No. 851,188. PATENTED APR. 23, 1907.

J. W. VAUGHN.

VENDING MACHINE.

APPLICATION FILED OCT. 30, 1906.

2 SHEETS—SHEET 1.

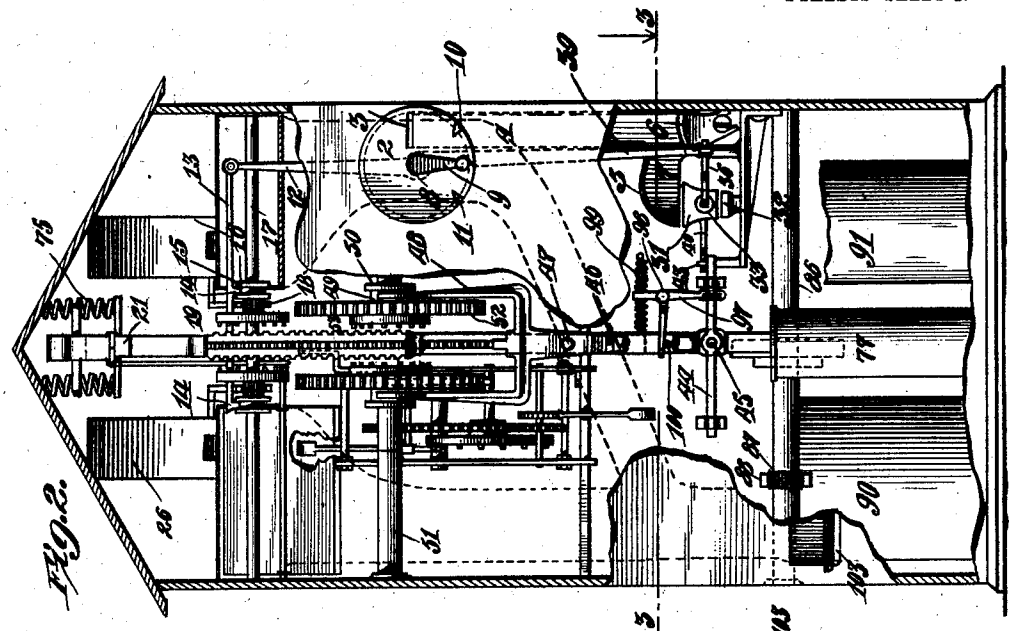


Fig. 2.

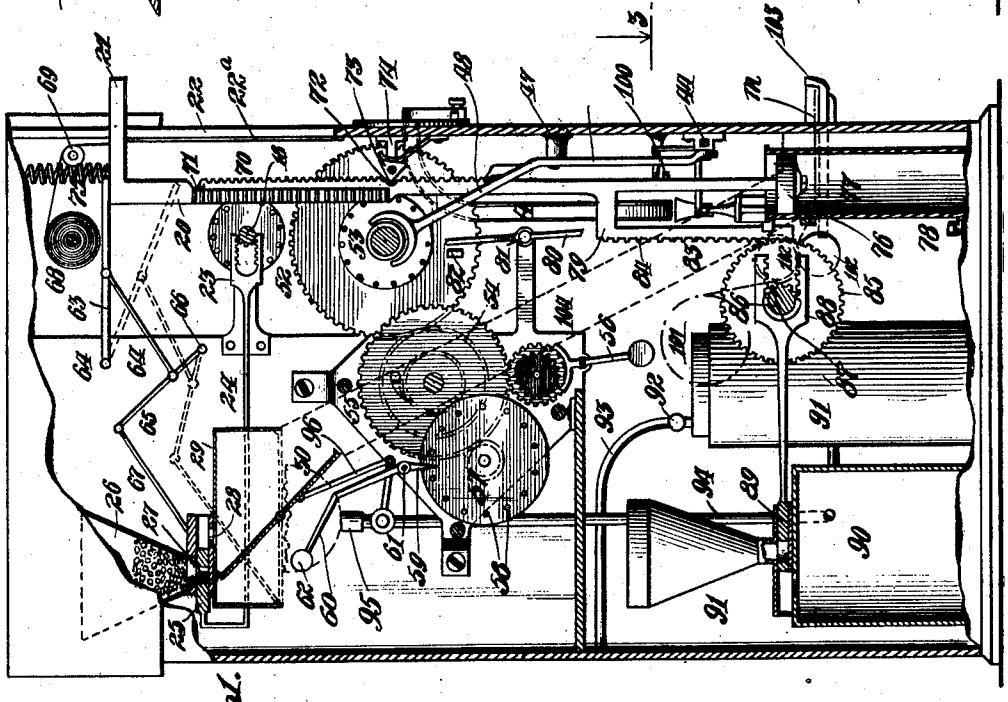


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 4.

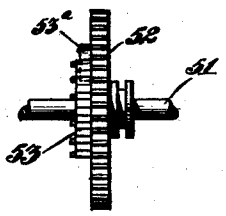


Fig. 5.

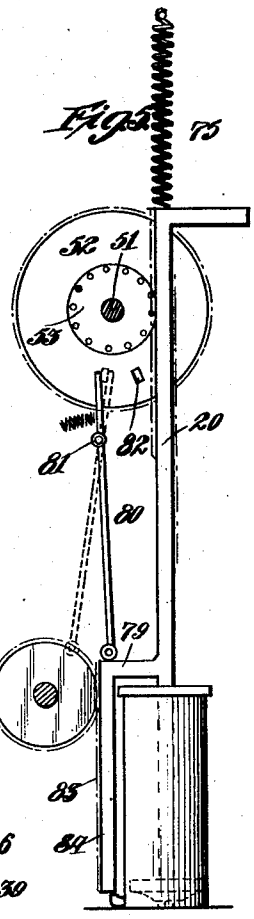


Fig. 3.

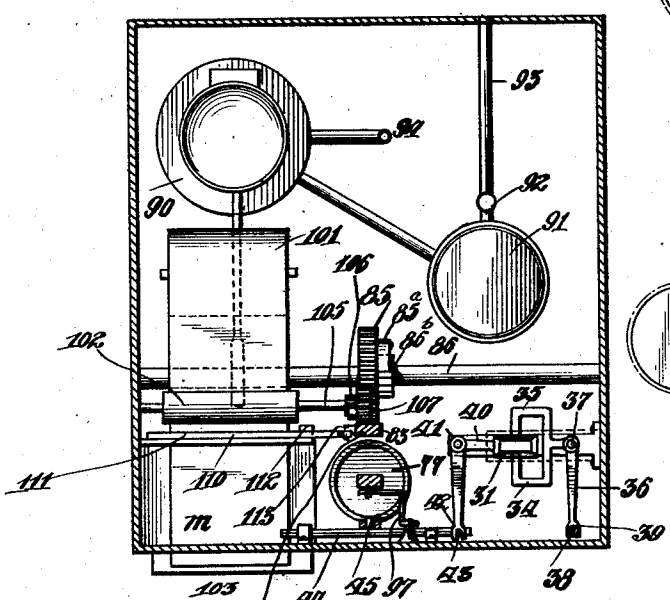
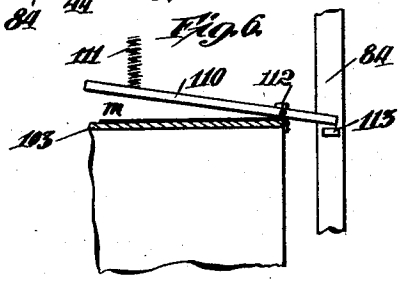


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN W. VAUGHN, OF NOROTON HEIGHTS, CONNECTICUT.

VENDING-MACHINE.

No. 851,188. Specification of Letters Patent. Patented April 23, 1907.

Application filed October 30, 1906. Serial No. 341,275.

To all whom it may concern:

Be it known that I, JOHN W. VAUGHN, a citizen of the United States, and a resident of Noroton Heights, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to new and useful improvements in vending machines and particularly to such machines from which the purchased articles are to be delivered in a loose condition and warmed or heated, for example, such as pop-corn or peanuts.

The object of my invention is to provide a new and improved machine of this class, which is simple in construction, not apt to get out of order, is economical, permits of selecting one kind of article for delivering from several, heats the article delivered, automatically turns on the heating device upon the insertion of a coin, automatically turns off the heating device after it has performed its functions and which machine also delivers a piece of paper and deposits the goods delivered upon this paper.

Figure 1 is a vertical longitudinal sectional view through one construction of my improved vending machine which illustrates my invention. Fig. 2 is a front elevation of the same with parts broken out to show the interior mechanism. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2. Figs. 4, 5 and 6 represent details.

The entire mechanism is contained within a suitable casing 1, preferably having a peaked roof for the purpose of shedding the water. On the front of this casing is secured a disk provided with a coin slot 3 communicating with a vertical coin chute 4 which chute is provided at its lower end with a lateral arm 5 open at the bottom. Beneath the vertical part of this chute is secured an abutment 6 having a rounded upper edge upon which the dropping coins can strike and rebound into the lateral arm 5 of the chute. Lead coins will not rebound and will drop through the open bottom part 7 of the arm adjacent to the abutment 6 and drop into the bottom of the casing 1. A shaft 8 is mounted centrally in the disk 2 and is provided at its outer end with a crank handle 9 which can be brought against one of two stops 10 and 11 projecting from the face of the disk 2 which stops 10 and 11 may be marked with the names of the articles to be delivered for example, one for "pop-corn" and the other for "peanuts." A two armed lever is secured on the shaft 8 directly behind the front of the casing so that by moving said crank handle toward the stop 10 or 11 this two armed lever will also be moved, its two ends moving in opposite directions. With the upper end of the upper arm 12 of this lever a horizontal rod 13 is pivotally connected and is provided with two spurs 14 each of which engages a groove 15 in a sleeve 16 mounted to turn axially on a horizontal shaft 17, each sleeve carrying a mutilated pinion 18 and adjacent thereto a crown wheel 19 which crown wheels are on opposite sides of a vertically movable bar 20 having a handle 21 projecting through a vertical slot 22 in the front of the machine casing.

As will be seen from Fig. 2, when the upper end of the arm 12 is moved to the right, the right hand crown wheel 19 will be disengaged from a rack on the right hand side edge of the bar 20 and at the same time the left hand crown wheel 19 will be engaged with a rack on the left hand side of the bar 20 and when the upper end of the arm 12 is moved to the left, the left hand crown wheel 19 is disengaged from its side rack on the bar 20 and the right hand crown wheel 19 is engaged with its side rack on the bar 20.

Each mutilated pinion 18 is embraced by the two prongs of a fork 23 mounted to move horizontally and suitably guided, the inner edges of the prongs of these forks being provided with cog teeth which can engage the teeth of the mutilated pinions 18, as shown in Fig. 1 and it thus follows that when the mutilated pinion is turned in the direction from left to right, and engages the teeth on the upper prong of the fork 23, this fork is moved from left to right a predetermined distance, whereupon the fork remains at rest and when the crown wheel is turned in the direction from right to left, the teeth of the mutilated pinion move the fork from right to left and so on. Each fork 23, of which there is one on each side of the machine, is connected by a rod 24 with a slide valve 25 beneath a hopper 26 containing pop-corn or peanuts or any other article to be delivered. This slide valve 25 has an opening 27 which can register with the bottom opening of the hopper 26 and also with an opening 28 in the top of a casing 29, it being understood however that the

said opening 27 in the valve does not register with the opening 28 in the top of the casing 29 and with the bottom of the hopper 26 at the same time.

As shown in Fig. 1 when the opening 27 of the slide valve 25 registers with the bottom of the hopper a predetermined quantity of corn or peanuts, that is as much as the opening 27 will hold, can pass into said opening and then when the fork 23, its rod 24 and the valve 25 are moved to the right, Fig. 1, this quantity of material within the opening 27 of the valve is also moved from left to right until the opening 27 registers with the opening 28 in the top of the casing 29, whereupon the material drops from said valve 25 upon the bottom of the receptacle 29, formed by a pivoted pan 30 upon which the corn or peanuts are to be heated, as will be set forth later on. At a later time the fork 23 and with it the rod 27 and valve 25 are moved to the left, the valve 25 is again brought beneath the hopper in position to receive a fresh charge of material and so on. This hopper, valve and receptacle 29 and pan 30, and fork 23 are found on each side of the machine, one set for the pop-corn and the other set for the peanuts.

Beneath the open bottom of the lateral arm 5 of the coin chute 4 is located a coin pocket 31 open at the top and bottom and in its normal position above a coin rest 32 in line with the bottom of the coin pocket 31. This pocket is provided with an opening 33 in each side into which openings prongs 34 extend from the ends of a forked lever 35 secured on one end of a bell crank lever 36 pivoted to swing horizontally at 37. The other arm of this lever 36 is forked as at 38 and between the prongs of this fork the lower end of the arm 39 extends, which arm 39 forms the lower part of the lever connected with the shaft 8 carrying the crank handle 9. As the crank handle is turned in one direction or the other, the lever 36 is moved horizontally on its pivot 37 and thereby one or the other of the prongs 34 on the ends of the forked lever 35 is forced through the corresponding opening 33 into the coin pocket and when there is a coin in the pocket this prong encounters the said coin and by pushing on the coin shifts the coin pocket. This coin pocket is attached to one end of a bell crank lever 40 pivoted at 41 and provided at its opposite end with a fork 42 embracing a pin 43 projecting from a bar 44 guided to move horizontally and which is pivotally connected at its center, as at 45, with a downwardly projecting arm of a lever 46 pivoted at 47 and terminating at its top in the two arms or prongs 48, the upper end of each being shaped like a crutch or fork and entering a groove 49 of a sleeve 50 mounted to slide and to turn loosely on a fixed horizontal shaft 51, there being one such sleeve 50 at each side of the vertically movable bar 20 previously mentioned. Adjacent to each sleeve 50 is a large cog wheel 52 and a crown wheel 53, the teeth of which crown wheels can engage the said side racks on the vertically movable bar 20 which have been previously mentioned, so that as said bar 20 moves down the crown wheels 53 and the cog wheels 52 are rotated. The wheel 52 carry spring pawls 53^a for rotating these wheels 52 in one direction only, that is when the bar 20 is forced down as shown in Fig. 4. It is clear that when the lever 46 is swung in one direction by the bar 44 that one crown wheel will be engaged with its corresponding side rack of the vertically movable bar 20 and the other crown wheel 53 will be disengaged so that by turning the crank handle 9 to either the stop 10 and 11 one crown wheel 19 on the fixed shaft 17 and one crown wheel 53 on the fixed shaft 51 will be engaged with its corresponding side rack on the vertically movable bar 20 and the two crown wheels on the other side will be disengaged.

Each cog wheel 52 is engaged with a cog wheel 54 of a spring motor 55 of conventional construction and the details of which need not be described, and which motor has an escapement 56 of any conventional construction.

Each motor operates a wheel 57 having laterally projecting pins 58 which can strike on a tappet on the lower end of a lever 60 pivoted at 61, which lever is provided at its upper end with a hammer head 62 which can strike against the bottom of a pan 30 when the latter is in horizontal position. Therefore when the spring motor is wound and permitted to operate it causes this striker or hammer 62 to strike the bottom of the pan and thereby agitate and throw about the pop-corn or peanuts upon this pan. At each side of the bar 20 a lever 63 is pivoted at 64 in such a manner that the free end of this lever, when in horizontal position, rests upon the top of the vertically movable bar 20 and this lever 63 is connected by a pivoted link 64, with a link 65 pivoted at 66 which link 65 in turn is connected by a link 67 with a pivoted pan 30. When the bar 20 is in the raised position as shown in Fig. 1 it throws the pan 30 into an inclined position, but when the bar 20 is forced down, the weight of the pivoted lever 63 acting by means of the several pivoted links on the pan 30 swings this pan into horizontal position beneath the receptacle 29 as shown in dotted lines and the pan is held in this position until the bar 20 again rises and brings the lever 63 into horizontal position. A fine coiled spring 68 slightly wider than the slot 22 is secured above the top of the bar 20 and passing over a guide pulley 69 is attached to the handle 21 directly behind the slot 22 so that as the bar 20 is forced down by means of the handle 21 this coiled spring is uncoiled and pulled down behind the slot so as to

close the slot and prevent the inserting of implements that would damage the machinery, and as the bar 20 rises this spring 68 automatically coils. A slide 22^a connected with the handle 21 covers the slot 22 beneath the handle.

The bar 20 is provided at its front with a rack 70 and with a notch 71 at the top of the rack and a notch 72 at the bottom of this rack. A triangular pawl 73 is pivoted to an arm 74 in such a position that when the bar 20 is raised this triangular pawl rests in the notch 72, and as the bar 20 is forced down this pawl is so turned that one side edge will be at the side of the rack 70 and will not interfere with the forcing down of the bar 20 but if the bar 20 is released this bolt instantly catches and prevents upward movement of the bar 20. When the bar 20 has been forced down as far as possible the notch 71 arrives at the pawl 73 and turns the same in such a position as not to interfere with the upward movement of the bar 20 but now this pawl will prevent a downward movement of the bar 20 and vice versa, it thus alternately prevents upward and downward movement of the bar. Springs 75 connected with the casing and with the top of the bar 20 pull the latter upward when released and a piston on the lower end of the bar 20 and fitting in a cylinder 77, provided with a release valve 78 prevents the springs 75 from pulling the bar 20 upward too suddenly. The bar 20 is provided with a shoulder 79 which can be engaged by the lower end of a locking lever 80 pivoted at 81 (Fig. 5) and the upper end of this locking lever is in the path of a stud or lug 82 projecting laterally from the corresponding wheel 52. Of course it is to be understood that there are two of these pivoted bars 80 both of which can engage the shoulder 79 of the bar 20. As the bar 20 is forced down the wheel 52 is turned in the direction from left to right by the mechanism described and the rod 80 swings over the shoulder 79. As the spring of the clock motor unwinds the corresponding wheel 52 is turned in the direction from right to left and by the time that the spring has been unwound, the lug 82 strikes the lever 80 and throws it off the shoulder 79 thus permitting the bar 20 to be moved upward, all for a purpose that will appear later on.

A rack 83 formed on an arm 84 of the vertically movable bar 20 engages a cog wheel 85 carrying a pawl 85^a engaging a ratchet-wheel 86^b on a shaft 86 carrying a mutilated pinion 87 which can engage the toothed shanks of a horizontally guided fork 88 which is connected with a horizontal sliding valve 89 of an acetylene gas generator tank 90 having a hopper 91. As the shaft 20 is forced down the valve 89 is moved from the position shown in Fig. 1 to the left so as to drop a charge of carbide into the generator 90 and as the mutilated pinion continues to rotate the valve 89 is moved back into the position shown for a fresh charge of carbide. The acetylene generated is conducted into a gasometer 91 of any improved construction and which has a release valve 92 from which the gas can pass through a flexible tube 93 to the outer air when the pressure is too high.

A pipe 94 extends from the acetylene generator 90 to a gas burner 95 beneath the pan 30 and this burner has its cock connected by a link 96 with the pan 30 in such a manner that when the pan is in horizontal position, the gas is turned on and when the pan is tilted the gas is almost entirely turned off but not completely so as to leave what is commonly known as a "pilot flame." An elbow lever 97 is pivoted at 98 to the one side of the front of the machine and is connected by a slot and pin with the horizontally moving rod 44 and is also acted upon by springs 99. When the bar 20 rises a pin 100 on the same strikes a horizontal arm of the lever 97 which causes the lever 36 to swing back into normal position and also brings the coin pocket 31 back into its normal position for receiving the next coin.

A roll of paper 101 shown in dotted lines in Fig. 1 and in full lines in Fig. 3, is suitably mounted in the machine and the paper passes between two feed rolls 102 directly behind a horizontal shelf 103 at the lower end of an inclined chute 104, down which the contents is guided when it slides off a tilted pan.

The lower paper feed roller 102 is fixed on a shaft 105 carrying a ratchet wheel 106 which is rotated from a pinion 107 engaging the rack 83 so that when the bar 20 is forced down this lower feed roller 102 is turned in the direction from left to right and feeds a length of paper *m* upon the shelf 103. When the bar 20 rises the pawl on the cog wheel 107 slides over the ratchet wheel 106 without operating it.

A knife 110, pivoted at 112 is normally held raised by a spring 111 and when the bar 20 rises a toe 113 strikes this knife and swings it downward to cut off the paper, see Fig. 6.

The operation is as follows:—The purchaser deposits his coin which drops into the pocket 31, if it is a perfect coin and if it is a lead slug it drops to the bottom of the box, whereupon the purchaser moves the crank on the front of the machine over to the stop according to the selection that he has made. Thereby the crown wheels 19 and 53 on one side or the other of the machine are thrown into operative position with the bar 20. The bar 20 is then forced down whereby a corresponding pan 30 is brought into horizontal position, the corresponding feed valve 25 for the material to be delivered is brought into proper position to drop the material upon the

pan, the clock work is started, the gas is turned on, the pan is heated and the material on the pan is agitated by the blows of the hammer 62. When the bar 20 arrives in its lowest position it is locked in place by one of the levers 80 and is retained there for a time sufficient for the flame to heat the pan and the contents thereon, whereupon the lug 82 on the corresponding wheel 52 strikes the corresponding lever 80 which releases the bar 20 and it is slowly pulled up by its springs 75 and so on. The pan it tilted, the gas turned off and the contents of the pan slide down the chute 104 upon the paper *m* on the shelf 103 and the paper is cut off.

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

1. In a vending machine, the combination with a heating device, of a pan pivoted above the heating means to swing alternately in opposite directions, means for delivering material upon said pan and means for discharging the material from said pan, substantially as set forth.

2. In a vending machine, the combination with a heating device, of a pan above the heating means and mounted to swing alternately in opposite directions and means for agitating said pan, substantially as set forth.

3. In a vending machine, the combination with a pivoted pan, of means for automatically bringing the pan into horizontal position, means for feeding material upon the pan, means for heating the pan and means for automatically tilting the pan, substantially as set forth.

4. In a vending machine, the combination with a hopper, of means for discharging a quantity of material from the hopper, means for heating this material, which latter means are mounted to swing alternately in opposite directions and means for delivering the material after it has been heated, substantially as set forth.

5. In a vending machine, the combination with a pivoted pan, of means for bringing the pan into horizontal position, means for holding it in horizontal position for a predetermined time, means for heating the pan while in horizontal position and means for automatically tilting the pan after a predetermined time, substantially as set forth.

6. In a vending machine, the combination with a pivoted pan, of means for bringing the pan into horizontal position, means for holding it in horizontal position for a predetermined time, means for heating the pan while in horizontal position and means for automatically tilting the pan after a predetermined time, and means for agitating the pan while in a horizontal position, substantially as set forth.

7. In a vending machine, the combination with a hopper, and a pivoted pan, of means for first bringing the pan into horizontal position and then delivering material from the hopper upon the horizontal pan, and then after a predetermined time tilting the pan, substantially as set forth.

8. In a vending machine, the combination with a hopper, a pan, and means for heating the latter, of means for delivering material from the hopper upon the pan then turning on the heat and after a predetermined time turning off the heat and discharging the pan, substantially as set forth.

9. In a vending machine, the combination with a hopper, a pan, means for heating the pan and means for agitating the pan, of means for feeding material upon the pan, means for turning on the heat, means for striking the pan for a predetermined time and means for turning off the heat, and means for automatically discharging the pan, substantially as set forth.

10. In a vending machine, the combination with a pan, and a hopper, of a striker for the pan, a motor for operating the striker and means for delivering material upon the pan and winding the motor, substantially as set forth.

11. In a vending machine, the combination with a hopper and pan, of a heater for the pan, a gas generator and means, by the operation of which material is fed upon the pan, the heat turned on the pan and the gas generator is started, substantially as set forth.

12. In a vending machine, the combination with a hopper and pan, a motor and a gas generator, of means for feeding material from the hopper upon the pan, winding the motor, starting the gas generator and then after a predetermined time discharging the pan, substantially as set forth.

13. In a vending machine, the combination with a hopper and a heating device, means for delivering material from the hopper upon the heating device, a gas burner for heating the heating device, a gas generator and means by the operation of which material is fed upon the heating device, the heat turned on in the gas burner and the gas generator started, substantially as set forth.

14. In a vending machine, the combination with two hoppers, two pans, means for heating the pans, means for discharging the pans after they have been heated for a predetermined time and means for throwing into operation either one of the two hoppers and the corresponding pan, substantially as set forth.

15. In a vending machine, the combination with a hopper and pan, means for heating the pan, of means for delivering material from the hopper to the pan, means for discharging the pan and means for feeding a piece of paper, substantially as set forth.

16. In a vending machine, the combina-

tion with a hopper and pan, means for heating the pan, of means for delivering material from the hopper to the pan, means for discharging the hopper, means for feeding a piece of paper, and means for cutting off the paper, substantially as set forth.

Signed at Noroton Heights in the county of Fairfield and State of Connecticut this 8th day of October A. D. 1906.

JOHN W. VAUGHN.

Witnesses:
EDWARD VOELKNER,
CHARLES E. WILLIAMSON.