(No Model.) 2 Sheets—Sheet 1.

C. FUERSTE.

WORKING BODY CHURN.

No. 420,049. Patented Jan. 28, 1890.

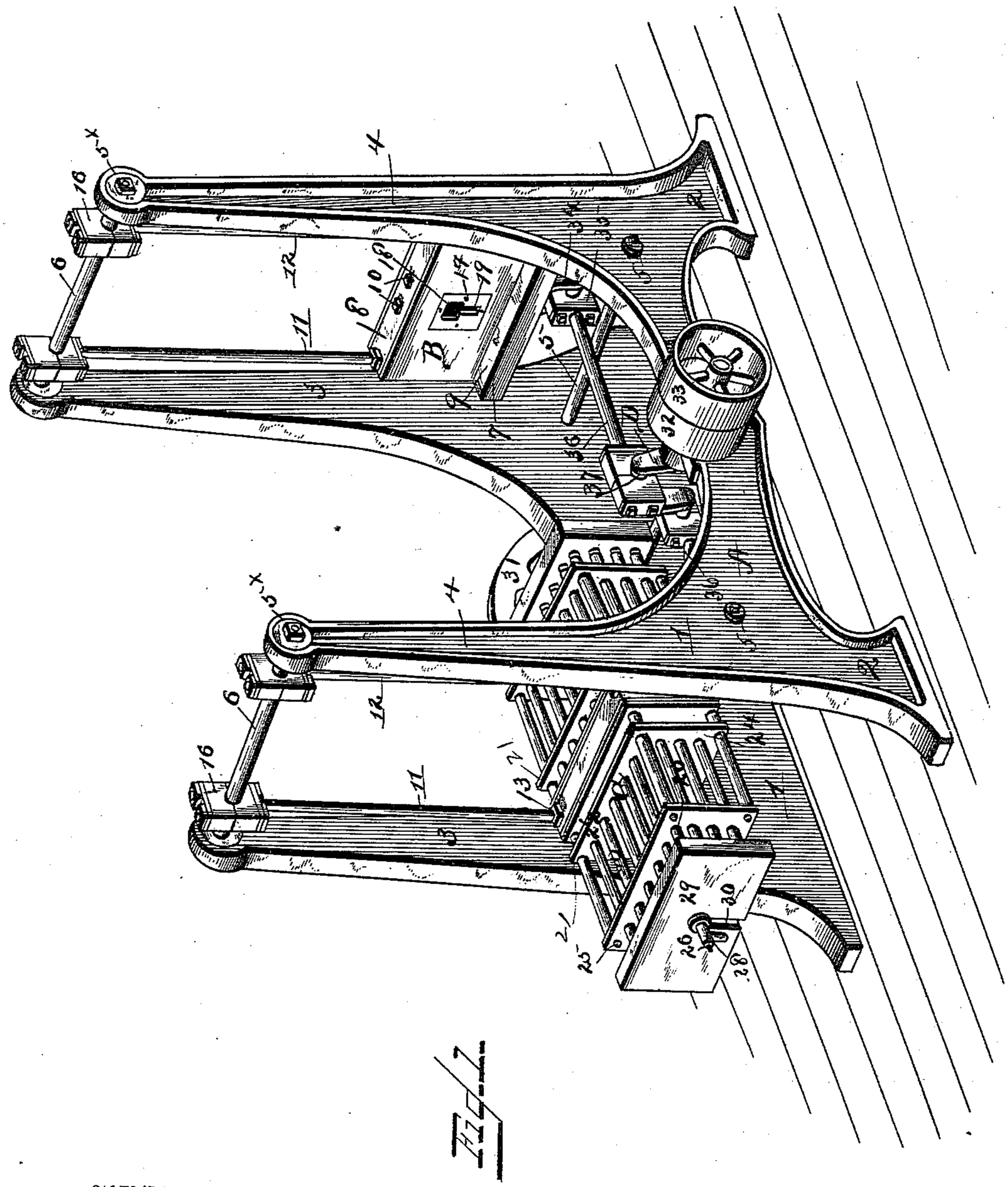

Fig. 1.

WITNESSES
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

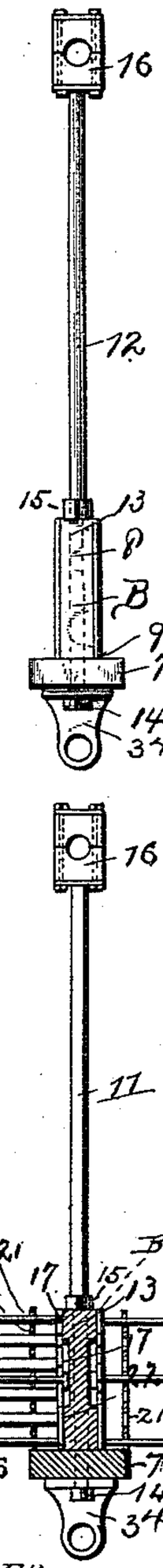

Fig. 3.

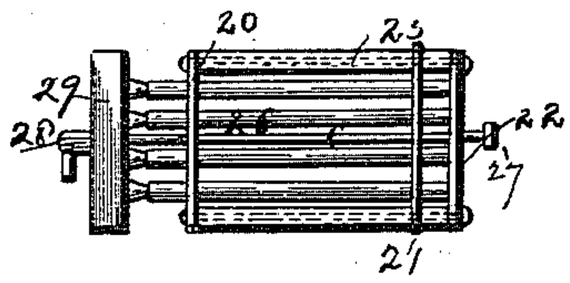

Fig. 4.

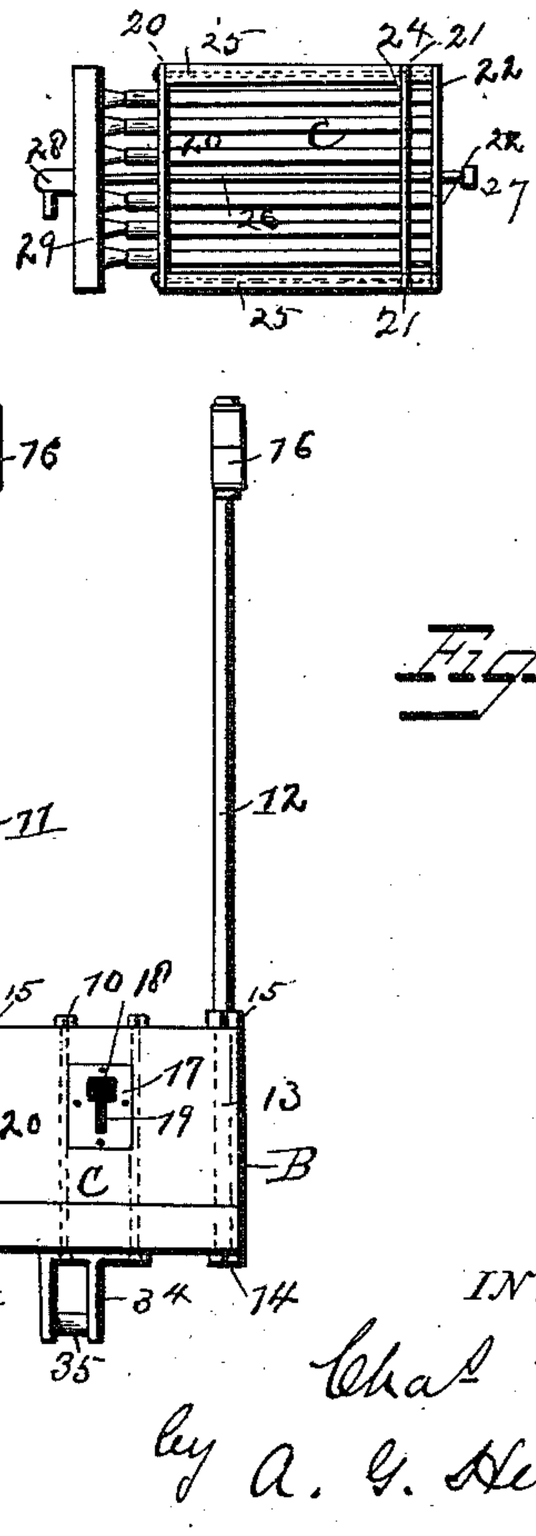

Fig. 6.

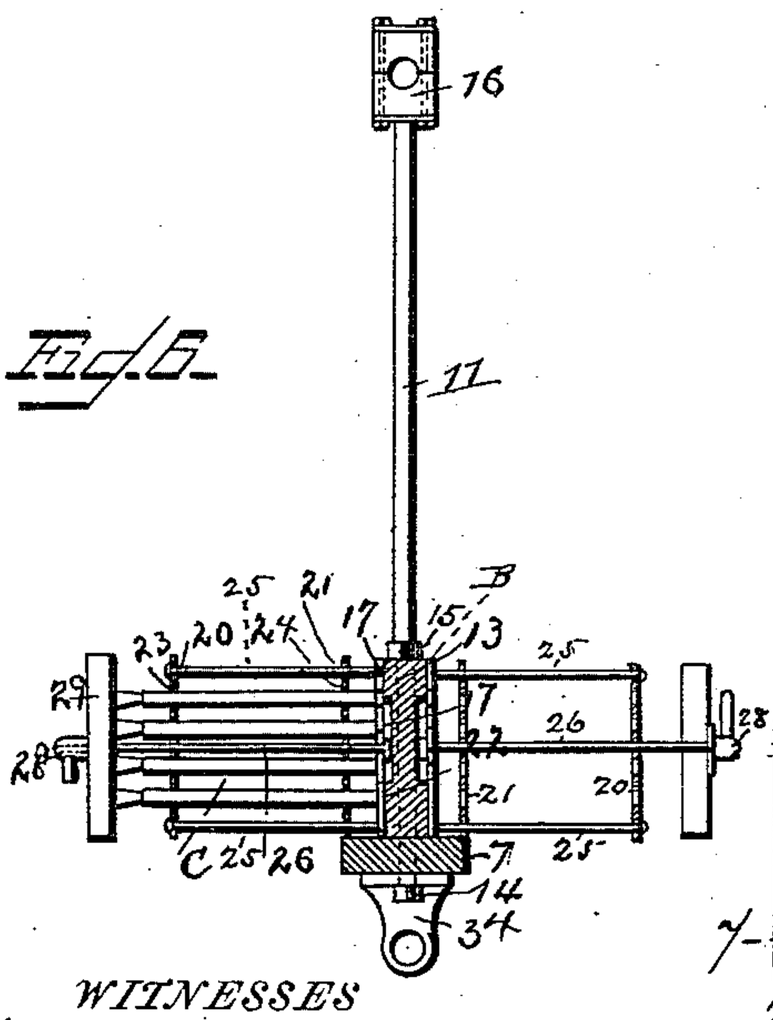

Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES FUERSTE, OF GUTTENBERG, IOWA.

WORKING BODY CHURN.

SPECIFICATION forming part of Letters Patent No. 420,049, dated January 28, 1890.

Application filed September 14, 1888. Serial No. 285,413. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FUERSTE, a citizen of the United States of America, residing at Guttenberg, in the county of Clayton and State of Iowa, have invented a new and useful Working Body Churn, of which the following is a specification.

My invention has relation to improvements in working body churns of that class used for testing cream; and the object is to improve existing mechanisms by simplifying their constructions and increasing their capacity.

With this object in view my invention consists in the novel construction of parts and their combination, as will be fully specified hereinafter, and specially as the same is particularly pointed out and distinctly claimed.

I have clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a perspective of the machine, but one crate filled with vials being mounted in place. Fig. 2 is a side view of the crate-support. Fig. 3 is a side view of one of the crates detached. Fig. 4 is a top plan view of the same. Fig. 5 is a front view of the crate-support; and Fig. 6 is a sectional view of the crate-head with the crates attached thereto, the cream-vials being removed from one of the crates.

In the different figures of the drawings the same parts are identified by like notations.

A designates the supporting-frame of the machine, and consists of two substantial side pieces 1, having feet or supports 2 and vertical standards 3 4 projected from each end of the frame. These side pieces are bound together by cross-bars 5 at each end, a sleeve being fitted on the cross-bars between the frames, as shown, or there may be double nuts used for the purpose. In the upper ends of the standards 3 4 are formed bearings $5^{\times}$, in which are mounted the journals or shafts 6, to which are connected the upper ends of the rods which sustain the crate-heads, as hereinafter will be more fully specified.

B designates the crate-heads. These consist of a substantial base-piece 7, having mounted thereon head-piece 8, the edges of the base-piece projecting beyond the faces of the head-piece to form shelves or supports for the ends of the crate-frames, as seen at 9, the parts 7 and 8 when united forming an inverted-T-shaped body. These parts are firmly united by means of two headed bolts 10, projected through them, and nuts on the ends of the bolts, and in addition to these bolts 10 the suspension-rods 11 12 are projected through the parts, as seen at 13, and have nuts 14 15 to clamp them together. At the upper end of each suspension-rod is a journal-box 16, fitted on a stirrup, as shown, and arranged on the shafts 6 to swing freely. The boxes 16 may be of hard wood, if preferred, instead of metal.

In the faces of each crate-head is formed a mortise, over which is secured a plate 17, having an aperture 18 to take the head of the fastening-rod of the crate, and leading from the aperture is a slot 19, in which the neck of the fastening-rod engages to hold the head of the rod behind the plate and the crate in position.

C designates the crates for holding the vials during the testing operation. These are composed of a front plate 20 and intermediate plate 21 and an end plate 22. The plates 20 and 21 are provided with apertures 23 24, which register, and are designed to receive and hold the vials, and the end plate 22 is solid, or not perforated, and against it the bottoms of the vials abut. These several plates are held in their relative positions by corner-rods 25, properly secured therein to hold the parts firmly in position. Through the center of the plates is projected a holding or clamping rod 26, the head 27 of which is adapted to pass through the aperture 18 in the plates on the crate block or head and slide down behind the plates, with the neck of the rod in the slot 19. The outer end of the rod 26 is threaded, and has fitted thereto a nut 28, preferably formed with a handle, and on the rod next to the nut is a clamping-plate 29, which has a slot 30 extending from its center to the edge and slips down on the rod. This clamping-plate is adjustable on the rod by means of the nut, and when the vials are in place is clamped tightly against the corks of the vials to hold them in, and, as will be seen, also serves to clamp the crate firmly on the crate-heads, substantially as seen in Fig. 1 of the drawings.

In the middle of the side pieces of the

frame, in suitable bearings, is mounted a double-crank shaft D, having on a projecting end a balance-wheel 31, and on the other end a fast belt-pulley 32 and a loose pulley 33, the former of which is connected by a belt or band to the power. (Not shown.) On the under face of each of the base-pieces 7 is firmly secured a bearing 34, in which is arranged a bearing-pin 35, to the projecting end of which is journaled one end of the respective connecting-rods 36, the other ends being journaled to the wrists of the crank-shaft, as seen at 37. The arrangement of the mechanism connecting the suspended crate-heads to the crank-shaft is such as to move the crates from and toward each other, and thus tends to dispense with "dead-points" to a very great extent, since by having the crates suspended so as to practically balance each other the movement of the one set serves to relieve the other from the strain consequent on the throw of a single crate.

The operation of the machine may be stated as follows: The filled vials are arranged in the crates, and the crates lifted in position on the crate-heads, and then the clamping-plate arranged in position on the fastening-rod, when by turning the nut on that the clamping-plate is moved against the corked ends of the vials and the crate at the same time clamped on the crate-head. The power is then applied and the vibrations of the crates agitate the contents of the vials.

The crates are readily removed by simply loosening the clamping-nuts and then lifting them from their seats.

What I claim is—

1. The combination, with the frame formed with vertical standards, of a shaft fixed in the said standards, a T-crate head fixed on suspension-rods journaled at their upper ends to the shaft in the standards, vial-crates secured on both sides of the T-shaped crate-head, and means for swinging the crate-head, substantially as described.

2. In a cream-testing churn, the combination of suspended reciprocating T-shaped crate-heads provided with plates on their sides having T-slots in them, vial-crates adapted to receive the vials, and fastening-rods arranged with their heads in the T-slots of the plates on the crate-heads and projected through the frame of the crates, clamping-plates on the fastening-rods to hold the vials in the crates, and clamping-nuts on the fastening-rods to clamp the clamping-plates and crates in position, substantially as described.

3. In a cream-testing churn, the combination, with the suspended T-shaped crate-heads provided with plates on their vertical faces having T-slots therein, of the vial-crates composed of two plates having apertures to receive the vials, an end plate for the bottoms of the vials to abut against, central fastening-rods projected through the crates and having heads to engage the T-slots in the crate-heads, clamping-plates on the outer ends of the fastening-rods, and nuts to clamp the clamping-plates and crates to the crate-head, substantially as described.

4. The moving body churn herein described, consisting of a frame formed with two vertical standards at each end, crate-heads suspended from shafts mounted in said standards, crates secured on each side of said crate-heads, a double-crank shaft mounted in the middle of the frame, connecting-rods journaled on the crank-shaft and to the crate-heads, and means for rotating the crank-shaft, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

C. FUERSTE.

Attest:

HARRY C. ECKART,

FLORENZ OSIUS.