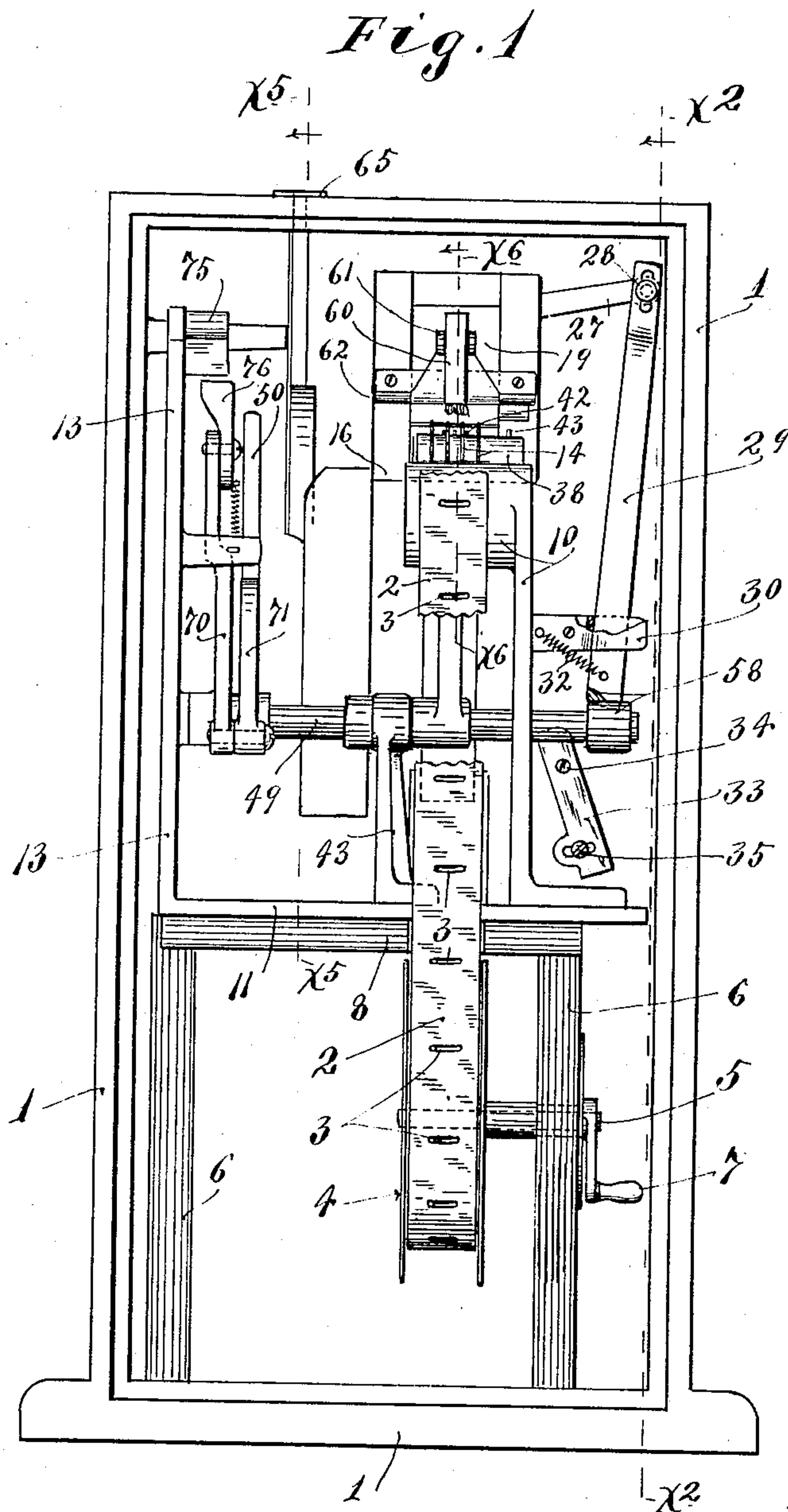


S. I. LONG.  
STAMP VENDING MACHINE.  
APPLICATION FILED AUG. 17, 1908.

954,816.

Patented Apr. 12, 1910.

5 SHEETS—SHEET 1.



Witnesses.  
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Inventor  
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By his Attorneys  
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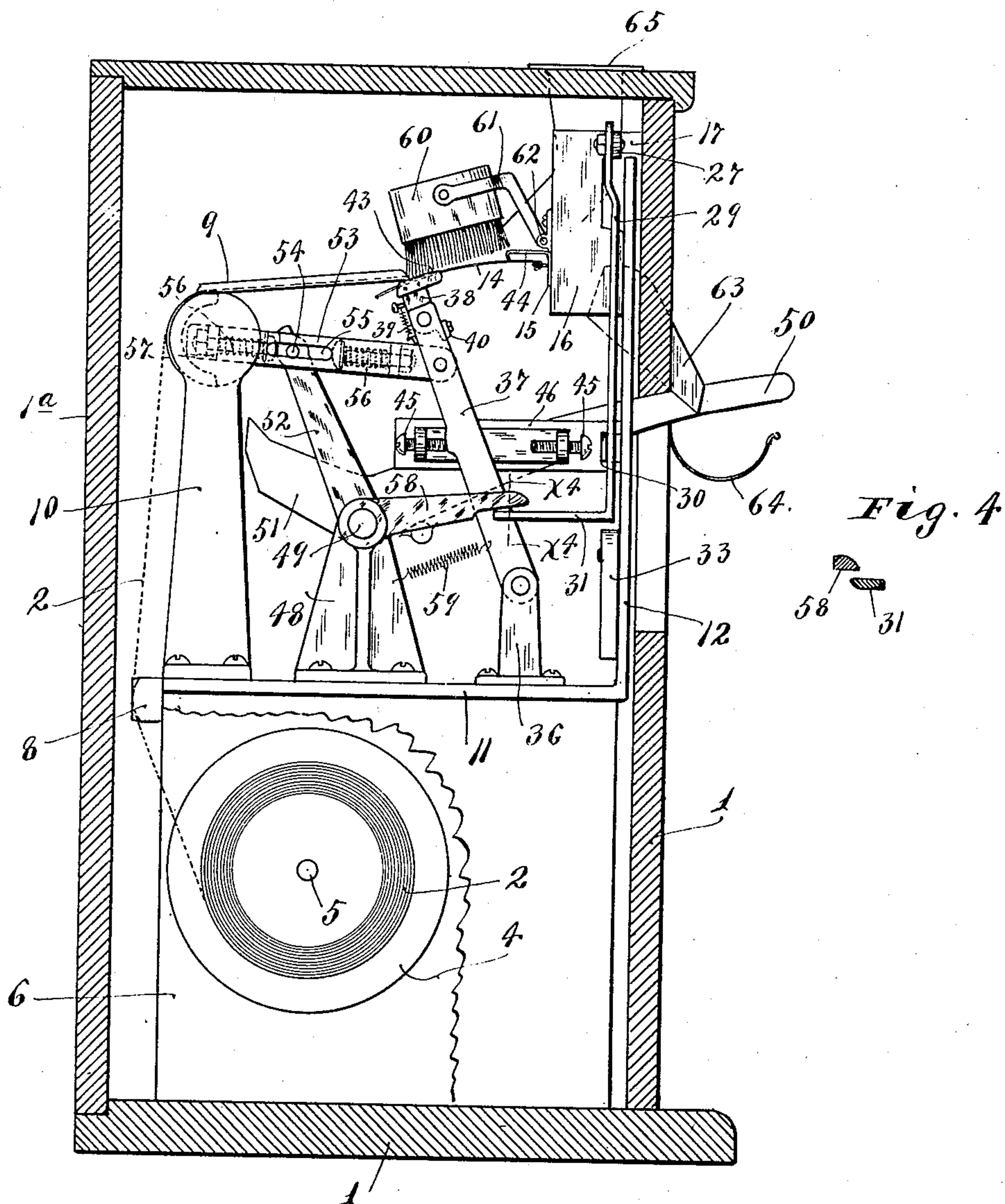
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5 SHEETS—SHEET 2.

*Fig. 2*



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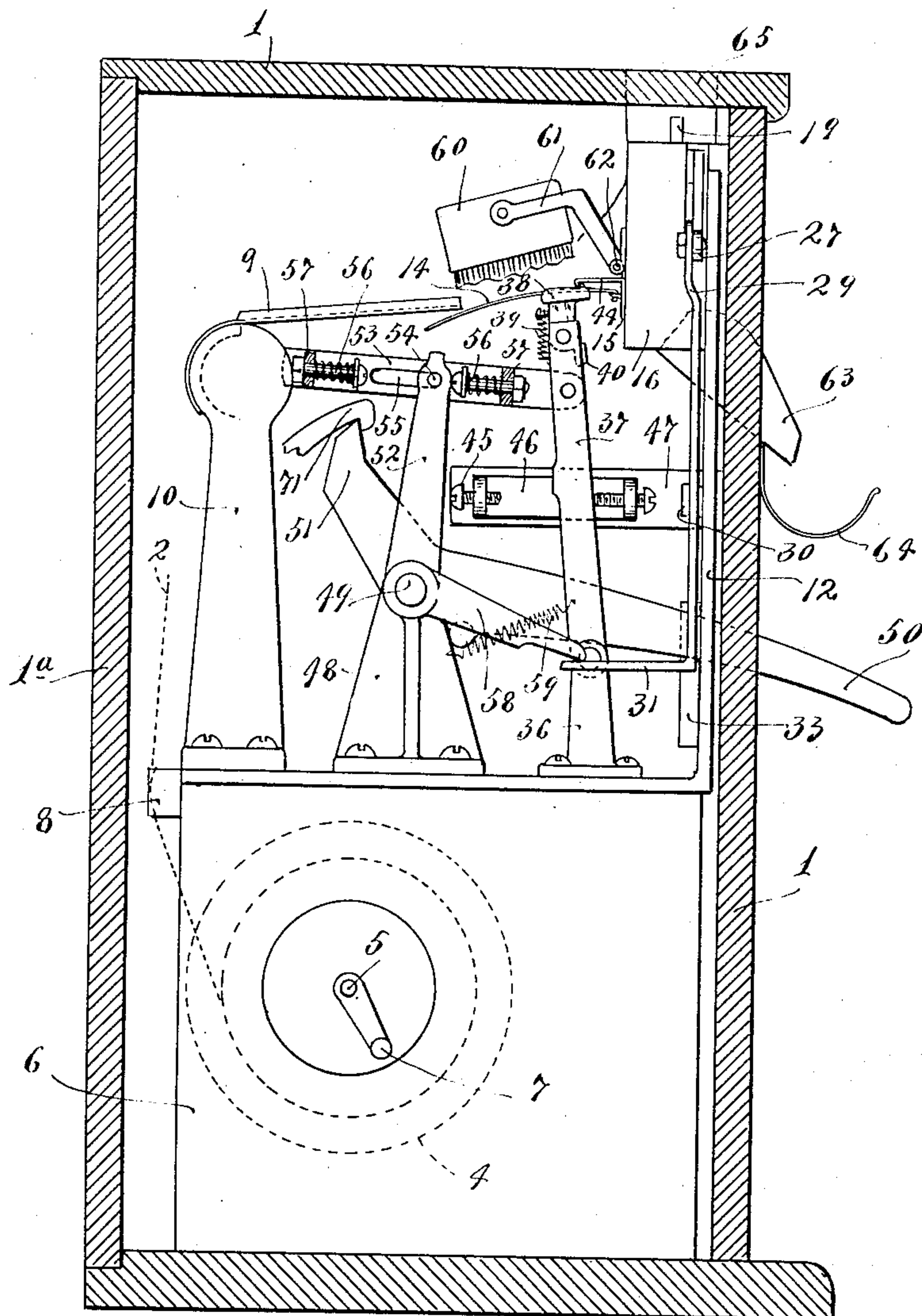
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5 SHEETS—SHEET 3.

*Fig. 3.*



Witnesses.

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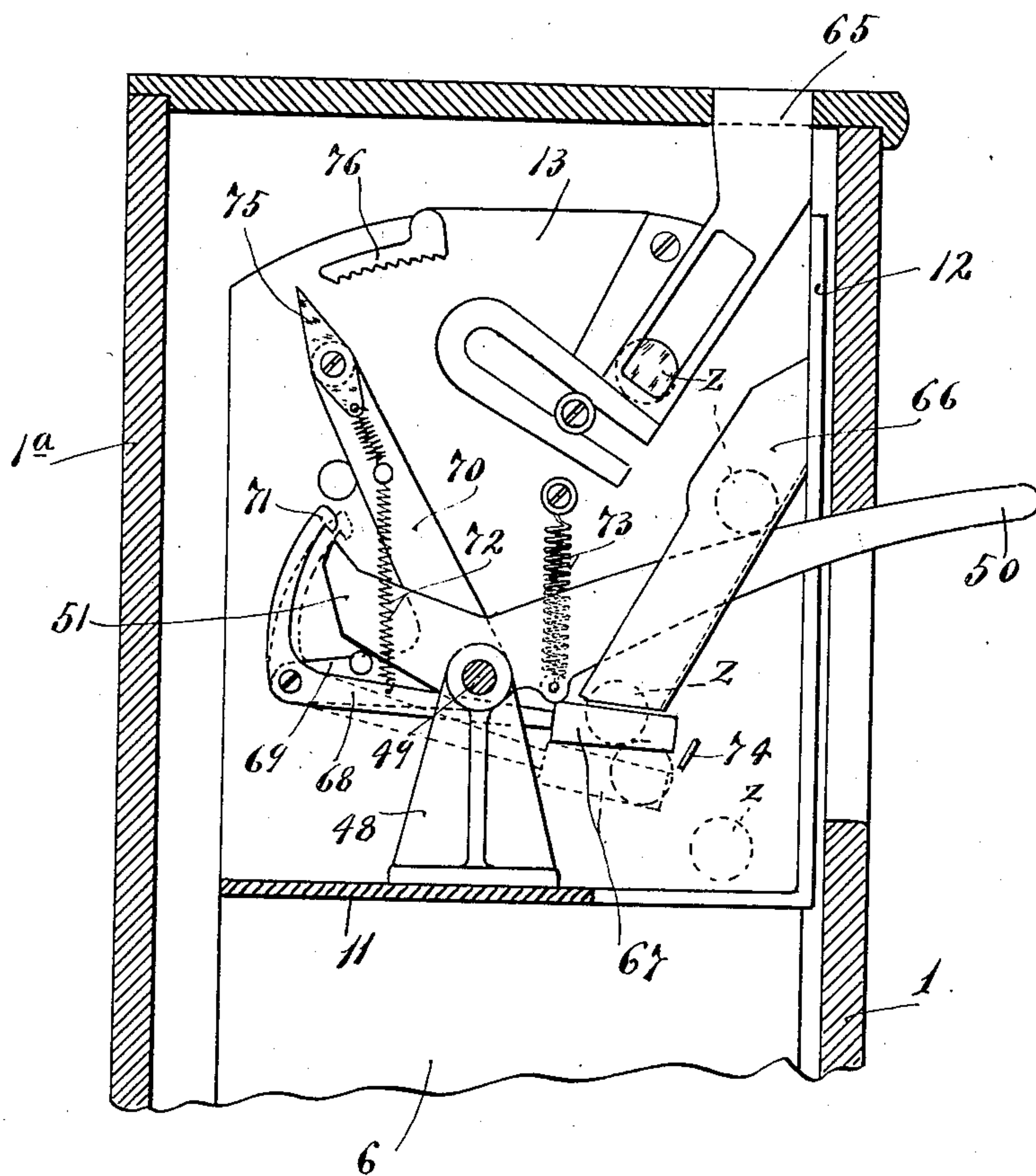
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5 SHEETS—SHEET 4.

*Fig. 5.*



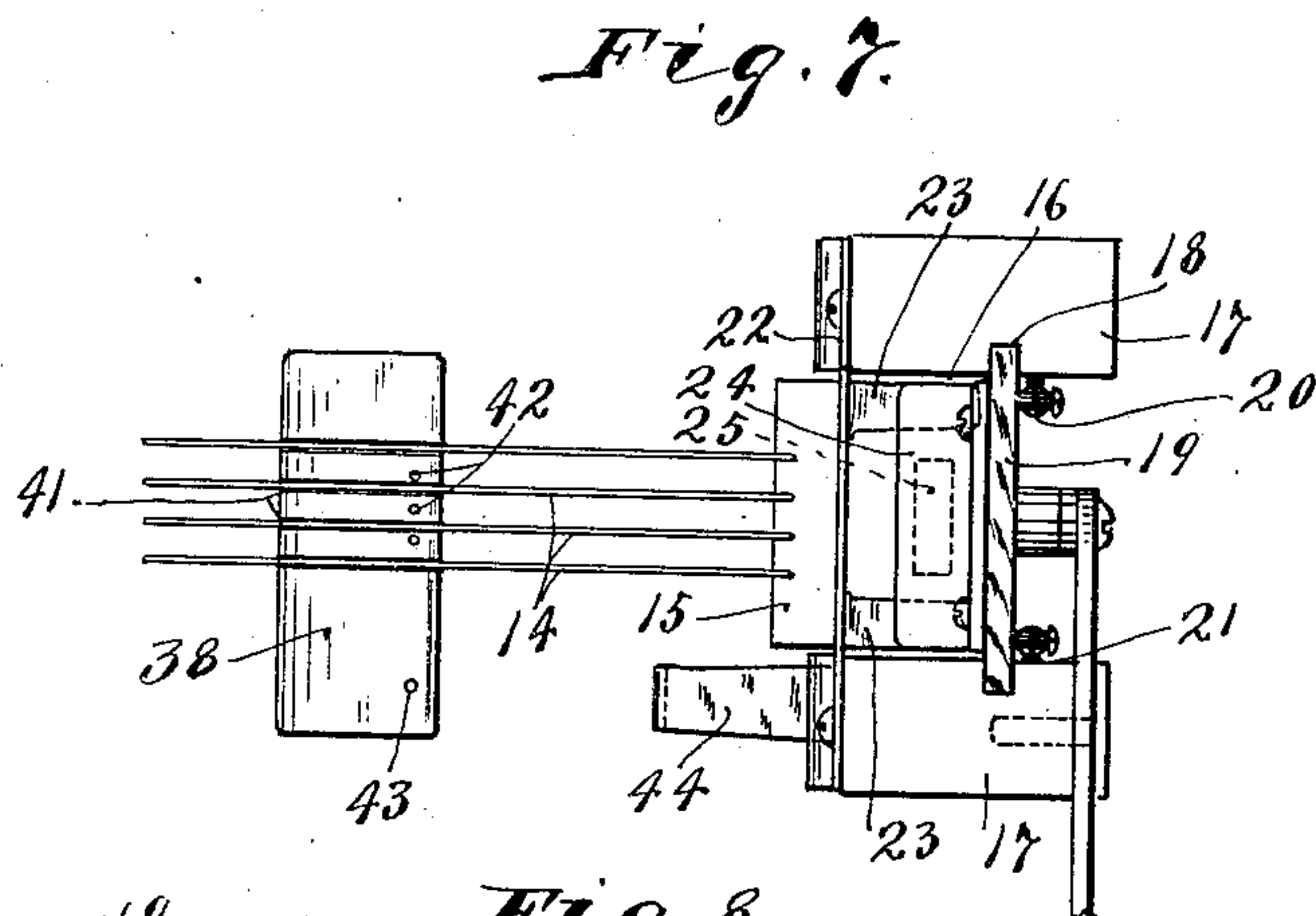
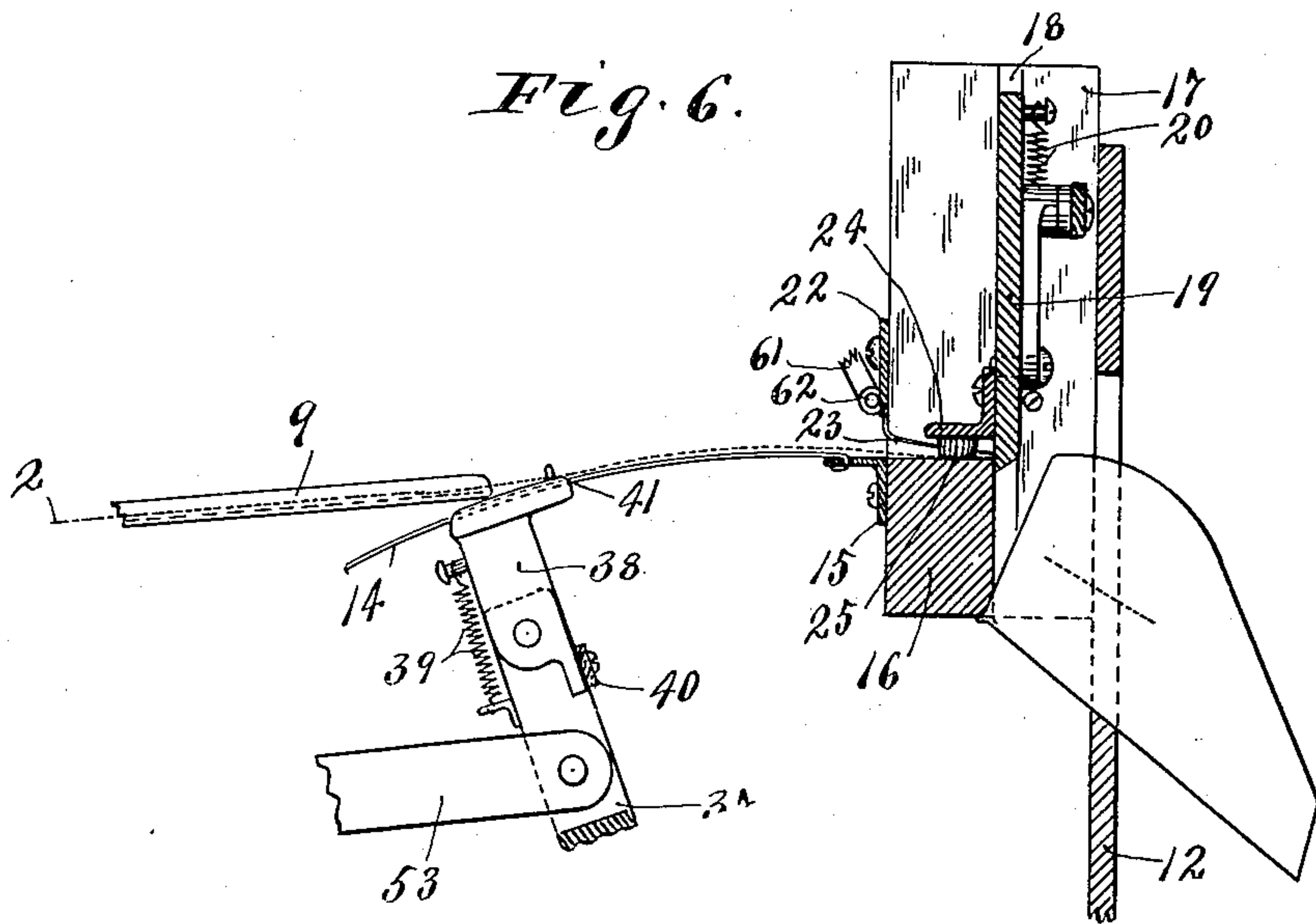
Witnesses.  
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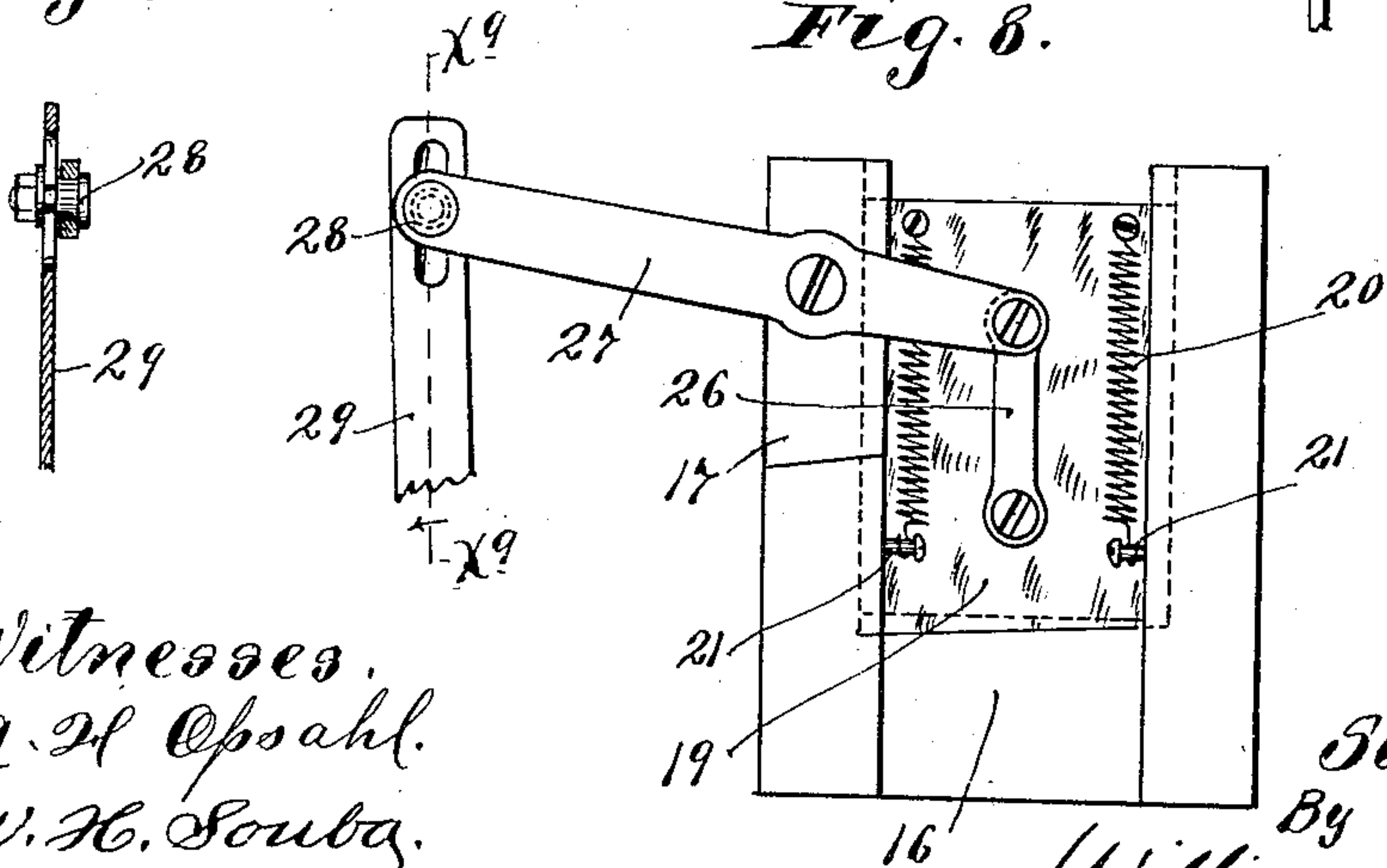
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Patented Apr. 12, 1910.

6 SHEETS—SHEET 5.



*Fig. 8.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

SIDNEY L. LONG, OF MINNEAPOLIS, MINNESOTA.

## STAMP-VENDING MACHINE.

954,816.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed August 17, 1908. Serial No. 448,809.

*To all whom it may concern:*

Be it known that I, SIDNEY L. LONG, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Stamp-Vending Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved machine for vending stamps, tickets, and similar articles which are capable of being printed on a strip or ribbon and cut into sections in the process of delivery.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings; Figure 1 is a rear elevation of the improved machine, with some parts broken away, and with the back of the case removed. Fig. 2 is a vertical section, taken from front to rear of the machine, on the line  $x^2 x^2$  of Fig. 1, and showing the parts in their normal positions, some parts being broken away. Fig. 3 is a sectional view corresponding to Fig. 2, but illustrating different positions of the parts. Fig. 4 is a detail view in section, on the line  $x^4 x^4$  of Fig. 2. Fig. 5 is a vertical section, taken from front to rear of the machine, on the line  $x^5 x^5$  of Fig. 1, some parts being broken away. Fig. 6 is an enlarged vertical section, taken approximately on the line  $x^6 x^6$  of Fig. 1, some parts being broken away. Fig. 7 is a plan view of the parts shown in Fig. 6, with some parts removed. Fig. 8 is a detail view in rear elevation, showing the knife and actuating connections therefor; and Fig. 9 is a section taken on the line  $x^9 x^9$  of Fig. 8.

All of the operative parts of the machine are contained within a suitable case 1 which, as shown and preferred, is of rectangular form, being provided with a detachable back plate 1<sup>a</sup>.

The articles to be vended, which we will assume to be stamps, are printed or formed on a ribbon 2 having slots or perforations 3 between the individual stamps. This ribbon is wound upon a reel 4, the shaft 5 of

which is journaled in one side of a supporting frame 6 that is provided with a crank 7, by means of which latter, the said ribbon may be readily wound upon the said reel. This ribbon 2, the unwound portion of which in Figs. 2, 3 and 6 is indicated by dotted lines, is passed upward, as shown, first over a guide 8 on one edge of the support 6, and thence upward and forward over a guide plate 9, the downwardly curved rear end of which is secured to the upper end of a supporting pedestal 10, the base of which latter is rigidly secured to a bearing plate 11 which, in turn, is secured to the top of the supporting frame 6. This bearing plate 11 has a vertically extended front plate 12 and a vertically extended side plate 13, for purposes which will presently appear.

From the guide plate 9, the ribbon 2 extends over a skeleton support made up of a multiplicity of rods 14, the front ends of which, as shown, are secured to the horizontal flange of an angle bar 15, which latter is rigidly secured to a short heavy anvil bar 16. This anvil bar 16 has laterally spaced upwardly extended side portions 17 formed with vertical grooves 18 in which the ends of a knife or shearing blade 19 are mounted for vertical movement. The said anvil bar 16 is rigidly secured to the upper portion of the front plate 12, and the beveled lower edge of the said knife blade 19 coöperates with the sharp upper front edge of the so-called anvil bar 16 to cut off as much of the end of the ribbon 2 as may be projected forward of the said bar 16 when the said blade descends.

The knife blade 19, when released, is, as shown, arranged to be moved quickly downward by a pair of coiled springs 20 attached thereto at their upper ends and connected at their lower ends to screws 21 applied to the sides 17 of the anvil bar 16, as best shown in Fig. 8.

Secured at its ends to the sides 17 of the anvil bar 16 and extending above the angle bar 15 is a small bar 22 to which laterally spaced spring fingers 23 are secured. These spring fingers 23 are arranged to press the sides of the ribbon 2 down onto the upper surface of the anvil bar 16.

The knife blade 19 carries a short angle bar 24 from which depends a presser foot 25, preferably of rubber, or similar pliable material, which is arranged to work between the spring fingers 23 and to firmly clamp



the end of the ribbon 2 onto the anvil bar 16 when said knife blade is down.

The knife blade 19 is connected by a link 26 to a lever 27 that is intermediately pivoted to one of the sides 17, as best shown in Fig. 8.

The free end of the lever 27 is pivoted to a wrist pin 28 that is adjustably connected to the slotted upper end of a depending tripping bar 29, the lower end of which works in a bifurcated guide 30, secured to the front plate 12. At its extreme lower end, the tripping bar 29 is provided with a rearwardly projecting arm 31, one edge of which is beveled, as best shown in Fig. 4. A light coiled spring 32 (see Fig. 1), which is attached to the guide 30 and to the lower end of the tripping bar 29, yieldingly holds the lower end of the latter in its extreme position toward the left, as shown in Fig. 1.

The numeral 33 indicates a cam block which is pivoted at 34 to the front plate 12, and is adjustably connected thereto, at its lower end portion, by means of a slot and screw connection 35 shown in Fig. 1. This cam block 33 stands in position to engage the lower end of the tripping bar 29, when the latter is depressed, and thereby force the arm 31 thereof toward the right in respect to Figs. 1 and 4.

Pivoted at its lower end to a bearing 36 on the plate 11 is a ribbon feeding lever 37, to the upper end of which a feed head 38 is pivotally connected. By a light coiled spring 39 attached to the rear edges of said head and lever, the said head is yieldingly held in its normal position shown in Figs. 2 and 6, in which position a depending portion of said head engages with a stop 40 on said lever 37. The upper surface of the head 38 is approximately flat and is transversely extended, and, as preferably constructed, is provided with shallow grooves 41 in which the wires 14 loosely rest. Between the wires 14 and at its forwardly projecting edge, the head 38 is provided with one or more (as shown) feed pins or projections 42 that are adapted to enter and project through the slots 3 of the ribbon 2. At one side and at its forward portion, the feed head 38 is provided with another pin or projection 43 which, when the lever 27 and head 38 are moved into their extreme positions (shown in Fig. 3) is adapted to be engaged by the free end of a spring tripping hook 44 which is applied to the right hand side portion 17 of the anvil bar 16. For this construction, see particularly Figs. 2, 3 and 7.

The extreme movements of the ribbon feeding lever 37 are adjustably but positively limited by an opposing set screw 45 applied to lugs of a stop bar 46 which, as shown, is rigidly secured to a horizontal rearwardly extended projection 47 of the front plate 12.

Journalled in a bearing afforded by the side plate 13 and by pedestal bearing 48 on the bearing plate 11, is a rock shaft 49 that is adapted to be oscillated by a loose operating lever 50, shown as provided with a rearwardly projecting lock arm 51. The lever 50 works through suitable slots in the front plate 11 in the front wall of the case and projects therefrom so that it may be engaged by the hand. At its intermediate portion, the rock shaft 49 is provided with an upwardly projecting arm 52 that works in the open intermediate portion of a bifurcated link 53, the forward end of which is pivotally connected to the upper portion of the feed lever 37. At its upper end, the arm 52 is provided with transversely projecting pins or studs 54 that work in slots 55 formed in the sides of the link 53. Also, the upper end of said arm 52 is preferably slightly rounded for engagement with the opposing head of a pair of spring pressed bolts 56 that work loosely through transverse connecting portions 57 of the bifurcated link 53.

At its right hand end (in respect to Fig. 1), the rock shaft 49 is provided with a knife actuating arm 58 that coöperates with the arm 31 of the tripping bar 29, and is beveled at one edge as shown in Fig. 4. Preferably, a light coiled spring 59 connects the lever 37 to the pedestal bearing 48.

To hold the flexible ribbon 2 down upon the upper surface of the feed head 38 and to thereby yieldingly press the same at a multiplicity of points so as to insure engagement of the feed pins 42 of said head with the slots 3 of said ribbon, without danger of damage to the said ribbon, I provide a soft brush 60, the back solid upper portion of which is pivotally connected to an arm 61 which, as shown, is pivotally connected at 62 to the bar 22 before described. The brush is thus fairly held on top of the ribbon and is pivoted so that it may adapt itself to the ribbon and maintain proper engagement therewith when the said ribbon is fed forward by a forward movement of the lever 37 and head 38.

The numeral 63 indicates an inclined spout secured to the front plate 12 and to the anvil bar 16 in position to receive the cut section of the ribbon and to deliver the same into a trough-like receptacle 64 secured on the outside of the case.

So far as this invention is concerned, any suitable coin-actuated controlling mechanism may be employed. Preferably, however, I employ as such means the coin-actuated mechanism disclosed and claimed in my prior patent No. 816,107, of date March 27th, 1906, entitled "Coin controlled vending machine."

For the purposes of this case, it is only necessary to state that when a coin Z is deposited in a receiving chute 65 (see Fig. 5),



it will fall into a spout 66, and from thence will be directed onto the head 67 of a lever 68 that is pivoted to an arm 69 of a lever 70 that is pivotally mounted on the rock shaft 49. The lever 68 is provided with a hook 71 that is adapted to be engaged with the arm 51 of the operating lever 50, when a coin is dropped onto the head 67. A light coiled spring 72 connects the lever 68 to the lever 70 and normally holds the hook 71 disengaged from the arm 51. A much stronger coiled spring 73 connects the lever 50 to the side plate 13 and yieldingly holds the latter in its uppermost position shown in Fig. 5. A stop 74, on the plate 13, holds the coin engaged with the head 67 until the latter is moved downward by a movement of the said lever 50; and the said head 67 can be moved downward only when a coin deposited thereon has caused the hook 71 to engage the arm 51, as indicated by dotted lines in Fig. 5. The lever 70 carries a spring pressed intermediately held dog 75 that co-operates with a fixed notched flange 76 on the plate 13 to afford a full stroke device of the lever 50 and parts carried thereby.

From what has been said, it will be understood that the normally loose operating lever 50 is locked to the rock shaft 49 by means of the hook 71 when a coin is deposited on the head 67 of the lever 68, and when this is accomplished, a downward movement of the said operating lever 50 will rock the said shaft in a direction to carry its arm 52 forward and its arm 58 downward. The downward movement of the arm 58 acts immediately upon the arm 31 of the tripping bar 29, and through said bar and the lever 27 and link 26 raises the knife blade 19 against the tension of the springs 20 and thereby releases the presser foot 25 from the ribbon and affords an opening under the knife so that the ribbon may be fed the proper distance over the anvil bar 16 and under the knife. While the knife is thus being given its initial upward movement, the pins 58 of the arm 52 move in the slots 55 of the link 53 leaving the feeding lever 37 held in its normal position by the tension of the light spring 59; but when the said knife has been sufficiently raised, the upper end of the lever 52 strikes the head of the forward yielding bolt 56 and, operating through the latter, moves the feed lever 37 and its head 38 forward, under which movement the pins 42 of the latter carry the ribbon 2 forward under the knife a distance represented by the space between the slots 3 thereof, or, in other words, far enough to project one stamp beyond the knife blade. This movement of the lever 37 is positively limited by the stops 45, and if the movement of the arm 52 be greater than required for this movement, the spring of the engaged bolt 56 will simply be slightly compressed at the

limit of movement. This yielding action of the bolts or stops 56 is important because it is not practicable to attempt to adjust two different devices for exactly the same movement. Furthermore, a movement of the rock shaft 49 is desirable after the feed arm 37 in a forward direction has been intercepted, as will be noted from the following statement.

After the knife blade 19 has been sufficiently raised and the ribbon has been given its complete forward movement, a slightly further downward movement of the tripping bar 29 causes the cam block 33 to force the arm 31 laterally out of engagement with the arm 58, so that the knife blade is released and quickly thrust downward by the springs 20, thereby cutting off the stamp or projected portion of the ribbon. When the rock shaft 49 and parts carried thereby are subsequently returned to normal positions, the beveled edge of the arm 58, moving upward, operates on the beveled edge of the arm 31, thereby again moving the latter sidewise so that the former may clear the same and again assume the normal positions shown in Figs. 2 and 4.

When the feed lever 37 reaches its extreme forward position, shown in Fig. 3, the tripping hook 44 engages the pin 43 of the feed head 38, so that when the said lever 37 is given its return movement the said head will be rocked downward against the tension of its spring 39 and thereby disengage the feed pins 42 from the slot of the ribbon with which they were engaged under forward or feeding movements. Also, it is important to note that when the arm 37 and its head 38 are given return or rearward movements, the ribbon is held against return movement by the presser foot 25 which then holds the latter tightly pressed against the anvil bar 16. The return of the said lever 37 to its normal position is effected by engagement with the arm 52, the latter part of its rearward movement, with the rearmost spring pressed bolt 56, the spring of which will be slightly compressed when the said lever is engaged with the rearmost stop 45. When the head 38 reaches its normal position, its feed pins 42 will engage with the slot 3 of the ribbon which is nearest to the previously cut edge or end of said ribbon, so that the feed head is then in proper engagement with the ribbon to impart the next forward step of movement thereto.

By adjustment of the stops or screws 45, the extent of movement that will be imparted to the ribbon may be varied. By adjustments of the cam lock 43, the exact time at which the knife blade will be released, in respect to movements of the other parts, will be varied. By adjustments of the pivotal connection between the tripping bar 29 and the lever 27, the time at which the up-



ward movement of the knife will begin may be varied, in respect to the downward movement of the lever 50.

What I claim is:—

5 1. In a vending machine, the combination with a knife, of a vibratory feed lever provided with a longitudinally projecting pivoted head yieldingly held for pivotal movement under return movement of said lever and provided with an outwardly extended  
10 pin or projection engageable with slots or perforations in a ribbon, means for vibrating said feed lever and means for holding said ribbon while said feed lever and its piv-  
15 otal head are given return movement.

2. In a vending machine, the combination with a knife and means for intermittently actuating the same, of an oscillatory feed lever provided with a pivoted head yield-  
20 ingly held for pivotal movement under return movement of said lever and provided with a feed pin or projection engageable with slots or perforations in a ribbon, to feed the same to said knife, a relatively fixed tripping  
25 hook engageable with said pivotal head to move the same pivotally under initial return movement of said feed lever and thereby disengage the same from said ribbon, means for holding said ribbon while said  
30 feed lever and its pivotal head are given return movement, and means for oscillating said feed lever.

3. In a vending machine, the combination with a knife and means for intermittently  
35 actuating the same, an anvil coöperating with said knife and over which the ribbon is fed to the knife, a ribbon guide including laterally spaced rods connected to said anvil, an oscillatory feed lever provided with  
40 a pivoted head yieldingly held for pivotal movement under return movement of said lever and provided with a feed pin or projection engageable with slots in the ribbon, a tripping hook connected to said anvil and  
45 operating on said pivotal head to disengage the same from said ribbon under initial return movement of said lever, and means for oscillating said lever.

4. In a vending machine, the combination  
50 with a knife and means for intermittently actuating the same, of an anvil coöperating with said knife and over which the ribbon is fed to said knife, a presser foot carried by said knife and coöperating with said anvil  
55 to hold the ribbon when said knife is depressed, and a vibratory ribbon feeding device.

5. In a vending machine, the combination with ribbon guiding means, of a ribbon feed-  
60 ing device operating on the ribbon from below said guiding means, and a brush operating to yieldingly press the ribbon onto said guiding means and into engagement with said feeding device.

6. In a vending machine, the combination

with a vibratory knife and a coöperating anvil, of an oscillatory ribbon feeding lever, a brush operating to yieldingly hold the ribbon subject to the action of said feeding lever, an operating lever and connections  
70 therefrom for moving the said knife and said feeding lever with properly timed actions in respect to each other.

7. In a vending machine, the combination with ribbon feeding means, of a knife and  
75 means for actuating said knife comprising a spring tending to impart operative movement thereto, a lever connected to said knife, a tripping bar connected to said lever and capable of swinging movement, a rock shaft,  
80 an arm carried by said rock shaft and operative on said tripping bar to move said knife against the tension of its actuating spring and then to release the same, and having a cam action on said bar, under return move-  
85 ment, whereby the said arm and bar will reassume normal relations.

8. In a vending machine, the combination with ribbon feeding means, of a vibratory knife, a spring tending to impart operative  
90 movement to said knife, a lever connected to said knife, a tripping bar pivoted to said lever and depending therefrom and capable of swinging movement at its lower end, a spring tending to hold said bar against  
95 swinging movement, a rock shaft provided with an arm operative on the lower end of said tripping bar to raise said knife, and a cam block operative on the lower end of said tripping bar to swing the same laterally  
100 out of engagement with said arm, the said arm and tripping bar having cam surfaces whereby, under upward movement, said arm will cam itself past the lower end of said  
105 tripping bar.

9. In a vending machine, ribbon feeding means comprising an oscillatory lever, the head of which is engageable with said ribbon, means for positively limiting the oscil-  
110 latory movement of said lever, and means for oscillating said lever, including yielding abutments.

10. In a vending machine, ribbon feeding means comprising an oscillatory feed lever, the head of which is operative on said ribbon, stops for positively limiting the oscil-  
115 latory movement of said lever, a rock shaft, an arm carried by said rock shaft, a link connected to said feed lever and yielding abutments applied to said link and subject  
120 to the arm of said rock shaft, the said arm being capable of a limited movement in passing from engagement with one into engagement with the other of said yielding abut-  
125 ments.

11. In a vending machine, ribbon feeding means comprising an oscillatory feed lever provided with a pivoted head yieldingly held for pivotal movement under initial re-  
130 turn movement of said lever and provided



with a pin or projection engageable with a slot or perforation in the ribbon, means for moving said head pivotally, when said lever is given initial return movement, stops for positively limiting the movement of said lever, a rock shaft provided with an arm, a link connected to said feed lever and having yielding abutments with which the arm of said rock shaft is alternately engageable, the said arm having a limited movement in passing from engagement with one into engagement with the other of said yielding abutments, a normally loose operating lever, and means for locking said operating lever to said rock shaft.

12. In a vending machine, ribbon feeding means comprising a ribbon guide including laterally spaced guide rods, an oscillatory feed lever provided with a pivoted head yieldingly held for pivotal movement in one direction, and having pins or projections

engageable with slots or perforations in the ribbon, a trip hook operative on said feed head to release the same from the ribbon under initial return movement of said feed lever, a brush overlying said guide rods and operative to hold the ribbon pressed downward thereon and subject to said feed head, stops for positively limiting the movement of said feed lever, a rock shaft provided with an arm, a link connected to said feed lever and having yielding abutments with which the arm of said rock shaft is alternately engageable, a loose operating lever, and means for locking said operating lever to said rock shaft.

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

SIDNEY L. LONG.

Witnesses:

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