

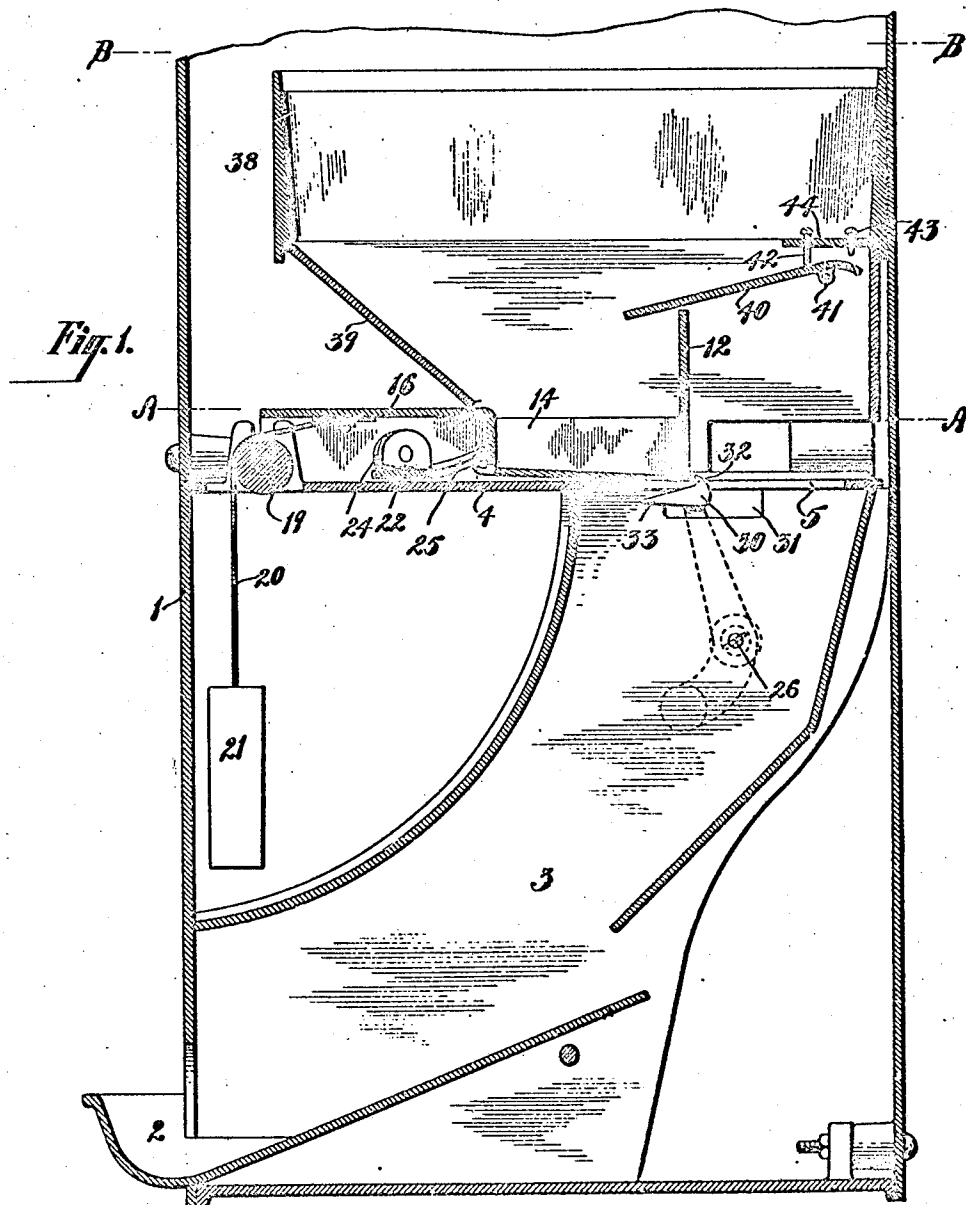
No. 895,516.

PATENTED AUG. 11, 1908.

F. W. TUCKER.
COIN OPERATED VENDING MACHINE.

APPLICATION FILED SEPT. 10, 1904.

4 SHEETS—SHEET 1.



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Inventor:

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4 SHEETS-SHEET 2.

Fig. 2.

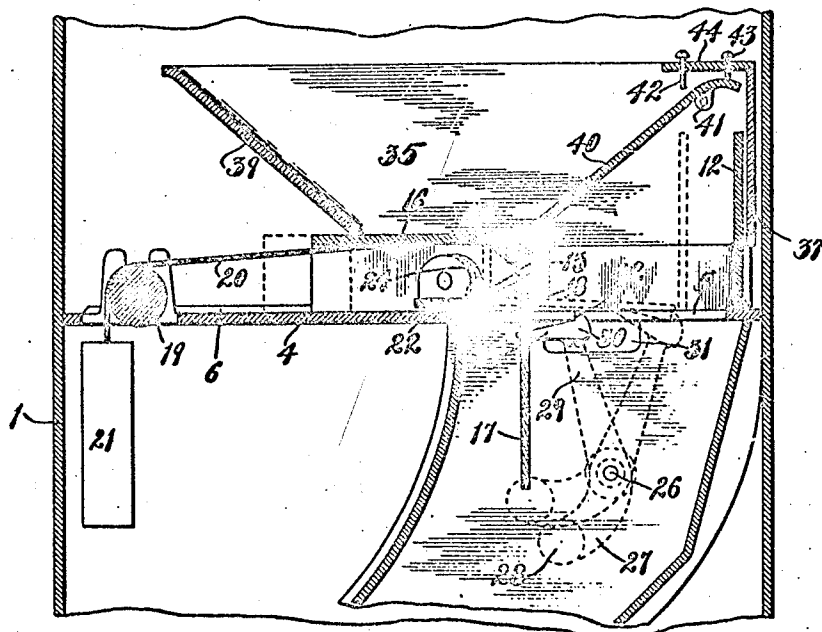
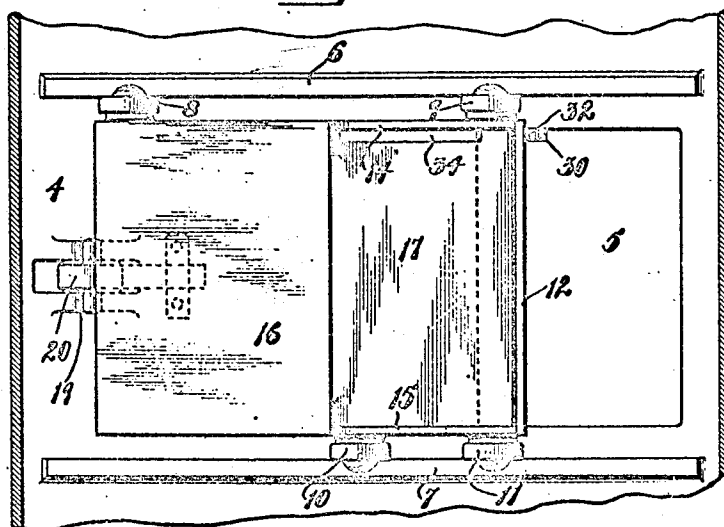


Fig. 3.



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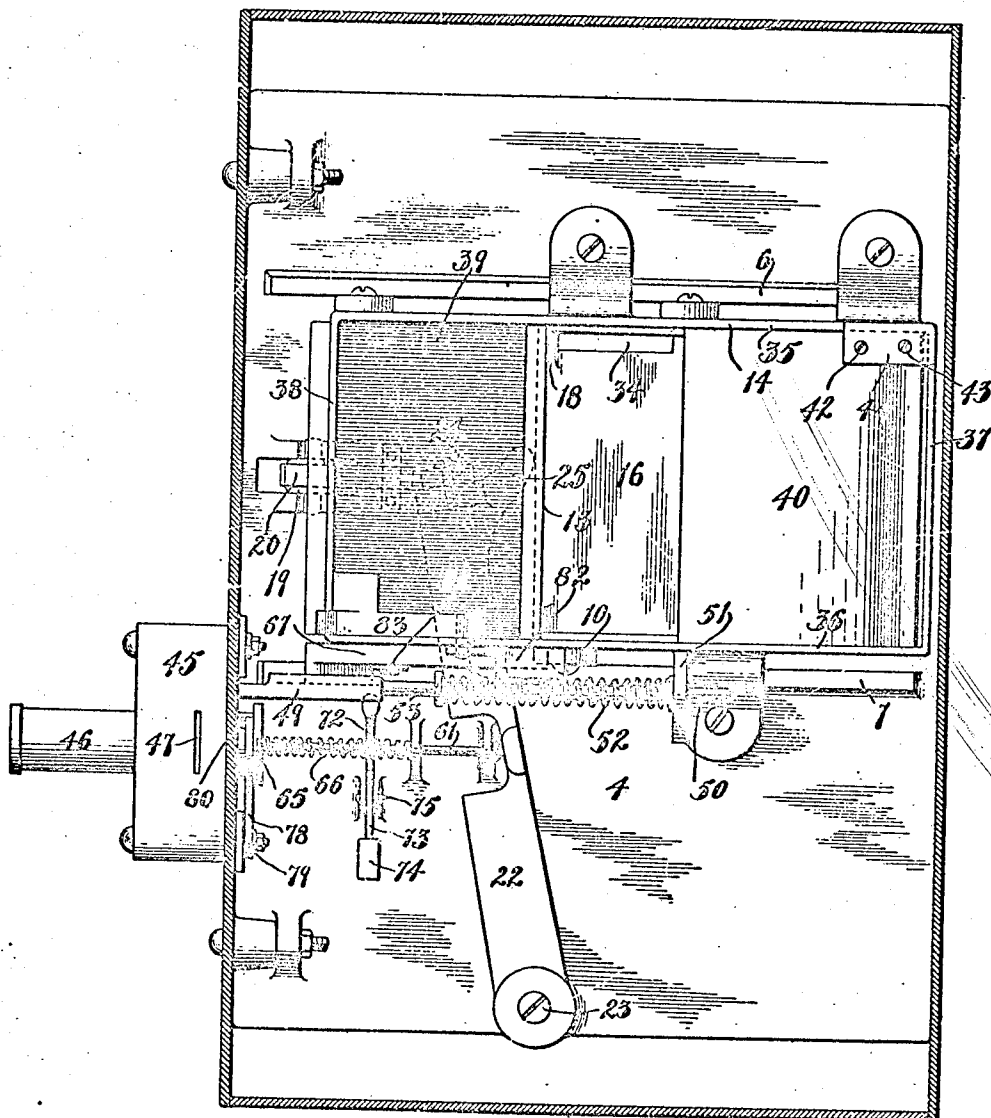
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4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

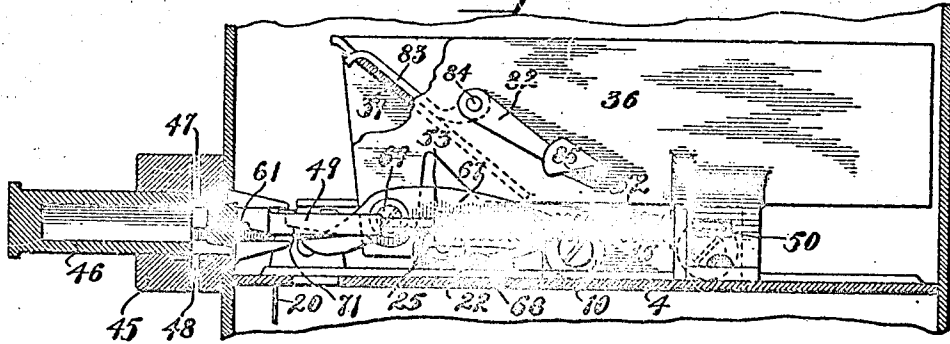


Fig. 6.

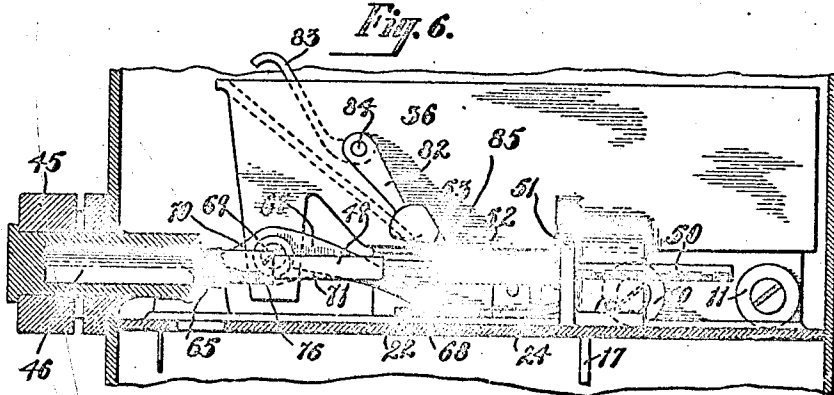


Fig. 8.

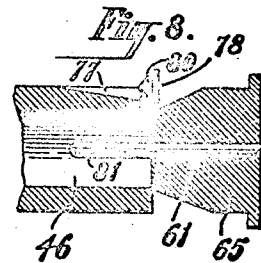


Fig. 7.

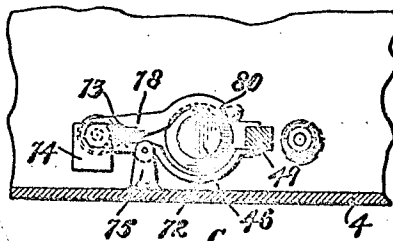
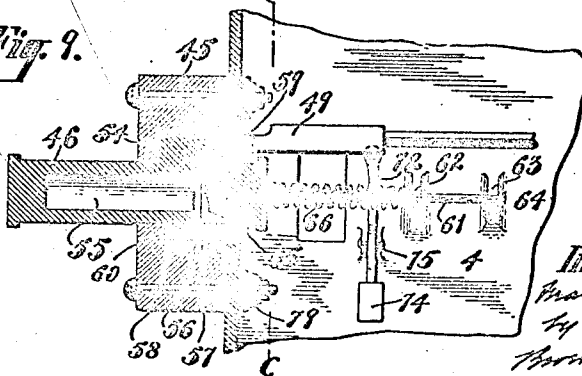


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK W. TUCKER, OF MILFORD, CONNECTICUT, ASSIGNOR TO UNITED STATES CASH SALES COMPANY OF NEW YORK, OF SOUTH NORWALK, CONNECTICUT, A CORPORATION OF MAINE.

COIN-OPERATED VENDING-MACHINE.

No. 895,516.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed September 10, 1904. Serial No. 224,017.

To all whom it may concern:

Be it known that I, FRANK W. TUCKER, a citizen of the United States, and resident of Milford, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Coin-Operated Vending-Machines, of which the following is a specification.

My invention relates to certain improvements in that class of vending machines in which the articles to be sold are delivered by the operation of mechanism controlled by the insertion of a coin. This particular invention relates to the delivery mechanism of such a machine. The machine is suitable for use in delivering various articles in bulk and is particularly intended for the delivery of nuts in the shell, the object being to provide means for delivering a predetermined quantity of the articles for each insertion of a coin of predetermined value, the mechanism being so arranged as to be easily and readily operated.

In the accompanying drawings, Figure 1 represents so much of a vending machine in vertical section taken from front to rear, as will give a clear understanding of my invention, the parts of the delivery mechanism being shown in their normal positions. Fig. 2 is a similar view showing the parts in full lines in the position which they assume when the carriage has been moved to deliver a measured portion of the articles; the carriage and its adjacent parts being shown in dotted lines in an intermediate position. Fig. 3 is a horizontal section taken in the plane of the line A—A of Fig. 1, the hopper being removed to more clearly illustrate the delivery carriage. Fig. 4 is a transverse section taken in the plane of the line B—B of Fig. 1. Fig. 5 is a detail vertical section from front to rear in the plane of the coin plunger, different parts being broken away to more clearly show parts beyond the same, the parts being in their normal positions. Fig. 6 is a similar view showing the parts in the positions which they assume when the plunger has been moved to the limit of its inward movement in connection with a coin. Fig. 7 is a vertical transverse section taken in the plane of the line C—C of Fig. 9. Fig. 8 is a detail vertical longitudinal section on an enlarged scale, through the plunger, showing the position of the coin removing lever with respect thereto, and Fig. 9 is a par-

tial horizontal section taken in the plane of the plunger.

The vending machine casing is denoted by 1. A delivery pocket 2 is provided in the casing, to which pocket a chute 3, within the casing, leads. The top of the chute 3 is brought into proximity to a horizontal partition 4, within the casing, which partition is provided with an opening 5 therein communicating with the chute. This horizontal partition 4 is provided with tracks 6 and 7 which form guides for a reciprocating delivery carriage. This carriage is provided exterior to one side thereof, with rollers 8, 9, near the front and back respectively thereof. The carriage is provided on its other side with front and rear rollers 10, 11, the roller 11 being located near the rear end of the carriage and the roller 10 a short distance to the front of the roller 11.

The rear wall of the carriage is denoted by 12 and it projects a considerable distance above the top of the same. A transverse partition 13 extends across between the side walls 14, 15 of the carriage a distance to the front of the rear wall 12 sufficient to form a measuring pocket of the required size in the carriage. The top wall which leads from the transverse partition 13 to the front of the carriage from side to side thereof is denoted by 16. A trap door 17 serves to open and close the bottom of the measuring pocket, which trap door is hinged at 18 adjacent to the bottom edge of the transverse partition 13.

The carriage is yieldingly held at the limit of its forward movement. In the present instance I provide a pulley 19 which is mounted in suitable bearings in the front part of the horizontal partition 4. A flexible connection 20 is secured at one point to the top 16 of the carriage and at another point to a weight 21. This flexible connection 20 passes over the pulley 19, the weight 21 tending to keep the carriage at the limit of its forward movement.

A horizontal rocking lever 22 is hinged at 23 on the horizontal partition 4 at one side of the reciprocating carriage. The free end of this lever extends into the interior of the carriage beneath the top 16 thereof and is there provided with a traction roller 24 for supporting the free end of the lever. This lever is provided with an arm 25 which bears against the front face of the partition 13.

The movements of this lever are controlled by coin-actuated mechanism to be hereinafter described.

The trap door 17 of the measuring pocket 5 in the carriage is kept closed until the carriage is moved rearwardly to the limit of its movement to bring the pocket opposite the opening 5 in the partition above the delivery chute 3 as follows. A vertically swinging lever is hinged at 26 to one side of the chute 3. The lower arm of the lever is denoted by 27, which arm is weighted as shown at 28. The upper arm is denoted by 29 and it is provided with a head 30 which projects laterally into the interior of the top of the chute through an opening 31. This head is provided with a shoulder 32 which projects upwardly through the opening 5 in the partition 4 in position to be engaged by the free end of the trap door 17 as the carriage is moved rearwardly. This will cause the trap door to be kept closed until by the rearward swinging movement of the arm 29 of the lever, a finger 33 on its head 30 will engage the bottom of the trap door 17 and raise its rear free end out of engagement with the shoulder 32. This will permit the lever to swing back under the influence of its weighted arm 27 to its normal position. The side of the trap door 17 is provided with a slot 34 opposite the head 30 of the lever when in this position, thus permitting the trap door to drop through the opening 5 in the partition 4, into the upper portion of the chute. This will permit the articles within the measuring pocket to be dropped into the chute where they will be led to the delivery pocket 2.

As the coin-controlled lever 22 is swung forwardly, the carriage will be drawn back to its normal position by the weight 21 and flexible connection 20. This forward movement of the carriage will cause the trap door to engage the front wall of the opening 5 in the partition 4, thus swinging the trap door up into position to close the bottom of the pocket.

The means which I have shown for feeding the articles to the measuring pocket in the carriage is constructed, and arranged as follows. A hopper is located within the casing above the carriage, which hopper comprises the vertical side walls 35, 36, the vertical rear wall 37 and the vertical front wall 38 having a downwardly and inwardly extending portion 39. An adjustable downwardly and forwardly inclined plate 40 is hinged at 41 within the hopper. The free end of this swinging plate is held elevated by the rear wall 12 of the carriage when the carriage 60 is in its normal forward position. As the carriage is moved rearwardly, the free end of the plate 40 swings downward until it is brought in close proximity to the top 16 of the casing to the front of its measuring 65 pocket. Adjusting screws 42, 43 in a

bracket 44 are arranged to engage the plate 40 to the front and rear of its hinged connection 41 for adjusting the limits of the upward and downward movements of the said plate.

The coin-operated mechanism for controlling the movements of the lever 22 and thereby the delivery of the articles is constructed, arranged and operated as follows. A socket piece 45 is secured to the front of the casing and a plunger 46 is fitted to slide therein. The socket piece 45 is provided with a coin receiving slot 47 through its top wall and a discharge slot 48 through its bottom wall, these slots being in alinement for permitting the passage of coins through the socket piece if the coins are of different sizes than the class intended for use in operating the machine. The plunger 46 is provided with an offset rearwardly projected portion 49 having projected therefrom a rod 50 mounted to slide in its rear end in a bearing bracket. A spring 52 surrounds the rod 50 and is interposed between the bearing bracket 51 and the collar 53 fixed to the rod, the said spring serving to yieldingly hold the plunger 46 at the limit of its forward movement. The offset portion 49 has a shouldered engagement at 54 with the socket piece 45 for limiting the forward movement of the plunger 46. The plunger 46 is provided with a bore 55 leading from a point near its front end through the rear end thereof.

A spring-actuated presser plate 56 is located within a recess 57 in the inner wall of the socket piece 45 adjacent to the periphery of the plunger, which presser plate is held in position by springs 58. The offset portion 49 and the presser plate 56 are provided with slots 59, 60 at the inner end of the plunger opposite the slots 47, 48 for a portion of the width of the same so that a disk of greater diameter but thinner than the predetermined coin will pass entirely through the socket piece. The presser plate 56 serves to hold the coin with a slight frictional grip against the end of the plunger when the coin has been inserted through the slot 47 in the socket piece. A longitudinally sliding pin 61 is mounted in bearings 62, 63, which pin is concentric with the plunger 46. The rear end of the pin is provided with a head 64 to the rear of its bearing 63, which head engages the lever 22. The front end of the pin 61 normally occupies a position a short distance to the rear of the end of the plunger when the plunger is in its normal position. A retainer 65 is loosely mounted on the pin 61 to the front of the bearing 62 and a spring 66 is interposed between the said retainer and bearing. The insertion of the proper joint between the plunger and the front end of the pin 61 will interlock the plunger with the lever 22. The lever 22 is temporarily locked at the limit of its rearward movement by a pawl 67 the nose of which is fitted to drop back of a tooth or 150

abutment 68 on the lever 22. This pawl 67 is pivoted at 69 on the side wall 36 of the hopper. This pawl is provided with a tail piece 70 which will be depressed by a cam 71 on the 5 outside of the offset portion 49 of the plunger as the plunger returns to the limit of its forward movement, thus lifting the pawl 67 out of engagement with its tooth or abutment 68 on the lever 22, and permitting the lever to 10 return to the limit of its forward movement under the tension of the weight 21 which returns the article delivery carriage to the limit of its normal position.

I provide means for momentarily holding 15 the retainer 65 when the plunger has been moved with its coin to the limit of its inward movement to permit the coin to drop away from the plunger as the plunger starts on its outward movement. In the present instance, 20 I provide a brake lever 72, 73, the arm 72 of which is fitted to engage the periphery of the retainer 65 and the arm 73 of which is provided with a weight 74, for holding the arm 72 in such engagement. This lever is hinged 25 at 75 in a suitable bearing on the horizontal partition 4. The movement of the arm 72 of the brake lever toward and away from the retainer 65 is controlled by a cam surface 76 which is so arranged that the arm 72 of the 30 brake lever will be permitted to engage the retainer 65 at the proper time.

In order to insure the stripping of the coin from the rear end of the plunger if the coin should accidentally stick thereto because of 35 any adhesive material on the coin, I provide the following mechanism. The periphery of the plunger is provided with a cam groove 77 leading from its rear end. A stripping lever 78 is hinged at 79 within the casing to the 40 rear of the plunger when the plunger is in its normal position. The stripping lever is provided with a nose 80 which is provided with a tapered face 81 to permit the nose to ride over the edge of the coin as the coin is forced 45 inwardly by the inward movement of the plunger. As the plunger returns the nose 80 of the stripping lever will travel inwardly along the cam groove 77 to a point back of the coin if the coin should not have dropped 50 away from the plunger when the plunger was near the limit of its rearward movement. As the rear end of the plunger passes by the stripping lever, it will be seen that the lever will strip the coin from the end of the plunger.

55 I have provided means for putting the machine out of action when the articles to be delivered have been exhausted, which means is constructed, arranged and operated as follows. A lever 82, 83, is pivoted at 84, in 60 the side 36 of the hopper. The arm 83 of the lever is located within the hopper and the arm 82 of the lever is located exterior to the hopper. The arm 82 is provided with a pawl

85. While the hopper is provided with the articles to be delivered, the weight of the ar- 65 ticles upon the arm 83 of the lever will hold the arm 82 raised with its pawl 85 out of the path of the collar 53 fixed to the plunger rod 50. When the articles are substantially ex- 70 hausted from within the hopper, the arm 83 is permitted to rise, thus permitting the arm 82 and its pawl to drop into the path of the said collar 53. As the plunger is forced rearwardly against the tension of the spring 52, the collar 53 will slide by the pawl 85. 75 The pawl will then engage the front face of the collar and thus prevent the spring 52 from forcing the plunger back to its normal position. This position will remain until a new supply of articles is furnished to the hopper. 80

From the above description it will be seen that a machine is provided which is simple and positive in its operation; and is one in which the danger from repeating is obviated.

It is evident that various changes might be 85 made in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the structure herein shown, but 90

What I claim as my invention is:

1. In a vending machine, a casing having a horizontal partition therein, a carriage hav- 95 ing rollers arranged to travel on the partition, guides therefor, said carriage having a measuring pocket therein, means for yieldingly holding the carriage at the limit of its movement in one direction and a lever having a traction roller arranged to support the lever, the said lever having an engagement with 100 the carriage for positively moving it in the opposite direction.

2. In a vending machine, a carriage having a measuring pocket therein, means for moving the carriage, a trap door for the pocket and a 105 rocking lever arranged to keep the trap door closed until the carriage reaches a predetermined point in its movement.

3. In a vending machine, a carriage hav- 110 ing a measuring pocket therein, means for moving the carriage, a trap door for the pocket and a rocking lever having a shoulder arranged to support the free end of the trap door as the carriage is moved in one direc- 115 tion, the said lever having a finger for releasing the trap door as the movement of the carriage is completed in the same direction to permit the trap door to open.

In testimony, that I claim the foregoing as my invention, I have signed my name in 120 presence of two witnesses, this 2nd day of July 1904.

FRANK W. TUCKER.

Witnesses:

FREDK. HAYNES,
HENRY THIEME.