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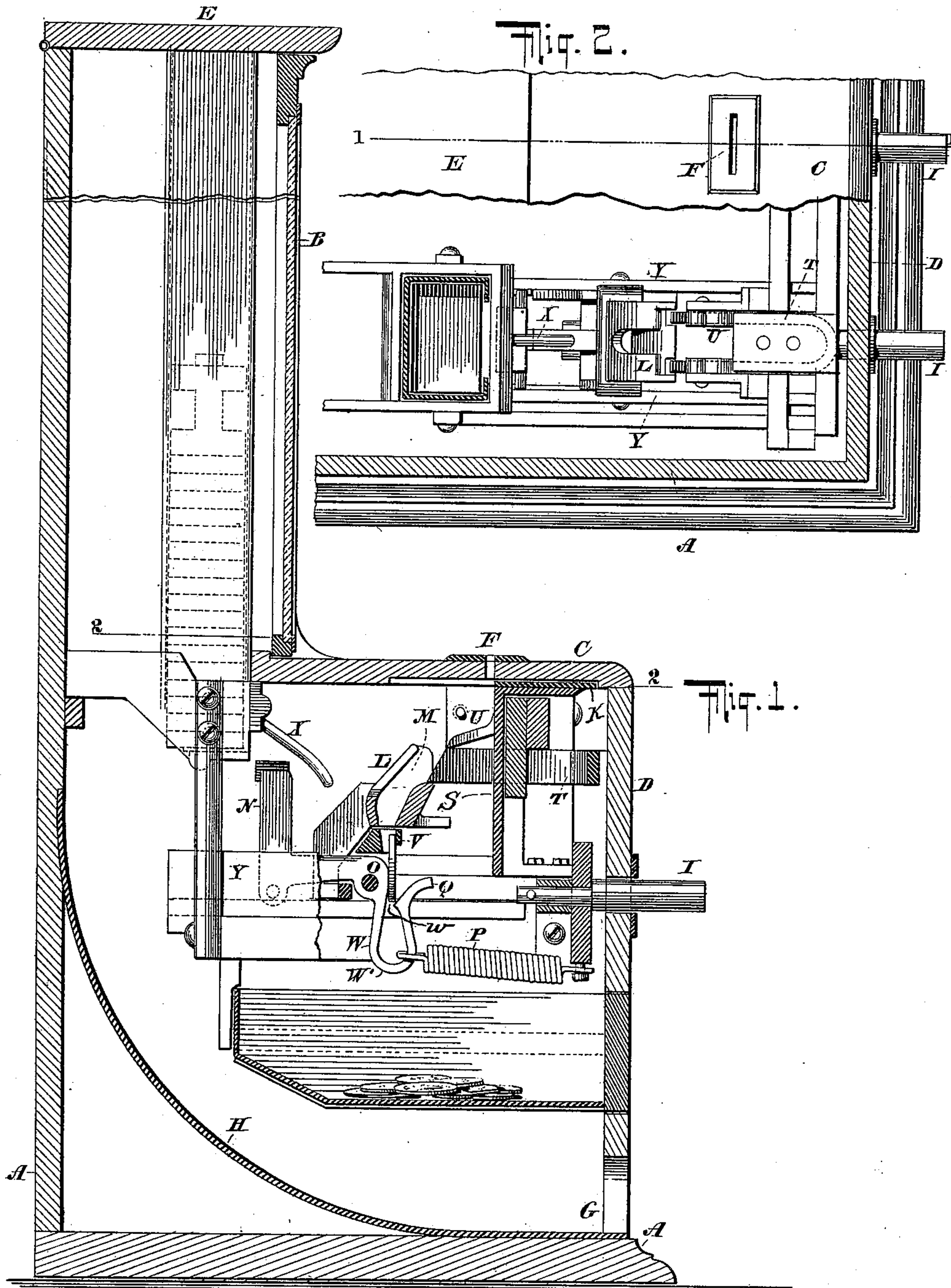
Patented June 27, 1899.

E. H. COOK.
VENDING MACHINE.

(Application filed Dec. 31, 1897.)

(No Model.)

4 Sheets—Sheet 1.



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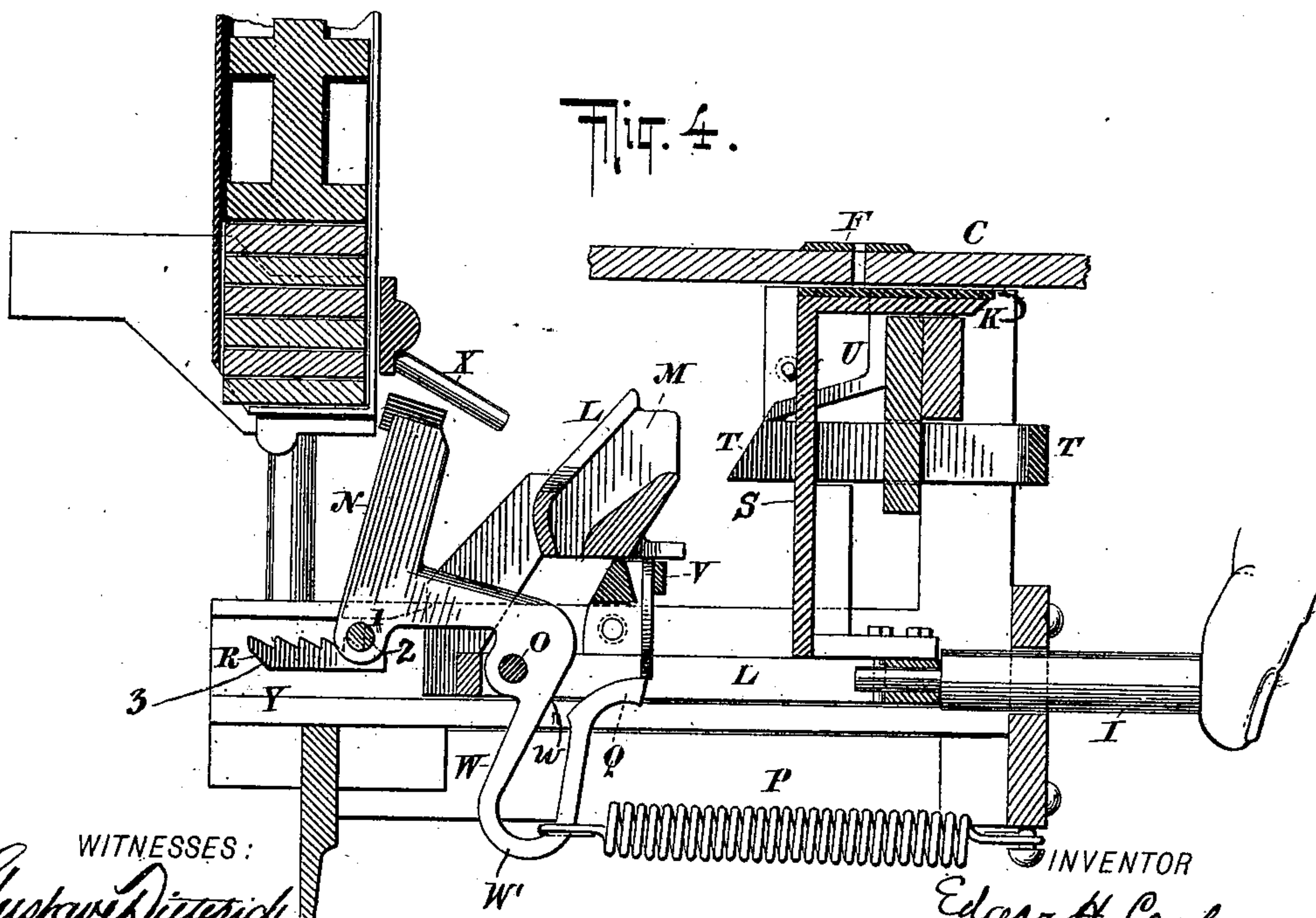
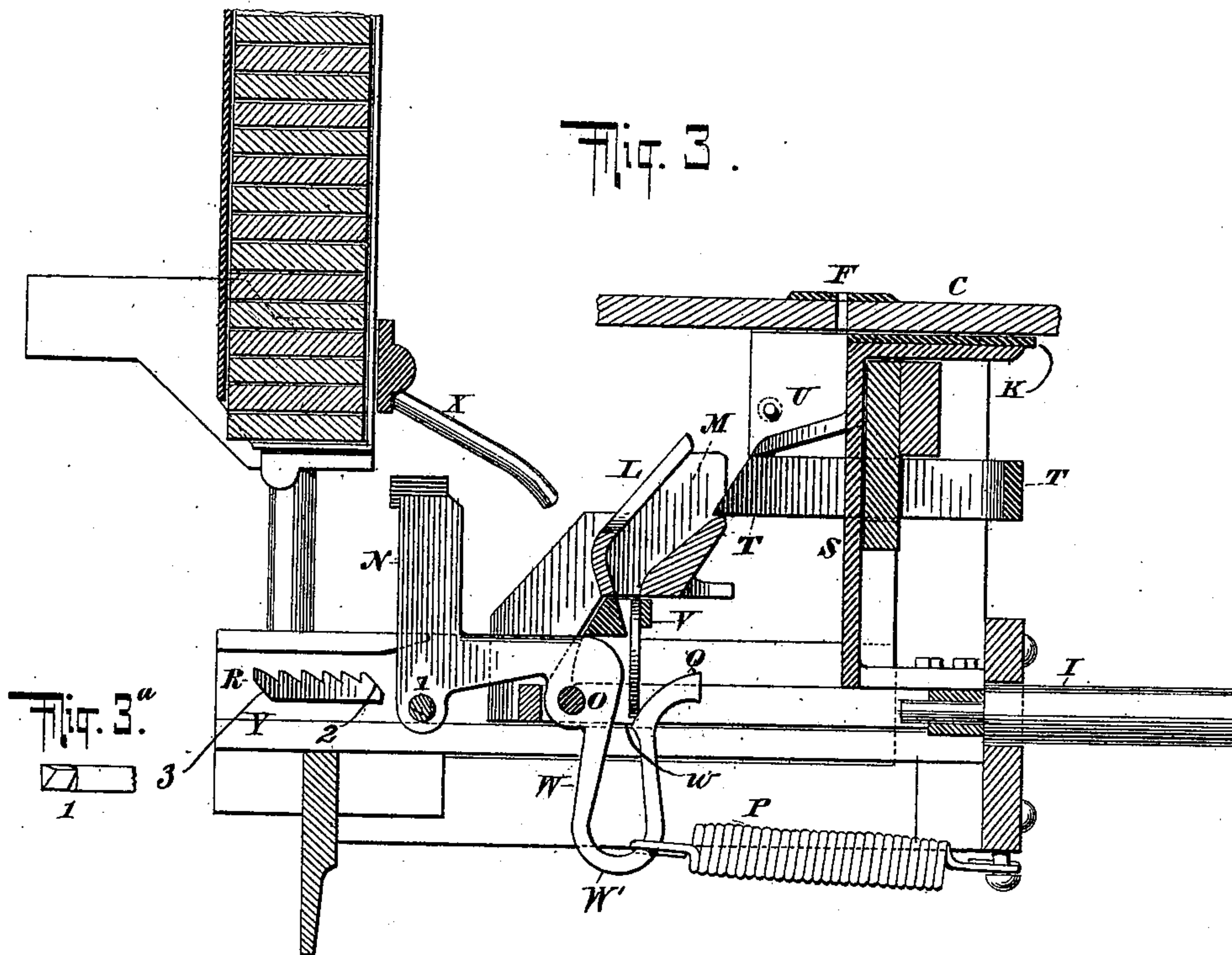
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4 Sheets—Sheet 2.



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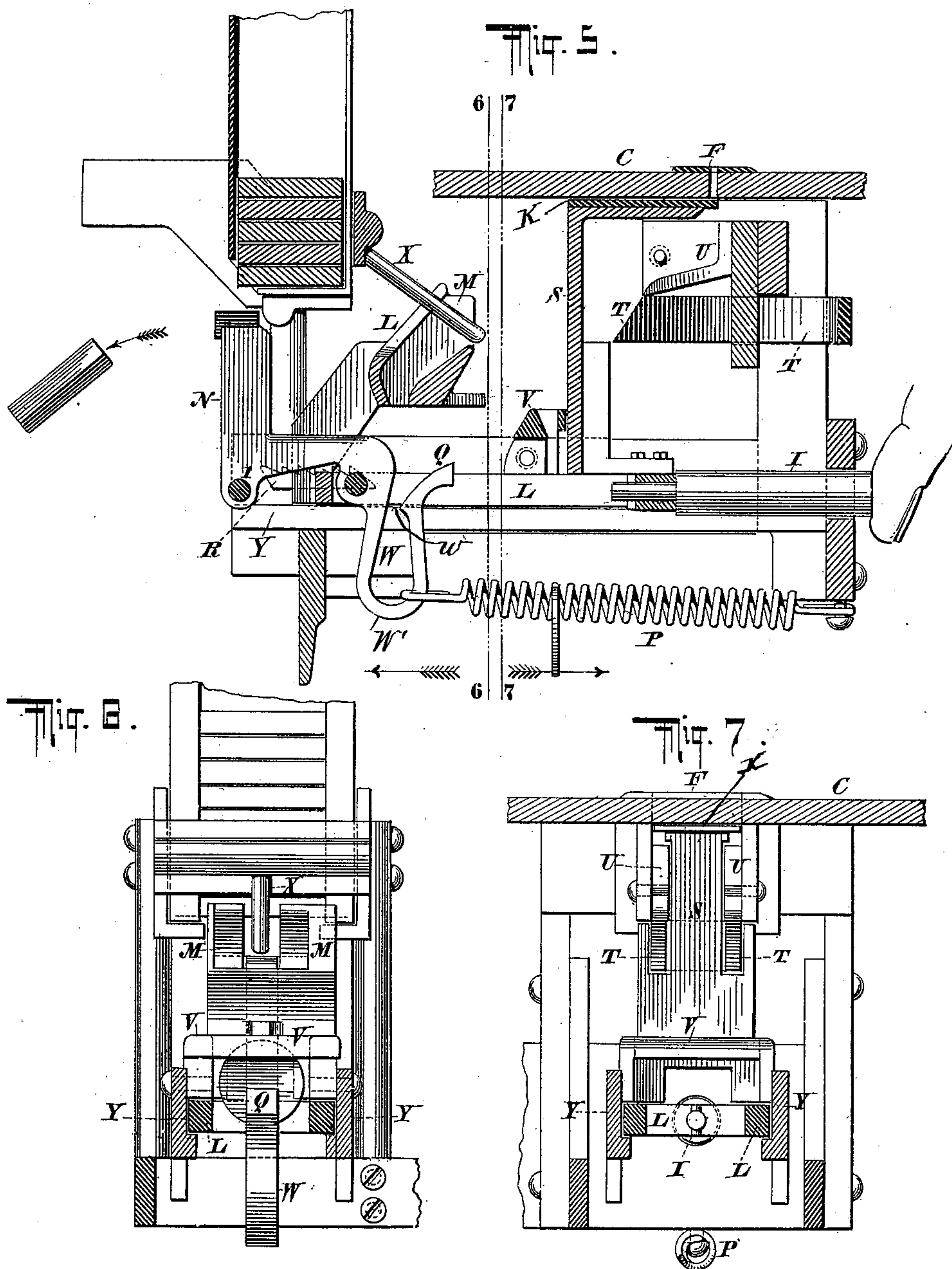
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4 Sheets—Sheet 3.



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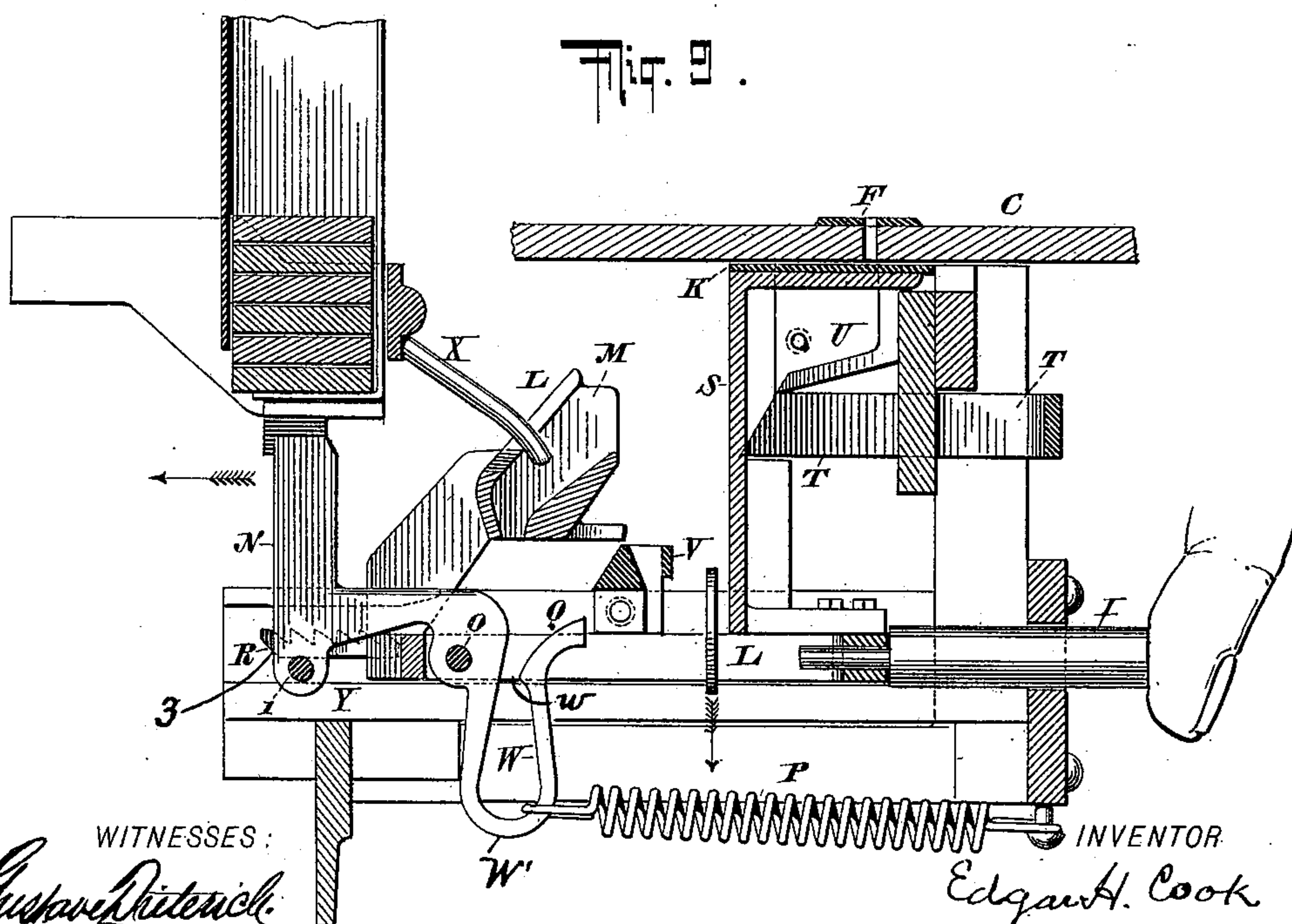
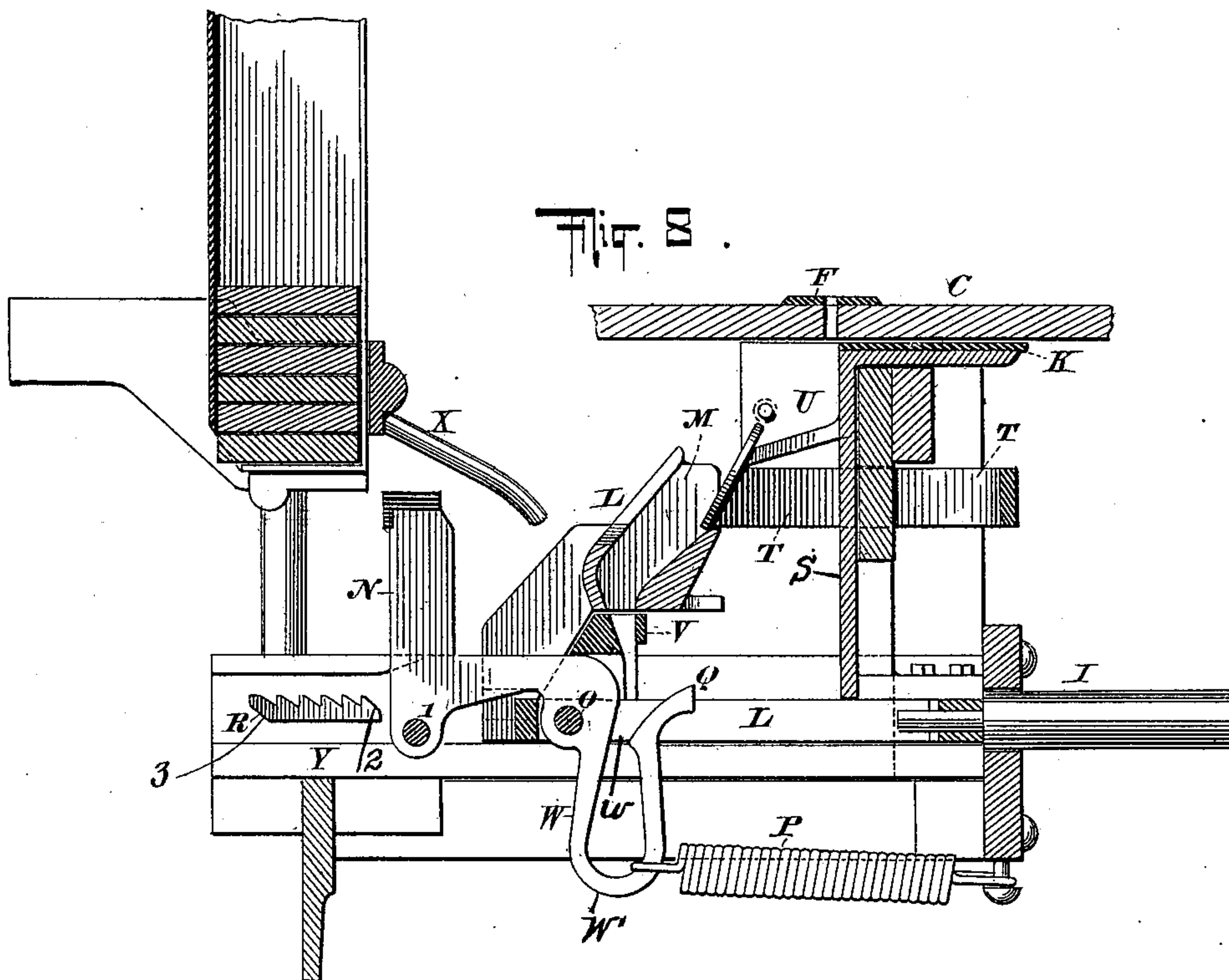
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(Application filed Dec. 31, 1897.)

(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

EDGAR H. COOK, OF NEW YORK, N. Y.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 627,684, dated June 27, 1899.

Application filed December 31, 1897. Serial No. 664,834. (No model.)

To all whom it may concern:

Be it known that I, EDGAR H. COOK, of the city of New York, county of Kings, and State of New York, have invented certain new and
5 useful Improvements in Vending-Machines, of which the following is such a full, clear, and exact description as will enable others skilled in the art to understand and use the same when taken in connection with the accompa-
10 nying drawings, in which—

Figure 1 is a vertical sectional view of the machine on the line 1 1 of Fig. 2. Fig. 2 is a top view of the machine with the top plate partially broken away on the line 2 2 of Fig. 1. Fig. 3 is a vertical section of the apparatus in its normal position ready to receive a coin, showing the coin in position in the coin-holder. Fig. 3^a is a detail view of the stop on the carriage which engages with the
15 ratchet-bar. Fig. 4 is a vertical sectional view of the apparatus, showing the carriage part way pushed in and the delivery-arm raised by the presence of the coin and about to push from the stack a package. Fig. 5 is a like view of the apparatus, the carriage having been pushed all the way in, so as to deliver the package. Fig. 6 is a vertical section of the apparatus on a plane at right angles to that of Fig. 5 on the line 6 6, looking toward
20 the back of the apparatus. Fig. 7 is a view of the apparatus on the same plane as Fig. 6, looking toward the front of the apparatus. Fig. 8 is a vertical section of the apparatus, showing an iron slug as held by the magnet; and Fig. 9 is a like view of the apparatus,
25 showing the iron slug as being pushed from the magnet and dropping without reaching the coin-holder, so that the apparatus is inoperative in the delivery of goods.

40 This my invention relates to that class of vending mechanisms in which the mechanism is inoperative for the delivery of goods without the insertion of a predetermined coin; and it consists, substantially, in such features
45 of construction, arrangement, and combination of parts, as will hereinafter be more particularly described.

In the drawings, A indicates the box or casing, having the front pieces B C D and the
50 top E.

F is an opening or coin-slot in the casing, through which the coin is inserted to operate

the machine, being of such size as to receive a predetermined coin.

G is an opening in the front of the casing 55 for the delivery of the goods, through which they come on a curved slide H, on which they fall from the bottom of the stack when pushed out by the mechanism provided.

I is the push-rod attached to the carriage, 60 by which the carriage may at all times be moved forward and back on a track or guide provided therefor.

The carriage has rigidly attached to it the push-rod I, which passes through a hole in 65 the face of the machine, and the slot-closer K, which moves forward and back directly beneath the slot when the carriage is reciprocated. The said slot-closer K comprises a horizontal shelf or ledge carried by the upper 70 end of a movable stripping device S, herein-after referred to, and being normally at the forward end of the apparatus in proximity to the slot, as shown, for instance, in Figs. 1 and 3. It also has rigidly attached to it the coin- 75 guide M, so that it moves forward and back with the carriage. There is also attached to the carriage by the pivot O a bell-crank lever, which also moves forward and back with every reciprocation of the carriage. The bell- 80 crank lever is composed of the delivery-arm N and the hook-shaped arm W. The hook-shaped arm W has at its extended end the cam Q, which comes in contact with the coin when in its position in the coin-holder V. It 85 has also attached to it the retracting-spring P, which tends to draw the carriage into its normal position, as shown in Fig. 3.

As herein shown, the coin-holder V is dis- 90 posed or arranged above the pivoted lever, with the slot or opening therein substantially in line with that end of the cam Q upon which the lower edge of the coin first begins to act, and it will be observed also that the said lever is formed with a bend W', the open end 95 or mouth *w* of which permits the passage of coins of less thickness than that of a given or predetermined coin. The side or edge of the bend W' opposite to the cam extends somewhat above the cam and is so related to the 100 cam that, as shown in Fig. 1, a coin of given thickness is prevented from passing through the mouth *w* of the bend, since it is caught and rests upon the lower edge of the cam and

is held thereon by the coöperation with the cam of the opposite portion of the bend. A coin of less thickness, however, will pass down through the opening *w*, as will be plainly apparent from said figure.

To the bend *W'* is connected the inner end of the spring *P*, and the function of this spring is not only to return the carriage and lever to normal position, but also to exert a constant tendency upon the lever to tilt the delivery-arm thereof downward for a purpose to be described.

One of the objects of my invention is to drop the operating-coin into the receptacle therefor quickly and also not to depend upon the coin to keep the delivery-arm elevated during the full time of its delivery stroke. The reason for this is that if the coin were allowed to remain on the cam after the package is started from the delivery-opening by the delivery-arm it would be possible to first start the package by a very short movement of the lever and then to withdraw said package by hand, whereupon another package would descend, and so on, and in this way the packages could all be taken from the machine by the payment or insertion of a single coin. I therefore depend upon the coin solely to insure the tilting and partial advance of the delivery-arm, and I provide additional means for holding the arm in the elevated position to deliver a package from the stack. Thus I provide the delivery-arm at or near its lower end with a side pin or projection 1, which when the arm is elevated is received upon the upper edge of a stationary rest or support *R*, attached to the machine. Said support is of length corresponding to the required stroke of the arm, and beneath the support is a transverse guide-rail *Y*, upon which the pin 1 normally rests and upon which also the lever and delivery-arm are guided in the return movement of the carriage. This guide-rail *Y* is also a stop for limiting the downward movement of the delivery-arm and lever after the former has completed its forward stroke in delivering a package. From the peculiar construction and arrangement of my improved apparatus it is evident that if some such stop device were not employed the delivery-arm and lever, as well as the cam, would be carried so far beyond the normal positions thereof as that the cam would strike the forward side of the coin-holder on the return of the carriage, and thus would the parts be rendered inoperative. The said part *Y*, therefore, becomes a combined stop and guide, and as such will be referred to hereinafter. The inner end of the rest or support *R* is beveled or inclined forwardly at 2 to facilitate the passage of the pin thereon, and the opposite end thereof is beveled or inclined rearwardly at 3, so as to guide the pin downward and backward on the completion of the stroke of the arm. It is apparent that by virtue of the pull exerted upon the bend *W* of the lever by the spring *P* the said delivery-arm is depressed

or carried down upon the combined stop and guide *Y* immediately the end of the support or rest is reached, whereupon the carriage is returned and the lever and arm carried back with it. Incidentally I provide the upper edge of said rest or support with a number of ratchets or teeth which are engaged by the pin 1, and in this way, after once being started, the lever and carriage are prevented from returning until after the delivery-stroke of the arm has been completed. The pin 1 is preferably beveled at one end, as shown at Fig. 3^a, so as to enable the same to readily coöperate with the beveled or inclined edges of the ratchet-teeth.

From the construction and arrangement explained it will be seen that the cam *Q* need be but comparatively short to elevate the delivery-arm and also that the coin drops below immediately the cam is depressed.

The hook *W*, with the cam *Q* on the end thereof, is of such shape and comes in such relation to the coin-holder *V* (which coin-holder *V* is rigidly attached to the frame of the machine) that the proper coin will rest on the edge of the cam, as shown in Fig. 3, so that when the carriage is pushed forward the cam will be operated on by the coin, pushed down, and the bell-crank lever turned so that the pin 1 thereon will pass above the elevated rest or ratchet bar *R* and catch in the first ratchet before the coin is released, as shown in Fig. 4. As the carriage travels farther forward and before the pin 1 has passed entirely over the ratchet-bar the cam *Q* passes from beneath the coin and allows it to drop into the coin-receiver. As the bell-crank is thus turned, so as to bring the pin 1 above the ratchet-bar, the end of the delivery-arm *N* comes in contact with the lowest package in the stack of packages and pushes it from its position, as shown in Fig. 5, allowing it to fall on the slide *H*, and thus come to the opening *G*. The pin 1, having passed over the entire length of the ratchet-bar, drops to the combined stop and guide *Y* under the impulse of the retracting-spring *P*, and on the removal of the finger from the push-rod the carriage returns to its normal position, the pin 1 passing under the ratchet-bar and the end of the delivery-arm *N* passing beneath and out of contact with the lowest package in the stack.

Having now sufficiently described the operation of the reciprocating carriage and delivery-arm, I will proceed to describe the coin-conducting device.

The carriage being in its normal position, as shown in Figs. 1, 3, and 8, the coin may be inserted in the slot and will fall on the coin-slide *U* beneath the same and pass over that across the ends of the magnet *T*, rigidly attached to the frame of the machine, and, if a non-magnetic coin, will go into the coin-guide *M*, which is rigidly attached to the reciprocating carriage, and pass from that into the coin-holder *V* and rest at its lower edge on the cam *Q*, as shown in Figs. 1 and 3, being

in a position to operate the crank-lever when the carriage is pushed, pressing the cam down and lifting up the delivery-arm, so that the pin 1 comes on the ratchet-bar and the end of the delivery-arm N in contact with the lowest package in the stack. If, however, the coin is thinner than the predetermined coin for operating the machine, it will pass down beyond the cam and drop out of the coin-holder, so that the machine will be inoperative in the delivery of a package, and if, again, an iron washer or magnetic metal slug is inserted, instead of a proper coin, in the slot it will fall upon the slide U and, passing over the magnet T, will be held by the magnetism on the end of the magnet, as shown in Fig. 8. Then when the carriage is pushed in, the upright part S, which carries the slot-closer, which is cut away to allow the magnet to pass through, will push the slug from its position on the end of the magnet, thus acting as the magnet-stripper, as shown in Fig. 9, and allow it to drop in the coin-receiver without operating the machine for the delivery of a package.

As it frequently happens that pasteboard or paper slugs of the size and thickness of a coin are used to operate vending-machines, I have arranged the cam Q and the retracting-spring P of such shape and strength that the edge of the paper will be bent by the cam instead of the cam being operated by the paper or pasteboard, and as it sometimes happens that thin pieces of metal or cardboard of irregular size are used to operate the vending-machines, which may become clogged in the coin-guide M, I have provided a slot in the front and back thereof, and a pin X, rigidly attached to the frame of the machine, so that when the carriage is pushed in the pin X will enter and pass through the coin-guide and the coin, pasteboard, or other contents of the coin-guide will be pushed out by the pin, thus clearing it from all obstructions.

The coin-holder V is rigidly attached to the frame of the machine and is of the proper size to receive a predetermined coin on its edge, as shown in Figs. 1, 3, and 4, the predetermined coin falling on the cam Q is prevented from going farther, and as the carriage is pushed in the cam, pressing against the edge of the coin, locks it in the coin-holder, and the bottom of the coin-guide M passing over the top of the coin prevents it from being pushed out by the cam, so that it is rigidly held in its position while it operates upon the cam Q to turn the crank-lever.

It is manifest that after the carriage has been pushed forward far enough for the pin 1 to engage with one notch of the ratchet-bar R it cannot be withdrawn, but must be pushed in until the pin passes over the end of the ratchet-bar.

The operation of this machine is as follows: The machine being in the position shown in Figs. 1, 3, and 8, the coin-slot F opens, a predetermined coin is dropped in, which falls

upon the slide U, passing over the ends of the magnet T, through the coin-guide M to the coin-holder V, resting on the cam Q. The push-rod I is then pushed in by the operator, moving the carriage L forward, carrying with it the slot-closer K, so as to close the slot F and prevent the introduction of another coin, pressing the cam Q against the coin, thereby raising the delivery-arm N of the crank-lever, so that the pin 1 thereon comes in contact with the upper edge of the elevated rest or ratchet bar R, the cam Q passing from beneath the coin, allowing it to fall in the coin-receiver. On the continuous forward progress of the carriage the delivery-arm N pushes out the lowest package of the stack of packages, and the pin 1, passing over the end of the ratchet-bar R, falls upon the combined stop and guide Y beneath the same. On the removal of the finger from the push-rod I the retracting-spring P, acting on the hook-shaped arm W, draws back the carriage and at the same time draws down the pin 1 under the ratchet-bar on the frame of the machine until the carriage is brought to its normal position ready for another operation.

It will be observed that the mechanism of this machine is extremely simple and consists of but few parts compared with most vending mechanisms and that one spring only is necessary to accomplish all of the results that are usually obtained by the use of several in mechanisms of this character.

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

1. The combination, in a vending-machine, of a pivoted reciprocating lever comprising a delivery-arm and a cam, a coin-holder arranged to hold a coin in position to depress the lever to release the coin and elevate the delivery-arm, and independent stationary means for arresting the downward movement of said arm after completion of its delivery-stroke, and for guiding the parts to their normal positions.

2. The combination, in a vending-machine, of a pivoted reciprocating lever comprising a delivery-arm and a cam, a coin-holder arranged to hold a coin in position to depress the cam to release the coin and elevate the delivery-arm, means for supporting the arm during its delivery stroke, and independent stationary means for arresting the downward movement of said arm after completing such stroke, and for guiding the parts to their normal positions.

3. The combination, in a vending-machine, of a pivoted reciprocating lever comprising a delivery-arm and a cam, a coin-holder arranged to hold a coin in position to depress the cam to release the coin and elevate the delivery-arm, means for supporting the arm during its delivery stroke, means for lowering the arm and returning the parts to normal position, and independent stationary means for arresting the downward movement of said arm and guiding the parts on their return.

4. The combination, in a vending-machine, of a pivoted reciprocating lever comprising a delivery-arm and a cam, a coin-holder arranged to hold a coin in position to repress the cam to release the coin and elevate the delivery-arm, means for holding the arm in its elevated position during the delivery stroke thereof, and for preventing the return of the arm before the completion of such stroke, and independent stationary means for arresting the downward movement of said arm after completing its stroke, and for guiding the parts to their normal positions.

5. The combination, in a vending-machine, of a reciprocating carriage having a pivoted lever comprising a delivery-arm and a cam, a coin-holder arranged in position to depress the cam to release the coin and elevate the arm on the forward movement of the carriage, an elevated rest receiving and supporting a projection on the arm to support the arm during its delivery stroke, means for lowering the arm and returning the parts to normal position, and independent stationary means for arresting the downward movement of said arm and guiding the same on its return.

6. The combination, in a vending-machine, of a reciprocating carriage having thereon a pivoted lever comprising a delivery-arm and a cam, a coin-holder arranged in position to hold a coin to depress the cam to release the coin and elevate the arm on the forward movement of the carriage, a beveled pin or projection on the arm, a rest or support for the arm having teeth engaged by said pin, means for lowering the arm on reaching the end of said rest or support, and for returning the parts to normal position, and independent stationary means for arresting the downward movement of said arm, and for guiding the parts on their return.

7. The combination, in a vending-machine, of a pivoted reciprocating lever comprising a delivery-arm, a hook-shaped arm, and a cam, a coin-holder arranged to hold a coin in position to depress the lever to release the coin, and to depress the hook-shaped arm and ele-

vate the delivery-arm, and independent stationary means for arresting the downward movement of said delivery-arm after completion of its delivery stroke, and for guiding the lever to its normal position.

8. The combination in a vending-machine, of a reciprocating carriage having pivoted thereon a lever comprising a delivery-arm and a cam, a fixed coin-holder, a reciprocating coin-guide, and means entering the guide on the forward movement of the same for removing obstructions therefrom, substantially as described.

9. The combination in a vending-machine, of a reciprocating carriage having pivoted thereon a lever comprising a delivery-arm and a cam, a fixed coin-holder, a reciprocating coin-guide slotted on opposite sides, and a fixed pin entering or passing through the slots on the forward movement of the guide, substantially as shown and for the purpose described.

10. The combination in a vending-machine, of a reciprocating carriage having pivoted thereon a lever consisting of a delivery-arm and a cam, with a fixed coin-holder, a reciprocating coin-guide and fixed pin entering the guide on the forward movement thereof, substantially as specified and set forth.

11. The combination in a vending-machine, of a reciprocating carriage having pivoted thereon a lever consisting of a delivery-arm and a cam, with a fixed coin-holder and an independent reciprocating slot-closer, substantially as specified and set forth.

12. The combination in a vending-machine, of a reciprocating carriage bearing a slot-closer, a fixed magnet in the course of the passage of the coin, and a support for the slot-closer moving back and forth on the arms of the magnet to strip the magnet of adhering obstructions, substantially as described.

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