

No. 857,119.

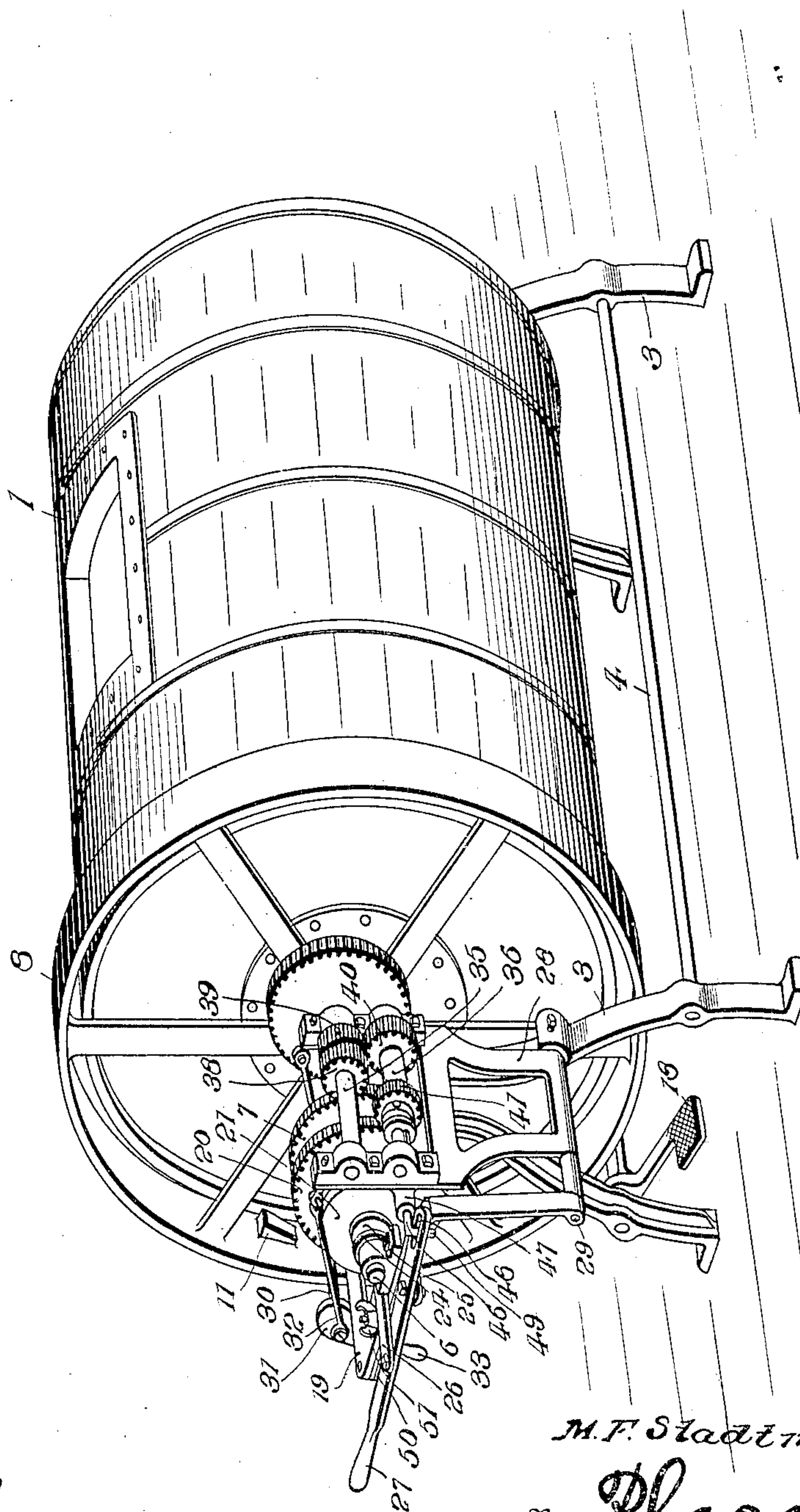
PATENTED JUNE 18, 1907.

M. F. STADTMULLER.
COMBINED CHURN AND BUTTER WORKER.

APPLICATION FILED APR. 22, 1907.

2 SHEETS—SHEET 1.

FIG. 1.



Inventor

M. F. Stadtmuller

By *R. A. Racy*

Attorneys

Witnesses

J. A. Racy
W. C. Woodson

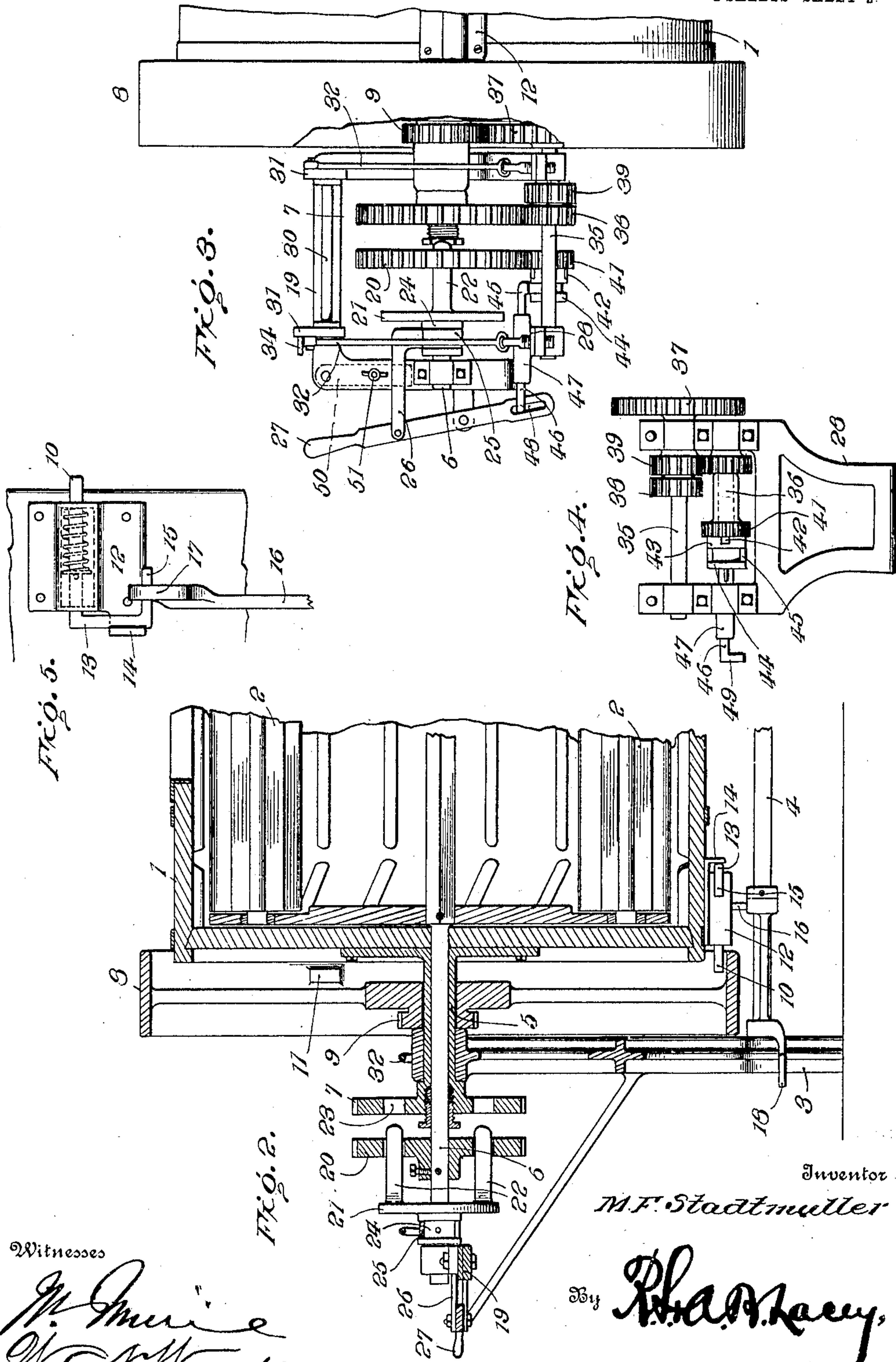
No. 857,119.

PATENTED JUNE 18, 1907.

M. F. STADTMULLER.
COMBINED CHURN AND BUTTER WORKER.

APPLICATION FILED APR. 22, 1907.

2 SHEETS—SHEET 2.



Witnesses

J. M. Irvine
W. C. Woodson

Inventor

M. F. Stadtmuller

By

R. A. Macy

Attorneys

UNITED STATES PATENT OFFICE.

MAX F. STADTMULLER, OF POMEROY, IOWA.

COMBINED CHURN AND BUTTER-WORKER.

No. 857,119.

Specification of Letters Patent.

Patented June 18, 1907.

Application filed April 22, 1907. Serial No. 369,629.

To all whom it may concern:

Be it known that I, MAX F. STADTMULLER, a citizen of the United States, residing at Pomeroy, in the county of Calhoun and State of Iowa, have invented certain new and useful Improvements in a Combined Churn and Butter-Worker, of which the following is a specification.

The present invention provides novel actuating means for the working parts of a churn embodying a rotary body and a rotary dasher whereby said parts may be rotated simultaneously in the same or different directions or the body may have movement imparted thereto independently of the dasher according to the desired result to be effected.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of a churn embodying the invention. Fig. 2 is a vertical central longitudinal section of an end portion of the churn and the actuating mechanism. Fig. 3 is a top plan view of the actuating mechanism showing the drive pulley and the proximal end portion of the churn body in horizontal section. Fig. 4 is a front view of the pivoted frame provided with the shafts and cooperating power transmitting gearing, the clutch sleeve and loose pinion being in section. Fig. 5 is a detail view of the spring actuated lock bolt for connecting the drive pulley with the churn body, showing the mounting therefor and the upper portion of the releasing arm.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The churn body 1 is of cylindrical form and is mounted to turn about a horizontal axis. The dasher 2 may be of any design and is arranged within the churn body to rotate therewith or independently thereof. The frame-work for supporting the churn

body and its actuating means comprises end standards 3 and longitudinal connecting rods or bars 4. The churn body 1 is provided at opposite ends with trunnions which are mounted in bearings provided upon the standards 3. One of the trunnions 5 is hollow and a shaft 6 of the dasher passes there-through, said hollow trunnion being provided at its outer end with a gear wheel 7 fast thereto. The dasher shaft 6 is journaled at or near opposite ends of the trunnions of the churn body, one of the trunnions being closed at its outer end to obviate the provision of a packed joint between it and the end of the dasher shaft mounted therein. A drive pulley 8 is loosely mounted upon the hollow trunnion 5 and its face may be either plain or provided with spur cogs according as it is to be driven by means of a belt or sprocket chain.

A spur gear 9 is fast to or formed with the drive pulley 8 so as to rotate therewith. Interlocking means are provided between the driven pulley 8 and churn body 1 to cause both to rotate in unison when churning, but when working the butter, the drive pulley is disconnected from the churn body and indirectly connected therewith through the actuating gearing hereinafter more particularly referred to.

For direct connection of the drive pulley with the churn body, the latter is provided with a spring actuated lock bolt 10 and the drive pulley is supplied with a stop 11 which is engaged by the lock bolt. The lock bolt is mounted in a keeper 12 and one end as 13 is bent about at a right angle to engage with a stop 14 formed by bending a projecting portion of the keeper 12, thereby holding the lock bolt projected and in engagement with the stop 11 of the drive pulley. The outer end of the bent portion 13 is rebent to form a trip 15 which is adapted to be engaged by a releasing device when it is required to disengage the bent portion 13 of the lock bolt from the stop 11, whereby the spring cooperating with the lock bolt withdraws the projecting end from the path of the stop 11. The releasing device is mounted upon the frame-work and comprises a pivoted arm 16 terminating in a tapered end 17 which is adapted to be projected into the path of the trip 15 and effect release thereof from the stop 14, said tapered end engaging with the keeper 12 and holding the churn body stationary and in a given position. A foot piece 18 is con-

5 nected with the pivoted arm 16 and is adapted to be pressed upon when it is required to throw the tapered end of the pivoted arm 16 into the path of the trip 15. The pivoted
 10 arm 16 is loosely mounted upon an end portion of one of the longitudinal rods 4 and is held from longitudinal movement thereon. When the lock bolt 10 is projected across the path of the stop 11 so as to engage therewith,
 15 the drive pulley and churn body rotate together as when churning. The trip 15 stands away from the keeper 12 a short distance when the bent end 13 is in engagement with the stop 14, hence when pressing upon the foot piece 18 to project the tapered end 17 of the pivoted arm 16 into the path of the trip 15, said tapered end 17 engages under the trip 15 and moves the same outward, thereby disengaging the bent end 13 of the lock
 20 bolt from the stop 14 when the spring of the lock bolt will throw the same and withdraw its projecting end from engagement with the stop 11 and permit the drive pulley to continue its rotation while the churn body is
 25 held stationary by the pivoted arm 16 engaging the keeper 12.

A bracket 19 projects from the frame-work or standard at the end of the machine provided with the drive pulley and in conjunction with the proximal standard 3, supports the actuating mechanism, said bracket being pressed and connected to the frame-work of the churn in any convenient and substantial way. The dasher shaft 6 is journaled in a
 30 bearing applied to the bracket 19 and is provided with a gear wheel 20 fast thereto and with a plate or disk 21 loose thereon and movable toward and from the gear wheel and having pins 22 projected horizontally from
 40 its inner face and passed through openings of the gear wheel 20 and adapted to enter openings 23 formed in the gear wheel 7 so as to cause the dasher and churn body to rotate together which is essential churning. The
 45 plate or disk 21 is provided upon its outer side with a collar 24 in which is formed an annular groove receiving strap 25 connected by link 26 to a shipper lever 27 fulcrumed intermediate of its ends to an extension of the
 50 bracket 19. The strap 25 has an end portion curved to fit about the curved portion of the collar 24 so as to make positive engagement therewith, whereby upon operating the shipper lever 27, the plate or disk 21 is moved
 55 upon the dasher 6 to cause the pins 22 to enter or clear the openings 23 of the gear wheel 7 according as the dasher and churn body are to be connected or released from clutched engagement. The part 21 with the cooperating
 60 pins 22 and openings 23 constitutes a clutch whereby the gear wheels 20 and 7 may be engaged or disengaged. When the plate or disk 21 is moved outward to withdraw the pins 22 from the openings 23, the churn body
 65 may be rotated independently of the dasher

or both parts may be rotated simultaneously in opposite directions at the same or different speeds according to the relative diameters of the cooperating gears.

The power transmitting mechanism is
 70 mounted upon a movable frame 28 which in the present instance is pivotally mounted upon a rod 29 secured at its inner end to a standard 3 and receiving at its outer end the lower extremity of the bracket 19. The
 75 upper end of the frame 28 is movable toward and from the dasher shaft. A shaft 30 is mounted in bearings applied to the bracket 19 and is provided at its ends with cranks 31 which are connected by pitmen 32
 80 to the upper end of the frame 28. The shaft 30 is turned upon its axis by means of a lever 33, the same forming an extension of one of the cranks 31. A pin 34 projects laterally from the lever 33 to engage with proximal
 85 pitman 32 to limit the outward movement of the frame 28. Parallel shafts 35 and 36 are journaled in bearings near the upper portion of the frame 28. A gear wheel 37 is fast to the inner end of the upper shaft 35 and is
 90 adapted to mesh with the spur gear 9 of the driven pulley 8. Spur pinions 38 and 39 fast to the shaft 35 are adapted to mesh with respectively gear wheel 7 and spur pinion 40, the latter fast to the lower shaft 36. The
 95 gear wheel 37 and the spur pinions 38 and 39 rotate with the shaft 35 at all times and are keyed or otherwise secured thereto to effect this result. A spur pinion 41 is loose on the shaft 36 and is adapted to mesh with the gear
 100 wheel 20 to impart movement thereto when clutched to the shaft 36. A half clutch 42 is formed or provided upon the outer face of the spur pinion 41 and is adapted to cooperate with a half clutch 43 upon the inner end of a
 105 clutch sleeve 44 mounted upon the shaft 36 and splined thereto. The clutch sleeve 44 is formed with an annular groove in which is fitted a fork 45, the latter having connection with the inner end of a rod 46 which is slid-
 110 ably mounted in a bar 47 of the frame 28, the outer end of the rod 46 having loose connection with the shipper lever 27, the latter having a longitudinal slot 48 to receive the bent end 49 of the rod 46. The clutch sleeve 44
 115 may be operated at any position of the frame 28 because of the loose or sliding connection of the rod 46 with the shipper lever 27. When the machine is used for churning butter, the frame 28 is moved to throw the power
 120 transmitting gearing out of action and the lock bolt 10 is projected to engage with the stop 11 and the shipper lever 27 is moved to project the pins 22 through the openings 23, thereby locking the gear wheels 7 and 20 and
 125 causing the churn body and dasher to rotate together when motion is imparted to the drive pulley. After the churning has been accomplished, pressure upon the foot-piece 18 projects the tapered end 17 of the pivoted
 130

arm 16 into the path of the trip 15 with the result that the churn body is disconnected from the drive pulley and is held in a predetermined position in the manner hereinbefore stated, this result being effected without stopping the rotation of the drive pulley. By operating the lever 33, the upper portion of the frame 28 may be turned inward, thereby throwing the power transmitting gearing into action, and upon operating the shipper lever 27 to throw the half clutches 42 and 43 into engagement, the churn body and dasher are rotated in opposite directions at a comparatively slow speed which is essential to properly and effectively work the butter. When it is required to rotate the churn and dasher in the same direction at a comparatively slow speed, the shipper lever 27 is operated to throw the clutch members 42 and 43 out of engagement and the pins 22 into engagement with the openings 23 thereby locking the gear wheels 7 and 20. The shipper lever 27 may be held in an adjusted position by means of a clamp, the same consisting of a bar 50 and clamp screw 51, both being fitted to the bracket 19 and adapted to clamp the link 26 which passes between an end portion of the bar 50 and the bracket 19.

Having thus described the invention, what is claimed as new is:

1. In combination, a churn body mounted to have rotary movement imparted thereto, a drive pulley and interlocking means between the drive pulley and churn body to cause both to rotate together.
2. In combination a churn body mounted to have rotary movement imparted thereto, a drive pulley and interlocking means between the drive pulley and churn body to cause both to rotate together, said interlocking means comprising a lock bolt mounted upon one of the parts, and a stop provided upon the other part and adapted to be engaged by the lock bolt when projected.
3. In combination, a churn body mounted to have rotary movement imparted thereto, a drive pulley and interlocking means between the drive pulley and churn body to cause both to rotate together, said interlocking means consisting of a stop provided upon the drive pulley and a spring actuated lock bolt mounted upon the churn body and adapted to be projected into the path of the said stop.
4. In combination a churn body mounted to have rotary movement imparted thereto, a drive pulley and interlocking means between the drive pulley and churn body to cause both to rotate together, and means to effect disengagement of said interlocking means without interrupting the rotation of the drive pulley.
5. In combination a churn body mounted to have a rotary movement imparted thereto, a drive pulley, interlocking means between

the drive pulley and churn body to cause both to rotate together, and means to effect disengagement of said interlocking means and to bring the churn body to a standstill and hold the same in a predetermined position without effecting the continued rotation of the drive pulley.

6. In combination a working body mounted to have rotary movement imparted thereto, a drive pulley mounted independently of and concentric with said working body, interlocking means between the drive pulley and working body to effect simultaneous rotation thereof and means to effect disengagement of said interlocking means without effecting the continued rotation of the drive pulley, and adapted to bring the working body to rest and hold the same in a predetermined position.

7. In combination a working body mounted to have a rotary movement imparted thereto, a drive pulley mounted independently of and concentric with said working body, interlocking means between the drive pulley and working body to effect simultaneous rotation thereof the same comprising a keeper having a stop, and a spring actuated lock bolt having a portion to be engaged with said stop to hold the bolt projected, and means arranged to engage with the bent portion of the lock bolt and effect disengagement therewith from said stop which automatically releases the rotating body from the drive pulley, said means engaging with the keeper and holding the said body in a predetermined position.

8. In combination a rotary working body, a drive pulley, gearing for transmitting motion from the drive pulley to said working body, a movable frame supporting said power transmitting gearing, and means for moving said frame to throw the power transmitting gearing into or out of operative position.

9. In combination, a rotary working body, a drive pulley, power transmitting gearing between said working body and drive pulley, a movable frame supporting said power transmitting gearing, a shaft, a pitman and crank connection between said shaft and movable frame, and an operating lever for turning said shaft and having a stop to engage with the pitman to hold the frame when the power transmitting gearing is out of action.

10. In combination a rotary body, a dasher mounted to rotate within said body, a drive pulley concentric with said working body and dasher, gear wheels fast to respectively said working body and dasher, power transmitting gearing between the drive pulley and the said gear wheels, and a clutch between the said gear wheels for throwing the same into or out of cooperative relation.

11. In combination, a rotary working

body, a rotary dasher arranged to operate therein, gear wheels having positive connection with respectively the said body and dasher, a drive pulley, power transmitting mechanism between the drive pulley and the said gear wheels embodying a loose spur pinion, a clutch for throwing said loose spur pinion into and out of clutched engagement with its supporting shaft, a second clutch for throwing the aforementioned gear wheels into and out of engagement, and a shipper lever for simultaneously operating both clutch devices in opposite directions, whereby one is thrown out of action when the other is in operative position.

12. In combination, a rotary working body, a rotary dasher arranged therein, gear wheels having positive connection with re-

spectively said body and dasher, a clutch for throwing said gear wheels into and out of engagement, a shipper lever for operating said clutch, a drive pulley, a movable frame, power transmitting gearing mounted upon said movable frame and embodying a loose pinion, a clutch for throwing said loose pinion into and out of engagement, and operating means for said clutch mounted upon the movable frame and having loose or sliding connection with the aforesaid shipper lever.

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

MAX F. STADTMULLER. [L. s.]

Witnesses:

JASON H. LOWREY,
JOHN F. GUTZ.