No. 622,652. Patented Apr. 4, 1899.

# W. L. MORRIS.

## CHURN MOTOR.

(Application filed May 31, 1898.)

(No Model.)

Fig. 1.

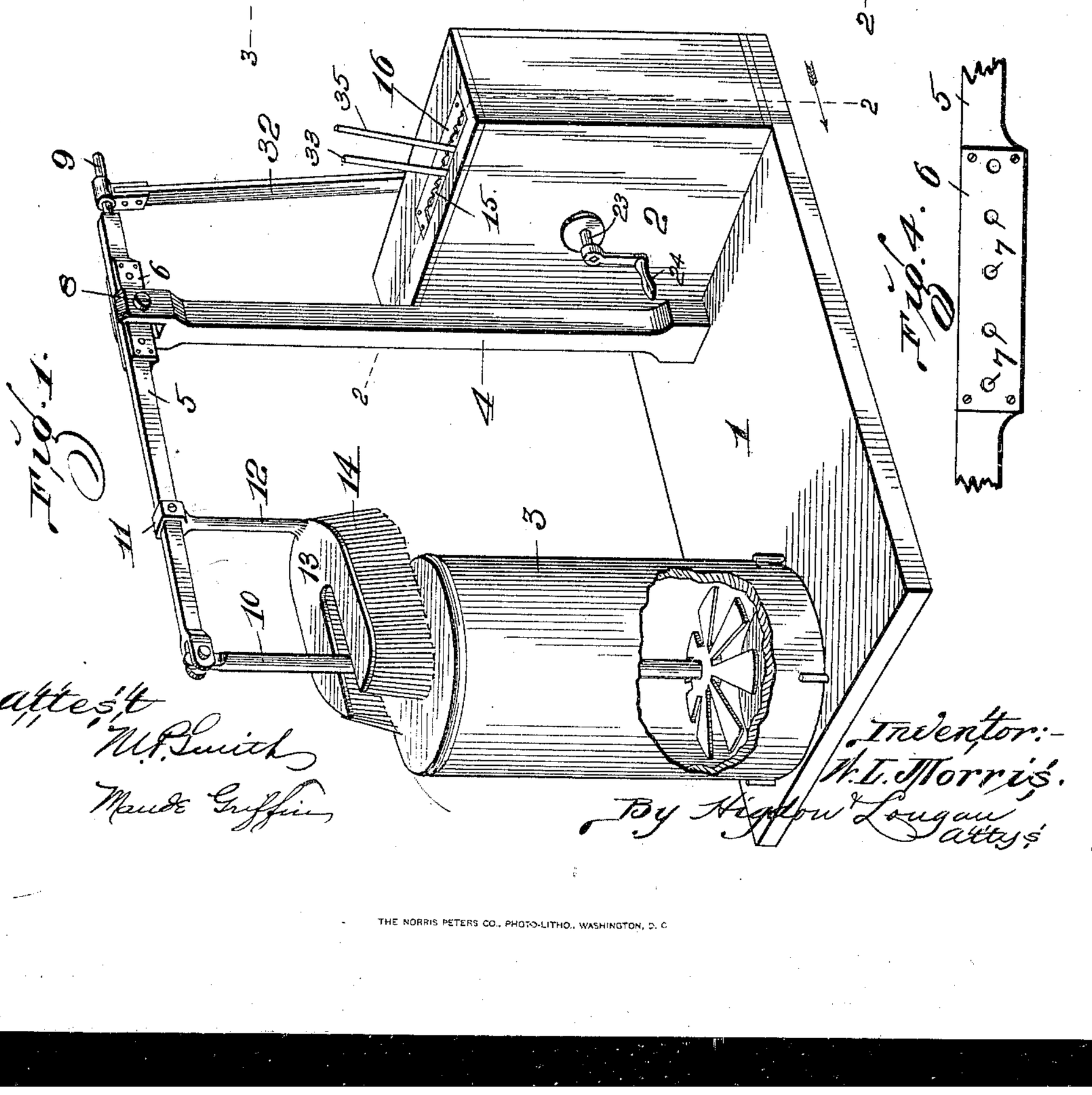


Fig. 2.

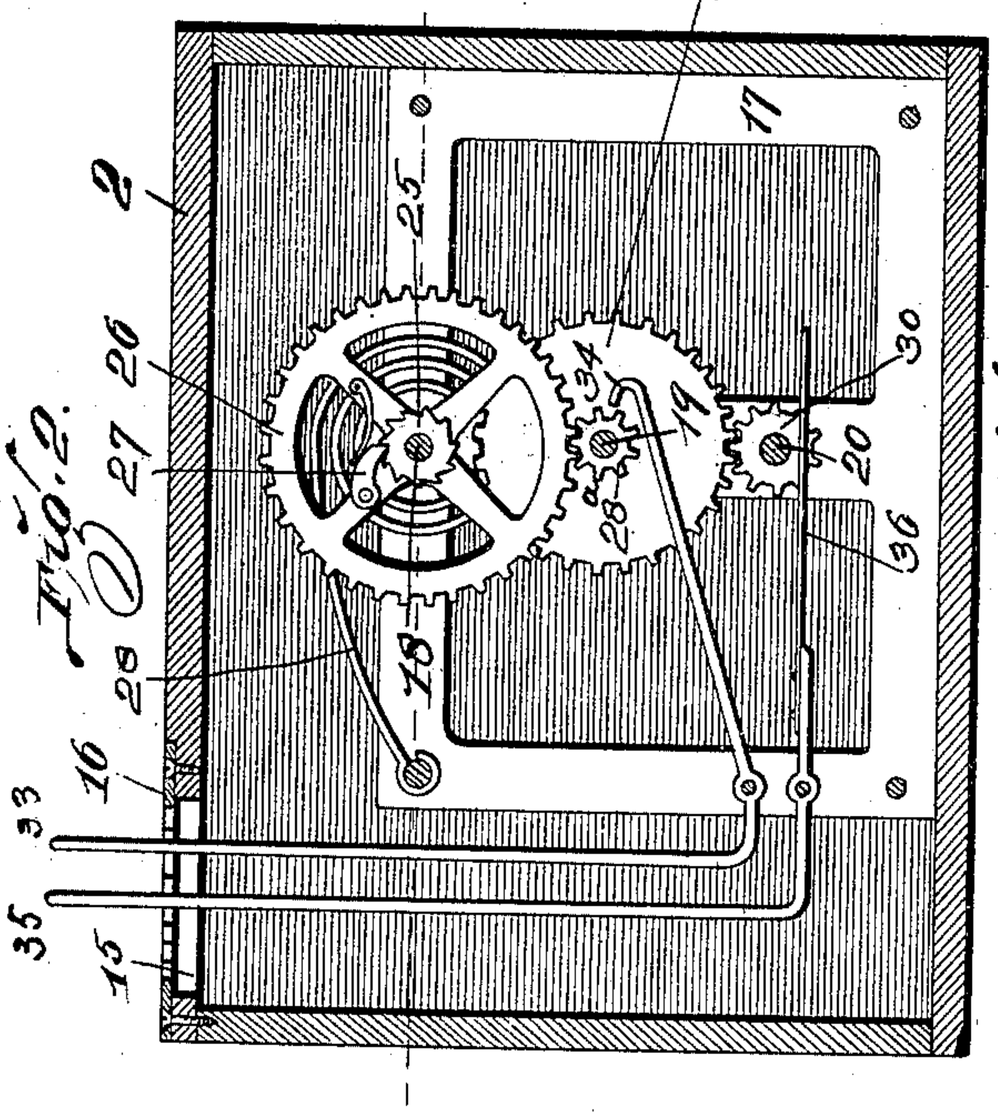


Fig. 3.

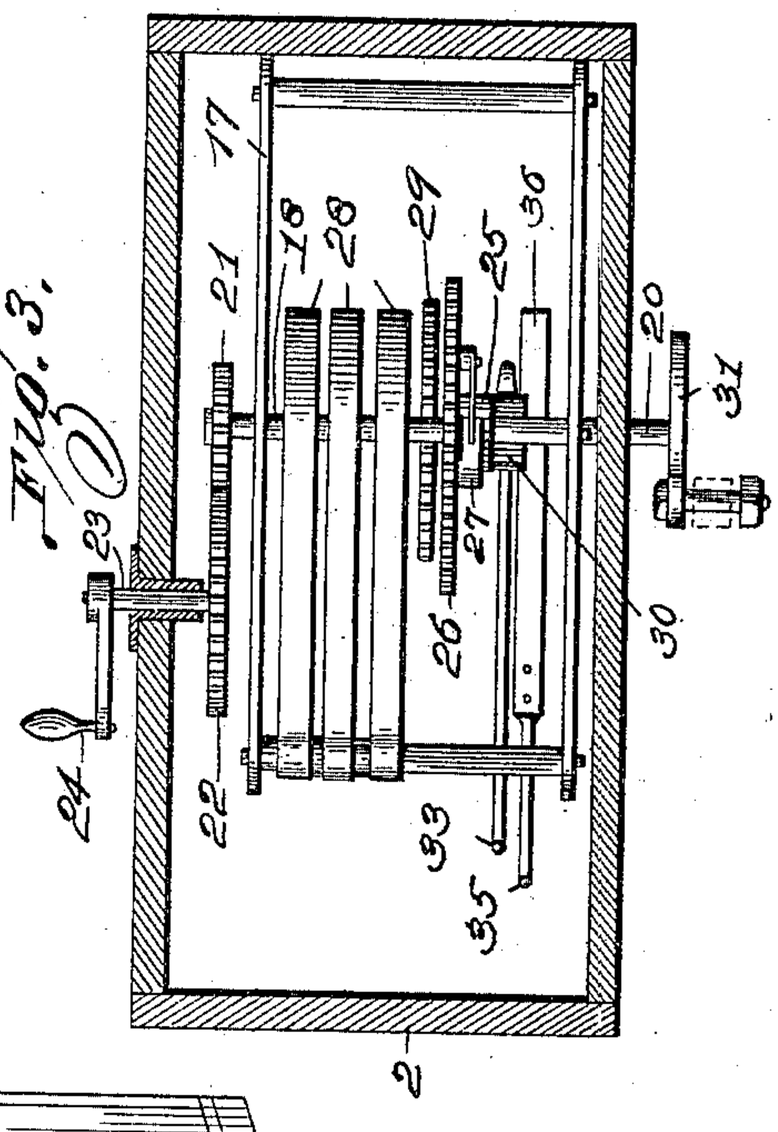


Fig. 4.




Fig. 5.




Witnesses:
M. P. Smith
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Inventor:-
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Attys.

# UNITED STATES PATENT OFFICE.

WILLIAM L. MORRIS, OF BERNIE, MISSOURI, ASSIGNOR OF ONE-HALF TO NOAH BELLERS, OF SAME PLACE.

## CHURN-MOTOR.

SPECIFICATION forming part of Letters Patent No. 622,652, dated April 4, 1899.

Application filed May 31, 1898. Serial No. 682,143. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM L. MORRIS, of the city of Bernie, Stoddard county, State of Missouri, have invented certain new and useful Improvements in Automatic Churn-Motors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to automatic churn-motors; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a view in perspective of my improved automatic churn-motor, the same being shown in position to operate a churn. Fig. 2 is an enlarged vertical sectional view taken approximately on the line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional view taken approximately on the line 3 3 of Fig. 2.

Referring by numerals to the accompanying drawings, 1 indicates a suitable base, on one end of which is located the rectangular casing 2 of the churn-motor, the churn 3 being located upon the opposite end of the base 1 and held in position in any suitable manner. A post or standard 4 is fixed in the base 1 to one side of the rear end of the casing 2, the upper end of said post 4 being bifurcated to provide a bearing for the walking-beam 5, which walking-beam is provided on its opposite sides with metallic plates 6 and there being a plurality of apertures 7 formed through said plates and through said beam. A pin 8 passes through the bifurcated upper end of the post 4 and through one of these apertures 7 to form a bearing for said walking-beam. By providing the plurality of apertures 7 the stroke of the walking-beam 5 may be lengthened or shortened, as desired. To the end of the walking-beam 5 that projects over the casing 2 is fixed a horizontally-extending pin 9, the opposite end of said walking-beam 5 being bifurcated and pivoted to the upper end of the churn dasher-rod 10.

Adjustably located upon the beam 5 is a collar 11, which is provided with a downwardly-pending arm 12, terminating in a horizontal plate 13, the same being slotted and extending over the top of the churn 3, the edge of which plate is provided with fringe or a plurality of lashes 14. When the device is in operation, this fringe is agitated directly above the churn and acts as a fly-switch.

Formed in the top of the casing 2 is a slot 15, and located upon said top adjacent the slot 15 is a ratchet-plate 16.

Located within the casing 2 is a rectangular frame 17, in the top of which is transversely arranged a shaft 18. Immediately below this shaft 18 is journaled for rotation a transversely-arranged shaft 19, and immediately below said shaft 19 is a shaft 20. One end of the shaft 18 projects through the frame 17 and is provided with a pinion 21, which is in mesh with the gear-wheel 22 and located upon a short shaft 23, that is rotatably arranged in a bearing located in the inside wall of the casing 2, there being a crank-handle 24 located upon the outer end of said shaft 23.

Rigidly located upon the shaft 18 is a ratchet-wheel 25, and loosely arranged upon said shaft 18 adjacent said ratchet-wheel 25 is a gear-wheel 26, the same carrying a spring-actuated pawl 27, the point of which engages the teeth of the ratchet-wheel 25.

A plurality of coil-springs 28 have their inner ends secured to the shaft 18, the outer ends of said coil-springs being secured to the transverse bar of the frame 17.

Located upon the shaft 19 is a pinion $28^a$, which is in mesh with the gear-wheel 26, and adjacent said pinion $28^a$, upon the shaft 19, is a gear-wheel 29, that meshes with a pinion 30, carried by the shaft 20. This shaft 20 projects outwardly through the outside wall of the casing 2 and is there provided with a crank 31, to which crank is connected the lower end of a connecting-rod 32, the upper end of which is pivotally connected to the pin 9, previously mentioned.

A stop device consists of the rectangularly-bent rod 33, that is fulcrumed in the frame 17 in a plane below that occupied by the shaft 19, one end of said rod being formed into a hook 34, that is adapted to engage between the teeth of the pinion $28^a$, the opposite end of the rod 33 extending vertically upward through the slot 15 and being constructed to

engage between the teeth of the ratchet-plate 16.

A brake comprises a rectangularly-bent rod 35, which is somewhat similar to the rod 33, said brake-rod being fulcrumed in the frame 17 and provided on its horizontal end with a leaf-spring 36, that is located directly beneath the shaft 20. The vertical portion of this brake-rod 35 extends upwardly through the slot 15 and is adapted to engage between the teeth of the ratchet-plate 16.

To place the motor in an operative condition, the coil-springs 28 must be wound in order that power may be stored therein, and the winding operation is accomplished by rotating the crank-handle 24 and transmitting this rotary motion through the meshing pinions 22 and 21 to the shaft 18, and as said shaft 18 rotates the coil-springs will be wound thereon, and the remaining shafts and gear-wheels will not be affected by this winding, for the reason that the ratchet-wheel 25, carried by the shaft 18, will travel past the pawl 27 and will not be affected thereby. When the springs are completely wound and the various parts are in position to operate, the unwinding of the springs 28 will necessarily rotate the shaft 18, and the ratchet-wheel 25 carried thereby will engage the pawl 27, carried by the gear-wheel 26, and said gear-wheel will be rotated, and this rotary motion will be imparted to the shaft 19 through the pinion $28^a$, meshing with said gear-wheel 26. The rotary motion of the shaft 19 will be imparted to the shaft 20 through the gear-wheel 29, meshing with pinion 30, and as said shaft 20 rotates the crank carried thereby will impart to the connecting-rod 32 a vertically-reciprocating movement, which movement actuates the walking-beam 5, and the outer end thereof and the churn-dasher will be vertically reciprocated, thus accomplishing the desired result. Should it be desired to slacken the speed of the device, the operator moves the upper end of the rod 35 laterally and causes the leaf-spring 36 to frictionally engage the shaft 20, and should it be desired at any time to stop the motor the operator moves the upper end of the rod 33 laterally and causes the hook 34 to engage between the teeth of the pinion $28^a$, thus stopping the motor.

As the outer end of the walking-beam 5 moves upwardly and downwardly the lashes 14, carried by the horizontal plate 13, will switch around the top of the churn, and thus prevent flies and other insects from gathering on the top of said churn.

I claim—

In an automatic churn-motor, the base 1, the standard 4, the walking-beam 5 fulcrumed in the upper end of said standard, a churn arranged beneath the outer end of said walking-beam, to the dasher of which churn is pivotally connected the outer end of said walking-beam, the collar 11 adjustable upon the walking-beam, the arm 12 integral with said collar, the slotted plate integral with the lower end of said arm, and the lashes 14 arranged around the edge of said plate, substantially as specified.

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

WILLIAM L. MORRIS.

Witnesses:

M. P. SMITH,

A. W. TYLER.