

(No Model.)

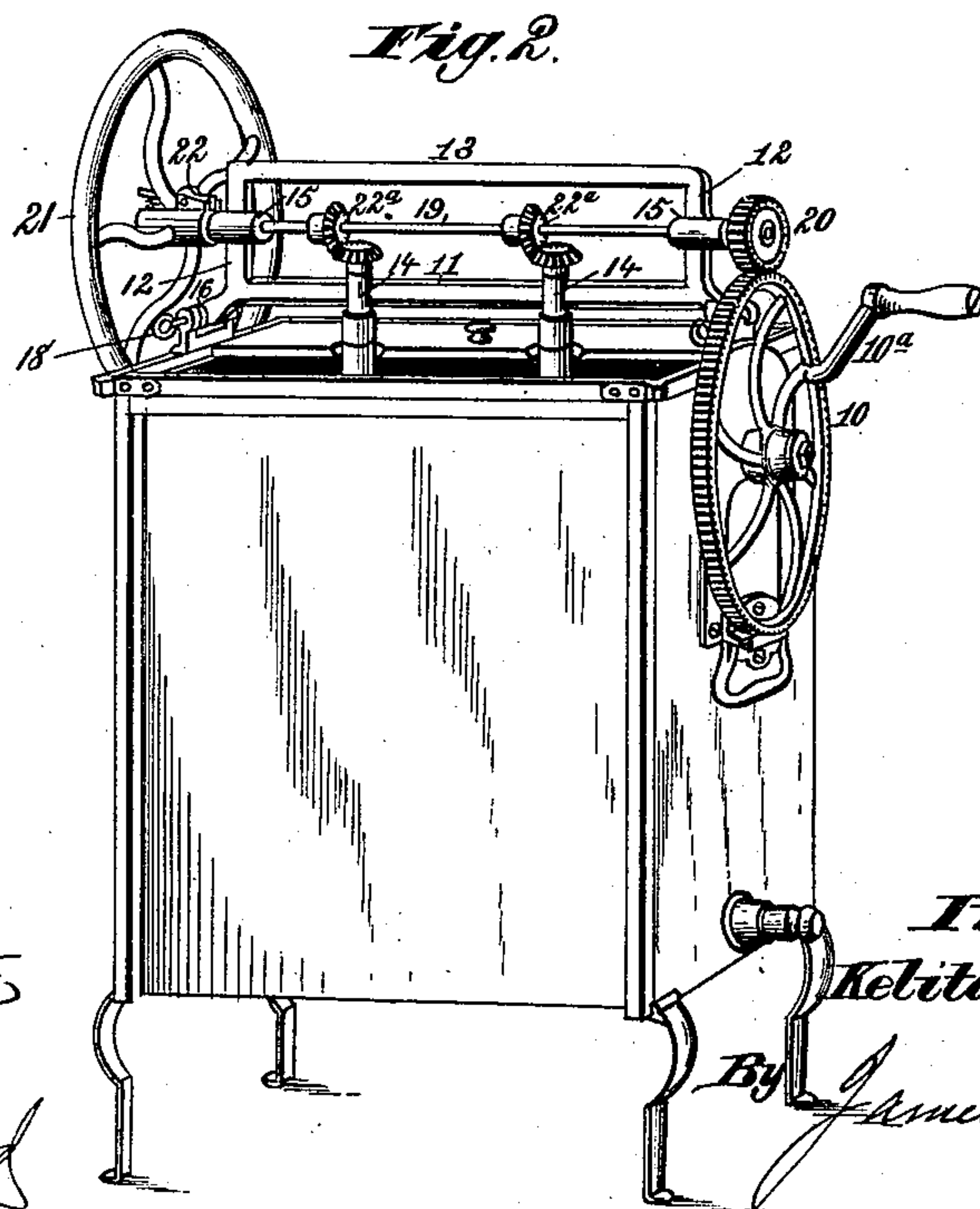
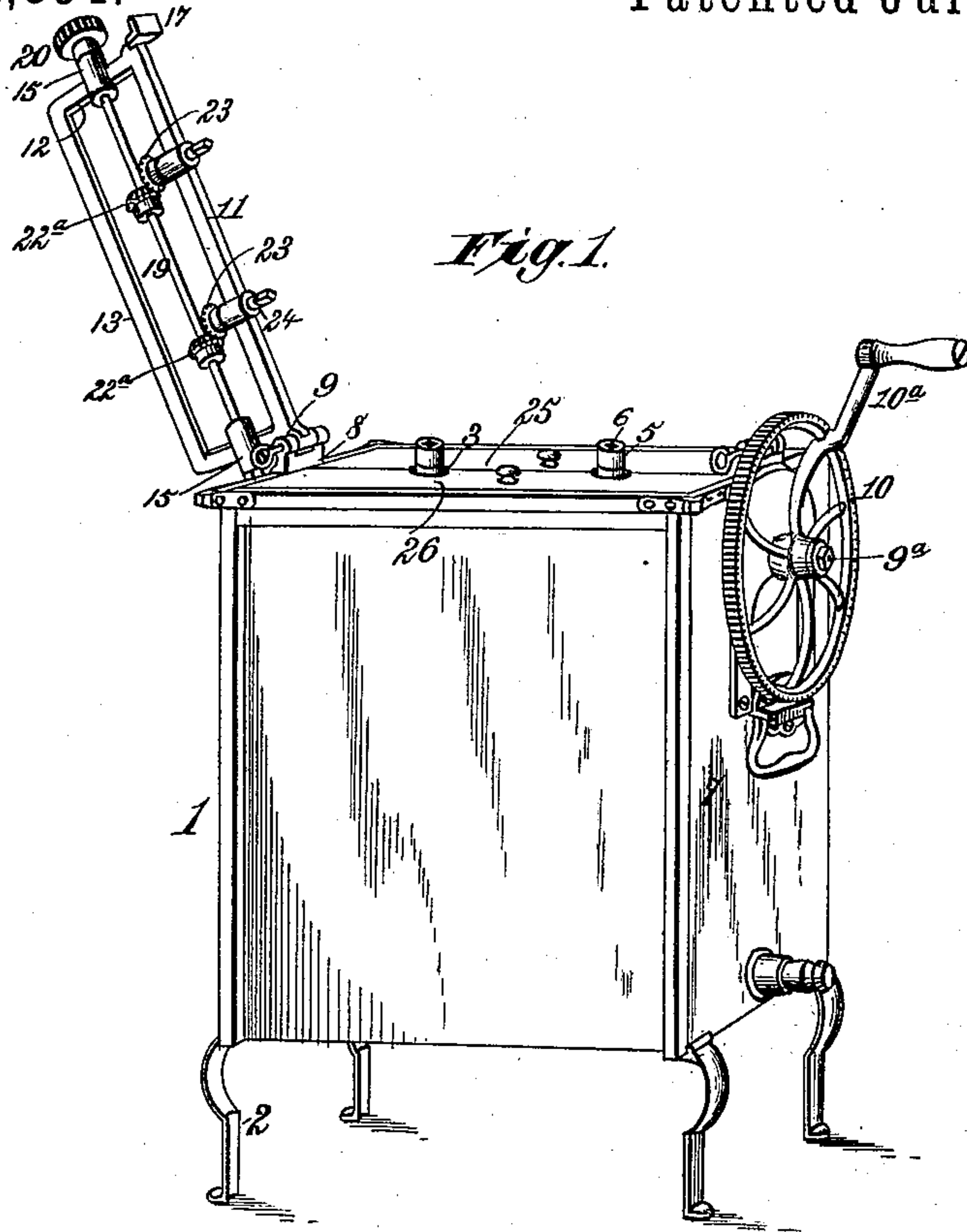
K. A. RODGERS.

2 Sheets—Sheet 1.

CHURN.

No. 322,854.

Patented July 21, 1885.



Witnesses.

Robert G. Wright.

J. A. Rodgers.

Inventor.

Kelita A. Rodgers.

By James L. Norris.

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(No Model.)

2 Sheets—Sheet 2.

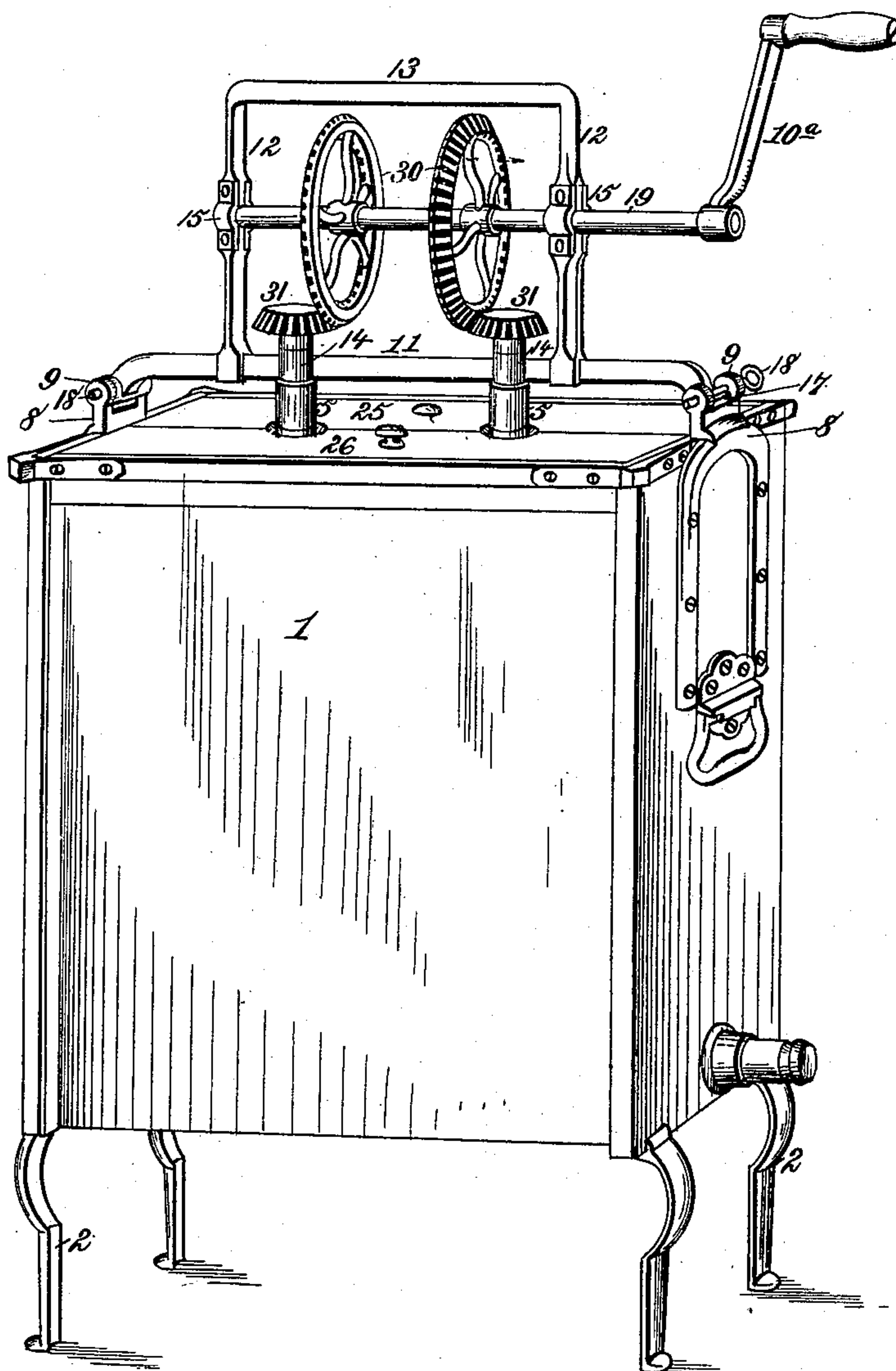
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Fig. 3.



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UNITED STATES PATENT OFFICE.

KELITA A. RODGERS, OF CORNING, OHIO.

CHURN.

SPECIFICATION forming part of Letters Patent No. 322,854, dated July 21, 1885.

Application filed March 19, 1885. (No model.)

To all whom it may concern:

Be it known that I, KELITA A. RODGERS, a citizen of the United States, residing at Corning, Perry county, Ohio, have invented new and useful Improvements in Churns, of which the following is a specification.

This invention relates to that class of churns possessing vertically-rotating dashers, which are stepped in the bottom of the churn-barrel and driven by a gearing mechanism surmounting the churn-barrel.

The object of the invention is to provide a simple and effective dasher-driving mechanism, which is mounted entirely on the body of the churn and is supported by devices that have no permanent connection with said churn-body, but are capable of being readily brought into such position as will allow the gearing to be disconnected from the dashers, for permitting the latter to be removed and the butter to be readily manipulated and withdrawn.

Another object of the invention is to provide a strong and simple frame for supporting the gearing directly concerned in driving the dashers, said frame being both pivotally and detachably mounted upon the churn-body, so that it can be swung to one side of the churn-body, to allow the dashers to be freed from the gearing, or else be removed altogether for convenience and safety in storage and transportation.

Still another object of the invention is to combine with my special dasher-driving mechanism and means for supporting the same a divided or sectional churn-body cover, which can be either partly or entirely removed without disturbing the dashers to obtain access to the interior of the churn for inspecting the contents thereof or for other purposes.

I have above briefly outlined the purposes of my invention, and will hereinafter, in the detailed description and claims, fully set forth the special construction and arrangement of devices which constitute my invention.

In the accompanying drawings, Figure 1 is a perspective view exhibiting the churn-body and interior dasher-rods and the swinging frame carrying the gearing adapted to be disconnected from said dashers when turned to one side of the churn-body. Fig. 2 represents

the churn, with all the parts of the driving mechanism in an operative and connected position and one of the sections of the cover removed to obtain access to the interior of the churn. Fig. 3 is a perspective view of a modification of my invention.

The reference-numeral 1 designates the body or barrel of a churn, which is of any desired or approved form, and is generally supported upon legs 2, secured to the under side thereof. The dashers revolving in the churn-chamber are also of any approved form; but preferably I use dasher-blades which are perforated and set in such relative positions on their shafts or stems 3 that they will serve to throw the cream into a very violent agitation, the currents formed by the blades of the one dasher being intercepted and broken by the blades of the other dasher, thus developing all the butter that may be in the cream and completing the churning in a comparatively short time. The dasher-stems 3 are stepped at their lower ends in metal sockets secured to the floor of the churn-chamber, and at their upper ends these dashers carry metallic ferrules or collars 5, that are provided with vertical angular sockets 6. These sockets serve to connect the dashers with the driving mechanism, which is mounted on the churn-body itself and has no connection either with the cover or a supplementary frame surrounding the churn-body. On each of the opposite end walls, 7, of the churn-body are secured vertical brackets 8. The upper ends terminate in perforated clips or ears 9, between which the frame carrying the driving mechanism is fitted and retained.

The brackets 8 may be skeleton cast-metal frames, having each a solid upper part which projects over the top edge of the end wall, to which the bracket is secured by screws or other fastening devices. One of the brackets, as seen in Figs. 1 and 2, is formed or provided with a horizontal fixed spindle, 9^a, on which is mounted and revolves a large gear-wheel, 10, to which the prime motive force is applied by a hand-crank, 10^a, or other medium.

The frame which supports the mechanism directly concerned in rotating the dashers comprises the horizontal or straight bottom bar, 11, from the ends of which rises an arched bar

consisting of the vertical portions 12 and the straight horizontal top portion, 13. The bottom bar, 11, is formed with two vertical tubular bearings, 14, and the vertical end portions, 12, are each formed with a horizontal tubular bearing, 15. The bottom bar, 11, is formed at one end with a horizontal eye or perforated head, 16, and at the other end it has a flattened flange, 17, or, if desired, a second eye may be formed thereon. The eye and flange on the bar 11 fit between the clips or ears 9 on the brackets 8, and are secured thereto by transverse pins 18. The latter are passed through the openings in the eye 16 and its corresponding clip, and also the flange 17, and through the clip that secures said flange. In this manner it is evident that the frame of the driving mechanism is connected with the body of the churn by simple and convenient devices, which effectually prevent any play or movement of the frame or casual displacement thereof during the churning operation. The members 11 and 12, formed with the bearings 14 and 15, constitute, with the top bar, 13, an integral frame, which has the means for attaching it to the churn-body, also formed thereon, as has already been indicated. A longitudinal shaft, 19, passing through the bearings 15, carries at one end a pinion, 20, which meshes into the large gear or master wheel 10, and at the other end of said shaft is mounted a large fly or balance wheel, 21. The latter has no permanent connection with the shaft 19, but is detachably secured thereto by means of a locking-dog or spring-catch, 22, which is fitted in a seat in the hub of the balance-wheel, and is provided with a pin that is projected into a cavity in the shaft 19. Other means for detachably securing the balance-wheel to the shaft may, however, be resorted to in place of the devices above set forth.

Two bevel gear-wheels, 22^a, are secured upon the shaft 19 at proper distances apart to engage with corresponding gear-wheels, 23, on the upper ends of short spindles 24, which are journaled in the bearings 14. These spindles have square or angular lower ends which are received by the socketed ferrules on the dasher-shafts, so as to unite said spindles with the dashers, and cause them to revolve together. The spindles 24 are fitted in place by passing them through the bearings 14, and then keying or flattening the gear-wheels to their upper ends.

It is evident that by applying motive force to the master-wheel 10 the dashers are rotated in opposite directions through the intervention of the mechanism above referred to, and that such movement of the dashers is particularly rendered easy and uniform by virtue of the presence of the large balance-wheel.

As during the operation of churning, it is frequently desirable to obtain access to the cream-chamber, I provide the sectional or divided covers 25 and 26, which rest upon ledges

on the vertical walls of the churn-body, and have semicircular cuts or recesses at their meeting edges, which form openings for the passage of the dasher-shafts. Either one or both of these covers can be easily removed without disturbing the dashers or shifting the driving mechanism, and I thus make simple and effectual provision for allowing the contents of the churn to be readily examined. Upon the completion of the churning operation it is necessary to remove the dashers for allowing the butter to be withdrawn and the churn to be cleaned. This can be done without disconnecting anything from the churn except the balance-wheel, and in Fig. 1 I have shown how the frame which carries the driving mechanism can be thrown to one side of the churn-body and the dashers liberated from the driving-spindles. Such movement of the frame is rendered possible by unlocking the balance-wheel from the shaft 19, when it can be removed. Thereupon, by withdrawing the pin from above the flanged end of the bar 11, the entire frame is free to swing on the pintle 18, passed through the eye 16 and ears 9, these parts then constituting a hinge-joint, as is clearly seen in Fig. 1.

In Fig. 3 I have illustrated a churn in which the frame for supporting the driving-gearing is mounted upon the churn-body in the same manner as has already been described. The driving mechanism, however, is somewhat different, since the motive force is applied directly to the shaft 19 by means of a hand-crank on said shaft. Two large bevel gear-wheels, 30, on said shaft are placed back to back at a proper distance apart, and these wheels engage with smaller bevel gear-wheels 31 on the vertical spindles detachably connected with the dasher-shafts.

It is apparent that in both forms of churns shown by me the entire mechanism is arranged upon the churn-body, and that no supports or bearings are required upon the covers or inside the churn, and I thus materially simplify the construction of the parts and am permitted to uncover the entire churn-chamber for facilitating the removal of the butter and the cleansing after use. The provision of a strong and durable frame detachably and pivotally mounted upon the churn-body and carrying the driving mechanism also insures greater efficiency and ease of operation than is possible with churns having the driving-gearing mounted upon a movable frame not connected with the churn-body, or in which the driving mechanism and dashers are carried by a hinged cover of the churn-body.

What I claim is—

1. The combination, with a churn-body having brackets provided with perforated clips or ears, of a gearing-frame consisting of a lower horizontal bar, 11, pivoted at one end to one of said clips or ears and having journal-bearings 14 14, and an upper arched bar, 12 13,

having journal-bearings 15 15 on its vertical portions, the vertical spindles 24 24, journaled in the bearings 14 14 and adapted to be detachably connected with the dasher-shaft, the
5 horizontal driving-shaft 19, journaled in the bearings 15 15, and gears for connecting said driving-shaft and spindles, substantially as described.

10 2. The combination, with a churn-body having brackets provided with perforated clips or ears, of a pivoted gearing-frame consisting of a lower horizontal bar, 11, having journal-bearings 14 14, and an upper arched bar, 12 13, having journal-bearings 15 15, the ver-

tical spindles 24 24, journaled in the bearings 15 14 14 and adapted to be detachably connected with the dasher-shafts, the horizontal driving-shaft 19, journaled in the bearings 15 15, gears for connecting said driving-shaft and spindles, and a detachable balance-wheel on 20 one end of the driving-shaft, substantially as described.

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

KELITA A. RODGERS.

Witnesses:

CHAS. W. ROOF,
J. L. THARP.