

**No. 834,975.**

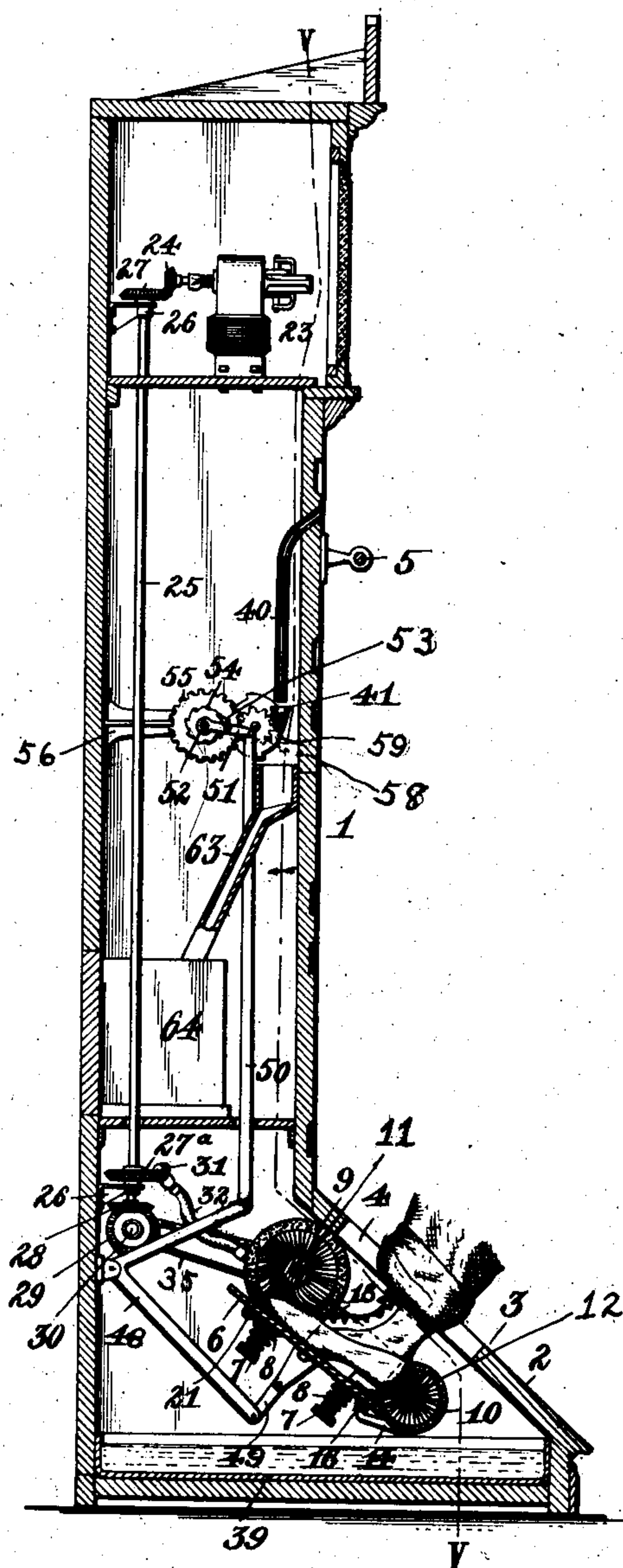
PATENTED NOV. 6, 1906.

R. O. HAMMOND.  
SHOE POLISHING MACHINE.

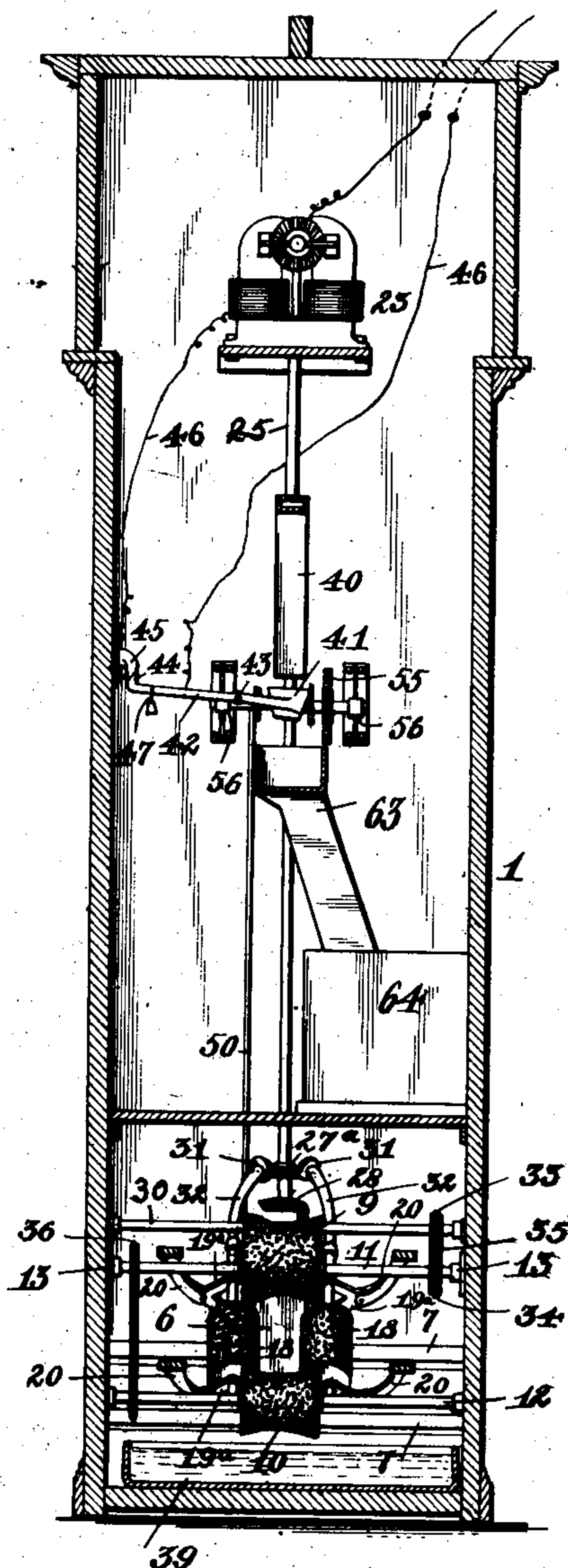
APPLICATION FILED SEPT. 23, 1903.

4 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
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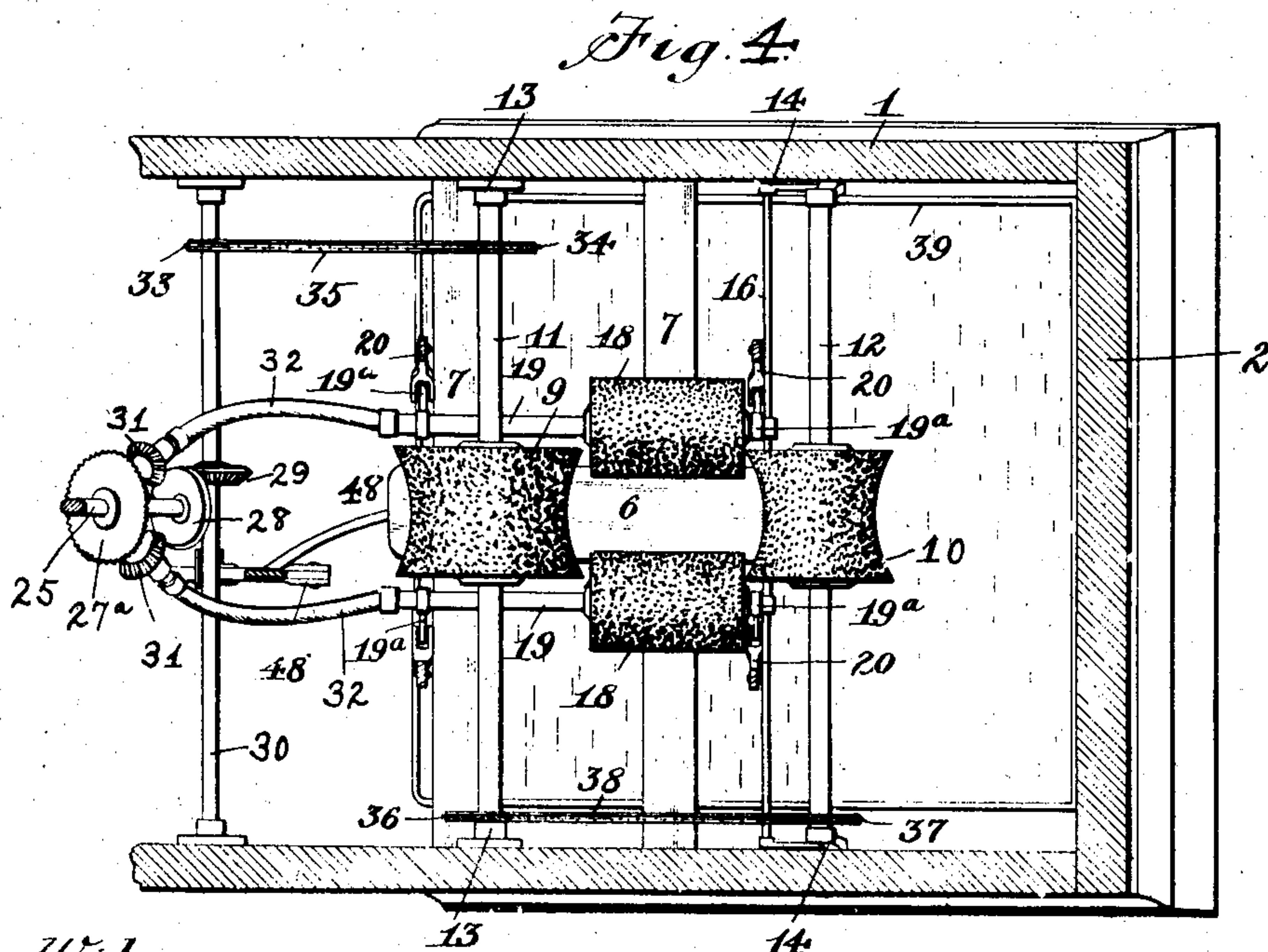
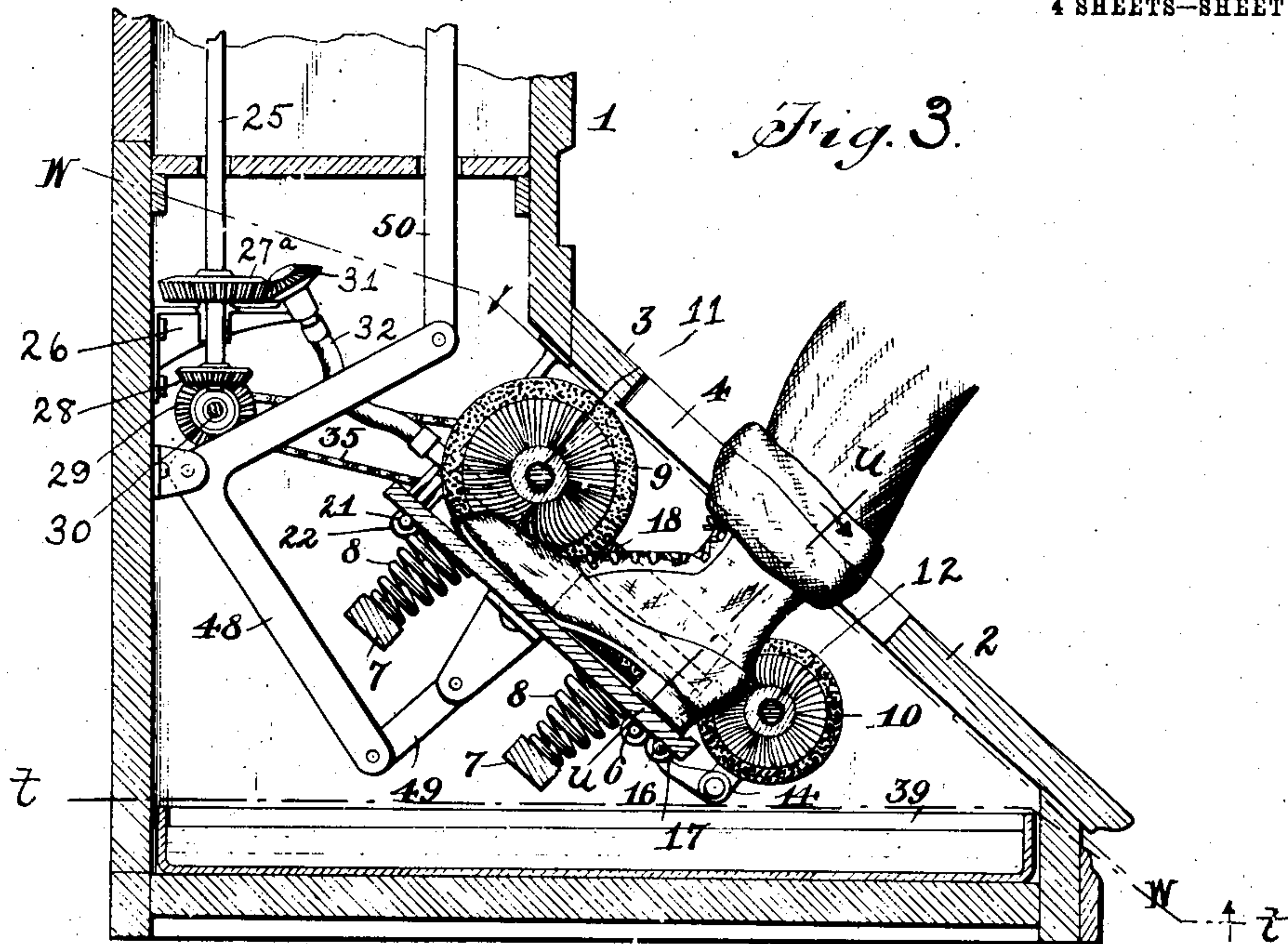
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4 SHEETS—SHEET 2.



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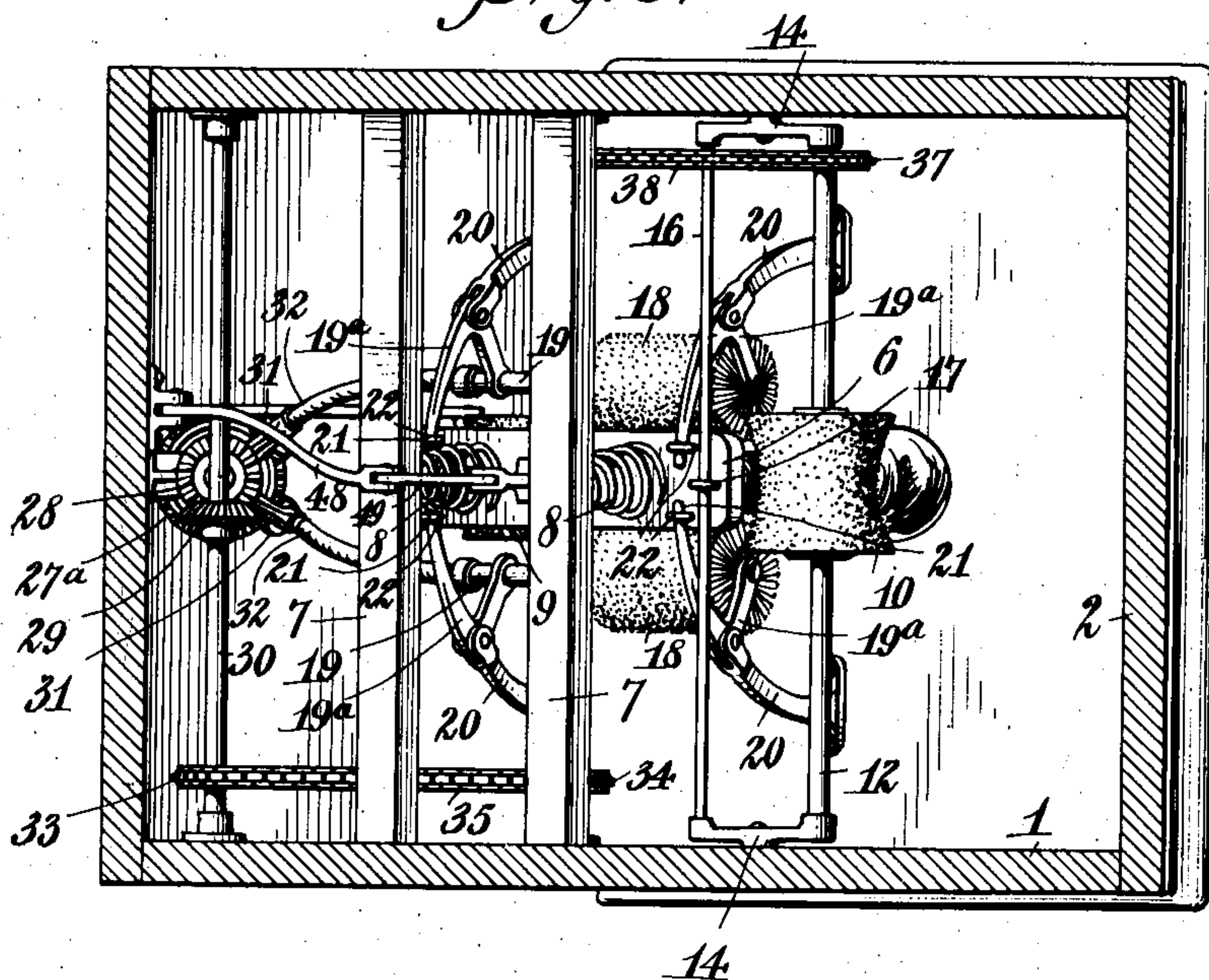
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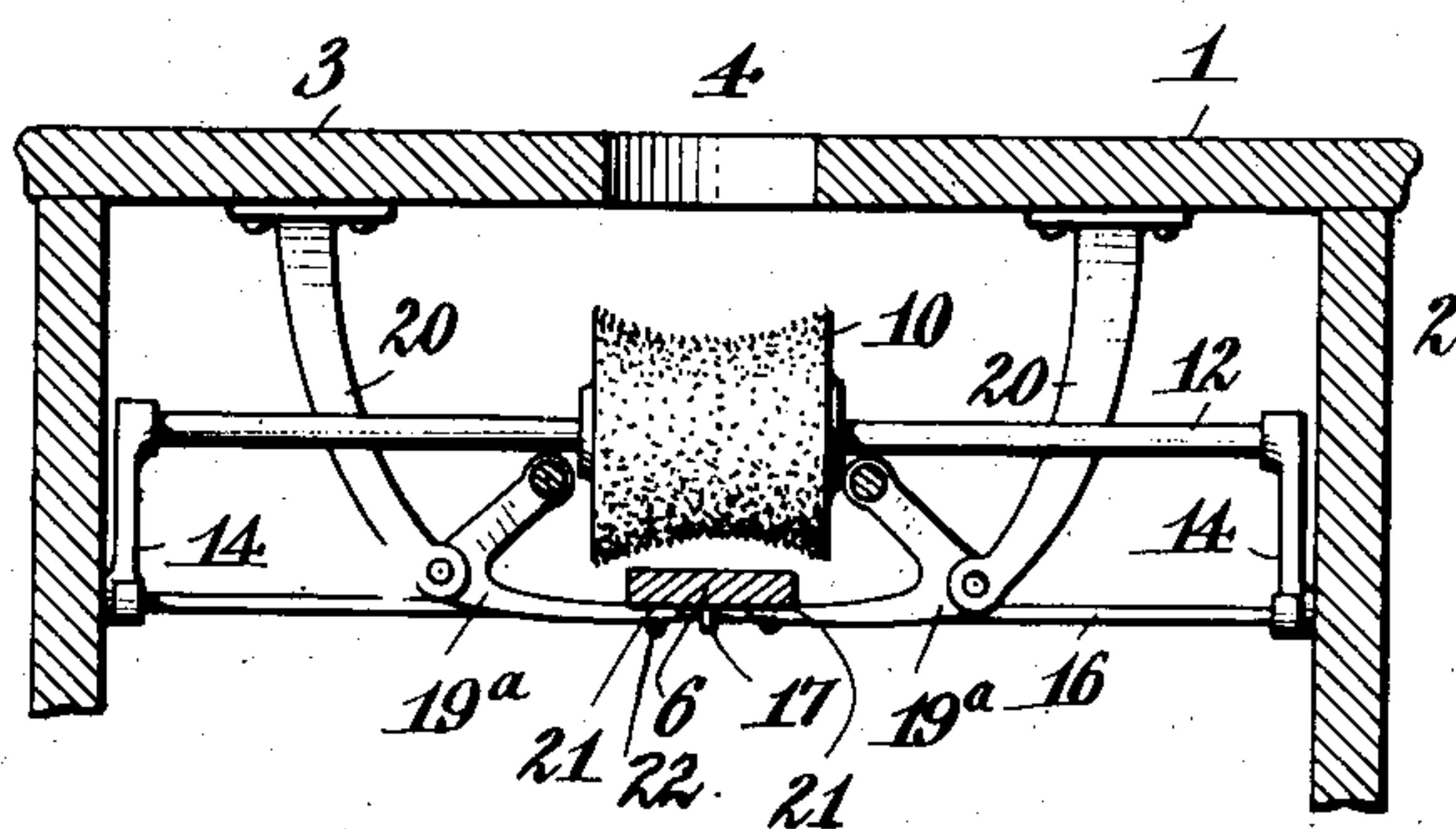
APPLICATION FILED SEPT. 23, 1903.

4 SHEETS—SHEET 3.

*Fig. 5.*



*Fig. 6.*



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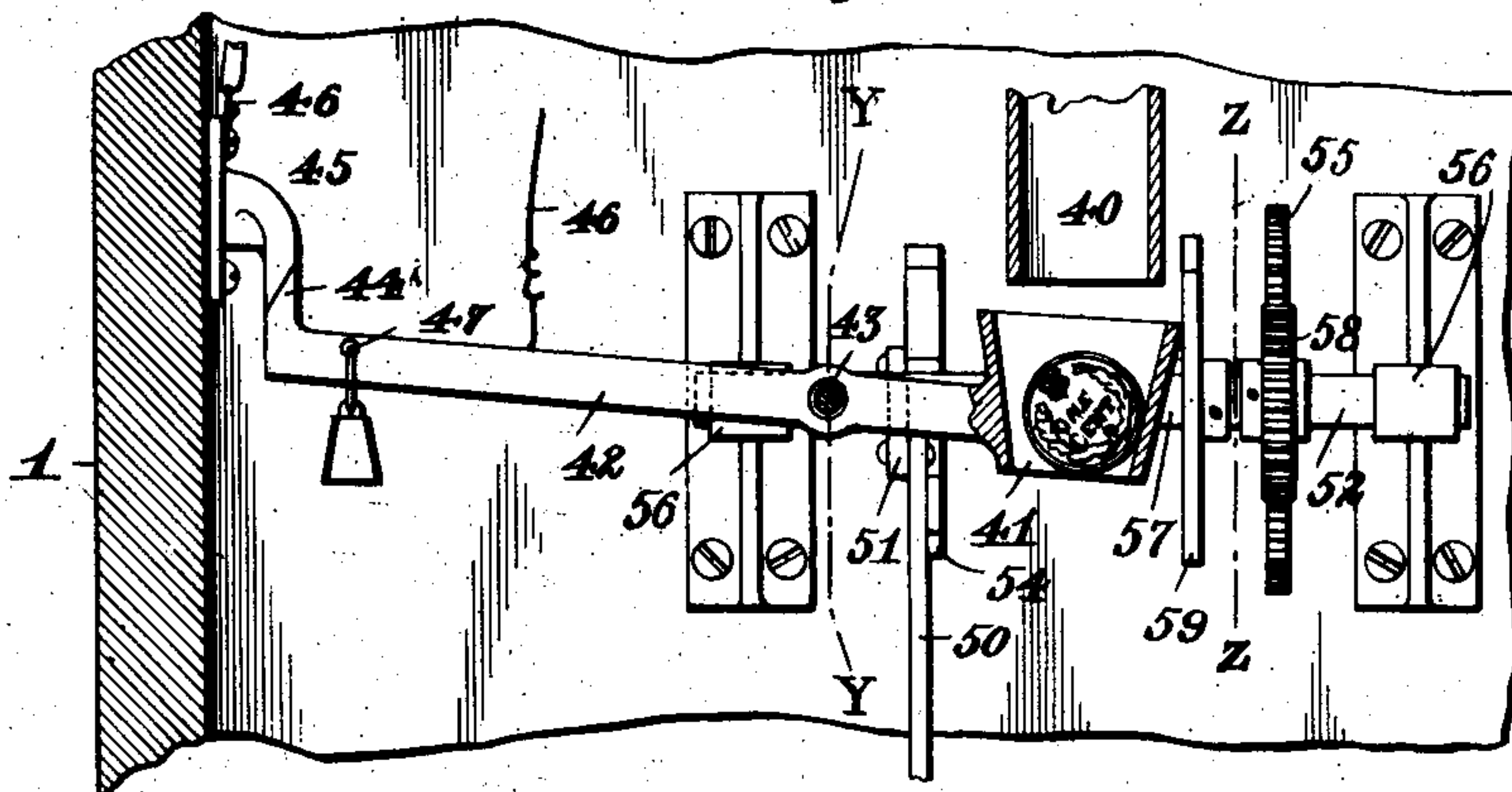
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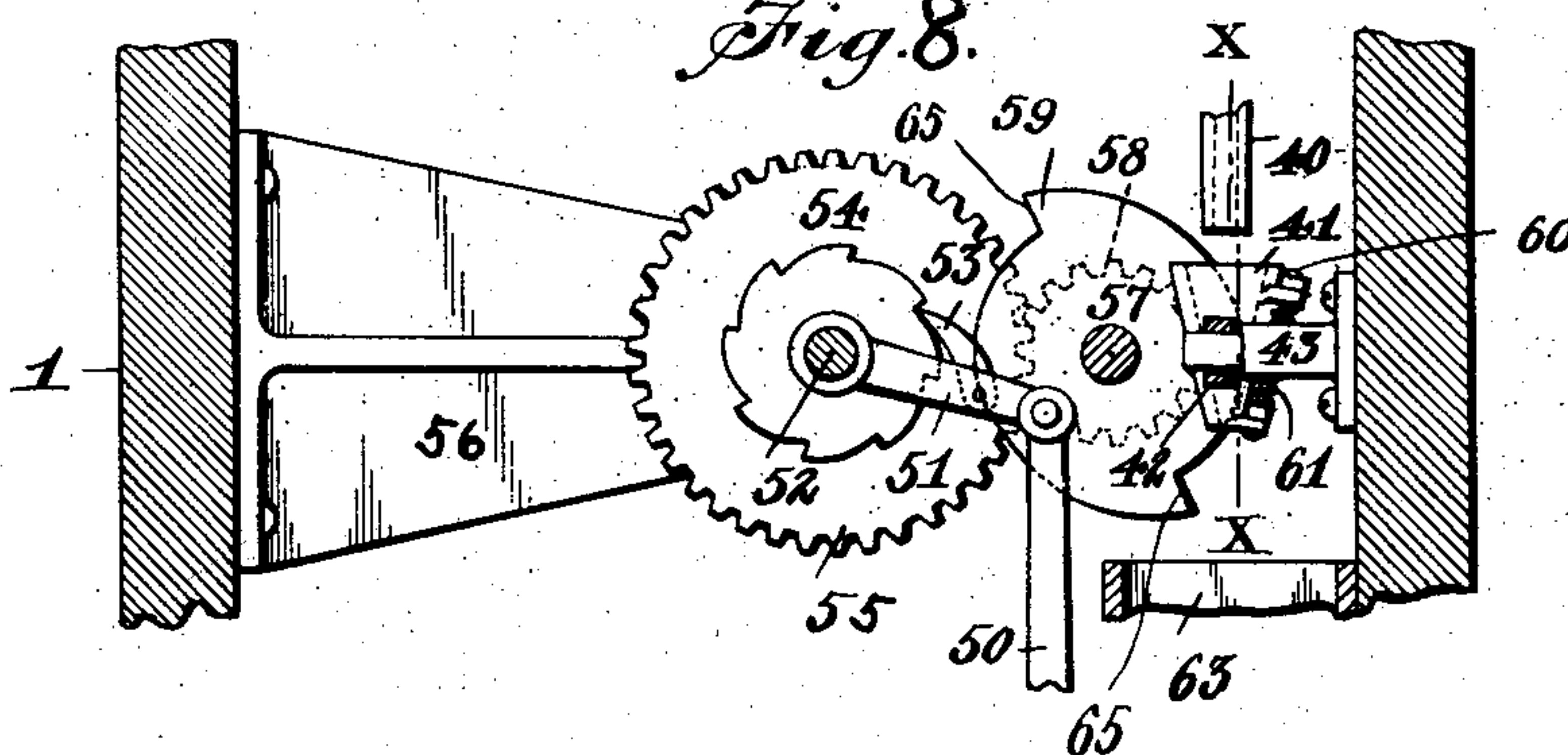
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4 SHEETS—SHEET 4.

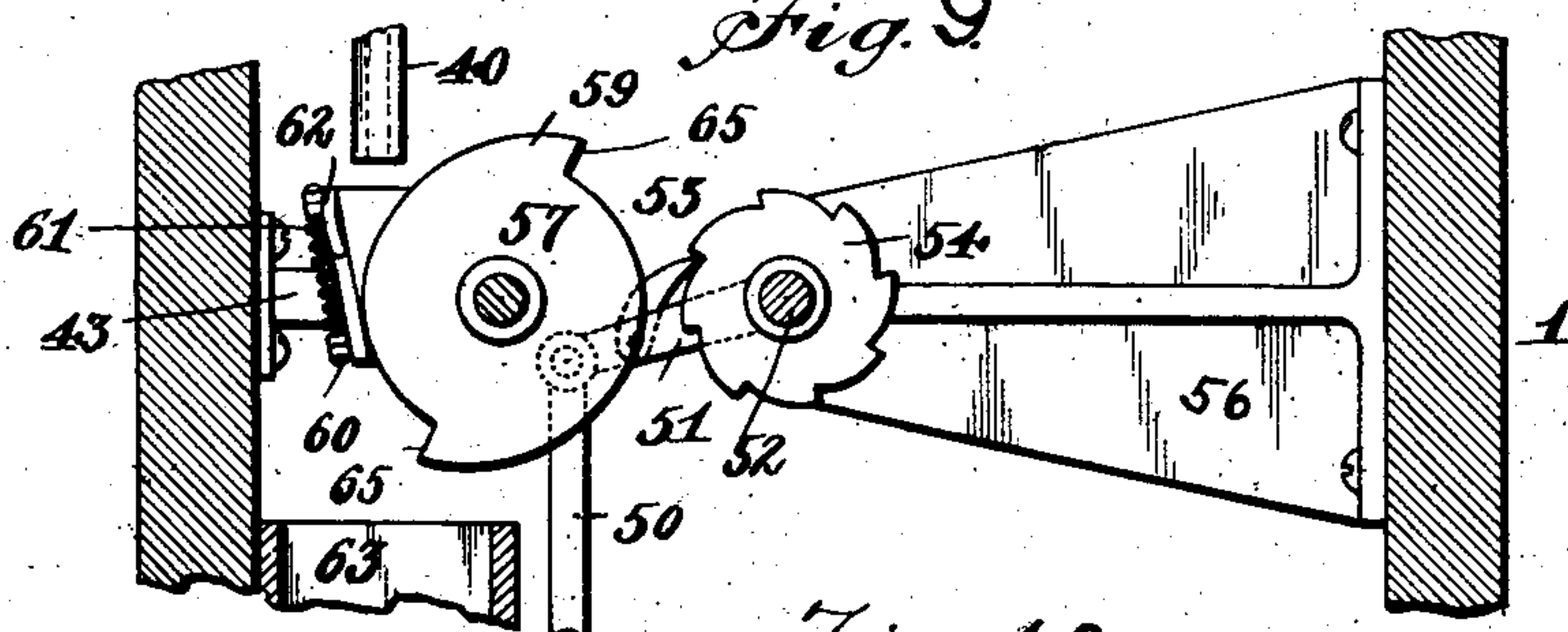
*Fig. 7.*



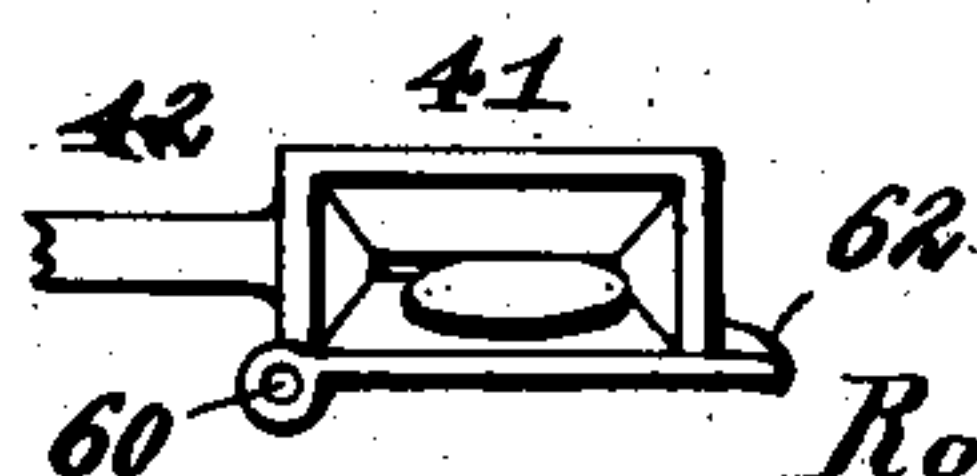
*Fig. 8.*



*Fig. 9.*



*Fig. 10.*



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# UNITED STATES PATENT OFFICE.

ROBERT O. HAMMOND, OF BUFFALO, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO SHULMAN AUTOMATIC NOVELTY COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

## SHOE-POLISHING MACHINE.

No. 834,975.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed September 23, 1903. Serial No. 174,306.

*To all whom it may concern:*

Be it known that I, ROBERT O. HAMMOND, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to shoe-polishing machines; and it has for its primary object the production of a simple automatic machine which can be operated by electrical energy when an electric circuit is closed and in which the electric circuit is broken by the removal of one's foot from the foot-rest.

Other objects are to provide simple and efficient means to swing the polishing-brushes against the shoe when the person desiring to have the shoe polished places one foot on the foot-rest, to provide simple and efficient means for supporting the brushes to permit of their swinging toward and from the foot-rest while maintaining operative connection with the source of power, and to otherwise improve and simplify machines of this type.

To these ends the invention consists of the novel arrangement, construction, and combination of parts, as will be hereinafter described, and fully pointed out in the appended claims.

In the drawings, Figure 1 is a central vertical section of the machine. Fig. 2 is a section taken on line V V, Fig. 1, looking in the direction of the arrow intersecting said line. Fig. 3 is an enlarged vertical section, similar to Fig. 1, of the lower part of the machine. Fig. 4 is a section taken on line W W, Fig. 3, looking in the direction of the arrow intersecting said line. Fig. 5 is a horizontal section taken on line t t, Fig. 3, looking up. Fig. 6 is a section taken on a plane indicated by line u u, Fig. 3, looking to the right, the foot being removed from the foot-rest. Fig. 7 is a vertical section taken on line X X, Fig. 8, showing a front elevation of the mechanism for making and breaking the electric circuit. Fig. 8 is a vertical section on line Y Y, Fig. 7, looking to the right. Fig. 9 is a vertical section taken on line Z Z, Fig. 7, looking toward the left. Fig. 10 is a plan view of the coin-receiver formed on or secured to one end of the contact or balance lever.

Referring to the drawings in detail, corresponding numerals of reference refer to corresponding parts in the several figures.

The reference-numeral 1 designates the casing in which the mechanism is housed, and at its lower end it has, preferably, a forward extension 2 with an inclined top 3, which is provided with an opening 4, into which a person desiring his shoes polished will place his foot. By arranging the upper wall of the forward extension on an incline one can conveniently insert his foot into the casing whether in a standing or sitting position. A hand rail or support 5 is secured to the front of the casing, which may be taken hold of to support one when in a standing position with one foot supported on the foot-rest.

Beneath the opening 4 and substantially parallel with the upper inclined wall of the forward extension is an inclined yielding foot-rest 6, on which the shoe to be polished is placed. Two cross-bars 7, suitably supported in a fixed position, have each a spiral spring 8 secured thereto, against which the foot-rest 6 bears or is secured, as may be desired. The foot-rest is therefore yielding to pressure exerted thereon by the person having his shoes polished.

A toe-brush 9 and a heel-brush 10 are located at opposite ends of the foot-rest and are secured to parallel transversely-disposed shafts 11 and 12, respectively. The shaft 11, carrying the toe-brush, is journaled in suitable fixed bearings 13, secured to the casing, while the shaft 12 is journaled in the ends of corresponding arms of two bell-crank levers 14, similarly disposed and pivotally secured to the sides of the casing. The ends of the other arms of said levers are connected by a bar 16, which passes underneath the foot-rest and is held thereagainst by a clip 17 or other equivalent means to compel the said bell-crank levers to be moved by the foot-rest. This movement of the bell-crank levers swings the heel-brush inward against the shoe, and the pressure applied can be regulated by the pressure exerted against the foot-rest.

18 designates the two inclined side brushes, which are arranged lengthwise of the foot-rest on opposite sides thereof and secured to



suitable shafts 19. The said side brushes are substantially parallel and each shaft thereof is journaled in corresponding arms of two bell-crank levers 19<sup>a</sup>, suitably pivoted to rock on brackets 20, secured to the casing or other fixed object in any practical manner. The free ends of the other arms of the last-mentioned bell-crank levers extend inward and bear against the under side of the foot-rest, as at 21, and they are held against the same by clips 22 or other suitable means, thus causing the side brushes to respond to the action of the foot-rest when raised by the springs 8 or lowered by pressure applied against the upper side thereof.

It is apparent from the foregoing that normally the foot-rest is elevated by the springs 8, and the side brushes and heel-brush are swung outward, owing to the bell-crank levers 14 and 19<sup>a</sup> being connected to said foot-rest, and when the person having his shoes polished places his foot upon the foot-rest the said brushes are swung inward against the shoe and the amount of pressure desired can be easily regulated by exerting more or less pressure on the foot-rest.

The brushes may be revolved by any suitable source of power and by any practical transmission mechanism from the source of power; but I have devised a simple and novel arrangement which will permit the revolving of the side brushes and heel-brush irrespective of their positions, which can be varied to suit the different sizes of shoes being polished. It is obvious that in order to polish a small shoe the foot-rest must be lowered farther than when a large shoe is being polished and in all cases the extent of inward movement of the side brushes and heel-brush is always proportionate to the movement of the foot-rest. In the drawings I have shown an electric motor 23, to the shaft of which is secured a bevel-gear 24. A vertical shaft 25 is journaled in suitable brackets 26, and at its upper end it has a bevel-gear 27, which meshes with the bevel-gear 24 on the motor-shaft. At its lower end the shaft 25 is provided with two bevel-gears 27<sup>a</sup> and 28, the latter meshing with a corresponding gear 29, secured to a transverse shaft 30 and the former meshing with two bevel-gears 31, secured to flexible shafts 32, coupled to the shafts carrying the side brushes. The transverse shaft 30 is provided with a sprocket-wheel 33, around which and a sprocket-wheel 34, secured to the transverse shaft 11, a sprocket-chain 35 passes. The transverse shaft 11, which carries the toe-brush, is provided with a second sprocket-wheel 36, and secured to the shaft 12, carrying the heel-brush, is a sprocket-wheel 37, around which and the sprocket-wheel 36 a sprocket-chain 38 passes. Movement is therefore transmitted from the motor 23 to the vertical shaft 25, with which the shafts carrying the

side brushes are flexibly connected, and by means of said flexible connection said side brushes are revolved irrespective of what their positions may be. From the vertical shaft movement is imparted to the transverse shaft 30, which transmits movement through the medium of the sprocket-chain 35 to the shaft 11, carrying the toe-brush, which in turn transmits movement through the medium of the chain 38 to the shaft carrying the heel-brush. The heel-brush when swung inward will still be revolved, even though the chain 38 be slackened, the weight of the same causing the slackness to appear between the two sprockets over which it rides.

A pan 39 is located in the bottom of the casing, and in said pan a supply of water may be held. When the brushes remove the dirt and dust from the shoes, it will settle and drop into the water and become moistened. This prevents the dust and light particles of dirt from being carried about in the casing by the air-currents caused by the revolving of the brushes.

It is of course necessary to provide means for revolving the brushes, but only when the machine is in use, and this is controlled by the deposit of a coin of predetermined denomination.

40 designates a coin-chute which has its upper end extending out through the casing. Beneath the lower end of said coin-chute is a coin-receiver 41, formed on or secured to a balance-lever 42, fulcrumed on a stud 43, projecting from the wall of the casing. The opposite end 44 of the balance-lever acts as a contact, which is adapted to be swung against a fixed contact 45, secured to the casing. Suitable circuit-wires 46 connect the contacts with the motor and supply-wire, and to assure a break or interruption of the current when the coin is removed from the coin-receiver the contact end of the balance-lever is weighted, as at 47. When the coin deposited is of light weight, the weight 47 may be dispensed with and the lever fulcrumed to keep the coin-receiver elevated until a coin is deposited. On depositing the coin in the coin-receiver an electric circuit is established, and the motor and polishing-brushes are consequently revolved and will continue to revolve until the coin is removed from the coin-receiver.

48 designates a bell-crank lever secured to the casing in rear of the foot-rest, and it has one arm connected to the foot-rest by a link 49 and its other arm connected to the lower end of a rod 50, which is pivotally connected at its upper end to a ratchet-arm 51, held loosely on a shaft 52 and having a pawl 53 pivoted thereon, which engages a ratchet-wheel 54, secured to said shaft. The latter has also secured thereto a gear-wheel 55, and it is journaled in suitable bearings 56, secured to the casing of the machine.



57 designates a shaft suitably journaled and arranged parallel to and preferably in advance of the shaft 52, and it has secured thereon a pinion 58, which meshes with the gear-wheel 55, and a cam 59, which is adapted to release the coin from the coin-receiver. The proportion of the gear 55 to the pinion 58 is such as to cause the shaft 57 to make two complete revolutions while the shaft 52 makes one revolution.

The coin-receiver is separable and has its walls inclined inwardly and downwardly to form a hopper-like receptacle, and one side wall thereof is pivotally attached by a pivot-pin 60, around which a spiral spring 61 is held, which tends to keep said side wall closed. The free end of the pivoted side wall is provided with a lip 62, which the cam 59 is adapted to engage and cause the said wall to swing open and release the coin deposited therein, when it drops into a second coin-chute 63 and is delivered to a coin-receptacle 64.

The operation of the machine is as follows:  
 On depositing a coin in the coin-chute it enters the coin-receiver, tilts the balance-lever, and causes the contacts to coact, thereby establishing an electric circuit, which causes the motor to revolve. The polishing-brushes are therefore revolved through the medium of the intervening transmission mechanism. On exerting pressure on the foot-rest, on which the person having his shoes shined may now place his shoe, or on which he may have placed his shoe previous to depositing the coin, the brushes are swung inward against the shoe with the desired pressure. The downward movement of the foot-rest causes the pawl 53 to ride freely over one tooth on the ratchet-wheel 54, which it then engages. When one shoe is polished, it is withdrawn and the other foot placed on the foot-rest. During the time this change is made the springs 8 elevate the foot-rest and cause the pawl 53 to revolve the shaft 52. The placing of the other foot on the foot-rest causes a return movement of the said pawl, and when the second shoe is polished and the foot removed the foot-rest is again elevated and the pawl causes the shaft to revolve another portion of a revolution. The proportion of the parts is such that the shaft 52 is caused to revolve one-fourth of a revolution while two shoes are shined, and the shaft 57 is therefore caused to revolve one-half a revolution. The releasing-cam 59 is provided with two opposite steps 65, and consequently a coin deposited in the coin-receiver is discharged when the shaft 57 makes one-half revolution, which causes the

contacts to separate, and thus break the electric circuit.

Having thus described my invention, what I claim is—

1. In a shoe-polishing machine, the combination of a spring-supported foot-rest, a fixed transverse toe-brush, longitudinal side brushes movable toward and from the foot-rest, a transverse heel-brush movable toward and from the foot-rest, and means for revolving said brushes.

2. In a shoe-polishing machine, the combination of a spring-supported foot-rest, revoluble side brushes, a revoluble toe-brush, a pair of bell-crank levers pivotally secured, a transverse shaft journaled in corresponding arms of said levers, a bar secured to the other arms of said levers, a brush secured to said shaft, and means for revolving said shaft.

3. In a shoe-polishing machine, the combination of a spring-supported foot-rest, bell-crank levers arranged in pairs on opposite sides of the foot-rest and having one arm of each lever in contact with the under side of the foot-rest, a shaft mounted in the other arms of each pair of levers, a brush secured to each shaft, a toe-brush, a heel-brush, and means for revolving said brushes.

4. The combination with a motor and a shaft driven thereby, of a spring-supported foot-rest, a pair of bell-crank levers pivotally arranged on opposite sides of said foot-rest and having one arm of each lever in contact with the under side of the foot-rest, a shaft mounted in the other arms of each pair of levers, brushes secured to said shafts, flexible shafts connecting the last-mentioned shafts with the first-mentioned shaft, a heel-brush and a toe-brush, and means for transmitting motion from the first-mentioned shaft to said heel-brush and toe-brush.

5. The combination with a motor and a shaft driven thereby, of a yielding foot-rest, a rigidly-mounted transversely-disposed toe-brush, means for transmitting motion from said shaft to said toe-brush, a transversely-disposed heel-brush movable toward and from the foot-rest, transmission mechanism between the toe-brush and the heel-brush, longitudinally-disposed side brushes movable toward and from the foot-rest, and transmission mechanism between said side brushes and the first-mentioned shaft.

In testimony whereof I have affixed my signature in the presence of two subscribing witnesses.

ROBERT O. HAMMOND.

Witnesses:

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 EMIL NEUHART.