

No. 785,883.

PATENTED MAR. 28, 1905.

J. A. HONABARGER.
VENDING MACHINE.
APPLICATION FILED MAY 4, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

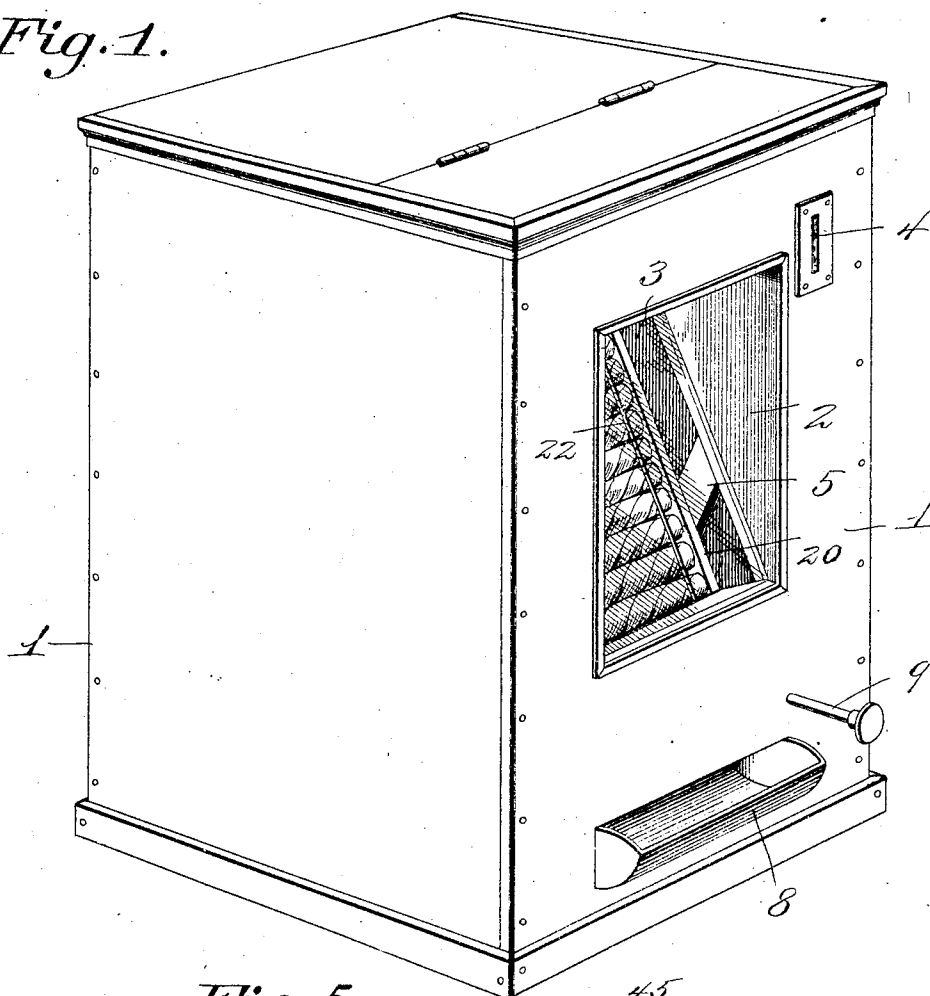
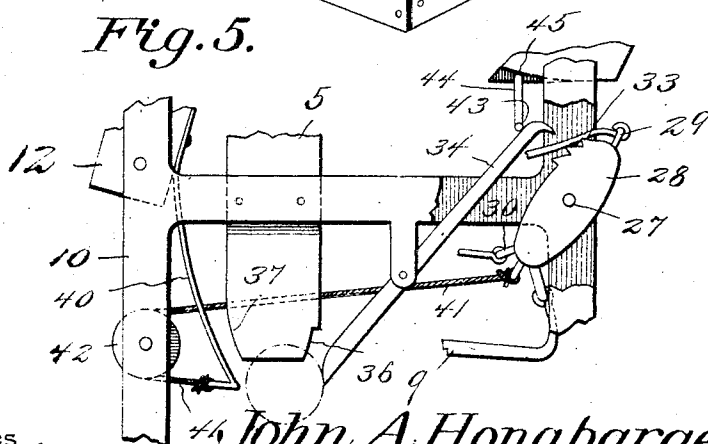


Fig. 5.



Witnesses

E. J. Stewart
Geo. E. Parker

John A. Honabarger, Inventor.

by

C. A. Snow & Co.
Attorneys

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3 SHEETS—SHEET 2.

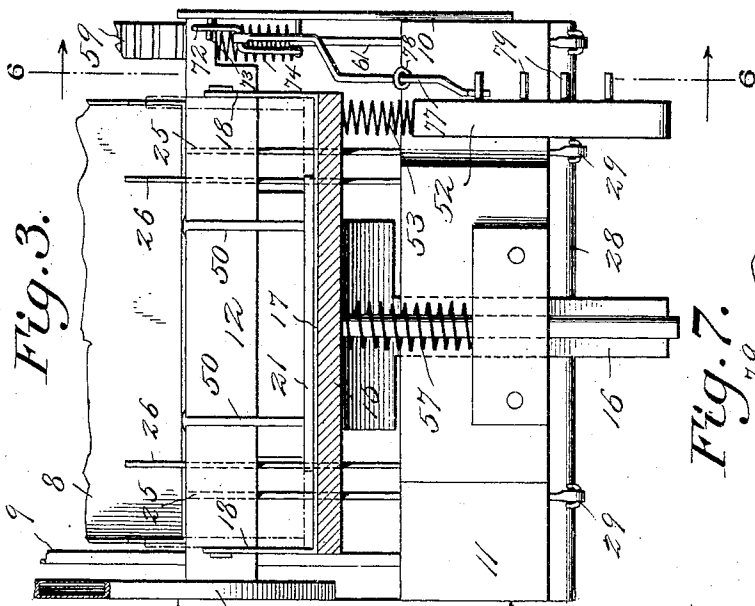


Fig. 3.

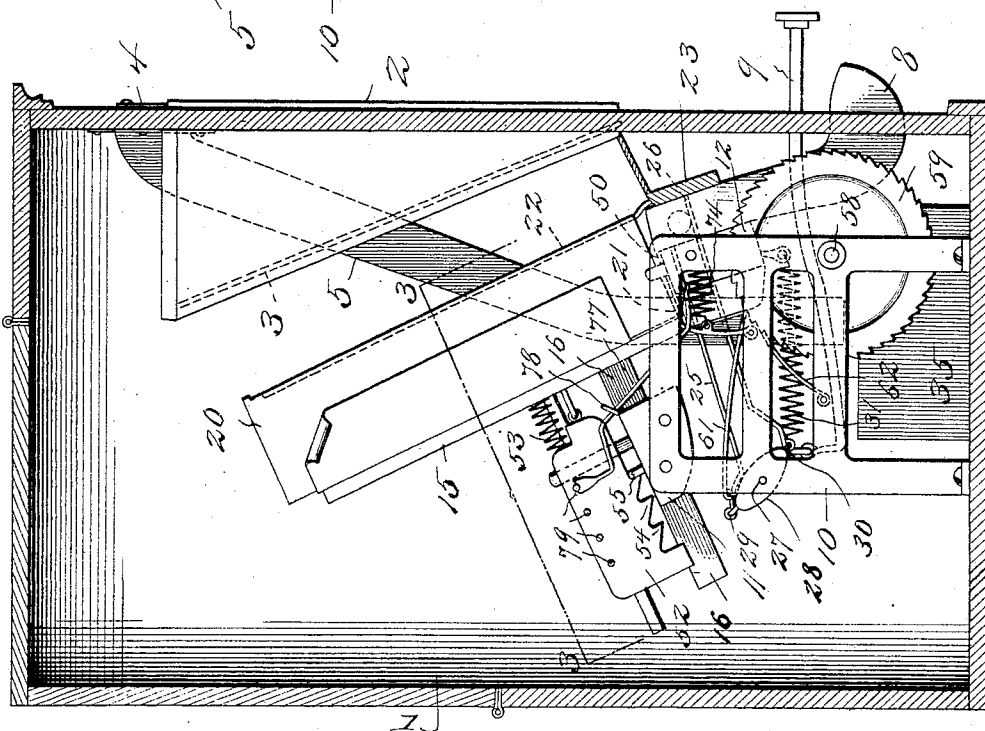
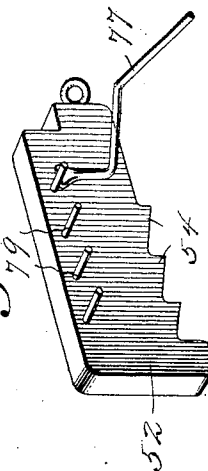


Fig. 2.

Witnesses
Ed Stewart
Geo E. Clark

John A. Honabarger, Inventor.

by *C. A. Snow & Co.*
Attorneys

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3 SHEETS—SHEET 3.

Fig. 6.

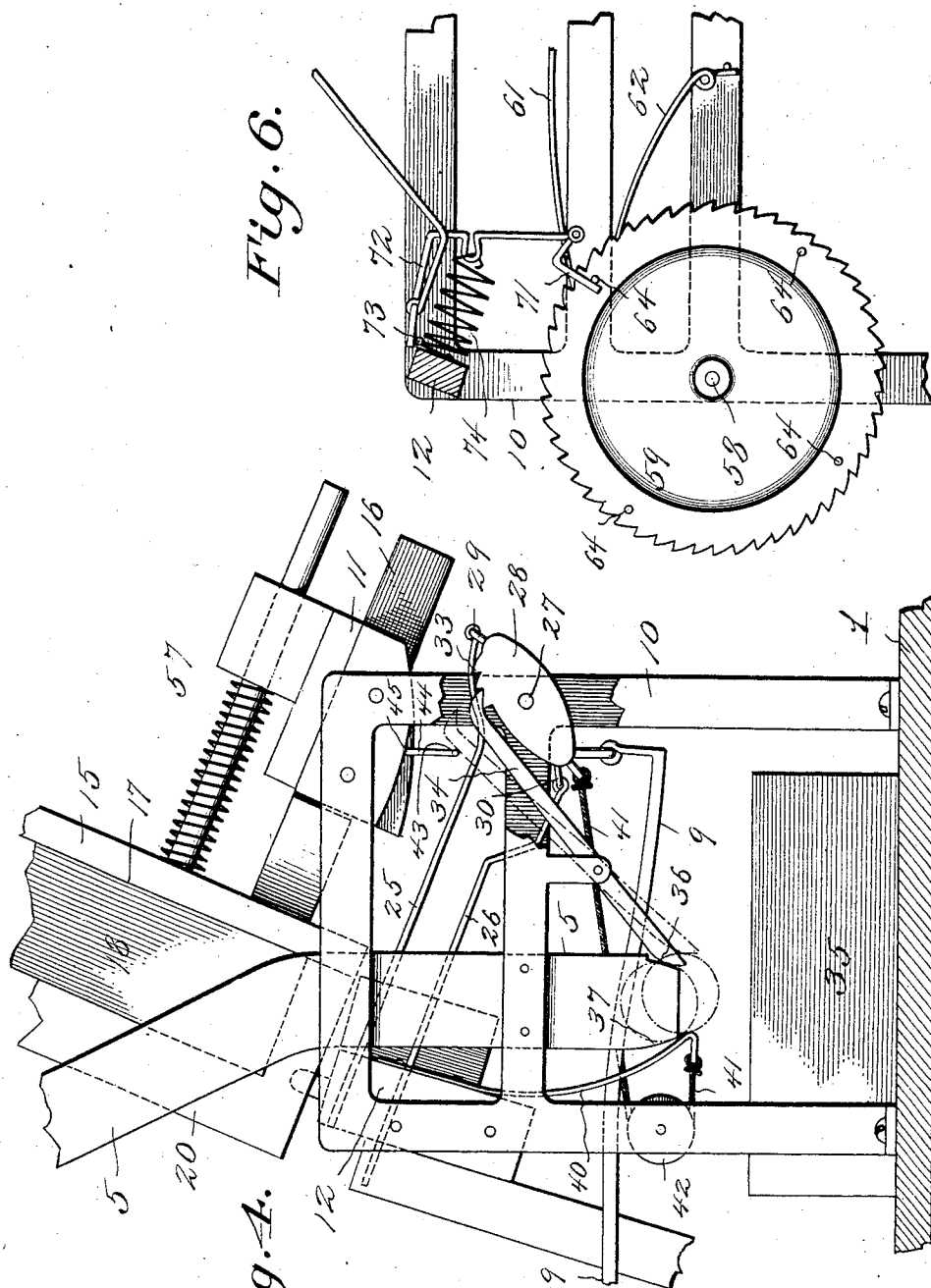


Fig. 4.

Witnesses
E. H. Howard
J. W. E. Parker

John A. Honabarger, Inventor.

by *Chas. H. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN A. HONABARGER, OF WARSAW, OHIO.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 785,883, dated March 28, 1905.

Application filed May 4, 1904. Serial No. 206,394.

To all whom it may concern:

Be it known that I, JOHN A. HONABARGER, a citizen of the United States, residing at Warsaw, in the county of Coshocton and State of Ohio, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention relates to improvements in vending-machines, and while capable of general use for the vending of articles of any size is intended more especially for the vending of cigars from original packages.

A still further object of the invention is to provide a machine of this class for the movement of the magazine at intervals with relation to the discharge of the articles from the magazine, so that a fresh supply of articles may be brought adjacent to the delivery-point, this being particularly adapted for use in connection with reservoirs, where the articles are arranged in layers, as in cigar-boxes, where after the discharge of one layer from the box the latter may be moved a sufficient distance to bring the second layer in discharging position.

A still further object of the invention is to provide improved means for discharging the articles, and, further, for providing for the support and the guiding of the package when the latter is inserted in the machine.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood the various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of a coin-controlled vending-machine constructed in accordance with the invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is a sectional plan view of the machine on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of a portion of the mechanism, the casing being removed. Fig. 5 is a view of a portion of the mechanism shown in Fig. 4 with parts in different position. Fig.

6 is a sectional elevation of a portion of the machine on the line 6 6 of Fig. 3. Fig. 7 is a detail perspective view of a portion of the escapement mechanism detached.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The several working parts of the apparatus are arranged within a suitable casing 1, which may be of wood or metal, and said casing may be provided with one or more openings 2, protected by transparent panels 3, the number of openings being in accordance with the number of reservoirs or magazines which the machine is to contain, and where only a single brand of cigars is to be sold only a single opening and single delivery mechanism will be employed; but this may be multiplied to any extent in accordance with the demand, and three or four or more magazines and delivery mechanisms may be placed within each casing.

Associated with each of the magazines is a coin-slot 4, leading to a chute 5, by which the coin is delivered to the mechanism which releases the delivery apparatus, and below each reservoir is a discharge-opening and a delivery-trough 8 into which the cigars or other articles fall by gravity at each operation of the machine.

In connection with each of the delivery mechanisms there is also employed a push-rod 9, arranged at a convenient point, preferably adjacent to the trough.

Within the casing are arranged two spaced side frames 10, that are connected at the front and rear by stationary cross-bars 11 and 12, respectively, these serving as guiding and supporting devices for the magazines, and while it is preferred that the magazines should be in the nature of an original package to be inserted in the machine—such, for instance, as a box of cigars—it is to be understood that the magazine may be made as a part of the machine and be filled in the usual manner.

The upper surface of the bar 12 is inclined and serves as a rest for a plate 15, to the rear face of which is secured a preferably non-circular bar 16, that is guided in an opening of similar width formed in the bar 11, and this bar serves to maintain the plate 15 in position

position and hold the same rigid during the discharge of cigars or other articles.

To the front face of the plate 15 is secured a preferably metallic plate 17, having side flanges 18 for contact with the side of a removable reservoir—such, for instance, as a cigar-box 20—and these flanges are preferably yieldable and their upper ends are flared, so as to permit entrance of cigar-boxes of different size. The lower edge of the plate has an outturned flange 21 of a width about equal to the thickness of the bottom of a small box, so that it will not interfere with the free discharge of the cigars, it being understood that when the box is placed in position one end is removed and the cigars discharged one by one from the box or, if necessary, two or three cigars may be discharged at a time in accordance with the quality of cigars.

Usually it is preferred to employ boxes containing fifty cigars, and these are arranged in the box in the usual rows with twelve in the lowermost layer, thirteen in the second layer, twelve in the third layer, and thirteen in the top layer. When primarily adjusted in the machine, the top layer rests immediately over said trough, so that the top layer will be first discharged, while the remaining three layers rest on the bar 12 and are held from movement. To accomplish this, the cigar-box and its holding devices are arranged at an oblique angle that will be sufficient to permit the discharge of but a single layer of cigars at a time, but in the event of accidental movement of the cigars the discharge of more than a predetermined number is prevented by means of a pair of spring-bars 22, carried by a cross-bar 23 in the upper portion of the machine, the bars bearing against the outermost cigars in the magazine.

To effect the discharge of single cigars only two pairs of delivery-fingers 25 and 26 are employed, the lower set of fingers 26 being normally held in a position under the lowermost cigar and serving to hold all of the cigars from falling to the delivery-trough. The upper set of fingers 25 is retracted, but is spaced from the lower set for a distance about equal to the diameter of one cigar or a distance equal to the diameter of two cigars, if two are to be delivered at each operation.

Near the rear portions of the two side frames are bearing-openings for the support of a shaft 27, to which is secured a bar or drum 28, that is approximately elliptical in cross-section, and at the upper and lower ends, respectively, of longer diameter are eyes 29 and 30, the eyes 29 being connected to the discharge-fingers 25 and the eyes 30 to the discharging-drum 26, so that when the discharging-drum receives rocking movement in the manner hereinafter described the fingers 25 will be advanced for the second cigar, and the fingers 26 will at the same time be retracted

and will discharge the first cigar from the machine. On the reverse movement the fingers are moved in the opposite direction until the fingers 25 are fully retracted, after which the lower cigar drops until the lowermost of the layer is caught and held by the fingers 26. The return movement of the discharge-drum after each discharging operation is accomplished by means of a coiled tension-spring 31, and movement in the opposite direction will effect the discharge of the cigars to be effected by the push-rod, which extends through the casing and is pivotally connected at its inner end to an eye at the lower portion of the discharge-drum. The push-rod, however, is normally locked during inward movement, and the discharge-drum is held from return movement by means of a plurality of spurs or teeth 33, arranged on the periphery of the drum, near one end thereof, and these teeth are engaged by a pivoted coin-engaged lever 34, that is supported by the frame, its upper and rear end normally engaging the first of the teeth of the periphery, and should the lever from any cause descend after being partly moved by the insertion of a coin it will engage the second or third tooth and stop further movement of the drum before the delivery of the cigar can be accomplished.

The coin-chute previously referred to is open at the bottom, and immediately below it is a coin-receptacle 35. The edge portions of the lower end of the coin-chute are cut away, as indicated at 36 and 37, and into the cut-away portion 36 enters the lowermost end of the coin-engaged lever 34 directly in the path of a falling coin. To the rigid block or cross-bar 12 is secured a spring 40, the lower end of which enters the cut-away portion 37 of the coin-chute, and the lower end of this spring is connected by a flexible cord or chain 41 to the delivery-drum 28, said cord or chain passing from a suitable shoe 42 to change its lead, and when the delivery-drum is moved on the discharging movement for a predetermined extent the spring will be drawn far enough out from the cut-away portion 37 to permit the entered coin to fall into the receptacle.

Under normal conditions and the parts being in the position shown, it being premised that the machine is adjusted to be operated by a nickel, the deposit of a coin of that character will cause slight downward movement of the forward end of the lever 34; but the weight of the coin is not sufficient to move the spring 40. The upper end of the coin-engaged lever 34 will move upward against the stop-pin 43, and this movement will be checked by said stop-pin 43 before the coin can fall from the coin-chute, the space between the lower end of the lever and the spring 40 being less than the diameter of the coin. The upward movement of the lever 34 is sufficient to move it

from engagement with the teeth 33, and if the push-rod is then forced in the movement will be imparted to the delivery-drum, and the discharging-fingers 25 will be forced outward to engage below the second cigar, while the fingers 26 will be drawn inward to release the first cigar and allow it to drop to the delivery-trough.

Should a penny, counterfeit coin, dime, or any other coin or token of less diameter than a nickel be placed in the coin-chute, it will strike the lower end of the lever 34 and move the latter from engagement with the teeth 33, or the diameter being less than the diameter of a nickel will be sufficient to permit the immediate passage of the coin, so that only an exceptionally quick inward push of the delivery-rod will effect movements of all of the catch-teeth 33 beyond the end of the lever 34 and serve to deliver a cigar.

The stop-pin 43, hereinbefore referred to, is in the form of a crank-pin disposed at the end of an arm 44, that projects radially from a small bolt or shaft 45, arranged in the end of the bar 11, and by turning this shaft the crank-pin may be brought nearer to or moved to a greater distance from the lever 34, and so adjust the extent of movement through which the lever can move in order to permit proper operation of the machine, and by turning the shaft to move the stop-pin nearer the lever the machine may be adjusted to be operated by a dime or penny, and by moving it to a greater distance from the lever the machine may be made to operate on the insertion of quarter-dollars or larger coins.

In order to prevent injury to the lowermost cigars during the necessary forwarding of the magazine to present fresh layers over the delivery-trough, a pair of rails 50 are placed on top of the bar 12.

To the rear of the plate 15 is pivoted an escapement-bar 52 for swinging movement and normally pressed downward in the direction of the bar 11 by means of a compression-spring 53, disposed between the plate 15 and the upper forward end of the bar 52. The lower end of the bar 52 is provided with a series of ratchet-teeth 54, there being as many teeth as there are layers of cigars or other articles in the box or magazines, and these teeth engage with a rigid yoke 55, that is carried by the bar 11 and holds the plates 15 from movement toward the front of the machine under the influence of spring 57, that is tending to drive the magazines forward. On one of the side frames is secured a stud-bolt 58, on which is mounted a ratchet-wheel 59, having a number of teeth corresponding to the number of articles in the box—as, for instance, if the box contains fifty cigars, there will be fifty teeth on the periphery of the ratchet-wheel. With the ratchet-wheel engages a pawl 61, pivoted at its rear end to the delivery-drum 28, and at each delivery

movement of the drum the pawl is moved forward and rotates the ratchet-wheel to an extent of a single tooth, rearward movement of said ratchet-wheel being prevented by a stop-pawl 62. On the face of the ratchet-wheel are a number of lugs 64, equivalent in number to the number of layers of cigars in the box and spaced from each other at intervals corresponding to the number of cigars in each layer—that is to say, if the first or topmost layer contains thirteen cigars the distance between the first and the second layers would be equivalent to thirteen ratchet-teeth, and the distance between the second and third equivalent to twelve ratchet-teeth to correspond to the twelve cigars of the second layer of the box. To the frame is pivoted an arbor 70, carrying two arms 71 and 72, the arm 71 being disposed in the path of movement of the several lugs 64 and to be successively engaged by said lugs. The opposite arm 72 is cranked and engages a stop-pin 73, that limits its movement in one direction, said arm being normally turned into contact with the stop-pin by means of a small tension-spring 74 extending between said arm and the fixed point of the arm. Connected to the crank-arm is a rod 77, the upper portion of which is guided in an eye 78, carried by the cross-bar 11, and the upper end of said rod 77 is widened and preferably slightly recessed in order to engage a series of pins 79, carried by the escapement-bar 52. In the operation of this portion of the mechanism the delivery movement of the drum 28 will cause rotative movement of the ratchet-wheel to the extent of a single tooth, and at the completion of thirteen delivery movements, which is equivalent to the discharge of the first layer of cigars, one of the lugs 64 will engage arm 71 and cause upward and rearward movement of the rod 77 against the thrust of spring 74. This results in the lifting of the escapement-bar 52 against the action of spring 53, and the first of the teeth 54 moves from engagement with the yoke 55. The lug quickly passes beyond the arm 71, and rod 77 is quickly restored to its initial position by the spring 74 allowing the escapement-bar 52 to fall under the influence of spring 53, whereupon the second tooth 54 of said escapement-bar will engage with the yoke, this resulting in the advance of the cigar-box for a distance equal to the diameter of a single cigar, and thus presenting the second layer of cigars above the delivery-trough. This operation is carried on for as many times as there are layers of cigars or other articles to be delivered. It will be understood that with an apparatus of this character the casing may be made to contain any desired number of cigar-boxes bearing different brands of cigars and that the names of such cigars may be advertised on the glass fronts in any appropriate manner; but the number and ar-

rangement of such delivery devices or any particular kind or character of casing form no part of the present invention.

Having thus described the invention, what is claimed is—

1. In a vending-machine, an inclined support having a delivery-slot, an obliquely-disposed magazine slidably mounted on the support, auxiliary guiding means for the magazine, and mechanism for automatically advancing the magazine across the point of delivery after the delivery of each successive layer which it contains.

2. In a vending-machine, an inclined support, an obliquely-disposed magazine arranged to contain layers of articles to be delivered, a delivery-trough, an escapement-arm pivotally connected to the rear of the magazine and provided with a plurality of escapement-teeth, a fixed tooth with which the teeth successively engage, a plurality of studs extending from the arm, means for successively engaging said studs to release the teeth, a spring for restoring the arm to initial position, and means for feeding the magazine forward when the escapement-teeth are released.

3. The combination in a vending-machine, of a magazine, a pivotally-mounted escapement-arm having a series of teeth, a fixed stud or tooth with which the teeth successively engage, a spring tending to force the escapement-arm into engagement with said stud or tooth, a plurality of pins extending from the escapement-arm, a spring tending to feed the magazine toward a delivery-point, a delivery mechanism, a ratchet-wheel, a pawl connected to the delivery mechanism and actuating

said ratchet-wheel, lugs extending from said ratchet-wheel, and a rod operable by said lugs and serving to engage the pins of the escapement-arm and move the latter to release position.

4. The combination in a vending-machine, of a magazine, a toothed escapement-arm, a fixed stud or tooth with which said teeth engage, a spring tending to force the arm into engagement with the teeth, a spring tending to force the magazine toward a delivery-point, a delivery mechanism, a ratchet-wheel, a pawl connected to the delivery mechanism and actuating on the ratchet-wheel, a plurality of lugs extending from said ratchet-wheel, a pivotally-mounted lever having two arms, one of which is cranked, and the other disposed in the path of movement of the lugs, pins projecting at intervals from the escapement-arm, and a guide-rod connected to the cranked arm and adapted to engage said pins.

5. The combination in a vending-machine, of a delivery-trough, a frame, a pair of cross-bars carried by the frame, a magazine-carrying plate, a guiding-bar secured thereto and extending through a guiding-recess in one of the arms, and a sheet-metal magazine-carrier secured to the plate and having movable flange portions for contact with a member of the magazine.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN A. HONABARGER.

Witnesses:

R. E. CLARK,
JOHN STROME.