

No. 684,765.

Patented Oct. 15, 1901.

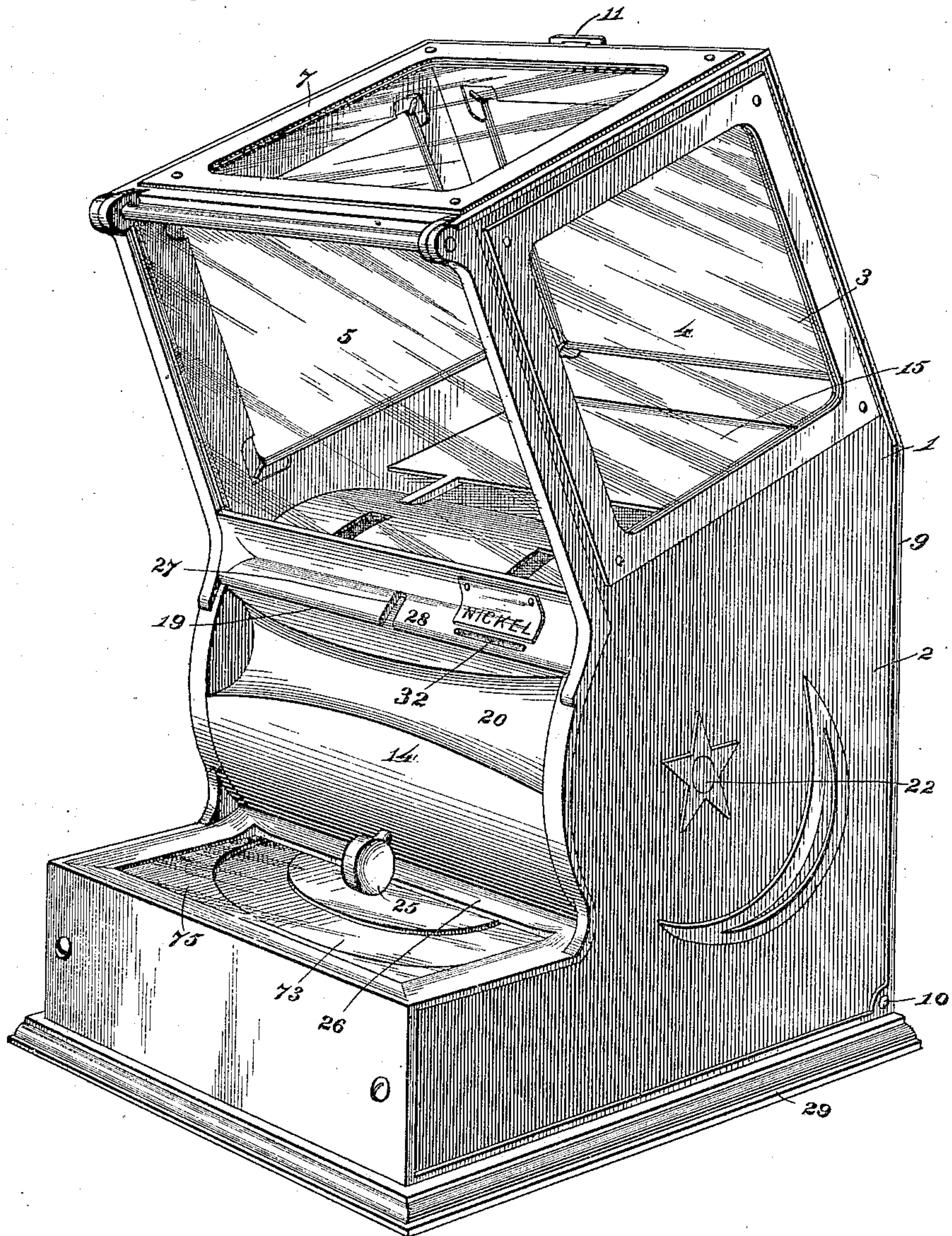
W. D. DOREMUS.
COIN CONTROLLED MECHANISM.

(Application filed Apr. 6, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses

H. S. Austin

Karl J. Daniel

Inventor:

Willard S. Doremus
By Joseph H. Skiving
Attorney.

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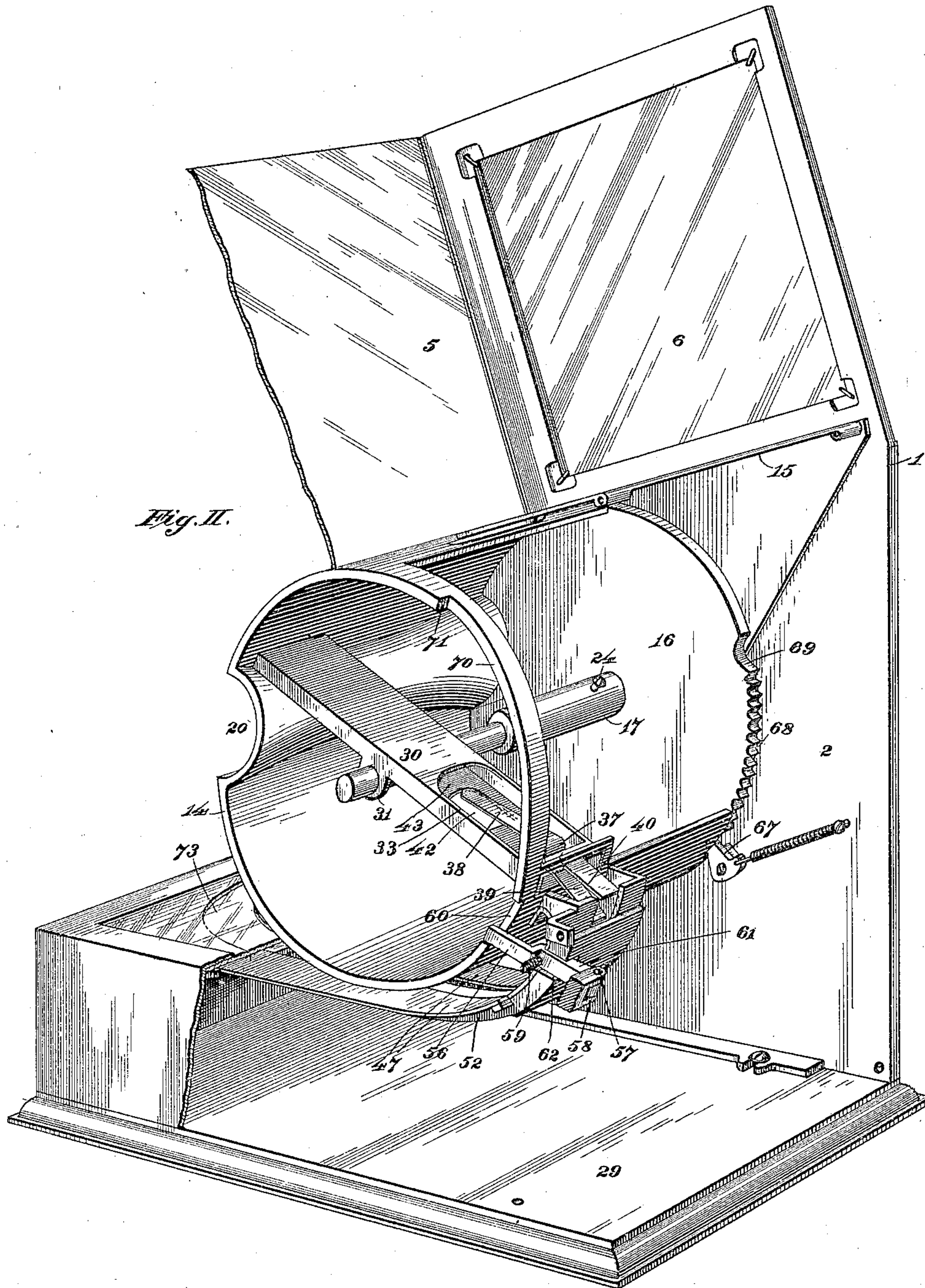
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3 Sheets—Sheet 2.



Witnesses
H. S. Austin.
Karl J. Daniel.

Inventor,
Willard S. Doremus,
By Joseph L. Hopkins,
Attorney.

No. 684,765.

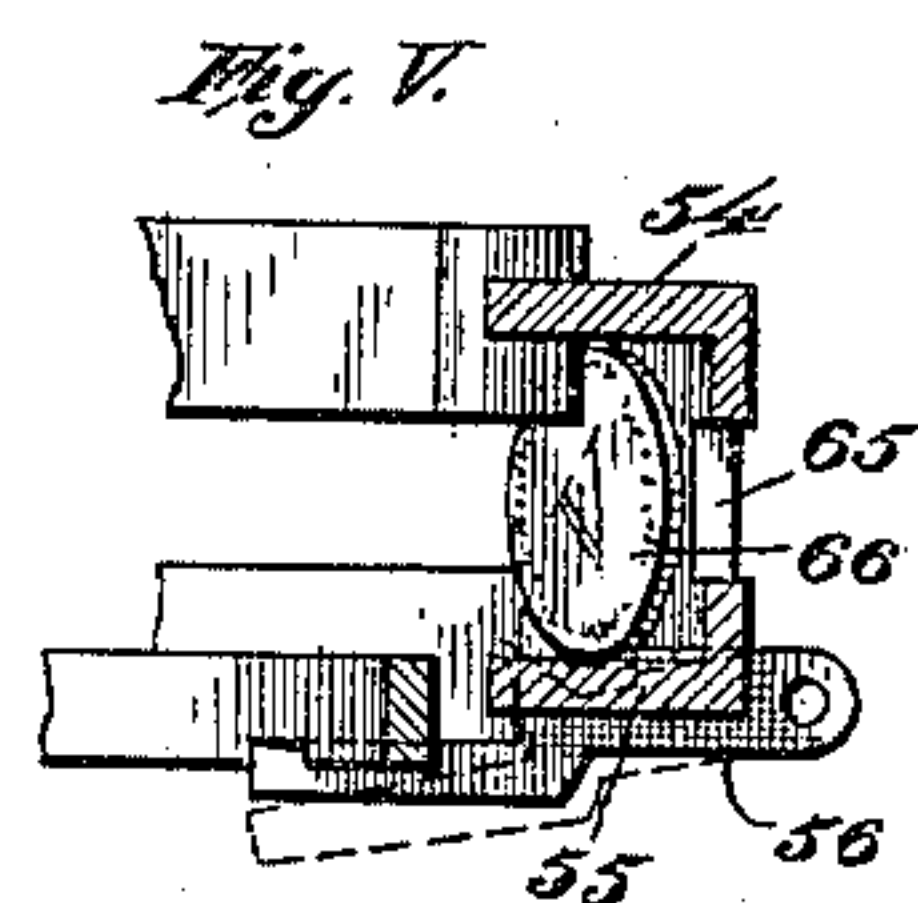
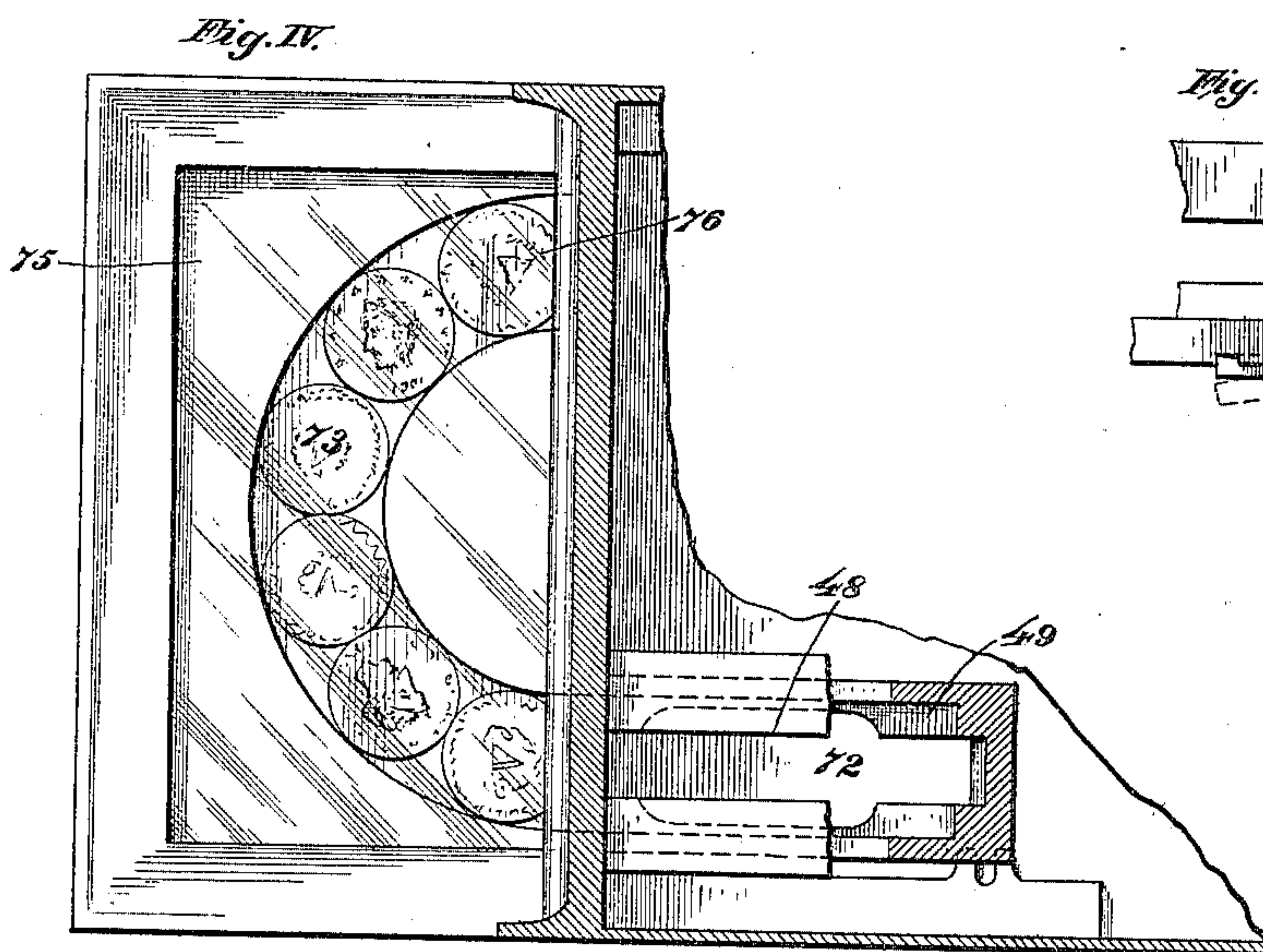
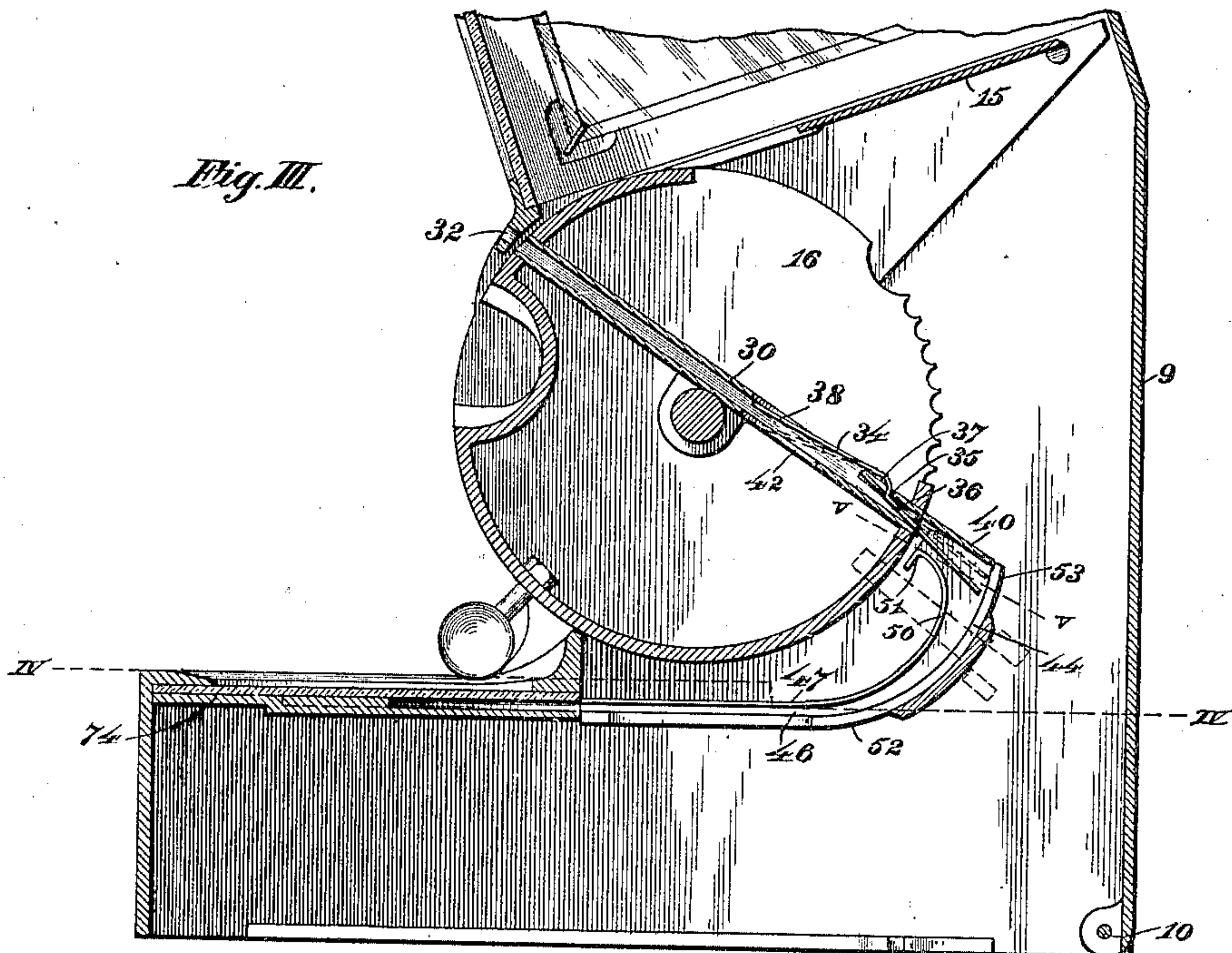
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3 Sheets—Sheet 3.



Witnesses
H. S. Austin
Karl J. Daniel

Inventor:
Willard D. Doremus
By *James H. H. H.*
Attorney.

UNITED STATES PATENT OFFICE.

WILLARD D. DOREMUS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO REX CIGAR VENDING COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA.

COIN-CONTROLLED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 684,765, dated October 15, 1901.

Application filed April 6, 1901. Serial No. 54,696. (No model.)

To all whom it may concern:

Be it known that I, WILLARD D. DOREMUS, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Coin-Controlled Mechanism, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce improved coin-controlled mechanism for vending or similar machines in which a plurality of coins supplied successively to the machine are caused to move visibly by positive edge-wise engagement one with the other from a point at which the releasing mechanism of the machine is actuated through a circuit or channel to the point of release, where they are deposited one by one in a coin box or receptacle, by which each coin is employed positively as a mechanical element for releasing the locking or stop mechanism of the machine, and by which the last coin deposited in the machine is positively actuated and driven forward in the operation of the machine into edgewise engagement with the next one of the coins exhibited in the circuit, whereby all the coins visible in the circuit are driven step by step through said circuit.

The advantages of my device are found chiefly in simplicity and economy of construction, certainty of operation, means for the rejection of certain coins, and in the means for detecting the introduction into the machine of a spurious coin or blank.

Other features of distinction and advantage will be fully set forth in the accompanying specification and succinctly specified in the appended claims.

In the accompanying drawings, Figure I is a perspective view of a form of vending-machine comprehending in its embodiment my invention. Fig. II is a perspective view of the subject-matter of Fig. I, portions of the frame thereof being broken away or removed the better to exhibit the internal working parts of the machine. Fig. III is a side elevation of a portion of the subject-matter of Fig. I with one of the side walls of the frame removed, the parts being shown in full lines in the position illustrated in Fig. II. Fig. IV is a partial section on the line IV IV of Fig.

III. Fig. V is a detail view illustrating the operation of a coin as a mechanical element upon the locking mechanism, the dog of the locking mechanism being shown in full lines in the locked position and in dotted lines in the unlocked position.

Referring to the numerals on the drawings, 1 indicates the case or frame of a machine which is illustrated as an example of mechanism to which my present invention is applicable. It is preferably made of light castings, so as to provide a body portion 2, which incloses the operating mechanism, whose movements are dependent upon the coin-controlled mechanism, which constitutes the subject-matter of my present invention. The case also includes above the body portion 2 an inclined receptacle 3, designed in the form illustrated to contain a box of cigars or "original package" from which cigars are vended and for the purpose of exposing which for inspection the receptacle 3 is preferably provided with panes of glass 4, 5, and 6 and with a hinged lid 7, provided with a glass panel 8.

9 indicates a door which preferably extends from a pivot-pin 10, near the bottom of the case 1, to the top of the receptacle 3, where it may be locked to the lid 7, as by staple and eyelet mechanism 11.

The bottom of the receptacle 3, which is otherwise open and unobstructed, is closed by a delivery member 14 and an oscillating tilting shelf 15, coöperative therewith. The delivery member or roll 14 is preferably constructed in the form of a hollow cylinder having a solid end wall 16 (see Figs. II and III) and a central stem or hub 17, extending from one side of the wall 16 coaxially through the cylinder or partially through the same. The delivery member 14 when of the cylindrical shape illustrated is of such a size that when properly assembled or united in the frame of the machine it completely fills the longitudinally-disposed opening 19 in the middle front portion of the case, as is clearly shown in Fig. I of the drawings. The delivery member or roll 14 is designed to oscillate within the case, so as to present a pocket or recess 20, formed in the periphery thereof, to the interior of the receptacle in order that it may receive a cigar or other article from

the stock contained in the receptacle and by the reverse movement of the roll withdraw it therefrom for delivery. I prefer to mount the roll 14 upon an oscillatory shaft 21, jour-

5 naled at its opposite end, as indicated at 22 in Fig. I of the drawings, in the opposite side walls of the case, and to this end a set-screw 24 in the hub 17 may be employed for securing the roll 14 to the shaft 21.

10 25 indicates a handle for the manipulation of the roll 14, by which the latter may be oscillated so as to cause the pocket 20 to enter the receptacle 3 and receive a cigar or reversed for the delivery of the cigar within

15 the pocket. The handle 25 in its downward movement strikes against a cross-piece 26 and in its upward movement against the bottom of a slot 27 in the cross-piece 28 of the frame; but provision must be made to prevent its striking the glass. The case 1 is securely closed at its bottom, as by a base 29.

The foregoing vending mechanism constitutes no part of my invention, but is described and claimed in my application for

25 United States Letters Patent, Serial No. 15,199, filed May 2, 1900. As has been specified, it is presented merely by way of example of vending mechanism to which my invention is applicable; but I wish it to be distinctly understood that my present invention

30 is not exclusively applicable to vending-machines, but is adapted to be employed in connection with any form of mechanism in which locking mechanism for securing a movable

35 to a fixed part is made dependent for its operation upon the introduction of a coin of prescribed dimensions.

Coming now to that which constitutes a preferred form of embodiment of my present invention, 40 30 indicates a coin-chute, (compare Figs. II and III,) which preferably consists of a transversely-oblong rectangular four-sided shell that is secured to the movable part of the coin-controlled mechanism and which in

45 the form of device illustrated extends transversely across the roll 14, being supported near its middle part therein, as by lugs 31, apertured to receive the shaft 21. The opposite open ends of the chute pass through or

50 register with apertures in the opposite sides of the roll 14. In the normal position of the roll the upper end of the chute 30 registers with a slot 32, proportioned to receive a coin of prescribed denomination. The interior dimensions of the chute 30 are preferably larger

55 than the dimensions of the slot 32 in order that the coin may pass freely from one end of the chute to the other. The lower upper side of the chute 30 is, as indicated at 33, removed or so much of it is removed as to permit the free exit therefrom of a coin from within the chute. The open side 33 is designed to prevent clogging of the machine by the deposit of a coin into the chute after a

65 coin has already been deposited therein and before the first coin has performed its function of releasing the locking mechanism

which controls the movement of the roll 14. To accomplish this result, I provide a vibratory plate 34, loosely hinged, as indicated at 70 35, in the lower end of the upper wall 36 of the chute 30. The pivotal mounting is preferably accomplished by providing a transverse slot in the wall 36 and by providing a bend 37 in the plate 34. Upon opposite sides 75 of the bend 37 the plate 34 terminates upwardly in a tongue 38 and downwardly in a tongue 39. The tongue 39 preferably underlies and is substantially coextensive with a tailpiece 40, which projects from the rear of 80 the wall 36. The tongue 38 is located opposite to an aperture 42 in the bottom wall 43 of the chute 30. Consequently when the tongue 38 is tilted so that it passes into the aperture 42 it becomes, in effect, a deflected 85 continuation of the bottom wall 43. This position it assumes whenever a coin has passed entirely through the chute 30, but before it has performed its function as an unlocking member, as will hereinafter be described. 90 Suffice it to say in this connection that assuming the tongue 38 to be depressed into the aperture 42 any coin which may be delivered to the chute while it is in that position will be deflected by it through the open- 95 ing 33 in the chute and deposited without effect upon the locking mechanism upon the bottom 29 of the case. The plate 34 is normally balanced, so that the tongue 38 hangs unobstructively in substantial alinement with 100 the upper wall 36 of the chute, so that a coin under normal conditions passes underneath the tongue 38 and in issuing from the chute strikes the lower end of the tongue 39 of the plate 34. By this means the plate 34 105 is adapted to perform two functions. One function has been described. The other function is to deflect a coin from the chute 30 into the mouth 44 of a receiving-chute 46, by way of distinction from which the chute 30 110 may be called the "delivery-chute." The chute 46 is defined by a pair of top plates 47, separated to provide between them a passage 48 for the travel of the tailpiece 40 and incidentally for that of the deflecting-tongue 115 39, which when the tailpiece 40 is performing its function becomes, in effect, a part of the tailpiece. The upper ends of the walls 47 are curved, as indicated at 50, and terminate, preferably, in a flange 51, the curve 50 120 and flange 51 being provided to properly define the mouth 44, which is intended to receive and guide a coin from the delivery-chute to the receiving-chute. The bottom plate 52 of the receiving-chute is curved, as 125 indicated at 53, to correspond to the curve 50 of the walls 47. The receiving-chute is completed by side walls 54 and 55, which are preferably cast integrally with the bottom plate 52 of the chute, as is clearly shown in 130 Figs. IV and V; but this is of course a mere variable detail of construction. The formation of the mouth of the receiving-chute has been thus described in detail, because I pre-

fer to locate in proximity thereto the locking mechanism the operation of which determines the movability of the roll 14 and because in the form of embodiment of my invention illustrated attention to details of construction is necessary to render the machine smoothly and accurately operative.

The locking mechanism which I prefer to employ consists in a dog 56, pivoted, as indicated, on a pintle 57 between lugs 58, projecting from the side wall of the case, as shown in Fig. II of the drawings. The dog is spring-actuated, as by a coiled spring 59, (shown in said figure,) placed between it and the case into engagement with a recess 60 in the edge of the roll 14, room being left between the edge of the roll and the adjacent wall of the case for the dog to be pressed out of engagement with the ends of the recess 60 when required. To accomplish the liberation of the roll from the dog 56, the dog is provided with a shoulder 61, which works in a recess 62, formed in the side wall 55 of the receiving-chute 46. The recess 62 penetrates the wall 55, so that the dog 56 under tension of its spring enters the receiving-chute and obstructs it transversely. Consequently if the side walls 54 and 55 be spaced with sufficient accuracy to accommodate a coin of prescribed denomination such a coin upon passing from the delivery-chute to the receiving-chute will be caught by the dog, as clearly shown in Fig. V of the drawings.

It is for the purpose of depositing the coin from the delivery-chute 30 properly upon the dog in the receiving-chute 46 that the deflecting-tongue 39 of the plate 34 is provided, the purpose being to insure that each coin shall assume an upright position upon the dog and in line to engage the tailpiece 40 or directly the tongue 53, which underlies the tailpiece.

It will now be seen that after a coin has passed underneath the tongue 53 and been deflected by it into position upon the dog 56 it will until released from the dog raise the tongue 53 toward the tailpiece 40, as shown in dotted lines in Fig. III. In this position the tongue 38 is depressed into the aperture 42 in the bottom plate 43 of the delivery-chute. Consequently until the coin supported by the dog 56 is released any other coin introduced through the slot 32 will be deflected by the tongue 38 through the opening 33 in the chute and will not engage or clog the locking mechanism of the machine. The tailpiece 40 preferably extends through a recess 65 in the bottom plate 52 of the receiving-chute 46 in order to insure its proper engagement with a coin sustained by the dog 56 without danger of jamming. The presence of the recess 65 also affords freedom of movement to the tongue 53. A coin while it is sustained by the dog 56 becomes a member of the mechanism—that is to say, the unlocking member or key—and is in that position, as shown in Fig. V of the drawings, assigned the reference-numeral 66 and is designated

as the “unlocking member.” The unlocking member 66 being in position, supported upon one side by the dog 56 and engaging upon its opposite side through the tongue 53 the tailpiece 40, if now an operator lift upon the handle 25, power will be communicated through the tailpiece 40, which is a part of the roll 14, edgewise against the unlocking member 66, tending to drive it edgewise through the receiving-chute 46. To this tendency the dog 56 yields against the tension of its spring 59 until, in order to afford free passage for the unlocking member 66, it clears the end of the recess 60 in the edge of the roll 14 and permits free movement of the roll under manipulation of its handle 25. This continued movement causes the tailpiece 40, through its intermediary tongue 53, to sweep the coin entirely through the receiving-chute, free travel of the tongue and tailpiece being afforded through the passage 48. When the movement of the coin through the receiving-chute is completed or substantially completed, the handle 25 is brought to a stop against the bottom of the recess 27, in which position, as has been specified, the pocket 20 is in position to perform its function. Thereupon the movement of the roll 14 is, by manipulation of the handle 25, reversed, and when the upper edge of the pocket clears the cross-piece 26, so that the article carried in the pocket may be removed, the dog 56 slips over the ends of the recess 60 and locks the roll in position until released by a repetition of the operation just described. A spring-actuated pawl 67 engages with a ratchet 68 in the end wall 16 of the roll for preventing the backward movement of the roll until it has made a complete travel. When the handle 25 reaches the bottom of the recess 27, the pawl 67 passes into a toothless recess 69 at the end of the ratchet 68, whereupon the position of the pawl may reverse itself to accommodate it to the backward movement of the roll. The pawl-and-ratchet mechanism illustrated is presented as representative means for preventing partial operation of the vending mechanism. Without it or other means for performing its function the roll might be freely oscillated without the introduction of a new coin so long as the dog 56 were kept from engagement with the ends of the recess 60, but with it this is prohibited. From the end of the recess 60, after the passage of the unlocking member 66, the dog 56 may play against an inclined edge 70 of the roll 14 and engage a stop-shoulder 71 and prevent actual impact between the handle 25 and the end of the recess 27.

It will be understood from the foregoing specification that an unlocking member of predetermined dimensions is necessary to the operation of the dog 56. One larger than the slot 32 cannot be introduced into that slot. A smaller one might be introduced, but would be insufficient to sweep aside the dog 56, and I prefer to provide in the bottom of the re-

ceiving-chute a discharge-aperture 72, which is of such transverse extent as to permit a coin of smaller diameter than those of prescribed denomination to drop from the chute.

5 This is done in order that it may not be presented to view in the channel or circuit 73, which communicates with the discharge end of the receiving-chute 46.

Means have been described by which the
10 operation of the machine may not be interrupted by the introduction of more than one coin between operations and also for the rejection of coins of inferior dimensions. It is important, however, to provide means for
15 preventing the operation of the machine by the aid of blanks. This is accomplished by rendering a plurality of coins, including the last introduced into the machine, immediately visible to a bystander for each operation
20 of the machine. To accomplish this object, the channel 73 is provided. It is preferably formed in a plate 74 in the top of the case 1 and is surmounted by a glass or other transparent cover 75. It registers at one end
25 with the discharge end of the receiving-chute 46. Consequently since, as has been specified, each coin after performing the function of an unlocking member is necessarily swept through and out of the receiving-chute with
30 each complete operative manipulation of the handle 25 it must thereupon present itself to view in the channel 73. Consequently a bystander—for example, custodian of the machine—may know with absolute certainty if a
35 fraud has been practiced upon the machine and by whom it has been perpetrated. This telltale action of the machine is also well calculated to deter offenders by the conspicuous probability presented to them of immediate
40 detection. The channel 73 preferably makes a semicircular circuit from the discharge end of the receiving-chute around to the interior of the case upon its opposite side. By this means freedom of movement is provided for a
45 series of coins, and the series may be made sufficiently large, as indicated in Fig. IV of the drawings, to afford a record of a considerable number of sales. The first coin which enters the channel 73 from the chute 46 is driven into
50 it by direct engagement therewith of the tongue 53, impelled by the tailpiece 40. The next in the series, positively urged by the tongue and tailpiece, strikes the coin ahead of it edgewise and without the intervention
55 of any intermediate mechanism pushes it along. This operation is continued through the entire series of coins in the channel 73 until they drop one by one from the discharge end 76 of the channel into the interior of the
60 case.

The operation of my device having been explained along with the specification of its construction, further description in that respect appears to be unnecessary. I wish it to be
65 distinctly understood that I do not limit myself to the details of construction herein shown and described, but intend to reserve the right

to modify and vary them at will within the principle of my invention, as herein set forth.

What I claim is—

1. In coin-controlled mechanism, the combination with a fixed part, a movable part, and coin-controlled locking mechanism, of an unobstructed visible circuit located in a horizontal plane, and means, dependent upon the
70 movement of the movable part for passing a series of coins through the circuit, exclusively by edgewise engagement of one coin with the next of the series.

2. In coin-controlled mechanism, the combination with a fixed and a movable part, and coin-controlled locking mechanism, of a visible circuit located in a horizontal plane and means, dependent upon the movement of the
80 movable part, for driving each coin supplied to the locking mechanism from the locking mechanism to visible position in the circuit.

3. In coin-controlled mechanism, the combination with a case, a fixed and a movable part, and coin-controlled locking mechanism, of an
90 unobstructed visible circuit located in a horizontal plane communicating at one end with the locking mechanism, and at the other with the interior of the case.

4. In coin-controlled mechanism, the combination with a case and movable delivery member provided with a delivery-chute, of a receiving-chute in the case, and locking mechanism comprising a movable dog in the receiving-chute.
100

5. In coin-controlled mechanism, the combination with a case, and movable delivery member, provided with a delivery-chute, of a receiving-chute in the case, locking mechanism comprising a yielding dog in the receiving-chute, and means for depositing a coin, as an
105 unlocking member, from the delivery-chute edgewise against the dog in the receiving-chute.

6. In coin-controlled mechanism, the combination with a case and delivery-roll provided with a delivery-chute passing through the same, of coin-controlled locking mechanism in operative communication with the delivery-chute.
110

7. In coin-controlled mechanism, the combination with a case, and a delivery-roll provided with a delivery-chute extending substantially diametrically through the roll, of a coin-slot in the case communicating with one
120 end of the delivery-chute, a receiving-chute communicating with the other end thereof, and coin-controlled locking mechanism in the receiving-chute.

8. In coin-controlled mechanism, the combination with a case, delivery-roll, and delivery-chute therein, of a receiving-chute provided with a mouth communicating with the delivery-chute, and coin-controlled locking mechanism in the receiving-chute.
125

9. In coin-controlled mechanism the combination with a case, delivery-roll, and delivery-chute provided with a tailpiece extending from the outside of the roll, of a receiving-
130

chute communicating with the delivery-chute and provided with a passage for the movement of the tailpiece, and a yielding dog in the receiving-chute adapted to be actuated by
5 a coin under impulse of the tailpiece.

10 10. In coin-controlled mechanism, the combination with a case, delivery-roll, delivery-chute provided with an aperture in its upper wall and with a tailpiece projecting from the
15 roll, of a receiving-chute and yielding dog therein, the receiving-chute being provided with a passage for the accommodation of the tailpiece, and a vibratory plate mounted in the top wall of the delivery-chute, and extending
underneath the aperture in its upper wall.

11. In coin-controlled mechanism, the combination with a case and delivery-roll, of a delivery-chute in the roll communicating with
20 a receiving-chute in the case, coin-controlled locking mechanism in the receiving-chute,

and means for preventing the backward movement of the roll until it has made a complete travel.

12. In coin-controlled mechanism, the combination with a case and delivery-roll, of a delivery-chute in the roll communicating with
25 a receiving-chute in the case, coin-controlled locking mechanism in the receiving-chute, and means for preventing the backward movement of the roll until it has made a complete
30 travel, said means consisting of a ratchet upon the roll provided at one end with a recess, and a spring-actuated pawl engaging the ratchet.

In testimony of all which I have hereunto subscribed my name.

WILLARD D. DOREMUS.

Witnesses:

HENRY L. BRYAN,
A. G. DU BOIS.