

(No Model.)

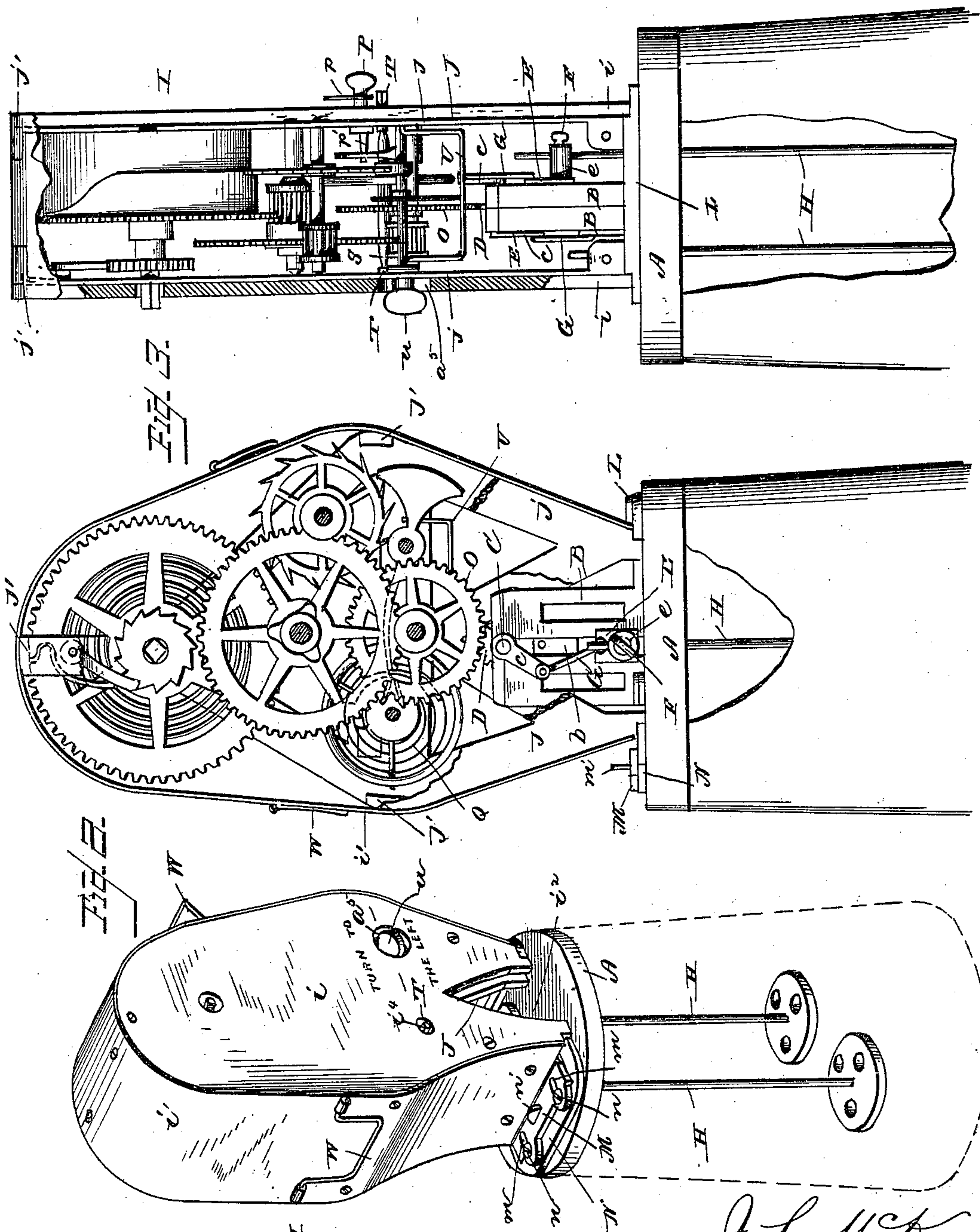
3 Sheets—Sheet 1.

J. L. McKAY.

CHURN MOTOR.

No. 300,620.

Patented June 17, 1884.



WITNESSES
F. L. Curran,
J. B. Noyes,

J. L. McKay,
INVENTOR
by J. R. Little,
Attorney.

(No Model.)

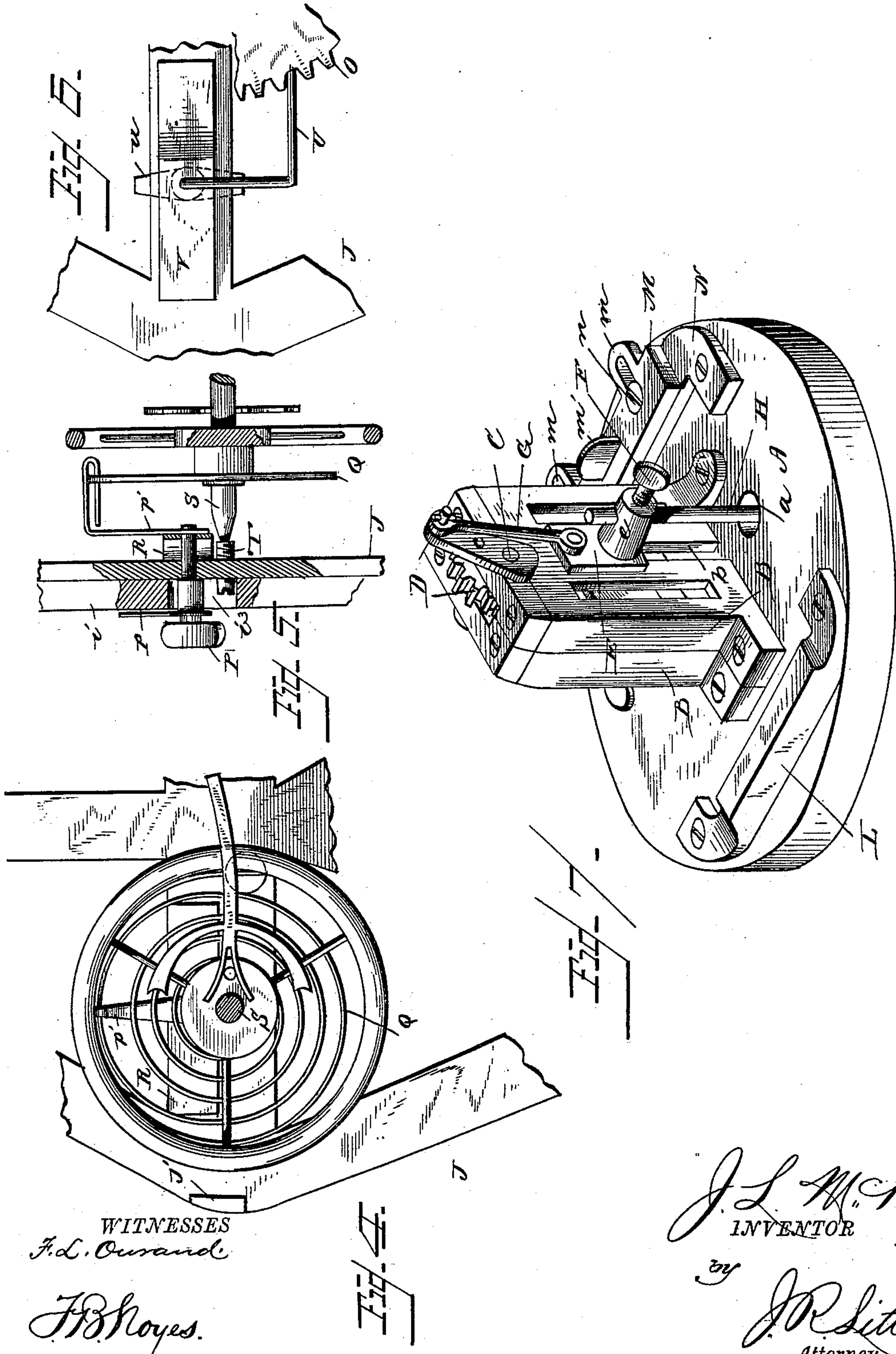
3 Sheets—Sheet 2.

J. L. McKAY.

CHURN MOTOR.

No. 300,620.

Patented June 17, 1884.



(No Model.)

3 Sheets—Sheet 3.

J. L. McKAY.

CHURN MOTOR.

No. 300,620.

Patented June 17, 1884.

Fig. 8.

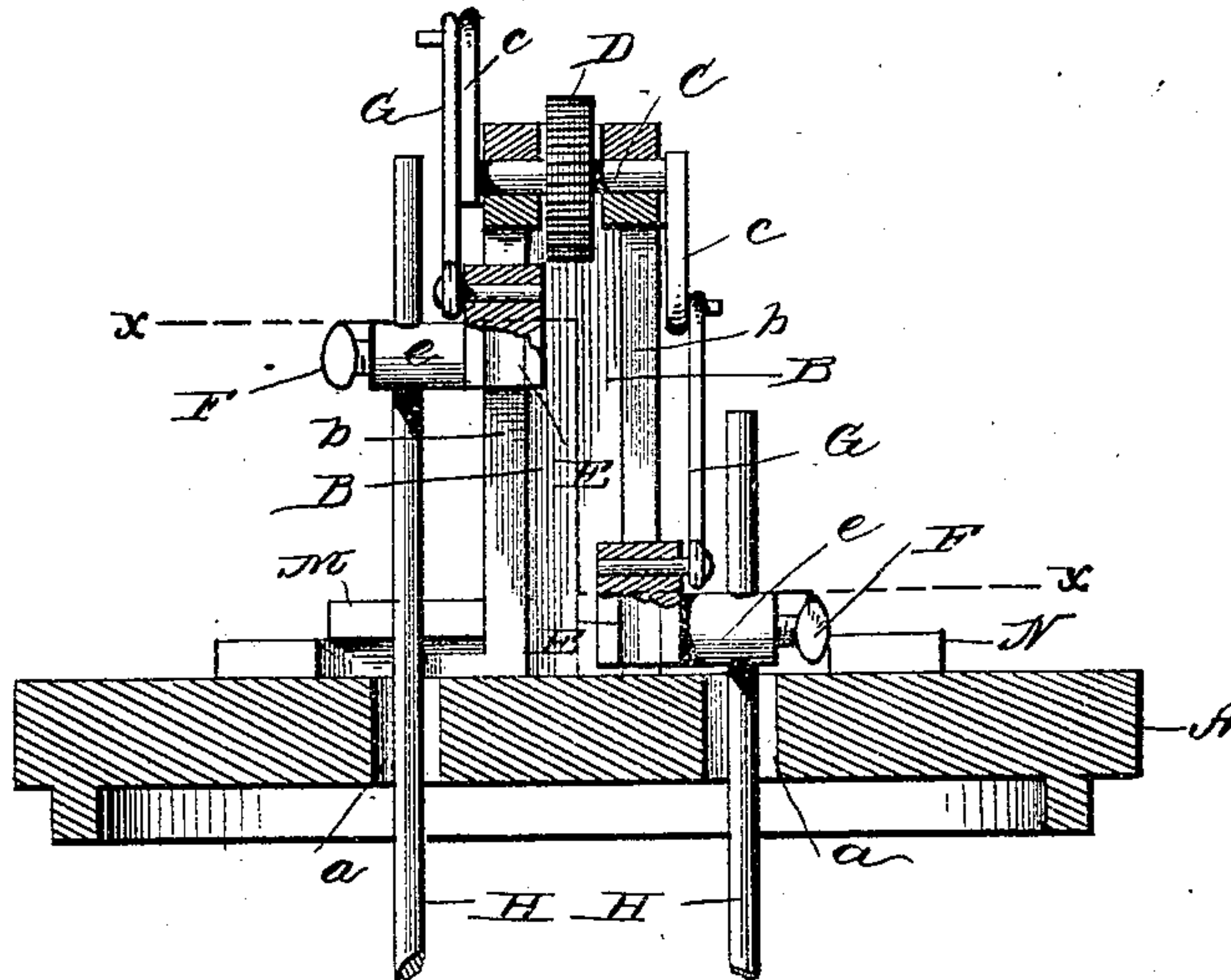


Fig. 9.

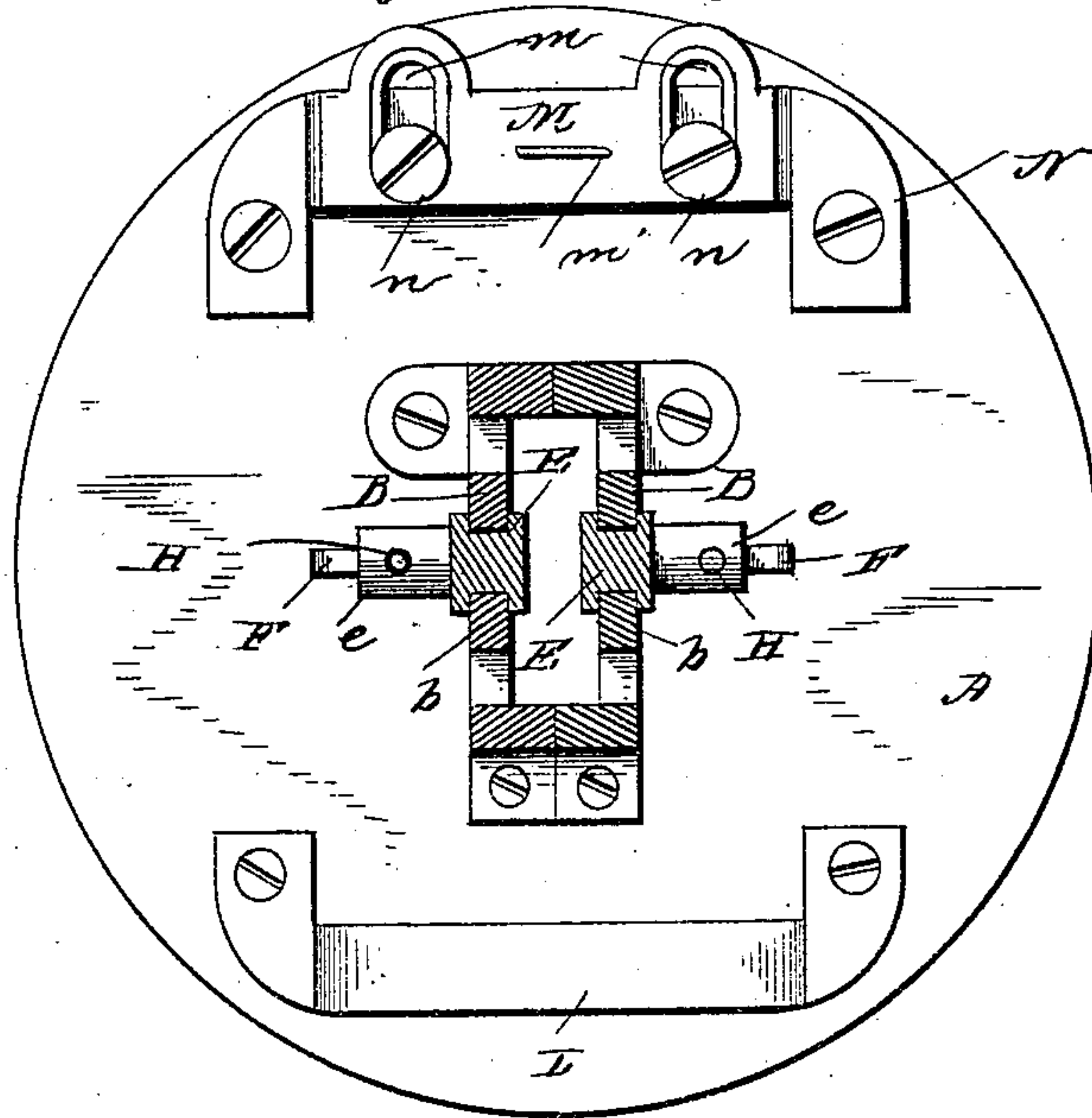
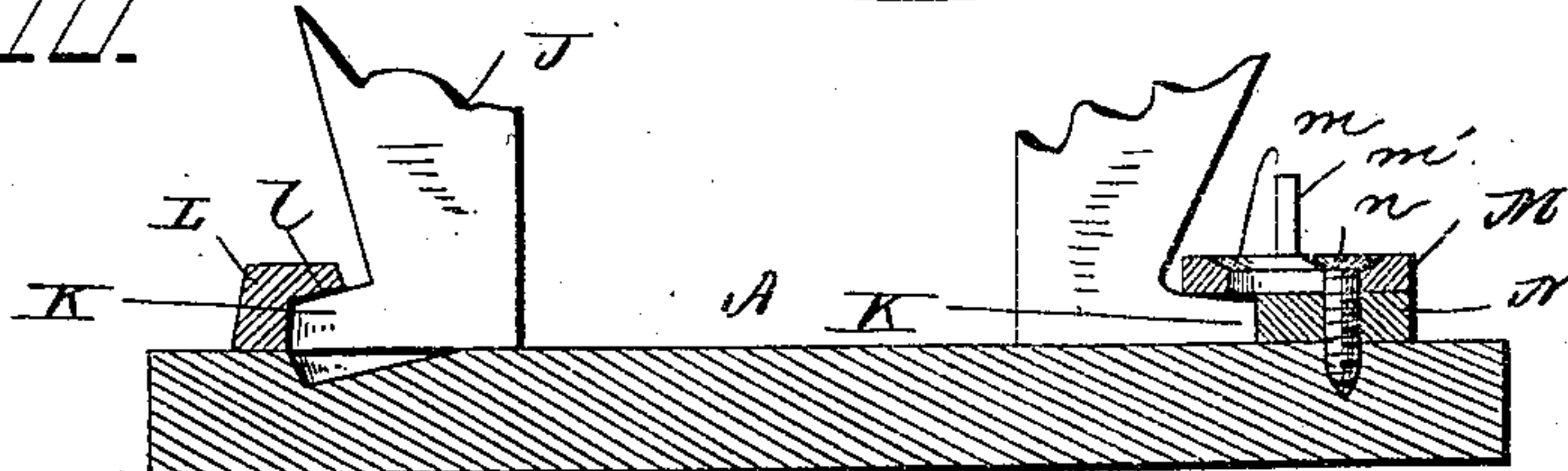


Fig. 10.



WITNESSES
F. L. Ourand
J. B. Noyes.

INVENTOR
J. L. McKay,
by J. R. Little,
Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH L. MCKAY, OF NEOGA, ILLINOIS.

CHURN-MOTOR.

SPECIFICATION forming part of Letters Patent No. 300,620, dated June 17, 1884.

Application filed April 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. MCKAY, a citizen of the United States, residing at Neoga, in the county of Cumberland and State of Illinois, have invented certain new and useful Improvements in Churn-Motors; 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 ap-
10 pertains to make and use the same.

This invention relates to that class of churn-motors which employ a spring-power mechanism acting upon the dashers.

The object of my improvements is to provide a simple and improved motor which will possess advantages in point of ease of operation and general efficiency, and which can be governed and adjusted with superior convenience and facility.

20 In the drawings, Figure 1 is a perspective view showing my improved motor in position upon the churn. Fig. 2 is a side elevation thereof, the side of the casing being removed and parts of the interior frame being broken
25 away to show the construction. Fig. 3 is an end view of the same, part of the casing being removed. Fig. 4 is a detail side view of the balance-wheel mechanism. Fig. 5 is a detail sectional view taken through the balance-wheel mechanism. Fig. 6 is a detail side view
30 showing the retaining-spring of the lock or stop mechanism. Fig. 7 is a detail perspective view of the top or cover of the churn, the motor-casing being removed. Fig. 8 is a vertical transverse sectional view in detail, taken
35 through the standard and the top or cover to which it is secured. Fig. 9 is a horizontal detail sectional view taken on the line *x x*, Fig. 8. Fig. 10 is a detail sectional view illustrating the means for securing the motor-casing in
40 position on the top of the churn.

Corresponding parts in all the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the top or cover of a churn, which is fitted to the body of the churn (shown in dotted lines) in any desired manner, and may be of any suitable construction. A perpendicular standard
45 is provided upon the top A, and is preferably

formed by two parallel standards, B B, having 50 bearings at their top for a transverse shaft, C, carrying a gear-wheel, D, arranged between the said standards. Each standard B is provided with a vertical guide-slot, *b*, in which works an approximately H-shaped sliding
55 head, E, having a lateral projection, *e*, in which one of the dasher-staffs is vertically adjustable by means of a set-screw, F. The shaft C is provided with oppositely-cranked ends *c c*, from which extend rods or pitmen G G, which
60 are pivotally connected at their lower ends to the heads E. By this arrangement the rotation of the shaft C causes the heads E to reciprocate vertically and in opposite directions, thus imparting a reciprocating motion to the
65 churn-dashers. A perforation, *a*, is provided in the top A at each side the standard, through which the dasher-staffs work, the staffs being designated by the letter H.

I designates the casing which contains the 70 motor mechanism, and comprises an interior frame, J, to which the casing is secured. This casing J comprises side pieces, *j j*, forming bearings for the motor mechanism, and provided with inwardly-projecting flanges *j'* at
75 its side and top edges, as shown. The side pieces or boards, *i i*, of the casing proper are secured to the sides *j j* of the interior frame by means of screws, or in any other suitable manner. The ends and top of the casing are
80 preferably formed by a single bent strip, *i'*, which is secured to the inwardly-projecting flanges *j'* in any suitable manner. Openings *i''* are preferably provided at the bottom of the sides *i*, through which the motor mechanism
85 may be conveniently inspected.

Transverse flanges K K project from the bottom of the interior frame, J, at each end of the casing, by means of which the latter is secured in position upon the churn top or
90 cover. At one side of the top A is provided a plate, L, having a lip, *l*, under which one of the flanges K is adapted to be adjusted, and upon the opposite side of the top A a plate, M, is adapted to be adjusted over the other
95 flange K, to lock the casing in position. This plate M is provided with end slots, *m m*, which receive guide-pins *n n*, projecting from a base-

plate, N, secured upon the top A, and the said plate M is also provided with a projecting lug, m' , by which it may be operated.

A suitable spring-motor mechanism similar to that used in clocks or other devices is provided within the casing, this mechanism being adapted to be wound up by a suitable key, and embodying a train of gear-wheels, the lower one of which, O, is adapted to mesh with the gear D when the casing is secured in position on the top A and over the upright standard. By this arrangement, when the casing is secured in position and the spring mechanism is wound up, the motor mechanism will transmit a rotary motion to the shaft C, and the churn-dashers will be reciprocated vertically, as before specified. The speed of the motor mechanism is governed by turning a pin, P, which projects through an opening, i^3 , in one side of the casing, and is provided with an indicator or finger, p , moving over the face of the casing. The inner end of this pin P is provided with an angular arm, p' , which engages the balance-spring Q, and serves to regulate the same. A spring-plate, R, is interposed between the arm p' and the inner face of the casing J, and serves by its tension to retain the regulating-pin in the position to which it has been adjusted. The shaft S of the balance-wheel has its bearings in the ends of set-screws T T, working through the sides of the casing J. The head of one of these screws preferably projects through a perforation, i^4 , in the side of the casing, while the head of the other screw projects through the perforation i^3 at the other side, by which arrangement the screws may be conveniently adjusted to regulate the bearing of the balance-wheel shaft.

U designates a transverse angular rod, which has its bearings in the frame J, and is provided with a head, u , projecting through a perforation, a^5 , in the side of the casing. By simply turning this head the rod U is brought into engagement with the teeth of the gear-wheel O when desired to stop the operation of the motor. By turning the head in an opposite direction the stop mechanism is disengaged from the teeth of the gear O, and the mechanism will automatically resume its operation. A spring-plate, V, is interposed between the crank of the rod U and the inner face of the casing J, and serves by its tension to retain the stop-rod in any condition to which it is adjusted.

Suitable bails or handles, W W, are provided upon the ends of the casing, by which the motor mechanism may be conveniently lifted from the top of the churn after the operation of churning has been effected.

From the foregoing description and annexed drawings the operation and advantages of my invention will be readily understood.

The motor mechanism can be readily and conveniently connected with or disengaged from the churn, and its speed is easily regu-

lated and governed while it is in position and during its operation. The casing has simply to be applied to the churn top or cover and fastened in position, when the mechanism is wound up, and will then automatically effect a quick and thorough churning.

I claim as my invention—

1. The combination, with a churn top or cover having dasher-actuating mechanism, of a removable casing secured upon the top or cover, and carrying motor mechanism, substantially as described, adapted to operate the devices thereon, substantially as set forth.

2. The combination, with a churn top or cover having a perpendicular standard, in which is journaled a rotary crank-shaft provided with a gear-wheel and adapted to operate the dashers, of motor mechanism, substantially as described, secured upon the churn top or cover, and embodying a gear-wheel meshing with the gear-wheel upon the rotary shaft, substantially as and for the purpose set forth.

3. The combination, with the top or cover of a churn having fastening devices on opposite sides, and provided with a perpendicular standard carrying dasher-actuating mechanism, of a removable casing fastened upon the top or cover and inclosing the standards, and carrying motor mechanism, substantially as described, meshing with the mechanism upon the standard, substantially as set forth.

4. The combination, with the top or cover of a churn having fastening-plates, of a removable motor-casing having projecting bottom flanges engaged by these plates to retain the casing in position, substantially as set forth.

5. The combination, with a churn top or cover having the lip-plate and the oppositely-disposed slotted plate sliding upon guide-pins, of a removable motor-casing having transverse bottom flanges projecting at its ends and engaged by the said fastening-plates, substantially as and for the purpose set forth.

6. The combination of a churn top or cover having dasher-perforations, two parallel perpendicular standards arranged between these perforations and embodying guide-slots, the sliding heads adapted to receive the dasher-staffs, the rotary crank-shaft, pitmen connecting the ends of the crank-shaft with the sliding heads, the gear-wheel secured upon the said shaft and working between the standards, and means, substantially as described, for operating this gear-wheel, substantially as set forth.

7. The combination, in an improved churn-motor, of the interior frame embodying the side pieces having the inwardly-projecting flanges, the spring-motor mechanism contained within this frame and having its bearings thereon, and the outer casing embodying the side pieces secured to the sides of the inner frame, and having its top and ends secured to the inwardly-projecting flanges, substantially as set forth.

8. The herein-described improved motor-casing, comprising the inner frame consisting

of side pieces having the inwardly-projecting flanges and the transverse flanges projecting at its bottom, the side boards or pieces of the outer frame, and the bent end and top piece secured to the inwardly-projecting flanges, substantially as set forth.

9. The combination, in an improved spring-motor, of the casing having the perforations on opposite sides, the set-screws projecting through these perforations to the outside of the casing, and the balance-wheel shaft having its bearing in the set-screws, substantially as set forth.

10. The combination, in an improved churn-motor, with the spring-motor mechanism comprising a train of gear-wheels, of a rod journaled transversely in relation thereto and adapted to

be brought into engagement with the teeth of one of the gear-wheels to stop the operation of the motor, substantially as set forth.

11. The combination of the casing, the spring-motor mechanism contained therein, the transverse angular rod journaled in the casing and having its operating-head projecting through the same, and the spring-plate interposed between the crank of the rod and the inner face of the casing, substantially as and for the purpose set forth.

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

JOSEPH L. MCKAY.

Witnesses:

W. H. HANCOCK,

I. S. COBOONEN.