

No. 612,737.

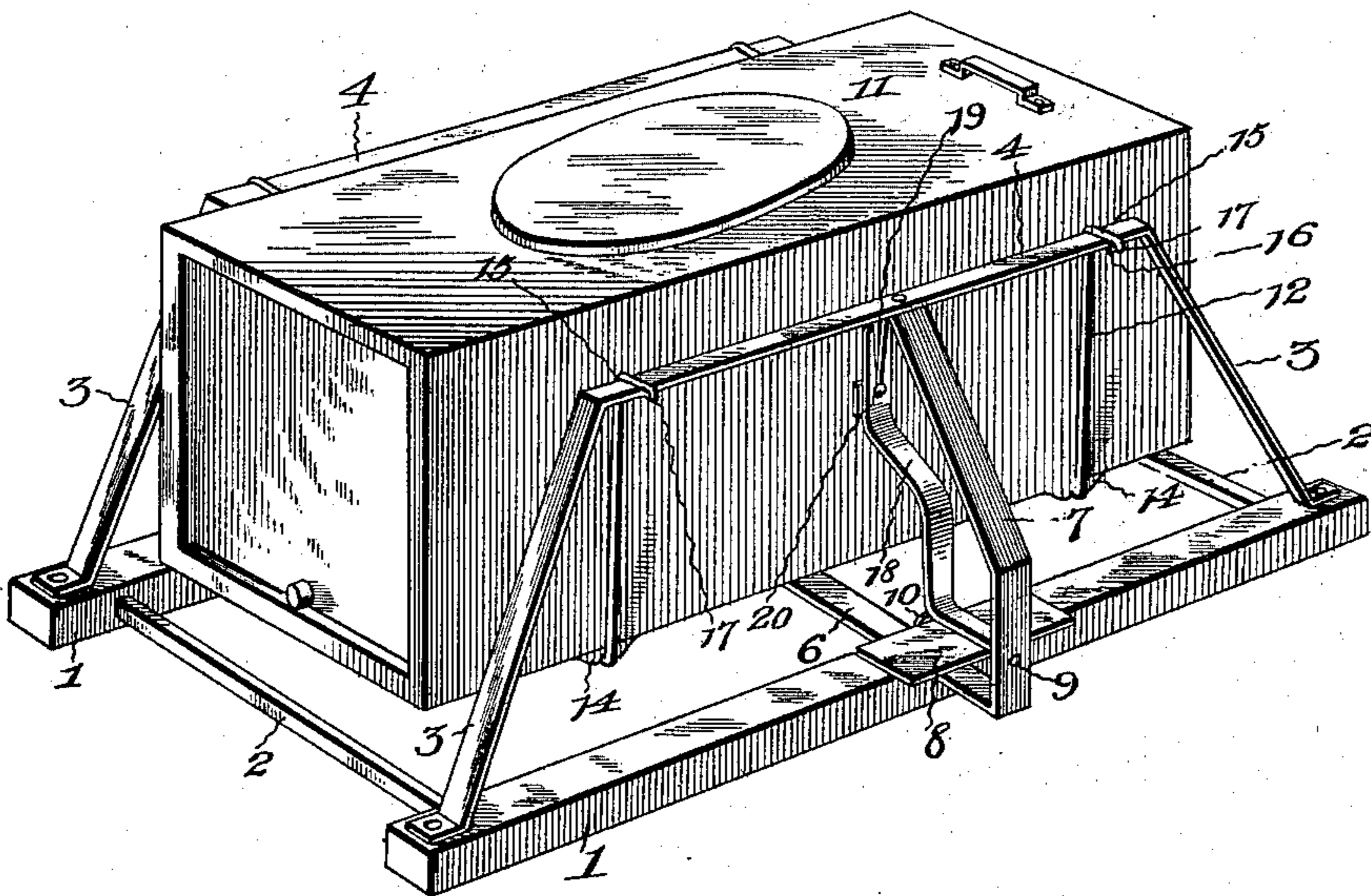
Patented Oct. 18, 1898.

W. S. KNOX.  
CHURN.

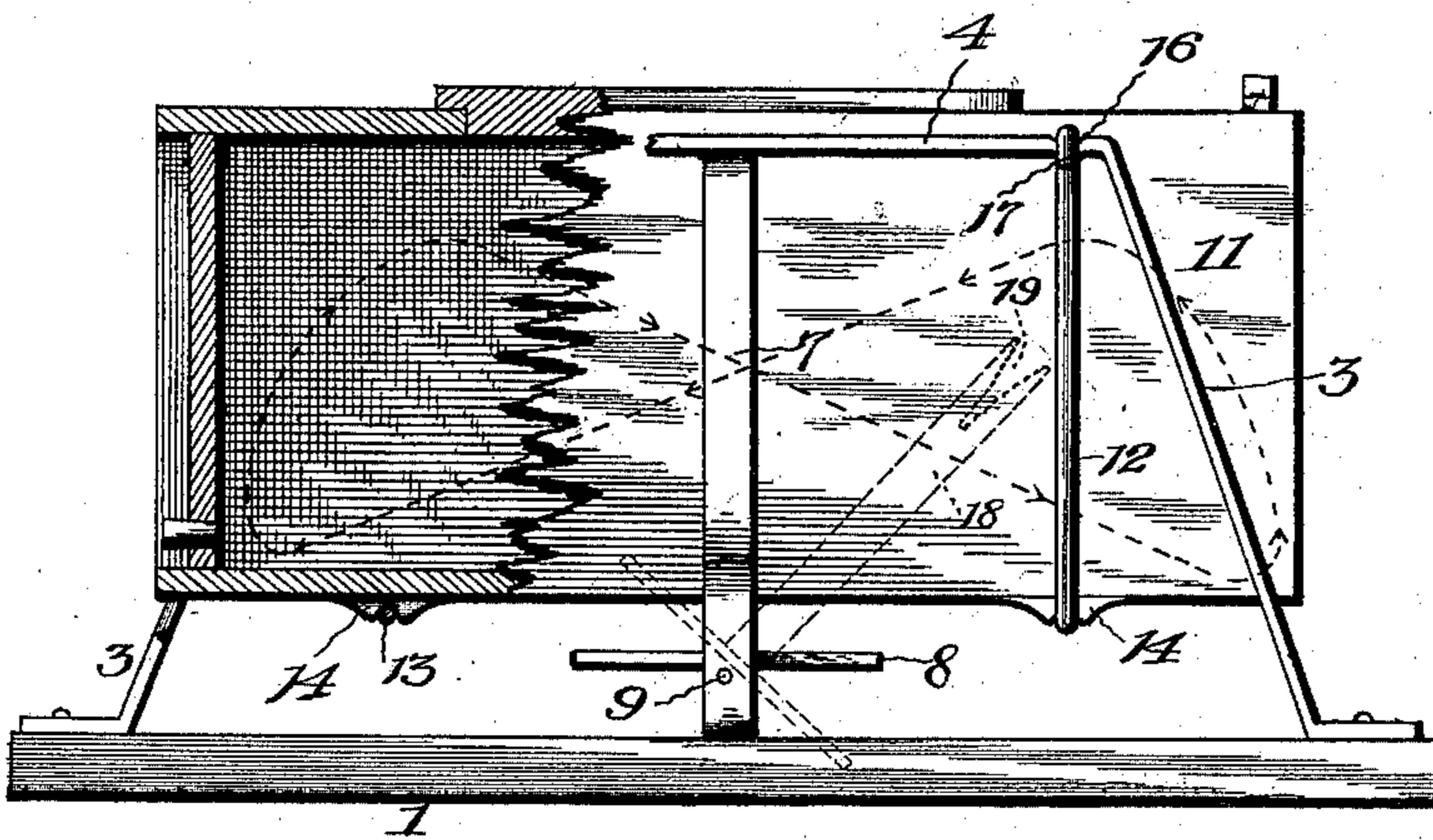
(Application filed Nov. 18, 1897.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Inventor

Witnesses

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# UNITED STATES PATENT OFFICE.

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## CHURN.

SPECIFICATION forming part of Letters Patent No. 612,737, dated October 18, 1898.

Application filed November 18, 1897. Serial No. 658,985. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SIEBERT KNOX, a citizen of the United States, residing at Conesville, in the county of Muscatine and State of Iowa, have invented a new and useful Churn, of which the following is a specification.

My invention relates to churns, and particularly to that class known as "swinging-body" or "oscillatory" churns; and the object in view is to provide a simple, inexpensive, efficient, and durable construction of supporting-frame and hangers, together with means mounted upon the supporting-frame for actuating the body, the latter being readily removable both from the supporting devices and from the actuating mechanism.

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 claims.

In the drawings, Figure 1 is a perspective view of a churn constructed in accordance with my invention, showing the churn-body or receptacle in full lines. Fig. 2 is a side view, partly in section, of the same.

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

1 designates sills which, with connecting cross-bars 2, form a base for the churn-body or receptacle supporting frame, which consists of side frames 3, of inverted-U shape, terminally attached to the sills contiguous to their extremities and having horizontal bearing portions 4 and inclined brace portions, preferably constructed of metallic straps or bars. The centers of the horizontal bearing portions 4 of the arched or inverted-U-shaped frames are supported by means of a U-shaped brace having a central transverse horizontal portion 6 secured to the sills and provided beyond the outer sides thereof with upturned inwardly-inclined brace-arms 7, secured at their upper ends to the centers of the bearing portions 4 of the side frames. Supported by the horizontal transverse portion of the U-shaped brace, contiguous to one of its terminal

brace-arms 7 and beyond the vertical plane of the outer side of the contiguous sill, is a treadle 8, extended in opposite directions parallel with said sill from its central fulcrum-pin 9, which is mounted in bearings on said brace. In the construction illustrated the fulcrum-pin of the treadle is mounted in aligned bearings formed, respectively, in the contiguous brace-arm 7 and an upright bracket or ear 10 on the horizontal portion of the brace 6 7.

The churn-body or receptacle 11, which is preferably of elongated construction, is suspended between the side frames by means of U-shaped hangers 12, having transverse horizontal spindle portions 13, mounted in open-sided bearings 14 on the bottom of the churn-body or receptacle, and having their upright arms provided with terminal outwardly-extending trunnions 15, fitted in open-topped bearing-seats 16, formed in the horizontal bearing portions 4 of the side frames. The extremities of these trunnions are preferably downturned to form retaining-fingers 17 to prevent inward displacement of the trunnions when the hangers are exposed to the weight of a supported churn-body or receptacle.

It will be seen that the churn-body is removably mounted upon the hangers and that the latter are removably journaled at their extremities in the open-topped seats of the side frames, and in order to provide a detachable connection between the operating-treadle 8 and the churn-body I employ an operating-arm 18, rising from the treadle and provided with a terminal longitudinal open-ended slot 19, which engages a lateral pin 20 on the side of the churn-body.

The treadle may be operated to swing the churn-body by alternate pressure upon the oppositely-extending portions of the former, such pressure being applied either by one or both feet of the operator, and the oscillatory movement of the churn-body causes the contents to travel in a path resembling a figure 8, as indicated by the arrows and dotted lines in Fig. 2, this agitation serving to accomplish the desired separation of the butter from the milk, and after the completion of the churn-

ing operation a few short oscillations of the body—namely, through a path of two or three inches—will serve to collect the separated butter at the center of the churn, after which  
 5 the liquid may be readily drawn off to enable the butter to be worked.

A particular advantage of the above-described construction resides in the fact that the side frames, each of which is braced  
 10 against longitudinal displacement by its terminal downwardly and outwardly inclined braces 5, is also braced at its center against lateral displacement by means of the upwardly-extending and converged brace-arms  
 15 7, which rise from points at the sides of the planes of the outer surfaces of the sills, thus leaving the space inclosed between the side frames free of obstruction, whereby the churn-body or receptacle may be made of a width  
 20 approximately equal to the interval between the side frames. The downwardly-convergent construction of the side brace-arms 7 provides for the arrangement of the treadle and operating-arm outside of the space be-  
 25 tween the side frames and also within convenient reach of the operator, whereby it is accessible without interfering with the swinging movement of the receptacle or body. The construction of the parts is such that the op-  
 30 erating-arm and treadle may be disconnected from the churn-body by swinging the latter to a point sufficient to withdraw the pin 20 from the slot in the operating-arm, whereby the treadle and operating-arm are allowed to  
 35 drop to the inoperative position indicated in dotted lines in Fig. 2. This disconnection of the operating-arm may be accomplished when it is desired to allow the churn-body to remain stationary or preparatory to the re-  
 40 moval of the receptacle from the supporting-frame.

The fulcrum of the treadle 8, being arranged in the vertical transverse plane of the brace 7 and terminally projecting in both di-  
 45 rections from said plane, is accessible at either end, while the upper portion of the brace forms a guard to prevent the clothing of the operator from being caught by the slotted extremity of the arm 18 or the pin  
 50 with which said slotted end engages. Furthermore, by engaging the slotted extremity of the arm 18 of the treadle with a pin projecting laterally from the body portion or re-  
 55 ceptacle of the churn I am enabled to use hangers 12, which are detachably mounted at their extremities in open-topped seats in the bearing portions or bars 4 of the side arms, and also to detachably mount the churn-re-  
 60 ceptacle by means of open seats 14 upon the central spindle portions of the hangers without the risk of the accidental displacement of said receptacle during the operation of the mechanism. Furthermore, the engagement of the slotted extremity of the operating-arm  
 65 18 with a pin on the churn-body provides not

only for the dismounting of said body, but also of the hangers 12, without disarranging the foot-treadle.

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

Having described my invention, what I claim is—

1. In a churn, the combination of a support-  
 75 ing-frame having a base, inverted-U-shaped side frames supported by the base, and having central bearing portions provided with open-topped seats, a transverse U-shaped  
 80 brace extending beyond the side edges of the base and provided with upturned brace-arms terminally attached to the centers of said bearing portions, U-shaped hangers having  
 85 terminal trunnions mounted in said open-topped seats, an oscillatory churn-body or receptacle removably seated upon the inter-  
 90 mediate spindle portions of said hangers between the planes of the side frames, and an oscillatory treadle mounted upon said trans-  
 95 verse brace outside of the contiguous side edge of the base, and provided with an upwardly-extending operating-arm having a terminal open-ended slot detachably engaging a lateral pin on the churn-body or recep-  
 95 tacle, substantially as specified.

2. A churn having parallel sills terminally connected by cross-bars, inverted-U-shaped side frames supported, respectively, by the sills, and having central horizontal bearing  
 100 portions depressed contiguous to their extremities to form open-topped seats, U-shaped hangers arranged between the side frames and having terminal trunnions removably  
 105 mounted in said seats, the extremities of the trunnions being downturned to engage the outer edges of the bearing portions of the side frames, a transverse U-shaped brace hav-  
 110 ing a central horizontal portion connecting the sills and extending beyond the outer sides thereof, and also having upturned extremities forming brace-arms which are terminally  
 115 attached to the centers of said bearing portions of the side frames, a churn-body or receptacle provided on its bottom with open-sided bearings fitted upon the horizontal  
 120 spindle portions of the hangers, and a treadle intermediately mounted in the plane of said transverse brace and contiguous to one of the upturned terminal arms thereof, beyond  
 125 the vertical plane of the outer surface of the contiguous sill, and provided with an upright operating-arm having a terminal open-ended slot detachably engaged with a lateral pin on the churn-body or receptacle, substantially  
 125 as specified.

3. The combination with a supporting-frame, including parallel side bars having open-topped seats, of U-shaped hangers hav-  
 130 ing terminal spindles removably mounted in

said seats in the side bars, a churn-body or  
receptacle provided on its bottom with open  
seats to receive the lower transverse spindle  
portions of the hangers, and also having a  
5 laterally-projecting pin, and an oscillatory  
treadle mounted upon said frame and having  
a terminally-slotted arm detachably engaged  
with said pin, substantially as specified.

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

WILLIAM SIEBERT KNOX.

Witnesses:

GENE HEATH,  
JOHN STORM.