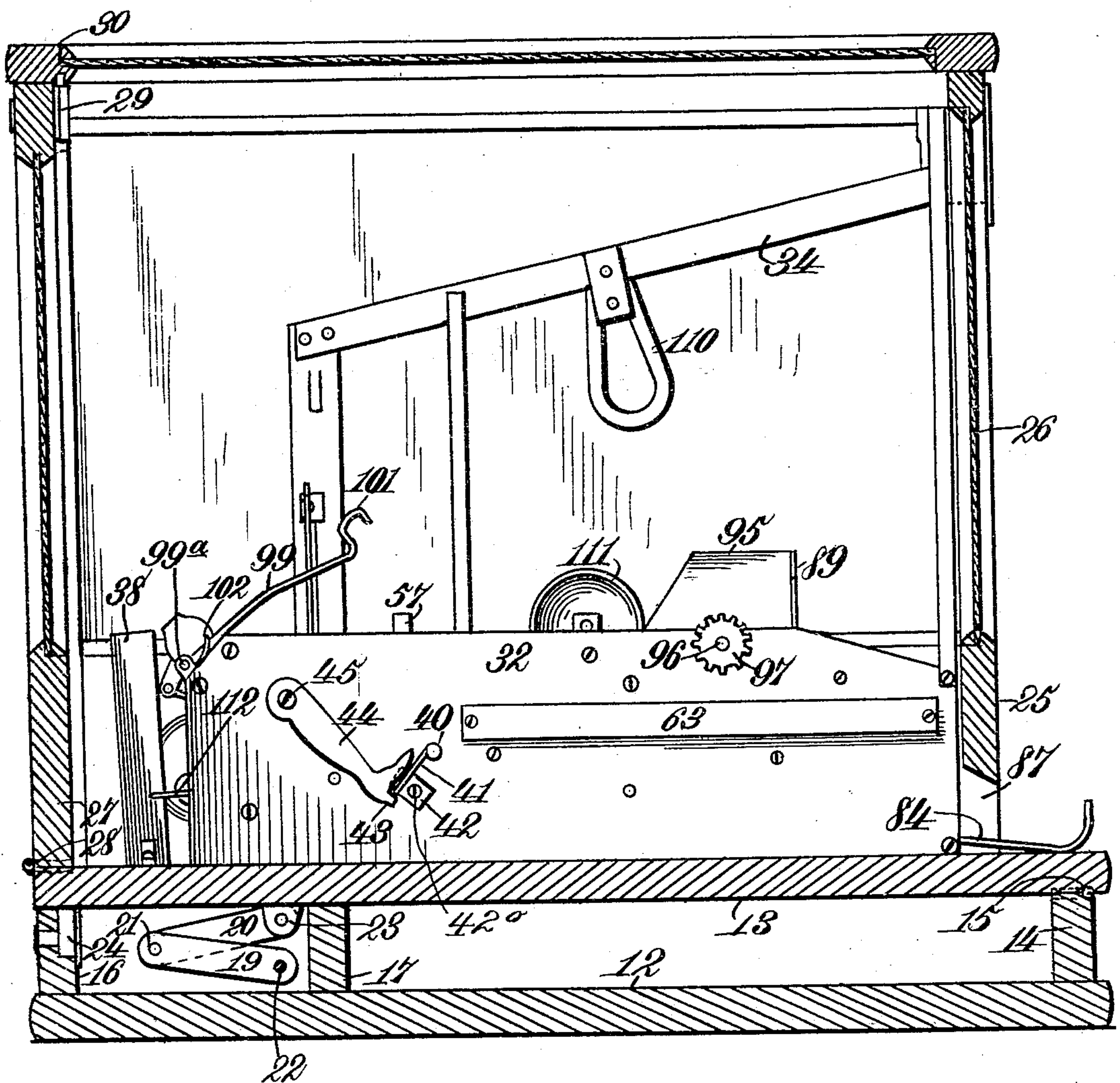


A. JACOBS.
COIN CONTROLLED VENDING MACHINE.
APPLICATION FILED FEB. 26, 1908.

943,552.

Patented Dec. 14, 1909.
3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Robert Smith.
J. B. Keeler

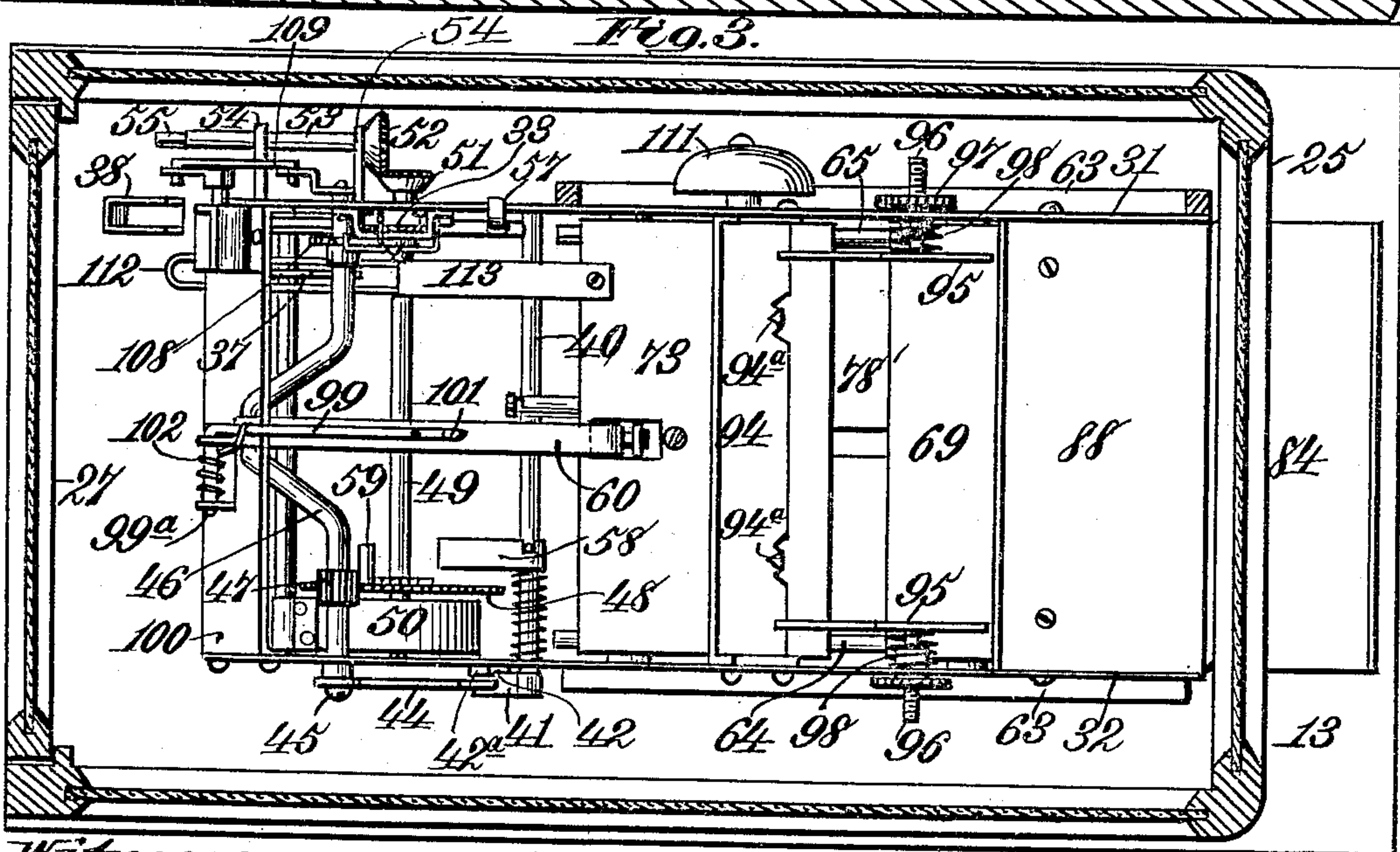
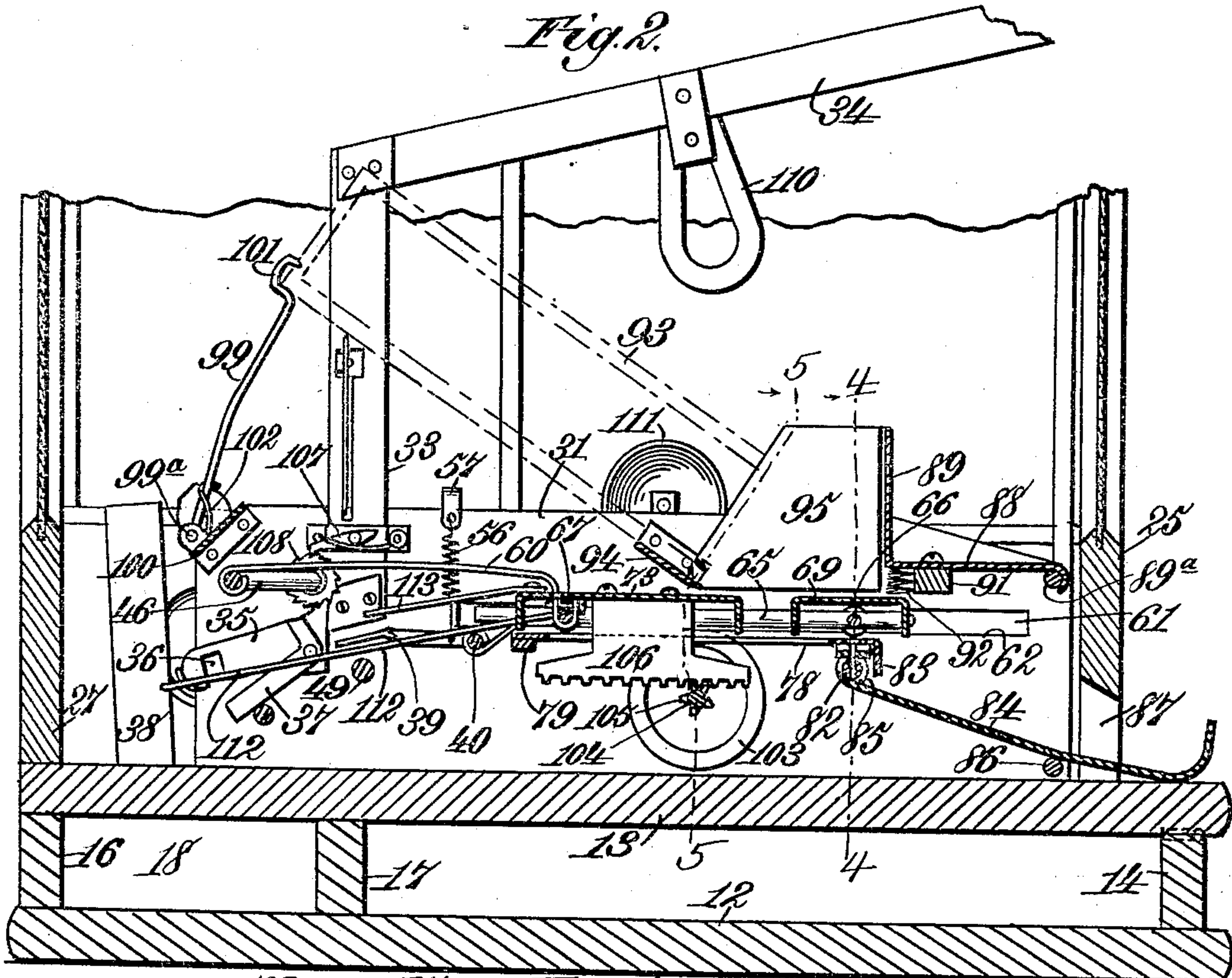
Inventor:
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3 SHEETS—SHEET 2.



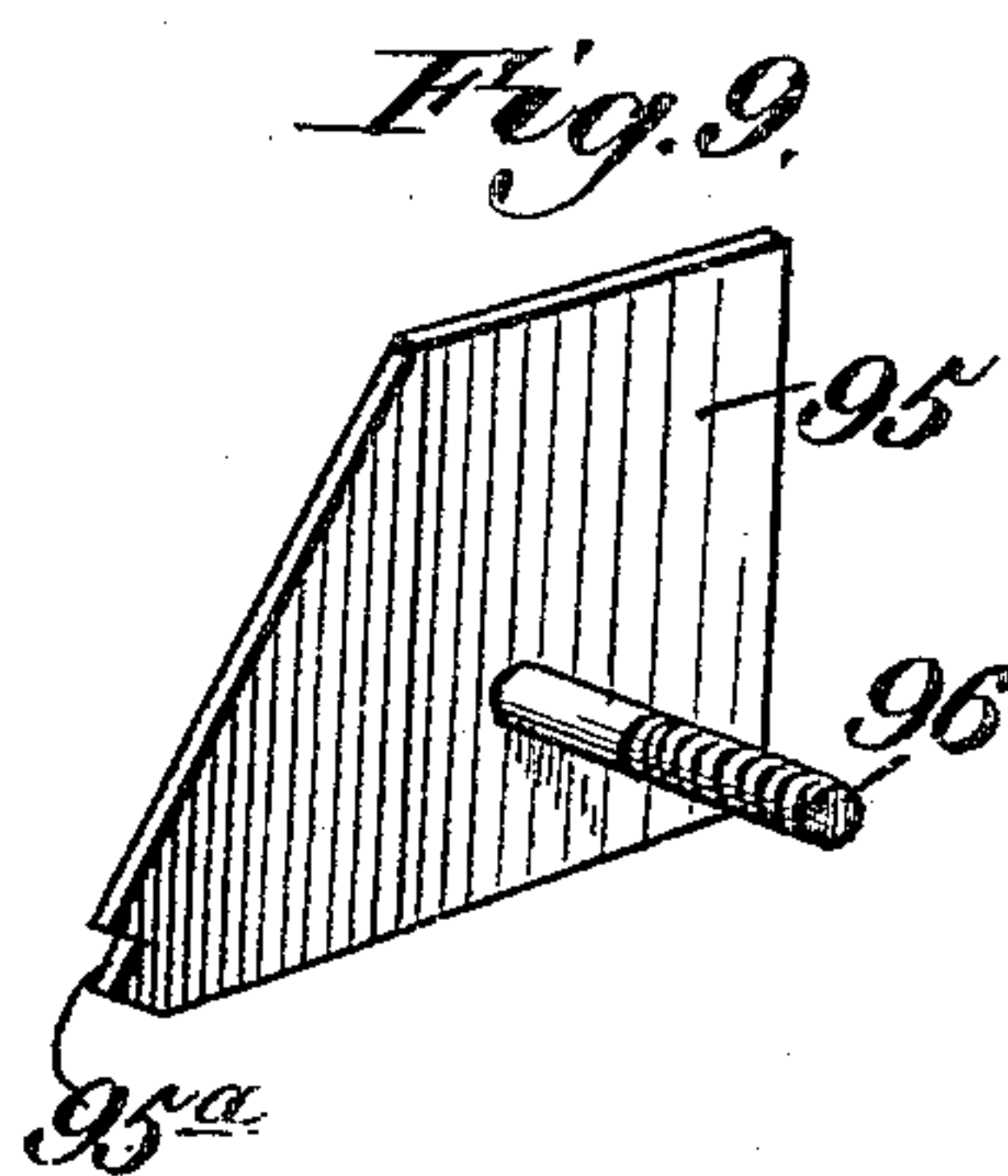
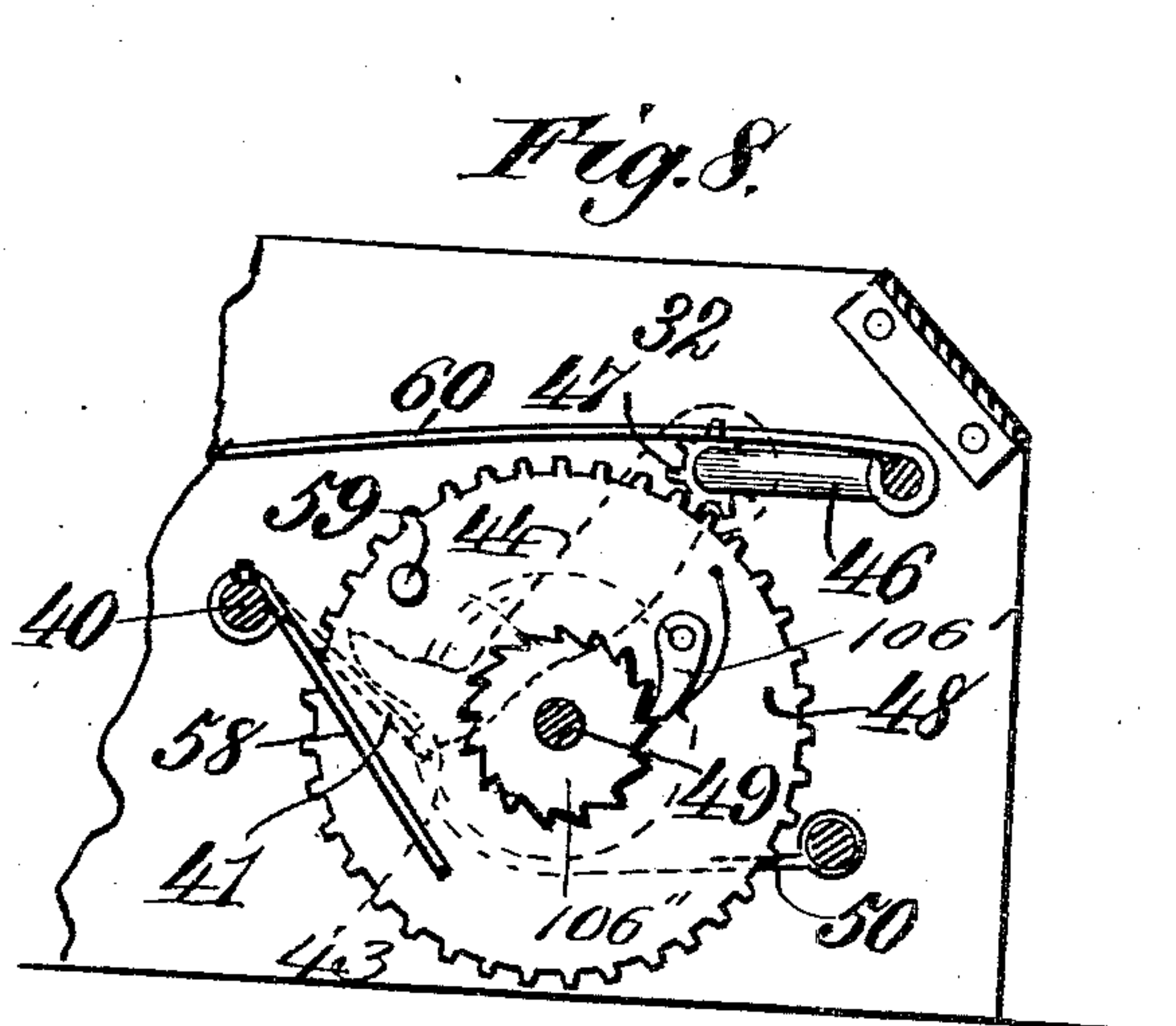
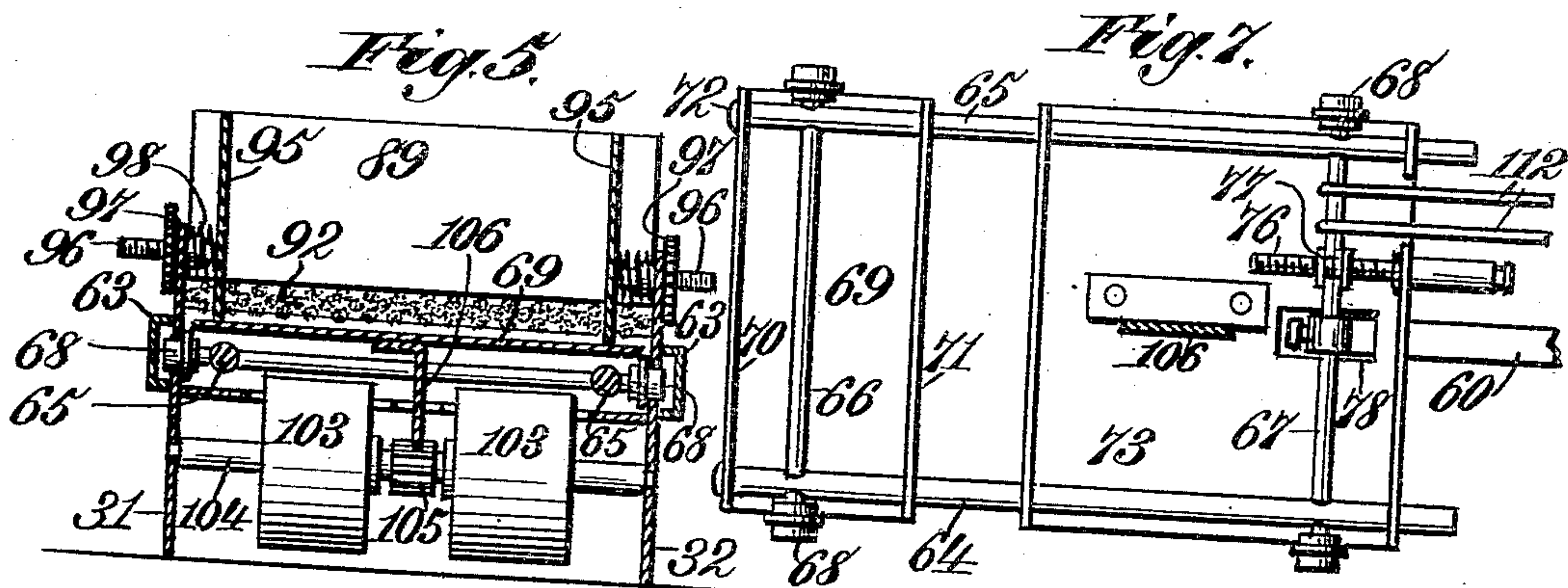
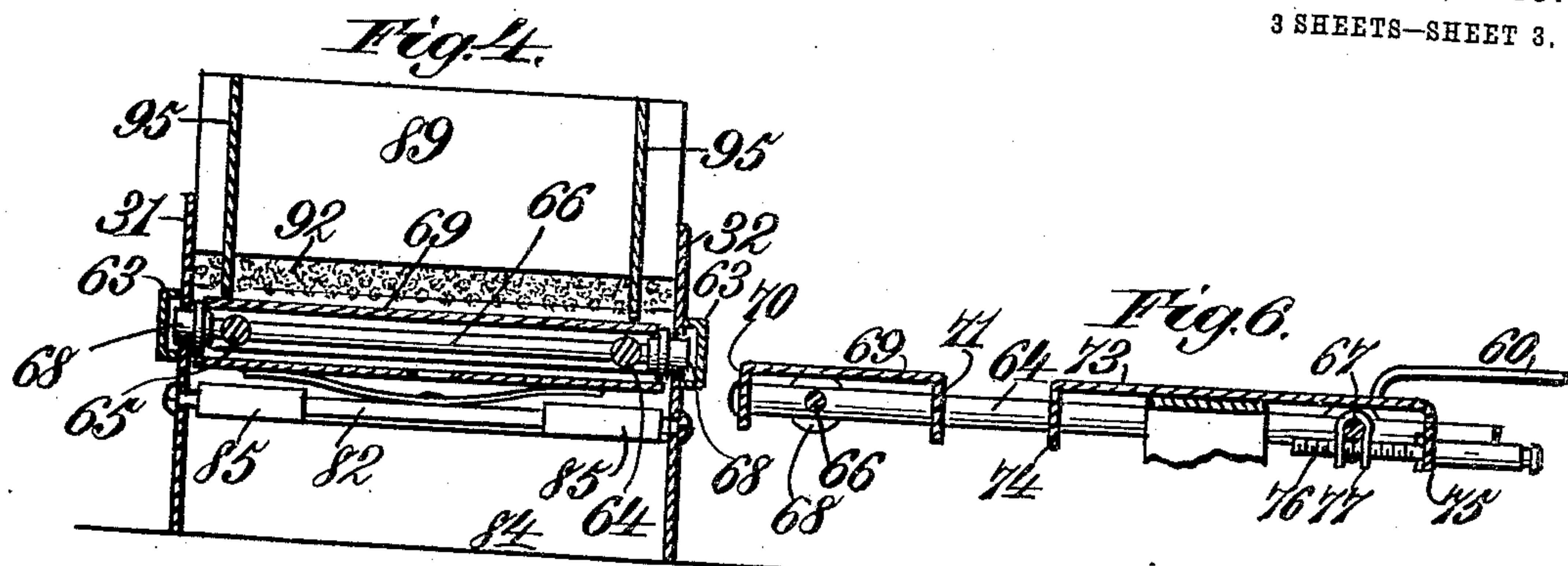
Witnesses:
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943,552.

A. JACOBS.
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Patented Dec. 14, 1909.
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ALONZO JACOBS, OF KANSAS CITY, MISSOURI, ASSIGNOR TO JACOBS CIGAR VENDOR CO., OF KANSAS CITY, MISSOURI, A CORPORATION OF MISSOURI.

COIN-CONTROLLED VENDING-MACHINE.

943,552.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed February 26, 1908. Serial No. 417,863.

To all whom it may concern:

Be it known that I, ALONZO JACOBS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

This invention relates to coin controlled vending machines, in which the insertion of a coin of the proper denomination is required to adapt the delivery mechanism to be actuated to perform its function; and it relates more particularly, though not exclusively, to an improvement in the variety of such machines used for vending articles from a magazine, for example cigars and various kinds of merchandise packed in round, square or other shaped packages.

The primary object of the invention is to provide a coin-controlled vending machine, in a manner as hereinafter set forth, whereby the successive operation of the machine a predetermined number of times is had through the insertion of a predetermined number of coins to cause the delivery of articles from the machine, and which will set the parts of the machine in such a manner as to enable the machine to be operated so as to deliver an article free of cost—that is to say without the insertion of a coin, and, by way of example, in this connection it will be assumed that the machine is vending cigars at a cost of six for a quarter. The insertion of five nickels will enable the machine to be operated so as to deliver five cigars, and, after the insertion of the fifth nickel and delivery of the fifth cigar the parts of the machine will be so set as to discharge another cigar without the insertion of an additional coin.

Further objects of the invention are to provide a coin-controlled vending machine which shall be comparatively simple in its construction, strong, durable, efficient in its use, readily assembled and inexpensive to set up.

With the foregoing and other objects in view the invention consists in the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modi-

fications can be resorted to which come within the scope of the claims hereunto appended.

In the accompanying drawings, wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is a sectional side elevation of a coin-controlled vending machine in accordance with this invention; Fig. 2 is a longitudinal sectional view with the upper portion of the case removed; Fig. 3 is a sectional plan; Fig. 4 is a transverse section on line 4—4 of Fig. 2; Fig. 5 is a transverse section on line 5—5 of Fig. 2; Fig. 6 is a longitudinal section of the delivery slide; Fig. 7 is an inverted plan of the delivery slide; Fig. 8 is a detail in side elevation showing the means for positioning the parts to deliver an article free; Fig. 9 is a perspective view of one of the spring-pressed clamps for the reservoir containing the articles to be vended.

Referring to the drawings in detail, the machine embodies a supporting base constituting a receptacle formed of a bottom 12, a top wall 13 and a front wall 14, to which the forward end of the top wall is hinged, as at 15, a rear wall 16 and a transversely-extending partition 17, which in connection with the rear wall 16 forms a coin-receiving chamber 18. The supporting base further embodies a pair of side walls. Within the chamber 18 is positioned a pair of links 19, 20 pivoted together as at 21, and the link 19 is pivoted to one of the side walls of the base as at 22, while the link 20 is pivoted to a lug 23 depending from the top wall 13. The rear wall 16 of the supporting base is provided with a lock 24, the bolt of which is adapted to engage in the rear portion of the top wall 13 so as to lock the said wall. Mounted upon the top wall 13 is an inclosing frame 25, the walls of which are provided with transparent portions 26. The rear wall 27 of the frame 25 is hinged, as at 28, to the top wall 13 and carries a lock 29 adapted to engage with the top wall 30 of the frame, thereby locking the said rear wall 27. By providing the frame in a manner as shown the parts of the machine are visible.

Secured to the top wall 13 is a pair of vertically-extending supporting plates 31, 32, to which is connected an intermediate section 33 of the coin chute. The latter

embodies not only the intermediate section 33, but an upper section 34 and a lower section 35. The front of the frame 25 is provided with a coin slot to allow of the insertion of the coin so that it can travel down the coin chute. The coin chute forms no part of the present invention, and it is, therefore, thought unnecessary to describe it in detail. The lower section 35 of the coin chute is formed with a notch 36 in which operates the angular lever 37, the function being to dislodge the coins from the section 36 so that they will be discharged in the conduit 38 and from there emptied into the chamber 18.

Arranged to extend below and in alignment with the vertical section 33 of the coin chute is a trip arm 39 adapted to be engaged by a coin during its travel through the chute. The engagement of the coin with the arm 39 shifts it, thereby rocking the shaft 40 as the arm 39 has one end fixed to the said shaft 40. The rock shaft 40 which is journaled in the plates 31, 32 and projects from the outer face of the said plate 32 carries on its projecting end a releasing arm 41 whose free end is adapted, when the shaft 40 is in normal position, to lie in the path of a shoulder 43 formed on a stop arm 44 fixed to the projecting end 45 of a crank shaft 46, the latter being journaled in the plates 31, 32. The crank shaft 46 constitutes an actuating means for the delivery slide of the machine which will be hereinafter referred to. The crank shaft 46 carries a pinion 47 which engages with a gear 48 mounted upon an operating shaft 49, the latter carrying a power-transmitting spring 50.

Shaft 49 is journaled in the plates 31, 32 and projects from the plate 31 and carries on its projecting end a beveled pinion 51 meshing with a beveled pinion 52 secured to the inner end of a winding shaft 53 which is journaled in the laterally-extending brackets 54 projecting from the plate 31 and has a reduced end 55 adapted to be engaged by a key whereby when occasion requires the power-transmitting spring can be wound.

The trip arm 39 is connected to the lower end of an expansible spring 56, the latter having its upper end attached to a bracket 57 carried by the plate 31. The function of the spring 56 is to return the trip arm 39 to normal position, that is the position shown in Fig. 2. The returning of the trip arm 39 to normal position returns the rock shaft 40 to such position. The rock shaft 40 is furthermore provided with a secondary releasing arm 58 adapted to be engaged by a lug 59 projecting laterally from the inner face of the gear 48.

From the foregoing arrangement of parts it is evident that when the coin actuates the arm 39 the rock shaft 40 will be shifted,

thereby moving the arm 41 out of the path of the shoulder 43 and releasing the stop arm 44. The release of the stop arm 44 will allow the spring 50 to expand, causing a rotation of the shaft 49, and through the medium of the gear 48 and pinion 47 will rotate the crank shaft 46, thereby reciprocating the delivery slide to be hereinafter referred to, as the delivery slide is connected with the shaft 46 through the medium of a link 60. The lug 59 is so disposed on the gear 50 that after several successive releases of the stop arm 44, which causes a rotation of the gear 48, the lug 59 will then engage the secondary releasing arm 58 and shift the rock shaft and allow an actuation of the delivery slide without the insertion of a coin. This arrangement causes the discharge of an article without payment therefor. Consequently by the mechanism heretofore referred to, after the insertion of a predetermined number of coins and articles are vended, the mechanism is so set as to be automatically released so that another article will be vended free of charge. After the lug 59 passes off the releasing arm 58 the parts of the mechanism are so set that an article cannot be vended unless a coin is inserted and the vending of a free article will not again be had until a complete revolution of the gear 48 is had so that the lug 59 will ride against the arm 58 and rock the shaft 40 to move the arm 41 out of the path of the shoulder 43. To limit the upward movement of the arm 41 the stop 42 is provided which is secured to the plate 32 and the said stop consists of a rectangular piece of suitable material having its upper end bent outwardly so as to overhang the arm 41. The overhanging upper end of the stop 42 is indicated by the reference character 42^a and is clearly shown in Fig. 3. The stop 42 is secured to the plate 32 by the holdfast device 42^b.

Each of the plates 31, 32 is provided with an elongated longitudinal slot 61, the lower wall 62 of each of which constitutes tracks for the delivery slide to be presently referred to. The slots 61 are closed by cap pieces 63 secured to the outer faces of the plates 31, 32. The delivery slide, more clearly shown in Figs. 6 and 7, comprises a rigid rectangular frame formed of a pair of longitudinally-extending bars 64, 65 and a pair of transversely-extending bars 66, 67. The bars 66, 67 project from the bars 64, 65 and carry on their projecting ends flanged rollers 68, the outer portions of which travel upon the tracks 62. Mounted upon the forward portion of the slide frame is a transversely-extending platform 69 which is flanged at its front and rear as at 70, 71. The bars 64, 65 extend through the flange 71 and abut against the flange 70. Extending through the flange 70 and engaging the bars 64, 65

are holdfast devices 72 for fixedly connecting the platform 69 to the forward portion of the frame. Mounted upon the bars 64, 65 is a platform 73 provided with the similar
 5 flanges 74, 75 through which said bars extend. The platform 73 is adjustable with respect to the platform 69 through the medium of a screw 76 which projects through the flange 75 and engages in a screw-threaded bracket 77 depending from the bar 67.
 10 The link 60 has its forward end extending through an opening 78 formed in the platform 73 and is pivotally connected to the bar 67. The flange 74 of the platform 73
 15 constitutes a transversely-extending discharging arm for the article. The platform 73 is adjustable with respect to the platform 69 to provide the necessary width of space for size of the article which is positioned be-
 20 tween the flanges 71, 74 prior to the discharge of the article from the machine through the medium of the flange 74 when the delivery slide is moved forwardly.

Arranged below the delivery slide in close
 25 proximity to the flanges 71, 74 is an article support 78' consisting of a rectangular sheet of suitable material secured at its rear to a cross bar 79 connected to the plates 31, 32 and at its forward end yieldably mounted
 30 upon a transversely-extending bar 82 attached to the plates 31, 32. The forward end of the article support 78' is provided with a downwardly depending flange 83. Secured to the cross bar 82 and projecting
 35 forwardly and downwardly at an inclination is a receiving trough 84 for the article which is delivered through the medium of the delivery slide. The rear end of the trough 84 is bent around the bar 82 as at 85 and the said
 40 trough is mounted upon a support 86. The forward end of the trough 86 rests upon the top wall 13 of the supporting base and extends through a discharge opening 87 formed in the front wall of the frame 25.

45 Secured between the plates 31, 32 at the forward ends thereof is an angle-shaped member having a horizontal portion 88 and a vertical portion 89. The horizontal portion 88 rests at its front edge upon a sup-
 50 porting bar 89^a which is positioned between the forward ends of said plates 31, 32. Secured to the lower face of the horizontal portion 88 and also to the plates 31, 32 is a transversely-extending member 91 having
 55 the rear face thereof provided with brushes 92 which are in alinement with the rear face of the vertical portion 89 of the angle-shaped member. In this connection it may be stated that if an article should fall upon the plat-
 60 form 69, it would be carried, during the forward movement of the slide, against the brushes 92 which thus forms an abutment. On a further movement of the slide the brushes will force the article into the space
 65 between the flanges 71, 74, so that the flange

74 will shift the article off the support 78 and into the trough 84 whereupon it will roll down the trough and be discharged through the opening 87.

The reservoir for the articles which are to
 70 be delivered from the machine is indicated by dotted lines in Fig. 2 and by the reference character 93. The forward portion of the reservoir which is in the form of a box rests
 75 upon the supporting bracket 94 which is secured between the plates 31, 32. Bracket 94 at its forward edge is provided with lugs 94^a adapted to engage over the bottom of the reservoir. The side walls of the box which
 80 constitute the reservoir are positioned in alinement with the guide plates 95, which thus serve as continuations of said walls. The plates 95 are notched as at 95^a, to provide seats adapted to receive the forward
 85 edge of the bottom of the box or reservoir. Each of the plates 95 is formed with a laterally-extending screw-threaded arm 96. The arms 96 extend through the plates 31, 32 and each carries an adjusting nut 97. Inter-
 90 posed between the plates 31, 32 and the plates 95 and surrounding the arms 96 are compression springs 98. The rear portion of the reservoir 93 is engaged and supported by an arm 99 which is pivoted as at 99^a to
 95 a transversely-extending member 100 mounted upon the plates 31, 32. The arm 99 has its upper end hook-shaped as at 101 so as to take over one corner of the reservoir. Surrounding the arm 99 is a spring 102, the
 100 function of which is to press the said arm 99 forwardly.

To retard and regulate the movement of the delivery slide a pair of weights 103 is provided, which constitute fly-wheels and
 105 are carried by a shaft 104 rotatably mounted in the plates 31, 32. Approximately centrally of the shaft 104 there is fixed thereto a pinion 105 adapted to be engaged by a toothed rack 106 which depends from the
 110 lower face of the platform 73. From the foregoing arrangement it is evident that when the shaft 46 is rotated so as to actuate the delivery slide the toothed rack 106 will, owing to its meshing with the pinion 105,
 115 rotate the shaft 104 and the weighted rollers 103 will then govern the movement of the slide, so as to reduce the impulse given by the spring to a regular and gradual movement.

120 Secured to the inner face of the plate 32 is a pawl 106' adapted to engage a ratchet 106'' fixed to the shaft 49 to prevent back rotation thereof, and connected to the inner face of the plate 31 is a pawl 107 engaging
 125 with a ratchet wheel 108 carried by the shaft 46 to prevent back rotation thereof. Attached to one end of the shaft 46 is a link and lever mechanism 109 for actuating an indicator device. The chute 34 is provided
 130 with an opening arranged in proximity to a

magnet 110 and such opening allows of the magnet attracting any fraudulent pieces formed of a magnetizable material which will prevent such pieces traveling down the chute, the pieces dropping from the magnet and hitting an alarm 111 to indicate that a fraudulent effort has been made to operate the machine. The lever 37 is actuated by a yoke 112 taking over a hoop on the lever, which yoke is connected to the bar 67. A guide arm 113 is provided for the yoke 112, the said arm 113 being attached to the rear of the platform 73.

It is thought that the operation of the machine can be readily understood from the foregoing description taken in connection with the accompanying drawings, but it may be stated that when the trip arm 39 is actuated through the medium of a coin the shaft 46 will be rotated and such action through the medium of the link 60 will operate the delivery slide, the article to be delivered having fallen into the space formed between the flanges 71 and 74. As the delivery slide moves forward the flange 74 will carry the article therewith and past the flange 83, the article then dropping into the trough 84 and rolling out of the machine. Upon the forward movement of the delivery slide the coin which has at this time entered the section 35 of the coin chute will be dislodged therefrom through the medium of the lever 37, the latter being actuated by the yoke 112. When the coin is dislodged from the section 35 of the coin chute it will fall into the conduit 38 and from there be discharged into the chamber 18.

What I claim is—

1. A delivery member comprising, in combination, pairs of connected longitudinal and transverse bars constituting a frame; a pair of sections mounted upon the frame and formed with down-turned flanges engaged with the longitudinal bars, said sections being spaced apart from each other to provide a pocket; a member carried by one of the cross-bars; and a member connecting the first-named member with one of the flanges of the adjacent section, for moving said section toward and from the other section, to vary the size of the pocket.

2. The combination of a reciprocatory delivery slide; a rotatable retarding member; and a member carried by the slide and operatively connected with the retarding member, for rotating the latter during the movements of the slide.

3. The combination of a reciprocatory delivery slide; a fly wheel; and a member carried by the slide and operatively connected with the fly wheel, for rotating the latter during the movements of the slide, to control such movements.

4. A vending machine comprising, in

combination, a reciprocatory delivery member; automatically-operated mechanism for actuating the same; trip mechanism for holding said actuating mechanism normally locked; means for operating said trip mechanism, to release said actuating mechanism and effect a single reciprocation of the delivery member; and separate means for operating the trip mechanism to effect two successive reciprocations of said member.

5. A vending machine comprising, in combination, a delivery member; a crank shaft connected with said member for reciprocating the same; a normally locked automatically-operated drive shaft connected with the crank shaft for rotating the latter when unlocked; means for unlocking the power shaft to effect a single revolution of the crank shaft; and separate means for unlocking said power shaft, to effect two successive revolutions of said crank shaft.

6. A vending machine comprising, in combination, a delivery member; a crank shaft connected with said member for reciprocating the same; an automatically-operated power shaft; power transmission connections for rotating said shafts in unison; a trip mechanism normally engaged with the crank shaft for locking said shafts against rotation; means for releasing the trip mechanism from such engagement, to effect a single reciprocation of the delivery member; and separate means for releasing said trip mechanism, to effect two successive reciprocations of said member.

7. A vending machine comprising a reciprocatory delivery slide, motor means for operating the same, a trip for the motor means, a governing device connected to and regulating the movement of the slide on both its forward and return movements.

8. A vending machine comprising a reciprocatory delivery slide, motor means for giving a continuous forward movement of the slide, a trip controlling said motor, a governing fly wheel rotatably mounted in the machine, a pinion connected to said wheel and a rack bar carried by said slide and engaging said pinion.

9. A vending machine comprising a delivery means for the articles to be vended, a receiving trough for the articles delivered by said means, a crank shaft connected with said delivery means for operating the same, a stop arm carried by said crank shaft, a rock shaft provided with an inner and an outer releasing arm said outer arm normally in the path of said stop arm thereby arresting the movement of the crank shaft, a power transmitting means engaging with the rock shaft for rotating it when the stop arm is clear of said outer releasing arm, means for actuating said rock shaft in one direction thereby shifting the outer releasing arm out of the path of the stop arm, and

means forming a part of said power-trans-
mitting means and adapted during the
operation of said power-transmitting means
to engage said inner releasing arm and shift
5 the rock shaft thereby holding the outer
releasing arm out of the path of the stop
arm for the purpose set forth.

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

ALONZO JACOBS.

Witnesses:

MARY S. HILL,
E. J. GIDDINGS.