

No. 696,944.

Patented Apr. 8, 1902.

M. COOPER.

MECHANISM FOR OPERATING VIBRATING CHURNS.

(Application filed Aug. 24, 1901.)

(No Model.)

FIG. 1.

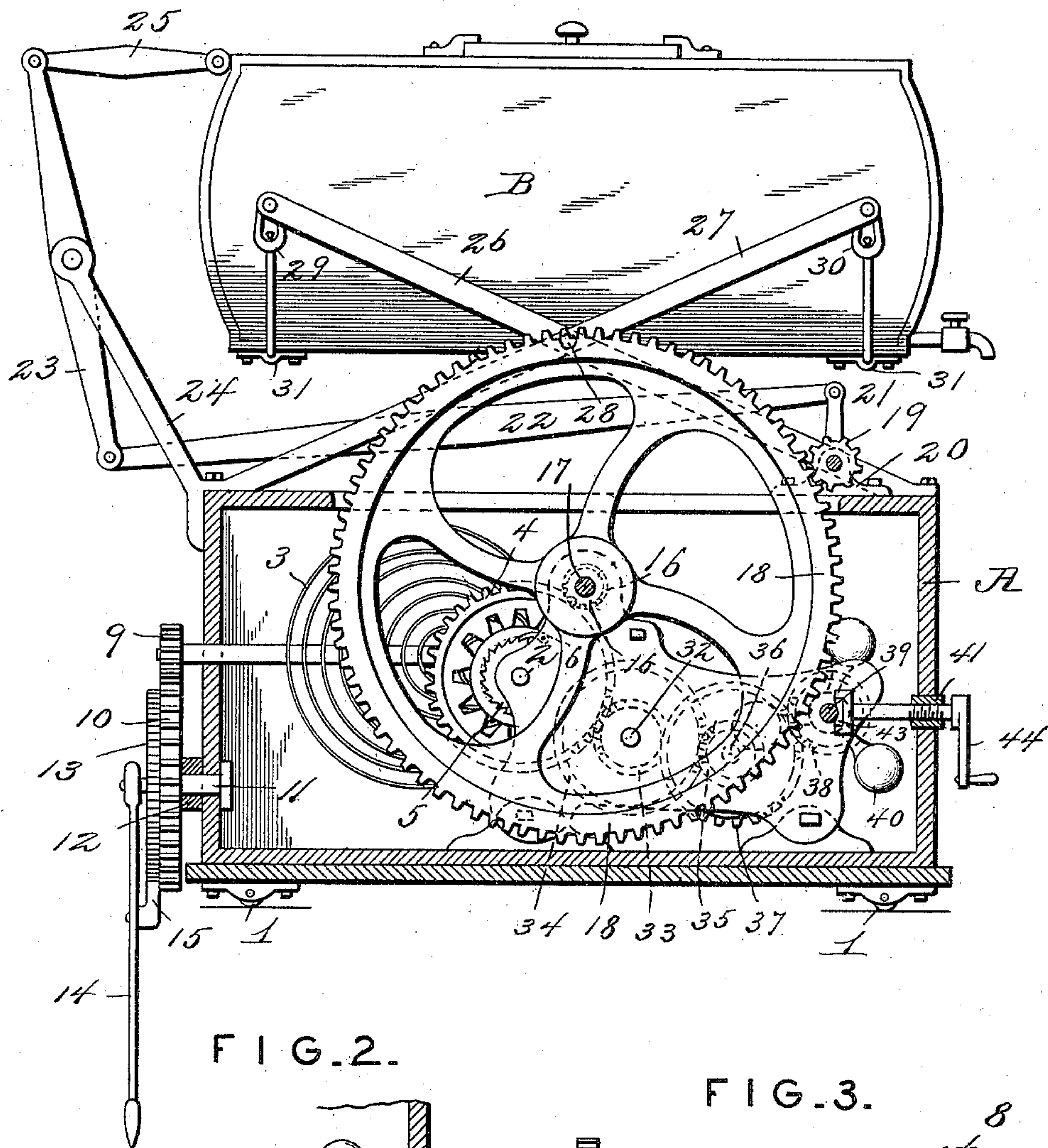


FIG. 2.

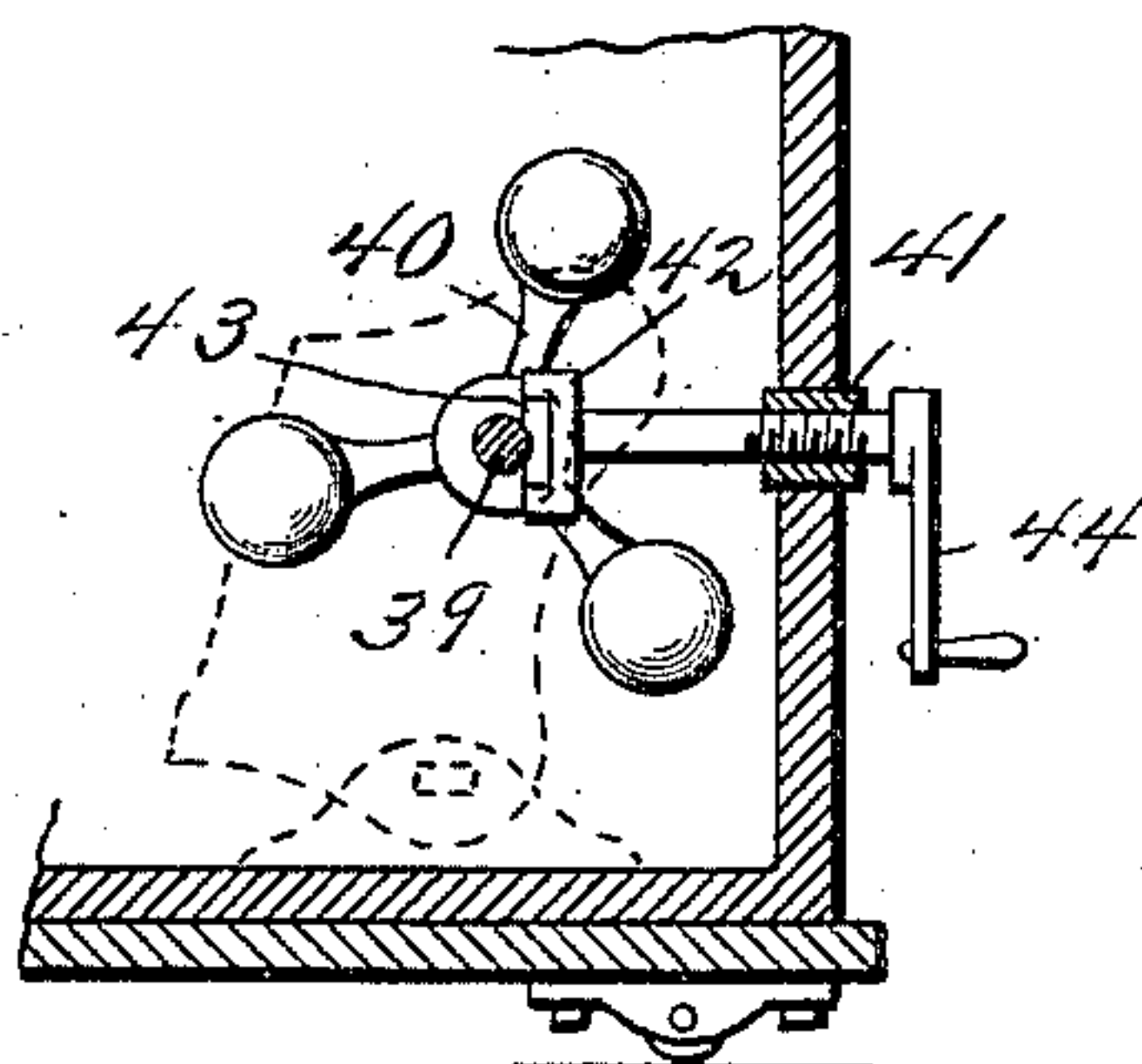
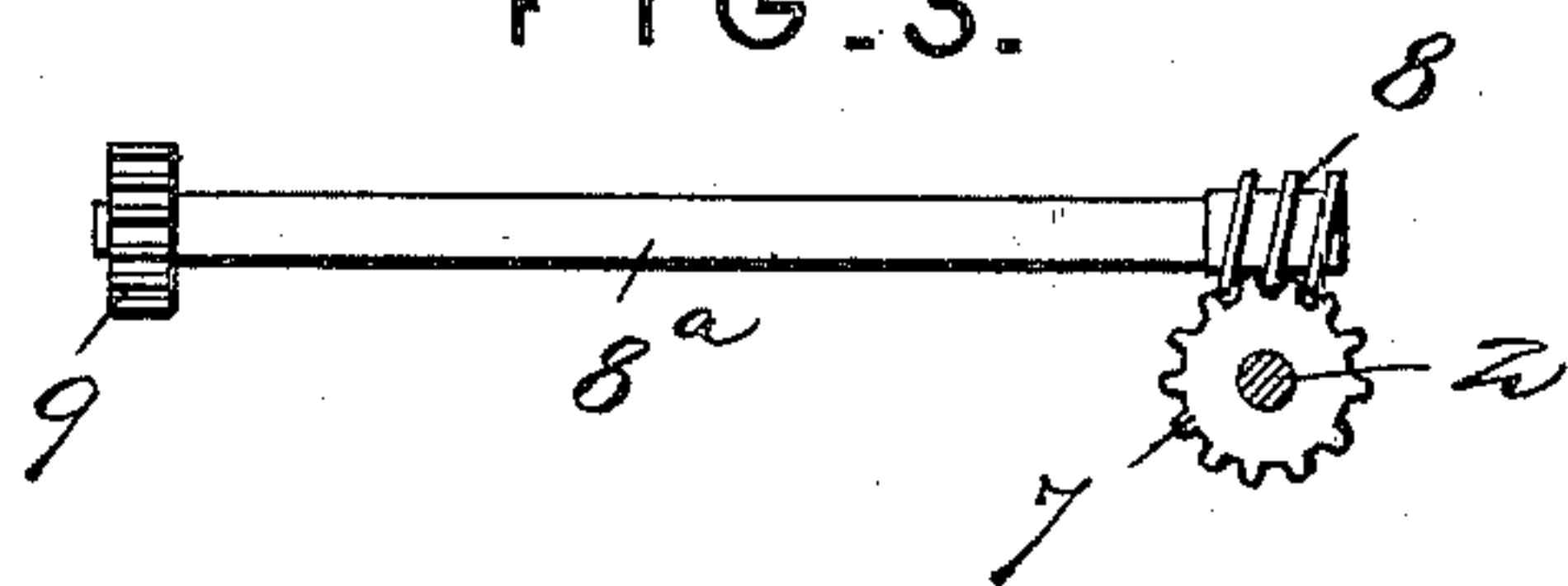


FIG. 3.



Witnesses

H. L. Amer.
J. W. Riley

Inventor

Maxey Cooper.

By

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

MAXEY COOPER, OF SELMA, ALABAMA, ASSIGNOR OF ONE-HALF TO GEORGE W. BALLARD, OF SELMA, ALABAMA.

MECHANISM FOR OPERATING VIBRATING CHURNS.

SPECIFICATION forming part of Letters Patent No. 696,944, dated April 8, 1902.

Application filed August 24, 1901. Serial No. 73,152. (No model.)

To all whom it may concern:

Be it known that I, MAXEY COOPER, a citizen of the United States, residing at 909 Philpot street, Selma, in the county of Dallas and State of Alabama, have invented new and useful Improvements in Mechanism for Operating Vibrating Churns, of which the following is a specification.

My invention has relation to improvements in mechanism for operating vibrating churns; and the object is to provide a cheaply-constructed, efficiently-operating, and durable mechanism whereby vibratory motion is imparted to the churn-body.

My invention consists in the novel construction of parts, their combination and operative aggroupment, as will be hereinafter fully described and particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my improvements in the accompanying drawings, forming part of this specification, and wherein—

Figure 1 is a view in side elevation, partly in longitudinal vertical section, showing the operating mechanism. Fig. 2 is a detail side view of the governor mechanism and brake. Fig. 3 is a detail view of the winding shaft and pinion.

Referring to the drawings, A designates a box or casing made of suitable material, rectangular in shape and of a size and capacity sufficient to conveniently retain the operating mechanism. The casing is mounted on casters or rollers 1 for convenience in moving it about. Journaled across the casing about midway of its height and length is a substantial shaft 2, on which is mounted and secured the motor-spring 3, having one end fastened to the shaft in any proper manner and the outer end secured at some stationary point within the casing in such a manner that by the force of the spring the shaft will be rotated and motion communicated to the connected machinery. On the shaft contiguous or closely adjacent to the spring is fixed the motor-gear 4, carrying a ratchet-wheel 5, which is engaged by a pawl 6 in the usual manner to prevent the spring from flying back loose, but permitting it to rotate the gear and shaft in the direction of its pull.

On the shaft 2 is mounted a pinion 7, engaged by a worm 8 on the end of a shaft 8^a, extending through the end of the casing, and on its outer end has a pinion 9, meshing with a larger pinion or gear-wheel 10 on a stud-shaft 11, journaled in a suitable bearing 12, arranged in the wall of the casing. To the outer faces of the gear-wheel 10 is fixed a ratchet-wheel 13. The stud-shaft 11 extends through the hub of the wheel 10, and on the projecting end is loosely mounted a handle or lever 14, carrying a pawl 15, which engages the teeth of the ratchet 13 and is free to ride over the teeth in one direction. It will be perceived that by lifting the lever the pawl will rotate the ratchet-wheel and with it the connected gearing, eventually turning the shaft 2 and winding up the spring.

The motor-wheel 4 meshes with a small pinion 16 on a shaft 17, journaled across the casing, and on the shaft is a large gear-wheel 18, which in turn engages a small pinion 19, journaled in a suitable bearing-box 20, secured on the top of the casing. The shaft of the pinion 19 carries a crank-arm 21, the outer end of which is pivotally connected to the end of a pitman 22, the other end of which is pivotally connected to the lower end of a rocking beam 23, pivotally supported at its middle by a standard 24, secured to the end of the casing. To the upper end of the rocking beam is pivotally connected one end of a pull-bar 25, the other end of which is suitably connected to the end of the churn, preferably at its upper edge, substantially as shown in the drawings.

The churn B is supported by bars 26 27, having their lower ends fixed securely to the top of the casing and crossing each other, being secured together at their intersection by a fastening-bolt 28. The churn-body is placed in yokes 29 30, the bars of which extend under the bottom of the churn and the arms extending vertically against the sides, with their ends pivotally connected to the upper ends of the bars 26 27, as shown in the drawings. The yokes where they extend under the body of the churn are secured by keepers or bearings 31. It will be seen that by the action of the crank a rocking motion is imparted to the rocking beam, and by this reciprocation the

body of the churn is vibrated and the churning process thus quickly accomplished.

It being necessary to control and regulate the movement of the mechanism, I have devised means to effect this object. The large gear-wheel 18 fulfils the duty and functions of a fly or balance wheel; but to further and with certainty attain this regulation of speed I mount in the casing a shaft 32 and on it secure a small pinion 33, in mesh with the motor-gear, and on the same shaft 32 is a larger gear-wheel 34, meshing in turn with a small pinion 35 on a shaft 36, which shaft 36 carries a gear-wheel 37, meshing with a small pinion 38 on a shaft 39. On the shaft 39 is mounted a rotating governor 40, composed of three arms weighted at their ends.

To brake the governor-train of gears and stop the mechanism, I have devised the following-described means: In the end wall of the casing is secured a sleeve 41, having a threaded interior, in which engages the threads of a brake-bar 42, carrying on its inner end a brake-shoe 43, which when the bar is secured inward bears against the shaft 39 and by frictional contact stops the machine. To the outer end of the brake-bar is attached a crank 44, by which the brake is moved on and off.

It will be observed that after the spring has been wound up and its force has become ac-

tive the operation of the mechanism is automatic and continues until the power of the spring is exhausted or the mechanism is stopped by the braking mechanism.

To operate the mechanism and vibrate the churn, the spring is wound up, the brake being off, when the spring excites its force, and through the mechanism connected to the pitman motion is communicated to rocking beam and pull-bar to vibrate the churn-body.

What I claim is—

The mechanism for vibrating a churn-body herein described, comprising a motor-spring, a gear on the shaft of the motor-spring, a shaft, a pinion on the shaft in mesh with the motor-gear, a large gear-wheel on the shaft of the pinion, a pinion in mesh with the large gear-wheel and carrying a crank-arm, a pitman connected to the crank, a rocking beam pivotally supported and having its lower end connected to the end of the pitman, and a pull-rod having its outer end connected to the upper end of the rocking beam and its other end connected to the churn-body.

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

MAXEY COOPER.

Witnesses:

OTTO C. POULSEN,
H. F. COOPER.