

No. 777,603.

PATENTED DEC. 13, 1904.

J. C. COPELAND.
VENDING APPARATUS.
APPLICATION FILED MAR. 28, 1903.

NO MODEL.

5 SHEETS—SHEET 1.

Fig. 1.

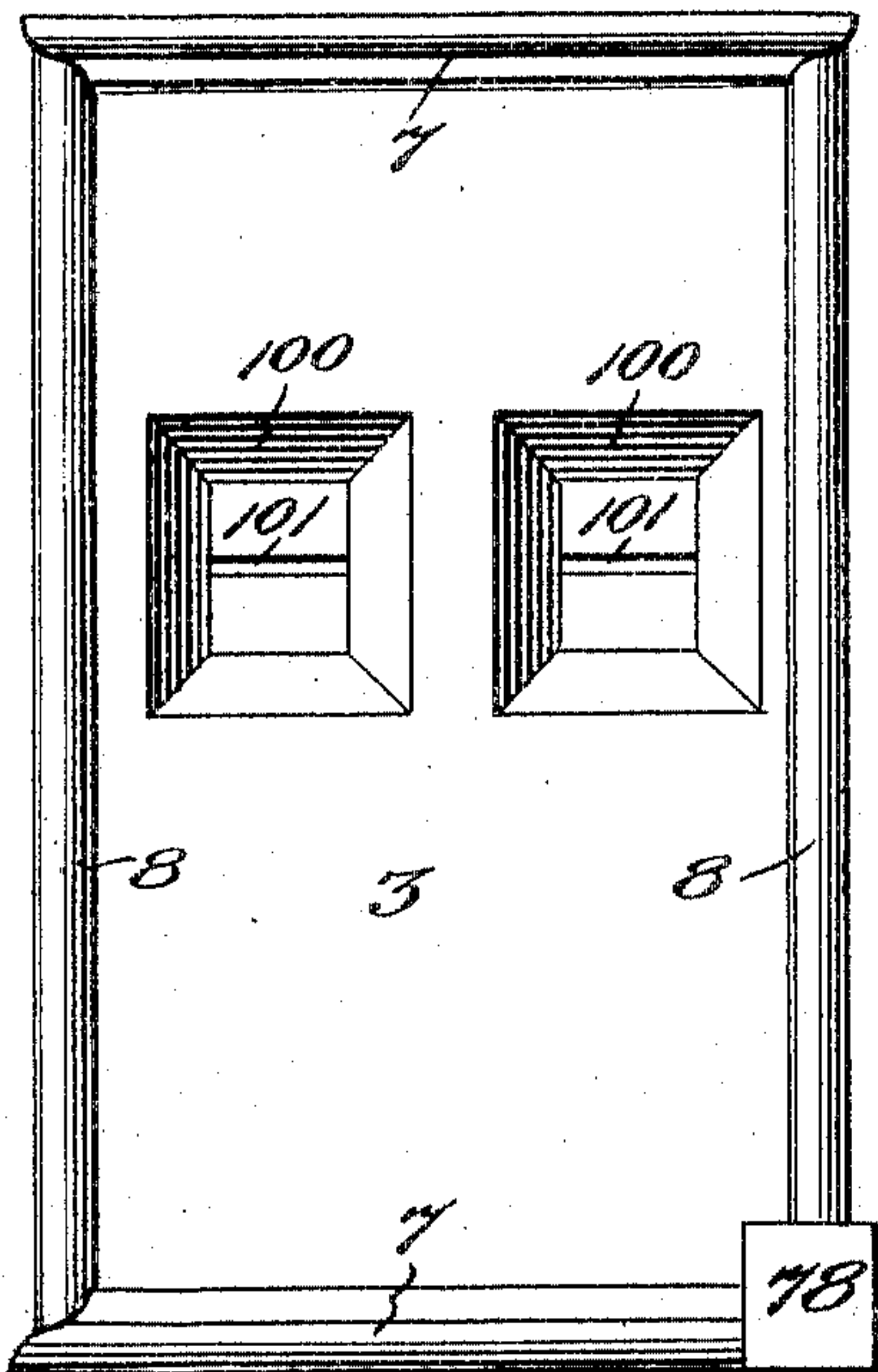
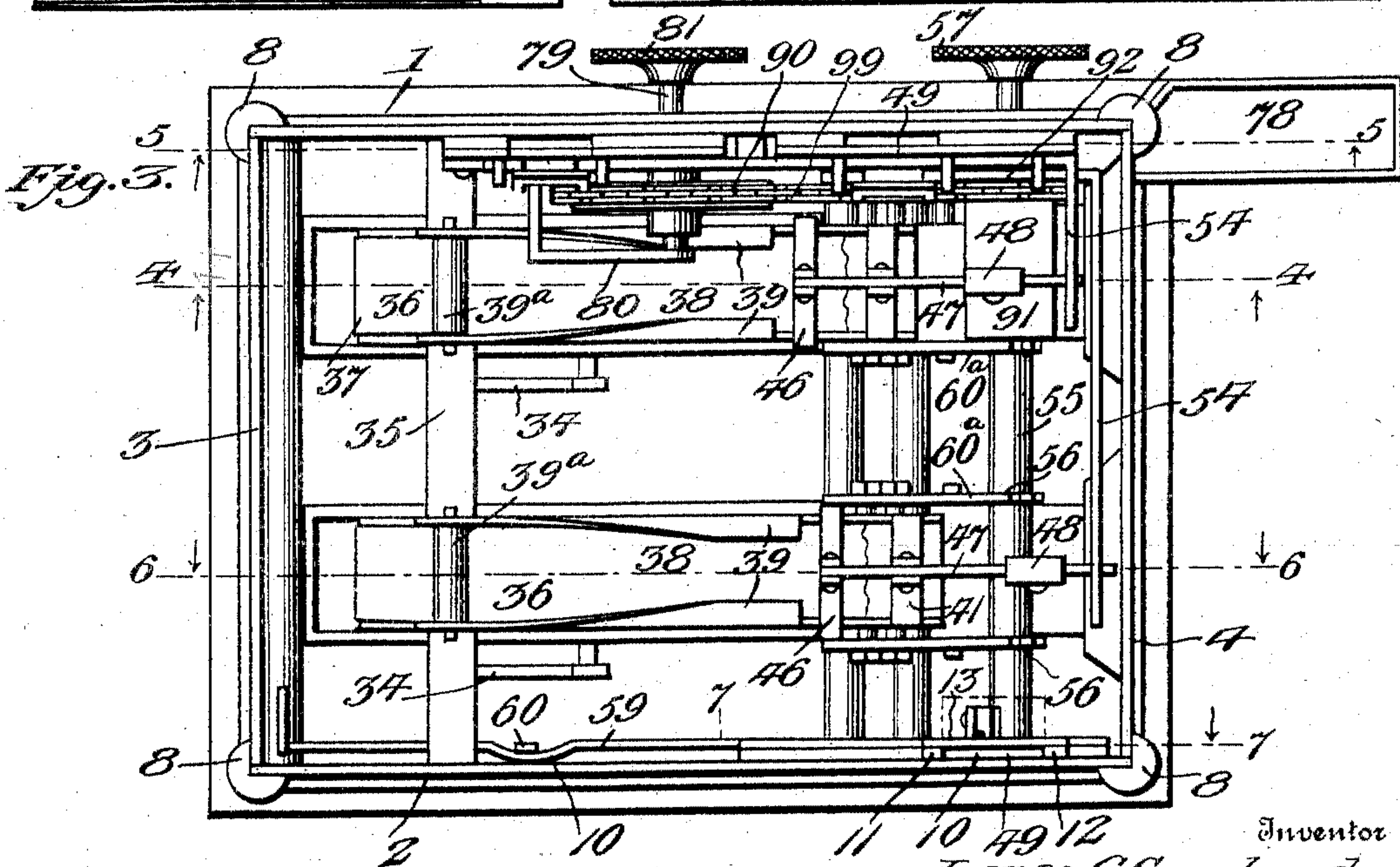
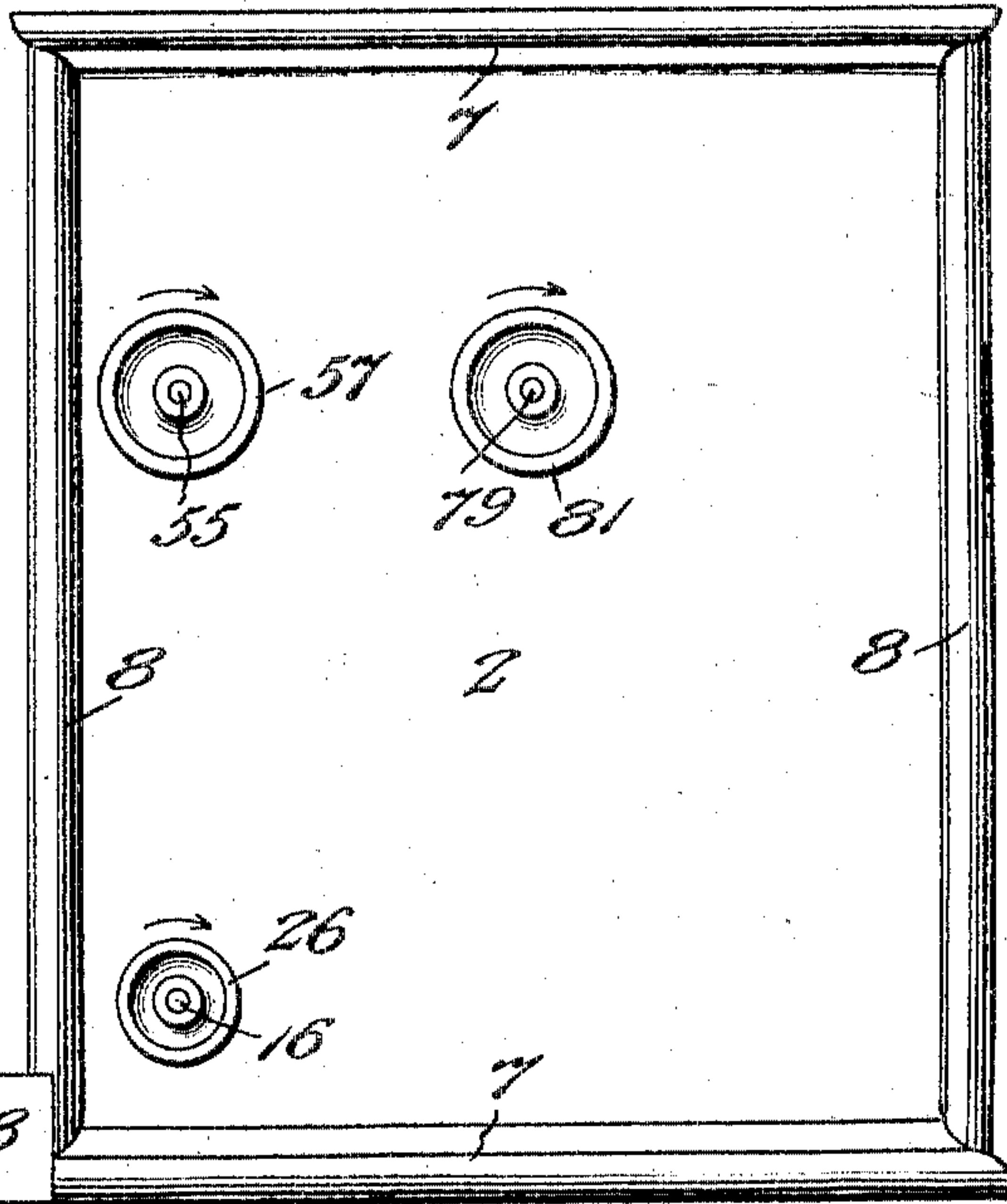


Fig. 2.



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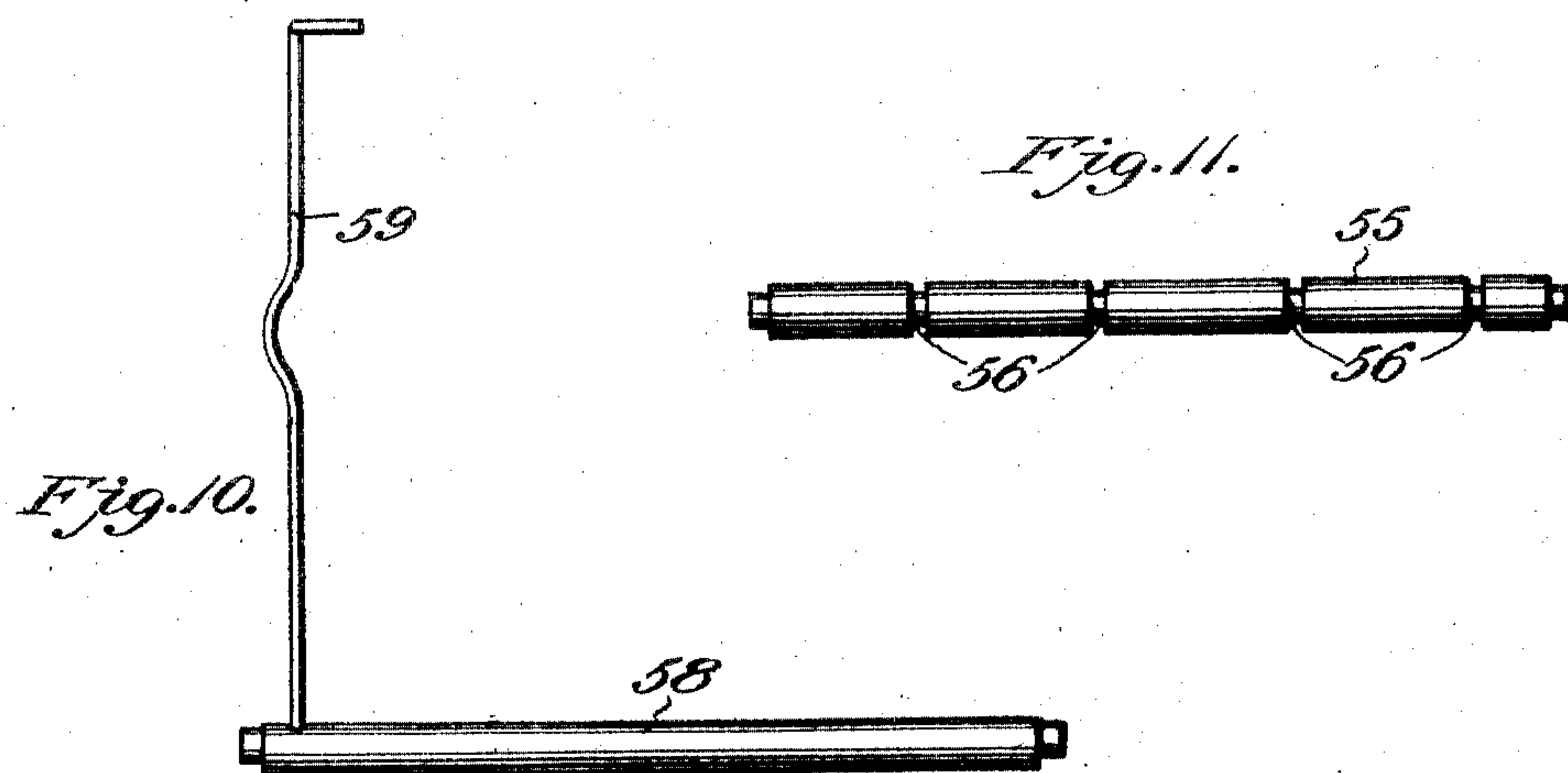
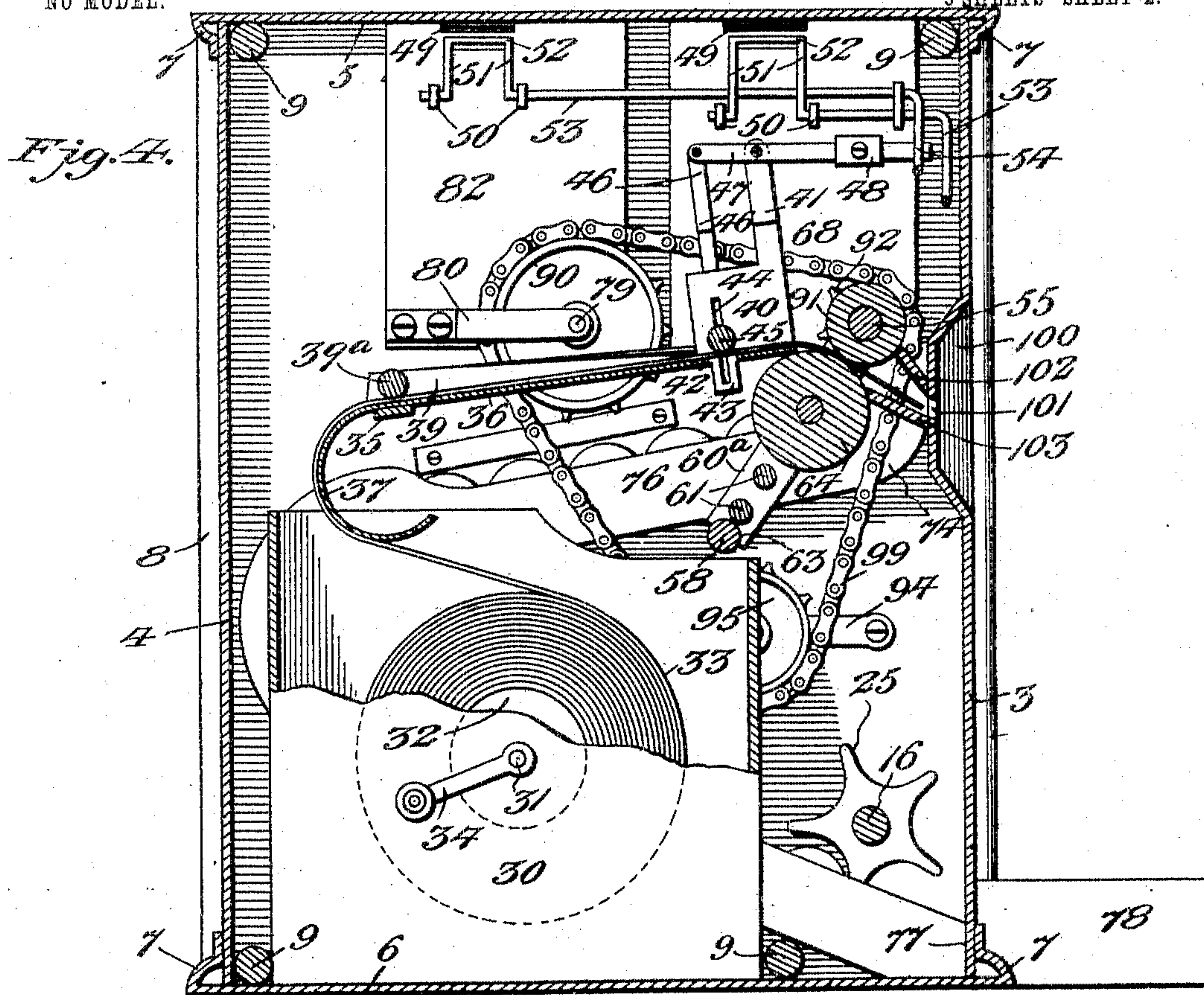
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

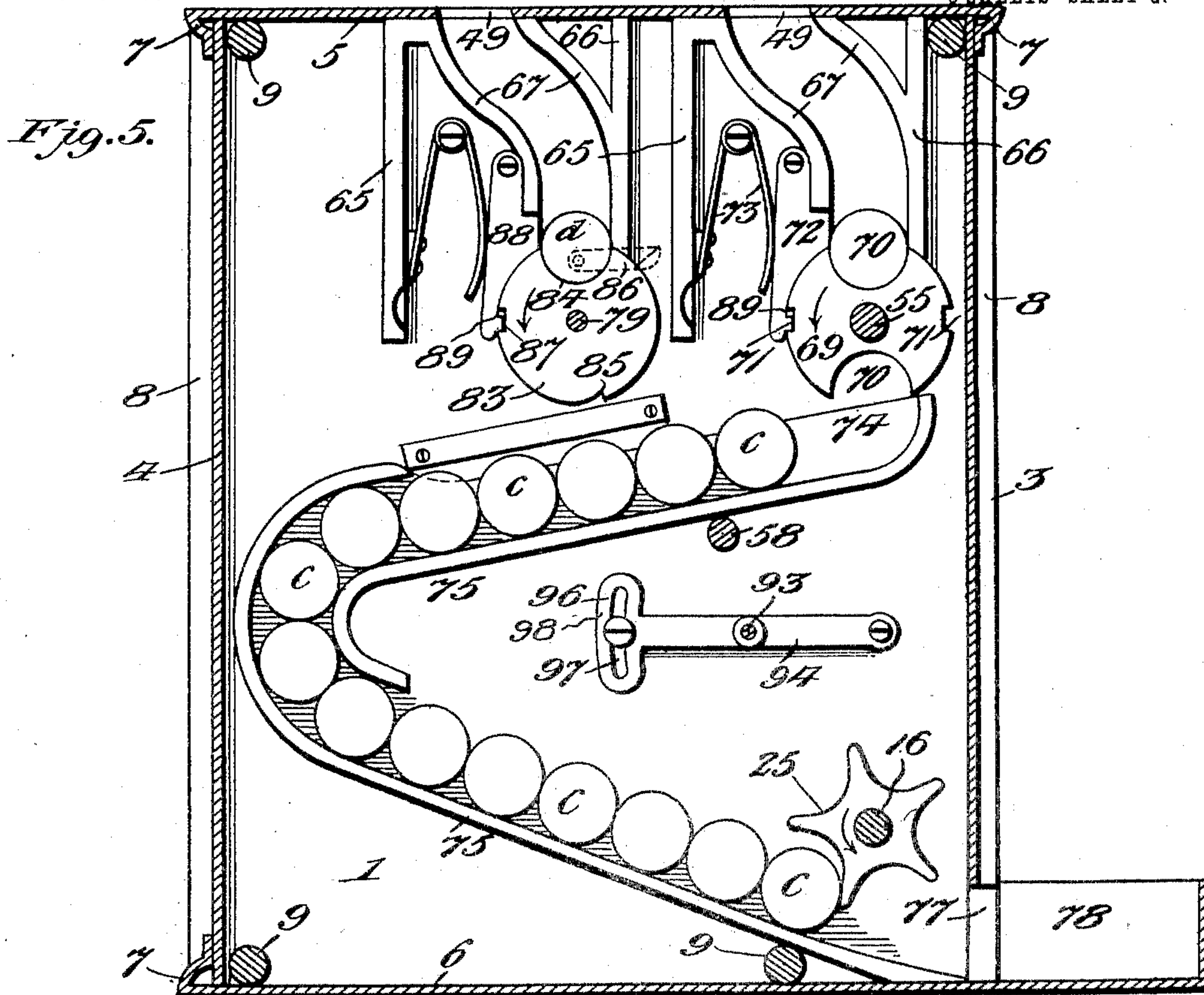
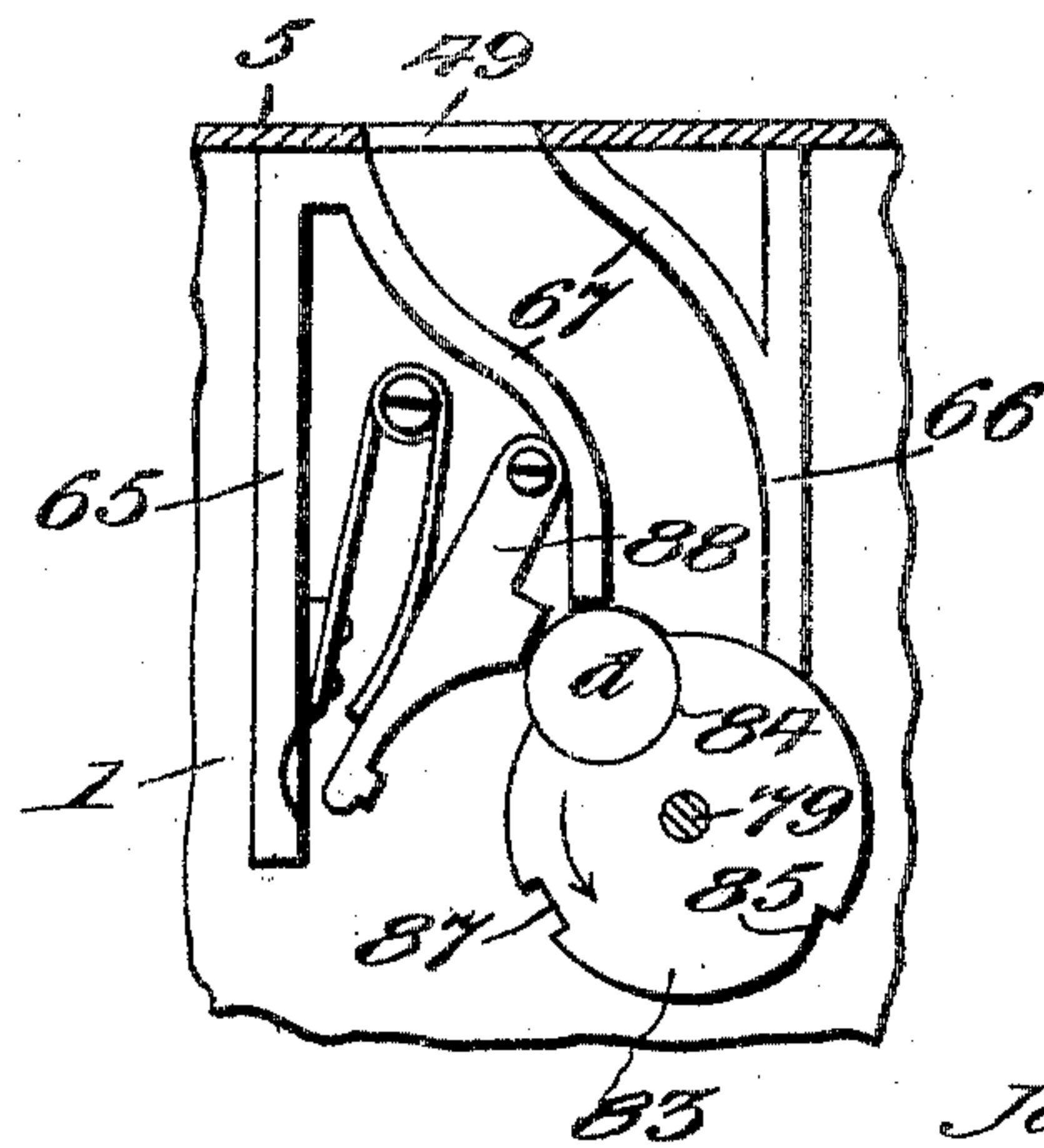


Fig. 9.



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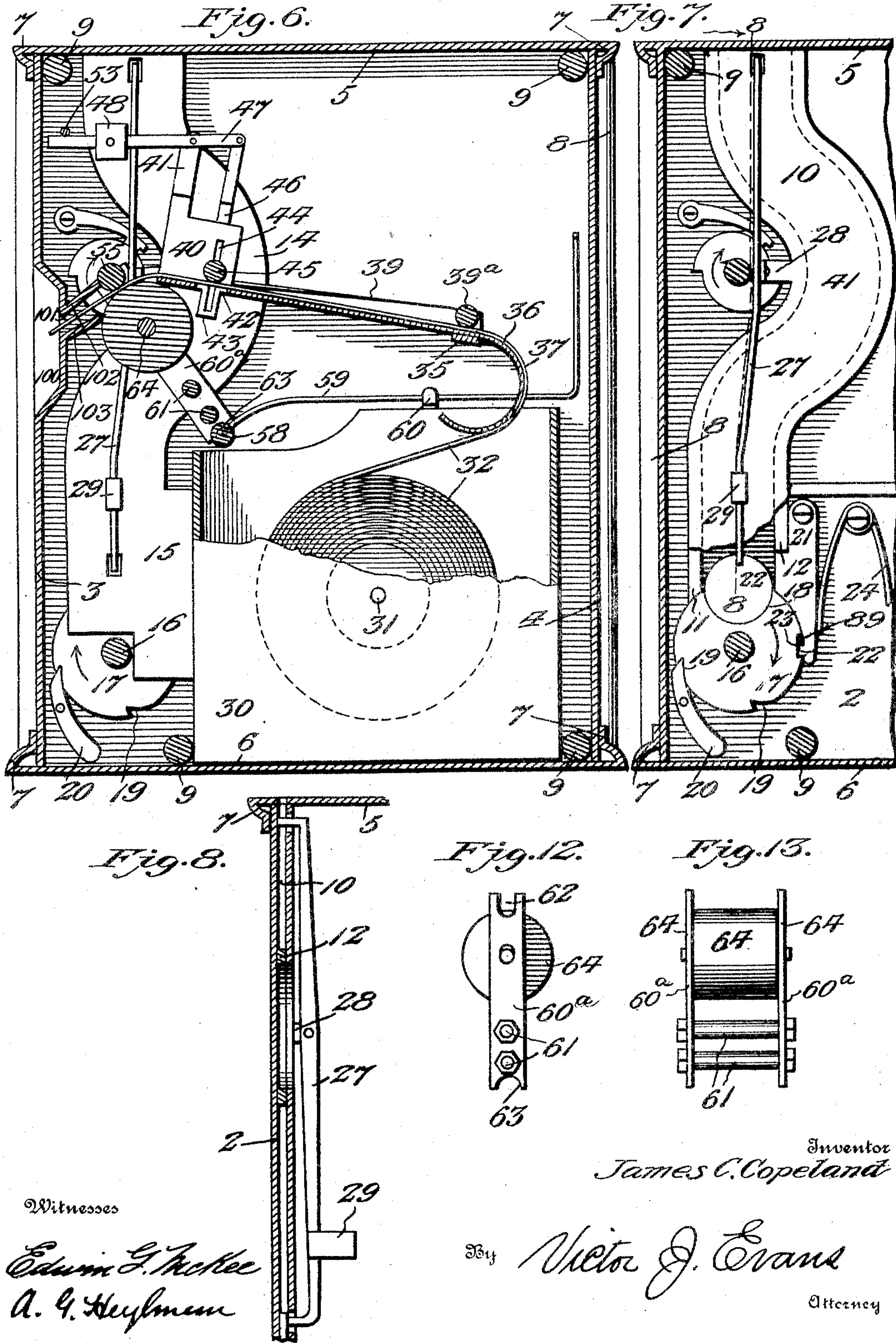
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5 SHEETS—SHEET 4.



Witnesses

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5 SHEETS—SHEET 5.

Fig. 14.

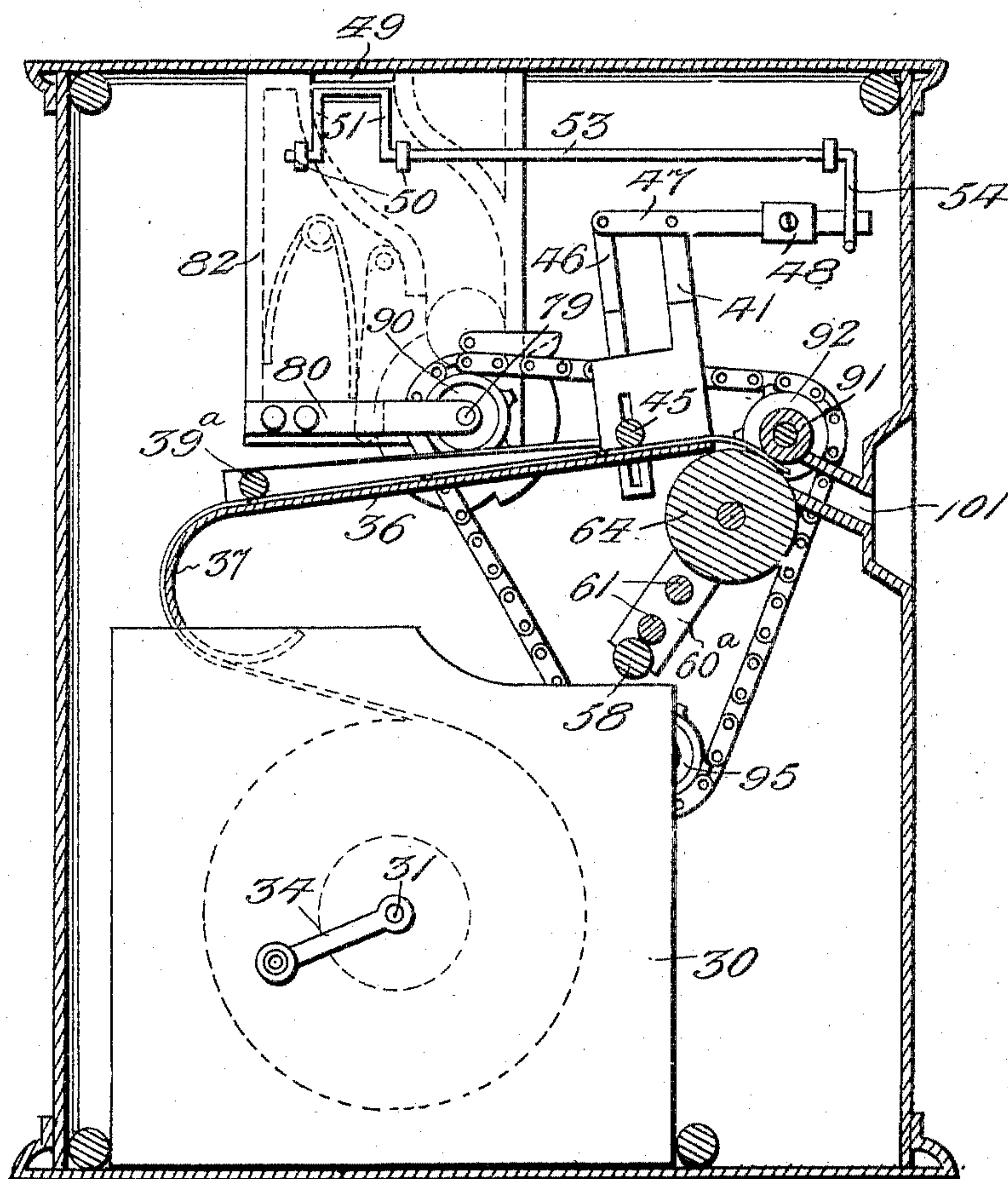
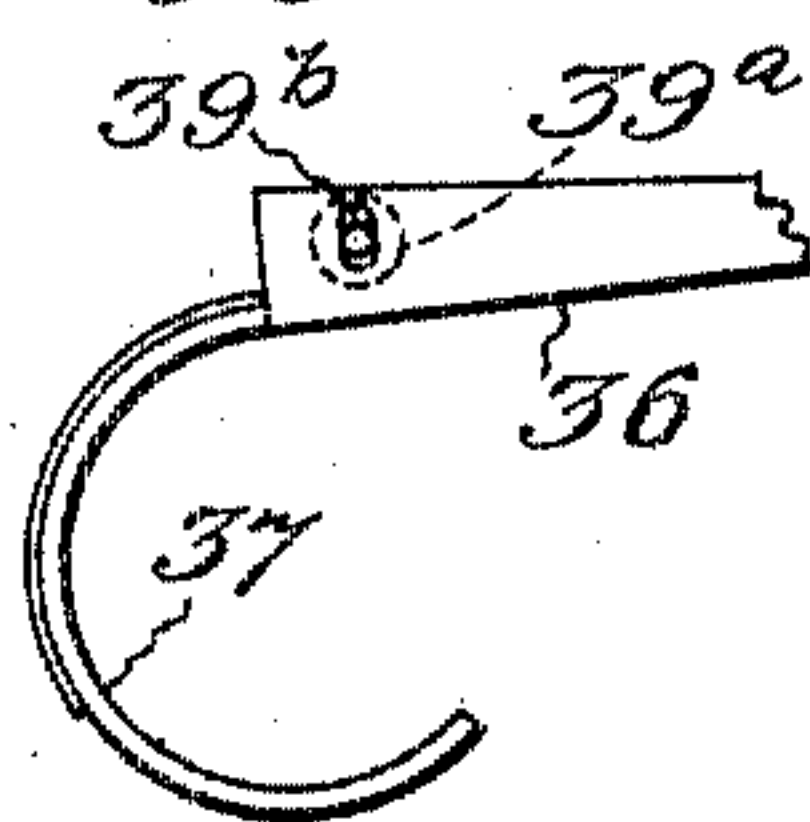


Fig. 15.



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UNITED STATES PATENT OFFICE.

JAMES C. COPELAND, OF POTTSVILLE, PENNSYLVANIA, ASSIGNOR OF
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VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 777,603, dated December 13, 1904.

Application filed March 28, 1903. Serial No. 150,029. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. COPELAND, a citizen of the United States, residing at Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented new and useful Improvements in Vending Apparatus, of which the following is a specification.

My invention relates to improvements in vending apparatus, and is especially designed for vending postage-stamps; and the object is to provide a machine of the kind named and for the purposes intended which is simple in construction, efficient and certain in operation, acting to make change in determined amounts, and deliver stamps as paid for.

My invention will be fully described hereinafter, the actions and functions of particular parts clearly stated, and the combined operation of the coacting mechanisms specifically asserted.

I have fully and clearly illustrated my invention in the annexed drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a view in front elevation of the stamp-delivering end of the casing, showing the stamp-issuing slots and end view of the change-box. Fig. 2 is a view in elevation of one side of the casing, showing the finger-pieces for turning the mechanisms and a side view of a portion of the change-box. Fig. 3 is a top plan view of the complete mechanism, the cover of the casing being removed to expose the interior. Fig. 4 is a vertical longitudinal section taken on the line 4 4 of Fig. 3 looking in the direction of the arrows and showing one of the stamp-boxes, the stamp-reel journaled therein, a longitudinal section of the stamp-track, the delivering mechanism, the coin-track, and the locking mechanism for closing the mouths of the coin-slots. Fig. 5 is a vertical longitudinal section taken on the line 5 5 of Fig. 3 looking in the direction of the arrows and showing the stamp coin slots or ways, the rotatable disks, the locking-pawls, the coin-conveying race, and the star-wheel for delivering coins to the change-box. Fig. 6 is a longitudinal vertical section taken on the line 6 6 of Fig. 3 looking in the direction indicated by the arrows and presenting

the parts in reverse direction from the showing in Fig. 4 and presenting to view the change-coinway, the stamp-box and reel, and the tension and the locking mechanism. Fig. 7 is a vertical longitudinal section of a portion of the apparatus, taken on the line 7 7 of Fig. 3 looking in the direction of the arrow, showing the change-coinway partly broken away to disclose the rotatable coin-disk and spring-actuated locking-pawl, a coin being shown in the recess of the disk preliminary to rotation. Fig. 8 is a vertical section on the line 8 8 of Fig. 7 looking in the direction of the arrow and showing the pawl or lever which closes the coin-race and holds the coin in the recess of the disk preliminary to rotation. Fig. 9 is a detail view showing the locking-pawl pushed back and the coin about to be discharged. Fig. 10 is a detail view of the eccentric tension-shaft and the arm or lever which adjusts the tension. Fig. 11 is a detail view of the feed-roller shaft, showing the annular grooves wherein the upper ends of the tension-roller frames engage. Fig. 12 is a side view of one of the tension-roller frames with the roller journaled therein and showing the bearings in the ends of the side pieces of the frames. Fig. 13 is a front elevation of one of the tension-roller frames, showing the roller journaled therein and the cross-bolts for holding the side pieces together. Fig. 14 is a sectional view showing the vending mechanism adapted to deliver one "special-delivery" stamp at a time. Fig. 15 is a detail view showing the vertical slot-bearings for the presser-roller 39.

Referring to the drawings, it will be seen that a suitable rectangular casing is provided made of any suitable material, preferably of sheet metal, and of such dimensions and capacity as may fit it for containing and supporting the parts and the associated mechanism. This casing is composed of side plates 1 2, provided at determined points with proper bearing-holes for supporting the rotatable shafts, end plates 3 4 and top and bottom plates 5 6, provided with edge flanges 7, extending around them and adapted to set snugly about outer edge portions of the vertical plates of the casing, substantially as indicated in the

drawings. The meeting edges of the vertical plates are held by corner-pieces 8, recessed vertically to receive them, and the whole bound together by cross binding-rods 9, substantially as shown in the drawings.

The side plate 1 at a convenient point of location, preferably adjacent to the end plate 3, is arranged with a coin way or chute 10, composed of alining side strips 11 12 and a plate 13, bridging them, the inner face of the side plate of the casing forming one wall of the way. The receiving end and lower end of the way are approximately on the same vertical line; but for convenience of escaping interference with the tension-roller shaft the coinway is deflected and curved, as at 14, out of the way of said shaft. The lower end of the coinway terminates in a plate 15, behind which the locking-pawl and the disk it controls are located, and from the lower edge of the plate 15 the coin deposited escapes into the casing. Across the lower portion of the casing and having its axis alining with the central line of the coinway is journaled a shaft 16, on which is fixedly mounted a disk 17, the periphery of which traverses the lower end of the coinway. The disk 17 is formed with a circular coin-recess 18, in which the coin lodges, and in the periphery of the disk 17 are formed one or two notches 19, which are engaged by the nose of a pawl 20, pivotally supported and acting by gravity. This pawl acts to prevent the disk being turned the wrong way when the coin has been lodged in the disk. 21 designates a locking-pawl pivotally hung to the wall of the casing and having a lug 22 adjacent to its lower end, which lug engages in a locking-recess 23.

A spring 24 is provided, suitably secured and arranged to press the lug of the pawl into recess 23, substantially as seen in Fig. 7 of the drawings. On the outer end of the shaft 16 is mounted a five-pointed star-wheel 25, the spaces between the points being circular and of a capacity to take a cent in approximately half-way, so that in its rotation in contact with a row of cents held loosely on the edges the wheel in one revolution will move five of the cents in consecutive order forward of its axis. A finger-wheel 26 is fastened on the end of the shaft outside of the casing, whereby the shaft, with its mountings, may be rotated. To guard the mouth of the way 10, a lever 27 is pivotally mounted on a bracket or arm 28 and formed with turned-in ends, as shown, which project through suitable apertures in the cover-plate of the coinway. The lever 27 is slightly bowed in vertical edge direction and hung the desired distance from the adjacent side plate of the casing, with the longer arm of the lever below the pivotal support, and on this longer arm is a weight 29, the force of which at all times tends to hold the lower turned-in ends of the lever to stand across the passage in the coinway, and consequently

leaving the mouth of the coinway normally open. The passage of the way 10 is made to take in a five-cent coin of the present mintage, and the coin seat or recess in the disk 17 is made one-half the depth of the coin, and the disk, with its associated mechanism, is so arranged that counterfeit pieces thinner or thicker than the genuine or coins of less diameter will not effect the actuation of the mechanism. This mechanism is called into requisition when a customer desires one or two stamps and is not in possession of the number of pennies to obtain them. He therefore drops a five-cent piece in the way 10, the coin falling down and lodging in the recess of the disk. Now on thus being seated the coin acts as the medium for pushing the pawl 21 out of engagement in the locking recess or notch 23, which notch is made of a length to admit of the initial movement, as indicated in Fig. 7 of the drawings. The shaft, with the star-wheel, may now be turned one revolution, and in the course thereof the star-wheel carries forward in succession five of the cents assembled in the coin-race and delivers them into the change-box to be taken out by the customer. He can then deposit what he desires to in the proper coin-slot, with the results hereinafter stated.

The present machine as organized is adapted with independently-operating mechanism for delivering to a purchaser either one two-cent stamp or five two-cent stamps. These mechanisms differ in certain essentials, but involve constructions and members or elements found in both, and these form the basis of some of the claims. In both mechanisms substantially like mechanisms are employed for holding the stamps and for leading and directing the stamp-strips to the delivering means, and in both like means are employed for effecting the closure of the coin-slots. The mechanism constituting that utilized in the delivery of a single stamp will be first described as follows: 30 designates a suitable receptacle of such length, breadth, and height as will accommodate the web or reel of wound stamps. The receptacle may be made of suitable sheet metal or of light durable wood. Across the middle of the receptacle is journaled a shaft 31, on which within the casing is mounted a drum or roll 32, on which the web or strip 33 of stamps is wound, as indicated in the drawings. The strip of stamps is made up by securing together the ends of stamp-strips severed from the usual Government stamp-sheets and then winding them on the roll. Any desired number of stamps may be utilized in the roll. To turn the roll and wind the stamps thereon, a crank-handle 34 is provided, which may be detachable or made a part of the shaft of the roll.

Across between the side plates of the casing is secured a support 35, to which is secured the rear end portion of a supporting

and guide plate 36, which has a circular curved rear end portion 37, the curved end being continued upward, so as to escape contact with the stamp-strip, and the plate being extended toward the front end of the casing, as at 38, and is formed with side flanges 39, turned inward and down, under which the edges of the strip of stamps engage and are held from lateral or vertical escape. At the rear end of the guide-plate is journaled a roller 39^a, vertically movable in its bearing 39^b, (see Fig. 15,) and pressing on the stamp-strip. At the front portion of the guide-plate the sides are extended vertically, as at 40, and formed with arms 41, which are carried inward and united at the middle line of the guide-plate, with their upper ends extended vertically and carrying the lever hereinafter designated. The guide-plate is formed with a transverse opening 42 and depending pieces 43 in alinement with the said opening. In the opposite side pieces 40 are formed vertical slots 44, which extend into the depending pieces 43 and serve as guides for the journals of a roller 45, arranged across the guide-plate and in alinement with the opening 42, so that when the stamp-strip is passed over the opening the roller will ride thereon, and when the stamp-strip is exhausted the roller will fall through the opening, and thereby operate the mechanism which closes the mouth of the coin-slot. The roller 45 is journaled in a stirrup or yoke 46, the arms of which are brought together and extended vertically, and between their upper ends is pivotally secured the inner end of a lever 47, fulcrumed between the arms 41 and extending forward a sufficient distance to stand in the path of the arm or lever of the coin-slot-closing device. A counterbalancing-weight 48 is adjustably mounted on the free arm of the lever, whereby the pressure of the roller 45 on the stamp-strip may be regulated.

49 designates the mouth of the coin-slot. To the plate which covers the coin-slot are secured suitable bearings 50, wherein are pivotally mounted the arms of a closure 51, the cross-bar or bridge 52 of which is bent outward to sit over and close the mouth of the coin-slot. One of the bearing-journals of the closure is extended horizontally, as at 53, and then carried at right angles, as at 54, and is loosely disposed on the lever 47, as shown in the drawings. It will now be perceived that when the stamp-strip is exhausted and passes free from the roller 45 that element will automatically descend, which movement tilts the lever 47, which in turn carries the arm 54 upward, which turns the closure over the mouth of the coin-slot.

At the proper place across the casing is journaled a rotatable shaft 55, formed at determined distances apart with annular grooves 56, which shaft is rotated by a finger-piece or wheel 57, mounted on its end extending

through the side of the casing. Mounted across the casing on a plane farther within the casing and below the shaft 55 is a supporting-shaft 58, having bearings eccentric to its axis, as shown in Fig. 10 of the drawings, and to this shaft 58 is secured a lever or arm 59, which extends a requisite distance toward the rear of the casing and is held removably in a keeper 60 in the side of the casing. This shaft 58 and the arm 59 are intended to support and carry the frame of the feed-roller, and it will be seen that by releasing the arm 59 from the keeper the shaft may be turned on its bearings, and thus lower the feed-roll, and so stop the paying out of the stamp-strip.

Supported on the shaft 58 is the feed-roller frame 60^a, comprising side pieces of determined lengths held in alinement by cross-pieces 61 and formed with semicircular recesses 62 63 in each end, the former engaging in the annular grooves 56 of the shaft 55 and the latter resting on and straddling the eccentrically-mounted supporting-shaft 58. In the frame 60^a is journaled the feed-roller 64, the perimeter of which when in operative position bears on the stamp-strip as it issues between the roller and the shaft 55, which acts as the positive power to move the strip in conjunction with the roller.

To the inner face of the side plate 1 of the casing are secured vertically-disposed strips 65 66, carrying inner strips 67, the space between the latter being such as to permit a one-cent piece to easily descend between them when inserted through the coin-slot 49. Over the said strips and constituting the inner wall of the coin-chute and shield for the disk-and-pawl mechanism is secured a cover-plate 68. On the shaft 55 and traversing the lower end of the coin-chute formed by the strips 67, the face of the side plate of the casing, and the cover-plate 68, is fixedly mounted a disk 69, formed with diametrically opposite coin-seats 70 of semicircular contour and of a capacity to take in one-half of a one-cent coin. At right angles to the coin-seats are formed locking-recesses 71, in which the nose of a spring-actuated locking-pawl 72 engages to hold the disk against rotation. The pawl 72 is pivotally hung in the casing and is pressed into engagement with the notches in the disk by a spreading spring 73. Below the disk 69 is arranged a coin-race 74, which consists of a strip 75, reversed in inclines and having a side piece 76 of the same contour secured thereto, as indicated in Fig. 4 of the drawings, the race leading the deposited cents down the inclines into engagement with the star-wheel, and when the cents are carried out by the star-wheel they are discharged from the race through a slot 77 (see Fig. 5) into a change-box 78 subject to appropriation.

It will now be perceived that when a customer desires one two-cent stamp his wants may be supplied by dropping one cent into the

coin-chute. Then the interposition of the coin will enable him to rotate the disk to push back the locking-pawl and continue the rotation until the disk is turned one-half revolution and is again locked by the pawl engaging the other notch in the disk. The stamp in the preceding movement has been partially projected from between the feed-rollers. The customer then deposits another cent, turns the shaft and disk, and another half-revolution can be made and the stamp delivered.

Associated with and auxiliary to the single-two-cent-stamp receiving and vending mechanism I provide a vending mechanism whereby a determined plurality of stamps may be delivered on payment to the machine of the prescribed price, which in the present instance is ten cents, and to accomplish this disposal of five stamps I have devised the following-described mechanism. Several of the elements or members making up this branch or part of the apparatus are duplicates of certain elements appearing in those aggroupments and constructions embodied in the single-two-cent-stamp-vending part of the machine—that is to say, the stamp-roll receptacle 30, the shaft 31, the roller 32, the web or strip of stamps 33, the guide-plate 36 and its adjuncts and associated parts, the mechanism to close the mouth of the coin-slot, and the lower feed-roller 64 all have their duplicates in the five-stamp-vending mechanism, and such duplicates are so designated in the drawings by reference notations similar to those used in descriptions hereinbefore made.

I now proceed to describe the mechanism auxiliary to the foregoing-cited parts which eventuates in the delivery of five two-cent stamps. The vertical strips 65 66 and the boundary-strips 67 of the coin-chute are duplicates of those parts heretofore described, except that the strips 67 in the two-cent coin-chute are disposed to permit a ten-cent piece to descend between them. 79 designates a short shaft journaled adjacent to its outer end in a bearing made in the side plate of the casing and has its inner end journaled in a bracket or arm 80, secured to the side plate of the casing, as indicated in Figs. 3 and 4 of the drawings, the shaft having mounted on its outer projecting end a finger-wheel 81, whereby it may be rotated. On the shaft 79 behind the cover-plate 82 is mounted a disk 83, formed with a coin-seat 84 to receive and temporarily hold a ten-cent piece deposited through the coin-chute. The disk is also formed with a notch 85 in its perimeter, which is engaged by a pawl 86 to hold the disk against reverse movement. In the disk is made a locking recess or notch 87, engaged by the nose of a spring-actuated pawl 88, which rests normally flush with inner line of the strip of the coin-chute and in contact with a coin in the coin-recess of the disk. It will here be stated that in the several instances where these lock-

ing-recesses appear they are made longer than the noses of the pawls engaging therein, so that the disks may have a limited initial movement to release the pawls from engagement, as indicated at 89. On the shaft 79 is mounted a sprocket-wheel 90. On the single-stamp-vending shaft 55 between the side pieces of the vending-roller frame is loosely mounted a roller 91, on the end of which is a sprocket-wheel 92, and on a stud-shaft 93, extending from a pivotally-supported arm 94, is journaled an idler-sprocket 95. The arm 94 is formed with a head-piece 96, having a curved slot 97, which takes over a clamping-screw 98, so that the arm may be adjusted and then clamped in the desired position to give the proper tension to the sprocket-chain. On the sprockets described is arranged a sprocket-chain 99. This sprocket mechanism is so arranged and adjusted that one revolution of the main sprocket 90 will turn the roller 91 so as to issue five two-cent stamps in consideration for the ten-cent coin deposited.

To utilize the ten-cent issue in value of stamps, the purchaser drops a ten-cent piece in the coin-chute, which coin seats itself in the coin-seat of the disk. The finger-piece is then rotated, the coin in the movement pushing back the pawl from engagement and the rotation being continued until the disk is again locked, which will be when a complete revolution has been made. The sprocket mechanism will rotate the feed-rollers to issue the five stamps.

The coins indicated in the drawings as deposited in the respective coin-chutes are indicated by the letters *d*, *n*, and *c*, respectively.

In the front end plate of the casing are formed recesses 100, provided with the requisite slots 101, through which the stamps issue to the customer. Inwardly-extending guide-flanges 102 103 are provided, between which the stamps move and are directed through the slots 101, substantially as indicated in the drawings.

In Fig. 14 of the drawings I have illustrated an adaptation of the sprocket mechanism to deliver a "special-delivery" stamp. In this adaptation the delivering-roller 91 is made of reduced diameter, so that one revolution of the coin-released "ten-cent" disk and the main sprocket-wheel will rotate the roller 91 a peripheral distance equal to the length of a single special-delivery stamp.

Having thus fully described the invention, what is claimed as new is—

1. In a stamp-vending machine, the combination with a stamp-feeding roll, of a way along which the stamp-strip is carried from the roll, said way having a transverse opening therethrough, and provided with pendent side pieces having slots leading from the opening, a movable tension-roller normally pressing upon the stamp-strip, and adapted to descend through said opening when the stamp-strip is

exhausted, and means operated by the roller in its descent to close access to the machine, said side pieces serving to receive the journals of the roller.

5 2. In a stamp-vending machine, the combination with a stamp-feeding roll, of a way
along which the stamp-strip is carried from
the roll, said way having a transverse opening
therethrough, and provided with upward side
10 extensions having slots leading to the opening,
and with pendent side pieces having slots lead-
ing from the opening, a movable tension-roller
normally pressing upon the stamp-strip, and
adapted to descend through said opening, said
15 roller having its journals extending through
the slots of said extensions, a yoke in which
said journals have their bearing, and means
operated from the yoke in the descent of the
roller, to close access to the machine, said
20 side pieces serving to receive said journals.

3. In a stamp-vending machine, a stamp-
guide having a transverse opening therein, a
vertically-movable roller journaled in aline-
ment with the said opening, a lever actuated
25 by the roller, a coin-slot, and a closure for the
coin-slot actuated by the lever.

4. In a stamp-vending machine, the combi-
nation with the stamp-guide formed with a
transverse opening, and the strip of stamps
30 movable in the guide, of a roller arranged in

alinement with the opening and riding on the
stamp-strip, a slidable frame in which the
roller is journaled, a lever connected to the
slidable frame, a coin-slot, a pivotally-mount-
ed closure to control the mouth of the coin- 35
slot and actuated by the said lever.

5. In a stamp-vending machine, the combi-
nation with the stamp-guide and the strip of
stamps movable thereon, of a vertically-mov-
able roller normally standing on the stamp- 40
strip and adapted to fall below the stamp-
guide when the stamps are exhausted, a coin-
slot, a pivotally-supported closure to control
the mouth of the coin-slot, and provided with
an arm, and a lever actuated by the said roller 45
to operate the arm of the closure.

6. In a stamp-vending machine, the combi-
nation of an eccentric rock-shaft, a lever to
rock the shaft, a frame supported on the shaft,
a lower feed-roller journaled in the frame, a 50
shaft constituting the upper feed-roller, a disk
on the shaft formed with opposite coin-seats,
and locking means to engage the disk at op-
posite points between the coin-seats.

In testimony whereof I affix my signature in 55
presence of two witnesses.

JAMES C. COPELAND.

Witnesses:

JESSIE A. KING,

GEORGE M. BOND.