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J. A. HANGER.
CHURN.

(Application filed Mar. 18, 1897.)

(No Model.)

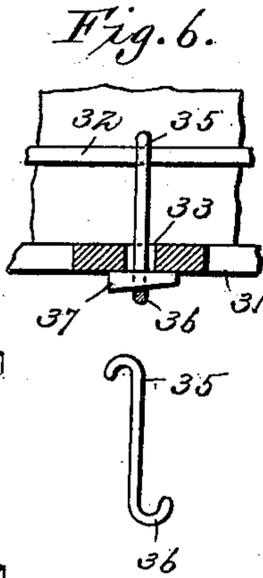
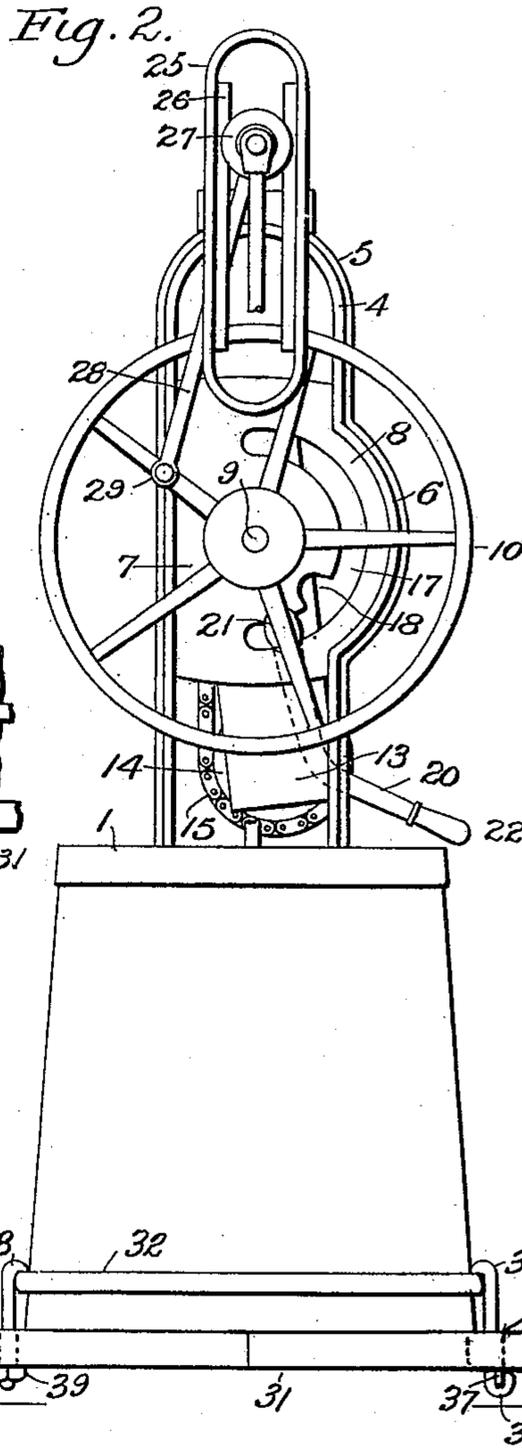
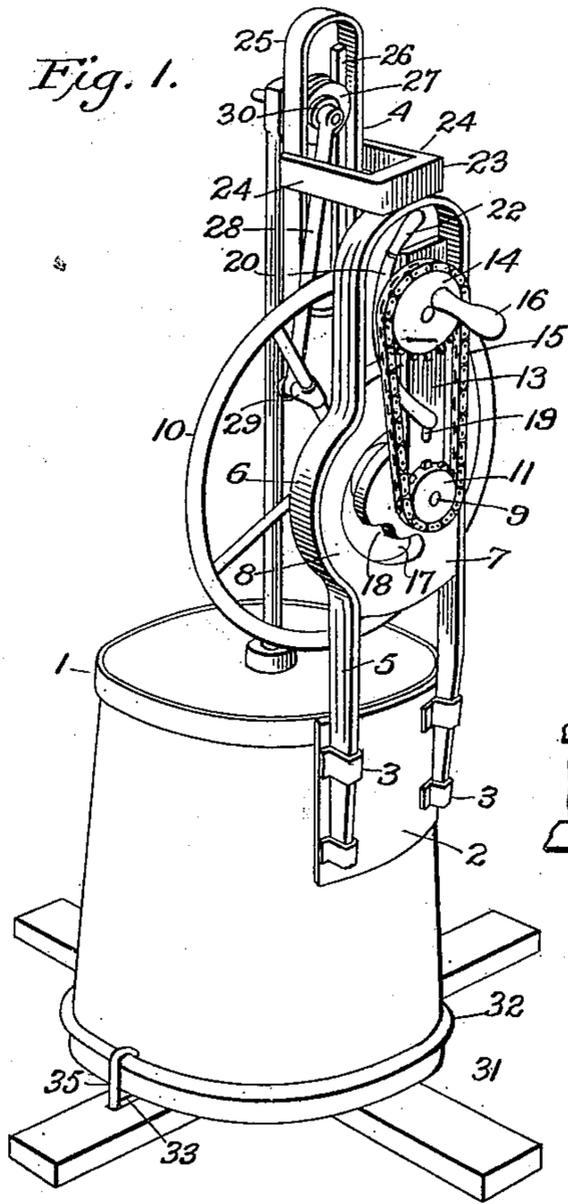


Fig. 3.

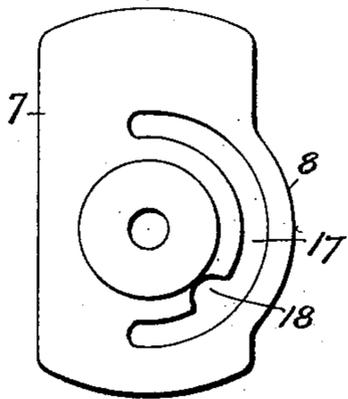


Fig. 4.

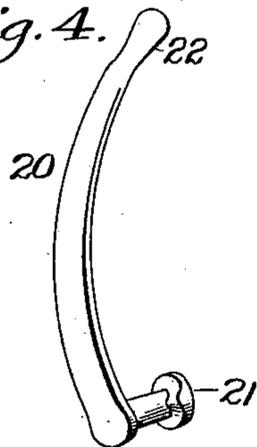
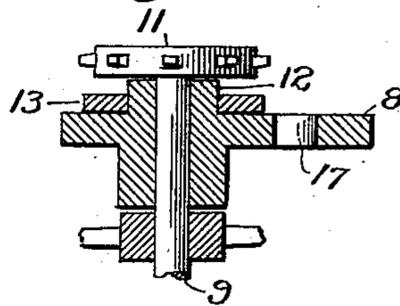


Fig. 5.



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CHURN.

SPECIFICATION forming part of Letters Patent No. 606,966, dated July 5, 1898.

Application filed March 18, 1897. Serial No. 628,089. (No model.)

To all whom it may concern:

Be it known that I, JACOB A. HANGER, a citizen of the United States, residing at Staunton, in the county of Augusta and State of Virginia, 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 improvements in churn-operating mechanism.

The object of the invention is to provide a mechanism of the character mentioned which is simple in its construction and durable in use and which shall be so constructed that the means for imparting motion thereto may be adjusted, whereby the user of the churn shall be enabled to operate the latter either when standing or sitting, the means referred to being so positioned that equal power may be obtained in either of the positions mentioned.

With these and other objects in view, which will appear as the nature of the improvements is better understood, the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully illustrated, described, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a churn-operating mechanism constructed in accordance with the present invention. Fig. 2 is a rear elevation thereof, illustrating the mechanism in the position in which it is placed to operate the same when sitting. Fig. 3 is a detail elevation of the plate in which the rotating shaft is journaled. Fig. 4 is a detail perspective view of the adjusting-lever. Fig. 5 is a vertical transverse sectional view taken through the rotating shaft. Fig. 6 is a sectional detail of the double or S-shaped hook.

Similar numerals of reference designate corresponding parts throughout the various figures of the drawings.

Referring to the drawings, 1 designates an attaching-band, which may be of any desired material and size; but the latter is preferably such as to enable the band being placed readily upon a churn-body, as clearly shown in the drawings.

The attaching-band 1 is provided at one of its sides with a supporting-plate 2, and formed on said plate 2, at opposite sides thereof, is a plurality of alined loops or eyes 3. The supporting-plate 2 may be also more securely fastened to the churn by the use of screws or bolts or other desired means.

4 designates an inverted substantially U-shaped frame, which may be formed of any suitable material, and the lower ends of the sides of said frame 4 are adapted to be inserted into the loops or eyes 3 to secure the frame 4 to the supporting-plate 2, and thereby retain said frame upon a churn-body, and in order that the frame 4 may be strengthened a reinforcing-strip 5 extends throughout the length thereof on both sides and at its top, and formed in one side of the frame 4 is an offset 6.

A bearing-plate 7 is arranged within the frame 4, between the sides thereof, and said plate 7 is provided at one of its sides with an enlargement 8, which enlargement is seated in the offset 6, and in order that the plate 7 may be retained in the frame 4 screws or their equivalent are employed. If so desired, the bearing-plate 7 may be cast integral with the U-shaped frame 4.

A rotatable shaft 9 is journaled in the plate 7, the length of said shaft being sufficient to extend beyond both sides of said plate, and secured to one end of the shaft 9 is a fly-wheel 10, which may be of any approved construction in order to facilitate movement of the shaft 9. The opposite end of the shaft 9 is provided with a sprocket-pinion 11, and it will be noted at this point that the plate 7 is provided with a hub 12, in which the shaft 9 rotates. A swinging supporting-arm 13 is loosely mounted upon the end of the hub 12 which is adjacent to the pinion 11, so that said arm 13 may freely move on said hub, and journaled to the free end of the arm 13 is a driving-sprocket 14, a sprocket-chain 15 passing around the driving-sprocket 14 and the sprocket-pinion 11, and through the medium of a crank 16, secured to the driving-sprocket 14, it will be seen that the latter imparts motion to the pinion 11, which in turn rotates the shaft 9.

The arm 13 is adapted to swing upon the hub 12, and formed in the bearing-plate 7, ad-

jacent to said hub, is a segmental slot 17, at
 the lower end of one side of which a notch 18
 is formed. The supporting-arm 13 is pro-
 5 vided with a keyhole-slot 19, which is adapt-
 ed to register with the notch 18 when the arm
 13 is suitably moved, and disposed within the
 keyhole-slot 19 is the shank of an adjusting-
 lever 20, one end of said shank being provided
 with a head 21, the opposite sides of which
 10 are beveled, and by reason of this construction
 it is obvious that when the head 21 is suitably
 moved the beveled sides thereof will become
 locked against the sides of the slot 17 and
 thereby hold the swinging arm 13 at various
 15 points throughout the length of said slot, the
 shank of the adjusting-lever being adapted
 to move in said slot. A handle 22 is secured
 to the shank of the adjusting-lever and ex-
 tends a sufficient distance beyond the free end
 20 of the arm 13 as to permit the lever being read-
 ily manipulated for locking the said arm in
 different positions, the handle 22 passing be-
 tween the arm 13 and the power-sprocket 14.

Mounted upon the upper end of the frame
 25 4 is a bracket 23, comprising parallel-spaced
 arms 24, which are secured to said frame 4,
 and disposed between their ends is a rectan-
 gular guide-frame 25, the sides of which at
 their inner faces are provided with guides 26.
 30 A grooved guiding-wheel 27 is arranged to
 work upon the guides 26, and intermediate
 the guide-wheel 27 and the fly-wheel 10 is a
 pitman connection 28, the ends of which are
 bent at substantially right angles to its body
 35 portion and each secured, respectively, in the
 guide-wheel 27 and a suitable bearing 29, car-
 ried by the wheel 10. The end of the pitman
 28, upon which is mounted the guide-wheel
 27, is extended sufficiently from said guide-
 40 wheel as to permit the ready attachment of
 the dasher-rod of the churn, as clearly shown,
 and secured to said end of the pitman is a
 collar 30, adapted to prevent the twisting of
 the guide-wheel 27, and thereby insure proper
 45 working of said guide-wheel on the guides 26.
 Through the medium of the pitman 28 it will
 be seen that when the wheel 10 is rotated a
 vertical reciprocating motion is imparted to
 the guide-wheel 27, which travels along the
 50 guides 26, and thus the dasher is operated in
 the churn-body. A base 31 may be employed
 for holding the churn-body, which base is
 preferably formed of a plurality of beams
 crossed at right angles to each other and in
 55 order that the churn-body may be retained
 upon the base 31 a hoop 32 surrounds the body
 of the churn, and formed in one of the cross-
 beams of the base, at one end thereof, is an
 elongated slot 33, while at the opposite end
 60 of said beam is an opening 34. A double or
 S-shaped hook 35 passes through the elon-
 gated slot 33, the upper end of said hook en-
 gaging the hoop 32, bottom part of the hook
 36, adapted to receive a wedge-key 37, the
 65 loop 36 lying below the under side of the
 cross-beam in which the slot 33 and opening
 34 are formed. A screw-hook 38 passes

through the opening 34, and the upper end
 of said hook 38 is similarly shaped to the hook
 35 and also engages the hoop 32 at substan- 70
 tially a diametrically opposite point to the
 hook 35. The threaded end of the hook 38
 extends beneath the under side of the base
 31 and has a tap 39 mounted thereon, and by
 operating the tap 39 and the wedge-key 37 it 75
 is apparent that the hooks 35 and 38 may be
 so adjusted as to draw the hoop 32 toward
 the base 31, and hence retain the body of the
 churn in a firm position upon said base. The
 base 31 is also provided with feet 40 for sup- 80
 porting the same upon any desired surface.
 While I have shown the means for connect-
 ing the churn-body to the base 31, as the
 hooks 35 and 38, in conjunction with the
 hoop 32, it is obvious that other means may 85
 be employed, and hence I do not restrict my-
 self to this particular form, but reserve to my-
 self the right to employ any other, as desired.

From the foregoing description the opera-
 tion of the herein-described mechanism will be 90
 readily seen by those skilled in the art. When
 it is desired to operate the churn from a stand-
 ing position, the supporting-arm 13 is placed
 in the position shown in Fig. 1 of the draw-
 ings, and by means of the crank 16 rotation 95
 is imparted to the power-sprocket 14, which in
 turn transmits motion to the shaft 9 by means
 of the sprocket-chain 17, and when the shaft
 9 is rotated it will be seen that reciprocation
 is imparted to the churn-dasher. If, however, 100
 it is desired to be seated when operating the
 churn, it is only necessary to move the ad-
 justing-lever 20, so that the beveled sides of
 the head 21 thereof may be freed from en-
 gagement with the sides of the segmental slot 105
 17. This will permit the shank of the adjust-
 ing-lever moving to the lower end of said slot,
 and when the arm 13 has been swung to thus
 position said shank, the arm 13 swinging upon 110
 the hub 12 as a pivot, the adjusting-lever 20
 is then moved so that the beveled sides of
 the head 21 lie transversely with respect to
 the slot 17, which position causes the beveled
 sides thereof to bite against the sides of the 115
 slot 17, and thus secure the arm 13 in a rigid
 position to prevent the same swinging. The
 power-sprocket 14 is thus lowered from the
 position shown in Fig. 1, and the operator of
 the churn may rotate said power-sprocket 120
 from a sitting position, it being obvious that
 no decrease in the power whatever is effected,
 and the dasher of the churn being recipro-
 cated similarly as when the operator is stand-
 ing. It will also be noted that the guide-
 wheel 27 reduces friction in the guides 26, 125
 and in the event that it is necessary to re-
 move the adjusting-lever 20 from the slot 17
 the power-sprocket 14 may be removed from
 its spindle, and after withdrawing the head
 21 from notch 18 said head may be passed 130
 through the keyhole-slot 19, and thus allow
 the adjusting-lever being separated from the
 supporting-arm 13. To replace the lever 20,
 the movements just described are reversed.

The herein-described improvements provide a churn-operating mechanism which is simple in its construction, durable in operation, and one which may be manufactured at a comparatively low figure. Furthermore, it will be seen that the position of the power-sprocket 14 may be regulated so as to place the same at different points throughout the segmental slot 17, and thus permit the churn being operated from either a standing or sitting position, and while the invention has been described for operating a churn it will of course be understood that the same may be used upon various other machines without departing from the principle of the device.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an operating mechanism of the class described, the combination with a frame adapted to be applied to the body of a churn or the like, of a shaft journaled in said frame and suitably connected to the dasher of the churn or the like, and an adjustable supporting-arm mounted adjacent to said shaft in a vertical plane and adapted to be locked at different angles in said plane with relation to said shaft, whereby the mechanism may be operated from different positions, substantially as described.

2. In an operating mechanism of the class described, the combination with a frame, of an attaching-band adapted to be applied to a churn-body or the like, said frame being adapted to be detachably secured to said band, a shaft journaled in said frame, means for operating said shaft, suitable connections between said shaft and the dasher of the churn or the like, and an adjustable supporting-arm arranged adjacent to the shaft in a vertical plane and adapted to be locked at different angles in said plane with relation thereto, whereby the mechanism may be operated from different positions, substantially as described.

3. In an operating mechanism of the class described, the combination with a frame, of a bearing-plate arranged therein, a shaft journaled in said bearing-plate, a supporting-arm pivoted in a vertical plane to the frame and adapted to be swung at different angles in said plane with relation to said shaft, and suitable gearing for operating the shaft, said supporting-arm being adapted to place said gearing so that the same may be operated from different positions, substantially as described.

4. In an operating mechanism of the class described, the combination with a frame adapted to be applied to a churn-body or the like, of a bearing-plate arranged within said frame, a shaft journaled in said bearing-plate, and having suitable connections with the dasher of the churn or the like, a supporting-arm carried by the bearing-plate and arranged in a vertical plane, suitable gearing carried by

said supporting-arm for operating the shaft, and an adjusting-lever for locking said supporting-arm at different angles in said vertical plane with relation to said shaft, whereby said gearing may be operated from different positions, substantially as described.

5. In an operating mechanism of the class described, the combination with a frame adapted to be applied to a churn-body or the like, of a shaft journaled therein, a guide-frame arranged upon the first-mentioned frame, a guide-wheel working within said guide-frame, suitable connections between said guide-wheel and the shaft, whereby when said shaft is rotated the guide-wheel is reciprocated in the guide-frame, said guide-wheel being adapted to have suitable connections with the dasher of the churn or the like, a swinging supporting-arm arranged in a vertical plane adjacent to the shaft, suitable gearing carried by said supporting-arm for rotating said shaft, and means for locking the supporting-arm at different angles in said vertical plane with relation to the shaft, whereby said gearing may be operated from different positions, substantially as described.

6. In an operating mechanism of the class described, the combination with a frame adapted to be applied to a churn-body or the like, of a bearing-plate arranged within said frame and provided with a segmental slot, a shaft journaled in said bearing-plate and having suitable connections with the dasher of the churn or the like, a supporting-arm carried by the bearing-plate and arranged in a vertical plane, said arm being adapted to be swung at different angles in said plane with relation to the shaft, suitable gearing carried by said supporting-arm for operating said shaft, and means for locking said supporting-arm at different angles in said vertical plane with relation to said shaft, substantially as described.

7. In an operating mechanism of the class described, the combination with a frame adapted to be applied to a churn-body or the like, of a bearing-plate arranged within said frame and provided with a segmental slot, a shaft journaled in said bearing-plate and having suitable connections with the dasher of the churn or the like, a supporting-arm carried by the bearing-plate and arranged in a vertical plane, said arm being adapted to be swung at different angles in said plane with relation to the shaft, suitable gearing carried by said supporting-arm for operating said shaft, and an adjusting-lever carried by the supporting-arm and adapted to lock the latter at different angles in said vertical plane with relation to said shaft, substantially as described.

8. In an operating mechanism of the class described, the combination with a suitable frame adapted to be applied to a churn-body or the like, of a bearing-plate arranged within said frame and provided with a segmental slot, a shaft journaled in said bearing-plate, suitable connections between said shaft and

the dasher of the churn or the like, a supporting-arm pivoted to the bearing-plate in a vertical plane and adapted to swing thereon, suitable gearing carried by said arm for operating the shaft, and an adjusting-lever working within the segmental slot of the bearing-plate and provided with a head having its sides beveled and adapted to bite against the sides of said slot to lock the adjusting-lever, and thereby prevent movement of the supporting-arm, substantially as described.

9. In an operating mechanism of the class described, the combination with an attaching-band adapted to be applied to a churn-body or the like, of a frame adapted to be detachably secured to said attaching-band, a bearing-plate arranged within said frame and provided with a segmental slot, a shaft journaled in said bearing-plate, a fly-wheel mounted upon said shaft, a guide-frame arranged upon the first-mentioned frame, a guide-wheel working in said guide-frame and suitably connected to said fly-wheel, said guide-wheel having suitable connections with the dasher of the churn or the like, a supporting-arm pivoted to the bearing-plate in a vertical plane and adapted to be swung at different angles in said plane with relation to the shaft, suitable gearing carried by said supporting-arm for operating said shaft, and an adjusting-lever also carried by said supporting-arm, the shank of said lever working in the segmental slot of the bearing-plate, and provided with a head having its sides beveled and adapted to bite against the sides of the slot, whereby the supporting-arm may be locked at different

angles in said vertical plane with relation to the shaft, substantially as described.

10. In an operating mechanism of the class described, the combination with an attaching-band adapted to be applied to a churn-body or the like, of a frame adapted to be detachably secured to said attaching-band, a bearing-plate arranged within said frame and provided with a segmental slot, a shaft journaled in said frame, a fly-wheel mounted upon said shaft, a guide-frame arranged upon the first-mentioned frame and provided with a plurality of guides, a guide-wheel working in said frame and upon said guides and having suitable connections with the dasher of the churn or the like, a swinging supporting-arm pivoted to the bearing-plate and arranged in a vertical plane, suitable gearing carried by said supporting-arm for rotating the shaft, and an adjusting-lever also carried by said arm and having its shank working within the segmental slot of the bearing-plate and provided with a head, the sides of which are beveled and adapted to bite against the sides of said slot, whereby said adjusting-lever is adapted to lock the supporting-arm at different angles in said vertical plane with relation to said shaft, substantially as described.

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

JACOB A. HANGER.

Witnesses:

WM. N. CROMWELL,
JAMES W. BEVANS.