

**No. 696,011.**

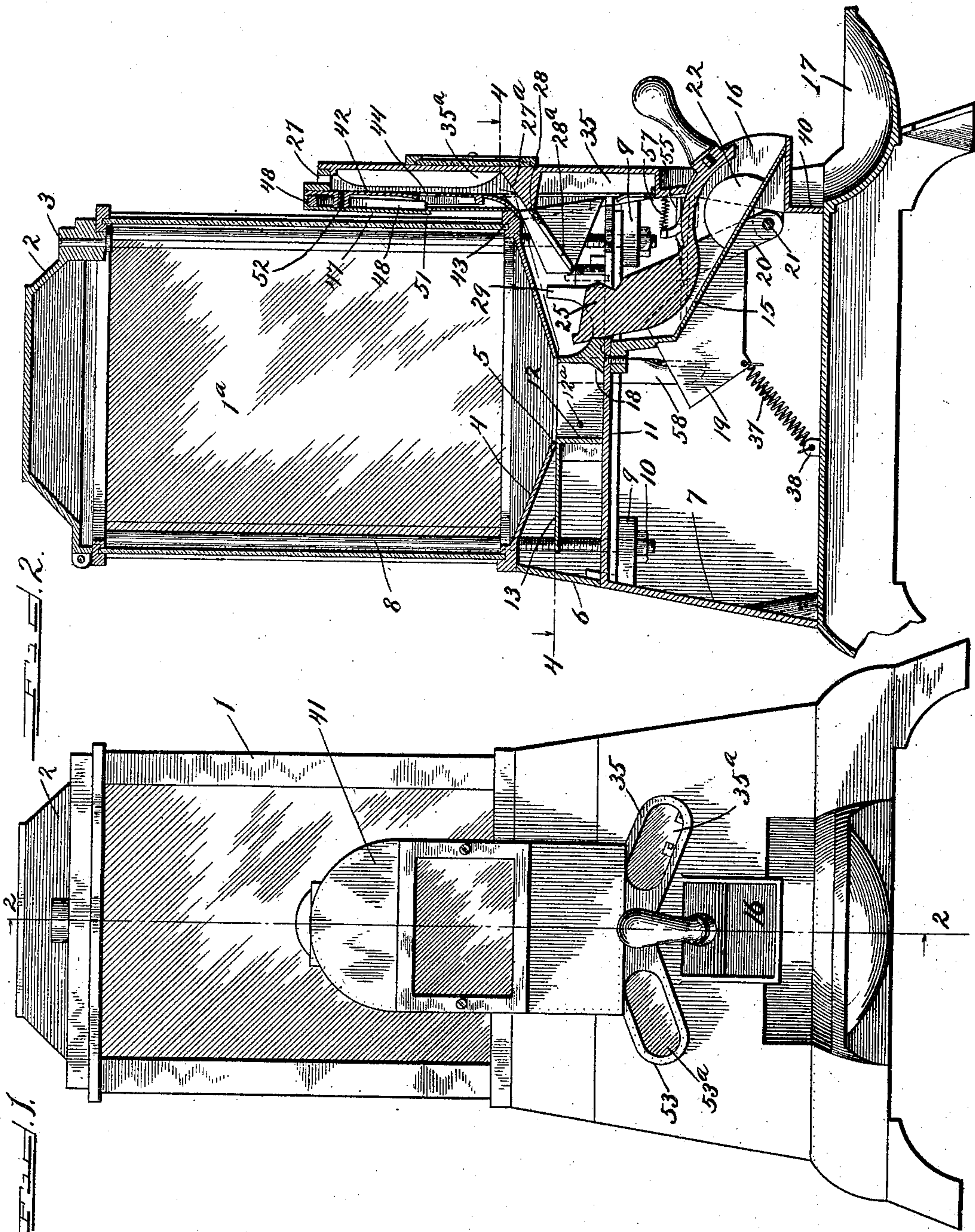
Patented Mar. 25, 1902.

**B. M. DAVIS.**  
**AUTOMATIC VENDING MACHINE.**

(Application filed Feb. 21, 1901.)

(No Model.)

**3 Sheets—Sheet 1.**



WITNESSES

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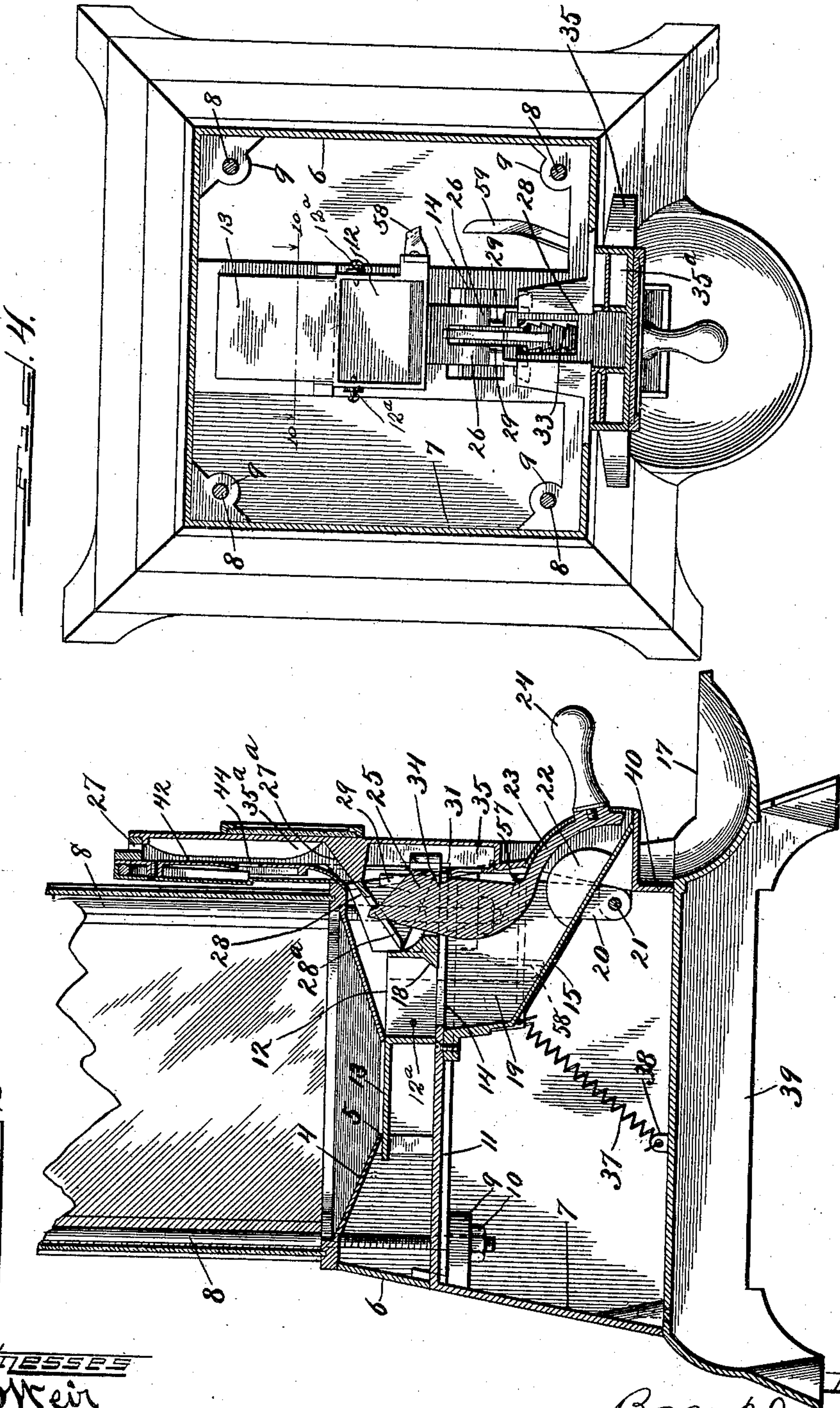
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3 Sheets—Sheet 2.



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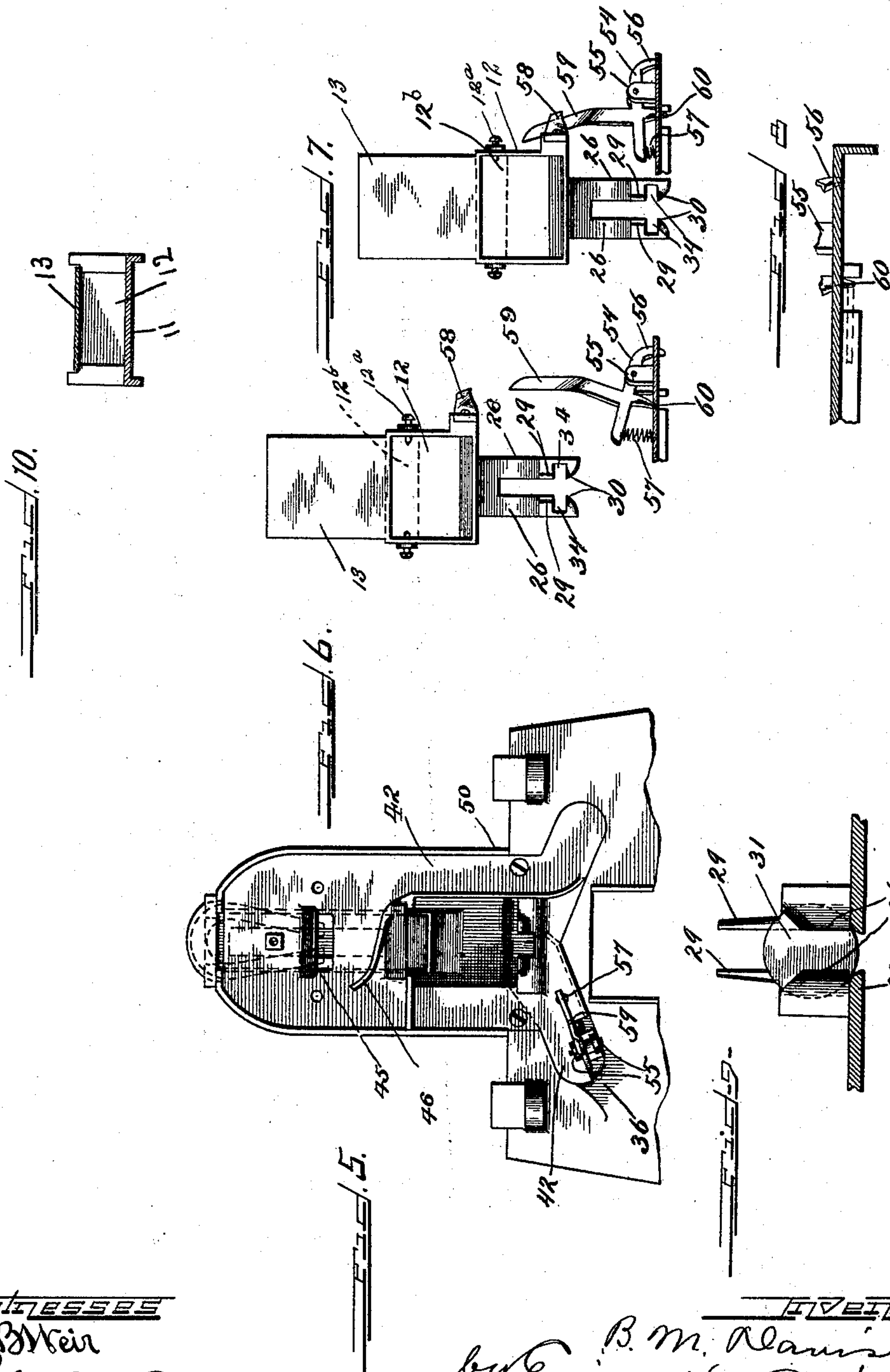
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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 696,011, dated March 25, 1902.

Application filed February 21, 1901. Serial No. 48,258. (No model.)

*To all whom it may concern:*

Be it known that I, BETHUEL M. DAVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Vending-Machines, of which the following is a full, clear, and exact specification.

My invention relates more particularly to automatic vending-machines for vending material in bulk, such as nuts and other granular substance or material composed of lumps; and it has for its primary object to provide improved and simple coin-actuated mechanism for vending-machines of this character.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is a vertical sectional view thereof, taken on the line 2 2, Fig. 1, showing the measure in its normal or retracted position ready to receive a charge from the hopper above. Fig. 3 is a similar section with the top of the machine broken away, showing the measure advanced for delivering the charge. Fig. 4 is a plan section taken on the irregular line 4 4, Fig. 2. Fig. 5 is a detail view of the inner face of the coin-slot and connected mechanism. Fig. 6 is a detail plan view of the measure and the gate which controls the exit of the coins from the coin-slot, the measure being shown in its retracted or receiving position. Fig. 7 is a similar view showing the measure advanced for delivery. Fig. 8 is a detail view of a part of the coin-slot and the coin-gate, showing the manner in which the coins are permitted to discharge from the slot one at a time. Fig. 9 is a detail view of the coin-seat, showing a coin therein, as hereinafter described; and Fig. 10 is a detail section taken on the line 10 10, Fig. 4.

1 represents a box or receptacle constituting the upper part of the apparatus for containing the material to be vended, and it is prefer-

ably constructed with glass or transparent sides 1<sup>a</sup>. This receptacle has a hinged top 2, provided with lock 3 to facilitate filling, and its bottom is formed with sloping sides to constitute a hopper 4, which has a central opening 5, toward which the material gravitates. The bottom of the receptacle 1 rests upon a frame 6, which if the machine is of square form would be rectangular and if circular would be annular and open at top and bottom, and this open frame 6 rests upon the upper side of the base-box 7. These three members—namely, the receptacle 1, the open frame 6, and the base-box 7—are secured together by vertical screw-rods 8, which pass downwardly through the corners of the receptacle 1 and also through corner-lugs 9, formed in each corner of the base-box 7, and under said corner-lugs 9 the rods are provided with nuts 10, whereby the three described members may be firmly bound together.

The upper side of the base-box 7 is formed with a way or support 11 for a measure 12 to slide upon, the measure 12 being of sufficient depth to extend from the way 11 up to the lower end of the hopper 4, where it is provided with the opening 5, and this measure may be equal in diameter to the size of said opening. The measure 12 is open top and bottom, so that when under the opening 5 the contents of the receptacle 1 will drift into the measure and will be supported by the sides thereof and the way 11, upon which the measure slides. The rear end of the measure 12 is provided with a valve or shutter 13, which is of sufficient size to entirely close the opening 5, when the measure is advanced to deliver the material. The forward end of the way 11 is cut away, as shown at 14, to form an aperture for the discharge of the material from the measure 12 when the measure arrives at its advanced position, and located directly under this aperture 14 is a material-chute, the bottom of which is composed of an inclined plate 15, secured in any suitable manner to the bottom of the way 11 and having its outer end situated within the mouth or aperture 16, where the material discharges into a suitable receiver 17. The forward side of the measure 12 is provided with an inwardly-projecting lip 18, which prevents the



bottom of the measure from being exposed over the aperture 14 before the valve or shutter 13 has sufficiently closed the opening 5 to prevent any material part of the contents of the receptacle 1 from running directly through the opening 5 into the chute 15.

The sides of the material-chute, of which 15 is the bottom-plate, are constituted by two wings 19, formed on and supported by two arms 20, which are pivoted at 21 to the base-box 7. The bottom-plate 15 fits between these wings 19, as clearly shown in Figs. 2 and 3, and when the measure 12 is advanced over the aperture 14, as shown in Fig. 3, the wings 19 will have risen sufficiently to fully constitute the sides of the material-chute and prevent the material from escaping into the base-box 7. The lower end of the V-shaped opening left between the front of the box 7 and the outer edges of the arms 20 when the measure 12 is in its retracted or receiving position, as shown in Fig. 2, may be closed by two lips or flanges 22, formed on the edges of the bottom-plate 15, thus avoiding the possibility of any fragments which may linger in the chute from escaping through these V-shaped openings into the box 7.

Formed on the side arms 21 and projecting outwardly therefrom is a curved valve or shield 23, which is struck on an arc from the center of the pivot 21, so that as the arms 20 oscillate back and forth this valve or shield will alternately open and close the mouth or discharge-opening 16. Thus when the measure 12 is advanced to its delivery position the contents will be discharged into the chute 15 19 and held therein by the valve 23 until the measure 12 is returned to its receiving position, whereupon the material will run out into the receiver 17. This valve serves the further useful purpose of closing the discharge-outlet 16 sufficiently to prevent a direct passage being established between the measure 12 and such discharge-aperture while the measure is in communication with the opening 5 in the bottom of the hopper or receptacle 1. The valve 23 may be thus actuated by means of an exterior handle 24. Projecting upwardly from the upper side of this curved valve 23 is an arm 25, which works between two branches 26, constituting a bifurcation or projection on the forward side of the measure 12. (See Figs. 6 and 7.) In the absence of a coin the arm 25 will be free to work back and forth between these branches 26 without altering the position of the measure 12; but when a coin is deposited in the coin-slot 27 it gravitates therethrough until it strikes an incline 28, which is preferably formed on the inner wall of the open frame member 6, which directs the coin against a pair of stops 29, formed on the branches 26, respectively, near their outer ends and adjacent to two inwardly-projecting lugs 30, formed on the extremities of the branches 26, and which lugs constitute a coin-seat for holding the coin 31, in the manner better shown in

Fig. 9. Assuming that the arm 25 is at the extremity of its inward movement in the position shown in Fig. 2, therefore it will be seen that when it is again moved forward by pressure upon the handle 24 it will strike against the coin 31, resting in its seat and being held by the lugs 30, and will consequently pull the measure 12 with it into the delivery position illustrated in Fig. 3. The end of the way 11, or the plate which constitutes said way, is slotted outwardly from the forward side of the aperture 14 to permit of the free movement of the arm 25, and the edges of this slot 32 are provided with ratchet-teeth 33, which engage with the coin and lock the measure 12 against inward movement in the event it should be attempted to return it for refilling before the coin has been advanced the full limit of the movement of the arm 25 and allowed to escape. The branches 26 on their inner sides, at points between the lugs 30 and stops 29, are cut out to form notches 34, so as to permit the coin to slip downwardly between the branches 26 when not restrained from below. When the coin first drops into its seat between the lugs 30 and stops 29, it is supported from below by the edges of the slot 32, which are closer together than the width of the coin and which at this particular point are not provided with the teeth 33. After the lower edge of the coin leaves the plain edges of the slot 32 it is supported and prevented from dragging against the ratchet-teeth 33 while moving in a forward direction by means of a notch or shoulder 34, formed on the forward side of the arm 25; but by the time the arm 25 reaches the limit of its forward movement, as shown in Fig. 3, the shoulder 34 will have turned downwardly from under the coin to permit the coin to escape into a lateral downwardly-inclined coin-chute 35; whose lower end 36 discharges into the base-box 7, which also constitutes a coin receptacle or bank. The arm 25, and consequently the measure 12, will be returned to their normal inward position by means of a spring 37, secured to one of the wings 19 and to a suitable fastening 38 on the base member 39. During this forward movement of the measure 12 the coin-stops 29 pass through the incline 28, and to this end such incline is bifurcated, as shown at 28<sup>a</sup>. The bottom of the coin-slot 27 is provided with a short incline 27<sup>a</sup>, adjoining the incline 28, and the slot 27, together with such incline 27<sup>a</sup>, is formed in a separate casting or member, the lower part 40 of which constitutes the front of the base-box 7, in which the discharge-aperture 16 is formed, while the upper part 41 forms the outer side of the coin slot or chute 27 and also the outer side and bottom of the lateral coin-chute 35. The back of the coin-chute 27 and lateral chute 35 is constituted by a plate 42, preferably composed of brass or bronze or other non-magnetic metal and having formed thereon a lip 43, turned inwardly over the incline 27<sup>a</sup> to direct the coin onto



the incline 28. This plate 42 at a point about midway between the upper and lower ends of the coin slot or chute 27 is provided with a horizontal aperture or slot 44, arranged under an inwardly-projecting lip 45 and over an inclined rib 46, which constitutes the bottom of another coin-chute when the plate 42 is covered over by an additional plate 47, and secured between the plates 42 47 in any suitable manner is a horseshoe or other suitable permanent magnet 48, having its end arranged over and opposite the slot 44. This is for the purpose of attracting slugs or bogus coins that may be dropped into the slot 27, and thus deflecting them through the slot 44 into the chute constituted by the inner faces of the plates 42 47 and the rib 46. The lower end of the rib 46 is continued into a downwardly-extending rib 49, which leads downwardly into the coin-receptacle or base-box 7 and constitutes one side of a vertical chute for the bogus coins, while the other side of such chute is constituted by the edge 50 of the casting 41. The magnet 48 is suspended or held in place by being let into a recess 51, formed in the plate 47. The plate 47 is held in place by screw or other device 52.

Extending in the opposite direction from the lateral coin-chute 35 is an additional coin-chute 53, which perchance will receive some of the coins which fall from the notches 34. Both of these coin-chutes 35 53 are provided in their outer faces with transparent coverings 35<sup>a</sup> 53<sup>a</sup>, respectively, in order that the coins therein may be visible. The coin-chute 53, however, has no outlet and is simply for the purpose of holding in plain sight one or more coins.

In order that the coins falling into the chute 35 may be retained therein until said chute 35 becomes filled with them and then allowed to escape one at a time, I provide an automatic gate, as shown in Figs. 6 and 7. This gate consists of a lever 54, pivoted at 55 to the back of the plate 42 and having a finger 56, which passes through a suitable aperture in the back of said plate and intercepts the coin that would roll from the chute 35, said finger 56 being held normally projected across the path of the coin by a spring 57. When the measure 12 moves forward, however, a downwardly-projecting arm 58 on the side thereof strikes against a cam or arm 59, projecting from the lever 54, and thus compresses the spring 57 and withdraws the finger 56, permitting the coin resting against the finger 56 to escape into the box 7 through the outlet 36; but as it withdraws the finger 56 it introduces another finger 60 at the upper or rear side of the escaping coin, so as to intercept and prevent the escape of the next coin, which will be held by finger 60 until the measure 12 recedes, whereupon the finger 56 will again return to normal position for intercepting the coin as it is released by finger 60.

If desired, the capacity of the measure 12 may be varied at will by the insertion therein

of a block 12<sup>a</sup> of the desired thickness, such as shown in dotted lines in Fig. 6. This block may be held in place by screws 12<sup>b</sup> in the sides of the measure.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a machine for the purpose described the combination of a hopper having an aperture therein, a measure open at top and bottom arranged under said aperture, a valve or shutter actuated by said measure for closing said aperture, a runway closing the bottom of said measure and on which said measure slides, said runway having an aperture with which said measure coincides, a chute arranged under and leading from said aperture, exterior means for operating said measure disconnected therefrom, means for causing a coin to connect said measure and exterior operating means and means for closing the outer end of said chute as the measure approaches said aperture in the runway, substantially as set forth.

2. In a machine for the purpose described the combination of a hopper having an aperture, a measure open at top and bottom arranged under said aperture, a valve or shutter actuated by said measure for closing said aperture, a runway closing the bottom of said measure and on which said measure slides, a plate secured under the line of movement of said measure and constituting the bottom of a chute for receiving the material from said measure, exterior means for operating said measure disconnected therefrom and having side wings embracing said plate and constituting the sides of said chute and means for causing a coin to connect said measure and exterior operating means, substantially as set forth.

3. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture and having a shutter for closing said aperture, an arm for actuating said measure, a runway on which said measure slides having an aperture with which said measure coincides for the discharge of the material therefrom, and a slot for the back-and-forth movement of said arm, a member on said measure having a bifurcation coincident with said slot also for receiving said arm, a cross-slot or coin-seat in said member for holding a coin in front of said arm, and means for oscillating said arm against said coin for advancing said measure, substantially as set forth.

4. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture and having a shutter for closing said aperture, an arm for actuating said measure, a runway on which said measure slides having an aperture for the discharge of the material from said measure and a slot for the back-and-forth movement of said arm, a



member on said measure having a bifurcation coincident with said slot also for the reception of said arm, a cross-slot or coin-seat in said member for receiving and holding a coin  
 5 in front of said arm, means for oscillating said arm against said coin for moving it and the measure in one direction and ratchet-teeth on the edge of said slot for engaging said coin when moved in the reverse direction, substantially as set forth.  
 10

5. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture, an arm for actuating said measure,  
 15 ure, means for closing said aperture when the measure moves forward, a runway on which said measure slides, a bifurcated member on said measure for the reception of said arm having a cross-slot or coin-seat for holding a coin  
 20 in front of said arm, ratchet-teeth arranged adjacent to the line of movement of the coin as it rests in said seat and means for elevating said coin out of engagement with said ratchet-teeth as the coin advances with the  
 25 measure, substantially as set forth.

6. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture, an arm for actuating said measure,  
 30 ure, means for closing said aperture when the measure moves forward, a runway on which said measure slides, a bifurcated member on said measure for the reception of said arm having a cross-slot or coin-seat for holding a coin  
 35 in front of said arm, ratchet-teeth arranged adjacent to the line of movement of the coin as it rests in said seat, and a shoulder on said arm for engaging under and elevating said coin out of engagement with said ratchet-teeth  
 40 as the coin advances with said measure, substantially as set forth.

7. In a machine for the purpose described the combination of a hopper having an aperture, a measure arranged to receive material  
 45 through said aperture, a member connected with said measure and having a cross-slot for the reception of a coin, an arm for engaging the coin in said slot and having a shoulder adapted to support the coin against downward movement while resting therein, a coin-  
 50 display chute having its upper end arranged under said cross-slot when the measure reaches the forward extremity of its movement, said shoulder being adapted to turn from under  
 55 said coin at said extremity and means for actuating said arm from the exterior, substantially as set forth.

8. In a machine for the purpose described

the combination of a measure, a member connected with said measure and having a coin-  
 60 seat, an actuating-arm for said measure adapted to pass said coin-seat, a coin-stop arranged back of said coin-seat, means for directing a coin against said coin-stop and thereby deflecting it into said seat, means for supplying  
 65 said measure with material and means for actuating said arm from the exterior, substantially as set forth.

9. In a machine for the purpose described the combination of the base-box 7 having a  
 70 discharge-aperture in the side thereof, the plate 11 extending across the top of said base-box and constituting a runway, the plate 15 secured to said plate 11 and constituting the  
 75 bottom of a chute leading to said discharge-aperture, a measure sliding upon said plate 11, the open frame member 6 supported on said box 7, a receptacle supported on said frame member 6 and having a hopper in the  
 80 bottom thereof provided with an aperture arranged over said measure, means for securing said base-box, a member 6 and receptacle together, a coin-seat connected with said measure, a coin-incline formed on said member 6  
 85 and leading downwardly to said coin-seat and means for actuating said measure through the medium of the coin on said seat, substantially as set forth.

10. In a device for the purpose described the combination of a hopper having an aperture  
 90 therein, a measure movable into and out of register with said aperture, means affixed to and movable with said measure comprising two side supports for engaging the side edges of a coin, said supports being a sufficient  
 95 distance apart at their lower edges to permit the coin to slip downwardly from between them, means for holding the coin against said downward movement during a part of the movement of the measure, an exterior operating  
 100 means having a member movable on the arc of a circle between said supports and provided with means adapted to engage under and support said coin throughout another  
 105 part of the movement of the measure, and also means for impinging the back of the coin while resting between said supports, whereby said operating means will move said measure  
 110 through the medium of the coin throughout the stroke of the measure and support the coin against downward movement throughout a part of the stroke, substantially as set forth.

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