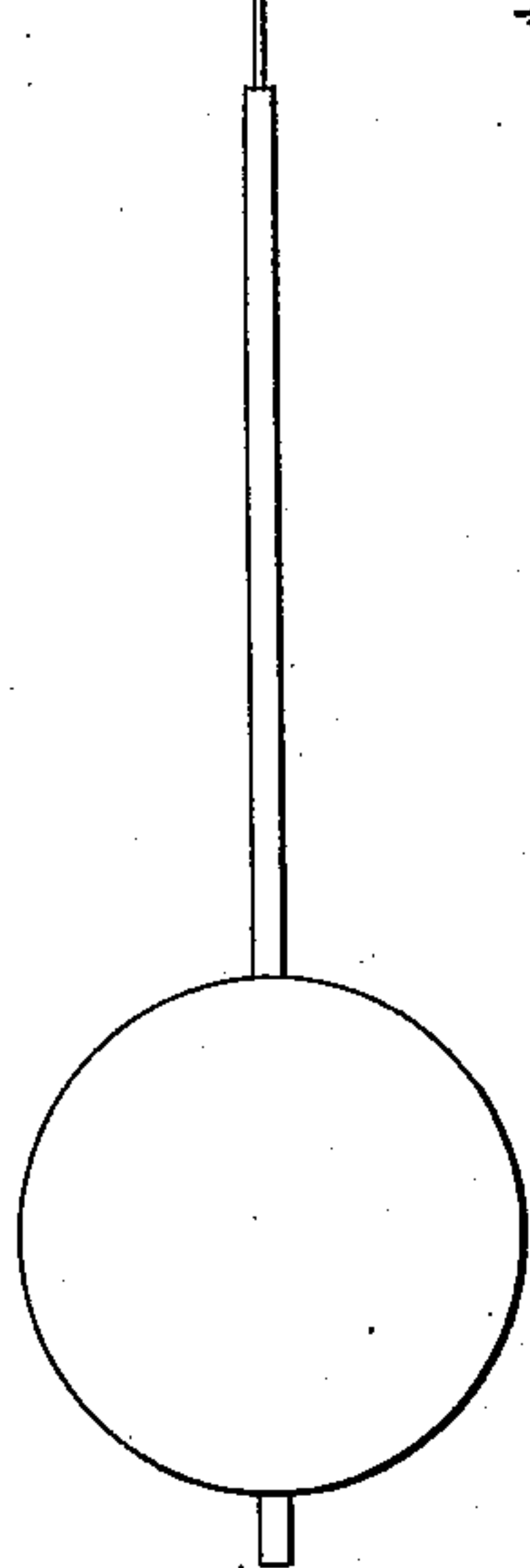
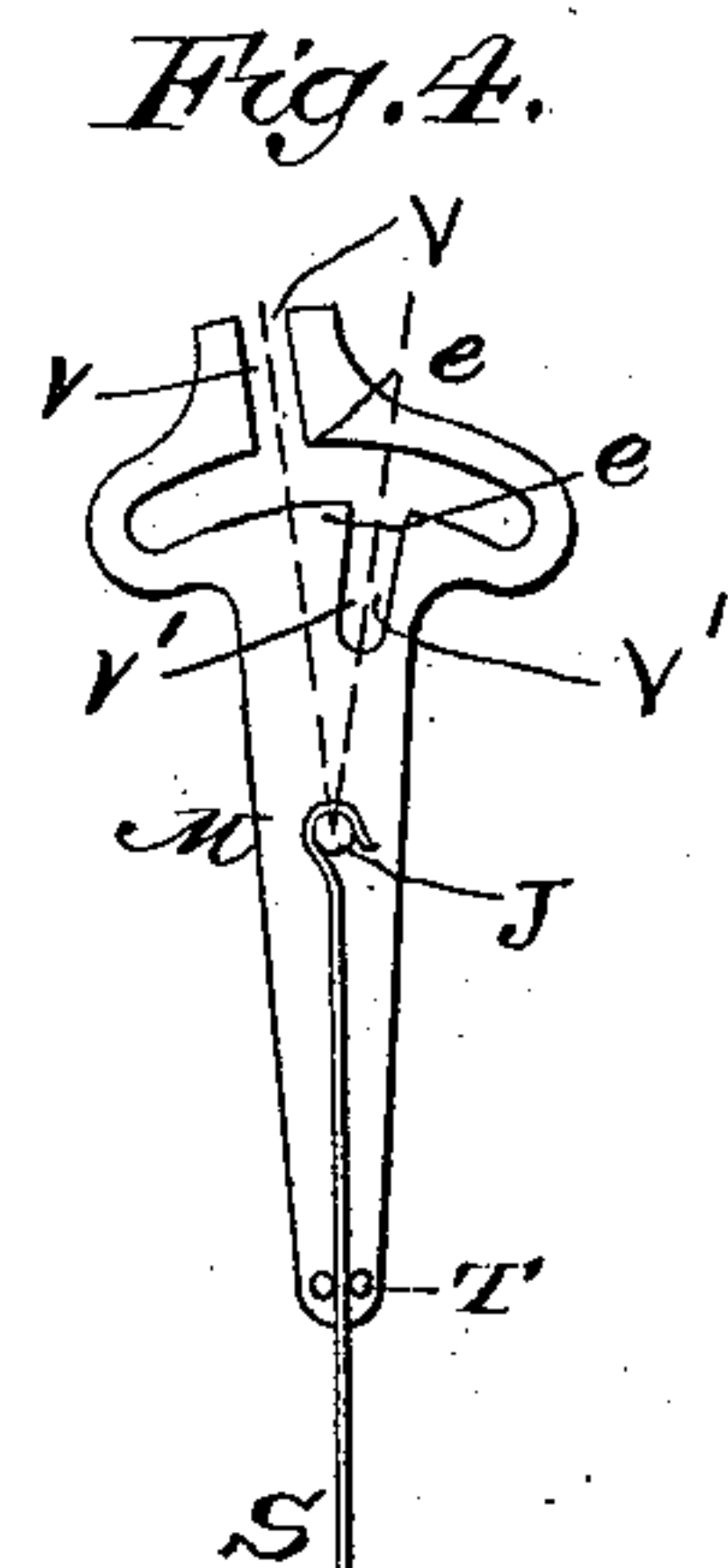
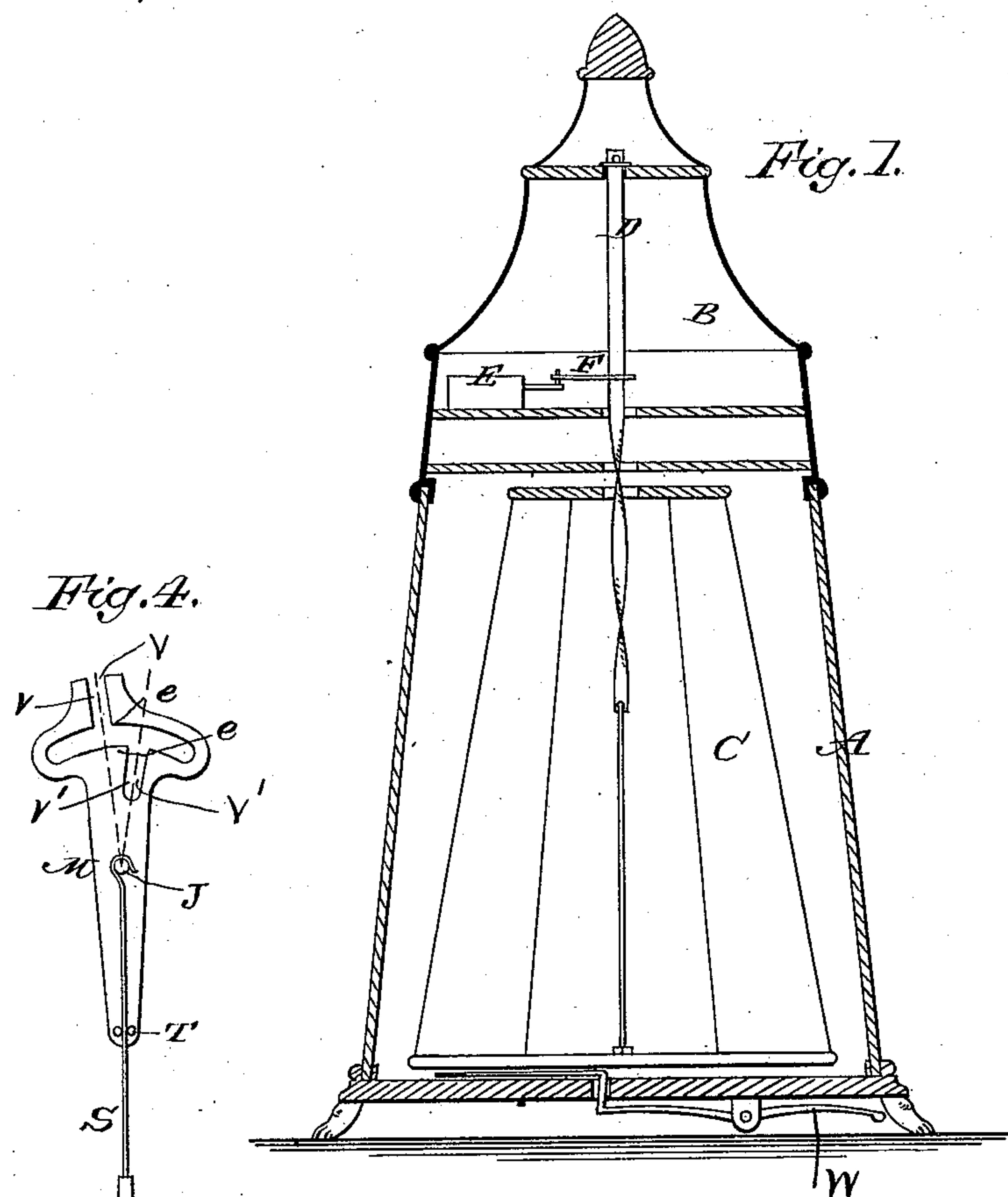


(No Model.)

W. D. CHAPMAN.
ROTARY ESCAPE MOVEMENT.

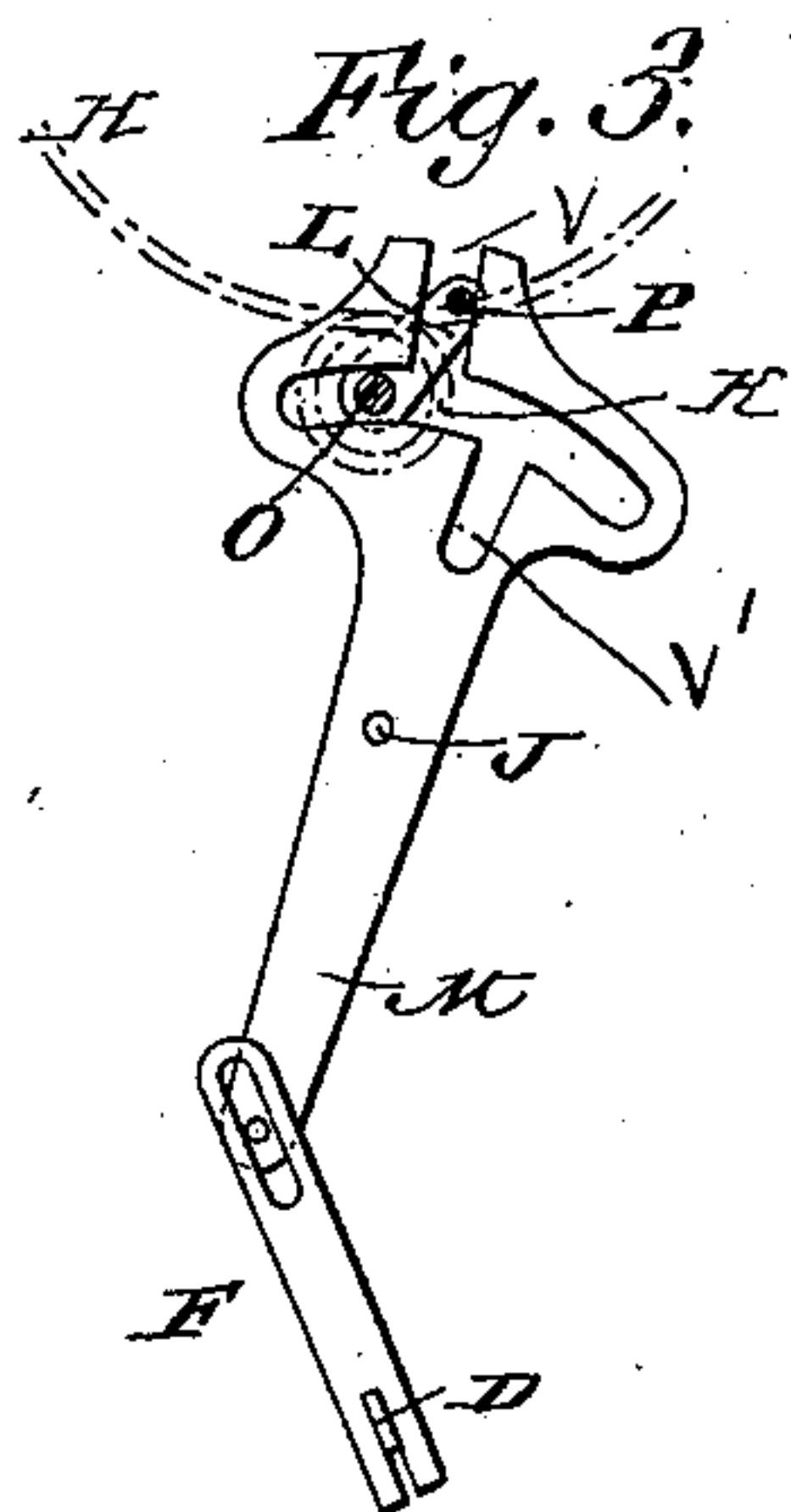
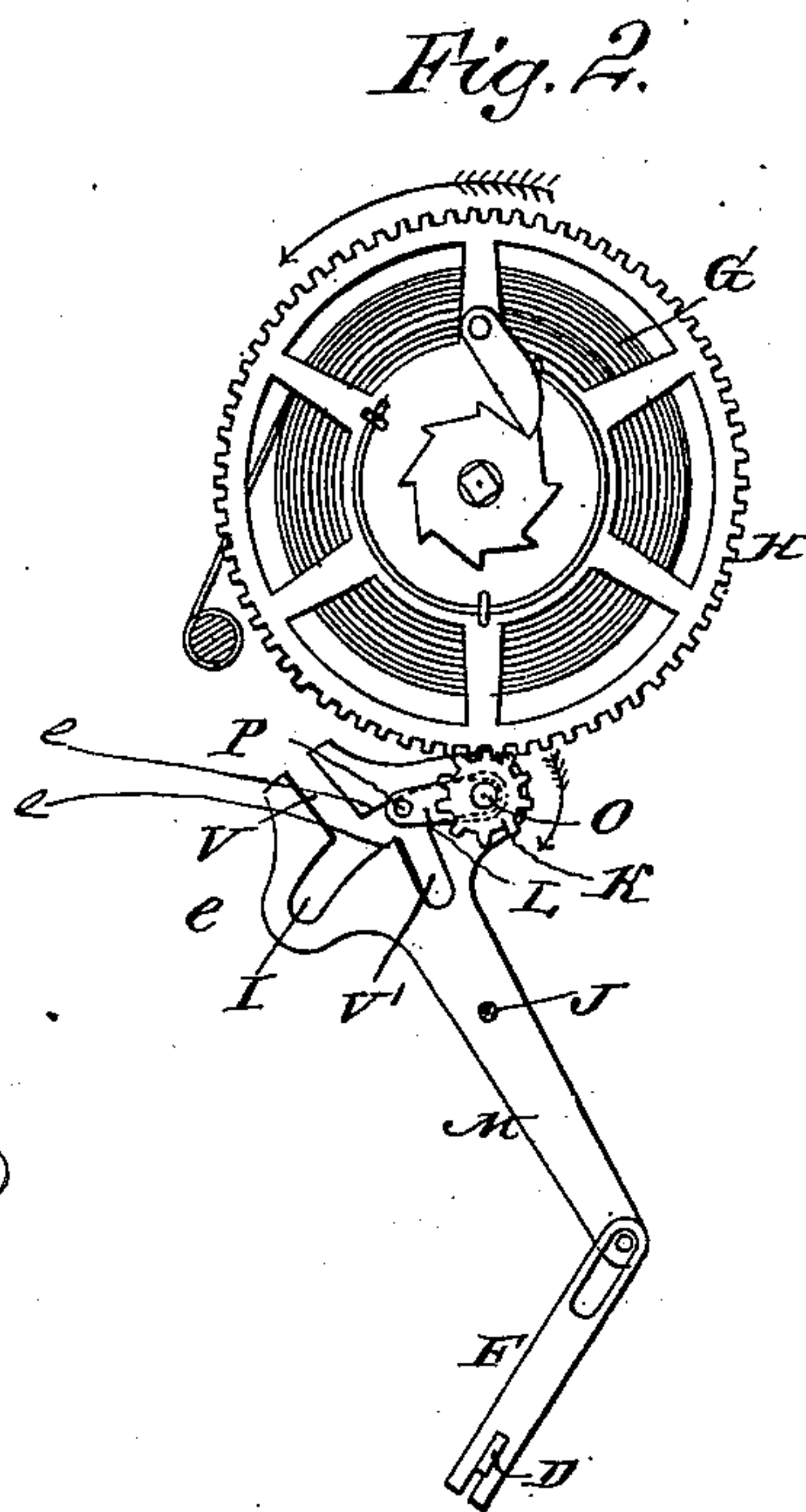
No. 332,879.

Patented Dec. 22, 1885.



WITNESSES:

W. D. Chapman
C. Sedgwick



INVENTOR:

W. D. Chapman
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM DUDLEY CHAPMAN, OF THERESA, NEW YORK.

ROTARY ESCAPE-MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 332,879, dated December 22, 1885.

Application filed October 3, 1885. Serial No. 178,899. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DUDLEY CHAPMAN, of Theresa, in the county of Jefferson and State of New York, have invented a new and Improved Rotating Escape Mechanism, of which the following is a full, clear, and exact description.

This invention consists in rotating escape mechanism adapted to be used in clocks, watches, show-cases, and other contrivances having a vibrating or reciprocating movement.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a vertical central section of a show-case with an interior show-column having a reciprocating motion with my revolving escape mechanism applied thereto. Fig. 2 is a plan of the revolving escape mechanism detached, and adapted to be used in mechanism having a horizontal reciprocating movement. Fig. 3 is a plan of the revolving escape mechanism detached, showing it at one-quarter of its movement in one direction. Fig. 4 represents the revolving escape mechanism applied to a vertical vibrating pendulum of a clock.

A in the accompanying drawings represents an ordinary perpendicular show-case in which to exhibit articles of merchandise; and it consists of the usual glass sides, with a cap, B, from which is suspended by a flexible metallic strap, D, a reciprocating column, C, upon which articles to be exhibited are placed.

Within the case E, secured to the cap B, is placed an ordinary clock-movement, to which is applied my rotating escape mechanism, and which is connected to a metallic strap, D, by which the display-column is suspended by an intermediate lever, F.

Only so much of the clock mechanism is represented in the accompanying drawings as is necessary to illustrate my revolving escape mechanism. The balance of the clock-movement being no part of my invention, is omitted.

The mechanism to operate this revolving escape device consists of a spring, G, mounted upon the shaft of a cog-wheel, H, and a pinion, K. (Represented in Fig. 2.) To the shaft O of the pinion K is secured a crank, L, which is revolved in the direction indicated by the

arrow, Fig. 2, by means of the spring G through the cog-wheel and pinion, as shown.

In order to obtain the intermittent or escape movement required to maintain the vibrating or back-and-forth motion of the pendulum of a clock, a vibrating lever, M, is provided one end of which is slotted to receive the wrist-pin P of the crank and shaft O of the pinion, its opposite end being connected to the pendulum-rod S, between the two pins T, or in any other convenient manner. In this vibrating lever M is a curved slot, I, through which the shaft O of the pinion passes in order to permit of a vibrating or back-and-forth movement of the lever M over the shaft O. At right angles to this curved slot I, and radiating from the pivot J, are two slots, V V', in which the wrist-pin P of the crank L is to operate alternately, so as to maintain the momentum of the pendulum so that it will continue its vibrating or back-and-fourth motion.

In Fig. 2 the escape mechanism is represented in position when the pendulum is at its extreme movement in one direction, the wrist-pin of the crank resting against the upper side of the curved slot I at e, which forms a shoulder, so that when the pendulum has made its full stroke and commenced to return the wrist-pin will move toward the upper slot, V, and enter it, and exert its greatest force when the vibrating lever M is at half its stroke, to add sufficient power to maintain the back-and-forth motion of the pendulum.

In Fig. 3 the lever M is represented on the last quarter of its movement, and the wrist-pin P is in the upper slot, V, in position to exert its greatest force on the pendulum to complete its stroke.

Through the cog-wheel H, pinion K, and spring G it will be understood that the crank L is constantly revolved in one direction, as indicated by the arrow, and, as the lever M is vibrated back and forth by the action of the pendulum the wrist-pin P will pass alternately into the slots V V', and by the action of the spring will bear with sufficient force against the sides of these slots, alternately, to maintain the momentum of the pendulum in its back-and-forth movement until the spring is unwound and its power spent.

It will be observed that by radiating the

slots V V' from the axis J of the lever M two shoulders, *e e*, in the slot I, will be presented to the wrist-pin of the crank L as it passes alternately out of the longitudinal slots V V' into the slot L, so as to arrest the crank at each half-revolution, to permit the pendulum to complete its stroke and commence its return movement.

In Fig. 1 this revolving escape mechanism is represented as applied to a horizontal reciprocating movement of a central column, C, in a show-case. In this construction the column C is suspended by a flexible metallic strap, D, which passes through a slot in the end of the intermediate lever, F, as shown, so that by twisting the strap D the column C will be revolved back and forth, the strap twisting alternately in opposite directions, and the momentum of the column will be maintained by the action of the revolving escape mechanism the same as in the perpendicular pendulum until the force of the spring is spent.

It will be understood that this revolving escape mechanism is equally adapted to perpendicular and horizontal movements in clocks, watches, and other mechanisms where a reciprocating movement is to be maintained

When it is required to stop the mechanism to which this revolving escape is applied, a brake, W, may be employed, as shown in Fig. 1.

It is quite evident that the crank L may be revolved by suitable pulleys and weights, instead of cog-wheel, pinion, and spring, as shown in the drawings, if preferred.

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

1. In a revolving escape-movement consisting of a lever, M, having a slot, I, concentric with the pivot J, and two corresponding slots, V V', at right angles thereto in opposite directions, so as to form corresponding shoulders, *e e*, in the slot I, in combination with the crank L, substantially as herein described.

2. In combination with the revolving escape mechanism herein described, consisting of a crank, L, slotted lever M, vibrating on a pivot, J, centrally, the intermediate lever, F, and flexible strap D, adapted to be used in a horizontal reciprocating movement in clocks and watches, substantially as herein set forth.

WILLIAM DUDLEY CHAPMAN.

Witnesses:

EDGAR TATE,
EDW. M. CLARK.