

E. A. BOLEN.
 VENDING MACHINE.
 APPLICATION FILED OCT. 25, 1916.

1,310,601.

Patented July 22, 1919.

3 SHEETS—SHEET 1.

Fig. 1.

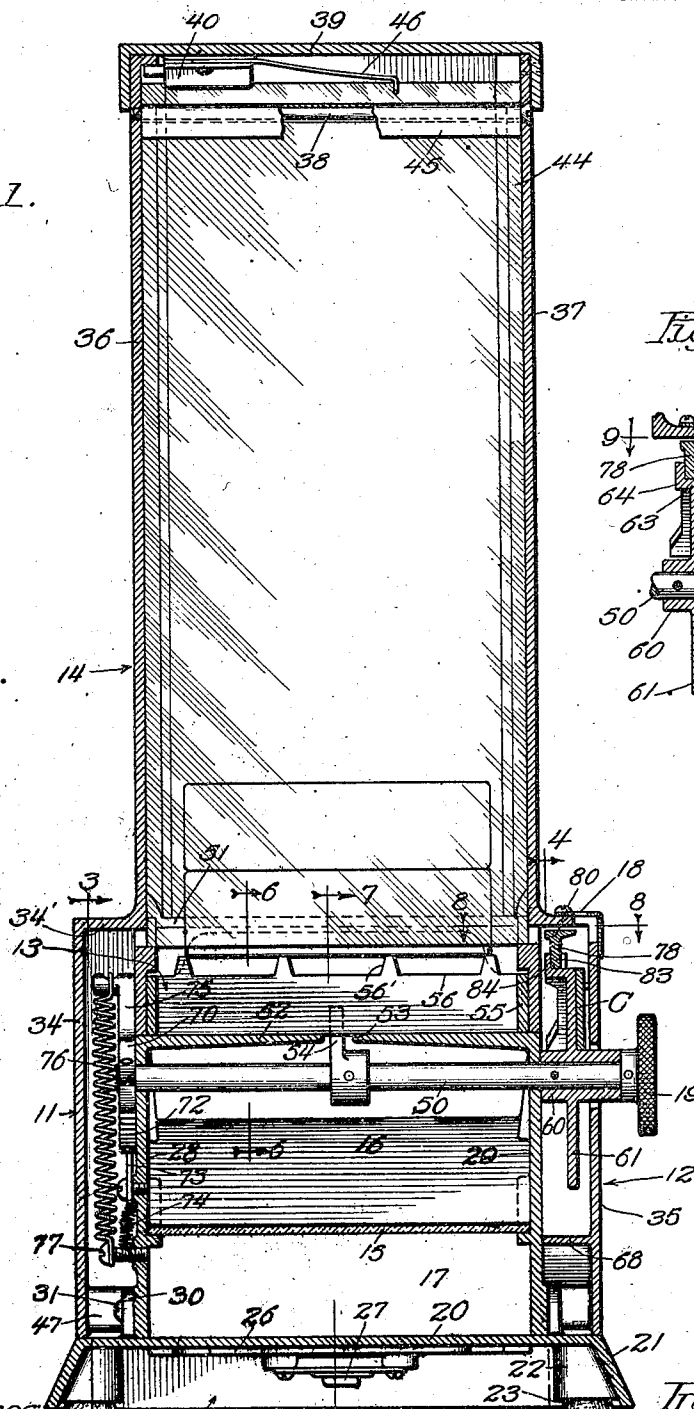
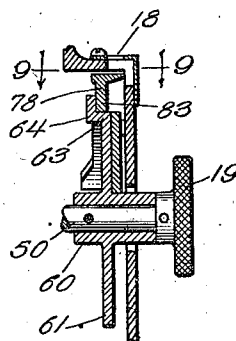


Fig. 2.



Witnesses
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3 SHEETS—SHEET 2.

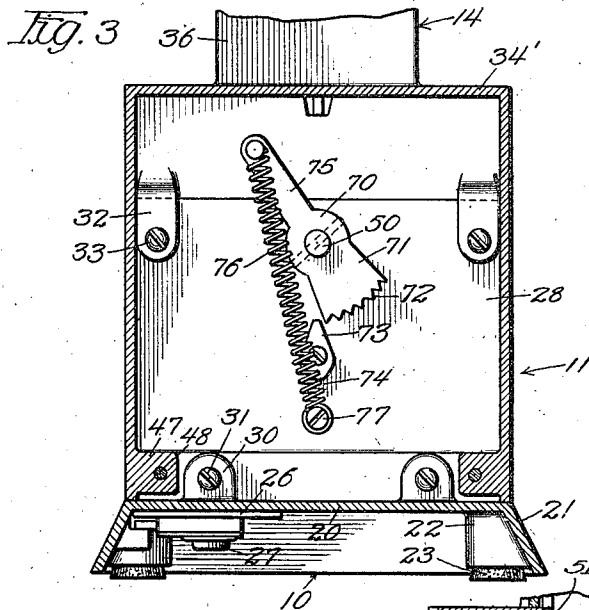


Fig. 5.

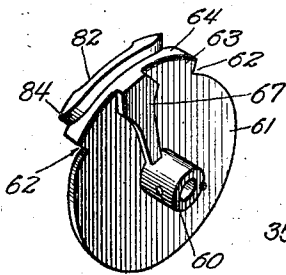


Fig. 6.

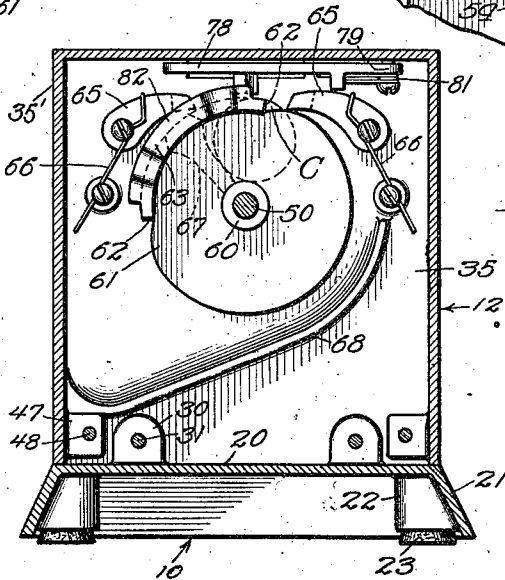
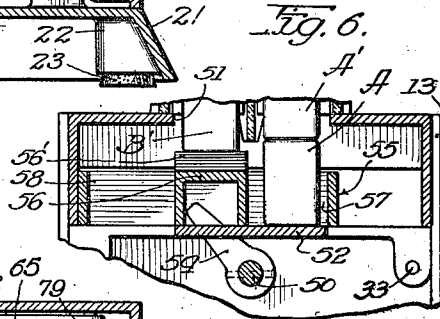


Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 7.

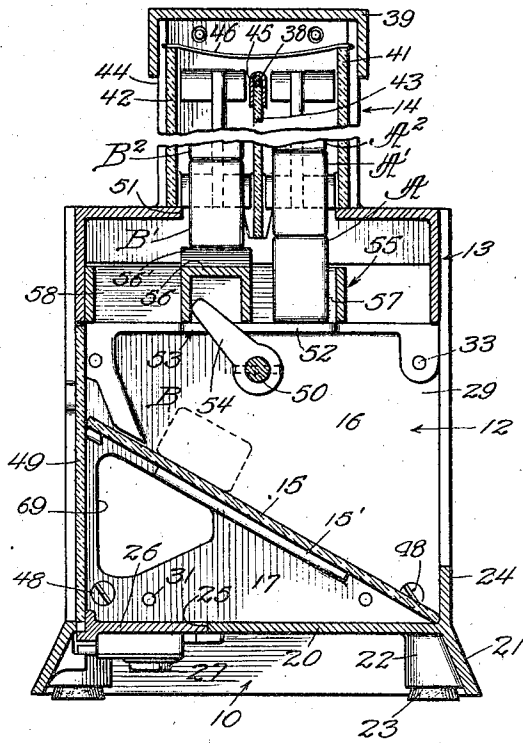


Fig. 8.

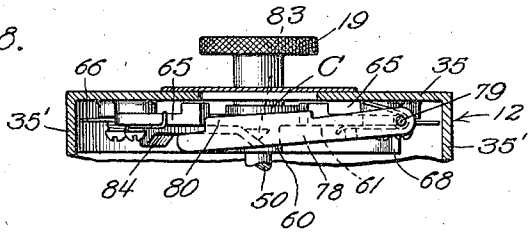
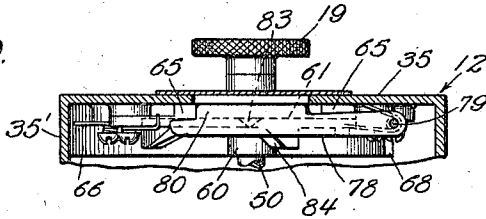


Fig. 9.



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UNITED STATES PATENT OFFICE.

EMERSON A. BOLEN, OF MORRIS, ILLINOIS.

VENDING-MACHINE.

1,310,601.

Specification of Letters Patent. Patented July 22, 1919.

Application filed October 25, 1916. Serial No. 127,591.

To all whom it may concern:

Be it known that I, EMERSON A. BOLEN, a citizen of the United States, residing at Morris, in the county of Grundy and State of Illinois, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to improvements in vending machines and more particularly to a coin controlled machine for dispensing small articles such as five cent packages of gum or candy.

One of the objects of my invention is the arrangement of such a vending machine, whereby packages are alternately delivered into a common delivery chute from a double stack, the stacks being disposed one behind the other.

Another object of the invention is the provision in such a machine of a coin receptacle having one wall formed of transparent material which also serves as a chute for delivering the articles into a pocket where they may be readily removed by the purchaser. This transparent wall forming the bottom of the package chute permits the purchaser standing at the front of the machine to see his coin drop into the proper receptacle, the further actuation of the operating mechanism causing a package to drop upon the chute and slide forward to the front of the machine.

A still further object of the invention is the provision of an efficient positive and fraud-proof coin release mechanism which is inexpensive to build and not liable to derangement.

Still other and further objects will become apparent to those skilled in the art from a consideration of the following specification and drawing wherein:

Figure 1 is a transverse vertical sectional view through my improved mechanism.

Fig. 2 is a fragmentary vertical sectional view showing the coin actuated release mechanism in a position different from that shown in Fig. 1.

Fig. 3 is a longitudinal vertical sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a longitudinal vertical sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a perspective view of the coin release wheel detached from its associated parts.

Fig. 6 is a fragmentary longitudinal ver-

tical sectional view on the line 6—6 of Fig. 1.

Fig. 7 is a longitudinal vertical sectional view on the line 7—7 of Fig. 1.

Fig. 8 is a fragmentary horizontal sectional view on the line 8—8 of Fig. 1; and

Fig. 9 is a fragmentary horizontal sectional view on the line 9—9 of Fig. 2.

The machine in general comprises a base 10, side members 11, 12, a bridge 13 joining the tops of the side members and a superimposed package storing compartment 14.

A rectangular chamber formed by the base, side members and bridge is divided by an inclined glass partition 15 into a front opening delivery chute 16 and at the rear a coin receptacle 17. The side members are hollow, the one at the left Fig. 1 inclosing spring ratchet mechanism insuring complete actuation of the delivery mechanism when once started, and the side member at the right inclosing the coin controlled release whereby a coin dropped into the slot 18 permits actuation of the delivery mechanism by means of knob 19. Beneath the package storage compartment 14 within the bridge 13 is positioned a package delivery mechanism actuated by the hand knob 19.

More specifically the casing members forming the frame and the mechanism inclosing parts comprise, first in the base 10 a platform 20 around the rectangular periphery of which depends a skirt 21, the four corners, inside the skirt 21 formed with integral lugs 22 in which are set cushioning feet 23. At the front of the base platform 20 there is formed an upstanding lip 24 against the lower edge of which rests the glass partition 15 and which serves to prevent the packages after sliding down the chute from falling out of the machine. The platform 20 of the base forms together with the inclined glass plate 15 the bottom and top wall of the coin receiving compartment 17 and at its rear edge is provided with an opening 25 in which is positioned a removable door 26 secured by a lock 27 and by means of which the coin receptacle may be emptied of its contents.

A pair of similar plates 28, 29 are positioned in parallel planes with their lower edges resting upon the platform 20 and form the side walls of the compartments 16 and 17, as well as the inner walls of the two pedestals 11 and 12. Upstanding lugs 30

formed on the upper face of the platform 20 make contact with the outer edges of the plates 28 and 29 and are secured thereto by means of the screws 31, taking through the lugs and into the plates. The bridge piece 13 rests upon the upper edges of the plates 28 and 29 and is provided with downwardly extending ears 32 which overlie the outer faces of the plates and are secured thereto by means of the screws 33.

The outer walls 34, 35 of the side members are spaced outwardly from the inner walls 28, 29 to provide chambers within which the operating mechanisms are mounted, and are provided with inwardly extending side and top flanges 34', 35' to complete the inclosures. From the top flange of each outer wall there extends perpendicularly a plate 36, 37 forming the side walls of the article storing compartment 14. A stay bolt 38 extends across the center of the plates 36, 37, near their upper edges, and a cap or cover 39 overlies the top of the plates and is provided with a locking mechanism 40 by means of which it is possible to prevent unauthorized removal of packages from the storage receptacle.

Glass plates 41, 42 form the front and back walls of the storage compartment and a central glass plate 43 serves as a partition to divide the same into two compartments, the two compartments being positioned one in front of the other. The front and rear edges of the plates 36, 37 are intumed or flanged, as at 44, to aid in holding the front and back plates in position and the central plate is held at its upper end by a metal clip 45 bent in the form of a U and extending over the stay bolt 38 and including within its downturned legs the upper edge of the plate 43. A wire spring 46 carried by the cap 39 bears downwardly against the upper edges of the front and back plates 41, 42 and aids in holding them in position.

The lower ends of the outer walls 34, 35 of the side members 11, 12 are provided with lugs 47 having threaded apertures to receive the screws 48 which take through the inner walls 28, 29 and thus hold the parts in assembled position.

The glass partition plate 15 is inclined to the horizontal at an angle of approximately 30 degrees and rests upon inwardly extending flanges 15' formed integral with the inner faces of the side walls 28, 29. The rear of the casing is closed by means of a vertically positioned glass plate 49, the vertical sides of which lie within the rear intumed flanges 34', 35' of the pedestal casing and the lower edge of which rests upon the rear of the base platform 20. In assembling the plates, the plate 15 is slid from the rear downwardly upon its supporting flanges 15' and after being thus positioned the plate 49 is raised upwardly through the opening

25 in the base platform 20 and its lower edge then moved rearwardly upon the platform 20 at the rear of the opening 25, after which the door 26 is locked in position and the plates cannot be removed.

Thus far I have described only the casing members without reference to the coin release mechanism for dispensing packages.

The package delivery apparatus is mounted within the bridge member 13 and is actuated by the transversely extending shaft 50 which extends through both walls of the pedestal 12 and carries on its outer end the operating knob 19. The gum packages or other articles are stacked within the two storage compartments provided by the glass partitions 41, 42 and 43 which communicate with the interior of the bridge 13, through an opening 51 formed in the upper surface of the bridge and having a horizontal extent approximately equal to the cross section of the package storage compartments. Directly beneath the opening 51 and spaced downwardly therefrom a distance slightly greater than the vertical depth of the packages to be distributed, is a plate 52 of area approximately equal to the area of the opening 51 and formed from two inwardly extending flanges projecting from the upper edges of the inner side walls 28, 29 of the pedestals 11, 12. The inner edges of the tables 52 terminate short of the center so as to provide a central slot 53 through which projects a finger 54 pinned to the shaft 50 for actuating the dispensing mechanism.

Slidable upon the table 52 in a fore and aft, or front and back direction, is a distributing slide 55 having a centrally positioned elevated section 56 of a width slightly greater than that of the packages to be dispensed, flanked on the front and rear by openings 57, 58 extending vertically through the slide and of a horizontal extent greater than that of the packages. The finger 54 carried by the shaft 50 projects upwardly through the slot 53 into the hollow portion of the slide underlying the elevated platform 56 and by contact with the front and rear walls of the platform reciprocates the slide forwardly or backwardly accordingly as the knob 19 is turned forwardly or backwardly. At the front and the rear of the plate 52 are openings communicating with the delivery chute 16 so that when the parts are in the position illustrated in Fig. 7, with the elevated portion of the slide 56 underlying the rear package compartment and the front opening 58 of the table underlying the front package compartment, it is obvious that the lowest of the packages within the rear compartment rests upon the upper surface of the elevated portion 56 of the slide which incidentally is provided with spaced apart ribs 56' for reducing the frictional contact between the slide and packages thus

lessening the liability of sticking, whereas the lowest of the packages A of the front stack rests within the opening 58 of the slide upon the plate 52. The last rearward movement of the slide dropped the package B from the rear compartment downwardly upon the chute 15 and the package B' now rests upon the elevated portion. Oscillating the shaft forwardly moves the slide forwardly, pushing the package A off the forward edge of the plate 52 and dropping it into the chute. At the same time the raised portion 56 of the slide moves forwardly under package A' of the front stack, and out from under the lower package B' of the rear chute permitting package B' to drop downwardly into the rear compartment 58 of the slide and rest upon the plate 52. The next actuation of the mechanism moves the slide rearwardly and discharges package B' and permits package A² to drop within the compartment 58 of the slide.

From the above it will be obvious that oscillation of the shaft forwardly and rearwardly alternately delivers packages from first the front and then the rear compartment of the package storage receptacle. These packages are dropped, whether from the front or the back stack, downwardly upon the inclined glass plate 15 and slide to the front where they may readily be removed by the purchaser.

The coin actuated release mechanism, which obligates the purchaser to first drop a selected coin, such as a nickel, through the slot 18 before the handle 19 is released for movement to discharge a package, is contained within the chamber formed in the right hand hollow side member 12, see Fig. 1.

Mounted upon the shaft 50 and secured thereto is a hub 60 from which extends a flat disk 61 spaced inwardly from the outer wall 35 of side member 12 a distance approximately equal to the thickness of the chosen coin, indicated at C. The limits of oscillation of the shaft 50 are of course determined by the fore and aft extreme movement of the delivery slide 55, and in Figs. 4 and 7, the parts are shown with the shaft at its extreme rearward position. Spaced apart on the periphery of the disk 61 are notches or lugs 62, formed by the upwardly extending sector 63 which is flanged inwardly, as at 64, and for cooperation with these notches I have provided at each side of the center, spring actuated pawls 65, the ends of which are pressed inwardly by springs 66 so as to make resilient engagement with the periphery of the disk 61 and when in the position as indicated in Fig. 4, it is obvious that the pawl 65 at the right of the drawing engages the notch 62 at the right of the sector 63 and prevents forward movement of the shaft.

On dropping a coin C through the slot 18, the coin drops down against the hub 60 between the disk 61 and outer wall 35 of the casing. Its rearward movement is prevented by the radially extending lug 67 formed integral with the inner face of the disk 60 and extending outwardly to the periphery of the disk midway the ends of the sector 63. Forward movement of the nickel is prevented by its engagement with the pawl 65 and it is obvious that when the operator turns the handle 19 forwardly the radially extending lug 67 will bear against the rear edge of the nickel, forcing the same forwardly "camming" the front pawl 65 out over the shoulder 62 so that it rides upon the periphery of the sector 63 and thus does not interfere with the rotation of the shaft. The forward motion of the shaft therefore is transmitted to the dispensing slide 55 which on being moved forwardly drops package A downwardly on the inclined plate 15.

The nickel C, as soon as it has passed the point of the pawl 65, drops over the forward edge of the hub 60 and falling downwardly engages the guide way 68 cast integral with the inner face of the wall 35 of side member 12 from whence it is guided downwardly to the rear of the side member and dropped out through an opening 69 formed in the inner wall of side member 12 and into the coin receiving compartment 17.

In order to prevent partial operation of the mechanism and to prevent reverse movement of the handle after it has once started its oscillatory cycle, I have secured upon the left hand end of the shaft 50 and within the compartment formed in the side member 11 a hub 70 having a downwardly extending sector 71, the periphery of which is notched, as at 72, for engagement with the pivotally mounted pawl 73 which is normally held by means of the spring 74 in a vertical position so that when the shaft is rotated in a forward direction from that shown in Fig. 3, the ratchet teeth 72 engage pawl 73 moving it to the left and preventing retrograde or reverse movement of the shaft 50 until it has completely passed beyond the edge of the sector 71 which does not occur, of course, until the operating mechanism has completed its movement. To aid in securing a positive movement of the parts from one position to another I have provided an upwardly extending lever 75 formed integral with the hub 70, its upper end being connected by means of a spring 76 with a pin 77 carried by the casing at a point directly below the shaft 50. The spring 76 is tensioned as it moves from the position shown in Fig. 3, to a central vertical position, its tendency to compress then draws the shaft over the last half of its cycle with a quick positive movement.

To prevent "picking" of the coin actu- 130

ated release which might be accomplished by inserting a wire hook or the like through the slot 18 for the purpose of raising either one or the other of the pawls 65 I have provided a swinging gate 78 pivoted, as at 79, to the inwardly extending flange 35' at the top of the wall 35 so that the gate swings in a horizontal plane with its end portion 80 arranged to be swung into or out of register with the coin slot 18. A spring 81 normally tends to move the gate 78 away from the slot to open the same and permit the passage of a coin. In order to move the gate across the slot and close the same immediately after the first rotary movement of the shaft, such as normally follows the insertion of a coin, I have provided a double ended cam 82 which projects outwardly from the periphery of the sector flange 64 on the coin wheel 60. This cooperates with a downwardly extending lug 83 on the gate 78 so that the first rotary movement of the wheel causes engagement of the cam 82 with the lug 83 swinging the latter outwardly and sliding the gate across the slot 18 preventing passage therethrough of any foreign matter or tools or instruments for attempting to pick the lock. The gate 78 is held in its closed position until the wheel approaches the opposite end of its extreme travel when the end of the cam 82 which is beveled off, as at 84, permits the outward movement of the gate under the action of the spring 81. With the parts in the position shown in Fig. 4, a slight movement of the disk 60 to the right or in a clockwise direction, causes a closure of the coin slot before the right hand ratchet 65 engages its stopping lug 62. This arrangement prevents the insertion of a picking instrument or a coin with string attached, in an effort to raise the pawl 65 since the gate must complete its movement across the slot before the wheel can be turned farther.

In the above description I have referred only to the specific embodiment of the invention that is illustrated in the drawings. This is the preferred embodiment which my invention may take but it will be obvious to those skilled in the art that various changes or modifications may be made therein, without, however, departing from the spirit of the invention or the scope of the appended claims.

Having described my invention, what I claim is:—

1. A mechanism of the character described including in combination a frame forming a lower compartment, a plurality of storage compartments above said lower compartment, said storage compartments having openings at their bottom into said lower compartment, delivery mechanism for delivering packages in turn from said storage compartments to said lower compartment

including a support having a passage at each side into said lower compartment, a delivery slide movable on said support and having an intermediate solid portion with an opening on each side thereof, said support being located at a distance from said opening of said storage compartment slightly greater than the vertical depth of the packages to be distributed, the intermediate solid parts of the slide being adapted to aline with one storage compartment and one of the openings therein alines with the lower end of another storage compartment, means for moving said delivery slide to receive packages in alternation from said storage compartment, the package from one compartment resting upon the intermediate side portion of the slide while the package from the other compartment is positioned in the opening in the slide and rests upon said support, a further movement of said slide causing the package in the opening to move to one of the passages at the side of said support and drop into said lower compartment, this action taking place in alternation.

2. A mechanism of the character described including in combination, a frame forming a lower compartment, a plurality of storage compartments located above said lower compartment, said storage compartments having openings at their bottom into said lower compartment, delivery mechanism for delivering packages in turn from said storage compartments into said lower compartment, including a support located in said lower compartment at a distance from said openings slightly greater than the vertical depth of the packages to be distributed, said support also having passages on each side thereof into said lower compartment, a distributing slide member mounted for movement on said support and having an intermediate solid portion with an opening on each side thereof, said intermediate solid portion being adapted to aline with the lower end of one of said storage compartments when one of the openings alines with the lower end of one of the other of said storage compartments, means for actuating said slide including a manually operated shaft, a member on said shaft projecting through said support into engagement with said slide, so that when the shaft is rotated the slide will be moved to discharge the package which has dropped into one of the openings therein through one of the passages at the side of the support into said lower compartment.

3. A mechanism of the character described including in combination a frame forming a lower compartment, a plurality of storage compartments above said lower compartment, said storage compartments having openings at their bottom into said lower compartment, delivery mechanism for delivering packages in turn from said storage

compartments to said lower compartment including a support having a passage at each side into said lower compartment, a delivery slide movable on said support and having an intermediate solid portion with an opening on each side thereof, said support being located at a distance from said opening of said storage compartment slightly greater than the vertical depth of the packages to be distributed, the intermediate solid parts of the slide being adapted to aline with one storage compartment and one of the openings therein aline with the lower end of another storage compartment, means for moving said delivery slide to receive packages in alternation from said storage compartment, the package from one compartment resting upon the intermediate side portion of the slide while the package from the other compartment is positioned in the opening in the slide and rests upon said support, a further movement of said slide causing the package in the opening to move to one of the passages at the side of said support and drop into said lower compartment, this action taking place in alternation, and means to prevent reverse movement of the slide at points intermediate the ends of its cyclic movement.

4. A mechanism of the character described including in combination, a frame forming a lower compartment, a plurality of storage compartments located above said lower compartment, said storage compartments having openings at their bottom into said lower compartment, delivery mechanism for delivering packages in turn from said storage compartments into said lower compartment, including a support located in said lower compartment at a distance from said openings slightly greater than the vertical depth of the packages to be distributed, said support also having passages on each side thereof hinged to said lower compartment, a distributing slide member mounted for movement on said support and having an intermediate solid portion with an opening on each side thereof, said intermediate solid portion being adapted to aline with the lower end of one of said storage compartments when one of the openings alines with the lower end of one of the other of said storage compartments, means for actuating said slide including a manually operated shaft, a member on said shaft projecting through said support into engagement with said slide, so that when the shaft is rotated the slide will be moved to discharge the package which has dropped into one of the openings therein through one of the passages at the side of the support into said lower compartment, and means connected to said shaft to prevent a reverse rotation of the same before the slide has completed a full cycle of its movement.

5. A mechanism of the character described including in combination, a frame forming a lower compartment, a plurality of storage compartments above said lower compartment and having openings at their bottom leading into said lower compartment, delivery mechanism for delivering packages in turn from said storage compartment including a support located in said first mentioned compartment at a distance from said openings slightly greater than the vertical depth of the packages to be distributed, said support having a passage at each side thereof into said lower compartment, a slide member movably mounted on said support having an intermediate elevated platform, hollow underneath, and also having an opening on each side of said platform, said platform being adapted to aline with the opening from one of said storage compartments at the same time one of said openings in said slide alines with the lower end of another of said storage compartments, means for moving said slide including an element adapted to project into said hollow platform.

6. A mechanism of the character described including in combination, a frame forming a lower compartment, a plurality of storage compartments mounted above said lower compartment and having openings at their bottom communicating with said lower compartment, delivery mechanism for delivering packages in turn from said storage compartments including a support, the area of which is substantially the same as the combined area of the opening from said storage compartment into said lower compartment, said support being formed by a pair of inwardly extending members projecting from the side members of the frame, the inner edges thereof terminating short of each other so as to provide a slot therebetween, said support also having a passage on each side thereof into said lower compartment, a delivery slide mounted to move on said support and having an intermediate imperforate part with an opening on each side thereof, said intermediate imperforate part being adapted to aline with the opening in the bottom of one of said storage compartments at the same time that one of said openings in said slide alines with the opening in the bottom of another storage compartment, operating means for moving said slide including a shaft and an element connected to said shaft and passing through said slot into engagement with said slide, whereby when the shaft is rotated, the slide will be moved to discharge the package or article which is in one of the openings therein, through one of the passages in said support into said lower compartment.

7. A mechanism of the character described including in combination a frame forming a lower compartment, a plurality of storage

compartments located above said lower compartment and each having an opening in the bottom thereof communicating with said lower compartment, a delivery slide having
 5 an intermediate imperforate portion with an opening on each side thereof, said intermediate portion being adapted to aline with the opening in the lower end of one of said storage compartments at the same time one
 10 of said openings in said slide alines with the openings in the lower end of another of said storage compartments, and means for moving said slide so that articles are discharged from the openings therein from the storage
 15 compartments in alternation.

8. A mechanism of the character described including in combination a frame forming a lower compartment, a plurality of storage compartments located above said lower compartment and each having an opening in the
 20 bottom thereof communicating with said lower compartment, a delivery slide having an intermediate imperforate portion with an opening on each side thereof, said intermediate portion being adapted to aline with the
 25 opening in the lower end of one of said storage compartments at the same time one of said openings in said slide alines with the openings in the lower end of another of said storage compartments, and means for moving
 30 said slide so that articles are discharged from the openings therein from the storage compartments in alternation; a support for said slide having a passage on either side thereof into said lower compartment, the
 35 movement of said slide in one direction discharging an article from one of the openings therein through one of said passages, the movement of the slide in the other direc-

tion discharging an article from the other
 40 opening of the slide through the other passage into the lower compartment.

9. A mechanism of the character described including in combination a frame forming a lower compartment, a plurality of storage
 45 compartments above said compartment, said storage compartments having openings at their bottom; delivery mechanism for delivering packages in turn from said storage compartments, including a stationary plate
 50 member located in said lower compartment at a distance from said openings slightly greater than the vertical depth of the packages to be distributed, said plate member also having on each side thereof openings
 55 into said lower compartment, a distributing slide member mounted for movement on said plate member and having an intermediate imperforate part with an opening on each side thereof, said intermediate part being
 60 adapted to aline with the lower end of one of said storage compartments, when one of the openings in said slide alines with the lower end of another storage compartment, and means for moving said delivery slide to
 65 receive packages in alternation from said storage compartments and deliver them to said openings on each side of the plate member through which they pass into said lower compartment.
 70

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

EMERSON A. BOLEN.

In the presence of—
 EARL D. FULLER,
 VERNON GALSTER.