

No. 671,948.

Patented Apr. 16, 1901.

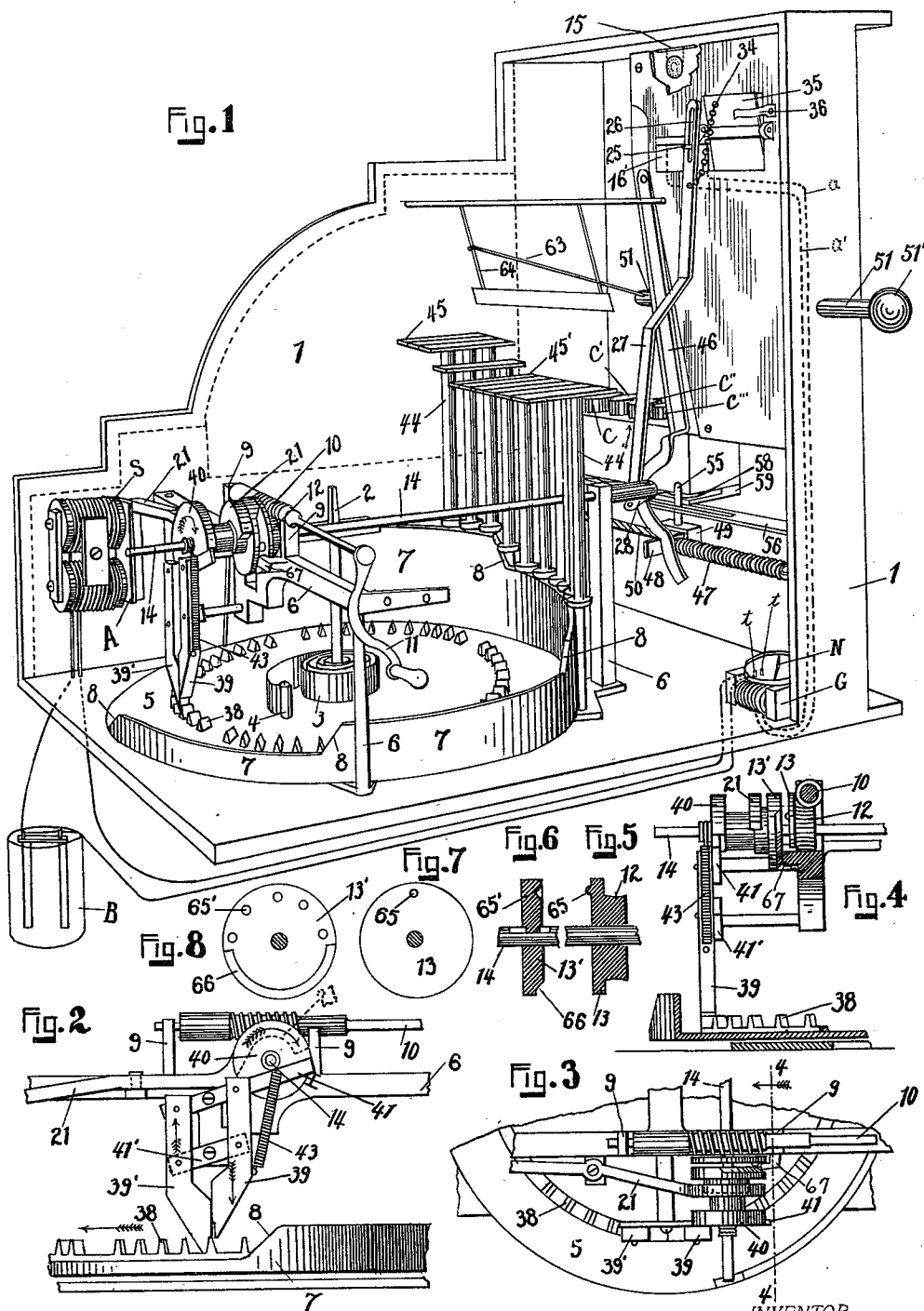
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COIN CONTROLLED CIGAR VENDING MACHINE.

(Application filed June 22, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 9

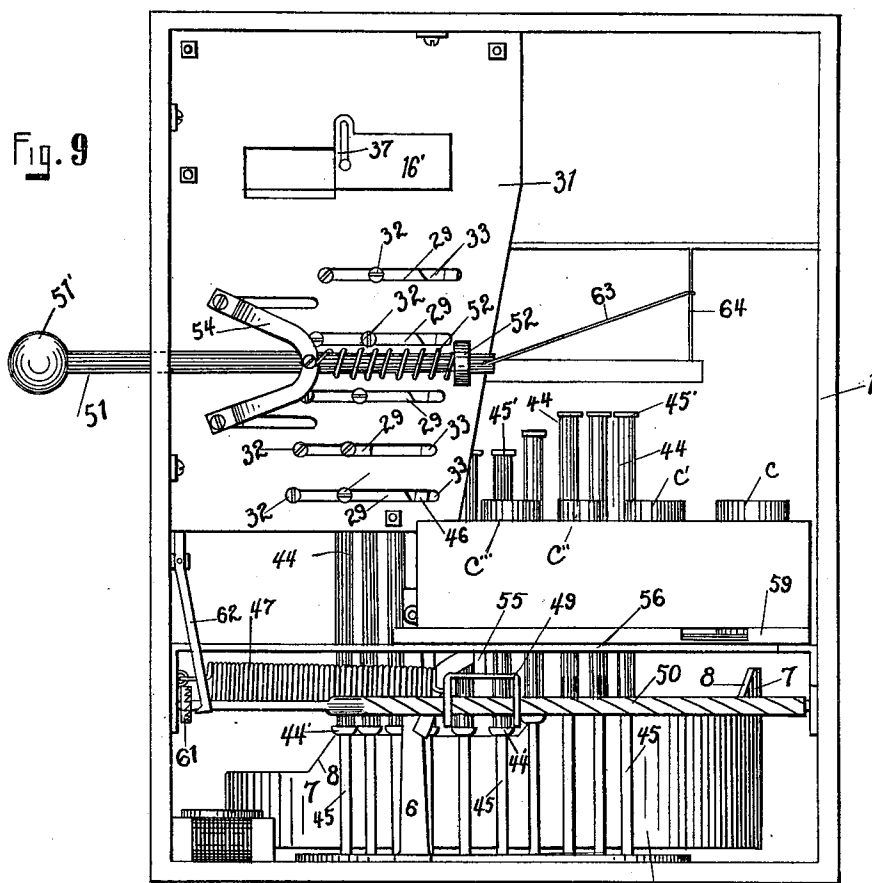


Fig. 10

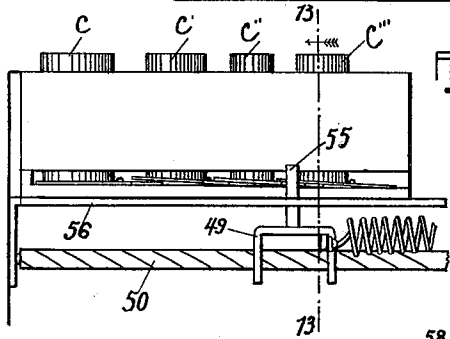


Fig. 11

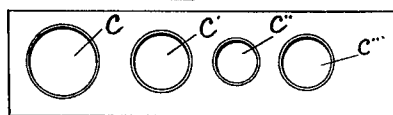


Fig. 13

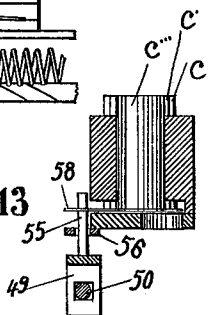
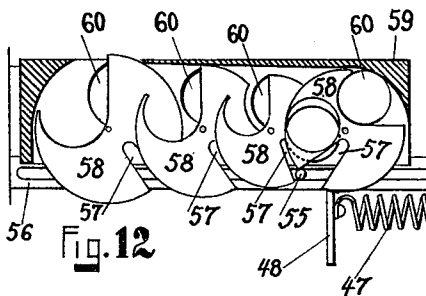


Fig. 12



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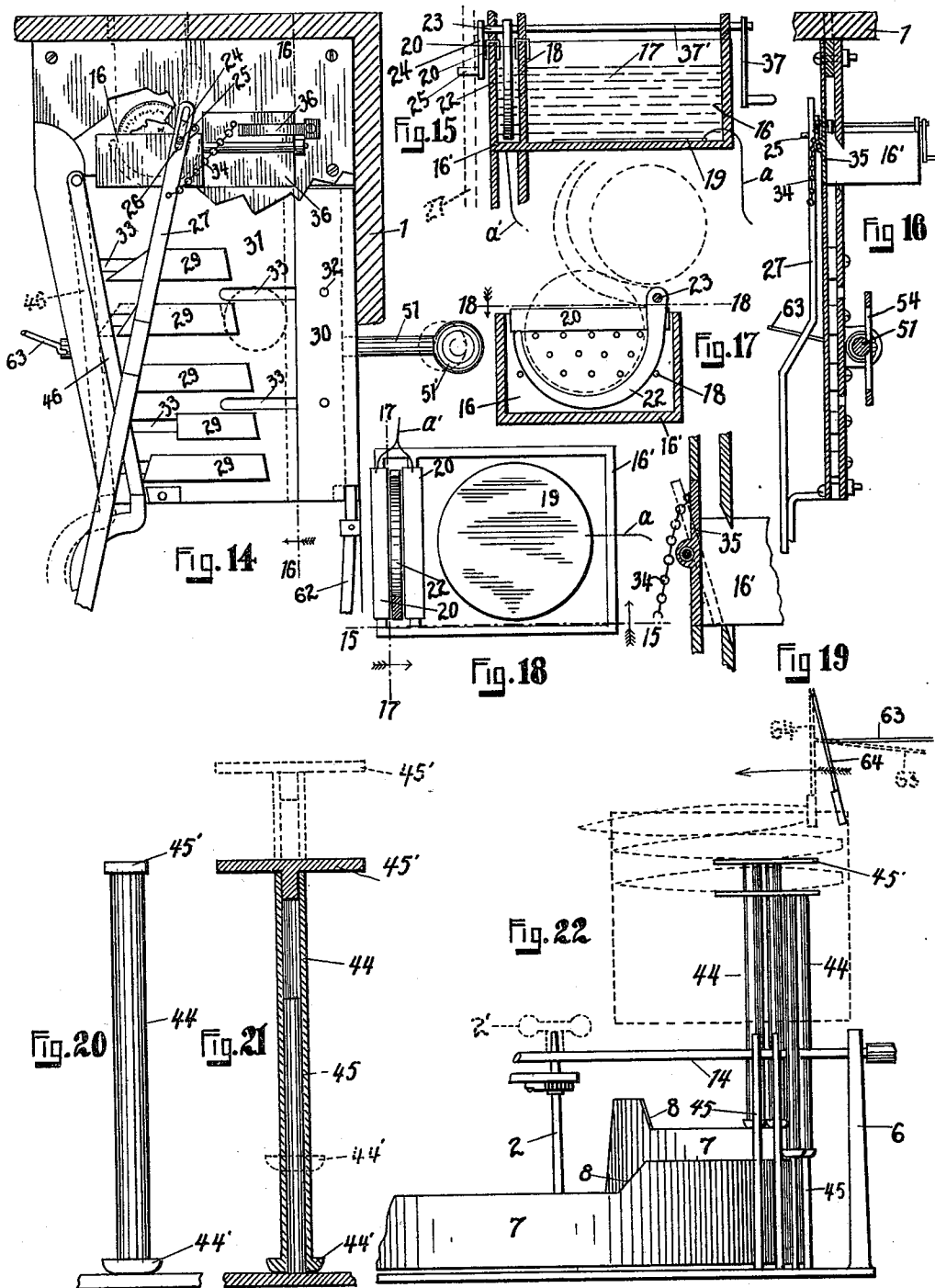
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COIN CONTROLLED CIGAR VENDING MACHINE.

(Application filed June 22, 1900.)

(No Model.)

3 Sheets—Sheet 3.



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COIN-CONTROLLED CIGAR-VENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 671,948, dated April 16, 1901.

Application filed June 22, 1900 Serial No. 21,183. (No model.)

To all whom it may concern:

Be it known that I, OTTO BEESE, a citizen of the United States, residing at Alton, in the county of Madison and State of Illinois, have
5 invented certain new and useful Improvements in Coin-Controlled Cigar-Vending Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part
10 hereof.

My invention has relation to improvements in coin-controlled cigar-vending machines; and it consists in the novel arrangement and combination of parts more fully set forth in
15 the specification.

In the drawings, Figure 1 is a perspective view of my machine with the casing-wall broken away. Fig. 2 is an end view of the escapement-jaws and parts coöperating there-
20 with. Fig. 3 is a top plan of Fig. 2. Fig. 4 is a vertical section on line 4 4 of Fig. 3. Figs. 5 and 6 are sectional details of the clutch-sections. Figs. 7 and 8 are face views of the clutch-sections. Fig. 9 is a rear elevation
25 of the interior mechanism, the wall of the casing being removed. Fig. 10 is a front elevation of the money-changing cups. Fig. 11 is a top plan of the cups. Fig. 12 is a plan view of the disks at the bottom of the cups,
30 showing the supporting-plate in longitudinal section. Fig. 13 is a vertical section on line 13 13 of Fig. 10. Fig. 14 is a front elevation of the coin-intercepting plates, the cover therefor being removed, showing the casing-
35 wall in section. Fig. 15 is a longitudinal section of the electrolytic cell. Fig. 16 is a vertical section on line 16 16 of Fig. 14. Fig. 17 is a vertical section on line 17 17 of Fig. 18. Fig. 18 is a horizontal section on line 18 18 of
40 Fig. 17. Fig. 19 is an enlarged section of the upper end of Fig. 16, showing the gate closed and in dotted position open. Fig. 20 is an end elevation of one of the cigar-elevating platforms and plungers. Fig. 21 is a longi-
45 tudinal middle vertical section of such platform and plunger; and Fig. 22 is a detail of several of the platforms and cigar-ejecting frame, showing the manner of ejecting a cigar after being once elevated.

50 One object of my invention is to construct a machine which will deliver one or more cigars from the box holding the same upon the

introduction of a coin of proper denomination into the machine.

A further object is to construct a machine 55 which will be inoperative when a spurious coin is introduced and one, further, which will make the necessary change for coins of higher denomination than a five-cent piece.

In detail the invention may be described 60 as follows:

Referring to the drawings, 1 represents a suitable casing or box in which the operative parts of my machine are mounted. Located at the base of the casing is a spindle 2, adapt- 65 ed to be wound with a suitable key 2', the said spindle having secured thereto the inner end of a driving-spring 3, whose opposite or outer end is secured to a stud 4, carried by the base of a rotatable disk 5, mounted 70 in a frame 6, the edge of the disk being provided with a series of peripheral walls 7 of progressively-increasing height, each wall being connected with its adjacent wall by an inclined edge 8. Mounted in suitable bear- 75 ings 9 of the frame 6 is a worm-shaft 10, operated by a crank-arm 11, projecting from the side wall of the casing, (said wall being shown removed in Fig. 1 to disclose the interior of the casing,) the worm of said shaft 80 meshing with a worm-pinion 12, forming an integral part of the male member 13 of a clutch, whose female member 13' is feathered (in the usual manner) on the rearwardly-extending shaft 14, the part 13 being loosely 85 mounted on said shaft. It is apparent from the foregoing that when rotation is imparted to the worm-shaft through the crank-arm 11 rotation will also be imparted to the shaft 14, provided the two sections of the clutch are 90 coupled together. The coupling of the clutch-sections is the direct result of the introduction of a genuine coin into the machine and is effected as follows:

The coin is introduced through a slit 15 in 95 the top of the casing, lodging in the compartment 16 of an electrolytic cell 16', containing a suitable alkaline solution 17, the inner wall 18 of the compartment 16 being perforated to allow the solution to freely communicate with 100 said compartment. At the bottom of the cell is a metallic plate 19, from which leads a wire α to the coil of a galvanometer G, the return-wire α' , leading to the metallic plates 20, span-

ning the upper edges of the wall 18 and end wall of the compartment and normally out of contact with the electrolyte. The moment a genuine coin drops into the electrolyte the current induced thereby travels along the wires $a a'$ and at once deflects the galvanometer-needle N in a direction to cause the end thereof to simultaneously contact with the terminals $t t$ of the circuit of a local battery B, whose wires pass, respectively, through the battery and are connected, respectively, to the opposite ends of a solenoid S, whose armature A upon the closing of the circuit, as described, is at once attracted thereto, and as the armature is carried at one end of the pivoted lever 21, whose opposite end actuates the female section of the clutch, it follows that the moment the local circuit is closed the respective sections of the clutch become coupled, and hence the rotation of the shaft 14 from the crank-arm 11 is rendered possible. The moment, however, that the coin is ejected from the cell the current ceases and the needle returns to its normal position, thereby rendering the solenoid S inoperative, and the contact between the clutch-sections becomes ineffective.

The manner of ejecting the coin is as follows: The coin in dropping into the cell lands upon a curved ejecting lever or hook 22, pivoted at one end between the walls of the compartment into which the coin drops. Carried by the pivotal pin 23 of said hook 22 and located exteriorly to the cell is a triangular plate 24, having a stud 25 operating in a slot 26 at the upper end of an ejecting-bar 27, whose lower end is pivotally secured to an arm 28, projecting from the rear end of shaft 14. Upon rotation being imparted to the worm-shaft, as previously indicated, the shaft 14 will be rotated and in turn rotate the arm 28 in a direction (see arrows in Fig. 1) as to raise the bar 27, the latter raising the stud 25 of the plate 24, revolving the latter, so as to revolve the hook 22 and raise the same out of the cell, the outward swinging of the hook causing the coin to roll off and drop either between the movable series of coin-intercepting plates 29 and the coin-advancing bar 30, respectively mounted on a supporting-plate 31, to which they are movably secured by studs or screws 32 passing through slots 33, or to drop out of the machine altogether, as would be the case should the coin be spurious. This will be better apparent from the following: The upper end of the bar 27 is secured by a chain 34 to a gate 35, pivoted along a central axis, the gate being held normally open by the bar 27 when in its lowest position; but as said bar 27 is raised the chain (which previously was held taut) is slackened, thereby permitting the gate to close under the action of a spring-arm 36, secured to the casing. The gate when thus closed prevents the coin from dropping out of the machine; but the coin drops between the plates 29 and bar 30. If the coin is spurious, however, there-

by generating no current, the clutch mechanism of shaft 14 fails to respond (since the circuit of the local battery remains open) and the gate remaining open permits the coin to drop along the same and out of the machine, the coin being ejected under the circumstances by turning the pivotal pin 23 by hand from the outside of the machine through the medium of a crank-arm 37 and rod 37', by which operation the hook 22 is tilted sufficiently to eject the coin without disturbing the chain, by the tension of which the gate is held open. (See Fig. 19.) If, however, the coin is genuine and of proper denomination, (five cents,) it drops between the plate 29, which is second from the bottom of the series, and the bar 30, from which position it is released, as presently will appear, to drop to the bottom of the casing.

Before describing the manner of release of the coins from the series of intercepting-plates 29 I shall first describe what takes place conjointly with the ejection of the coin from its electrolytic cell. Disposed along the upper surface of the revolving disk 5 are a series of teeth 38, variably spaced, the rotation of the disk under the tension of the spring 3 being normally prevented by the vertically-reciprocating escapement-jaws 39 39' and only permitted upon the movement imparted to said jaws by the rotation of the worm-shaft and shaft 14. The latter shaft has secured thereto a semicircular disk 40, whose straight edge (in the rotation of the disk with the shaft 14) bears against the projecting end of the upper pitman 41, to which the escapement-jaws are pivoted, the medial portions of the jaws being pivotally secured to the ends of the lower pitman 41', both pitmen being pivoted centrally to a bracket or arms 42 of the frame 6. The disk 40 rotating in the direction of the arrows in Figs. 1 and 2 will depress the pitman 41, thereby forcing the jaw 39 downward and jaw 39' upward. (See Figs. 1 and 2.) The moment the jaw 39' is raised sufficiently to release the tooth 38 bearing against it the driving-spring 3 will carry the disk 5 until the next tooth of the series is intercepted by the jaw 39. When the crank-arm of the worm-shaft is released, the escapement-jaws are returned to their first position under the action of the retracting-spring 43, whose opposite ends are respectively secured to the jaw 39 and the periphery of the shaft 14, the restoration of the parts to such normal position not, however, permitting of any further advance or rotation of the disk 5, since the jaw 39' descends in time to intercept the tooth with which the jaw 39 had been in contact before said jaw 39 is fully retracted. Some of the teeth are spaced at a unit of distance apart and some at twice the distance, for a purpose to presently appear. As the disk rotates the progressively-increasing walls 7 thereof advance under a series of tubular plungers 44, slidably mounted on stems 45, the plungers hav-

ing each an expanded base 44' and an upper platform 45'. The difference in the height between any two sections of the peripheral walls 7 of the disk is equal to the thickness of one cigar, and the length of any wall-section is equal to the length of one horizontal layer of cigars, so that as the disk rotates the successive plungers (equal to the number of cigars in a row) will be elevated first the height of the lowest wall-section 7, the bases of the plungers riding along the inclined edges 8 as they pass from one section to the other. By the time the disk is completing its revolution the several plungers will be traversing the upper edge of the highest wall-section, after which they drop back to the bottom of the disk, to begin climbing up, as it were, onto the lowest wall-section, and so on. If the escapement-jaws happen to be operating on the teeth when they are but a unit's distance apart, then the disk will be permitted to rotate only far enough to elevate one plunger. If the jaws let the disk escape a distance of two teeth, the disk will elevate two plungers, so that with the introduction of a coin the purchaser may at certain intervals obtain two cigars instead of one. In practice the bottom of the cigar-box is cut away sufficiently to permit the platforms 45' to engage the bottom one of each layer of cigars, the box being mounted in place in any mechanical manner, and in Fig. 22 I have shown the box and cigars dotted and a portion of the plungers at different elevations to illustrate the action of the present machine.

Now that the manner of elevating the cigars has been set forth, I shall return to the description of the parts by which the coin is released from the intercepting-plates and how the cigar after once elevated is ejected from its position, to be readily seized by the purchaser.

The rear edges of the series of the intercepting-plates 29 (with the exception of the second from the bottom, which intercepts the five-cent piece) normally bear against a bar 46, pivoted at its upper end, the said bar being retracted when swung from its normal position by a spring 47, secured, respectively, to the casing-wall and to a rearwardly-projecting arm 48, of a reciprocating rider 49, mounted on a revoluble twist rod or shaft 50, having its ends mounted in the casing, the bar 46 bearing directly against said arm 48. The coin-advancing bar 30 is provided with a push-rod 51, projecting through the side of the casing-wall, the said push-rod being retracted when shoved from its normal position by a spring 52, coiled about the same and having its opposite ends secured, respectively, to a collar 53 on the rod and to a guide-bracket 54. The series of plates 29 are adapted, following them from the top downward, to intercept a dollar-coin, fifty cents, twenty-five cents, five cents, and a dime. Referring now to Fig. 14, where a fifty-cent coin is intercepted, it is ap-

parent that by shoving the push-rod inwardly the coin held between the bar 30 and plate 29 will force the latter against the bar 46, swinging the latter rearwardly against the tension of the spring 47. Now upon a release of the push-rod its spring 52, which is stronger than the spring 47, will retract the push-rod in advance of the arm 46, leaving the coin momentarily unsupported and causing it to drop to the bottom of the casing. The maximum swing is imparted to the free end of the bar 46, and hence maximum travel of the rider 49 along the rod 50, when a dollar-coin is introduced into the machine, for there the point of application of the power in swinging the bar 46 is nearest to its fulcrum or pivot, and the minimum sweep or swing is imparted by a dime, for there the power applied is farthest from the fulcrum. In the case of the introduction of a five-cent piece the distance is immaterial, and hence it is immaterial how far the five-cent-intercepting plate is shoved rearwardly, so long as it is shoved far enough to contact with the bar 46, whose controlling-spring returns it and the plate to their normal positions; but in the case of the other coins the sweep of the free end of the bar 46 and the travel of the rider 49 directly determine the amount of change to be delivered to the customer should he introduce a coin of a higher denomination than a five-cent piece. This change-making mechanism may be described as follows: The reciprocating rider 49 is provided with a finger 55, operating in a slotted bar or track 56, the said finger being adapted to enter the segmental recesses 57 of a series of lobed disks 58, pivoted centrally at the bottom of a series of cups C C' C'' C''', adapted to be filled, respectively, with half-dollars, quarters, dimes, and nickels. The cups are mounted on a plate 59, provided with openings 60, located eccentrically to the bottoms of the cups. As the finger 55 advances it turns the disks 58 in succession, the edge of the lobe seizing the bottom one of the series of coins contained in the cups and advancing it over the eccentric opening 60 of the supporting-plate 59 and allowing the coin to drop. If a dime is introduced into the machine, the operator, after first imparting rotation to the worm-shaft for the purpose of ejecting the coin from the cell and advancing the disk 5 sufficiently to elevate a cigar, (or two,) shoves the push-rod inwardly, the small diameter of the dime only permitting to rider to advance sufficiently to cause the finger thereof to rotate the first disk 58 of the series to eject a five-cent piece in change. In case a dollar is introduced the travel of the rider will be such as to cause the finger thereof to rotate the entire series of disks, thus causing the cups to deliver in change fifty cents, twenty-five cents, ten cents, and five cents, respectively, or ninety cents in the aggregate. This amount is delivered upon the travel of the rider in one direction; but it is to be understood that with the return of the rider

the finger thereof restores the several disks to their original positions, and as the disk at the bottom of the five-cent cup is provided with two lobes and the plate 59 with two eccentric openings a second five cents will be delivered with said return of the rider, making a total change of ninety-five cents. So in case a half-dollar is introduced the change will be five cents, ten cents, twenty-five cents, and five cents, or a total of forty-five cents, and in case a quarter is introduced the change will be five cents, ten cents, and five cents, or twenty cents total. The rider is loosely mounted upon the twist shaft or rod 50, the latter being twisted or threaded peripherally at a high pitch, much in the order of a carpenter's auger, so as to enable the rider to reciprocate with little friction, and for the following additional reason: It was stated above that in order to release any coin from between the plates 29 and the bar 30 the latter was retracted in advance of the former to make the space between them momentarily sufficient to allow the coin to drop. Now one end of the twist-shaft 50 carries a toothed wheel or disk 61, which is permitted to rotate in one direction, (as the push-rod is shoved inward,) but not in the opposite, unless the same is disengaged from the swinging pawl or lever 62, hinged in proximity thereto. The lever 62 is so weighted that when the push-rod 51 and bar 30 are retracted to their normal position the bottom of the bar 30 trips the lever 62 out of engagement with the said toothed disk. As the push-rod is shoved inwardly the pawl of the lever engages the disk, but permits it and the twist-shaft to rotate freely. The moment, however, that the push-rod is released by the operator the same will be retracted by its spring, as already explained; but while the said push-rod is returning the pawl 62 locks the disk 61 and twist-shaft 50 against rotation in the opposite direction (which would result under the circumstances, as the rider now tends to travel in the opposite direction) until such time as the bar 30 shall have returned to its original position, when it will trip the lever out of engagement with the disk and permit the rider to be retracted under the action of the spring 47 and turn the twist-shaft in the opposite direction. The object, therefore, of the lever 62 and disk 61 is to allow the push-rod 51 and bar 30 to return in ample time ahead of the rider 49 and the swinging bar 46 (which returns the intercepting-plates 29 to their normal positions) to give the released coin plenty of time to drop to the bottom of the casing.

The inner end of the push-rod is connected by a link 63 to a swinging frame 64, suspended so as to bring its lower edge in front of the rear end of a cigar which has been elevated, as heretofore explained. By forcing the push-rod inward the link swings the frame outwardly, causing it to shove or eject the cigar beyond the series on which it rests, so that it

can be readily seized by the purchaser. (See Fig. 22.)

In practice only so much of a revolution is given to the crank-arm 11 of the worm-shaft as will impart the necessary rotation to shaft 14 to enable the terminal arm 28 thereof to raise the ejecting-lever 27 sufficiently to eject the coin out of the electrolytic cell. This same movement is sufficient to advance the disk the necessary distance, the whole being accomplished by about one-quarter revolution of the shaft 14, by which time the current is broken and the respective sections of the clutches become frictionally disengaged, the spring 43 bringing the shaft 14 and parts carried thereby to its normal position. The engagement between the male and female sections of the clutch, as effected by the marginal knob 65 entering corresponding depressions 65' in the female, and to insure the proper disengagement between the clutch-section at the proper moment the female section is provided with a marginal semicircular depression 66, between which and the adjacent face of the male section projects an arm 67 of the supporting-frame, the said arm insuring the parting of the sections should they have a tendency to stick.

Having described my invention, what I claim is—

1. In a coin-controlled cigar-vending machine, a suitable electrolytic cell adapted to receive the coin and complete the couple by which the current is generated, a needle adapted to be deflected by said current, a second electric circuit adapted to be closed by the deflection of the needle, a solenoid located in the path of said second circuit, a clutch controlled by said solenoid, and suitable mechanism adapted to be operated upon the coupling of the clutch-sections for ejecting the coin from the cell, and simultaneously actuating a cigar, substantially as set forth.

2. In a coin-controlled cigar-vending machine, a rotatable disk having a series of peripheral walls of progressively-increasing height, a series of teeth carried by the disk, escapement-jaws permitting a limited advance for the disk, a suitable shaft, intermediate connections between said shaft and jaws for actuating the latter, a worm-shaft adapted to become mechanically coupled to the first-named shaft upon the introduction of a coin into the machine, a series of plungers adapted to support the cigars, the several parts being actuated upon the turning of the worm-shaft in the proper direction, substantially as set forth.

3. In a coin-controlled cigar-vending machine, a spring-actuated rotatable disk having a series of peripheral walls of progressively-increasing height, a series of teeth carried by the disk, escapement-jaws permitting a limited advance for the disk, a suitable shaft, intermediate connections between said shaft and jaws for actuating the latter, a

worm-shaft adapted to become mechanically coupled to the first-named shaft upon the introduction of a coin into the machine, a series of plungers having upper terminal platforms for the support of the cigars, the several parts being actuated upon the turning of the worm-shaft in the proper direction, substantially as set forth.

4. In a coin-controlled cigar-vending machine, a suitable electrolytic cell for the detention of spurious coin, means for ejecting the coin from the cell, a series of coin-intercepting plates, a bar on one side of the plates between which and the plates the coin lodges, a push-rod carried by said bar, suitable retracting-springs for the plates and push-rods respectively, the spring for returning the push-rod and its bar being the stronger, the parts operating substantially as and for the purpose set forth.

5. In a coin-controlled cigar-vending machine, a suitable coin-advancing bar, a series of intercepting-plates, retracting-springs for said plates and bar respectively, a swinging frame pivoted in proximity to the coin-advancing bar a push-rod carried by the latter, a link connecting the push-rod to the frame, the latter being adapted to be tilted for ejecting the cigars presented thereto, and suitable elevating-platforms for bearing the cigar in front of said frame before the latter has been tilted from its normal position, substantially as set forth.

6. In a coin-controlled cigar-vending machine, an electrolytic cell, a pivoted hook or arm carried by the cell for the reception of the coin, an ejecting-bar for tripping said hook, a spring-controlled gate normally held open by the ejecting-bar, but adapted to close

upon the movement of the bar in one direction whereby upon the ejection of the coin the latter may drop into the machine, substantially as set forth.

7. In a coin-controlled cigar-vending machine, an electrolytic cell, a pivoted hook or arm carried thereby for the reception of a coin, an ejecting-bar, a pivoted gate hinged in proximity thereto, a spring tending to close the gate, a chain connecting the ejecting-bar and gate for retaining the latter open against the resiliency of the spring, and means for tripping the hook independently of the ejecting-lever in case of a spurious coin lodging in the cell, whereby such coin will fall through the open gate to the outside of the machine, substantially as set forth.

8. In a coin-controlled cigar-vending machine, a suitable coin-advancing bar, a series of intercepting-plates coöperatively connected thereto by the coin lodged between them and the bar, a swinging bar against which the rear ends of said plates bear, a rider normally in contact with the free end of said swinging bar, a spring for simultaneously retracting the rider, the bar, and the intercepting-plates, a second spring for retracting the coin-advancing bar in advance of the intercepting-plates, a twist-shaft for the rider, a finger carried by the rider, and a slotted bar or guide for the finger, the parts operating substantially as, and for the purpose set forth.

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

OTTO BEESE.

Witnesses:

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W. C. KILLEEN.