W. I. RAVERT.

VENDING MACHINE.

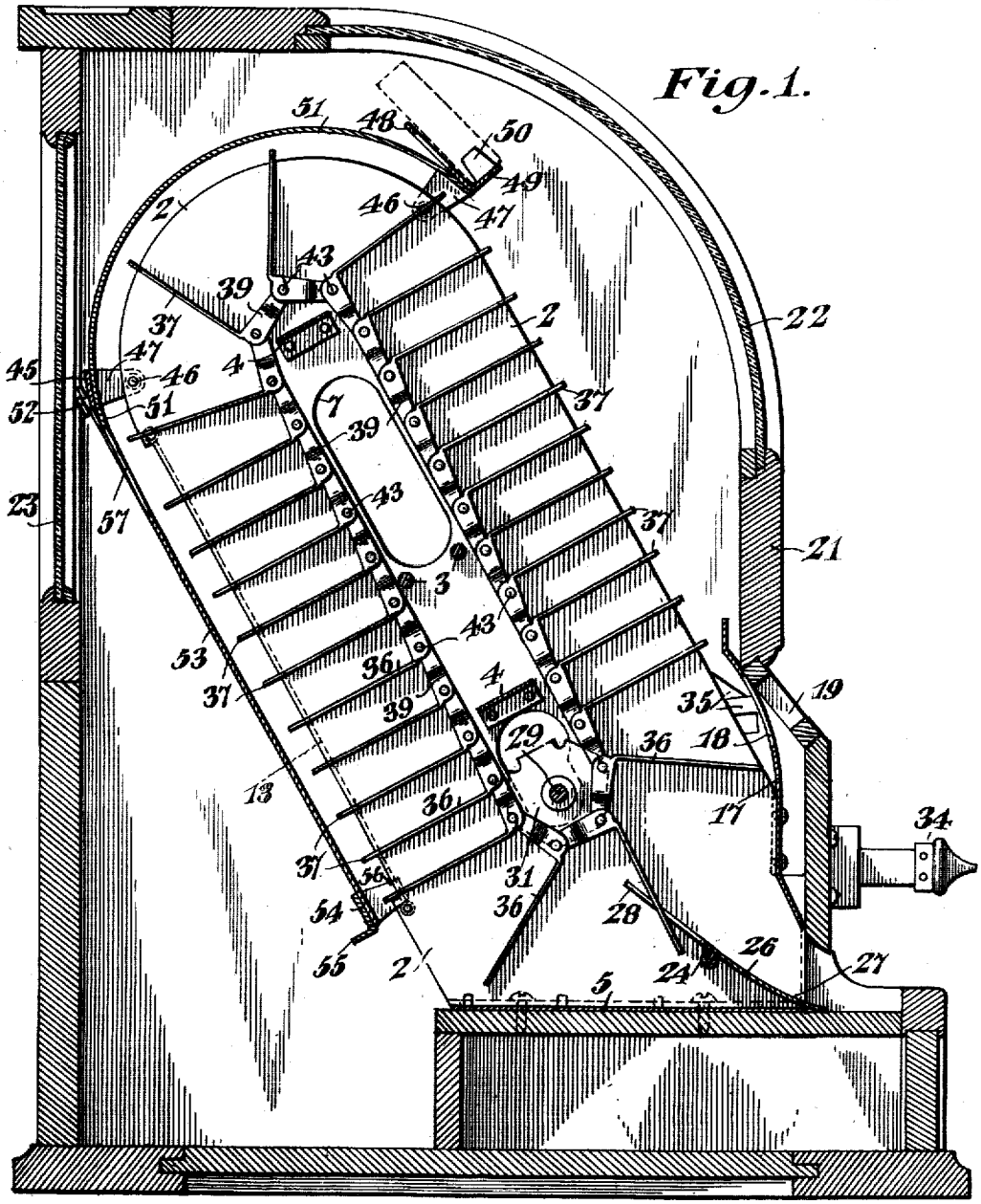
APPLICATION FILED MAR. 29, 1916.

1,260,578.

Patented Mar. 26, 1918.

5 SHEETS—SHEET 1.

Fig. 1.



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5 SHEETS—SHEET 2.

Fig. 2.

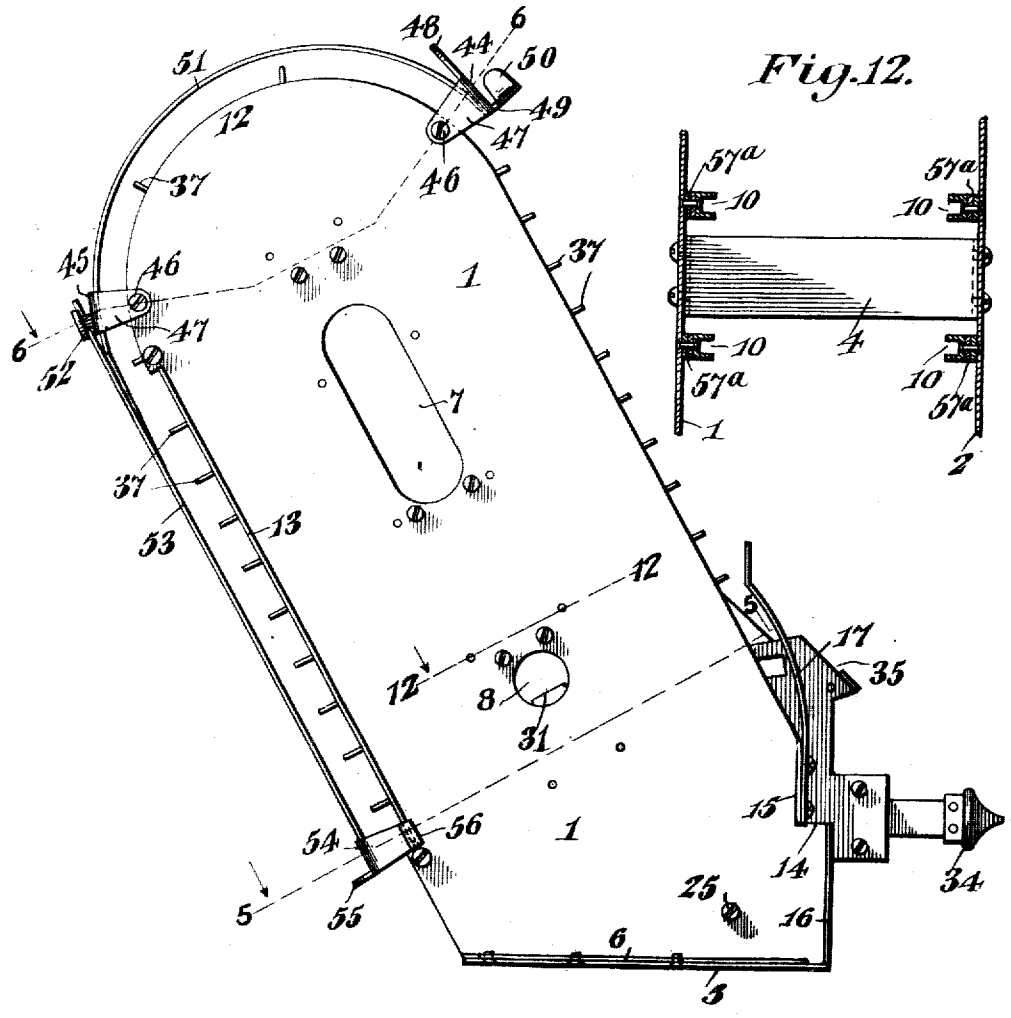


Fig. 12.

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5 SHEETS—SHEET 3.

Fig. 3.

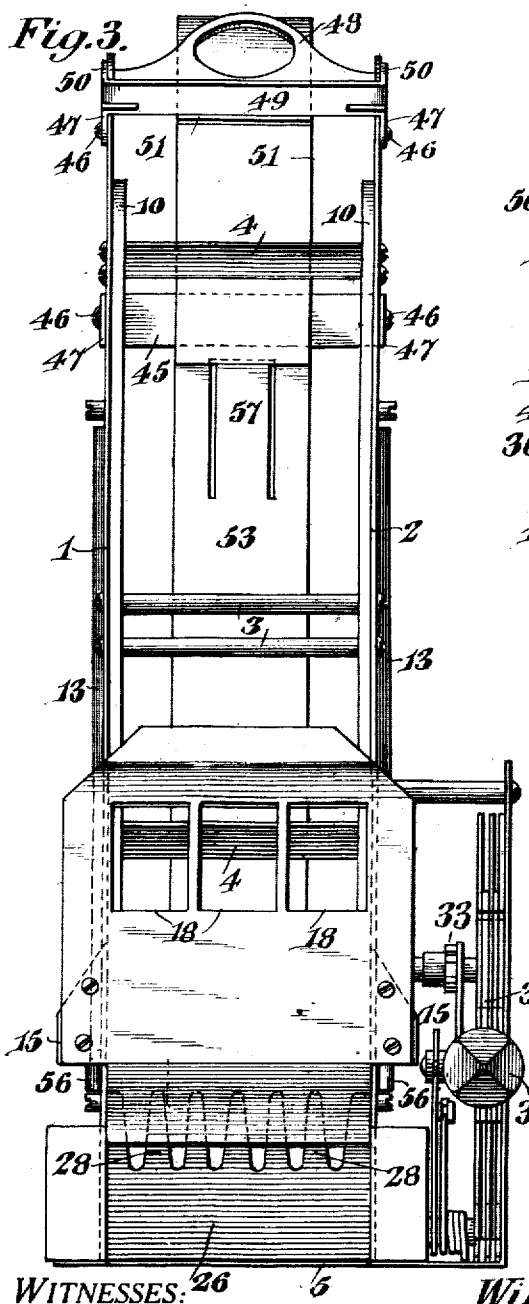


Fig. 5.

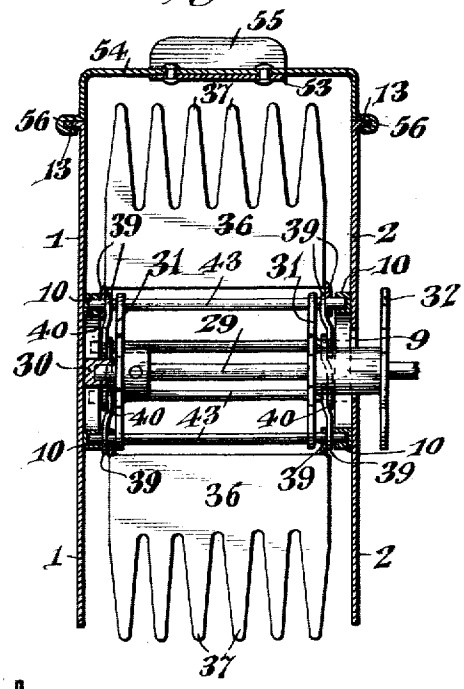
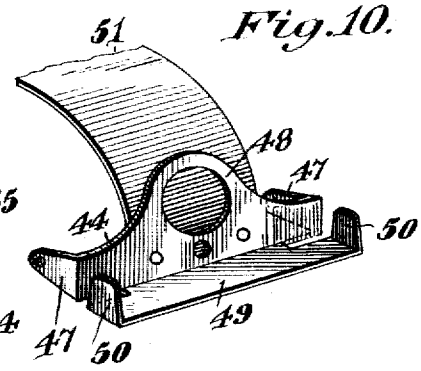


Fig. 10.



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5 SHEETS—SHEET 4.

Fig. 4.

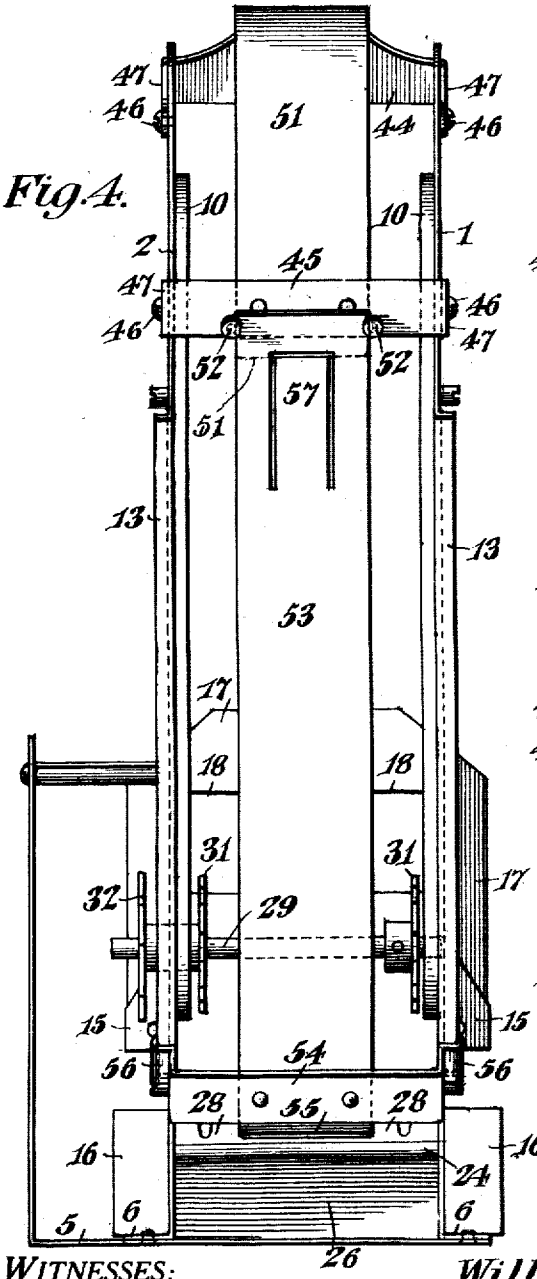


Fig. 6.

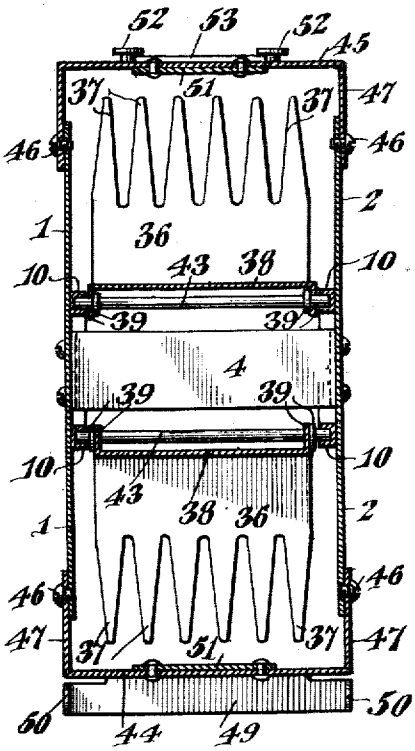
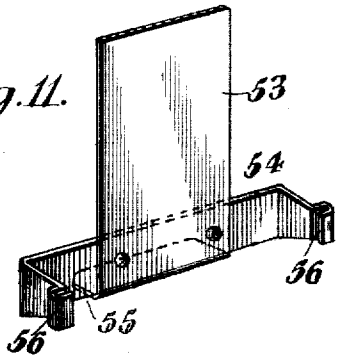


Fig. 11.



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5 SHEETS—SHEET 5.

Fig. 7.

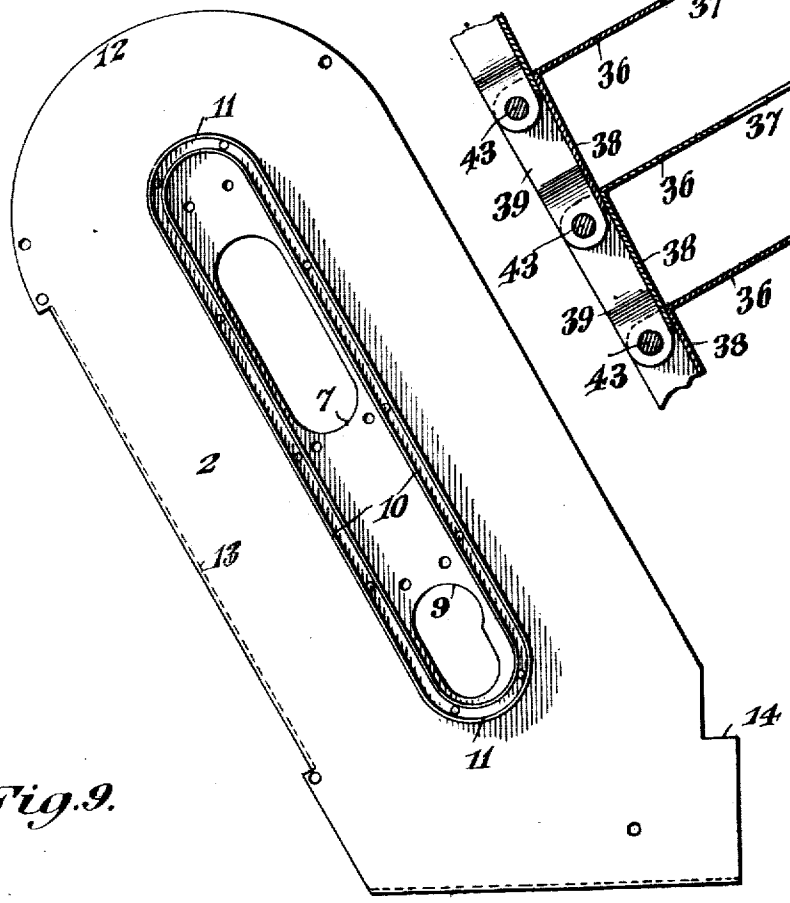
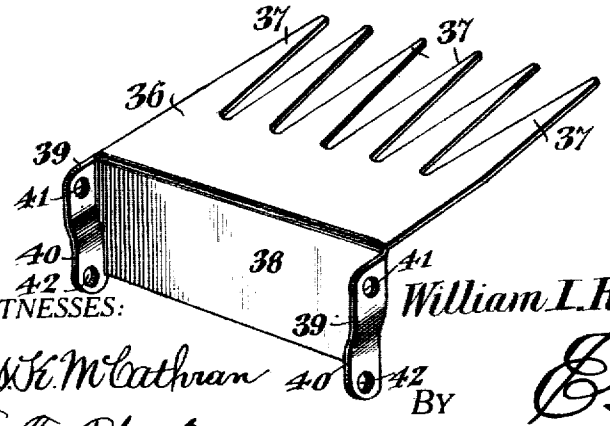


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLIAM ISAAC RAVERT, OF HAZLETON, PENNSYLVANIA, ASSIGNOR TO STANDARD AUTOMATIC MACHINE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF DELAWARE.

VENDING-MACHINE.

1,260,578. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed March 29, 1916. Serial No. 87,561.

To all whom it may concern:

Be it known that I, WILLIAM I. RAVERT, a citizen of the United States, residing at Hazleton, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention has reference to vending machines and its object is to provide a machine which may, if desired, be controlled by a coin lock, and which will accommodate and vend packages, solids, bags, and the like, of a wide variety of sizes and shapes without any adjustment of the carriers for such packages.

In accordance with the present invention there is provided an endless belt-like carrier having spaced vanes or blades outstanding from the carrier and associated with a casing or receptacle in such manner that the package or other article to be vended has a compartment individual thereto and in and with which the package travels.

The vending machine of the present invention is capable of association with other vending machines designed to deliver other kinds of commodities. For instance, the vending machine of the present invention is well adapted to deliver packages of cigarettes or bags of tobacco, and may have associated therewith means for vending cigars directly from the original boxes, but such cigar vending devices constitute no part of the present invention, although in the design of the present invention the associational feature is considered.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the further understanding that while the drawings show a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified, so long as such changes and modifications come within the scope of the appended claims.

In the drawings:—

Figure 1 is a front to rear vertical section of the vending machine of the present invention, with the endless conveyer shown in elevation.

Fig. 2 is a side elevation of the conveyer casing on the same scale and in the same general position as in Fig. 1.

Fig. 3 is a front elevation of the vending mechanism of Fig. 1 with the outer casing and the endless conveyer omitted.

Fig. 4 is a rear elevation of the structure of Fig. 3.

Fig. 5 is a section on the line 5—5 of Fig. 2 with some parts shown in Fig. 2 omitted.

Fig. 6 is a section on the line 6—6 of Fig. 2 with some parts omitted.

Fig. 7 is an inner face view of one of the side plates of the conveyer support.

Fig. 8 is a longitudinal section of a fragment of the conveyer.

Fig. 9 is a perspective view of one of the vanes or blades of the conveyer.

Fig. 10 is a detail perspective view of a portion of a holder for displaying a sample of the contents of the vending machine.

Fig. 11 is a detail perspective view of a slide employed in the machine.

Fig. 12 is a section on the line 12—12 of Fig. 2 but omitting the conveyer.

There is provided a skeleton casing made up of elongated side plates 1, 2, respectively, these plates being connected at suitable points and properly spaced apart by cross bars 3, 4, while the sides 2 rise from opposite sides of a base plate 5 to which the sides may be secured by outstanding flanges 6 formed on the lower ends of the slides, it being considered that the structure stands in an upright position with the side members tilted backwardly from what constitutes the front of the device, which front is the part of the device seen by the customer using the vending machine.

In the side plates 1 and 2 are elongated slots 7. The plate 1 has a passage 8 therethrough in line with the corresponding slot 7 and the plate 2 has a passage 9 therethrough about opposite the passage 8.

Fast to the inner face of each plate 1 and 2 is an effectively endless channel strip 10 bent into an elongated ellipse of sufficient width and length to include the passages 7 and 8 of one plate and 7 and 9 of the other. The sides of the ellipse formed by the channel strip 10 are parallel, while the ends indicated at 11 are semi-circles struck on a relatively short axis. The channels 10 generally conform in shape to the side plates 1 and 2, each side plate having its upper end

12 curved on substantially the same axis as the corresponding end of the elliptical channel strip. The rear edge of each plate 1 and 2 is cut in for a distance throughout a portion of the length of said edge, which portion may be nearly or quite as long as the ellipse made up of the channel strip 10 and the cut-in edge is turned over to form an elongated flange 13, the flanges 13 of the two plates 1 and 2 coinciding in position, but being directed away one from the other at substantially right angles to what constitutes the outer faces of the side plates 1 and 2. Each plate 1 and 2 has its front edge near the lower end notched-in, as indicated at 14, and this notched-in portion is bent outwardly to provide a flange 15. The front edge of each plate 1 and 2 below the flange 15 is also bent outwardly to form a flange 16. The flanges 15 have attached to them and support a transverse guard plate 17 with a passage 18 therethrough, which passage in the installed machine is opposite a window 19 in a panel 20 forming part of the main casing 21 of the machine. For convenience of inspection of the interior of the casing 21, glass panes 22, 23 are provided, but these features are not parts of the present invention and may or may not be used as the builder may desire.

Extending between the side plates 1 and 2 near the lower edges thereof is a rod 24 held to the side plates by screws 25 threaded into the rod or in any other suitable manner. The rod 24 has fast thereto a plate 26 of a length to extend between the inner faces of the side plates 1 and 2, and this plate has one edge slightly curved as shown at 27, and extends a short distance beyond the front edge of the bottom plate 5. The plate 26 is so arranged as to normally incline toward the rear of the machine and its upper edge is formed into a series of teeth 28 with the spaces between them conforming to other teeth to be described. The plate 26 is in the nature of a comb plate and is designed to insure the proper discharge of articles from the vending machine should for any reason such articles become stuck to the parts carrying them.

Extending across the space between the side plates 1 and 2 in the axis of curvature of the lower ends of the endless channel strips 10 is a shaft 29 having one end journaled in a barrel 30 fast on the inner wall of the side plate 1 and the other end extending through the passage 9 in the other plate 2. The shaft 29 carries sprocket wheels 31 between and suitably spaced from the inner faces of the plates 1 and 2 and outside of the plate 2 the shaft 29 has another wheel 32 fast thereto, which wheel is in the nature of a ratchet wheel whereby step by step rotation is imparted to the shaft 29 by mechanism generally indicated at 33 and controlled by a push rod 34 in turn controlled by a coin lock represented generally by coin chutes 35. The parts 32 to 35 may be taken as representative of any suitable coin controlled lock responsive to a coin of proper denomination, or to any one of a number of coins of different denominations. While the apparatus of the present invention is designed to be used in connection with a lock responsive to a proper coin for the release of the vending side of the machine, the structure of the coin lock does not enter into the present invention, and so is neither shown nor described in detail. All that need be considered about the coin responsive mechanism is that on the insertion of a proper coin the push piece 34 may be impelled by the operator, and this impelling movement is transmitted to the shaft 29 to rotate it in a proper direction and to a proper extent for the purposes of the present invention.

Movable about the tracks formed by the channel members 10 on the inner faces of the side plates 1 and 2 is an endless belt-like structure composed of a series of vanes or blades 36, one of which is shown separately in Fig. 9. Each blade has one end formed into a series of spaced teeth 37 so situated as to be in alternation with the teeth 28 of the comb plate 26. The points of the teeth 37 and their throats are preferably rounded, so that no sharp points are presented. That end of each plate 36 remote from the teeth 37 is bent at substantially right angles to the plane of the plate 36 to form a flange 38 and the end portions of each flange 38 have continuations 39 bent at right angles to the plane of the flange crosswise thereof, being slightly inset for a portion of their length, as shown at 40. The opposite ends of each continuation 39 have passages 41, 42 therethrough.

When the parts are assembled the more separated parts of the continuations 39 override the other portions 40 thereof, so that they overlap and the passages 41 and 42 of the continuations 39 of adjacent vanes match and are traversed by pivot pins 43 extending from one set of continuations 39 to the other and through both, the pins being long enough to have their ends seat in the channels 10. There is thereby produced an endless carrier of a length corresponding to the channels 10 and having outstanding wings or blades 36 spaced apart by distances corresponding to the separation of the passages 41 and 42. The plates 36 are each of a width somewhat less than the spacing of the plates 1 and 2 from each other, while the length of the plates away from their pivot connections is such that the tooth end of each plate projects a short distance beyond the margins of the side plates 1 and 2. The pins or rivets 43 constitute

engaging members for the sprocket wheels 31 mounted on the shaft 29, so that on turning the shaft 29 the conveyer or carrier made up of the connected vanes 36 is caused to move in a path defined by the channel members 10. Throughout the greater portion of the travel of the conveyer the runs thereof move in straight paths, but at the ends of the channel members 10 the conveyer blades move in curved paths corresponding to the curvature of the ends 11 of the channel members 10.

Near where the curved ends 12 of the plates 1 and 2 merge into the body portions thereof, straddle strips 44 and 45 are made fast thereto by screws 46 or in any other suitable manner. The strips 44 and 45 have angle extensions 47 at the ends spacing the bodies of the strips from the corresponding side members 1 and 2. The strip 44 is widened about midway of its width to form a backing support 48 for a purpose to be described. The strip 48 has an angle extension 49 along one long edge constituting a shelf, while the ends of the shelf are each bent at an angle to the body of the shelf to form a stop member 50. The strip 44, with its back 48 and shelf extension 49 having terminal stops 50, constitutes a display support for a sample of the packages or other articles to be vended. Such display support is so located, preferably at a high point in the machine, as to be readily visible through the window 22, but, of course, the display may be at any point desired. Fast at one end of the strip 44 is an elongated narrow guard plate 51 curved in conformity with the curvature of the ends 12 of the plates 1 and 2 and held in elevated spaced relation thereto. The strip or guard plate 51 is continued and made fast at that end remote from the straddle strip 44 to the straddle strip 45, thus arching over the upper end of the space between the plates 1 and 2 occupied by the conveyer. The strip 45 is provided on its outer face with spaced headed guide pins 52 between which is movable another elongated guard strip 53. At that end of the strip 53 remote from the end engaging the pins 52 in the normal position of the structure another straddle strip or plate 54 is provided and is secured to the guard strip 53 by riveting or otherwise, while the extremity of the strip 53 is bent over at approximately right angles to form a finger hold 55, by means of which the strip 53 may be manipulated. The ends of the straddle plate 54 are appropriately bent at about right angles to the length of the plate, and at their extremities are bent upon themselves to form short channel extensions 56 adapted to embrace the flanges 13 of the two plates 1 and 2 so as to slide therealong with sufficient friction to hold the strip 15 in any desired position of adjustment. The end of the strip 53 remote from the straddle plate 54 is formed with an elastic tongue 57 adapted to snap behind the end of the guard strip 51 fast to the straddle plate or strip 45. By such an arrangement the guard strip 53 may be raised and lowered along the flanges 13 in close relation to the projecting ends of the vanes 36 and when the strip 53 is in its lowermost position it constitutes a backing for the conveyer preventing the escape therefrom of any packages, as will hereinafter appear.

With a structure constructed about on the lines illustrated the vanes are spaced apart to serve as shelves and to define compartments between them capable of receiving and holding any size of cigarette package, most of the bags or boxes or cigarette tobacco, packages of cigarette papers, and a large variety of sizes of packages and bars of candy, nuts, etc. For larger packages it is only necessary to place the guards 51 and 53 farther away from the ends of the carrier blades or vanes 36, while when necessary the plates 1 and 2 are separated to a greater extent than before by introducing washers or strips 57^a under the channel strips or tracks 10 and wherever else needful. This does not mean any change in structure, but only the addition of spacing members so that one set of patterns, dies, etc., permits the construction of the device for a great variety of sizes of packages and articles to be vended.

To fill the structure the guard plate 53 is released by pressing the catch tongue 57 so that it no longer locks the plate in place, and then the plate is moved upwardly as far as it will go. Now packages are placed in the rearmost tier one at a time, beginning with the uppermost one and following down with the plate 53 until finally the lowermost limit of its travel is reached and the tongue 57 snaps into locking position. The front tier is filled with packages, thus completing the filling except for the three chambers or compartments at the top in the particular arrangement shown in the drawings. Now the machine is operated by means of suitable coins until a package appears at the sight opening 18, the operation causing the three spaces at the top of the machine to become filled. Now by filling the empty compartments front and back the filling is completed except that it is customary to place a display package upon the shelf 49. Of course, it will be understood that the main casing is closed and secured against access.

To obtain the package from the vending machine it is only necessary to insert a proper coin and manipulate the push piece, when the carrier is propelled forwardly one step corresponding to the spacing of the blades or vanes and the lowermost vane is moved toward the pendent position suffi-

ciently to discharge the package thereon and such package is delivered on to the plate 26 to fall into position to be accessible to the customer. The plate 26 with its comb teeth 28 alternating with the teeth of the vanes serves to discharge any package which might otherwise fail of discharge.

In the foregoing description no mention has been made of indicating plates, since they form no part of the present invention, but it will be understood that suitable indicating plates informing the customer of the coins to deposit in the machine are provided, and such other information as may be deemed advisable.

The vanes or blades 36 when assembled constitute an endless carrier for the articles to be vended, the vanes 36 then serving as shelves for supporting the articles, while the spaces between the vanes, together with the side plates 1 and 2, define compartments for the articles. The bent over ends or flanges 38 constitute backs for the compartments and the bent over extensions 39 constitute connecting flanges for the pivot pins or rods. Furthermore, the channel members 10 constitute runways for the projecting ends of the pivot pins or rods sustaining and guiding the carrier.

While the endless carrier is shown in the drawings as mounted so as to incline rearwardly with respect to the front of the machine, it will be understood that the carrier may be arranged upright or in any other suitable position.

What is claimed is:—

1. In a vending machine, a container for the articles to be vended comprising spaced side plates having matching runways with each runway in the form of a channel on and projecting from the face of the plate toward the other plate, and a carrier consisting of an endless series of shelves pivoted together with the pivots having their ends projecting beyond the sides of the shelves and seated in the runways to travel therealong and support and guide the carrier.

2. In a vending machine, a container for the articles to be vended comprising spaced side plates each having an endless runway thereon matching that of the other with each runway in the form of a channel projecting from that face of the plate directed toward the other plate, and a carrier consisting of an endless series of shelves each with a back member pivotally connected to the corresponding end of the next shelf in order and spacing the shelves apart, with the pivots connecting the shelves projecting beyond the sides of the carrier into the runways.

3. In a vending machine, a container for the articles to be vended comprising spaced side plates each having an endless runway thereon matching that of the other, and a carrier consisting of an endless series of shelves each with a back member pivotally connected to the corresponding end of the next shelf in order and spacing the shelves apart with the pivots connecting the shelves projecting beyond the sides of the carrier into the runways, each shelf having its outer edge provided with a series of teeth and the container having a toothed member mounted between the side plates with the teeth alternating with those of the shelves and said toothed member constituting a discharge chute for the carrier.

4. In a vending machine, a container for articles to be vended comprising spaced side plates, a carrier mounted between the side plates and consisting of an endless series of shelves each with a back member pivotally connected to the corresponding end of the next shelf in order and spacing the shelves apart and each shelf having its outer edge provided with a series of teeth, and a toothed member mounted between the side plates with the teeth alternating with those of the shelves, and said toothed member constituting a discharge chute for the carrier.

5. In a vending machine, a casing, and a container, for the articles to be vended, consisting of a unitary structure lodged in and secured to the casing and rising from the bottom thereof, said container comprising an inclined carrier in the form of an endless series of shelves pivotally connected together, fixed plates at opposite side of the series of shelves and each of a width to substantially cover both runs of the carrier, whereby the shelves and side plates together form pockets for the articles to be vended, and a guard plate carried by the side plates and constituting a closure for the lower run of the carrier.

6. In a vending machine, a container for the articles to be vended comprising spaced side plates, a carrier for the articles, lodged between the plates and comprising an endless series of shelves movable in the direction of the length of the series in the space between the side plates, the shelves and side plates defining a series of compartments opening outwardly, and a guard plate for the open ends of the compartments included in one run of the carrier, said guard plate being movable lengthwise of said run to expose the mouths of the compartments at the will of an operator.

7. In a vending machine, a casing, and a container, for the articles to be vended lodged within and independent of the casing, said container comprising fixed side plates having basic portions and means for securing the basic portions to the bottom part of the casing, and an endless carrier between and guided by the side plates and correspondingly inclined and composed of an endless series of shelves pivoted together, the side plates and shelves together defining re-

ceptacles for the articles to be vended having the mouths of the receptacles opening outwardly.

8. In a vending machine, a container for the articles to be vended comprising an endless series of shelves pivoted together, side plates having means for sustaining and guiding the series of shelves, and said shelves and side plates defining an endless series of compartments opening outwardly, a guard plate for one end of the series of shelves, and another guard plate for the open ends of the compartments of one run of the series, said guard plate being movable lengthwise of said run to permit the filling of the carrier by the successive exposure and closure of the open ends of the compartments over which the guard plate is movable.

9. In a vending machine for articles, a container for the articles to be vended comprising elongated side plates with a support from which the side plates upstand, a carrier lodged between the side plates and comprising an endless series of pivotally connected shelves, said shelves and side plates defining compartments for the articles with each compartment opening outwardly, one run of the conveyer being provided with a guard plate for covering the open ends of the compartments defined by said run and the other run of the conveyer having the compartments exposed to view, the container also having a display holder at the top of the exposed run of compartments.

10. In a vending machine, a carrier for the articles to be vended comprising an endless series of plates each having the inner or rear end at an angle to the main portion of the plate, pivot pins connecting the angle portion of each plate to the body portion of the successive plate whereby the plates are arranged in spaced relation one to the other with the pivot pins projecting beyond the sides of the plates at their rear ends, and channels receiving the projecting ends of the pins, whereby the endless carrier is supported and guided by the pins in the channels.

11. In a vending machine, a carrier for the articles to be vended comprising an endless series of plates each having the inner or rear end at an angle to the main portion of the plate, pivot pins connecting the angle portion of each plate to the body portion of the successive plate whereby the plates are arranged in spaced relation one to the other with the pivot pins projecting beyond the sides of the plates, and runways for the projecting ends of the pins, whereby the endless carrier is supported and guided by the pins in the runways, said carrier also being provided with propelling means comprising sprocket wheels engaging the pivot pins connecting the shelves together between the side edges of said shelves.

12. A vending machine provided with a container and an endless carrier therein for the articles to be vended composed of a series of plates each bent at one end to form an abutment for the article to be vended and at the same end provided with side flanges for connecting the plate to the corresponding side flanges of the next plate in order.

13. A vending machine provided with a container and an endless carrier therein for the articles to be vended composed of a series of plates each bent at one end to form an abutment for the articles to be vended and at the same end provided with side flanges for connecting the plate to the corresponding side flanges of the next plate in order, and the side flanges being each inbent at one end to seat the other end of the corresponding side flange.

14. A vending machine provided with a container and a carrier therein for the articles to be vended, comprising an endless series of plates each having one end formed with a laterally extended series of teeth and the other edge bent at an angle to the body of the plate in a direction lateral of the length of the plate with said bent portion having terminal perforated flanges with pivot pins extending through the perforations and connecting the flanges to thereby connect the plates into an endless series with the plates spaced apart.

15. In a vending machine, a carrier for the articles to be vended comprising an endless series of plates constituting shelves for the articles with pivot pins connecting the shelves and extending crosswise thereof, and driving means for the series of shelves comprising sprocket wheels engaging the pivot pins between the side edges of the plates.

16. In a vending machine, a carrier for the articles to be vended comprising an endless series of plates constituting shelves for the articles with pivot pins connecting the shelves and extending crosswise thereof, and driving means for the series of shelves comprising sprocket wheels engaging the pivot pins, said sprocket wheels being located between the sides of the connected series of shelves and the pivot pins extending at the ends beyond the sides of the shelves, and runways in which the projecting ends of the pivot pins are lodged and constituting supporting and guiding means for the series of shelves.

17. In a vending machine, a container for the articles to be vended, comprising spaced side plates, an endless series of shelves lodged between and carried by the side plates for progressive movement, each shelf having its outer edge formed with a lateral series of teeth, and a plate mounted between the side plates and provided with a lateral series of teeth in position to alternate with the teeth of the shelves, whereby the toothed

edge of the plate extends into the spaces between the shelves for engaging the articles on the shelves and directing them away from the carrier.

18. In a vending machine, a container for the articles to be vended comprising elongated side plates each with one long edge provided with an outstanding flange matching the flange of the other plate, an endless series of shelves lodged between the plates and movable progressively therein, and a guard plate having a straddle strip at one end with ends formed to engage the flanges on the side plates to move therealong with the guard plate in closing relation to the corresponding run of the carrier.

19. In a vending machine, a container for the articles to be vended comprising elongated side plates each with one long edge provided with an outstanding flange matching the flange of the other plate, an endless series of shelves lodged between the plates and movable progressively therein, and a guard plate having a straddle strip at one end with ends formed to engage the flanges on the side plates to move therealong with the guard plate in closing relation to the corresponding run of the carrier, said side plates being also provided with another straddle strip with guides for the movable guard plate.

20. In a vending machine, a container for the articles to be vended comprising elongated side plates each with one long edge provided with an outstanding flange matching the flange of the other plate, an endless series of shelves lodged between the plates and movable progressively therein, and a guard plate having a straddle strip at one end with ends formed to engage the flanges on the side plates to move therealong with the guard plate in closing relation to the corresponding run of the carrier, said side plates being also provided with another straddle strip with guides for the movable guard plate, and said guard plate having a snap tongue to coact with the second-named straddle strip to lock the guard plate in closing relation to all the shelves of the run of the carrier over which the guard plate extends.

21. In a vending machine, a container for the articles to be vended, comprising supporting means, a carrier consisting of an endless series of shelves each having its outer edge provided with a series of teeth, and a toothed member in fixed relation to the shelves and having its teeth alternating with those of the shelves to constitute a discharge chute for the carrier.

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

WILLIAM ISAAC RAVERT.

Witnesses:
HARRY B. WELLIVER,
FRED M. BLETHEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."