I. ROBBINS.

VENDING MACHINE.

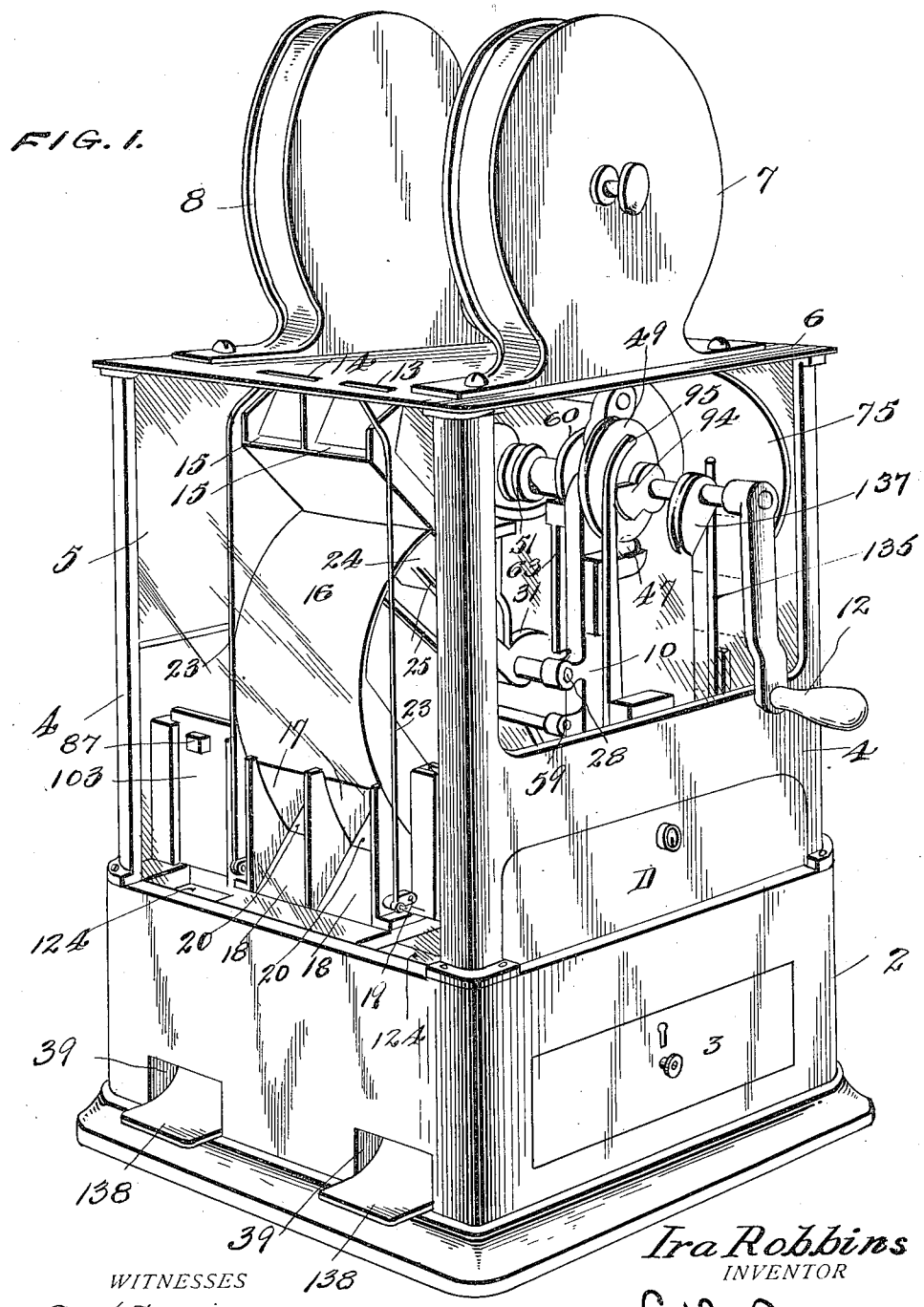
APPLICATION FILED JUNE 10, 1909.

1,060,363.

Patented Apr. 29, 1913.

5 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

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5 SHEETS—SHEET 2.

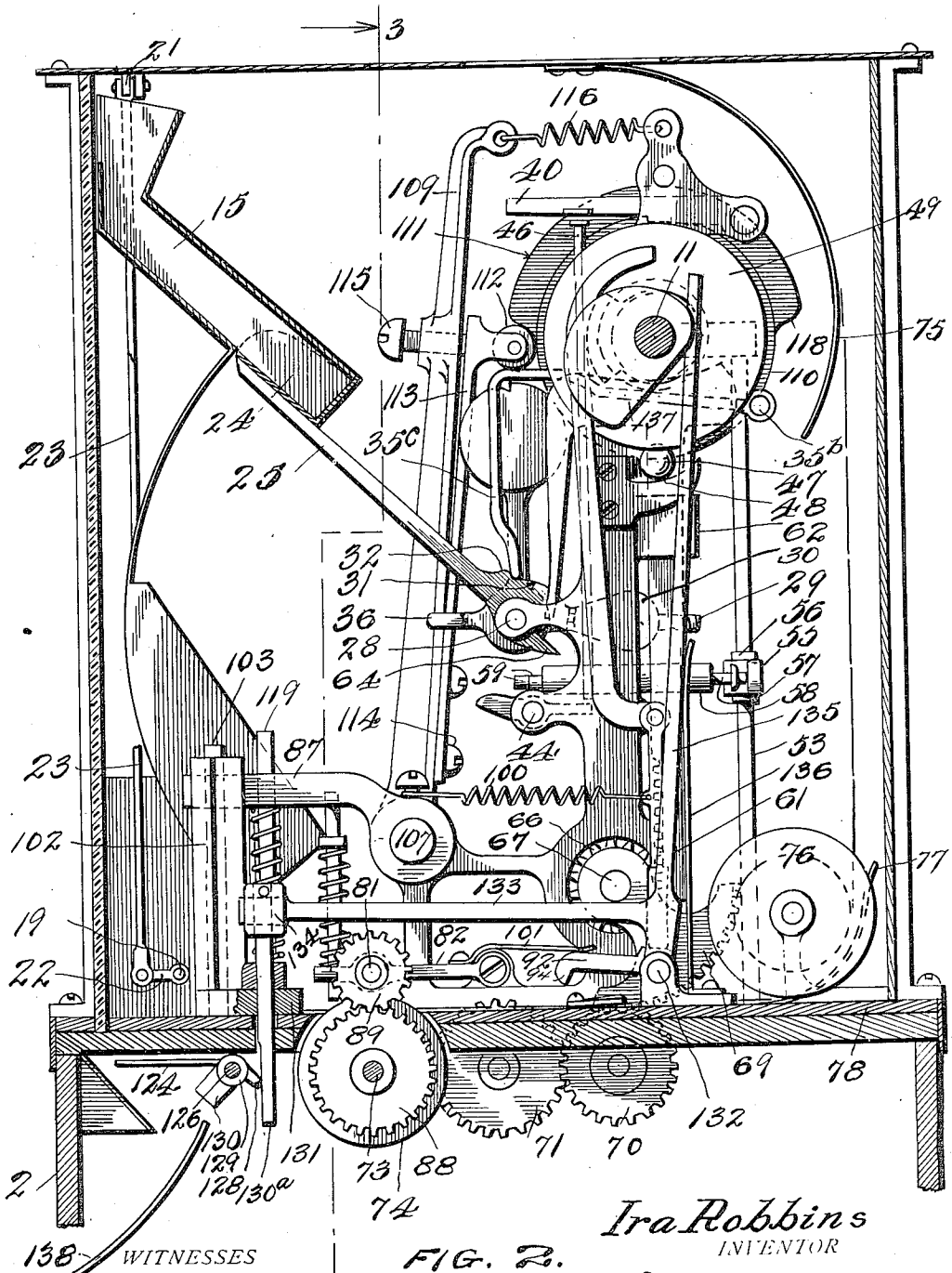


FIG. 2.

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5 SHEETS—SHEET 3.

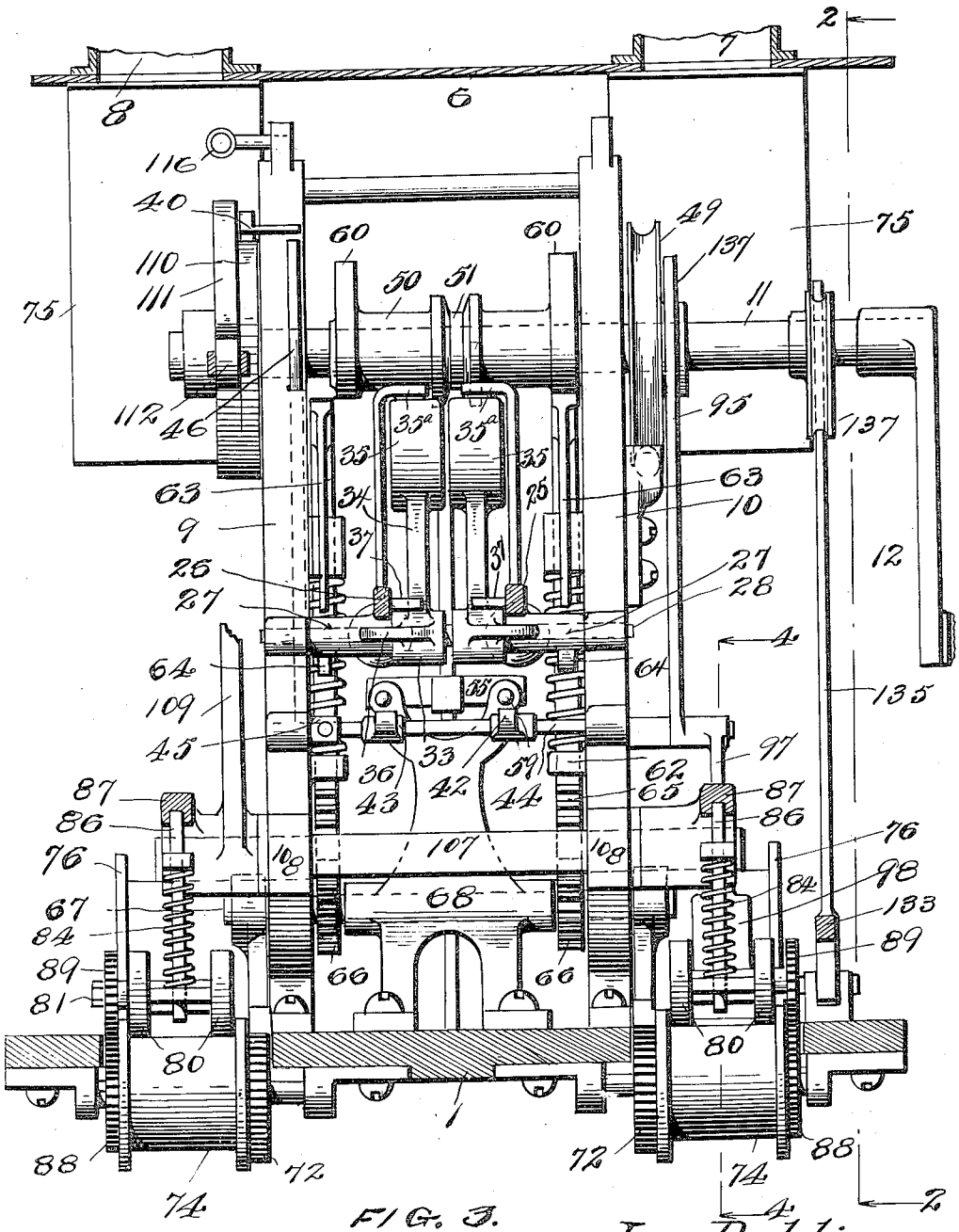


FIG. 3.

WITNESSES

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5 SHEETS—SHEET 4.

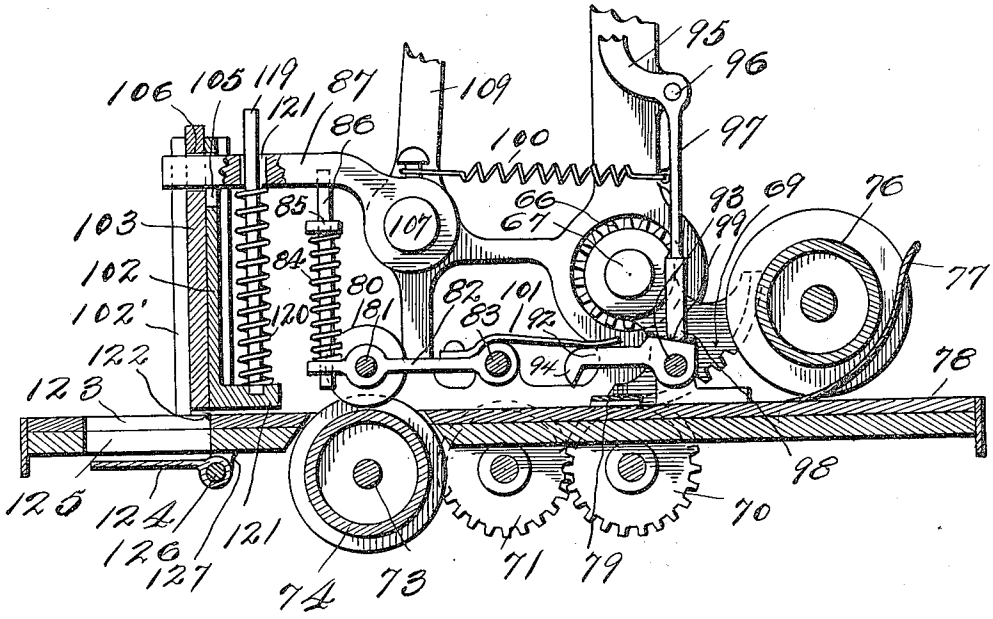


FIG. 4.

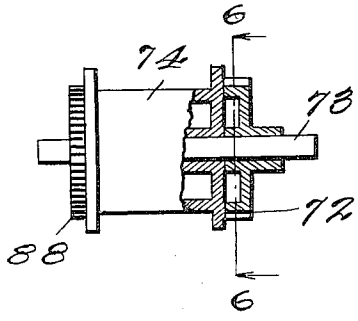


FIG. 5.

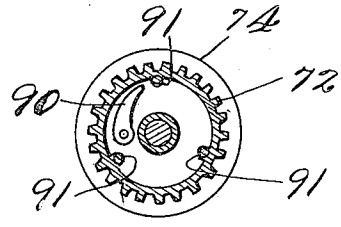


FIG. 6.

WITNESSES

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APPLICATION FILED JUNE 10, 1909.

1,060,363.

Patented Apr. 29, 1913.

5 SHEETS—SHEET 5.

FIG. 7.

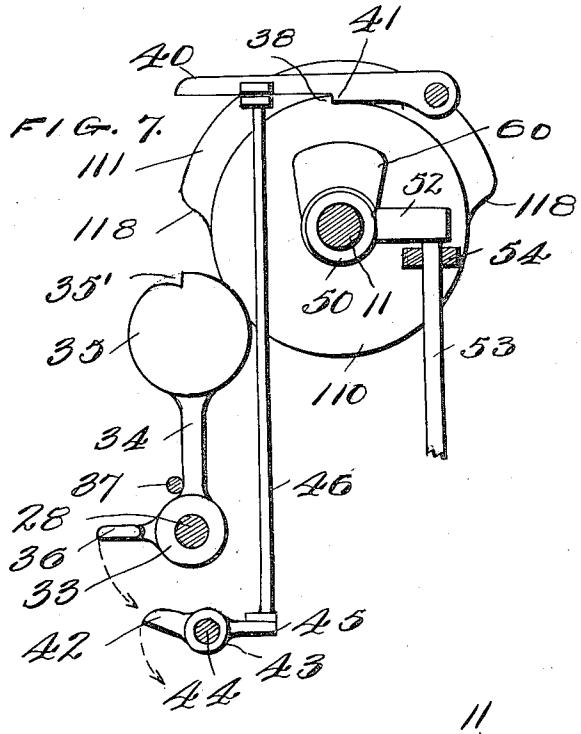


FIG. 10.

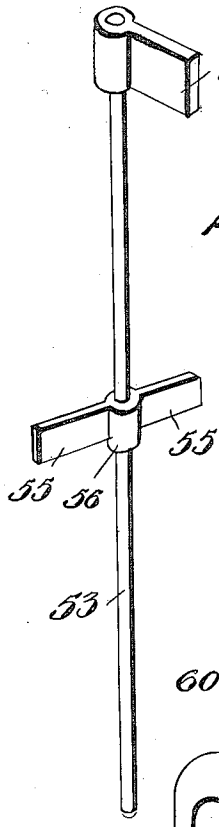


FIG. 9.

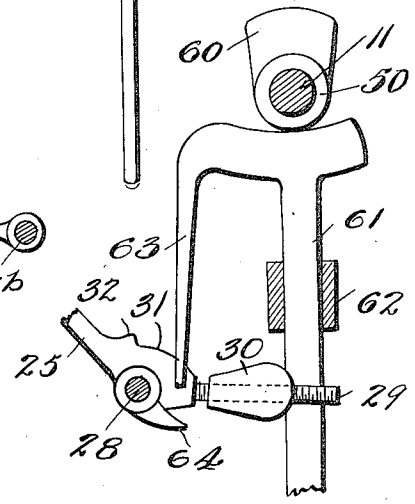
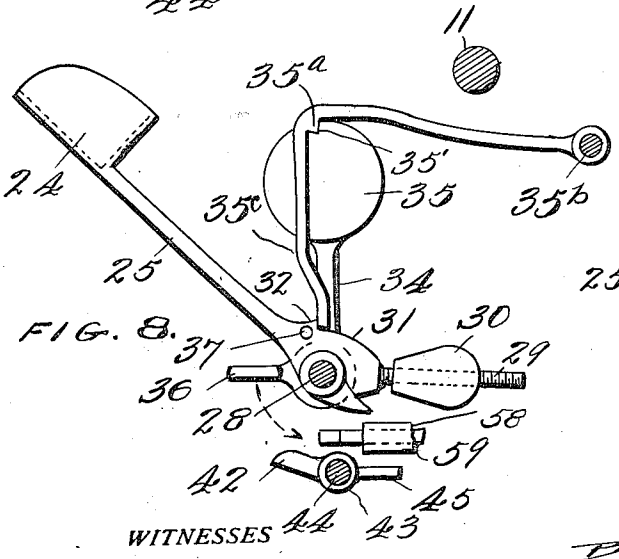


FIG. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

IRA ROBBINS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH TO C. L. PARKER, OF WASHINGTON, DISTRICT OF COLUMBIA, AND ONE-FOURTH TO JOHN A. L. CAMPBELL, OF NEW YORK, N. Y.

VENDING-MACHINE.

1,060,363. Specification of Letters Patent. Patented Apr. 29, 1913.

Application filed June 10, 1909. Serial No. 501,306.

To all whom it may concern:

Be it known that I, IRA ROBBINS, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

The present invention relates to improvements in vending machines, and is particularly adapted for the automatic sale of stamps or other articles formed in blanks or strips of detachable members.

The invention contemplates several very important objects, and resides in novel structures and means for carrying these objects into effect.

In one aspect of the invention, the object broadly expressed is to provide a machine from which a single stamp or other similar article may be obtained through the medium of mechanism which is actuated by the presence of a check or coin corresponding to the denomination of the article desired. And an additional object is to provide a machine from which a variety of articles may be obtained through the interposition of different checks or coins.

In the present exemplification of the invention, provision is made for the vending of a one cent stamp and also of a two cent stamp, but it will be understood that other denominations of stamps or articles may be vended by a corresponding variety of coins and adapted mechanism.

With this and other objects in view, the invention consists essentially, in a machine comprising a strip holding receptacle or device feeding mechanism, severing or cutting mechanism, delivery mechanism, and actuating mechanism for these parts.

The invention further consists in certain novel features of construction and combinations and arrangements of parts as will appear hereinafter.

In the accompanying drawings I have illustrated one example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles.

Figure 1 is a perspective view of a machine embodying the novel features of this invention. Fig. 2 is a sectional view on line 2—2 of Fig. 3, or as seen from the right of Fig. 1, with the right side plates and glass removed, some parts of the machine being omitted for convenience of illustration. Fig. 3 is a sectional view on line 3—3 of Fig. 2. Fig. 4 is a sectional view on line 4—4 of Fig. 2, through the stamp feeding and delivery mechanism. Fig. 5 is a broken detail view of means for providing a lost motion in the feed of stamps. Fig. 6 is a section on line 6—6 of Fig. 5. Fig. 7 is a detail view of the release mechanism for driving shaft. Fig. 8 is a detail of weight releasing device. Fig. 9 is a detail of a cam and operating plunger. Fig. 10 is a portion of the shifting mechanism.

The operative parts of the device are supported on a bed plate 1 which forms the top or cover for a hollow pedestal or box 2, in which a money receptacle or drawer 3 is removably located; the frames 4, together with the glass portions 5, forming a partial casing for the machine, and the top plate or cover 6 providing a base for the attachment of the casings 7 and 8 in which the reels holding the stamps are rotatably supported. A door D provides access to the interior of the casing.

A bracket having the two standards or posts 9 and 10 supports the mechanism which is driven from the driving shaft 11, journaled in said posts and provided with a crank handle 12, which crank is rotatable only after the coin actuated mechanism has performed its functions.

Two coin slots 13 and 14 for one and two cents respectively formed in the top plate 6, each leading to a duplicate chute 15, which is supported by the curved plate and boxing 16, having the duplicate outlets 17 at the bottom. A pair of rotatable gates or doors 18 are supported on a rock shaft 19 in alinement with the inclined floors 20 of the outlets 17. A spring pressed pivoted link 21 is located below each slot 13 and 14 directly in the path of a coin which may be forced through either of the slots, and each of these links is pivoted to the rocker arm

22 by a connecting rod 23. The purpose of this device is to expose the presence of fraudulent coins by holding in view upon either of the gates 18, the utilized coin until the supporting gate is tilted by pressure of a succeeding coin on the link 21, which depresses rod 23 and rocker arm 22 to rock the plate downwardly to the front, the utilized coin dropping through a proper opening in the base plate to the money box or drawer.

A coin entered in its slot passes down through its chute to one of a pair of trays 24, supported by the oscillating or swinging arms 25 and 26 (the one cent tray being illustrated clearly in Fig. 2). Each of these arms has an integral hub or sleeve 27, by which it is loosely journaled upon the shaft 28 supported between the posts 9 and 10, and an extension 29 projects rearwardly from the shaft, upon which a weight 30 is adjustably mounted. A cam or eccentric surface 31 and shoulder 32 are also fashioned above the sleeve, for a purpose to be described.

Journaled upon the shaft 28 and situated between the two hubs or sleeves 27 is a second pair of hubs 33, from which extend the upright arms 34 supporting the weights 35. The hub of each weighted arm is provided with forwardly and laterally projecting lug 36, 36 which, as clearly seen in Fig. 3 are located directly in the downward path of movement of the oscillating arms 25, and as also seen in said figure each arm 25 has an inwardly projecting lug 37, which in normal position rests in contact with the upright arm 34. The weights 35 are notched at 35′ and a latch 35^a pivoted in the frame at 35^b holds the weighted arm 34 from falling forward. The latch is raised and the arm released by the action of cam 31 which lifts the integral rod 35^c. When a coin is deposited in the slot 13 it passes to the tray 24 by way of the chute 15, and as said coin is of sufficient weight to overbalance the oscillating arm 25, the weight of the coin causes the tray to swing downwardly in the arc of the curved plate and through 16. In its movement, the arm strikes lug 36 and bears it down until the weight 35 is moved off center, the latch 35^a having been lifted by cam 31, whereupon said weight 35 drops forward and downwardly to actuate release mechanism as will be described. The oscillating movement of the tray and its arm 25 deposits the coin in the outlet 17 from which the coin slides to the gate 18, the operation of which has been described.

The release mechanism above referred to is applied to shaft 11 and consists of a shoulder 38 formed on the disk 39 fixed on the shaft 11, and a latch 40 pivoted in post 9 and formed with a shoulder 41 to engage the shoulder 38 of disk 39. As seen in Fig. 7, the latch is holding the disk against rotation. To release the disk, I interpose in the path of movement of the lugs 36, a pawl 42 carried by sleeve 43 journaled on rock shaft 44, which latter is supported in the posts 9 and 10 below the shaft 28. A rearwardly extending lug 45 on sleeve 43 is, when in normal position, just below the lift rod 46 and this rod, when lifted, is adapted to contact with a portion of a latch 40. Thus, when weight 35 drops as described, lug 36 bears down on lug 42, which rocks shaft 44 raising lug 45 and lifting the latch 40 through the lift rod 46, the shaft 11 now being free to turn to the right, clockwise. A reverse movement of the shaft is prevented at all times, by means of the spring-pressed ball-clutch 47 supported between the stationary eccentric way 48 and the peripherally grooved disk 49, as is obvious.

As the actuating and operating parts of the machine are practically duplicated, I employ a shifting device to transfer the motion of the driving shaft to the desired mechanism. The transfer member is an elongated sleeve or spool 50 splined, and laterally movable on shaft 11, and formed with a central annular groove 51 in which the shifting pawl 52 is situated. This pawl 52 is secured at the upper end of a vertical rock shaft or rod 53 supported from the frame posts at 54 and the bed plate 1. A pair of abutment arms 55, integral with the hub 56 on shaft 53, are located in the path of movement of a duplicate horizontally movable plunger 57, one of which at all times, is in contact with an arm 55. These plungers are supported in stationary casings 58 and their forward ends 59 are located in the circular path of movement of the lug 36 (Fig. 2). When lug 36 strikes the forward end of the plunger the arm 55 is oscillated and the sleeve 50 is shifted on shaft 11 by means of the rock shaft 53 and pawl 52, to position to actuate the "one cent" mechanism, this being the condition of the parts in the views, especial reference being had to Fig. 2.

Referring now to Fig. 3, the spool 50 has at its ends a cam or eccentric member 60 which are shown as in their raised positions. When turned by rotation of shaft 11, a cam 60 bears down upon the spring-pressed vertically-reciprocating plunger 61, supported in bearings 62, and this plunger actuates the stamp feed mechanism. Plunger 61 also returns the empty coin tray to its position adjacent the chute 15, by means of the arm 63, which bears down upon the projection 64, carried by the tray supporting arm 25, it being understood that said projection is up when the tray is down and vice versa. Lifting of the tray, also returns the weighted arm 34 and weight 35 to upright position, this being accomplished by the pins 37, which project from the arms 25. As the

tray arm is lifted, the pins contact with the arm 34 and return it to proper upright position.

At the front side of the lower end of the spring plungers 61, rack teeth 65 are formed, and as the plunger reciprocates these teeth, mesh with and rotate a pinion 66 on shaft 67 journaled in the bracket 68. Shaft 67 carries at each end a toothed segment 69, which actuates a train of gears 70, 71, 72, the last mentioned gear being secured on shaft 73 in connection with the flanged roller 74. On reference to Figs. 2 and 4 it is obvious that this is the stamp feed mechanism, and as the strip of stamps is fed from the reel in casing 7, for instance, the stamps in a long strip, pass over the curved shield 75 down under the guide roll 76, guided by plate 77, and across the feed plate 78, under guide loop 79, to the left toward the feed roll 74. A second and smaller twin feed roll 80 is located above the roll 74, its shaft 81 being supported in the bracket 82, which is pivoted on shaft 83. The twin roll is held down by spring 84 located between the collar 85 fixed on rod 86, and the bracket 82, as shown, the upper end of the rod being seated in a socket in the lever arm 87 to be described. The roll 80 is rotated reversely from the roll 74, through the medium of pinions 88 and 89 as will be understood.

A very important feature in the roller feed mechanism is the means for maintaining the proper register in order to feed the strip of stamps, step by step, the exact length of a stamp at each actuation of the machine. I find it advantageous to feed the stamp strip approximately 1″ while the stamps themselves are each 31/32″ long. The balance of the movement is taken up in lost motion. To this end, I connect the pinion 72 to the feed roller 74 by means of a loose dog or pawl 90 (Fig. 6), carried by the latter and in the path of movement of the projections 91 carried by the former, to transmit motion from the pinion to the roller.

A presser foot 92, pivoted on shaft 93, is provided to retard or break the movement of the stamp strip. When actuated its toe 94 bears down upon the strip just forward of the guide loop 79. As clearly seen in Fig. 4 the presser foot is actuated from the driving shaft 11 through the cam or eccentric disk 94ª, against which bears the curved lever 95. Lever 95 is pivoted to the frame post at 96 and formed with a lever arm 97, the lower end 98 of which bears upon the inclined face 99 of the presser foot 92. From this construction, it is evident that the passing of the eccentric 94ª permits spring 100 to rock the lever 95/97 on its pivot 96, the spring 101 keeping the parts under tension. As the lever 97 swings to the left in Fig. 4, it rides down the presser foot 92 into contact with the stamp strip, clamping it lightly and retarding its movement, to take up the slack and keep the strip taut. The engagement of the eccentric with lever 95 swings the lever 97 to the right, lifting the toe of the presser foot from the stamp strip; it being understood that the end 98 is continuously in contact with the incline 99.

By the feed rollers 74 and 80 the stamp strip is fed forward to the stamp cutting or severing device. This severing device embodies a clamping plate 102 and the severing blade 103, both vertically reciprocable in grooved guide blocks 102′, with the rocker arm 87, upon which they are suspended through connection with the slots 105 and 106, the slot 105 in the clamp plate being elongated. The rocker arm 87 is fixed on rock shaft 107 which is journaled in the brackets 108 and rocked by means of the lever arm 109 secured thereto. The lever arm 109 receives its motion from the cam disk 110 secured on driving shaft 11, the cam 111 extending approximately half around the disk. A friction roller 112 is held continuously in direct contact with the disk or its cam, being supported in an elastic or spring rod 113, secured at its lower end by screws 114 to the rocker lever 109, and adjustable with relation thereto by setscrews 115, as will be understood. The roller 112 is held in contact with the disk and cam by means of the spring 116 extending from frame post 9 to the rock lever.

As seen in Fig. 2, the disk 110 will be rotated half way before the cam 111 engages the roller 112. As the shoulder 118 engages the wheel 112 the rock lever is pushed forward and the rocker arm 87 is turned down, the clamp plate 102 is pushed down by connection of the rod 119 and spring 120, the former being secured in the foot plate, and projecting through the slot 121ª in arm 87. The foot plate 121 is pressed on the stamp strip by the spring 120 and holds the strip, the spring taking up the continued downward movement of the rocker arm 87, which passes through the slot 105 and forces the cutting blade 103 downwardly past the point 122 of the feed plate 78, an opening 123, being formed for this purpose. The operation of the cutting blade co-acting with the edge 122 severs a stamp from the strip and the stamp falls upon the delivery gate 124. The continuous rotation of the shaft 11 turns the cam 111 out of engagement with the wheel 112 and the spring 116 produces a quick withdrawal of the operative parts.

The stamp delivery mechanism will now be described, and reference should be had particularly to Figs. 2 and 4. The stamp delivery gate 124 is located just below open-

ings 123 and 125 in the feed and bed plates (Fig. 4). There are two of the plates, as will be understood, one for each denomination of stamps, secured on the rock shaft 126, journaled in brackets 127. The gate is held in closed position by means of a finger 128 integral with the collar 129 and weight 130, on the shaft 126. When the gate is in horizontal position, (Fig. 2), this finger is in contact with the vertical plunger rod 130^a, which is movable through a slot in the flange 131 of the guide block 102'. The plunger receives motion from the two armed lever pivoted at 132, the arm 133 passing through the slotted head 134, and the other arm 135 being held by flat spring 136 in contact with a cam disk 137 on the operating shaft 11. The rotation of the disk forces back the arm 135, which lifts arm 133 and plunger rod 130^a. As plunger 130^a is lifted and passes beyond contact with the finger 128, the gate is released. The weight 130 and the weight of the gate 124 cause the latter to fall, which movement delivers a cut or severed stamp to the chute 138, down which it glides and out through the opening 139 in the front of box 2. The continued rotation of the cam 137 lowers the plunger rod 130^a, which contacts with finger 128 and tilts the gate 124 again to its horizontal position ready to receive another stamp.

A brief description of the operation of the machine is as follows: A coin is dropped into the one cent coin slot, and passes down the inclined chute to the coin tray. The weight of the coin tilts the tray and the coin is deposited in the outlet casing and onto the tilting trap or door in the front of the machine from whence it passes to the money box. The forward drop of the tray releases the latch which holds the weighted lever 34, thus permitting said lever to drop forward. The contact of lug 36 with lug 42 lifts the latch 40, thus releasing the operating shaft 11. A partial rotation of the crank 12 returns the tray and weighted lever to their original positions, and the continued movement actuates the feed mechanism, through its cam and plunger which feeds the stamp strip forward as described. The rotation of the shaft causes the presser foot to become active to hold the strip of stamps and the last half of the single rotation of the shaft 11 causes the cam 111 to operate the severing mechanism, after which the stamp delivery gate is released and the severed stamp dropped down its chute as described, the mechanisms returning to their original positions.

Having fully described my invention, I claim:

1. In a stamp vending machine, the combination with feed mechanism and actuating mechanism, of a clamp plate and a cutting blade, an oscillatory arm connected to reciprocally actuate said elements in sequence, and a cam connection with the actuating mechanism for oscillating said arm.

2. In a stamp vending machine, the combination with feed mechanism and actuating mechanism of a clamp plate and a cutting blade, an oscillatory arm connected to reciprocally actuate said elements, a flexible connection between said plate and arm, and a cam connection with the actuating mechanism for oscillating the arm.

3. In a stamp vending machine, the combination with actuating mechanism and feed mechanism, of a severing device, a rock shaft, an oscillatory arm thereon, connected to the severing device, and a second oscillatory arm having an adjustable contact with a cam in the actuating mechanism.

4. In a vending machine, the combination with feed mechanism and actuating mechanism, of an oscillatory delivery gate, means for holding said gate closed, an oscillatory lever connecting said means with the actuating mechanism, and a device controlled by the actuating mechanism for oscillating said lever to release the gate.

5. In a vending machine, the combination with an oscillatory delivery gate, of means for holding said gate in closed position, an oscillatory lever connected thereto, and means for oscillating said lever to release the gate.

6. In a stamp vending machine, the combination with feed mechanism, severing mechanism, and actuating mechanism, of a closed delivery device, and means operated from the actuating mechanism for releasing the delivery device.

7. In a vending machine, the combination with an oscillatory shaft and a delivery gate having a release finger thereon, of a reciprocable plunger in contact with said finger, and means for reciprocating the plunger to release the gate.

8. In a vending machine, the combination with an oscillatory shaft and a weighted delivery gate having a release finger, of a reciprocable plunger in contact with said finger, and means for reciprocating the plunger to release the gate.

9. In a vending machine, the combination with an oscillatory weighted delivery gate, having a release finger, of a reciprocating element in contact with said finger and means for reciprocating said element to release and close the gate.

10. In a vending machine, the combination with actuating mechanism and an oscillatory shaft and a weighted delivery gate having a release finger, of a reciprocable plunger in contact with said finger, an oscillatory lever connected with said plunger, and a cam in the actuating mechanism in contact with said lever.

11. In a vending machine, the combina-

tion with an operating shaft of actuating mechanism movably mounted upon said shaft and feed plungers coöperating with and adapted to be moved by said actuating mechanism.

12. In a vending machine, the combination with an operating shaft, actuating means longitudinally movably mounted upon said shaft, feed plungers with which said actuating means is adapted to coöperate, a cutting device and actuating means connecting said cutting device with said shaft.

13. In a vending machine, the combination with a feed plunger, an operating shaft, a cam device longitudinally movably mounted upon said shaft and adapted to be shifted to assume operative position with each of said plungers, and a cutting device actuated by said shaft.

14. A vending machine of the character described, comprising feed plungers, an actuating mechanism adapted to alternately assume an operative position with each of said feed plungers, a cutting device, means connecting said cutting device and said actuating device, a movable delivery gate, and means connecting said delivery gate and said actuating mechanism.

15. In a vending machine, feeding mechanism including a reciprocatory plunger, serving mechanism including a reciprocatory blade, delivery mechanism including an oscillatory tray, and common means for actuating said mechanisms.

16. In a vending machine, a blade and clamping member mounted to have relative movement with each other, said blade and clamping member being provided with slots having different lengths, a movable arm having a portion thereof disposed within said slots, yielding means connecting said clamping member and movable arm, and means to actuate said movable arm.

17. In a vending machine, a driving shaft, feed and cutting mechanisms actuated thereby, an oscillatory delivery tray, a movable rod to retain said tray in a horizontal position, and a lever actuated by said driving shaft to effect the movement of said rod, whereby said tray is permitted to move from its horizontal position.

18. In a machine of the character described, a rotatable operating shaft, a sleeve splined thereon and provided with a plurality of cams, a plurality of reciprocatory elements to be moved by the cams, an upstanding rock-shaft provided with means to shift the sleeve, means including plungers to turn the rock shaft in opposite directions, pivoted weights adapted when falling to strike the plungers to move the same, and means to control the operation of the pivoted weights.

19. In a vending machine, a reciprocatory plunger, a feed roll, a gear disposed near said feed roll, means connecting said gear and feed roll so that said gear may be initially partly rotated without effecting the rotation of said roll and then further rotated to effect the rotation of said roll, and driving connecting means between said gear and reciprocatory plunger.

20. In a vending machine, a reciprocatory plunger, a feed roll, a gear disposed near one end thereof, a pawl connected with said roll, said gear being provided with projections disposed in the path of travel of said pawl, and means connecting said gear and reciprocatory plunger, including a train of gears.

21. In a machine of the character described, a plurality of devices to be alternately operated, an operating device common to both of the first named devices and adapted to be shifted to different positions with relation thereto, an upstanding rock shaft provided with means to shift the common operating device, and means to turn the rock shaft in opposite directions.

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

IRA ROBBINS.

Witnesses:

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MARGARET C. DUMFORD.