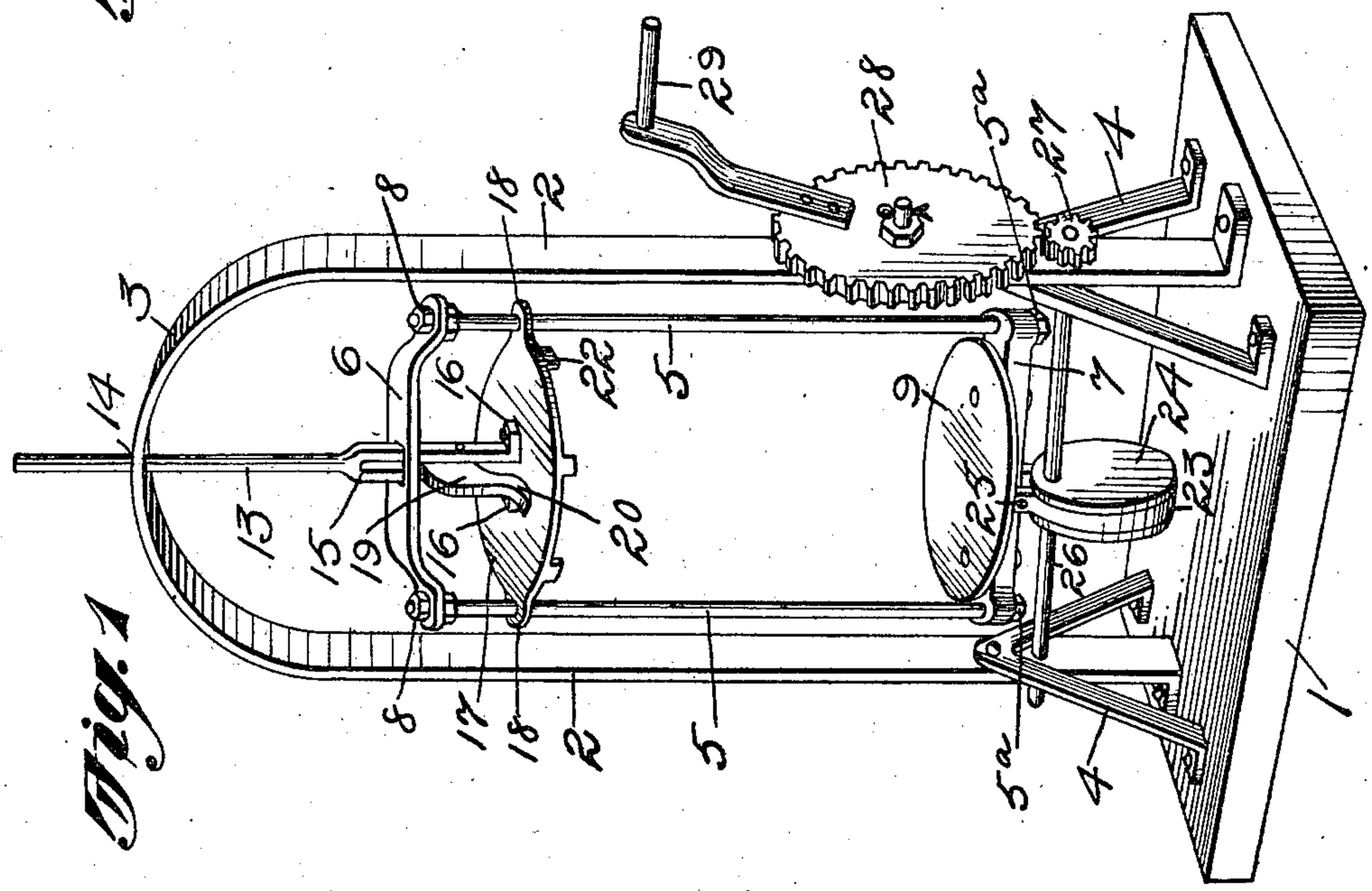


Fig. 1



Witnesses

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2 SHEETS—SHEET 2.

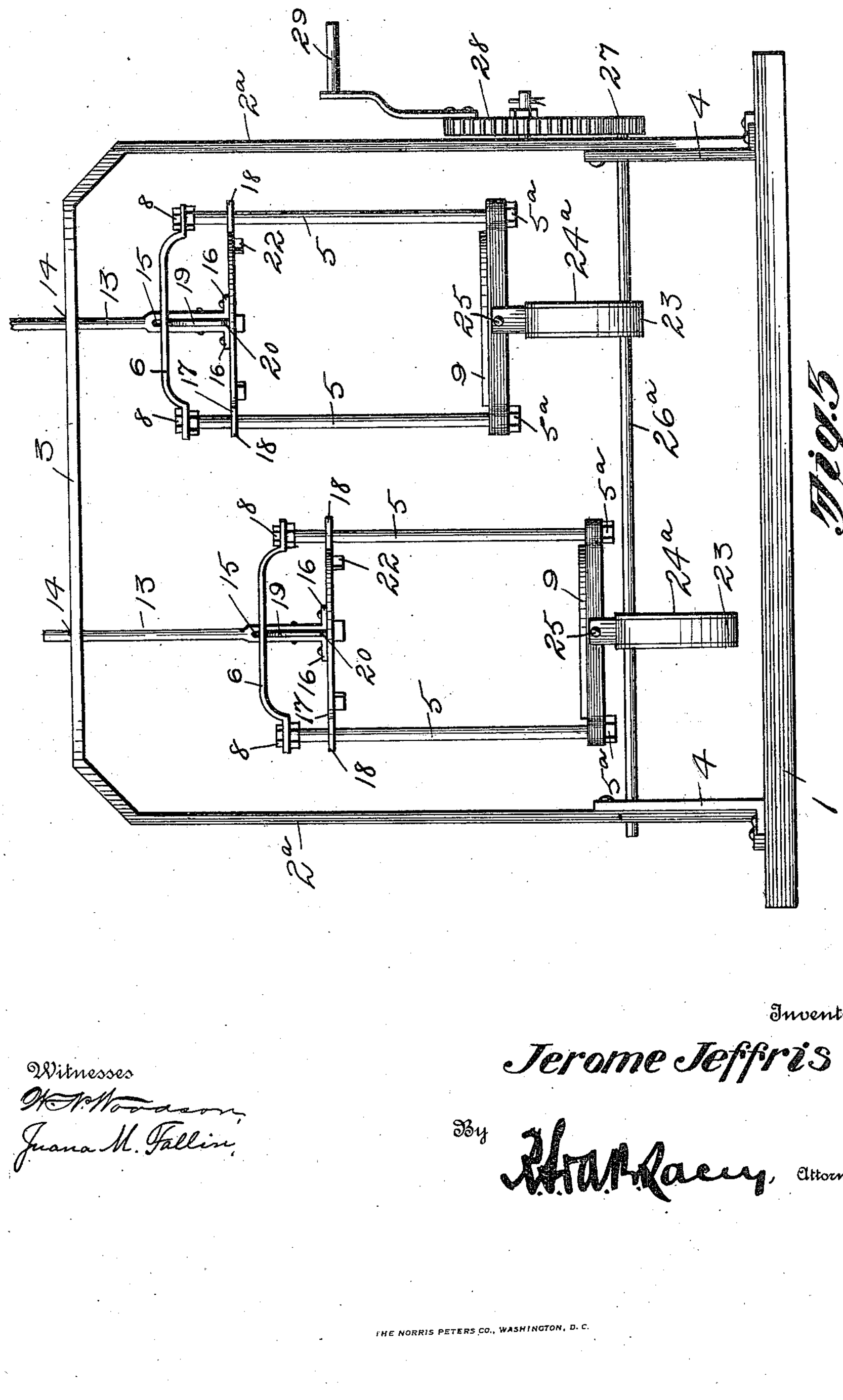

Fig. 5.

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UNITED STATES PATENT OFFICE.

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CHURN.

989,783. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed December 24, 1909. Serial No. 534,836.

To all whom it may concern:

Be it known that I, JEROME JEFFRIS, a citizen of the United States, residing at Kirksville, in the county of Moultrie and State of Illinois, have invented certain new and useful Improvements in Churns, of which the following is a specification.

The present invention comprehends certain new and useful improvements in churns, and the invention has for its object a simple, durable and efficient construction of device of this character including essentially a reciprocating carrier which is arranged to receive the churn body and which is susceptible of being conveniently operated, so as to thoroughly agitate the contents of the churn body and induce the rapid formation of the butter.

A further object of the invention is a churn in which the carrier is provided at one end with a rod which is slidably connected to the supporting framework in order to guide the carrier in its movement, the rod carrying a follower which is movable against the churn body and which is clamped in place in a novel and efficient manner, whereby to retain the churn body within the carrier against accidental displacement.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and then point out the novel features of in the appended claim.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of my improved churn: Fig. 2 is a vertical section thereof; and, Fig. 3 is a side elevation illustrating a modified form.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

A churn constructed in accordance with my invention includes a suitable supporting frame that in the present instance consists of a substantially flat base 1 and a pair of spaced standards 2 upstanding from the base and connected at their upper ends by a cross bar 3 which is preferably curved upwardly or arched, as shown. Braces 4 are secured to the lower portions of the standards and firmly fastened to the base to reinforce the structure as a whole.

Mounted in the supporting frame is a vertically reciprocatory carrier that is frame-like in structure and consists of vertical side rods 5 which are somewhat shorter than the standards and are connected at corresponding ends by top and bottom cross bars, designated 6 and 7 respectively, the top cross bar being preferably curved upwardly similarly to the cross bar 3. The cross bars are perforated at their ends to receive the corresponding ends of the side rods, the latter being formed at their lower ends with heads 5^a which support the bottom cross bar 7. The top cross bar is detachably retained on the threaded upper extremity of each side rod by means of pairs of nuts 8, which admit of the ready separation of the parts of the carrier when occasion requires. A circular platform 9 is secured on the bottom cross bar 7 intermediate of the ends thereof and forms a support for the churn body 10. It is to be understood that the churn body may be of any approved construction or design, such as a glass jar or a suitable metal can, the latter form being shown in the drawings for the purpose of illustration, and being provided in its side with a glass gage 11 graduated so that the volume of the contents of the churn may be conveniently determined at a glance. This form of churn body is also provided at its lower end with a depending circumferential flange 12 fitting around the circular platform 9 to maintain the bottom of the churn body against lateral displacement. The upper end of the churn body is preferably closed by a removable cap or cover.

A guide rod 13 is mounted to slide freely in vertically alining openings 14 and 14^a formed at the middle points of the respective cross bars 3 and 6. The lower portion of the guide rod is bifurcated, as indicated at 15, and passes downwardly below the cross bar 6 with the extremities 16 of the bifurcations deflected laterally and attached to the upper face of a disk-like follower 17. The follower is formed at diametrically opposite points with depending apertured ears 18 slidably mounted on the respective side rods 5 in order to positively connect the follower to the frame-like carrier and to afford the follower vertical movement relative

thereto, so that the follower may be moved downwardly against the upper end of the churn body. As the preferred means for clamping the follower upon the churn body, I employ a lever 19 which is fulcrumed at an intermediate point between the bifurcations of the guide rod and below the top cross bar 6. One arm of the lever is curved to form a finger-piece 20, while the other arm has a cam edge 21 which bears against the lower surface of the top cross bar when the lever is rocked in one direction in order to positively hold the follower against the top of the churn body and to maintain the guide rod against sliding movement through the opening 14ª, the guide rod being at all times free to slide in the opening 14 to guide the carrier in its reciprocatory movement. Lugs 22 depend from the edge portions of the follower and are arranged, in the operative position thereof, to engage the periphery of the churn body to assist in further retaining the same against lateral displacement from the carrier.

The mechanism for operating the carrier includes a substantially circular strap or band 23 that lies in a suitable groove in the periphery of an eccentric 24, the ends of the strap being bent outwardly, as shown, and being attached to opposite faces of the bottom cross bar 7 in proximity to the middle points thereof, as indicated at 25. The eccentric is fixed on a rotary shaft 26 which extends transversely of the supporting frame beneath the carrier and is journaled at its ends in the standards 2. A pinion 27 is mounted on one end of the shaft and meshes with a relatively large gear 28 suitably journaled on the adjacent standard, the gear being equipped with a crank handle 29 in order to render the churn susceptible of manual operation.

From the foregoing description in connection with the accompanying drawings, it is believed that the operation of the churn will be apparent. The churn body containing the cream to be churned, is placed upon the platform 9 and the follower 17 is moved downwardly upon the churn body and is held in position thereon by the clamping lever 19. By turning the crank handle 29 the shaft 26 is rotated at a high speed, so that the eccentric imparts the desired vertically reciprocatory movement to the carrier and the churn body received therein, whereby to effect the thorough agitation of the contents of the churn body and to induce the rapid formation of the butter. The guide rod steadies the movement of the carrier at the upper end thereof, while the strap performs the same function at the lower end of the carrier on account of the fact that it lies in a suitable groove in the periphery of the eccentric.

Among the many advantages attained with the present invention, attention is particularly directed to the fact that the churn is quite simple and durable and consists of comparatively few parts capable of being easily and cheaply manufactured and readily assembled. Furthermore, the parts of the churn may be quickly separated, whereby to permit the churn to be kept in a sanitary condition and to considerably facilitate the making of any repairs.

In another embodiment of the invention, as illustrated in Fig. 3, the supporting frame is relatively wide and two carriers are positioned between the standards 2ª. The carriers are of the same structure as the carrier hereinbefore described. In this instance, the shaft 26ª is, of course, provided with two eccentrics 24ª, the eccentrics being operatively connected to the respective carriers and being set oppositely on the shaft, so as to cause one carrier to move downwardly when the other carrier is moving upwardly, and vice versa.

It is to be understood that I do not limit myself to the use of the particular form of mechanism shown for operating the carriers, as for instance, it is obvious that the shaft may be provided with one or more cranks in lieu of the eccentrics for operating the carriers. The details of construction may, of course, be varied within the scope of the appended claim.

Having thus described the invention what is claimed as new is:

In combination with a churn body, a movable frame for supporting the churn body, a fixed frame arranged about the movable frame, operating means disposed between the two frames for reciprocating the movable frame, a guide-rod vertically disposed through the upper ends of the frames, a follower slidably disposed in the movable frame and resting on the upper end of the churn body and having connection to the lower extremity of the rod, the lower end of the rod being provided with fork-arms, and a cam-lever hinged between the fork-arms for engagement against the under face of the upper portion of the movable frame to bind the follower against the churn body.

In testimony whereof I affix my signature in presence of two witnesses.

JEROME JEFFRIS. [L. S.]

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