I. C. VANKIRK.

CHURN.

APPLICATION FILED JULY 11, 1907.

899,085.

Patented Sept. 22, 1908.

3 SHEETS—SHEET 1.

Fig-1-

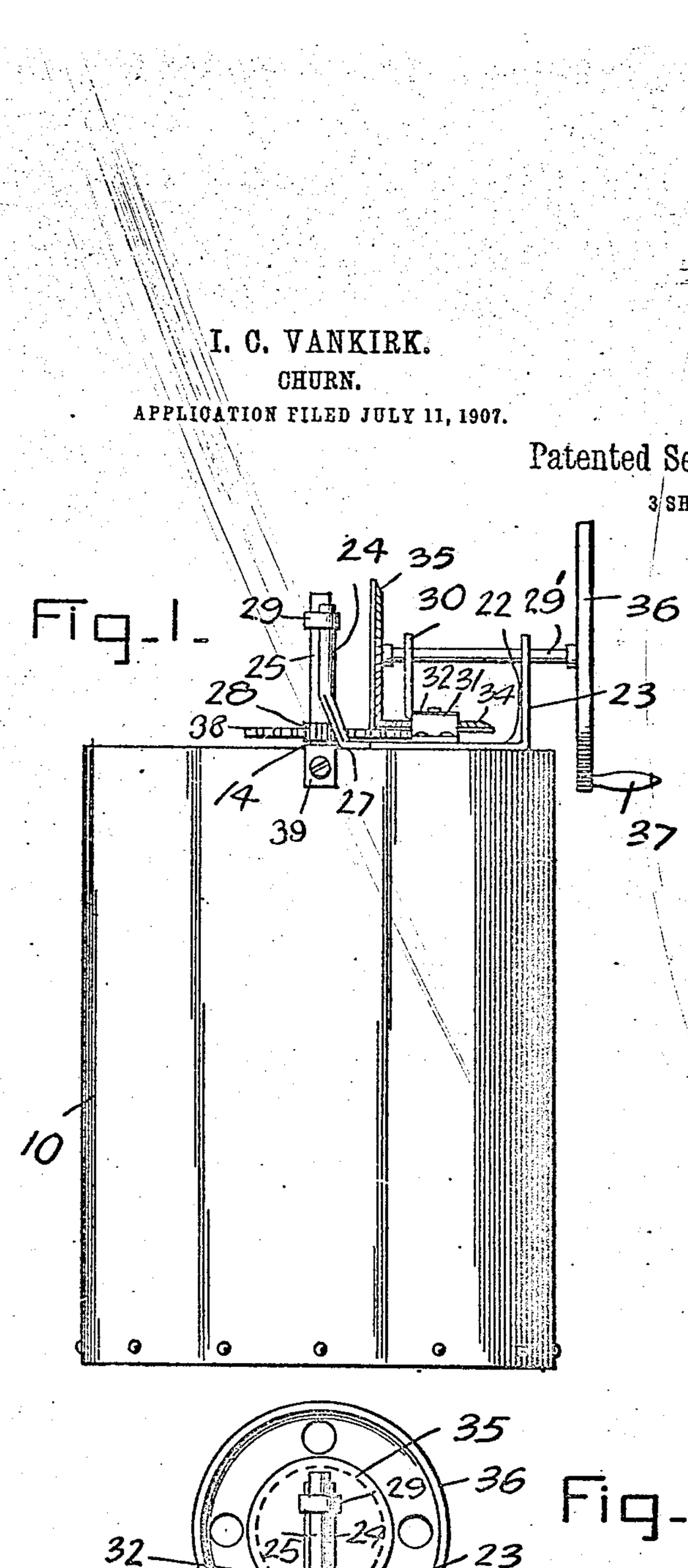
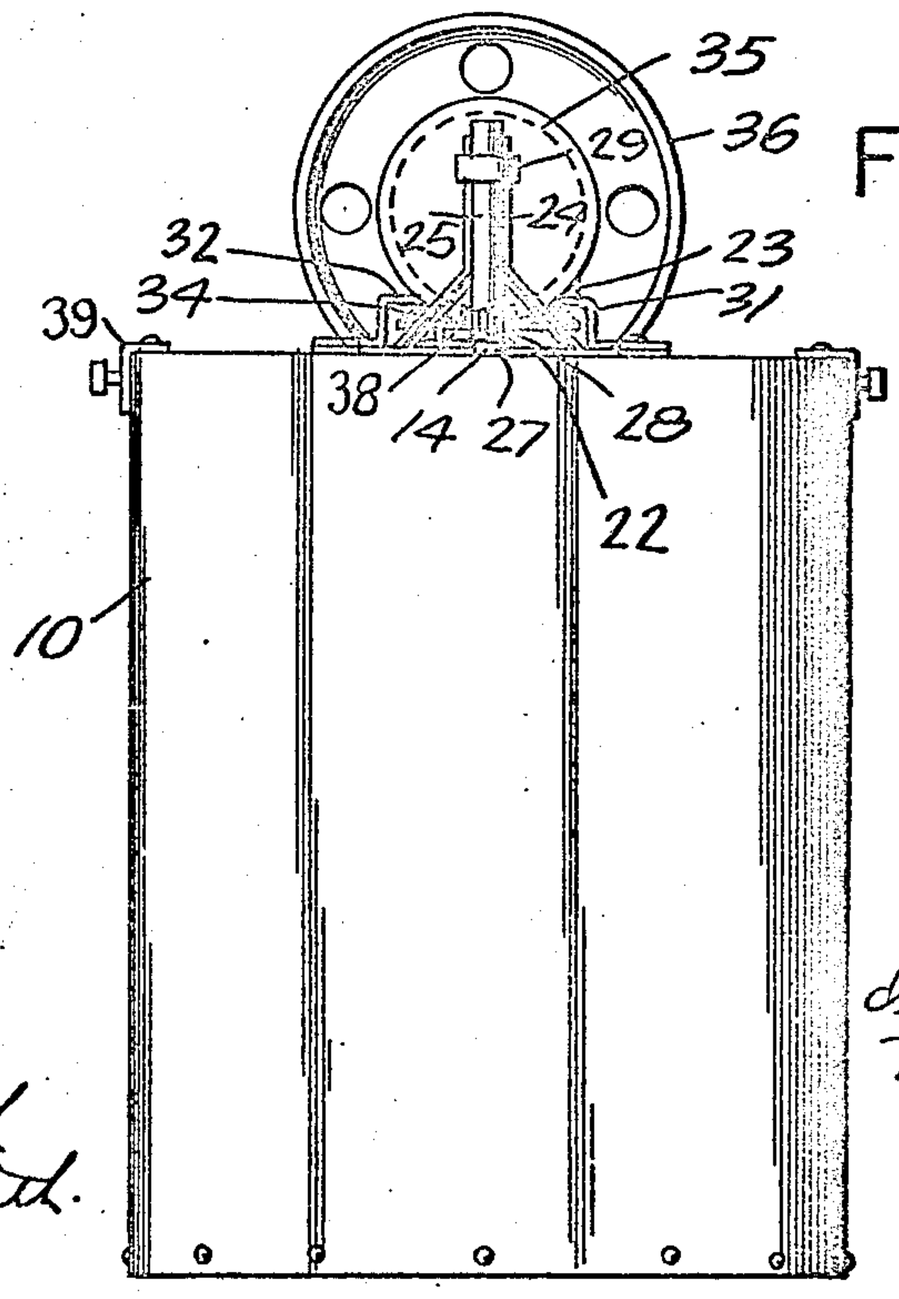


Fig-2-



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3 SHEETS—SHEET 2.

Fig-3-

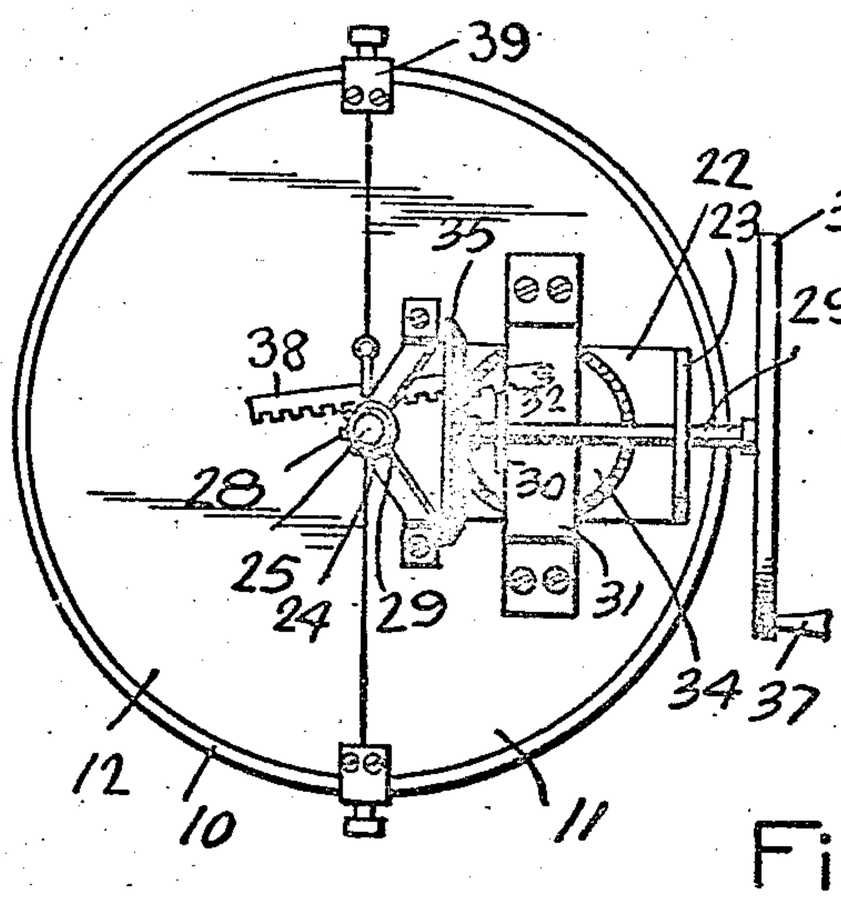


Fig-5-

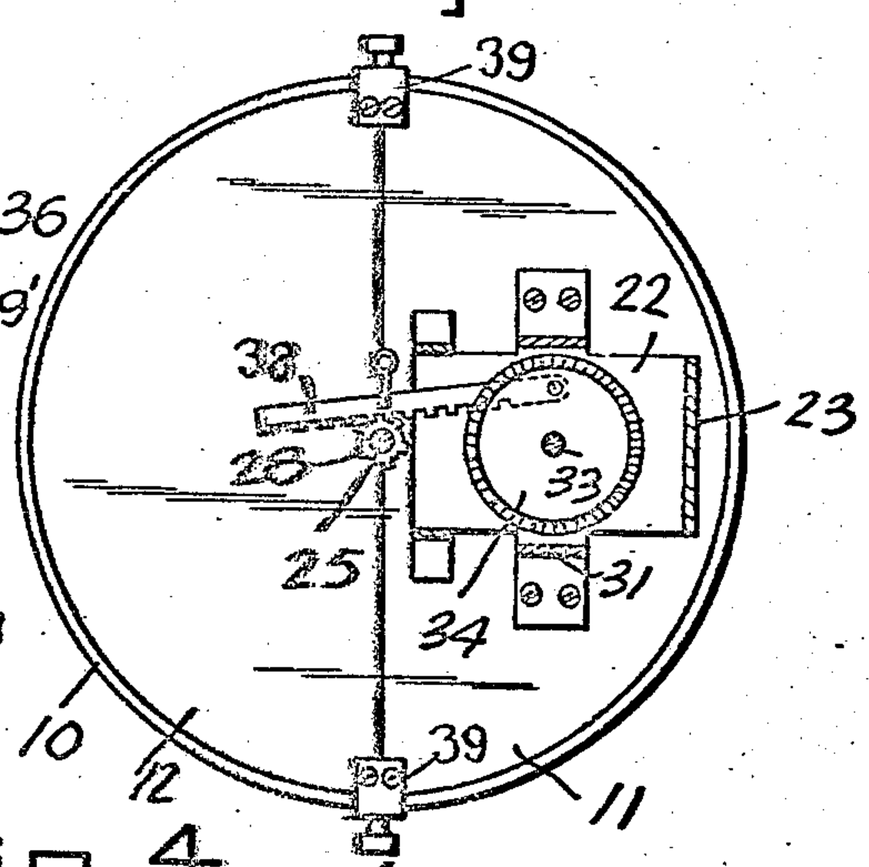
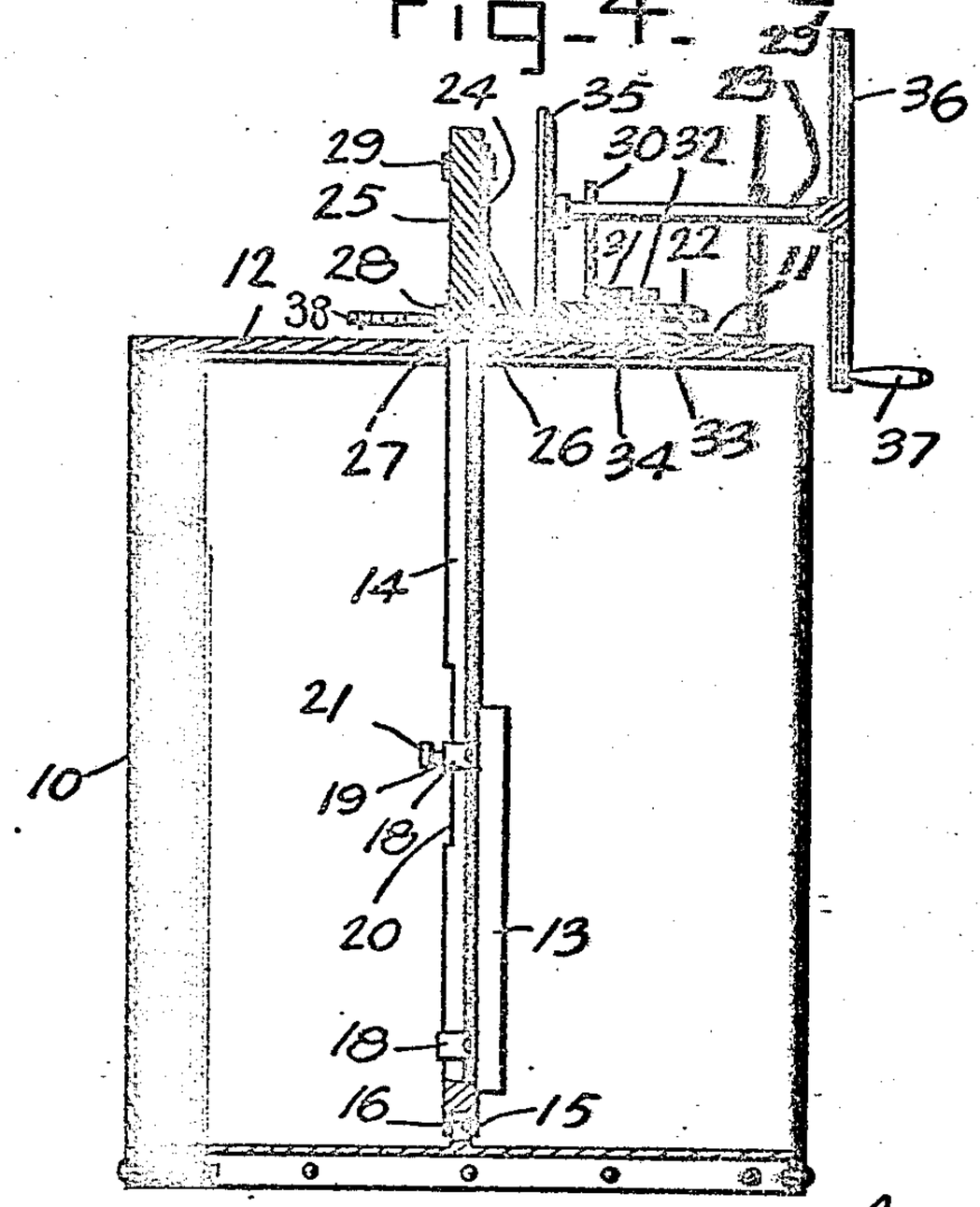


Fig-4-



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3 SHEETS—SHEET 3.

Fig. 6.

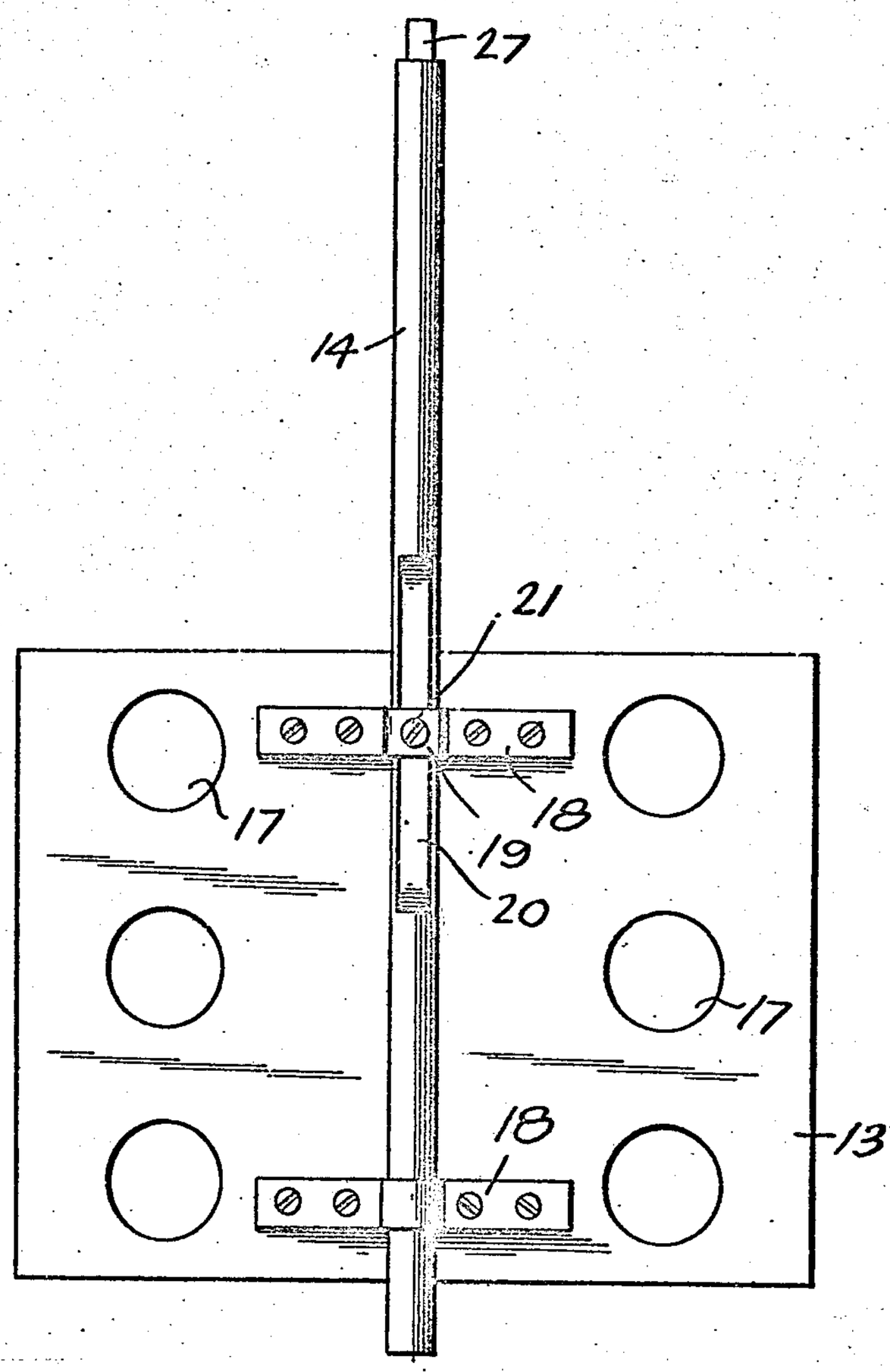
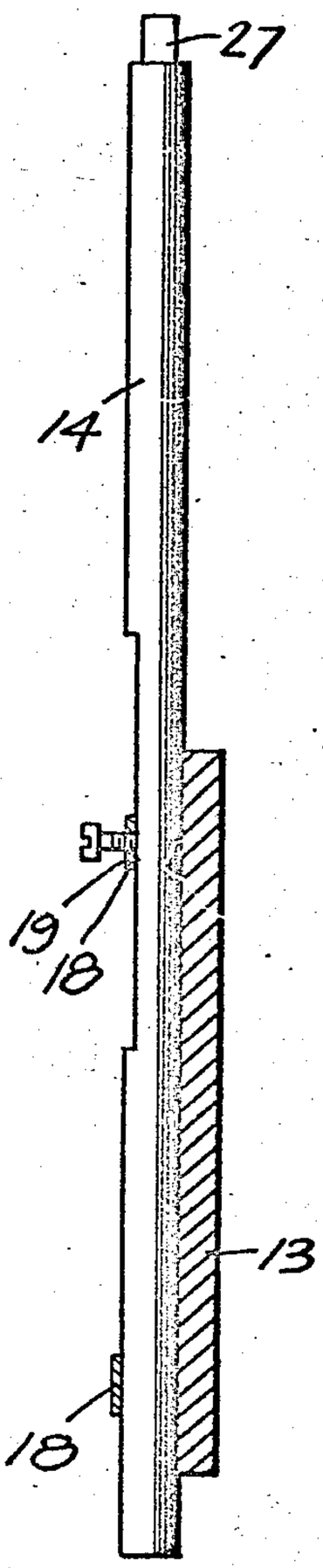


Fig. 7.



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UNITED STATES PATENT OFFICE.

IRA C. VANKIRK, OF HUFFMAN, NEBRASKA.

CHURN.

No. 899,085. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed July 11, 1907. Serial No. 383,270.

To all whom it may concern:

Be it known that I, IRA C. VANKIRK, a citizen of the United States, residing at Huffman, in the county of Brown, State of Nebraska, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to churns and has for its object to provide a simple and effective churn of that class in which the dasher is given an oscillatory movement.

I have found that when a churn employing a dasher given a rapid oscillatory movement is employed, butter will be produced much quicker than is the case when the dasher is merely rotated. I therefore have in view the provision of a novel dasher and operating mechanism therefor of such nature that the dasher will be rotated in one direction one cycle of its movement and then quickly rotated to a corresponding degree in the opposite direction.

In the accompanying drawing, Figure 1 is a side elevation of a churn constructed in accordance with my invention, Fig. 2 is a front elevation thereof, Fig. 3 is a top plan view, Fig. 4 is a vertical sectional view, taken in the plane with the drive shaft, Fig. 5 is a detail horizontal sectional view taken in a plane adjacent the upper end of the dasher shaft, Fig. 6 is a detail view in elevation of the dasher removed from the churn, and, Fig. 7 is a detail vertical sectional view taken through the dasher in a line with the shaft and showing the means whereby the dasher is held in adjusted position upon the shaft.

As shown in the drawings, the churn comprises a body 10 which is open at its upper end but is provided with a top including a section 11 and a section 12, the section 11 being designed for the support of the dasher operating mechanism as will be presently described.

The dasher of the churn is indicated by the numeral 13 and its shaft by the numeral 14, the said shaft being provided in its lower end with a socket 15 for the reception of a stud 16 which projects upwardly and axially from the bottom of the body 10. The dasher proper is in the form of a plate which is provided with a plurality of openings 17, the plate being secured to the shaft 14 by means of clips 18 one of which partially embraces the shaft but is flattened as at 19 to bear against a flattened portion 20 formed on the shaft. It will be understood that by flattening the clip in the manner stated to engage the flattened portion 20 of the shaft, the dasher will be held securely against rotation with respect to its shaft. A set screw 21 is engaged to the flattened portion 19 of the clip and bears against the said flattened portion 20 it being understood that by this construction, the dasher may be adjusted vertically upon the shaft.

Secured upon the section 11 of the top of the churn by means of an attaching plate portion 22 is a bearing bracket 23. At its inner end, this bracket includes an upstanding semi-cylindrical sleeve portion 24 which is presented with its concave face inwardly. The said face of the sleeve portion is designed for the reception of a shaft section 25 which is provided in its lower end with squared socket 26 for the reception of the upper squared end 27 of the dasher shaft 14. This shaft section 25 is of gear formation at its lower or socketed end as indicated at 28 and in order that the shaft may be held within the concavity of the sleeve portion 24, a sleeve 29 is removably engaged over the sleeve portion 24 and the upper end portion of the shaft section 25.

The bearing bracket above mentioned forms a bearing for one end of an operating shaft 29′ and the other end of the shaft is journaled with an upstanding bearing 30 formed integral with a bracket 31 which is secured upon the upper face of the top section 11 and which has its intermediate portion spaced with respect to the said top and extended above and transversely of the attaching plate portion 22 of the bracket 23. Journaled upon a stub shaft 33 which is formed upon the intermediate portion 32 of the bracket 31 is a beveled gear 34 it being understood that the said gear rotates between the attachment plate portion 22 and the intermediate portion 32 of the bracket 31. Fixed upon the operating shaft 29′ for rotation therewith is a beveled gear 35 which is in mesh with the gear 34 and also fixed upon the shaft 29′ but outwardly of the brackets 23 is a fly wheel 36 having attached thereto a crank handle 37 it being understood that when the said operating shaft is rotated, the gear 34 will also be rotated.

As heretofore stated, the shaft section 25

is provided with a portion 28 of gear formation and pivotally connected with the gear 34 is a rack bar 38 which is in mesh with the said gear portion 28 and which, when the gear 34 is rotated is reciprocated thereby serving to rotate the dasher shaft first in one direction and then in the other. This rotation of the dasher shaft will impart to the dasher a corresponding movement and the milk within the dasher will be thoroughly whipped. This treatment of the milk will result in the production of butter much more quickly than if a rotary motion was imparted to the dasher.

Secured upon the sides of the body 10 of the churn are clamps 39 which serve to secure the top section in place.

What is claimed is—

1. A churn comprising a body, a top removably supported at the top of the body, a dasher shaft journaled verticaily in the body, a dasher carried by the shaft and attached vertically thereon, a shaft section removably connected upon the upper end of the shaft including a portion of gear formation, a beveled gear mounted for rotation upon said top, a drive shaft, a beveled gear carried by said shaft and meshing with the first-mentioned gear, and a rack bar pivotally connected with the first-mentioned beveled gear and meshing with that portion of the shaft section which is of gear formation.

2. A churn comprising a body and a top removably supported upon the body, a dasher shaft journaled vertically in the body, a shaft section removably connected to the upper end of the dasher shaft and including a portion of gear formation, and a rack bar movable in a reciprocatory manner and in mesh with said gear to rotate said dasher shaft.

3. A churn comprising a body, a dasher shaft mounted for rotation in the body, a top through which the upper end of the dasher shaft projects, a rack bar mounted for reciprocatory movement upon said top, a shaft section removably fixed to the upper end of the dasher shaft and including a portion of gear formation with which the rack bar is in mesh, and a guide upon the top extending to one side and above said rack bar for preventing sidewise movement and vertical movement of the same.

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

IRA C. VANKIRK.

Witnesses:
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