

F. KRONENBERGER.

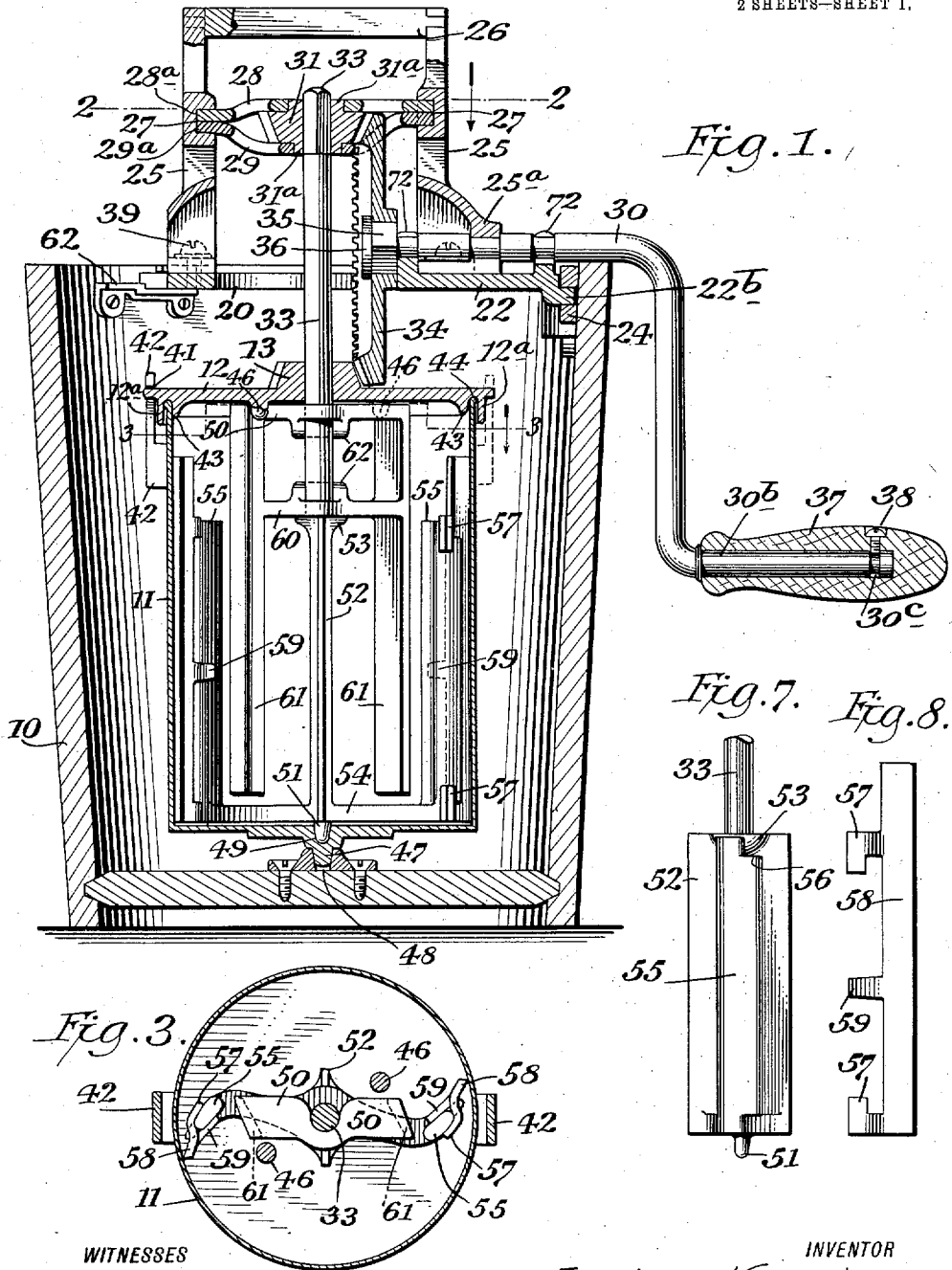
CHURN.

APPLICATION FILED MAR. 9, 1911.

1,018,505.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.



WITNESSES

A.R. Appleman
J.J. Mothershead

INVENTOR

Ferdinand Kronenberger

BY

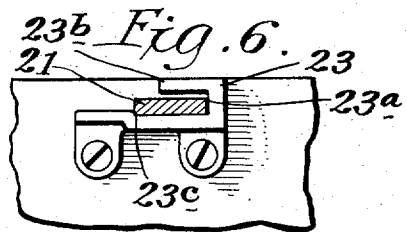
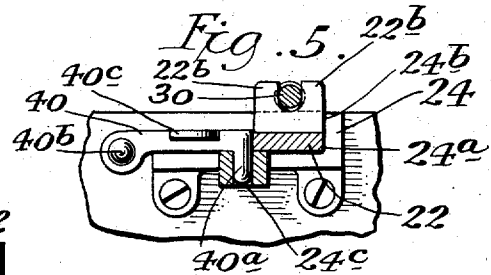
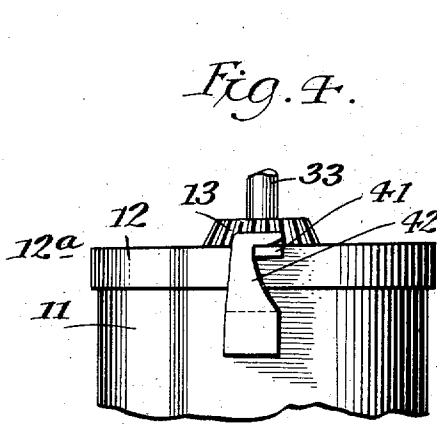
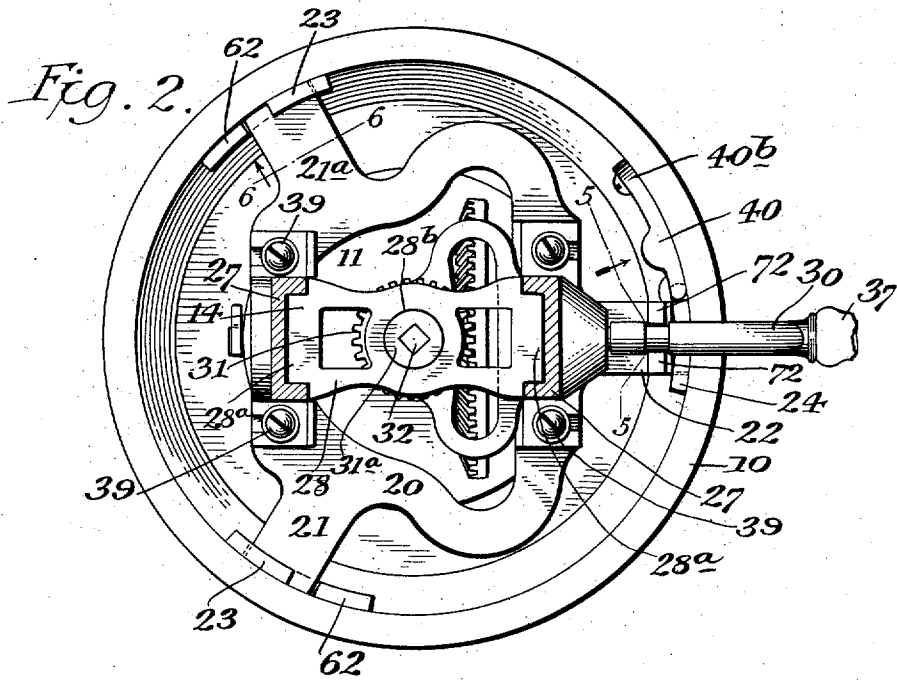
Griffins Burkhart
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2 SHEETS—SHEET 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

FERDINAND KRONENBERGER, OF CORONA, NEW YORK, ASSIGNOR TO THE ALADDIN MANUFACTURING COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CHURN.

1,018,505.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed March 9, 1911. Serial No. 613,424.

To all whom it may concern:

Be it known that I, FERDINAND KRONENBERGER, a citizen of the United States, residing in Corona, county of Queens, and State of New York, have invented a certain new and useful Churn, of which the following is a specification.

This invention is a churn, the same being adapted, also, for the purpose of freezing cream, water ices, etc.

A salient feature of the invention is a novel driving mechanism for rotating a double dasher and the substance containing vessel in opposite directions simultaneously.

A further feature of the invention consists of means for locking the cover in position upon the vessel or can, so that the cover may be rotated directly by the driving gear, and said cover will in turn impart rotative movement to the vessel and to one member of the double dasher. The cover is constructed to retain the material within the vessel, so as to preclude loss and waste of the material during the agitation thereof.

Another feature is the double dasher having one member adapted to rotate within the other, the outer member of said dasher carrying a scraper which is supported loosely thereon, said scraper being positioned to sweep into frictional contact with the inner surface of the vessel or can, for the purpose of preventing the accumulation of cream, etc. on said inner surface of the vessel. This loosely supported member or scraper operates to retain itself in position without being pivoted or secured to the dasher.

A further feature is the frame for supporting the driving mechanism, and means on the outer vessel or tub for coöperative engagement with the supporting frame, whereby the frame may be locked to the outer vessel and held in a stationary position thereon. The frame is thus adapted to be detached from the outer vessel in order to permit access to the inner vessel or can, said frame being easily replaced upon the tub and locked in position.

The frame is of novel construction, comprising a base member, a plurality of upright members, a plurality of transverse members supported by said upright members, said transverse members being provided with openings adapted to receive the

journals of a driven pinion, and a handle member attached to the upright members, all the members of the frame being readily separable so that they may be packed within a small space for shipment and storage.

Features of the invention, other than those enumerated, and the advantages thereof, will be apparent from the following detailed description.

In the accompanying drawings, I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a vertical section illustrating the various parts assembled in operative position. Fig. 2 is a horizontal section, partly in plan, on the line 2—2 of Fig. 1. Fig. 3 is a horizontal section on the line 3—3 of Fig. 1, illustrating the position of the dashers and scrapers with respect to the can or inner vessel. Fig. 4 is a detail view of a portion of the inner vessel or can, showing the means for locking the cover to the can. Fig. 5 is a detail view, partly in section on the line 5—5 of Fig. 2, illustrating the means for locking the driving mechanism to the outer vessel. Fig. 6 is a section taken on the line 6—6 of Fig. 2, illustrating a bracket within which is positioned one of the arms of the frame for supporting driving mechanism. Fig. 7 is a detail view of the main dasher looking at one edge thereof. Fig. 8 is a detail side elevation of the detachable scraper.

The churn embodies in construction an outer vessel or tub, 10, an inner vessel or can, 11, a dasher, positioned within the can, a driving mechanism, for said dasher and can, and a supporting frame, for the driving mechanism.

The supporting frame is novel in construction, comprising a base member constructed in the form of a plate, 20, having a central opening for the driving mechanism, and having, also, a plurality of arms, 21, 21^a, and 22. These arms are fitted in brackets, 23, 24, on the outer vessel or tub, in order that the driving mechanism and the frame may be readily and quickly attached to, or detached from, outer vessel, 10. Arms 21, 21^a, are preferably substantially flat rectangular members cast integral with plate, 20.

Arm, 22, is, also, integral with the plate, 20, and is similar to arms, 21, 21^a, except that this arm is provided with two upstanding journal bearings, 72, for the reception of a crank shaft 30. The outer end of this arm, 22, is provided with a tongue, 22^b, which is adapted to be fitted into bracket, 24, on the outer vessel, 10, whereby the arm is adapted to be locked in position against sidewise or vertical displacement therein.

To the base plate 20, are detachably fastened two upright members or posts, 25, of suitable form and dimensions, one of said posts being provided with a journal bearing, 25^a, for crank shaft, 30. The upper end of each post, 25, is slotted to receive a handle, 26, which is held rigidly in position when the posts are fastened to the base plate, 20, said handle being easily removed when either of the posts, 25, is detached from plate 20. Each post, 25, is provided, also, with a slot, 27, about centrally the length thereof, said slots in the respective posts being positioned opposite to each other, and fitting within said slots, 27, are the tongues, 28^a, 29^a, of plates 28, 29, respectively. The plates 28, 29, are positioned substantially parallel to each other, and each plate is provided with an aperture serving the purpose of a bearing for pinion or gear, 31. This pinion 31 is provided with journals, 31^a, which turn in the bearings of plates, 28, 29, the pinion being held against inoperative position within the frame by plates, 28, 29, between which plates the pinion is mounted for free rotation. Pinion 31 is provided, also, with a square or polygonal aperture, 32, for the reception of a square or polygonal end of the dasher shaft, 33. Cooperating with pinion 31 is a master gear, 34, said gear being mounted on a squared end, 35, of the crank shaft, 30, and retained in position on said shaft by a nut or collar, 36, whereby said master gear is rigidly attached to the crank shaft. This collar, 36, is preferably formed integral with the shaft. Shaft, 30, is positioned to rotate in bearings, 72, and 25^a, on the members of the frame, said shaft being provided with a crank arm, 30^b, having a handle, 37, for convenient operation of the shaft. It is preferred to make this handle, 27, removable, and for this purpose the outer end of the crank arm, 30^b, is grooved for the purpose of receiving the end of a retaining screw, 38, in the handle 37.

All the parts of the driving mechanism and its frame are assembled as shown, and they are retained in their operative positions by the bolts or screws 39, which fasten the posts 25 to base plate 20. In the drawings (Fig. 2) I have illustrated four of these bolts, 39, but it is obvious that a greater or less number of bolts may be employed. By removing the bolts, 39, all the parts of the driving mechanism and its supporting frame

can be detached, and, said parts can be readily packed into a small space for shipping or storage purposes.

The brackets, 23, are preferably fastened by screws upon the outer vessel or tub, 10. Each bracket is provided with a slot, 23^a, and in the slots of two of these brackets are seated the arms, 21, 21^a, of the base member forming an element of the supporting frame. These arms are retained from upward displacement within the brackets by the hooks, 23^b, and from longitudinal or sidewise displacement during the operation of the device by shoulders, 23^c, (see Fig. 6), said hook and the shoulder being integral with each bracket. In Fig. 5, however, there is shown of the base member. Bracket, 24, is provided with the slot 24^a, and a hook piece, 24^b, similar to the slot, 23^a, and hook, 23^b, of brackets, 23, but the shoulder, 23^c, is omitted; in lieu of said shoulder an opening, 24^c, is provided for the reception of a shoulder, 40^a, of latch, 40. The latch is pivoted at 40^b, and it is provided with a suitable finger piece, 40^c. When the arm, 22, is placed within the slot, 24^a, and the latch is thrown over against arm, 22, so that its shoulder is positioned within aperture, 24^c, the other arms, 21, 21^a, will be seated within the other brackets, 23, as shown in Figs. 2 and 6, and the whole driving mechanism and its frame will be securely fastened to the tub, 10, and the entire device can be carried by the handle, 26.

The inner vessel or can, 11, is provided with a cover, 12, upon the upper surface of the cover, centrally thereof, is a gear, 13, which meshes with master gear, 34, said gear being, preferably, cast integral with the cover. An aperture, is provided centrally in this gear, 13, and cover, 12, through which aperture passes the dasher shaft, 33. Lugs, 41, are formed on the periphery of the cover, said lugs being adapted to engage with upstanding hook shaped locking arms, 42, on the side of the can or inner vessel, for the purpose of revolving the inner vessel, or can by the operation of the master gear when the latter revolves the top, 12, through the medium of the gear, 13.

The cover, 12, is provided with a depending outer flange, 12^a, and with an inner flange, 43, the latter being concentric with said outer flange. Between these flanges, 12^a, and, 43, is provided an annular recess, 44, into which recess is fitted the upper edge of the can, 11, (see Fig. 1), so as to form a splash joint between the cover and the inner vessel, which joint precludes the escape of the liquid or semiliquid contents from the vessel when agitated by the dasher and by the rotary motion of the vessel. Also, the under surface of the cover, 12, is carried downwardly toward the inner flange, 43, whereby the material is deflected from the

top or cover downwardly toward the sides of the vessel and away from the splash joint or from the upper edge of the vessel. The under surface of the cover is provided, also, with studs, 46, which coöperate with the head of one dasher member, 50, for the purpose of imparting rotary motion to said dasher member when the cover is rotated. A pintle, 47, is provided centrally of the bottom of the can, so as to depend below the external surface thereof, which pintle is adapted to turn in a step bearing, 48, in the bottom of the outer vessel, 10. The inner vessel or can is provided, also, with a step-bearing, 49, within which bearing is adapted to rotate a pintle, 51, provided on the lower end of dasher shaft, 33. The lower portion of shaft, 33, is flattened at 52 to form a central portion or member of the larger dasher, and at the upper end of this flattened member, 52, is provided a shoulder, 53, which shoulder serves as a pivotal support for the smaller dasher member. At the lower end of this flattened member, 52, is a transverse arm or member, 54, and joined to each end of this transverse member or arm, 54, is a vertical post, 55, the same being preferably flat. A portion of the top and bottom face of post, 55, is cut away at 56, (Fig. 7) for the reception of hooks, 57, (Figs. 1 and 8) the latter forming a part of a scraper, 58. This scraper, 58, is loosely positioned on the dasher post, 55, and is prevented from vertical movement by the hooks, 57, and from horizontal displacement in the direction of the operative travel of the dasher by the hooks and by a lug, 59, the shanks of said hooks, 57, bearing against one flat face of post, 55, while lug, 59, abuts against the opposite face of post, 55, as will clearly appear from Fig. 3.

The smaller dasher member comprises two transverse members, 50, 60, and two vertical members, 61, joined to the ends of the transverse members, 50, 60. Each transverse member is provided with openings, 62, through which passes the dasher shaft, 33.

The operation of the churn may be described as follows:—The various parts of the driving mechanism and its frame are adapted to be dismantled in order that the whole of the churn mechanism can be packed within the tub or outer vessel, 10. In assembling the driving mechanism, one upright or vertical post, 25, is bolted to base plate, 20; pinion, 31, is placed between transverse plates, 28, 29; the tongues of said plates are fitted in the slots, 27, of posts, 25; and the end portion of handle, 26, is fitted in its recesses within said posts, 25. Master gear, 34, is now slipped over shaft, 30, at end thereof until said gear occupies its operative position upon the square end of the shaft. The master gear and the shaft are now positioned within the frame, the shaft

being seated in the bearings provided therefor, and said shaft and gear are clamped in operative relation to pinion, 31, by placing bearing, 25^a, over shaft, 30, and bolting post, 25, to the base plate. The handle, 37, may now be adjusted and screw, 38, thereof tightened to hold said handle in position.

Prior to starting the churn into operation, the liquid material is placed within the inner vessel, and the latter vessel is positioned within tub, 10, so that the pintle, 47 will enter step-bearing, 48. Scraper, 58, is now adjusted on post, 55, of the larger dasher member, and shaft, 33, and its attached dasher are inserted within can, 11, so that the pintle of said shaft, 33, enters step-bearing, 49, of the can. The scraper 58 is used when the device is employed as a freezer for ice cream and the like, but when it is used as a churn, this scraper 58 is removed from the dasher. For this reason it is desirable to employ a scraper that can be easily detached from operative relation to the dasher. The smaller dasher is now slipped over shaft, 33, until its lower transverse member, 60, is free to rotate upon shoulder, 53, on the dasher shaft. The cover, 12, is now placed on the can so that the top edge of said can fits in the annular recess, 44, between the flanges, 12^a, and, 43. The cover is turned on the can until the lugs, 41, engage with locking arms, 42, on the side of the can, thus locking the cover to the can. The driving mechanism and its frame are now placed over the tub, 10, so that the arms of the frame rest upon the guiding portions, 62, of the brackets, 23. In the meantime the squared end of the shaft, 33, is fitted in the aperture provided in pinion, 31, and master gear, 34, is adjusted into operative engagement with pinion, 31, and gear, 13. The supporting frame is now turned in a horizontal direction until the arms thereof are seated in the open ended slots of the brackets, the turning movement of the frame being continued until the side edges of the arms abut against shoulders, 23^c. The latch, 40, is now adjusted into engagement with bracket, 24, as shown in Fig. 5, whereupon the driving mechanism and its frame are retained in operative position relative to the outer and inner vessels and the dasher mechanism. The rotation of crank shaft, 30, and master gear, 34, imparts motion to gear, 13, and the can cover 12, said master gear rotating pinion, 31, directly. The rotation of the cover imparts rotary motion to the vessel or can, 11, by the lugs, 41, engaging the locking arms, 42. The cover, also, imparts rotary motion to the smaller dasher, said motion being in the direction of rotation of the can, for the reason that the studs, 46, on the under side of cover, 12, engage with the upper transverse member, 50, and the member, 60, is

mounted to turn on shoulder bearing, 53. The larger dasher is integral with the dasher shaft, 33, and this dasher and shaft are rotated by pinion or gear, 31, in a reverse direction to that of the can, smaller dasher and cover, for the reason that the two gears, 13, and, 31, mesh with the master wheel, 34, at opposite sides thereof. The blades of the two dashers are so positioned that those of the smaller dasher sweep in close proximity to the posts, 55, and to the outer edges of the broad central member, 52, thereby forming small spaces through which the liquid material is forced and mashed. The central dasher member, 52, imparts motion to the material so that it will pass from the bottom of the can toward the top or cover, from whence it is directed by the inner flange, 43, toward the wall of the can, 11, thence downwardly to the bottom of the can to be drawn up again by the action of the central dasher member, 52, thus keeping the material in a state of agitation.

While I have shown and described the larger dasher as comprising three members, 52, 55, and the smaller dasher as having two members, 61, it is to be understood that I do not limit myself to the precise number, form or construction of these cooperating parts, for the reason that a larger number of these members will be necessary in larger machines.

The device is adapted not only as an ordinary churn, but is especially designed for making butter, and more particularly a sweet butter out of sweet or sour cream, and for manufacturing a certain kind of cream cheese.

The churn is adapted, also, for use as a freezer for cream, ices and the usual frozen desserts. It is capable of use as a fruit and vegetable masher, a dough mixer, and a mixer for medicinal compounds, such as cold cream, etc.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:—

1. In a churn, a dasher, the posts of which are cut away or recessed, a removable scraper, said scraper being provided with hooks cooperating with the cut away portions of said posts, and a lug on said scraper, said hooks and lug operating to retain the scraper in position upon the dasher post.

2. In a churn, an outer vessel, an inner vessel, brackets on said outer vessel, a driving mechanism frame provided with outwardly extending arms adapted to fit in said brackets, and a latch adjacent to one of said brackets, and cooperating with said bracket and an arm of said frame for locking the driving mechanism in operative relation to said outer and inner vessels.

3. A driving mechanism comprising a base, upright posts detachably secured to

said base, substantially parallel transverse members cooperating with said upright posts, a pinion positioned between said parallel transverse members and adapted to rotate between said members, a master gear cooperating with said pinion, a crank shaft, said master gear being detachably mounted on said crank shaft, and means for securing the upright posts to the base plate, whereby all the members of the driving mechanism are readily separable for packing or shipping the same.

4. A driving mechanism comprising a base, upright posts detachably secured to said base, two substantially parallel transverse members cooperating with said upright posts, each transverse member having a tongue at each end thereof, a groove in each upright post, the tongues at one end of both transverse members fitting into a single groove in said upright posts, a pinion rotatably mounted between said transverse members, a detachable handle supported transversely on said upright posts, a crank shaft held to the base by one of said upright posts, a master gear mounted thereon, and means for detachably securing the upright posts to the base, whereby all the members of the driving mechanism may be readily separated for the purpose of packing or shipment.

5. In a churn, a vessel, a frame adapted to be supported on said vessel, an arm extending from said frame and adapted to engage means for locking the frame to the vessel, a bracket on said vessel, said bracket being provided with an aperture, a slot and a hook, and a latch pivoted adjacent said bracket, said latch having a shoulder which cooperates with the aperture of said bracket, whereby when the arm of the frame is positioned within said bracket said frame may be securely fastened to the vessel by the cooperation of the latch and the bracket.

6. In a churn, an inner vessel, a dasher comprising two members each provided with posts, one dasher being larger than the other and comprising outer vertical blades, each positioned at an angle on said dasher, and a central vertical blade the horizontal axis of which is at an angle to the horizontal axis of the outer blades; a smaller dasher mounted to rotate upon the staff of said larger dasher, said smaller dasher having blades parallel to, and alternately cooperating with, the two sets of posts of said larger dasher member, a scraper removably positioned upon one of the posts of said larger dasher, and means for simultaneously imparting motion to one dasher in one direction and to the other dasher in an opposite direction.

7. In a churn, an outer vessel and an inner vessel, driving mechanism, outer and inner dashers, the inner dasher being mounted

to turn on the outer dasher, said inner dasher having a crosshead, a cover for the inner vessel, lugs depending from said cover and positioned in the path of the crosshead of said inner dasher whereby said dasher will rotate on said outer dasher and in unison with said cover, and means for rotating said outer dasher in an opposite direction to the inner dasher and the cover.

8. In a churn, outer and inner vessels, driving mechanism including an operating shaft, outer and inner dashers, said outer dasher being unitary with said operating shaft and embodying a central dasher blade on said shaft, a bearing on said shaft at the top of said central dasher blade, and outer blades integral with said shaft; an inner dasher mounted to rotate on the bearing of said shaft, the blades of said inner dasher cooperating alternately with the central dasher blade and with the outer blades, respectively, of the outer dasher, and means for rotating the inner and outer dashers in opposite directions.

9. In a churn, outer and inner vessels, driving mechanism including an operating shaft, outer and inner dashers, said outer dasher being unitary with said operating shaft and embodying a central dasher blade on said shaft, and outer blades positioned at an angle to the inner blades, an inner dasher mounted to rotate on said outer dasher, the

blades of said inner dasher being positioned to pass in close proximity to the central blade and to the outer blades, respectively, of the outer dasher, and means for rotating the inner and outer dashers in opposite directions, whereby the blades of said outer and inner dashers will operate to cut the mixture within the inner vessel.

10. In a driving mechanism, a crank shaft, terminating in an angular end of greater diameter than the main portion of said shaft, a collar carried by said angular end, said collar being of greater diameter than said angular end, and a master gear having an angular aperture adapted to receive the angular end of said crank shaft, whereby said gear may be removed from one end of said shaft and it is adapted to be secured in operative engagement with the other end of said shaft.

11. In a driving mechanism, a base, upright posts detachably secured to said base, a handle, and means for removably securing the handle between said posts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FERDINAND KRONENBERGER.

Witnesses:

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J. F. MOTHERSHEAD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."