No. 694,968. Patented Mar. 11, 1902.

G. L. W. JOHNSON.

VENDING MACHINE.

(Application filed Apr. 29, 1901.)

(No Model.) 2 Sheets—Sheet 1.

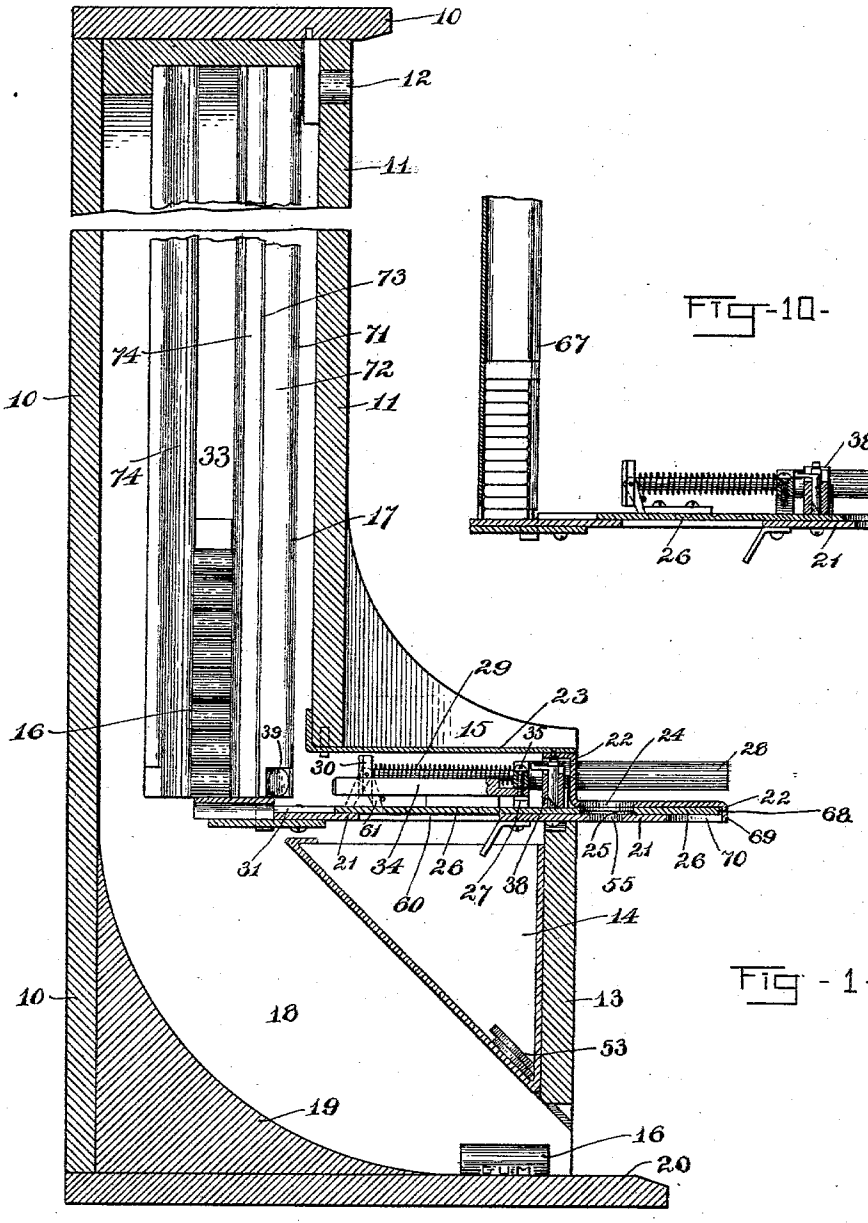

FIG. 1.

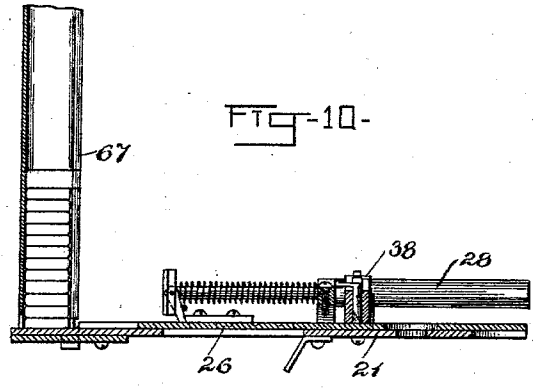

FIG. 10.

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No. 694,968. Patented Mar. 11, 1902.

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(Application filed Apr. 29, 1901.)

(No Model.) 2 Sheets—Sheet 2.

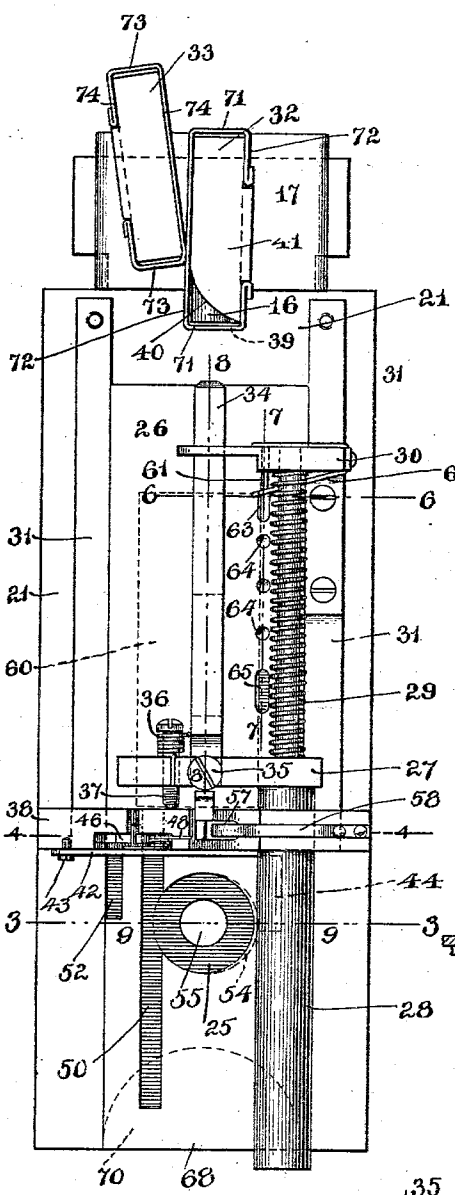

Fig. 2.

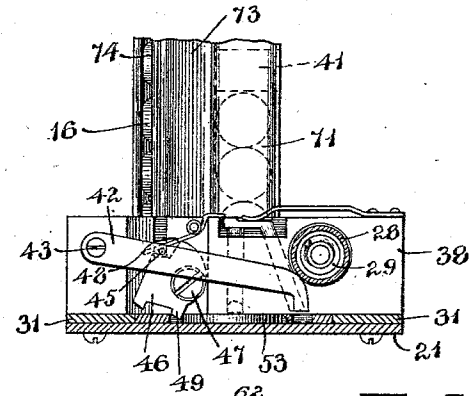

Fig. 3.

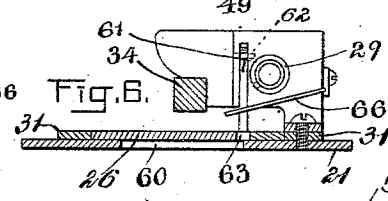

Fig. 6.

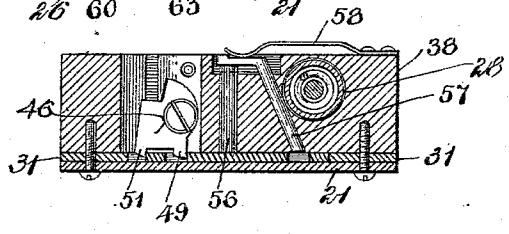

Fig. 4.

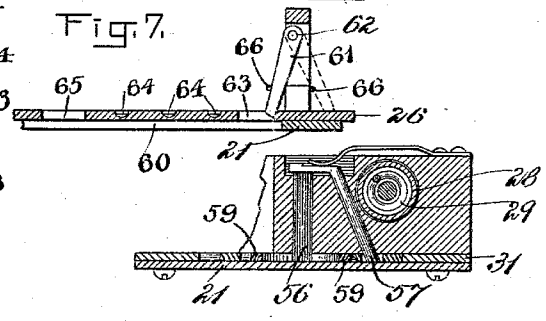

Fig. 7.

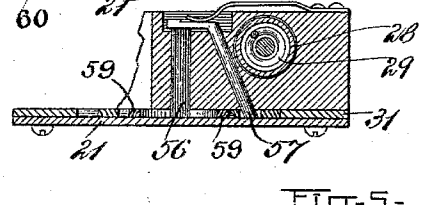

Fig. 5.

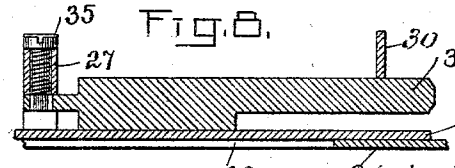

Fig. 8.

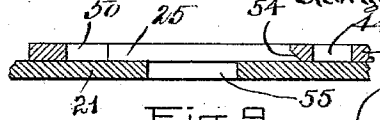

Fig. 9.

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UNITED STATES PATENT OFFICE.

GEORGE LORING W. JOHNSON, OF MALDEN, MASSACHUSETTS.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 694,968, dated March 11, 1902.

Application filed April 29, 1901. Serial No. 57,878. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LORING W. JOHNSON, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to machines for vending articles—such as candy, chewing-gum, and the like—said articles being contained in a chute or chutes.

The object of the invention is, further, to provide a machine having a large capacity for articles to be vended as aforesaid without increasing the size of the machine beyond those in ordinary use.

The invention consists in a vending-machine containing two chutes, mechanism to eject the lowermost article from a column of articles in the first chute, and means to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after the first chute has been emptied.

The invention further consists in the specific form of chute employed.

The invention further consists in the means whereby said mechanism is guided to eject articles from the second chute after the first chute has been emptied.

The invention still further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a central longitudinal section of my improved vending-machine. Fig. 2 is a plan view of my improved double chute containing articles to be vended and of the coin-controlled mechanism whereby said articles are ejected from said chute. Fig. 3 is a section taken on line 3 3, Fig. 2. Fig. 4 is a section taken on line 4 4, Fig. 2. Fig. 5 is a detail section taken on line 4 4, Fig. 2, similar to Fig. 4, but showing the parts in different positions. Fig. 6 is a detail section on line 6 6 of Fig. 2. Fig. 7 is a detail section on line 7 7 of Fig. 2. Fig. 8 is a detail section on line 8 8 of Fig. 2. Fig. 9 is an enlarged detail section on line 3 3, Fig. 2. Fig. 10 is a central vertical section similar to Fig. 1, showing a single chute and my coin-controlled mechanism attached thereto.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the frame of the machine, having an upper front panel 11, secured to said frame by a lock 12, and a lower front panel 13, with a coin-receptacle 14 fast thereto, said lower front panel being suitably fastened to the frame of the machine. Between the panels 11 and 13 is located my improved coin-controlled mechanism 15, by means of which the articles 16 to be vended contained in the chute 17 are ejected therefrom, as hereinafter described, and fall into the space 18 below said chute and are guided down the curved guide-wall 19 to the delivery-shelf 20, as shown in Fig. 1.

My improved vending-machine is so constructed that a chute containing a single compartment for articles to be vended may be used or a chute containing two or more compartments.

In Figs. 1, 2, and 3 I have illustrated my vending-machine with a double chute thereon and the coin-controlled mechanism necessary to eject the articles from said double chute in position therein.

In Fig. 10 I have illustrated a single-compartment chute, with the specific mechanism for ejecting articles from the double chute removed from the coin-controlled mechanism.

Referring to Figs. 1 to 9, inclusive, the coin-controlled mechanism for ejecting articles from the chute 17 consists of a base-plate 21, with a front plate 22 and top plate 23 fast thereto and rigidly attached to the frame 10 of the machine. The front plate 22 has a hole 24 therein, through which the coin is inserted into a recess or hole 25 in a reciprocatory slide 26, guided in ways 31, fast to the base-plate 21. The reciprocatory slide 26 has a vertical ear 27 thereon, to which is attached a horizontal tube 28, which serves as a means whereby the slide 26 may be pushed toward the chute 17 and also as a receptacle for the spiral compression-spring 29, one end of which bears against the forward closed end of the tube 28 and the other end thereof against the ear 30, fast to one of the stationary ways 31. The chute 17 has two vertical compartments 32 and 33 therein, each consti-

tuting a separate chute adapted to receive sticks of gum or candy, the articles in the chute 32 being ejected therefrom by a push-finger 34, pivoted to a screw 35 and held normally against the ear 30 by a spiral torsional spring 36, which is coiled around a screw 37, screwed into the ear 27 and forming an adjustable stop by bearing against the stationary wall 38, fast to the base-plate 21. The slide 26 is pushed, by means of the tube 28, toward the chute 17, and the push-finger 34 passes through an opening 39 in the end guide-wall 71 of the compartment 32 at the bottom of said compartment and ejects the lowermost article in said compartment therefrom into the space 18 below said chute. The slide 26 is carried back to the position shown in Fig. 2 by the spring 29 until the stop-screw 37 abuts against the wall 38, and upon each succeeding movement of the slide 26 another article is ejected by the push-finger 34 from the compartment 32 until all of said articles have been ejected therefrom, whereupon at the next forward movement of said slide 26 the push-finger 34 encounters the inclined face 40 on the guide-block 41, said guide-block 41 having been placed in the compartment 32 on top of the uppermost article in said compartment. It will therefore be seen that as soon as the articles in the compartment 32 have been ejected therefrom, as described, the push-finger 34 will be guided by the inclined face 40 upon the next forward movement of the slide 26 to enter the compartment 33 at the bottom thereof and eject the lowermost article in said compartment 33 therefrom, and upon each succeeding movement of the slide 26 the push-finger 34 will be guided to the compartment 33 by the inclined face 40 upon the guide-block 41 until said compartment 33 shall have been emptied of all the articles therein, and thus the machine automatically adjusts itself to empty a double chute of the two columns of articles therein, thus doubling the capacity of the machine.

The compartment or chute 32 consists of two vertical end guide-walls 71 71 and two side walls 72 72, the side walls 72 being parallel to each other and to the sides of the push-finger 34 when said push-finger is in the position shown in Fig. 2. The compartment or chute 33 has two end walls 73 73 and two side walls 74 74, said side walls 74 located at an angle to the side walls 72 72 of the chute 32 and the end walls 73 located out of line with the end walls 71 and farther away from the push-finger 34, Fig. 2, this relative location of the chutes 32 and 33 being rendered necessary by the distance which it is necessary to move the push-finger 34 after striking the incline 40 before it can be swung upon its pivot to a position in which the sides of said push-finger will be parallel with the side walls 74 of the compartment 33.

The shute 17 is fast to a plate 75, said plate 75 being in turn fastened to the main base-plate 21 and extending entirely across the bottom of the compartment 32, but only covering about two-thirds of the bottom of the compartment 33 as shown by dotted line in Fig. 2. It will therefore be seen that a movement of the push-finger 34 which is sufficient to eject articles from the compartment 32 will also be sufficient to eject articles from the compartment 33, in that it is unnecessary that said push-finger should travel the entire length of said compartment 33 in order to eject an article therefrom, the plate 75 extending only about two-thirds of the length of the bottom of said compartment, so that when an article is pushed to the dotted line shown in Fig. 2 it will drop downwardly into the space 18. The follower or weight 76 is placed in the compartment 33 in order to assist in feeding said articles downwardly in said compartment.

In order to prevent the machine from being tampered with or to prevent persons from obtaining articles therefrom without depositing a coin therein, I provide a locking-lever 42, pivoted at 43 to the wall 38, the free end of said lever normally projecting into a slot 44 in the slide 26. Said lever 42 has a pin 45, fast thereto, projecting horizontally therefrom and resting upon a dog 46, pivoted at 47 to the wall 38. The lever 42 and dog 46 are held down normally by the spring 48. The dog 46 has an ear 49 thereon, which projects downwardly into a slot 50 in the reciprocatory slide 26. Said dog has another ear 51 thereon, which projects into another slot 52 in said slide 26.

Supposing now a coin 53 to be placed in the recess 25, as hereinbefore described, of a diameter substantially equal to the diameter of said recess and of the same thickness as the reciprocatory slide 26, it will be seen that the periphery of said coin will extend into the slot 50, as shown in dotted lines, Fig. 2, and as the slide 26 is pushed toward the chute 17 by means of the tube 28 the portion of the periphery of said coin 53 which projects into said slot 50 will encounter the ear 49 upon the dog 46, as shown in Fig. 3, and push the same to the left in said figure, raising the lever 42 by means of the pin 45 until the end of said lever is free of the slot in said slide, and the forward movement of the slide 26 may be continued until the push-finger 34 has ejected the lowermost article in the compartment 32 therefrom. When the slide is released, it will be returned to the position shown in Fig. 2 by the spring 29. If the coin or piece of metal introduced into the recess 25 were not the exact diameter of said recess, then the dog 46 would not be tipped upon its pivot, as hereinbefore described, and the free end of the lever 42 would remain in the slot 44 and said slide would be locked against a complete forward movement by the said lever 42 abutting against the end of said slot 44, and as a further lock the ear 51 would abut against the end of the slot 52 and lock the slide 26 against forward movement.

It will be seen that the ear 49 does not project downwardly to contact with the base-plate 21, so that if the coin or other piece of metal inserted in the recess 25 is of less thickness than the slide 26 said coin will pass under the ear 49 without tipping the dog upon its pivot, and the lever 42 and dog 46 will lock said slide 26, as hereinbefore described.

As another safeguard against the machine being tampered with I cut away or bevel the wall of the recess 25 at 54, so that if a coin or piece of metal is too thick to pass under the ear 49 from the dog 46, but is not of the full thickness of the slide 26, then upon the periphery of said piece of metal which projects into the slot 50, encountering the ear 49 upon the forward movement of the slide 26, said piece of metal would be pushed laterally across said slide and into the recess formed by said cut-away or beveled portion, and the slide will be locked by the failure to rock the dog upon its pivot, as hereinbefore described. I provide a hole 55 in the base-plate 21, through which any slug will drop which is of smaller diameter than said hole, the hole 55 being located concentrically with the recess 25.

In order to lock the slide when a washer having an opening therethrough is introduced into the recess 25, I provide a vertical pin 56, arranged to slide in a hole or bearing formed in the wall 38 and in line with the center of the recess 25 and in the path of motion of said recess, and I also provide a second pin 57, arranged to slide in a bearing formed in the wall 38, the upper end of said pin 57 extended horizontally to rest upon the top of the pin 56 and the lower end of said pin 57 terminating immediately above the slot 44. A spring 58 rests upon the top of the pin 57 and holds both pins 56 and 57 down.

It will be seen that when a washer 59 is inserted in the recess 25 and the slide 26 is pushed forward that when the hole in the washer comes underneath the pin 56 said pin will be forced downwardly by the spring 58 and the pin 57 will enter the slot 44, locking the slide 26, with the center of the recess in line with the pin 56. Upon releasing the slide 26 it will be returned to the position shown in Fig. 2 by the spring 29.

A hole 60 is provided in the base-plate 21, through which the coin drops into the receptacle 14 when the slide 26 has been pushed sufficiently far forward to bring said coin above said hole. In order to insure the slide 26 being carried to the full extent of its movement after said slide has been started in its forward movement, I provide a locking-pawl 61, pivoted at 62 to the ear 30 to swing in a vertical plane. The lower end of the pawl projects normally into a recess 63 in the slide 26, said recess 63 being one of a series of recesses 64, 64, and 65, formed in the slide 26. The recesses 63 and 65 are deeper than the recesses 64 and, as a matter of fact, extend entirely through the slide 26.

A U-shaped spring 66 bears against the lock-pawl 61 and prevents it from moving beyond a certain distance either side of a vertical plane passing through the pivot 62 thereof.

The operation of this device is as follows: As the slide 26 is pushed forward the pawl 61 is rocked upon its pivot from the position shown in full lines, Fig. 7, to that shown in dotted lines therein, the hole 63 being cut entirely through the plate, allowing said rocking pawl to swing from one side to the other of a vertical plane passing through its pivot. As the slide advances if at any time between the two extreme positions of the slide 26 the pressure is released upon the tube 28 said slide cannot be returned to the position shown in Fig. 2 because of the locking-pawl 61, which will engage one of the recesses 64 in said slide and lock said slide against return movement, the depth of the recesses 64 not being sufficient to allow said locking-pawl to swing upon its pivot from the position shown in dotted lines, Fig. 7, to that shown in full lines therein, and hence it will be seen that after having once started the slide 26 the forward movement of said slide must be continued to its limit, whereupon the hole 65 in said slide coming beneath the locking-pawl the spring 66 will immediately throw said locking-pawl from the position shown in dotted lines, Fig. 7, to that shown in full lines, and the slide 26 upon being released is then free to return to the position shown in Fig. 1, as hereinbefore described.

In order to change the machine to feed articles from a single chute, I remove the chute 17 and substitute the chute 67, Fig. 10, said chute having a single compartment therein. The push-finger 34 is also removed by swinging the free end thereof to the left, Fig. 2, until it clears the ear 30, and then tip said free end upwardly until the pivoted end thereof is free from the lower end of the pivotal screw 35, thus removing said push-finger, and the slide 26, acting to push the lowermost article in the column of articles in the chute 67 backwardly and out of said chute into the space 18, as hereinbefore described in the use of the double chute.

The slide 26 and the different means for locking said slide under different conditions operate in precisely the same manner as hereinbefore described. When the slide 26 has been pushed forward to an extreme limit, the end 68 of said slide will move to a sufficient distance to uncover the base-plate 21 beneath the opening 24, and it is then possible to insert a piece of metal or other substance, which upon the release of the slide 26 will be pushed back by said end 68 and lodged between the said end and the downwardly-projecting flange 69 upon the front plate 22. This leads to blocking the machine, and to prevent such an accident I cut out said base-plate, as at 70, Figs. 1 and 2, so that said piece of metal will drop through said openings 70 and cause no damage.

While I prefer to use the form of follower shown in Fig. 2, it is evident that without departing from the spirit of my invention the follower might be constructed to descend in the chute 32 as the articles were removed therefrom, said follower having an incline projecting beyond the end wall 71 toward the push-finger 34, and in that case the chute 33 might be placed with the end walls thereof substantially in line with the end walls of the chute 32. Again, it will be seen that while the push-finger 34 is a very practical means for emptying the second chute after the first chute had been emptied, on account of the slight amount of force necessary to move said finger upon its pivot and guide it from the first to the second chute, yet without departing from the spirit of my invention an equivalent for said push-finger might be substituted, consisting of a slide capable of being guided to move laterally across the slide 26 and perform the function of the finger 34.

It is evident that the number of chutes corresponding to the chutes 32 and 33 might be extended indefinitely and a follower put in each chute to guide the push-finger to the chute adjacent thereto without departing from the spirit of my invention.

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

1. In a vending-machine, two chutes, mechanism to eject the lowermost article from a column of articles in one of said chutes, and means to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

2. In a vending-machine, two chutes, mechanism to eject the lowermost article from a column of articles in one of said chutes, and means contained within said first chute to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

3. In a vending-machine, two chutes, mechanism to eject the lowermost article from a column of articles in one of said chutes, and a follower having an incline thereon adapted to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

4. In a vending-machine, two chutes adjacent to each other, the end guide-walls of one of said chutes located out of line with the end guide-walls of the other of said chutes.

5. In a vending-machine, two chutes adjacent to each other, the side walls of one of said chutes located at an angle to the side walls of the other of said chutes.

6. In a vending-machine, two chutes adjacent to each other, the side walls of one of said chutes located at an angle to the side walls of the other of said chutes, and the end guide-walls of one of said chutes located out of line with the end guide-walls of the other of said chutes.

7. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger, whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and means to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

8. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger and carry the same beneath one of said chutes, and means to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

9. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger, whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and means contained within said first chute to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

10. In a vending-machine, two chutes, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and means to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

11. In a vending-machine, two chutes adjacent to each other, a push-finger, mechanism to impart a reciprocating motion to said push-finger and carry the same beneath one of said chutes, and means contained within said first chute to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

12. In a vending-machine, two chutes adjacent to each other, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and means contained within said first chute to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

13. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and a follower having an incline thereon, within said first chute, adapted to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

14. In a vending-machine, two chutes adjacent to each other, a push-finger, mechanism to impart a reciprocatory motion to said push-finger and carry the same beneath one of said chutes, and a follower having an incline thereon contained within said first chute

adapted to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

15. In a vending-machine, two chutes, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and a follower having an incline thereon contained within said first chute and adapted to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

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

GEORGE LORING W. JOHNSON.

Witnesses:
CHARLES S. GOODING,
LOUIS A. JONES.