

No. 754,882.

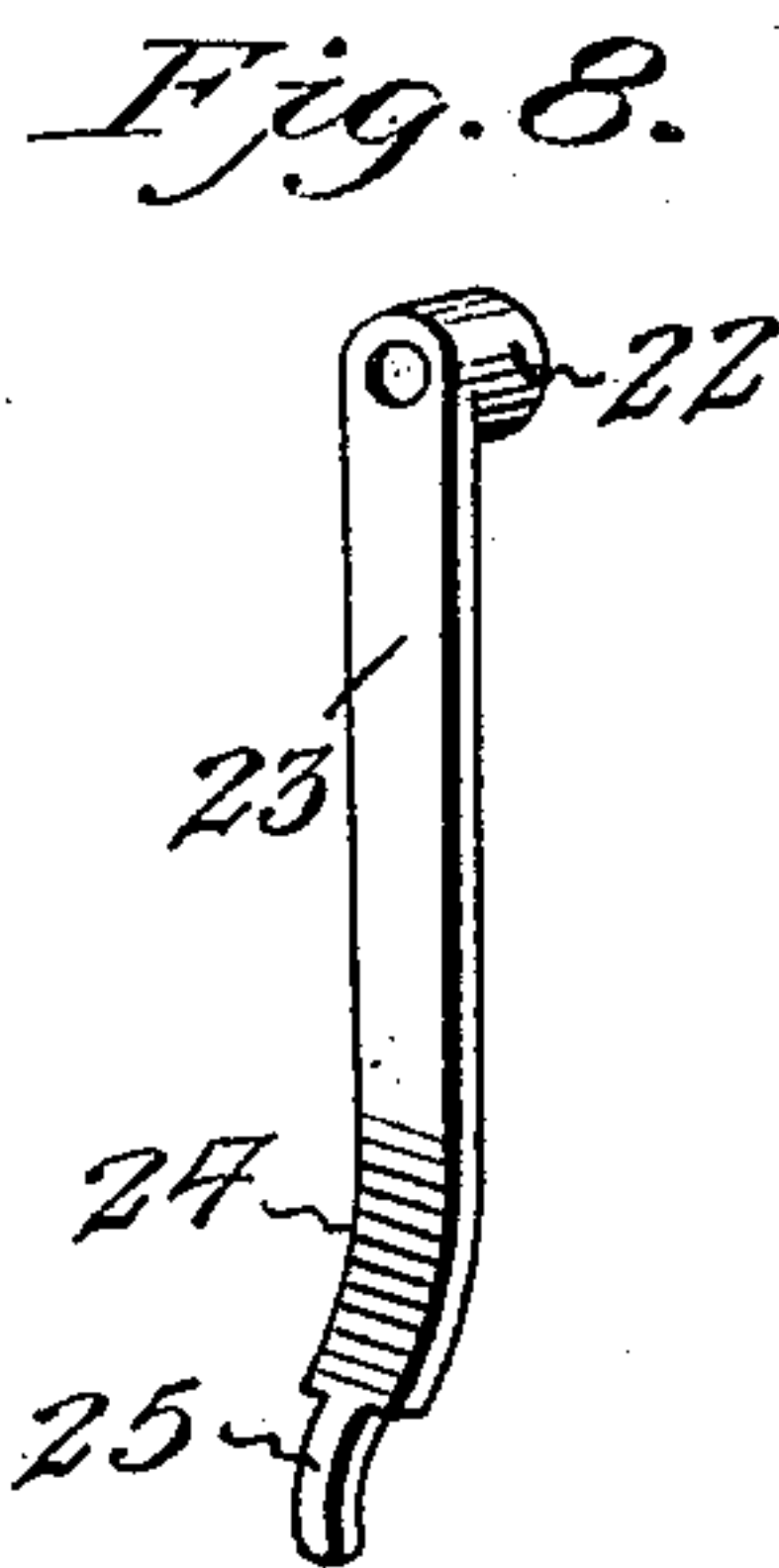
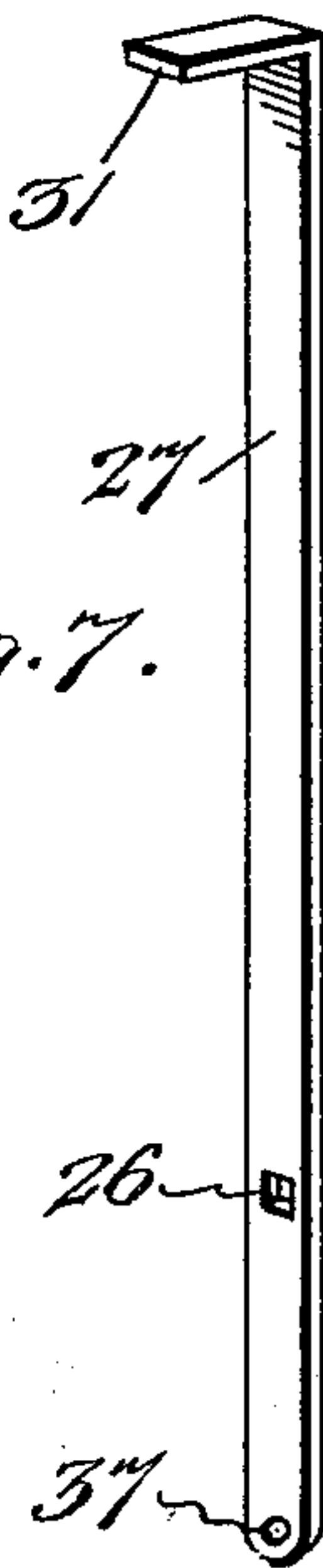
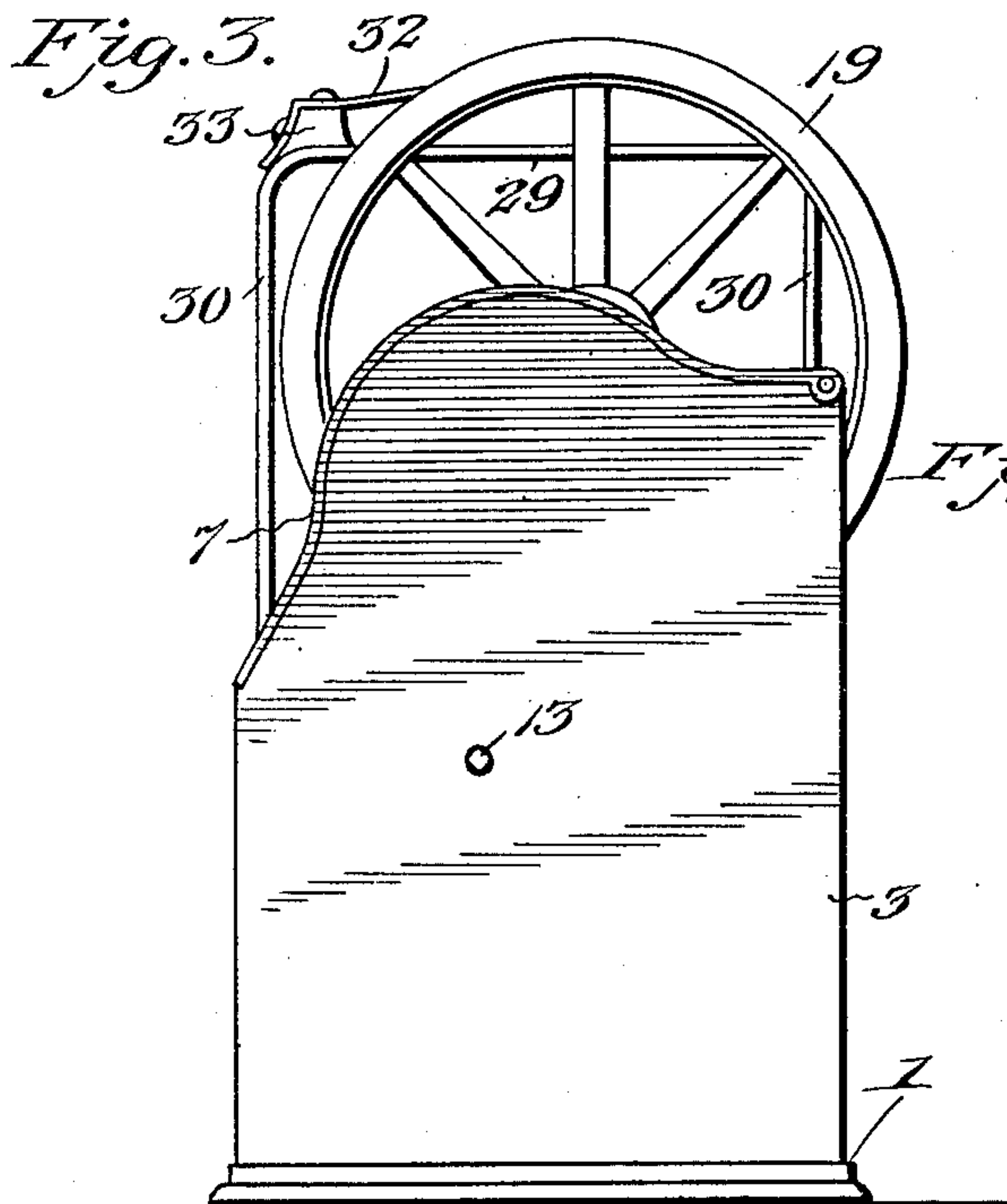
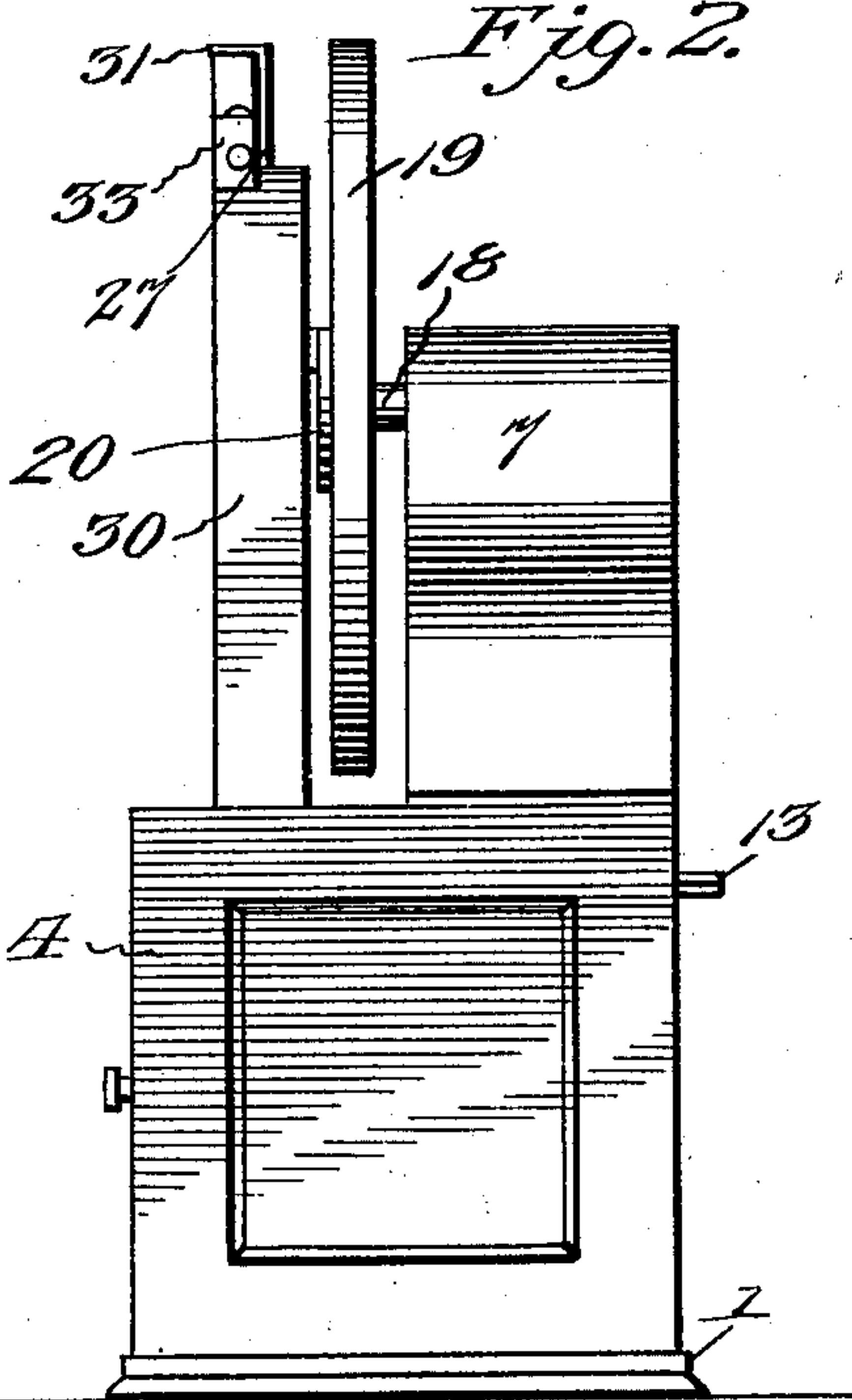
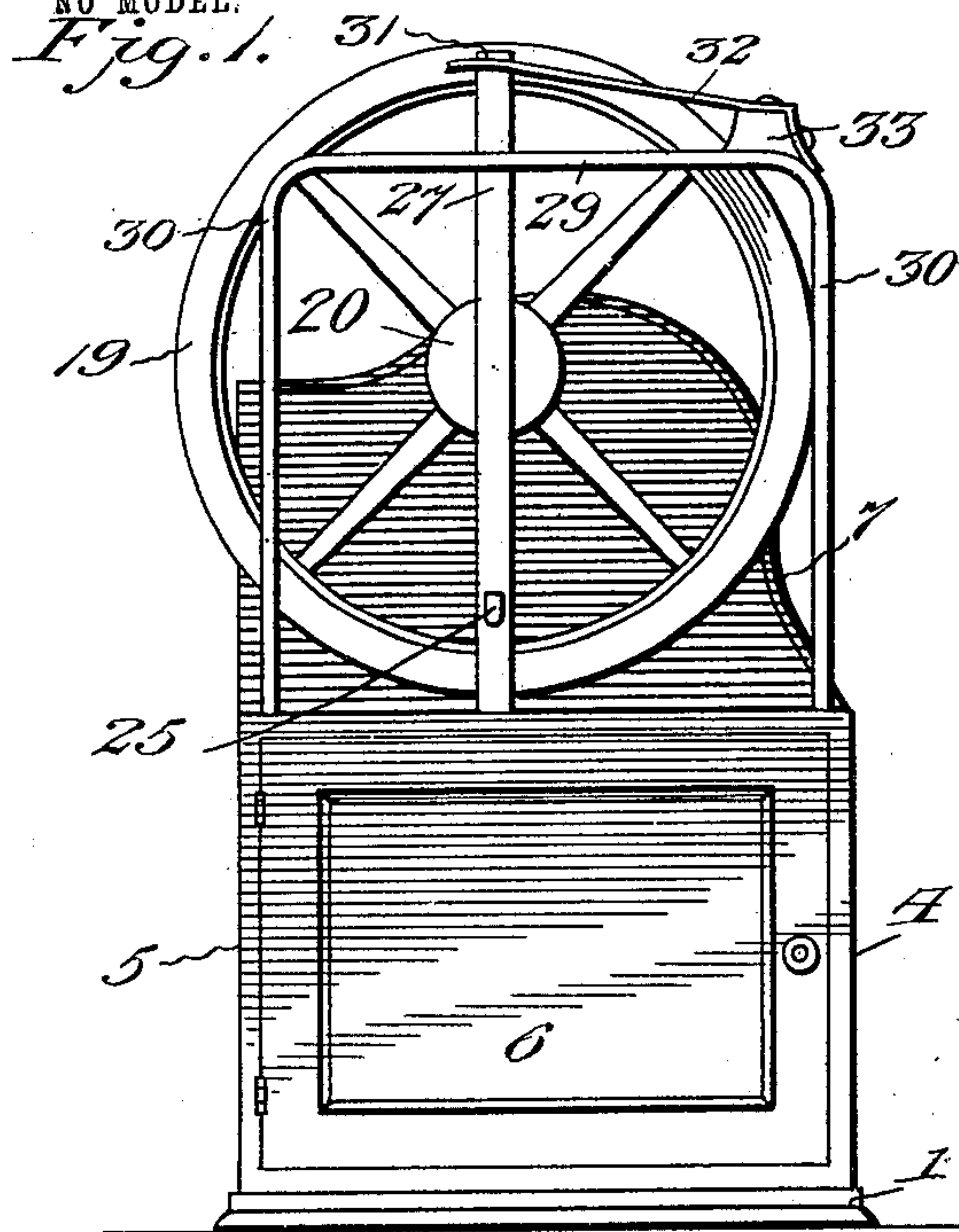
PATENTED MAR. 15, 1904.

J. D. METCALF.
CHURN.

APPLICATION FILED OCT. 7, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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By

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2 SHEETS—SHEET 2.

Fig. 4.

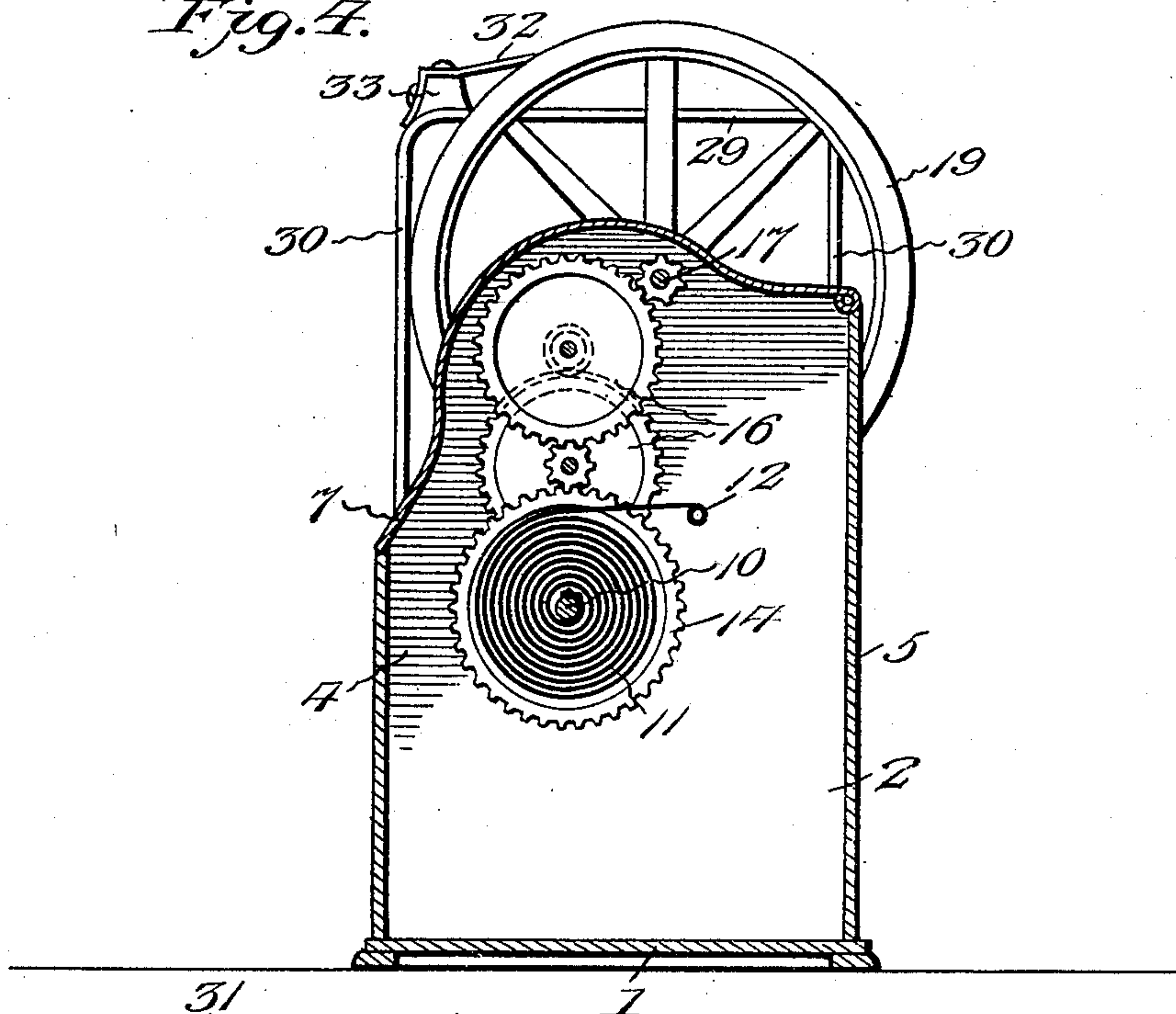
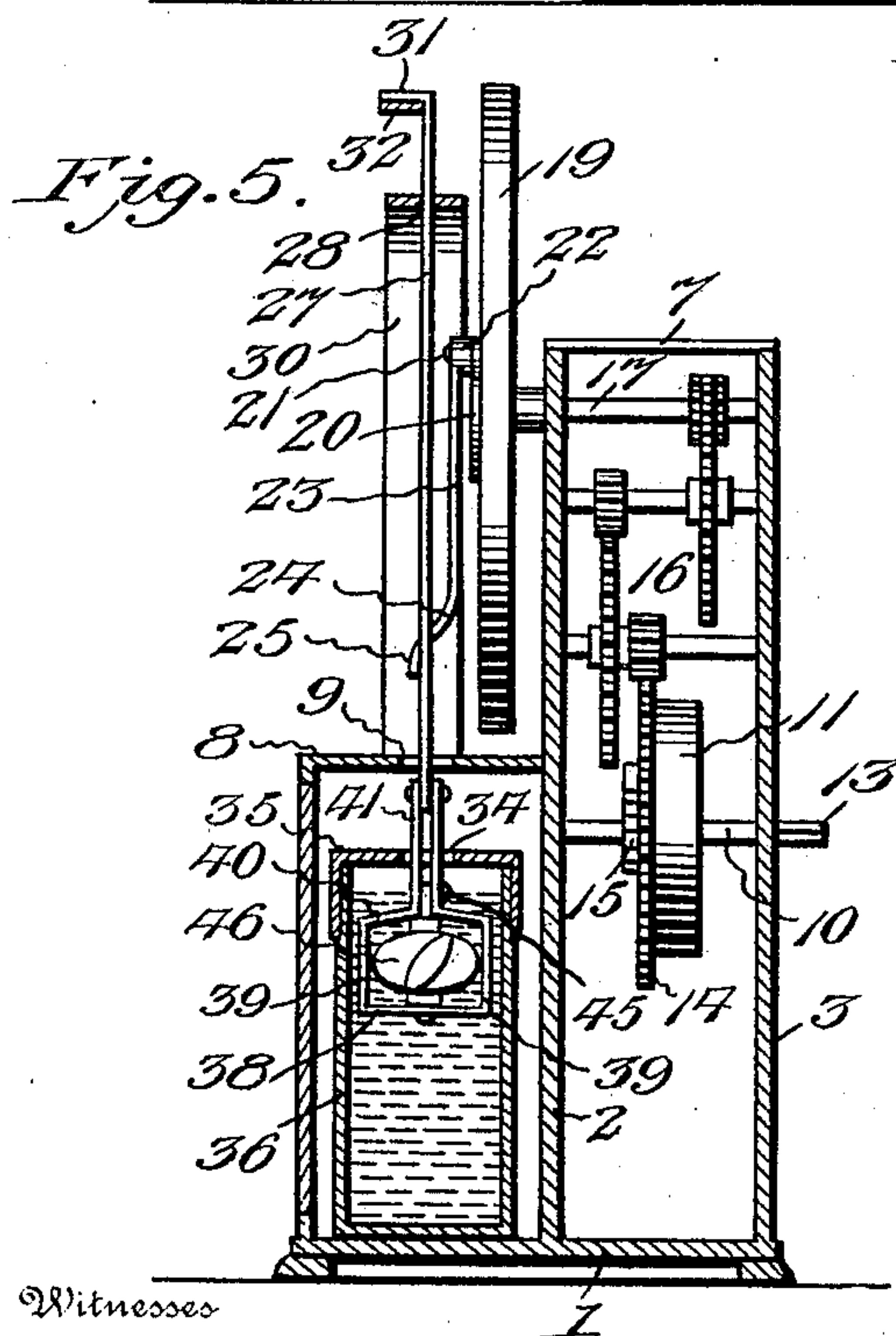


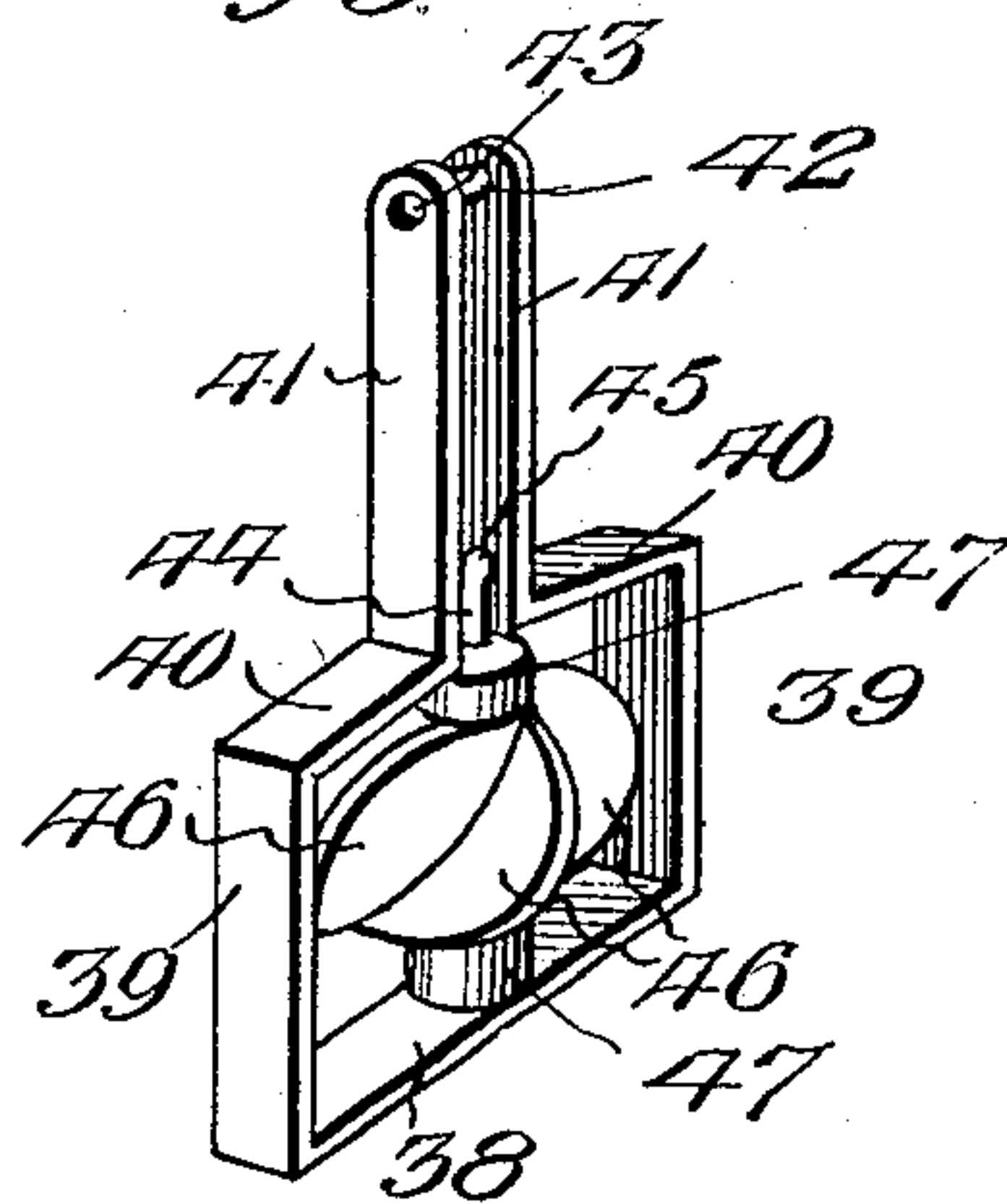
Fig. 5.



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Fig. 6.



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UNITED STATES PATENT OFFICE.

JEFFERSON D. METCALF, OF DARRINGTON, MISSISSIPPI, ASSIGNOR OF ONE-HALF TO WILLIAM E. WISNER, OF DARRINGTON, MISSISSIPPI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 754,882, dated March 15, 1904.

Application filed October 7, 1903. Serial No. 176,121. (No model.)

To all whom it may concern:

Be it known that I, JEFFERSON D. METCALF, a citizen of the United States, residing at Darrington, in the county of Wilkinson and State of Mississippi, have invented new and useful Improvements in Churns, of which the following is a specification.

My invention has relation to new and useful improvements in churns and operating mechanism therefor; and the object is to provide a churn with a dasher of improved and simplified construction which will efficiently accomplish the rapid and successful process of churning and in providing an improved operating mechanism for the dasher which will impart a steady and positive movement thereto.

The invention consists in the construction of the elements and their arrangement in operative combination, which will be fully described hereinafter and the novelty thereof particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings, forming a part of this specification, and wherein—
Figure 1 is a view in front elevation of a complete churn constructed in order to embody my invention. Fig. 2 is a view of the churn in end elevation. Fig. 3 is a view in rear elevation or the opposite side from that shown in Fig. 1. Fig. 4 is a vertical central longitudinal section through the motor-casing and the motor. Fig. 5 is a vertical central transverse section through the complete churn. Fig. 6 is a detailed perspective view of the improved dasher. Fig. 7 is a detailed perspective of the dasher-rod. Fig. 8 is a view of the pitman or connecting-rod for imparting motion from the motor to the dasher-rod.

Referring to the drawings, 1 designates a base-plate of suitable dimensions upon which the casings in which the churn and operating means therefor are operatively arranged and supported. The motor-casing just mentioned is constructed of two vertically-arranged plates 2 3, the former of which is positioned on the plate 1 at approximately the longitudinal center thereof, the plate 3 being secured at the edge of said plate, substantially as shown in Fig. 5 of the drawings. These plates 2 and

3 are connected at their end edges and the motor-casing completed by vertical end pieces 4 5, the said pieces extending the entire width of the plate 1 to constitute the end pieces for the churn-casing, the rear side of which is formed by the plate 1 and the front of which is closed by a suitable hinged door or closure 6, as shown in Fig. 1. The side plates 2 and 3 just above mentioned are curved on their upper edges from the end piece 5 downwardly toward the piece 4 in order to permit easy access to the interior of the motor-casing, the upper open end thereof being provided with a suitable hinged cover 7, shaped to coincide with curved form of the side plates. The churn-casing is closed at its upper portion by a top piece 8, formed with an opening 9, through which the dasher-rod extends and reciprocates. (See Fig. 5.)

Arranged in the motor-casing is a horizontally-disposed rotatable shaft 10, which is journaled in suitable bearings in the vertical plates 2 and 3. Upon the shaft is a coiled spring 11, one end of said spring being anchored to a post 12 in the casing and the other end secured to the shaft, said spring serving when wound or under tension to provide power for the operating mechanism. In order that the said spring may be wound up, the end of the shaft upon which it is arranged is projected through one side of the casing and squared, as at 13, to provide for the application of a suitable winding-tool. Motion is transmitted from the shaft 10 by means of a gear 14, loosely mounted thereon and adapted to be positively connected thereto when moving in one direction, by means of a pawl-and-ratchet device 15 in a well-known manner to a train of gears 16, by means of which rotary motion is imparted to a horizontally-disposed shaft 17, journaled in the upper portions of the plates 2 and 3 and projecting at one end laterally over the churn-casing, as at 18, and upon which end is mounted a fly or balance wheel 19. Carried by the hub of the fly-wheel is a plate 20, which is provided with a wrist-pin 21, arranged eccentric to the said plate and to which is loosely connected one end, 22, of a pitman 23, the lower end of which is provided with a

laterally-extending portion 24, formed with a downwardly-projecting reduced portion 25, adapted to be inserted in an opening 26, formed in the dasher-rod 27 at a point intermediate its ends, as shown in Figs. 5 and 7.

The dasher-rod 27, above mentioned, is arranged to reciprocate in a vertical direction and is projected through a guide-aperture 28, formed in a horizontal member 29, which is supported upon the churn-casing by end standards 30, as shown in Fig. 1. At its upper end portion, above the member 29, the dasher-rod is formed with a lateral projection 31, against the under side of which bears the free end of a flat spring 32, the opposite end of which is secured to a block 33, mounted on the end of the horizontal member 29, said spring being arranged to exert an upwardly-directed force against the under side of the projection 31, which assists in the lifting of the dasher-rod during the operation of churning and takes a large portion of the weight of the rod and dasher off the wrist-pin 21 and also greatly steadies the churning devices in their movements when in operation.

As above stated, the dasher-rod is projected through an opening 9 in the top of the churn-casing and is adapted to be reciprocated through an opening 34, formed in the cover 35 of the churn-body 36. In the lower end of the dasher-rod 27 is an opening 37, which is adapted to be engaged by a catch on the dasher to secure said dasher to the rod. This dasher, which embodies part of the novel features of my invention, comprises a substantially stirrup-shaped frame constructed from a bar or strip of suitable spring metal and consists of a horizontal portion 38, from the ends of which extend vertical pieces 39, from the upper portions of which the ends of the metal strip are bent inwardly, as at 40, to a point closely adjacent each other, whence they are directed vertically to form members 41, one of which is provided with an inwardly-directed pin 42, which is adapted to project through an aperture 43, formed in the opposite member. This frame is attached to the dasher-rod by arranging the members 41 on either side of the dasher-rod and projecting the pin 42 through the opening 37 and the opening 43, the spring tendency of the members to move toward each other serving to hold the pin in position to lock the frame to the rod.

Within the frame above described is arranged a vertical shaft 44, the lower end of which is firmly secured to the horizontal member 38 at a point intermediate its ends, the upper end of said shaft being carried to a point between the members 41, where it is directed laterally, as at 45, and secured to one of the members 41. Rotatably arranged upon this shaft 44 is a dasher formed with spirally-disposed blades or wings 46, which when the frame is reciprocated impart a rotary action

to the dasher, owing to their engagement with the liquid in the churn-body, an upward movement of the dasher-rod serving to rotate the dasher in one direction, while a downward movement of the rod reverses the movement of the dasher-rod and rotates it in the opposite direction, thus effectively and rapidly accomplishing the process of churning. In order to provide for the free movement of the dasher-rod and prevent its scraping on the member 38 or the members 40, I arrange spacing-washers 47 above and below the dasher on the shaft 44, as clearly shown in Fig. 6.

In operation rotary movement generated by power from the spring 11 is transmitted to the shaft 17 through the train of gears 16, said shaft rotating the fly-wheel and wrist-pin 21, which imparts a reciprocatory movement to the pitman 23, which through its connections with the rod 27 reciprocates the dasher-rod and rotates the dasher to separate the butter from the milk. In its upward movement the dasher-rod is lifted partially by the spring 32, which takes a great portion of the weight off the wrist-pin 21 and in the downward movement of the rod steadies the movement of the pitman and rod.

What I claim, and desire to secure by Letters Patent, is—

1. In a churn-operating device, the combination with a motor, of a shaft operated thereby, a pitman eccentrically held on the shaft and provided with a lower laterally-extending terminal, a dasher-rod through which the lower laterally-bent terminal of the pitman extends, and a spring engaging the upper end of the dasher-rod to exert an upwardly-directed force on the latter.

2. In a churn, the combination with a support, of a motor, a shaft driven by the motor, an eccentrically-arranged pin on the shaft, a dasher-rod, a pitman connecting said rod and wrist-pin, a spring engaging the rod to lift the same, a dasher on the rod comprising a frame including spring members adapted to engage the dasher-rod, and a rotatable element carried by the frame.

3. In a churn, the combination with a support, of a motor, a shaft operated by the motor, an eccentrically-arranged wrist-pin on the shaft, a dasher-rod, a pitman connecting said rod and pin, a frame, a spring on said frame to lift the rod, a dasher on said rod, comprising a frame including horizontal and vertical members, said vertical members being secured to the rod, a shaft secured to the horizontal members and one of the vertical members, and a rotatable element on the shaft having spirally-arranged blades.

4. In a churn, the combination with a support, of a motor, a shaft operated by the motor, an eccentrically-arranged wrist-pin on the shaft, a dasher-rod having an opening at its lower end, a pitman connecting said pin and rod, a frame, a spring on the frame engaging

the rod to lift the same, a dasher comprising a frame including spring members one of which is provided with a pin adapted to be projected through the opening in the dasher-rod and extended through an opening in the other spring member.

5 In a churn, the combination with a support, of a motor, a shaft driven by the motor, a horizontal member held at an elevation by the support, a vertically-reciprocating dasher-rod movable through the said member, a pit-

man eccentrically carried by the shaft and connected to the dasher-rod below the said member, and a spring engaging the upper terminal of the dasher-rod above the member.

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

JEFFERSON D. METCALF.

Witnesses:

JESSE S. PARKER,
R. H. RICHARDSON.