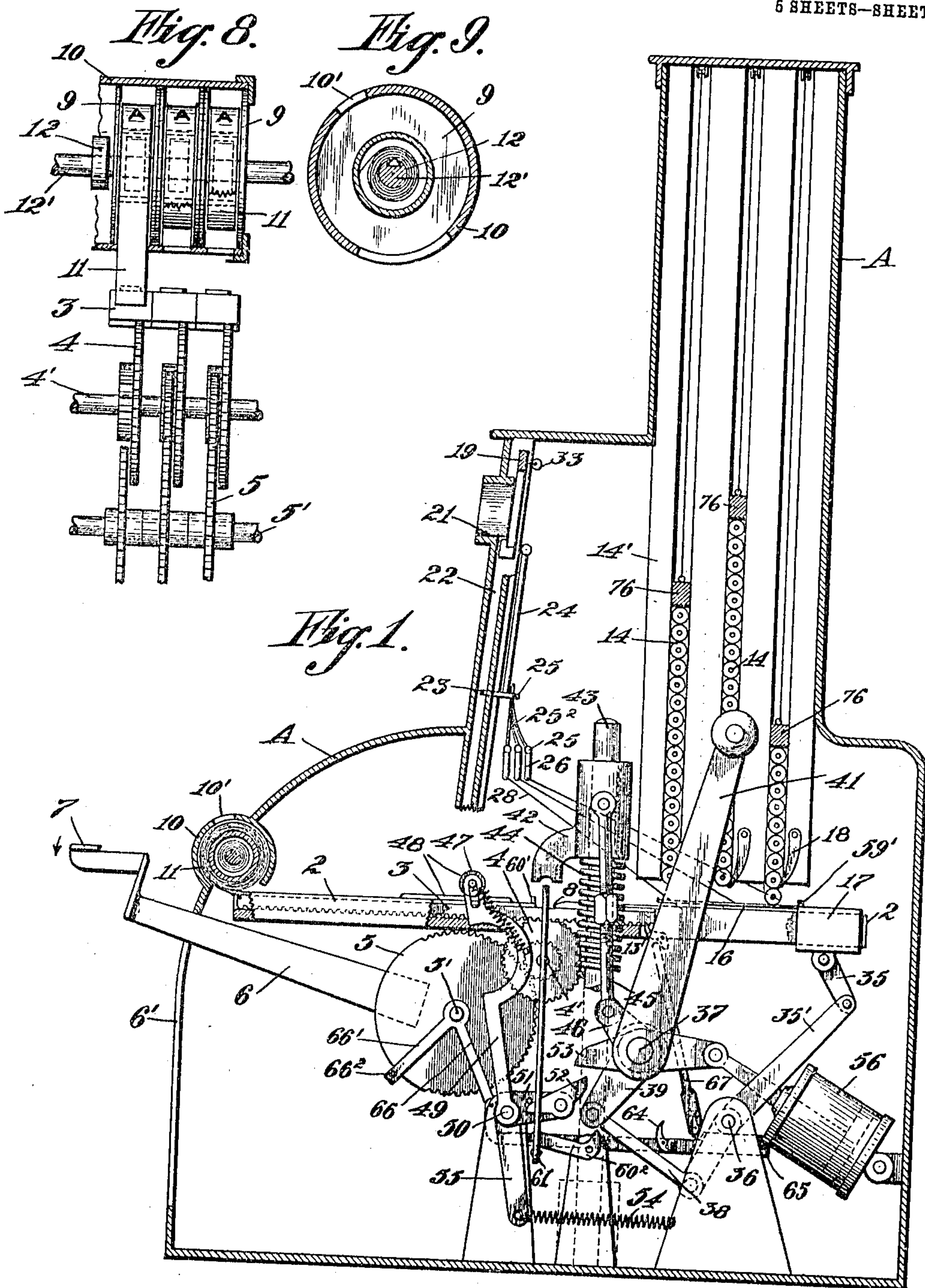


F. C. WILLIAMS.  
MARKING AND VENDING MACHINE.  
APPLICATION FILED JULY 12, 1909.

947,364.

Patented Jan. 25, 1910.  
5 SHEETS—SHEET 1.



WITNESSES;

*R. S. Berry*

*F. E. Maynard*

INVENTOR

FREDERICK C. WILLIAMS

BY *Geo. H. Strong*

HIS ATTORNEY

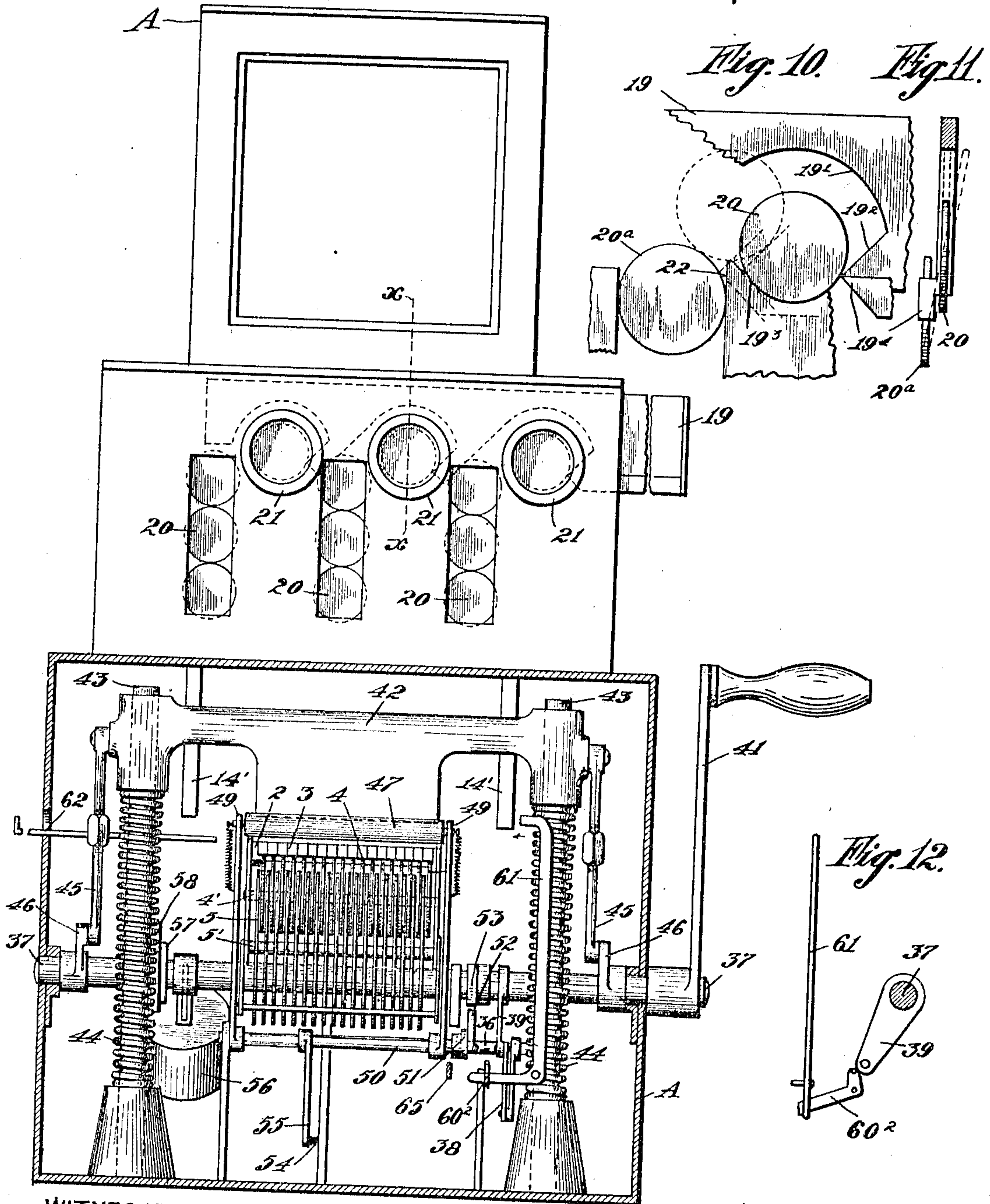
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*Fig. 2.*



WITNESSES;

*R. S. Berry*

*F. E. Maynard*

INVENTOR

FREDERICK C. WILLIAMS

BY *Geo. H. Strong*  
HIS ATTORNEY.

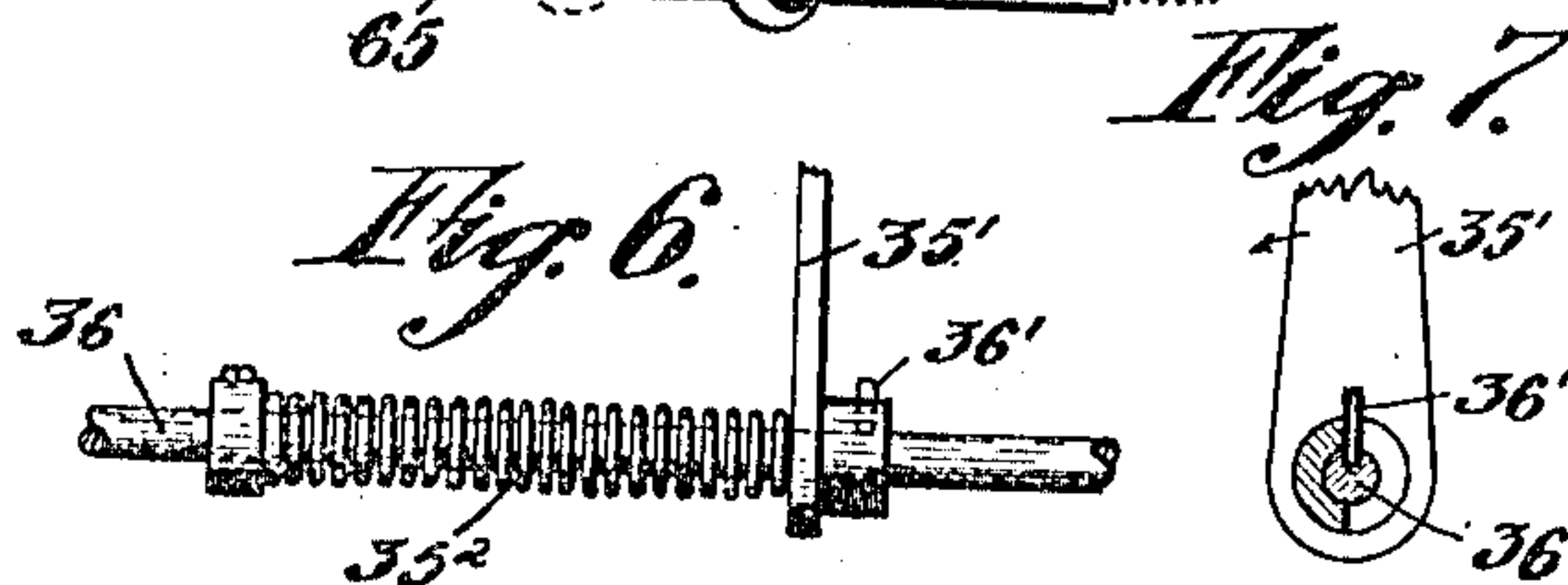
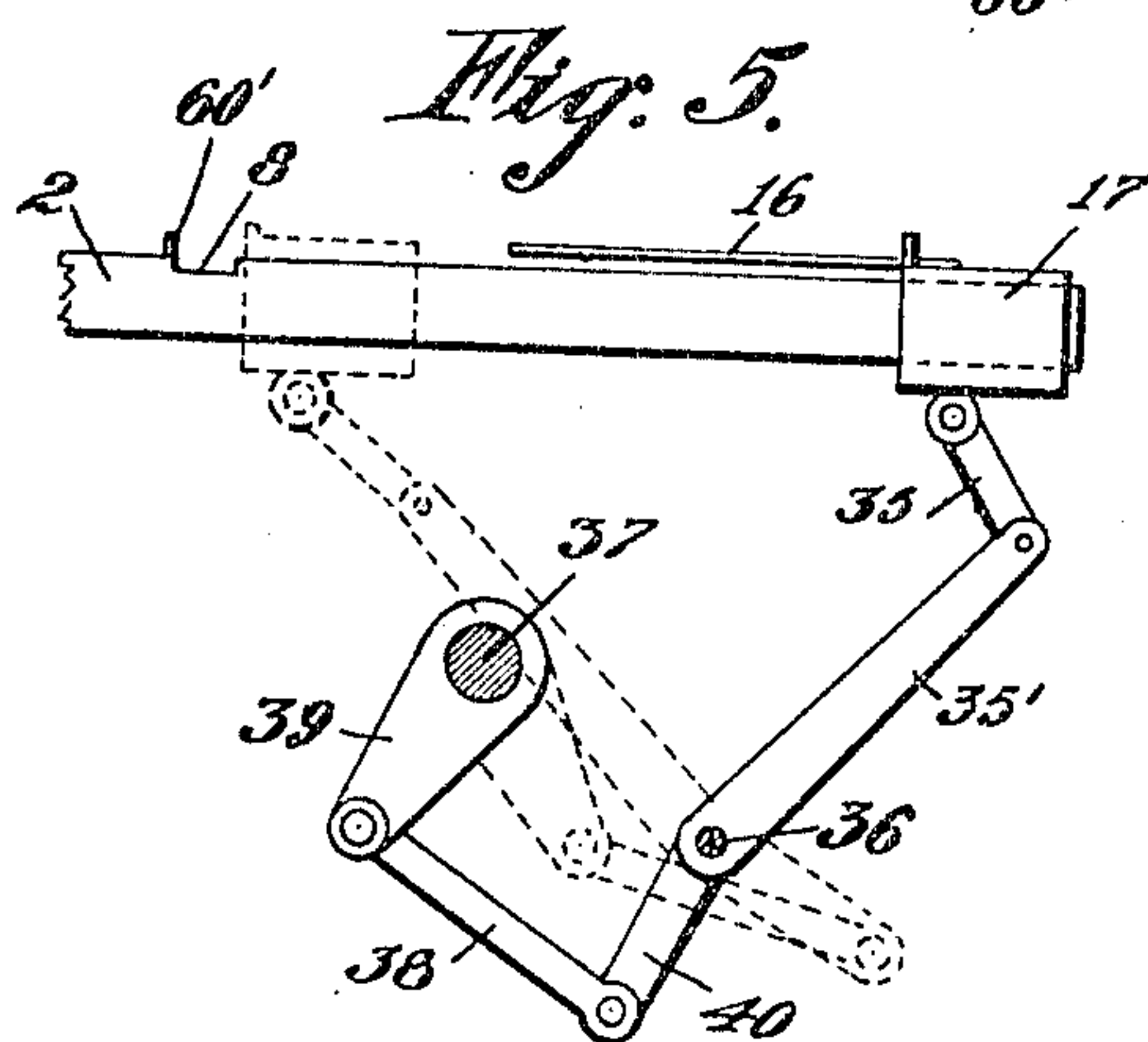
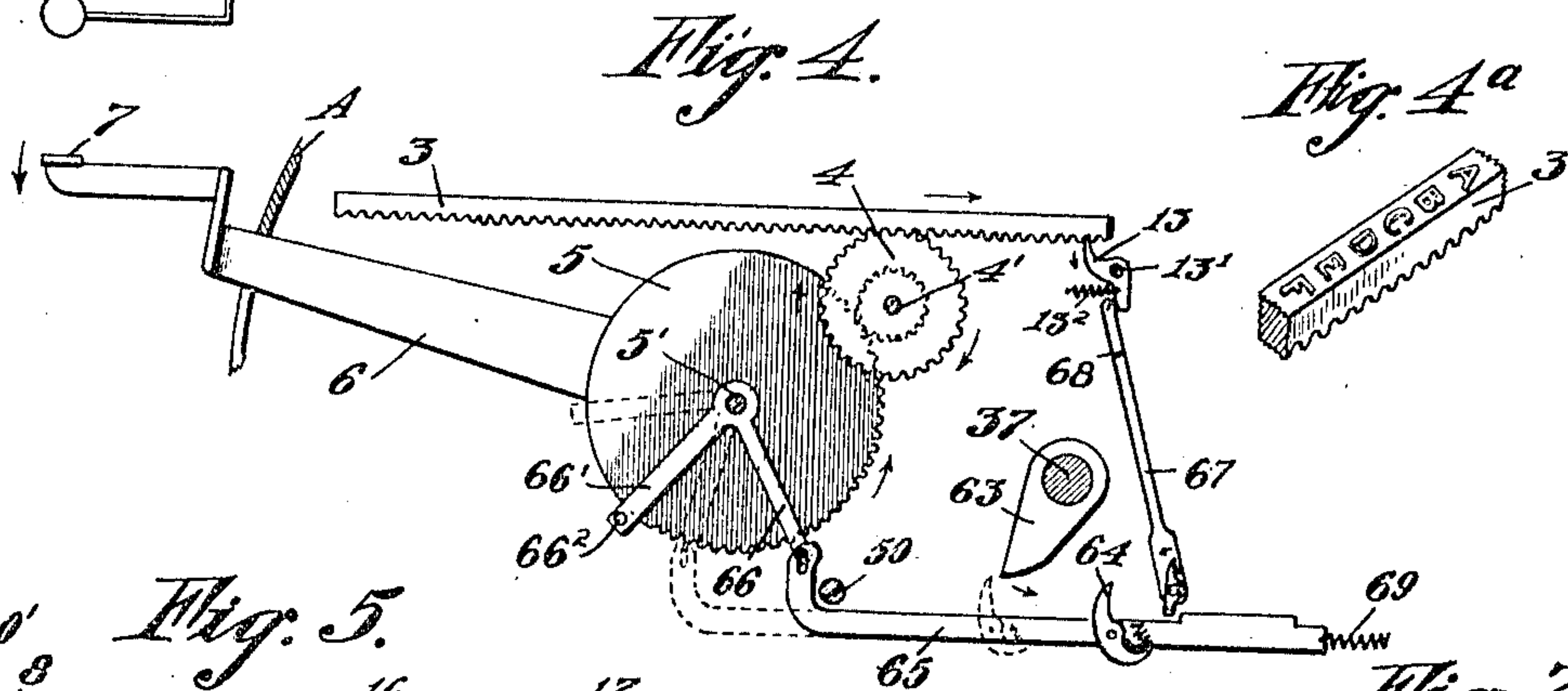
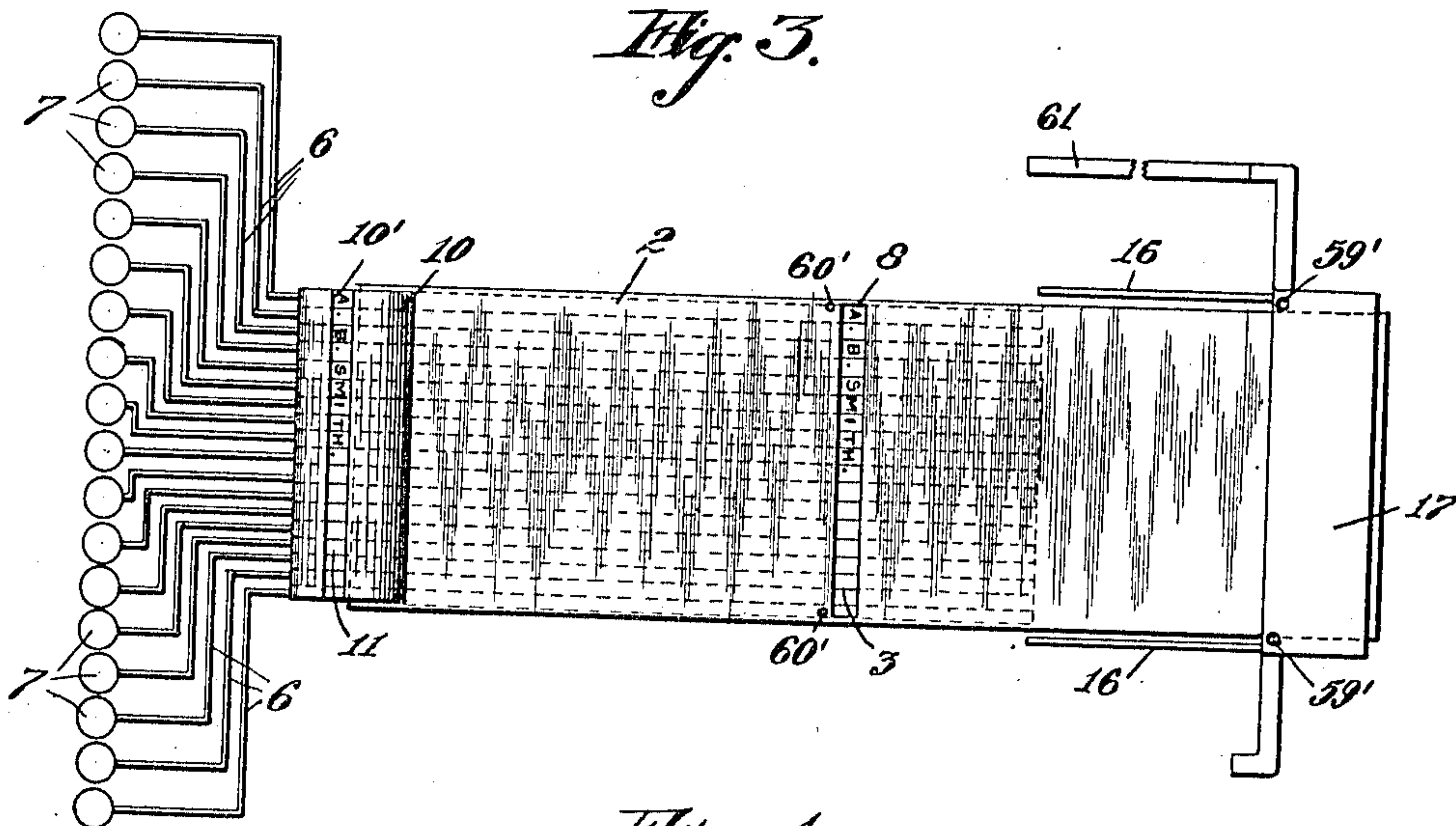


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5 SHEETS—SHEET 3.



WITNESSES:

*R. S. Perry*  
*A. E. Hayward*

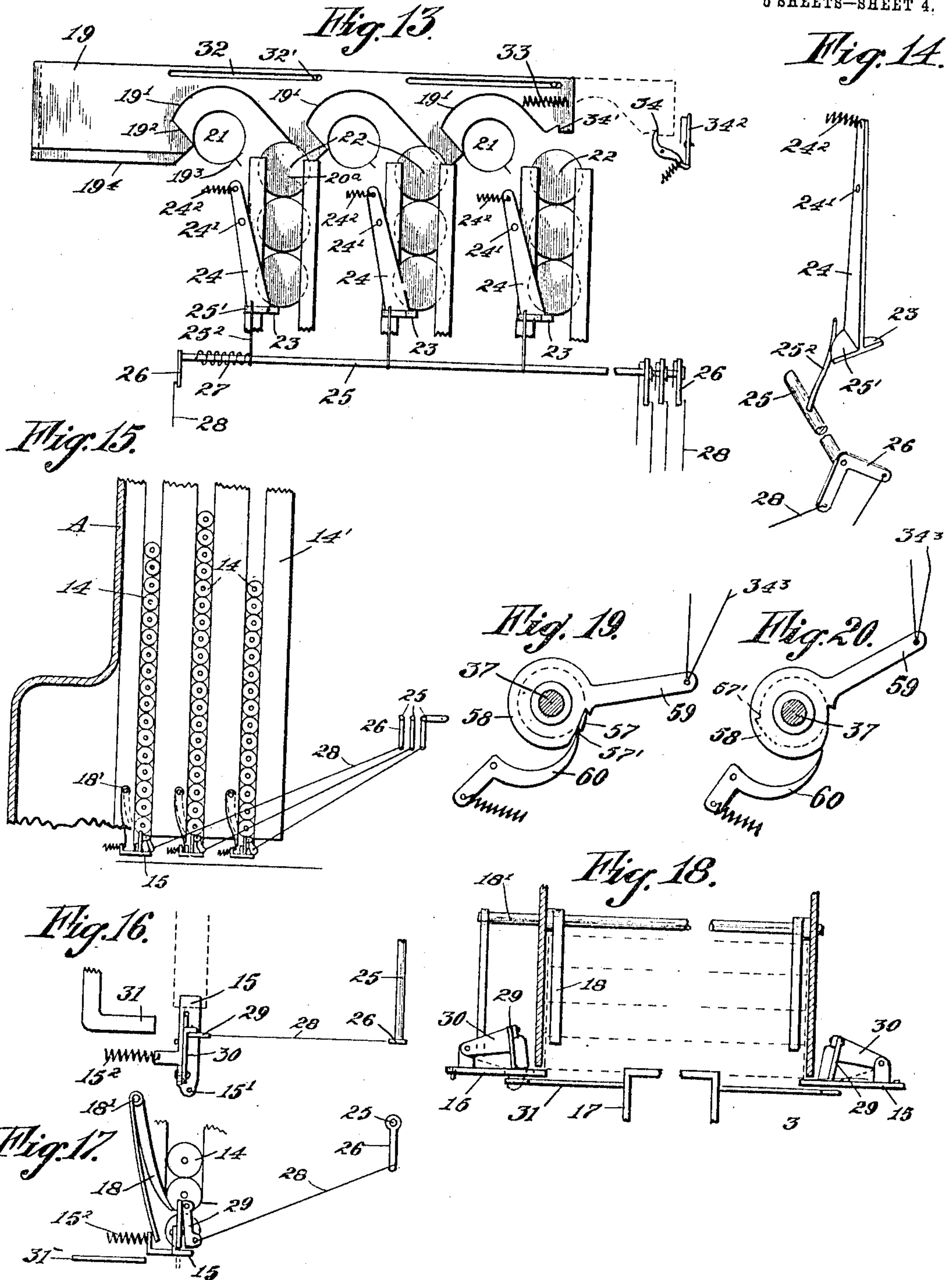
INVENTOR  
FREDERICK C. WILLIAMS:  
BY *Geo. H. Strong*  
HIS ATTORNEY.

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5 SHEETS—SHEET 4.



WITNESSES;  
*R. S. Berry*  
*D. E. Maynard*

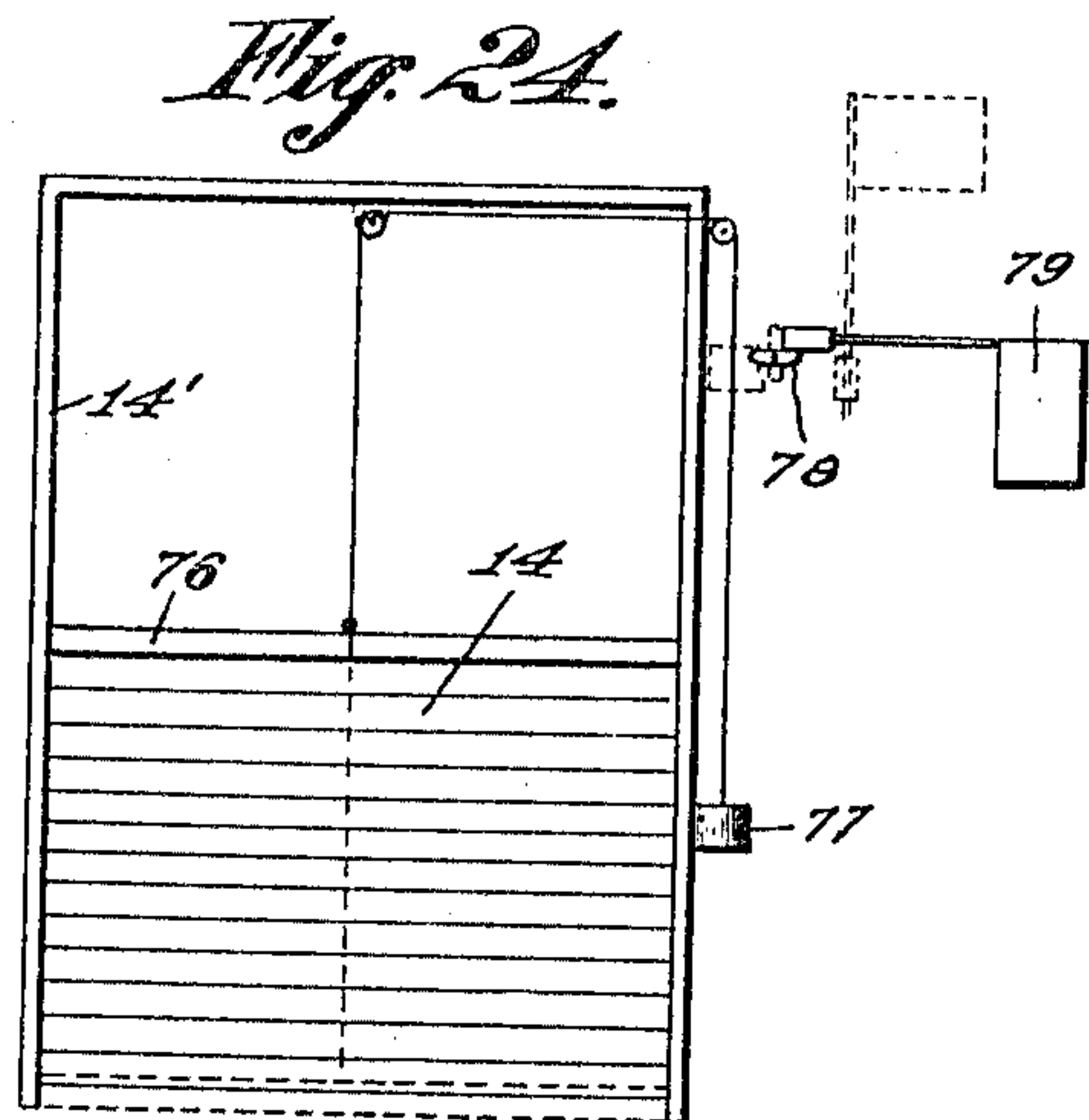
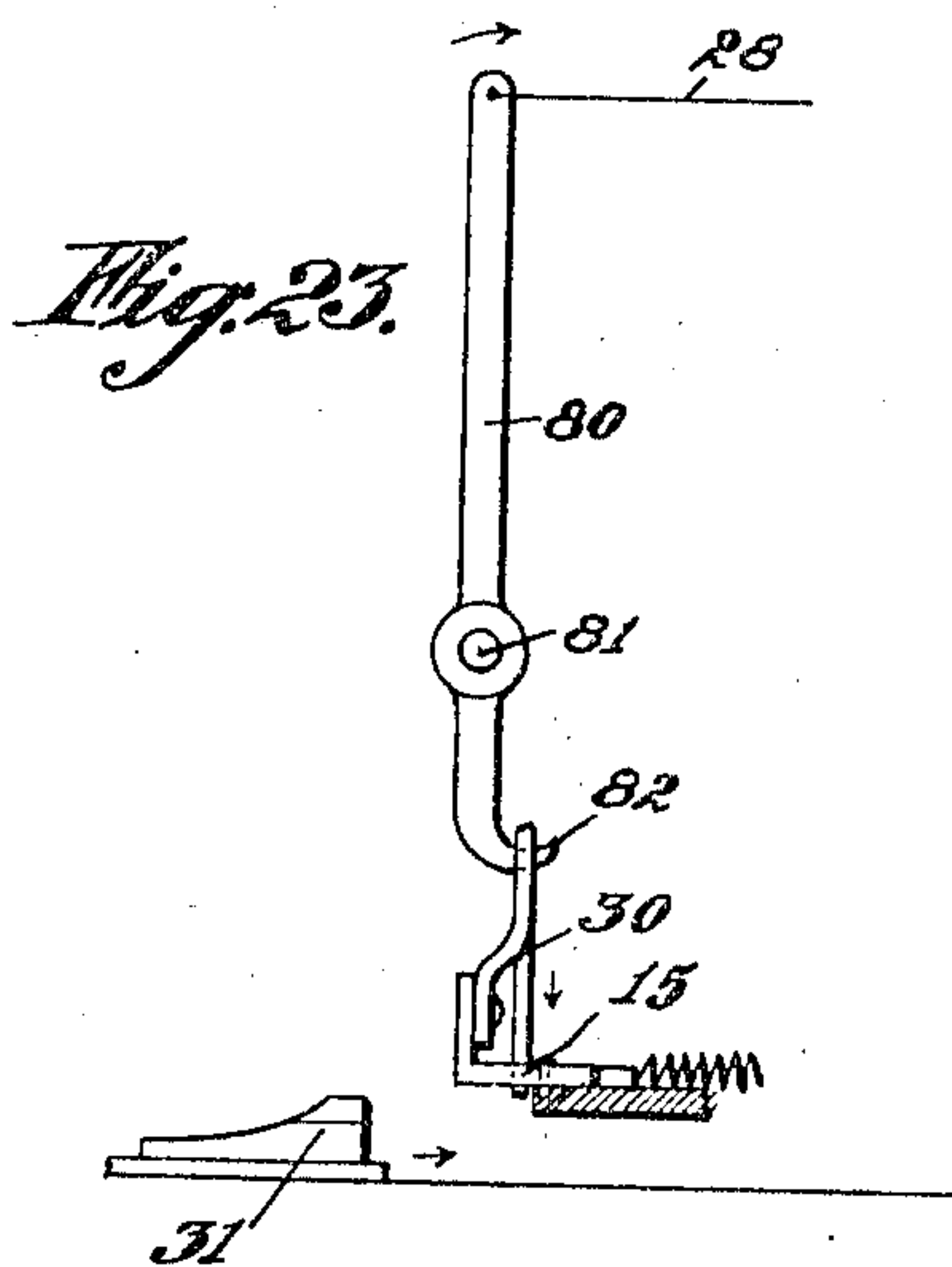
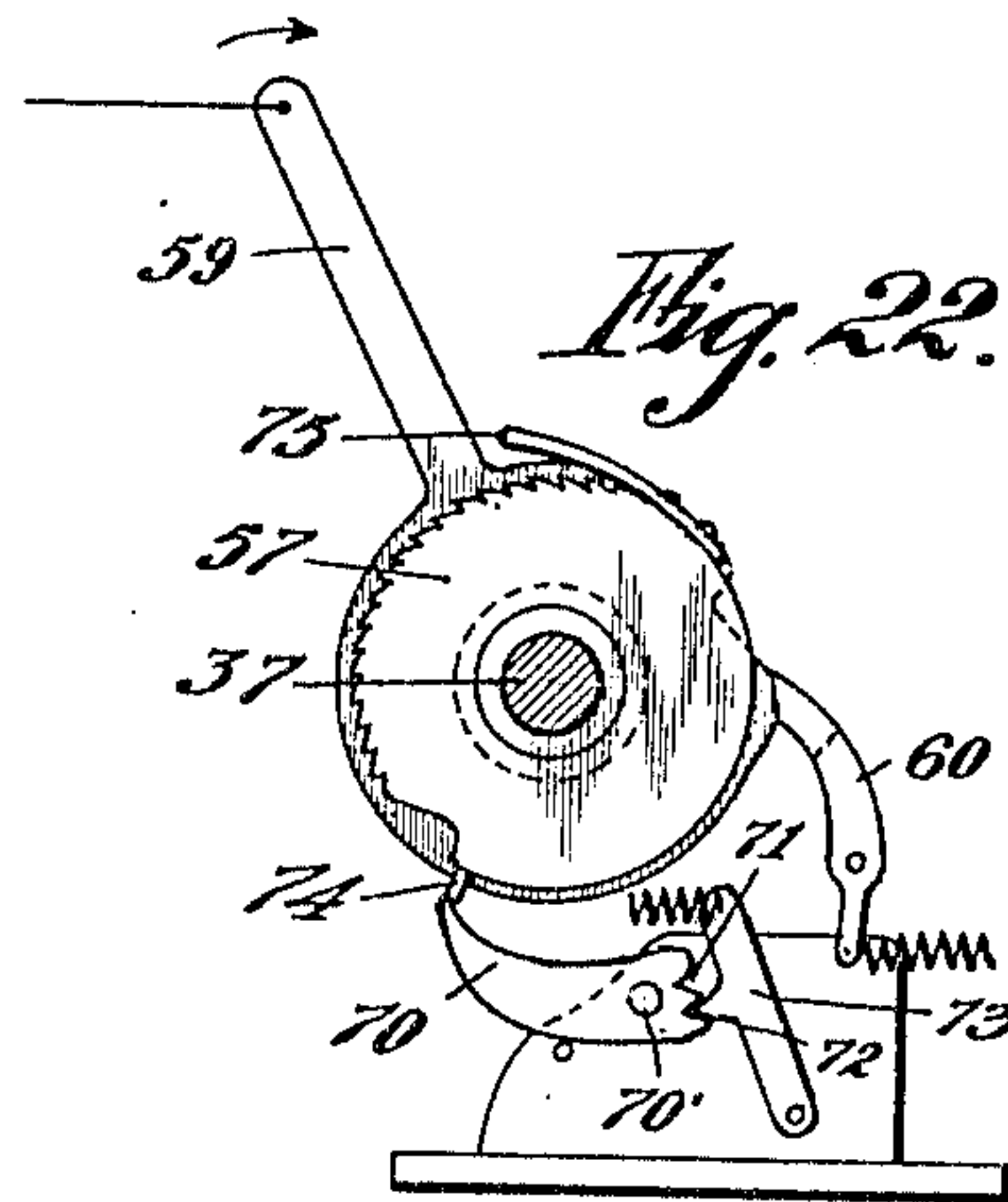
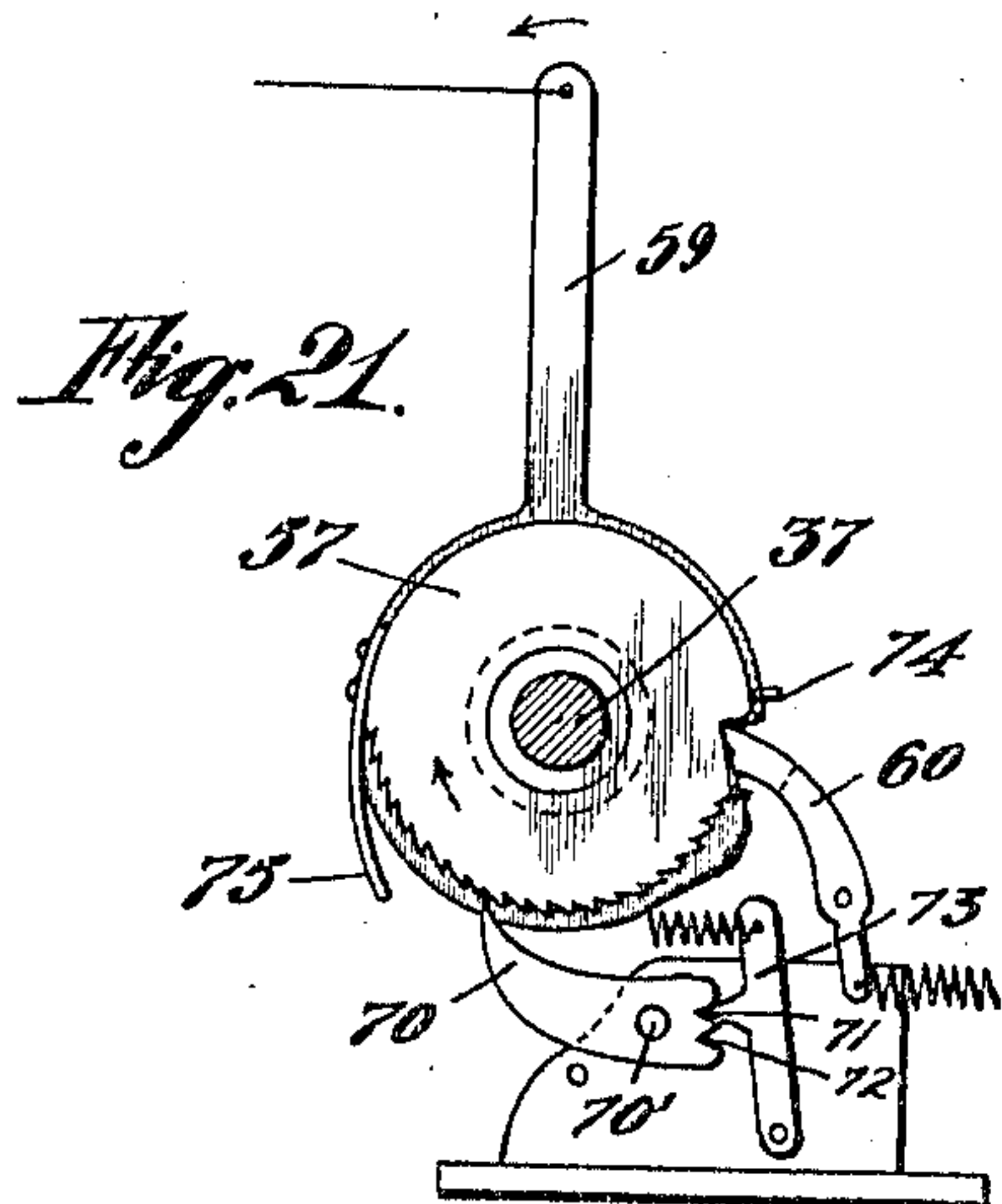
INVENTOR  
FREDERICK C. WILLIAMS.  
BY *Geo. H. Thong*  
HIS ATTORNEY

F. C. WILLIAMS.  
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5 SHEETS—SHEET 5.



WITNESSES;

*W. S. Berry*

*F. E. Maynard*

INVENTOR  
FREDERICK C. WILLIAMS

BY *Geo. H. Strong*  
HIS ATTORNEY.



# UNITED STATES PATENT OFFICE.

FREDERICK C. WILLIAMS, OF SAN FRANCISCO, CALIFORNIA.

## MARKING AND VENDING MACHINE.

947,364.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed July 12, 1909. Serial No. 507,158.

*To all whom it may concern:*

Be it known that I, FREDERICK C. WILLIAMS, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Marking and Vending Machines, of which the following is a specification.

This invention relates to a marking and vending machine, and particularly to a coin-operated machine which is adapted to vend lead-pencils, pen-holders, and like articles.

It is the object of this invention to provide a vending machine in which a coin, slug, or other token is required in its operation, and which is designed to vend a variety of styles or grades of pencils or the like.

A further object is to provide a pencil vending machine by which the patron or operator can mark the article to be vended before it is discharged from the machine, with words or characters, as desired.

It is an inducement to the consumers of pencils to patronize a vending machine in which they can obtain a selection from a number of grades and print their names or other words thereon at the time of the purchase. This feature as embodied in this machine constitutes one of its greatest advantages.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the invention partly in section. Fig. 2 is a front elevation with parts broken away. Fig. 3 is a plan view of the type frame and keys. Fig. 4 is a detailed side elevation of the type bars and their operative connections. Fig. 4<sup>a</sup> is a detail of a type bar. Fig. 5 is a detailed side view of the pencil carriage. Fig. 6 is a detail of the spring shaft. Fig. 7 is an end view of Fig. 6. Fig. 8, Sheet 1, is a detail of the type indicator, with parts broken away. Fig. 9 is a sectional view of an indicator. Fig. 10, Sheet 2, is an enlarged detail of the coin slot. Fig. 11 is a section of the coin slot on line X—X, Fig. 2. Fig. 12 is a detail of the pencil remover. Fig. 13 is a rear view of the coin bar and slots. Fig.

14 is a perspective view of the coin-controlled motion device. Fig. 15 is a left side view of the pencil releasing mechanism. Fig. 16 is a detail in plan of the pencil release. Fig. 17 is a detail in side elevation. Fig. 18 is a front view of same. Fig. 19 is a detail of the safety latch for preventing the operation of the machine until a coin is used. Fig. 20 is a view showing the safety latch in its open position. Figs. 21 and 22 show a modification of the locking device. Fig. 23 is another form of pencil release. Fig. 24 is a detail of the pencil weight.

In the drawings, A is the casing in which the various parts of the invention are mounted. This casing may be of any suitable construction, and is designed to inclose the machine so that access can be had to the interior only by privileged persons, suitable doors and locks being provided for that purpose, but not necessary to be shown in the drawings.

2 is a type bar frame or shell rigidly mounted in a horizontal position in the casing A, and which carries any desired number of type bars 3 slidable longitudinally in the shell 2, as later described. A type bar 3 consists of a metallic bar having alphabetical or other characters raised on its upper face, and rack teeth on its under side, as shown in Fig. 4<sup>a</sup>. These rack teeth mesh with pinions 4, one of which is under each type bar 3 and loosely mounted on a fixed shaft 4', as shown in Fig. 4. A small pinion fixed on each of the pinions 4 meshes with a corresponding toothed segment 5 loosely mounted on a fixed shaft 5'. The segments 5 are each operated by levers 6 which are fixed to the segments 5 and extend through slots 6' in the casing A and have thumb keys 7 on their outer ends, as shown in Figs. 3 and 4. By pressing down upon a thumb key 7 a segment 5 revolves its corresponding pinion 4 so as to slide a type bar 3 backward. The number of teeth on the segments, pinions and racks are so proportioned that the type bars will be moved their length backward by the down stroke of the levers 6, and forward by the up stroke. In this manner any letter or character on the type bar 3 can be brought to a position directly under a slot 8 formed in the top of the shell 2. Slots are formed on the under side of the shell 2 so



that the pinions 4 can be inserted there-through to engage the racks on the type bars 3.

As a means of indicating to the operator the position of the type characters in the slot 8, I provide an indicator, as shown in Figs. 1, 8 and 9, and which consists of spools 9 corresponding in number to the type bars 3. These spools are loosely mounted in a cylinder 10 fixed to the casing A. Tapes 11 having characters printed thereon, corresponding to the characters on the type bars 3, are secured to and wound around the spools 9, the outer ends being attached to the forward ends of the type bars 3. As the type bars 3 are moved backward, the tapes 11 are unwound from the spools 9. A coil spring 12 is attached to the interior of each spool and is dovetailed to a fixed shaft 12' which passes through the spools 9 and is supported in the ends of the cylinder 10. These springs 12 normally tend to retain the tapes 11 in the wound position, so that as the type bars 3 are moved backward and forward, the tapes will be kept taut. A slot 10' is provided in the cylinder 10 so that the operator can read the characters on the tape. These characters are so arranged on the tape that when the bars are moved and the tape winds or unwinds, a character will be seen through the slot 10' that will correspond with the character on the type bars 3 that registers with the slot 8. To insure the type registering accurately, spring pawls 13, Fig. 4, engage the rear teeth of the type bar rack. These pawls are loosely mounted on a shaft 13<sup>1</sup> and have springs 13<sup>2</sup> to retain them in mesh with the racks. The pawls are so shaped that the type bars may be moved in either direction, but offer enough resistance so that when a type bar is stopped the pawl will engage in the slot between the rack teeth and thus hold the bars steady and properly registered.

The pencils 14 to be marked and vended are placed in a horizontal position in vertical racks or guides 14' arranged transverse to and above the rear portion of the type bar shell 2, so that as the pencil is released (as will be next described) it can be moved forward over the slot 8 and printed upon, as later explained. Any number of these racks may be employed, as desired, so that a variety of grades or styles of pencils can be handled, a separate grade being stacked in each rack. The lowermost pencil in the rack rests at each end upon a movable stop 15, shown in Figs. 15, 16, 17 and 18, pivoted at 15<sup>1</sup> to the casing A. A spiral spring 15<sup>2</sup> tends to normally retain the stop 15 beneath the column of pencils. This stop 15 is designed to be moved from under the pencil by means of a coin-operated mechanism, shown in Fig. 13, so as to allow the lower pencil to fall upon spring supports 16, Fig. 3, extend-

ing forward from a carriage 17 which rides on the rear portion of the shell 2. A spring finger 18, Fig. 17, pivoted at 18<sup>1</sup> is actuated by the stop 15 in such manner that but one pencil can fall from one rack at one time. The pencil releasing mechanism can only be operated by dropping a coin or other token in the coin slot, and each pencil requires a separate coin.

The coin mechanism is constructed as follows: A coin bar 19 is slidably mounted in the upper front portion of the casing A. This bar is constructed as shown in Figs. 10 and 13, being cut away at 19<sup>1</sup> to permit of the insertion of a coin 20 which is thrust through a thimble 21 on the face of the casing A. The coin 20 on being placed in the space 19<sup>1</sup> rests upon an incline 19<sup>2</sup> on the coin bar and also upon an oppositely inclined portion 19<sup>3</sup> of the coin slot 22. A forward movement of the coin bar 19 raises the coin 20 upon the incline 19<sup>2</sup> and carries it forward over the point 19<sup>3</sup>, whereupon the coin leans backward and falls downward and forward into the coin slot 22. Continued forward movement of the coin bar 19 causes an outwardly projecting member 19<sup>4</sup> on the bar 19 to press against the upper edge of the coin 20<sup>a</sup> and force it downward on the coin slot 22 against a coin stop 23 on the lower end of a lever 24 pivoted at 24<sup>1</sup> to the casing A. Downward pressure on the coin causes the lower end of the lever to be moved to one side, thereby allowing the coin to pass and fall into any suitable receptacle on the interior of the casing A. A spring 24<sup>2</sup> retains the stop 23 under the coin in the coin slot 22. This coin slot 22 may be of any desired length so as to accommodate a number of coins, as shown, in which case the top coin is acted upon by the coin bar, while the lowermost coin moves the lever 24 to one side. This side movement of the lever 24, as the coin passes by the stop 23, rotates a shaft 25 by reason of a cam 25' on the lever 24, forcing an arm 25<sup>2</sup> fixed on the shaft 25 outwardly, thereby slightly turning the shaft 25. This shaft is mounted on the casing A, and is provided at its outer ends with crank arms 26. A spring 27 is provided to return the shaft 25 to its normal position. Connecting wires 28 connect the arms 26 to a latch 29 mounted on a trigger 30 pivoted to the pencil stop 15. As the shaft 25 is rotated, the connecting wire 28 pulls the latch 29 outward so as to allow the trigger to fall and project through a slot in the stop 15. The portion of the trigger projecting below the stop 15 is in the path of a bar 31 on the carriage 17, which, as the latter is moved forward, bears against the trigger 30 and moves the stop 15 from beneath the pencil 14, thus allowing it to drop. The number of coin slots 22 and rods 25 correspond with the number of pencil stops 15



and racks. The coin bar 19 is slotted at 32 and rides upon pins 32'. A spring 33 retains the bar in its outward and open position when not in use. A spring pawl or dog 34 is so mounted as to engage a notch 34' on the bar 19 when the bar is shoved forward and retain it in that position until the functions of the machine have been performed, whereupon the pawl is released. This prevents another coin being inserted in the slot while the machine is in action.

The pencil carriage 17 is slidable upon the shell 2 and is moved forward and backward by means of a link 35 which connects it with a lever arm 35' mounted on a spring shaft 36 which in turn is mounted in suitable bearings on the casing A and is connected to the main shaft 37 by a link 38 pivoted to lever arms 39—40, as shown in Fig. 5. The main shaft 37 is mounted in the casing A and has a hand lever 41 fixed to its outer end.

An impression bar 42 is slidably mounted on standards 43 fixed to the bottom of the casing A. This impression bar extends transversely across the type bars at a point adjacent to the slot 8, and is supported on stiff spiral springs 44. Adjustable rods 45 connect the printing bar to arms 46 on the main shaft 37. An inking roller 47 normally bears upon an inking pad 48 and is mounted in carriers 49 which are rigidly secured to a shaft 50. An outwardly extending arm 51 on the shaft 50 is provided with a flipper 52 which is adapted to be acted upon by a cam 53 on the main shaft 37. As the shaft 37 is revolved, the cam 53 presses down upon the flipper 52 and causes the shaft 50 to rotate and move the inking roll forward over the slot 8, whereupon the cam releases the flipper and the inking roll is immediately returned to its normal position by means of a spring 54 acting on a downwardly projecting arm 55 on the shaft 50. The forward movement of the hand lever 41 compresses the spring 44, which, on releasing the lever 41 at its lowest position, returns it to its normal position, shown in Fig. 1. A dash-pot 56 is provided and is suitably secured to the shaft 37 to cushion the return stroke of the lever 41. In order to prevent the hand lever 41 from being operated previous to inserting a coin in the slot, the locking device shown in Figs. 19 and 20 is employed, and which consists of a ratchet disk 57 securely mounted on the main shaft 37, and a releasing disk 58 loosely mounted on the ratchet disk. A notch is provided in the former to allow a pawl 59 to engage a tooth or notch on the latter. An arm 60 on the releasing disk is connected with the cranks 26 on the shafts 25, so that as the shaft 25 is revolved, the disk 58 will rotate sufficiently to disengage the pawl 60 from the notch 57', and thus allow the shaft 37 to be rotated. A projecting bar 61', Fig. 3, on

the carriage 17 moves the disk 58 back to allow the pawl to reengage the notch on the disk 57 on the return stroke of the lever 41.

In operation, a coin is placed in any one or all of the coin receivers 21. The coin bar 19 is then moved forward so as to carry the coin into the coin slot 22 and force it downward, as before described, thus releasing one or more pencils 14, according to the coin selections, and depositing them on the spring arms 16 on the carriage 17. At the same time the locking device on the main shaft 37 is released, so that the operator can then pull the hand lever 41 forward and downward, which action causes the carriage 17 to move forward and carry the pencil or pencils to the printing slot 8. A stop 59' on the carriage insures the pencil being carried forward the right distance, stop 60' on the shell 2 preventing the pencil being carried too far. At the moment the carriage 17 starts forward, the inking roll 47 moves back and inks the type or characters exposed in the slot 8, after which it quickly returns, to allow the pencil to come above the type. The type has previously been arranged in any desired form by operating the keys 7 so as to bring the proper letters in position below the slot 8, as, for instance, the name of the operator. Continued pull upon the lever 41 causes the impression bar 42 to move downward and press the pencil upon the exposed and inked surface of the type, thus imprinting the name or characters on the pencil. Upon releasing the lever 41, it is immediately returned to its normal position by the springs 44. On its return travel the arm 39 on the shaft 37 strikes a bell-crank 60', shown in Fig. 12, which acts upon a kicker 61 so as to give it a quick forward movement. The upper end of this kicker strikes the end of the pencil that has just been printed, and thus propels it lengthwise through an opening 62 in the side of the casing A, where it is deposited in a suitable receptacle. At the same time, a cam 63 (see Fig. 4) on the shaft 37 engages a flipper 64 and moves a bar 65 forward, which action causes a bell-crank 66 loosely mounted on the shaft 5' to swing forward, and by reason of a bar 66' on the arm 66' extending below the segments 5, lifts the levers 6 up to their normal position. The forward movement of the bar 65 operates a lever 67 fulcrumed at 68 so as to release the pawls 13 from the type bars and allow them to be moved freely by the mechanism just described. A spring 69 returns the bar 65 to its normal position.

The arm 35' which operates the link 35 and carriage 17, is loosely mounted on the shaft 36 and connected thereto by a coil spring 35', and is limited in its movement on the shaft 36 by a pin 36'. This arrangement permits of a number of pencils being car-



ried forward by the carriage 17, and allows the carriage to be stopped before reaching the limit of its travel.

If more than one pencil is deposited upon the carriage at one time, the carriage can not go forward its full stroke until the last pencil is to be printed; and until this is done, the locking device on the shaft 37 remains open, thus permitting the operator to pull the lever 41 forward until each pencil is marked. As soon as the last pencil is brought forward, the extension 61 on the carriage moves the arm 59 on the locking device, Fig. 19, forward, thus allowing the pawl 60 to engage the notch 57'. This movement of the arm 59 releases the dog 34 through a pawl 34<sup>2</sup> and connecting wire 34<sup>3</sup> and allows the coin bar 19 to return to its normal position; whereupon the machine has completed its functions and the parts are returned to their normal positions.

Figs. 21 and 22 show a modified form of the locking device shown in Figs. 19 and 20, which is designed for the purpose of both locking the lever 41 against use before a coin is deposited, and also to prevent the lever returning, after being started, until the full stroke is completed. This is accomplished by providing the disk 57 with ratchet teeth which engage the pawl 70. This pawl is pivoted at 70' and has notches 71—72 on its rear end. A dog 73 normally engages notch 71 to retain the pawl 70 in engagement with the ratchet disk 57. The arm 59 is moved forward so as to disengage the pawl 60 from the notch 57', as before described; the shaft 37, on being rotated, is prevented from backward movement by the pawl 70, until a pin 74 on the disk shoves the pawl 70 outward, in which position it is retained by the dog 73 engaging the notch 72, as shown in Fig. 22. This permits the shaft 37 to return until a spring arm 75 on the disk 57 bears against the pawl 70 and forces it back into engagement with the ratchet disk 57.

As a means of indicating when a pencil slot is empty, and also to insure a constant feed, the device shown in Fig. 24 is employed. A weight 76 supported upon the top pencil in each tier, and sliding in the pencil rack, is connected to a weight 77 in such manner that as the former weight lowers, the latter is raised; and when the last pencil is fed from the rack, the weight 77 releases a trigger 78, so that a sign 79, indicating that the rack is empty, will be thrown into view, as shown in dotted lines, Fig. 24.

Fig. 23 shows a modified form of the pencil releasing device, in which the connecting wire 28 acts upon a lever 80 pivoted at 81 and hooked at 82 so as to engage the trigger 30. A pull upon the wire 28 releases the trigger 30 so that it drops in front of the bar 31 on the carriage 17, which moves the

plate or stop 15 from beneath the pencil rack, as before described. The return of the bar 31 lifts the trigger 30 back so as to be reengaged by the hook 82.

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

1. A marking and vending machine having in combination, a rack adapted to contain articles to be marked, means by which the articles are separately released, supports upon which the released articles are received, and means including type-bars, corresponding pivoted key levers and an inking mechanism, whereby characters may be imprinted on said articles.

2. A marking and vending machine comprising a series of racks for the articles to be marked and vended, means for releasing the articles separately from the racks, supports upon which the released articles are received, a series of horizontally slidable type-bars, a corresponding pivotally mounted key lever for each type-bar, and actuating devices between the key levers and type-bars.

3. A marking and vending machine having in combination, racks adapted to contain the pencils to be marked and vended, means by which the pencils are released from the racks, supports upon which the pencils are received, means including slidably mounted type-bars and corresponding pivotally mounted key-levers whereby the type bars are actuated to assemble selected type-characters, and means for impressing the type-characters upon the pencils.

4. In a pencil and like vending machine, racks adapted to carry pencils in a substantially horizontal position, stops by which the pencils are normally retained in place, mechanism by which the stops are withdrawn, elastic supports upon which the lowermost pencil falls, means to advance the pencils, type bars with which the pencils are brought to register, pivotally mounted key levers for actuating the type-bars and thereby assembling the type characters, and an impression bar by which the type characters are caused to imprint upon the pencils.

5. In a pencil vending machine, racks adapted to contain the pencils, and from which they are delivered by gravitation, movable stops normally retaining the pencils in position, mechanism by which the pencils are disengaged singly, a carriage upon which they are received, type bars and an impression bar adapted to imprint upon the pencils, pivotally mounted key levers for actuating the type bars to assemble the type characters, and means for discharging the pencils in the direction of their length and transverse of the type bars.

6. In a pencil vending machine, vertical pencil-holding racks, stops by which the pencils are retained in the racks, means for



disengaging the stops, a carriage with supports upon which the disengaged pencils are received, a series of type bars movable to dispose the desired characters in line, pivotally mounted key levers and connections between the same and the type bars for actuating the latter, means for inking said characters, and means for impressing the type upon the pencils.

7. In an apparatus for the vending and marking of pencils and the like, a plurality of pencil-holding racks, with spring-pressed stops normally retaining the pencils in place, a trip mechanism whereby the stops are released, a carriage, with elastic arms upon which the pencil is received, a transverse slot in line with which a pencil is transferred, type bars, means for moving said bars to bring the desired characters into line, means for inking the type, an impression bar and means for pressing the pencil upon the exposed type, and a mechanism by which the pencil is impelled in the direction of its length out of the machine.

8. In a pencil marking and vending apparatus, a series of parallel type bars having letters and characters arranged upon the top, mechanism by which said bars may be shifted to bring desired characters into line with each other, substantially vertical racks in which the pencils are normally contained, stops by which they are retained in position, a carriage with elastic supports, means for releasing the stops to allow the pencils to drop singly upon the supports, means for advancing the carriage, a slot disposed transversely about the proposed line of type, and into line with which the pencil is transferred, an impression bar whereby the pencil is forced upon the type to be imprinted.

9. In an apparatus for vending and marking pencils, a series of bars having type or characters marked upon the upper surfaces, mechanism by which said bars may be advanced to bring desired characters into line transversely of the bars, latching mechanism to retain the bars in position, the table having an open slot in line with which the desired type are disposed, vertically disposed pencil carrying racks standing transversely with relation to the type bars, and having stops to retain pencils within the racks, mechanism by which the stops may be released and a single pencil allowed to pass out, a carriage, elastic supports upon which the pencil is received, means for advancing the carriage and pencil into line with the slot, an inking roller operating in unison to ink the exposed type previous to the alinement of the pencil therewith, an impression bar, mechanism by which said bar is caused

to force the pencil down upon the exposed type surface and an automatically operating mechanism whereby the pencil is ejected.

10. In an apparatus for operating and marking pencils, a plurality of vertical racks adapted to contain pencils in a substantially horizontal position, stops by which the pencils are retained within the racks, a carriage upon which the pencils are received when released, type bars movable to form words or characters in line with each other, means by which the pencils are advanced into line with said type, means by which they are brought into contact therewith and imprinted, and mechanism by which the carriage is prevented from advancing until each pencil has been marked and discharged.

11. In an apparatus for vending and marking pencils, a series of vertically disposed pencil containing racks, with means for delivering the pencils by gravitation from the lower ends, stops by which the pencils are normally retained in position, a carriage, mechanism by which the stops are released to allow the pencils to be delivered upon the carriage, a transversely slotted shell in line with which the pencils are movable, a series of parallel type-carrying bars, keys and connected gears, rack bars and holding pawls whereby the bars may be independently advanced to cause an alinement of a series of letters or characters beneath the slot, means for inking said characters, and means for impressing the pencils thereon to be imprinted.

12. In an apparatus for vending and marking pencils, a series of parallel type bars having characters imprinted thereon, a series of pivotally mounted key levers and connections between the same and the bars for actuating the latter to assemble type characters, a transversely slotted casing beneath which the bars are movable, mechanism by which the bars are moved to place desired characters in line beneath the slot, pencil carrying racks, stops by which the pencils are retained, a slidable carriage, means by which pencils are released and deposited upon the carriage, an inking roller movable in unison with the carriage, stops to arrest a pencil in line with the exposed type, and an impression bar acting to force the type and pencil into contact.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK C. WILLIAMS.

Witnesses:

GEO. H. STRONG,  
CHARLES EDELMAN.