Aug. 24, 1954 F. A. GASTRIGHT 2,687,070

BULK MERCHANDISE DISPENSING MACHINE

Filed June 3, 1950 4 Sheets-Sheet 1

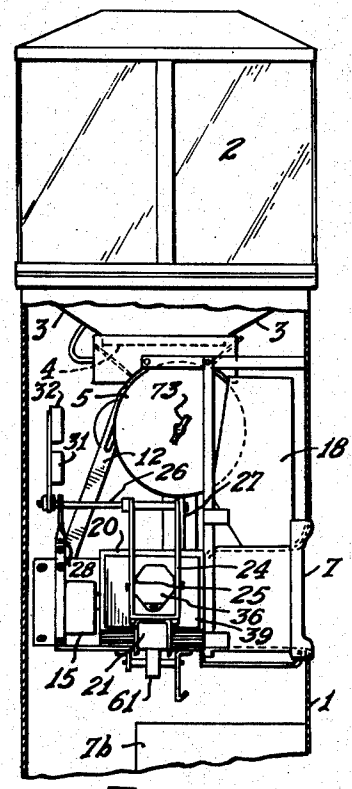


FIG. 3.

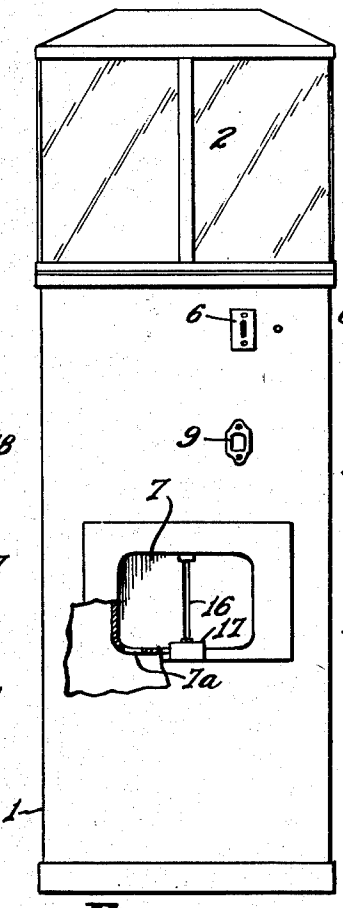


FIG. 1.

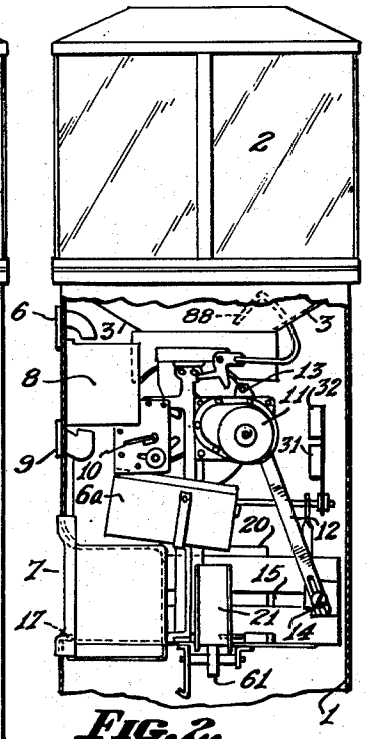


FIG. 2.

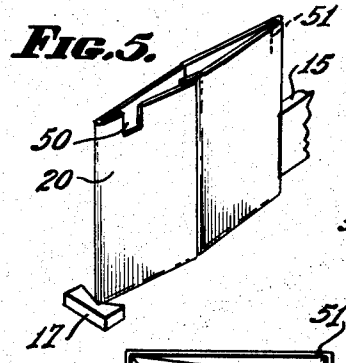


FIG. 5.

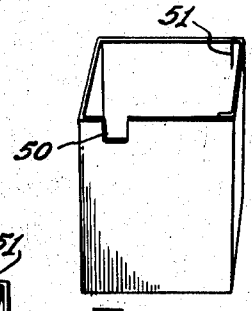


FIG. 6.

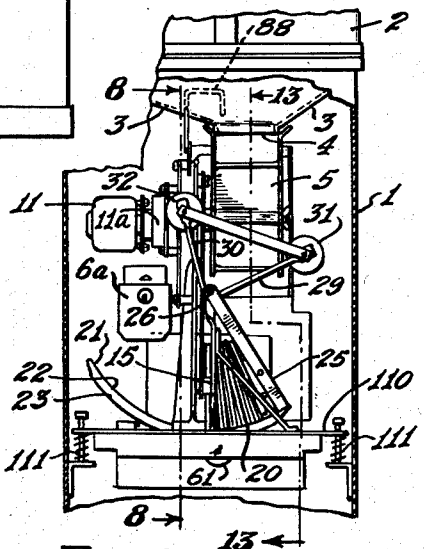


FIG. 4.

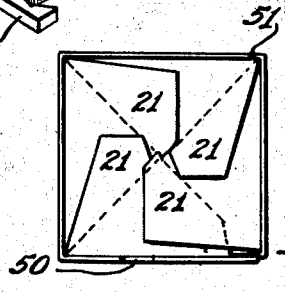


FIG. 7.

INVENTOR.
FRANK A. GASTRIGHT,
BY Allen & Allen
ATTORNEYS.

Aug. 24, 1954 F. A. GASTRIGHT 2,687,070

BULK MERCHANDISE DISPENSING MACHINE

Filed June 3, 1950 4 Sheets-Sheet 2

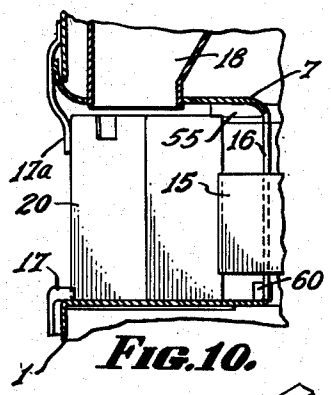


FIG. 10.

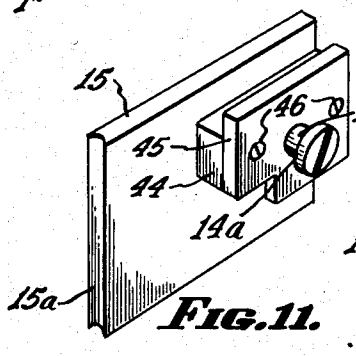


FIG. 11.

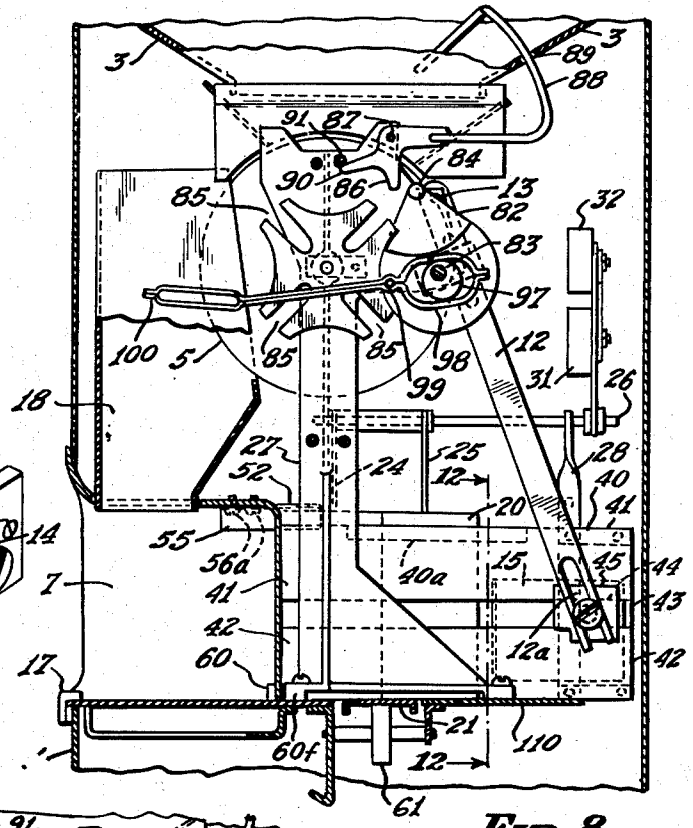


FIG. 8.

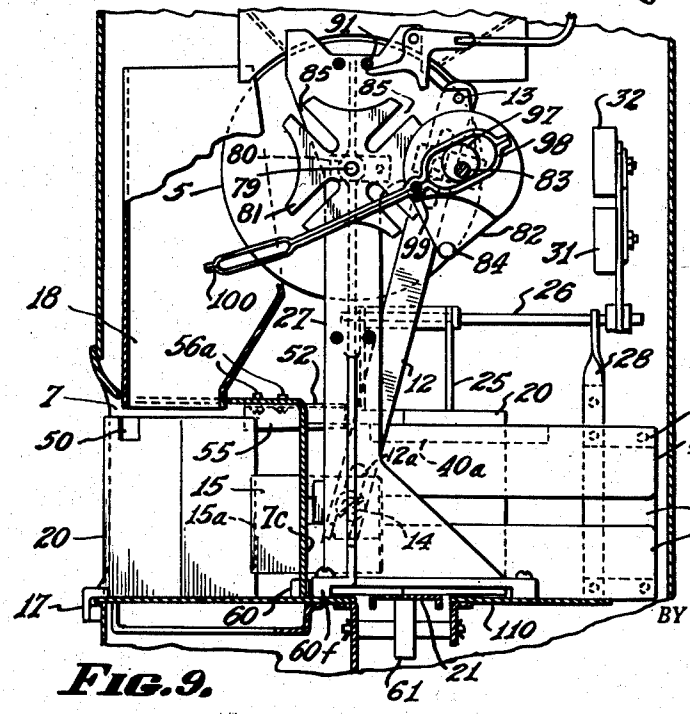


FIG. 9.

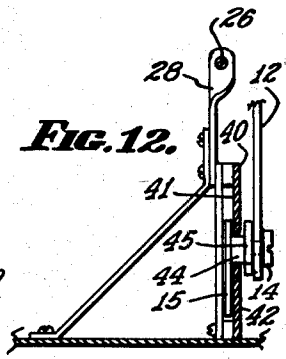


FIG. 12.

INVENTOR.
FRANK A. GASTRIGHT,
BY
Allen & Allen
ATTORNEYS.

Aug. 24, 1954 F. A. GASTRIGHT 2,687,070

BULK MERCHANDISE DISPENSING MACHINE

Filed June 3, 1950 4 Sheets-Sheet 3

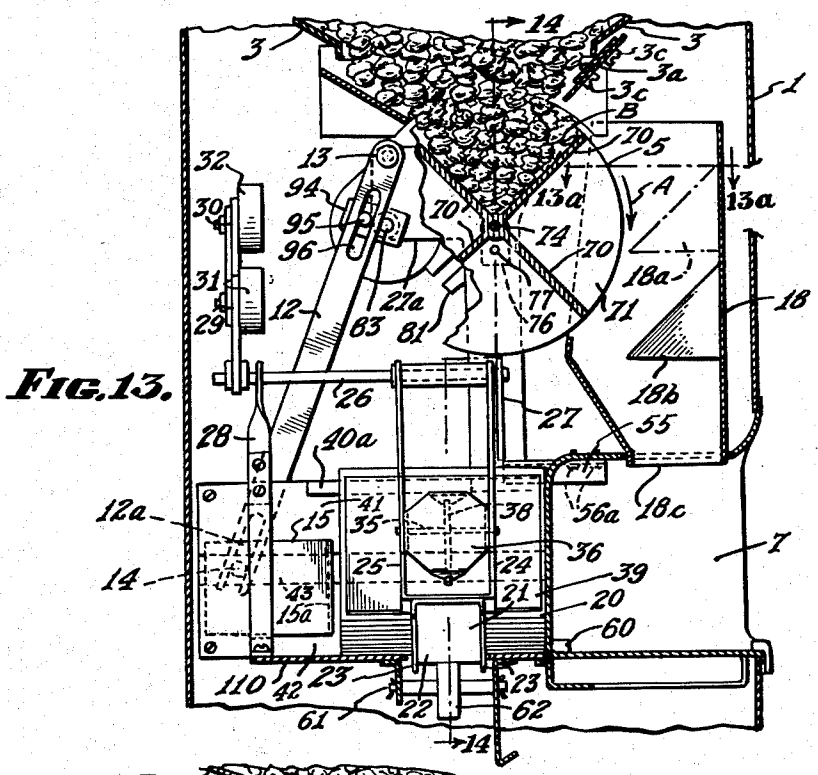


FIG. 13.

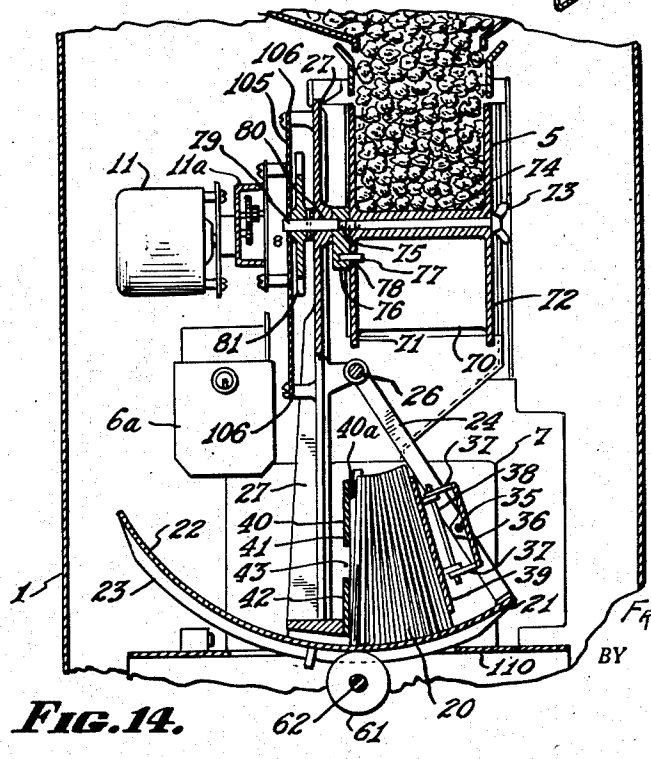


FIG. 14.

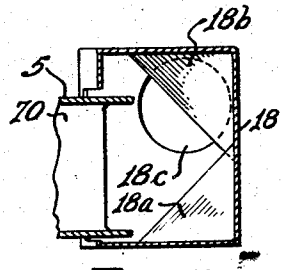


FIG. 13a.

INVENTOR.
FRANK A. GASTRIGHT.
BY
Allen Allen
ATTORNEYS.

Aug. 24, 1954 F. A. GASTRIGHT 2,687,070

BULK MERCHANDISE DISPENSING MACHINE

Filed June 3, 1950 4 Sheets-Sheet 4

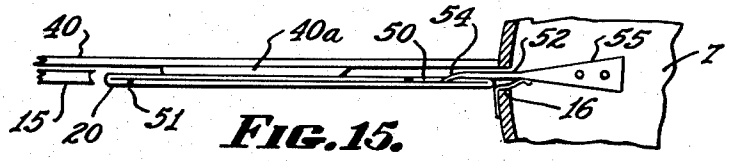


FIG. 15.

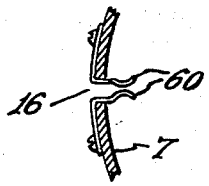


FIG. 19.

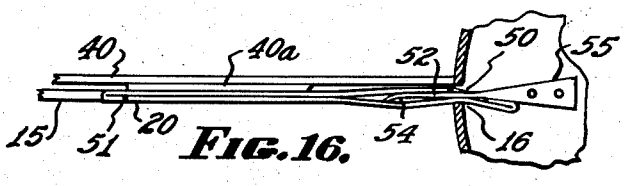


FIG. 16.

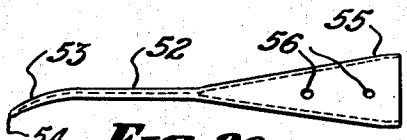


FIG. 20.

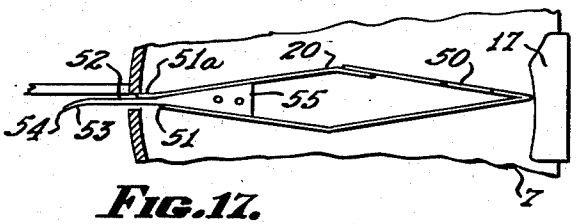


FIG. 17.

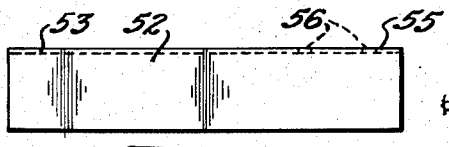


FIG. 21.

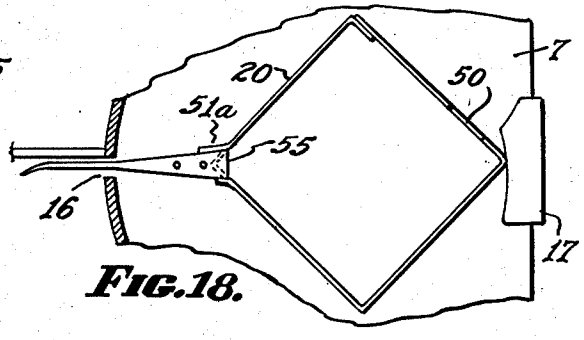


FIG. 18.

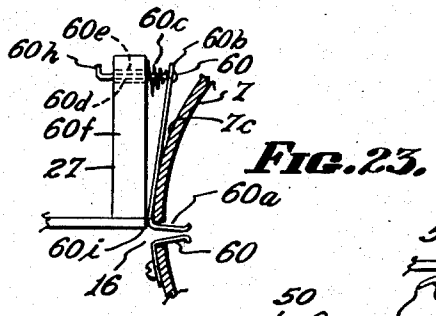


FIG. 23.

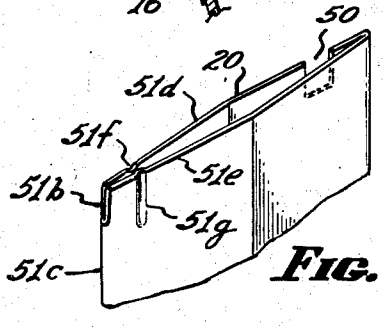


FIG. 24.

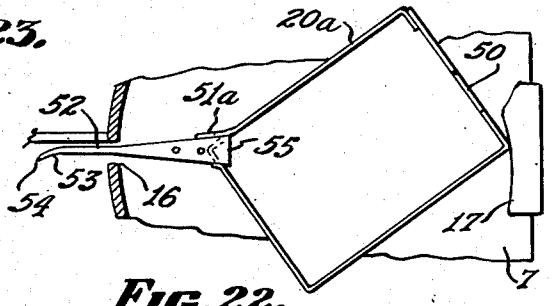


FIG. 22.

INVENTOR.
FRANK A. GASTRIGHT,
BY
Allen & Allen
ATTORNEYS.

Patented Aug. 24, 1954 2,687,070

UNITED STATES PATENT OFFICE

2,687,070

BULK MERCHANDISE DISPENSING MACHINE

Frank A. Gastright, Fort Thomas, Ky., assignor to The Queen City Manufacturing Co., Cincinnati, Ohio, a corporation of Ohio

Application June 3, 1950, Serial No. 165,989

4 Claims. (Cl. 93—53)

1

My invention relates to an improved bulk merchandise dispensing machine and particularly to such a machine in which bulk merchandise is dispensed in response to the deposit of a coin and discharged into a container in which the customer receives the merchandise.

It is my object in such a machine to provide a feeding device for cartons from a dispensing supply in which the cartons are stacked folded flat, in which in response to a coin deposit a folded carton is advanced to a position in which there is, first: a partial opening and breaking of the rigidity of the crimpled corners of the carton; secondly, a movement to full opening position at which cornerwise pressure causes complete setting up of the carton, and third, a filling of the carton with a measured quantity of material, and a complete release of the carton for the purchaser's withdrawal. The cartons used are of the type which when squared up have interlocking bottom flaps which form a bottom closure. I refer to such cartons as "lock type bottom closure cartons."

In such a mechanism it is my object to provide sufficient resistance to the feeding of the cartons as is consistent with successful feeding to the setting up position. Various other objects including a particular type of carton construction adapted to be successfully fed are within the scope of my objectives. The foregoing objects and other objects to which reference will be made in the ensuing disclosure, I accomplish by that certain combination of parts of which I have shown a preferred embodiment.

Figure 1 is a front elevation of my improved vending machine but having parts broken away and parts in section.

Figure 2 is a fragmentary elevation taken from the right of Figure 1, but having the casing broken away to show certain mechanism contained therewithin.

Figure 3 is a similar view taken from the left of Figure 1.

Figure 4 is a similar view taken from the rear of the machine, or from the right of Figure 2.

Figure 5 is a perspeective view illustrating a container especially suited for use in my machine, the container here shown being in flat or "knock down" condition.

Figure 6 shows the container of Figure 5 in squared up condition, suitable for receiving a measured portion of the merchandise to be dispensed.

Figure 7 is a top plan view of the container of Figures 5 and 6 showing how the bottom closure

2

flaps interlock to retain the container in squared up position.

Figure 8 is an enlarged sectional view taken along the line 8—8 of Figure 4.

Figure 9 is a similar view but showing the various parts in an alternate position.

Figure 10 is a fragmentary sectional view showing an alternate arrangement of parts which may be employed in the operation of squaring up the flat containers.

Figure 11 is a detail perspective view of the feed blade employed in my machine.

Figure 12 is a sectional view taken on the line 12—12 of Figure 8.

Figure 13 is an enlarged sectional view taken on the line 13—13 of Figure 4.

Figure 13*a* is a fragmentary sectional view taken along the line 13*a*—13*a* of Figure 13.

Figure 14 is a sectional view taken on the line 14—14 of Figure 13.

Figures 15, 16, 17 and 18 are semi-diagrammatic plan views, illustrating various steps in feeding, spreading and erecting a container.

Figure 19 is a detail view showing an arrangement of leaf springs employed to create frictional resistance at the bottom end of the cartons.

Figure 20 is a detail plan view of the container spreading member.

Figure 21 is a side elevation thereof.

Figure 22 is a plan view illustrating an alternate shape of container which may be used in my machine.

Figure 23 is a semi-diagrammatic plan view showing an alternate arrangement of the leaf springs of Figure 19.

Figure 24 is a fragmentary perspective showing an alternate arrangement of the carton.

Referring first to Figures 1 through 4, my improved vending machine is especially adapted for dispensing bulk merchandise, such as popcorn, peanuts in shell and shelled, potato chips, cheese coated corn streamlets and the like comestibles, soap chips and flakes and soap granules and other inedible products, and comprises in general, a casing 1 having mounted thereupon a bin or container 2, in which bin the merchandise is visibly displayed. At the bottom of the bin is a hopper having inclined side walls 3 and an opening 4 from which opening the bulk merchandise falls into a measuring device or rotary valve 5, wherein a measured quantity of the merchandise awaits operation of the valve in a discharge operation as will later be described.

A supply of cartons or containers 20, in knock

down or flat condition, is contained within the machine and with each dispensing operation one of these cartons is fed forward, squared up and suitably positioned to receive a portion of the merchandise.

The front of the casing or cabinet has a coin slot 6, and a delivery compartment or recess 7, from which compartment a portion of the merchandise, deposited by my machine within one of the cartons 20 may be removed by the purchaser at the completion of a dispensing cycle of operations.

When a coin is deposited in the slot 6, the coin passes through a selector device 8, which device, as well known in the art of coin operated mechanisms, either diverts the coin to the return cup 9 or permits the coin to follow a normal path of travel wherein it actuates a switch 10, and thereafter falls into a coin receiving box 6a.

Assuming that the switch 10 has been actuated by insertion of a proper coin, the switch closes an electrical circuit which energizes a motor 11. The motor 11, driving through suitable mechanism later to be described, in detail, actuates a feeding arm or lever 12 pivoted at 13. At its lower end the lever 12 engages a stud 14 mounted in a feed plate or blade 15, which blade is arranged to slide in suitable guideways later to be described. Movement of the lever 12 first pushes the blade 15 toward the front of the machine and later returns the blade to the starting position shown.

In its forward travel the blade 15 engages one of the knock down carton blanks 20, and pushes it forward through a narrow slot 16 in the back wall of the delivery compartment or recess 7. The leading edge of the knock down carton is thus urged into contact with an abutment 17 which restrains further travel of the carton. The relative positions of the carton, abutment 17 and feed blade 15 are illustrated in Figure 5. Further forward movement of the feed blade will now press the carton into its squared up condition as illustrated in Figure 6, whereupon locking tabs 21, formed in the bottom of the carton, become engaged to retain the carton in its erect or squared up position. Such carton construction is disclosed in the U. S. Patent No. 2,388,190 to which reference is hereby made. Other means comprising an additional spreading device, which engages the upper edges of the carton and functions to insure proper squaring up of the carton, are employed as will later be described in detail. The locking tabs 21 form no part of my present invention, the carton being of any well known bottom locking tab type in which, when the carton is squared up, the bottom tabs automatically interlock.

With the carton thus positioned in the delivery compartment, squared up and ready to receive its contents, the lever 12 and feed blade 15 retract from the carton toward the rear of the machine, while mechanism later to be described, actuates the rotary valve 5, before mentioned, to discharge a measured portion of the bulk merchandise into a delivery chute 18, the outlet of which chute (Fig. 9) is situated directly above the awaiting carton and is suitably formed to guide the merchandise into the squared up container.

With the merchandise thus dispensed into the container, the customer may remove his purchase from the machine.

At the completion of the discharge operation above described, and as the lever 12 and feed blade 15 approach their fully retracted positions, a cam actuated device opens the switch 10 to break the electrical circuit, thus permitting the mechanism to come to rest in proper position for a repeat operation, which repeat operation will occur when another coin is deposited in the coin slot 6.

Referring now to Figures 13 and 14, the supply of carton blanks 20 is stacked within an arcuate cradle-like member 21 having a supporting surface 22 and downwardly bent flanges 23 at either side to increase rigidity of the member. Fixed to the cradle 21 a pair of upwardly extending arms 24 and 25 are fastened onto a shaft 26, one end of which shaft is journaled in an upstanding bracket 27, the other end of the shaft being likewise journaled and supported by a twisted bar 28. Fixed to the outer end of the shaft 26 a pair of arms 29 and 30 have weights 31 and 32. This arrangement of weights and arms tends to urge the cradle 21 in clockwise rotation about the shaft 26, exerting pressure upon the cartons 20 as clearly seen in Figure 4. It may be here noted that if additional cartons 20 were loaded into the cradle 21, the cradle would of necessity be swung in a direction counter-clockwise to the position shown. Thus the weight of the added cartons, together with the weight of the structure described, would increase the tendency of the assembly to rotate in clockwise direction about its pivoted mounting, thus creating excessive pressure upon the carton blanks. However, as the number of cartons decreases, the tendency to rotate would become less, and it will be apparent that the arrangement of weights shown serves to counterbalance excessive pressure against the cartons, as might occur when the cradle is fully loaded, and also to provide suitable operating pressure as the number of cartons diminishes.

It will be readily apparent that the weights 31, 32, together with their supporting arms 29 and 30, may be replaced by a single weight mounted upon a single arm, the position and the amount of said single weight being equivalent to the center of gravity and turning moment of the two weight system shown.

Referring again to Figures 13 and 14, the cradle supporting arms 24 and 25 mount a pin 35 which provides pivoted mounting for a plate 36. The plate 36 has lugs 37 which mount a pin 38. This pin 38 is arranged at right angles to the pin 35 and provides pivoted mounting for a pressure plate 39 which bears against the stack of cartons. The combination of the pivotally mounted plate 36 and the pivotally mounted pressure plate 39 forms a universal joint. Due to this universal swivel mounting of the pressure plate 39 it will be apparent that pressure against the cartons is equally distributed.

By the arrangement just described the cartons are urged against a guide means or abutment generally indicated at 40 and comprising a pair of plates 41 and 42 rigidly mounted in position. The plates 41 and 42 are interspaced to provide an opening or slot 43, which slot serves as a track for the reciprocating feed blade 15 previously mentioned. The feed blade is shown in detail in Figure 11 and has an elongated block 44 adapted to slide in slot 43, and a wider plate 45 attached to the blade by screws 46 or by spot welding. The stud 14, previously mentioned as engaged by the lever arm 12, is preferably welded in place upon the feed blade assembly and has a headed portion 14a which retains the lever 12 in operative relation. As seen in Figure 12, the block 44 is of a thickness permitting the blade

15 to shift slightly toward or away from the guide bars 41 and 42. The leading edge of the blade 15 is grooved as at 15a to prevent slippage of the carton blank to either side as it is pushed forward. A narrow strip or pad 40a fixed along the upper edge of the plate 41, serves as will later be described.

Referring briefly to Figures 5 and 6, I have provided in one of the carton panels, a wide notch or cut-out portion 50. In the opposite side wall panel I have formed a slit 51. By virtue of the notch 50 and slit 51, I am enabled to employ a novel means to facilitate and insure proper opening and squaring up of each knock down carton as it is fed into the delivery compartment 7. As shown in Figures 20 and 21, this novel opening and spreading means comprises a thin metal finger 52, bent as at 53, and formed with a smooth, non-cutting point 54. At its other end the finger 52 is enlarged and spreads outwardly as at 55. Screw holes 56 provide for fixed mounting of the member. As clearly seen in Figures 8 and 9, the finger 52 is mounted by screws 56a to an upper surface of the delivery compartment 7. Figure 8 shows the position of parts at the start of a carton feeding operation, and Figure 9 shows their position at the completion of an operation, with the squared up carton 20 in position beneath the delivery chute 18.

Referring to Figure 15, the carton feeding operation will now be described. The knock down cartons 20 which bears against the abutment or feed plate 40 is so positioned that its notch 50 is entered by the point 54 of the finger 52. As the feed blade 15 moves forward pushing the carton to the position of Figure 16, the point 54 and the finger 52 enter between the carton side walls as shown. It will be observed that the pad 40a on the upper edge of the abutment plate 40 provides clearance for that carton wall having notch 50, thus allowing the wall to flex slightly outward and permitting free entry of the finger 52 between the carton walls. As the carton is advanced to the position of Figure 17, the flared portion 55 spreads the side walls slightly as shown to thus initiate squaring up of the carton in positive manner. In this figure it will also be observed that the finger 52 has entered the slit 51 of the carton wall. The slit 51 thus assists the trailing carton walls to pass the spreading device and in so doing a small flap 51a is torn rearwardly from the carton. The final squaring of the carton is as before described by action of the feed blade or pusher bar 15, pushing the carton against the abutment 17, whereafter the position of the carton will be as seen in Figure 18, the squared up position being retained due to the action of bottom locking tabs as previously mentioned. In this figure a portion of the carton is still engaged by the spreader 55 but this is not a requirement. The various parts may readily be designed and arranged so that the erected carton is positioned free of the spreader 55.

In Figure 22 I have shown at 20a an alternate form of carton. This carton, rectangular in shape, is equally adapted to use in my machine.

In Figure 24 I have shown a modification of the carton wherein the slit, indicated at 51b, is located in line with the line of articulation 51, joining the side wall panels 51d and 51c. Due to natural reaction of folded paperboard stock the thickness of any flat folded carton is slightly increased along the lines of flat (or 180°) fold, such as the fold line 51c. Thus in the vicinity of the slit 51b, the folding reaction is eliminated and reduction of thickness results throughout the length of the slit. This loss of thickness may interfere with proper feeding of the flat carton from the supply cradle. To remedy this difficulty and compensate for the said loss of thickness, I provide short score lines or indentations 51f and 51g in the carton walls 51d and 51c. As shown, these indentations are arranged to abut each other in the flat folded position of the carton. Thus they serve to increase thickness between the carton walls in which they are formed. Thus these indentations, located near the flat folded edge of the carton, serve to compensate for loss of thickness created by presence of the slit 51b, and proper feeding of the carton blanks is obtained.

As shown in Figures 9 and 19, a pair of small leaf springs 60 are arranged to frictionally engage a lower margin of the carton walls as the carton emerges through the slot 16 in the rear wall of the delivery compartment 7. The frictional action of these springs along the lower edge of the carton, tends to steady the carton and counterbalance any friction developed by action of the opening and spreading device at the upper edge of the carton, so that no tilting or rocking of the blank occurs during the feeding operation.

Referring now to Figure 23, I have shown a modification of the leaf springs wherein the spring 60a has a bent lever portion 60b and is urged to the position shown by a cone shaped compression spring 60c. To retain the spring 60c in operative relation, I may employ a pin 60d loosely mounted in a perforation 60e within the base 60f of the upright member 27. The pin 60d may have a headed portion 60g welded or otherwise fixed to the spring 60a and the other end of the pin may be bent as at 60h. In this modification the fulcrum of the spring 60a is indicated at 60i, the spring merely pivoting loosely between the portion 60f and the rear wall 7c of the chamber 7. Other modifications of the arrangement just described will readily occur to those skilled in the art.

As seen in Figures 13 and 14, a roller 61 mounted on shaft 62 serves to assist in supporting the cradle 21 and maintains the surface 22 and the carton blanks carried therein in required vertical alignment with the feed mechanism at all times.

As shown in Figure 10, I may employ, in addition to the abutment 17 at the lower end of the carton, an additional abutment member 17a to engage the upper end of the carton.

Referring briefly to Figures 1 and 3, it will be apparent that I may provide openings 7a in the bottom of the delivery compartment 7. These openings will permit any overflow or carelessly handled particles to fall into a receiver or waste receptacle 7b provided within the casing 1.

Referring to Figures 13 and 14, the rotary valve or measuring device 5 comprises a casting or fabricated structure having radial partitions 70 extending between circular side wall elements 71 and 72. The casting thus forms a wheel or rotor having four equally disposed pockets which serve as measuring cups in dispensing the merchandise. During the dispensing operation the rotor is advanced through a quarter revolution in clockwise direction as indicated by the arrow A. This action, as will be apparent, permits the merchandise to fall by gravity from the pocket and

through the delivery chute 18 into an awaiting carton.

Referring to Figure 13a, I have shown baffle plates 18a and 18b fixed within the delivery chute 18. These plates, triangular in shape and presenting downwardly sloping surfaces, are arranged to intercept the downward fall of a portion of the merchandise as it is discharged from the measuring valve 5. By virtue of these plates, therefore, a portion of the falling merchandise is diverted through a longer path of travel during its fall toward the discharge opening 18c. Thus the entire measured amount does not descend in a mass to the discharge opening, to perhaps clog the passageway and prevent proper discharge of the merchandise into an awaiting carton.

For convenience in cleaning or the like, the measuring rotor 5 is demountably attached by means of a thumb screw 73 (Fig. 14) having a long shank 74 which is threaded at 75. The threaded portion 75 engages a suitably tapped hole within a block 76, which block has a locating pin 77 adapted to enter an indexing hole 78 in the side wall 71. The block 76 is itself fixed to a short shaft 79 suitably journaled in a bearing portion 80 of the upstanding bracket member 27.

Fixed to the shaft 79 is the driven member or star wheel 81 of an intermittent drive arrangement, commonly referred to as a "Geneva" movement.

Referring now to Figures 8 and 9, the other member or driver 82 of the intermittent drive is fixed upon a shaft 83 suitably journaled as will presently be described.

It may here be noted that the shaft 83 and the elements mounted thereon, which will be presently described, control the sequence of the various independent operations required in the complete dispensing cycle and that the shaft 83 is driven through one full revolution during the dispensing cycle. The driver 82, as well known in the art, has a pin 84 which engages radial slots 85 in the star wheel 81 thus driving the star wheel and the rotary valve 5 through a quarter revolution for each complete revolution of the driver 82. As seen in these figures (8 and 9), the pin 84 travels in clockwise rotation and as it approaches the position seen in Figure 8 it strikes a short downwardly depending lever arm 86, which is pivotally mounted at 87. This action rocks the lever 86 through a short arc of movement counterclockwise about the pivot 87, whereafter the pin 84 advances beyond operative engagement with the lever and the lever returns by gravity to the position shown. Integrally mounted with the lever 86 is an arm or rod 88 which is bent as shown to pass through a perforation 89 in a bottom wall 3 of the merchandise storage bin. The rocking movement of the lever 86 is thus imparted to the rod 88, causing the rod to agitate the bulk merchandise and prevent arching thereof within the bin. It will be understood that the shape of the agitator or rod 88 may be modified in accordance with requirements of the particular merchandise dispensed. An abutment arm 90 integral with the lever 86 limits clockwise rotation by striking a stud 91.

Referring now to Figure 13, the shaft 83 also carries a plate or lever arm 94 which mounts a crank pin 95. This pin 95 engages a slot 96 formed in the lever arm 12, to oscillate the lever 12 as required. At its lower end the lever is slotted at 12a for engagement with the stud 14 previously described.

The shaft 83 also has an eccentrically mounted disc 97 (Figs. 8 and 9) engaged by a yoke 98. The yoke is formed integrally with a lever arm 100 pivotally mounted as at 99. It will be clear that as the shaft 83 revolves through one full revolution the lever arm 100 will be rocked downward to the position of Figure 9 and returned to that of Figure 8, which figure as before mentioned, shows the position of parts at the start and/or finish of a dispensing operation.

As the lever 100 approaches its upward position of Figure 8 the lever, acting through a device not here shown and forming no part of the present invention, actuates the switch 10, opening the electrical circuit to motor 11, and thus stopping the mechanism.

Referring briefly to Figure 13, I have shown the hopper wall 3a terminating short of its normal position relative to the measuring wheel or rotary compartmental feeder 5. An adjustable plate 3b, adjustable by means of slots (not shown) and screws 3c may be positioned as shown for preventing shearing of various materials being dispensed. By means of this adjustable feature shearing of any particular merchandise as the wheel 5 rotates, may be avoided by adjusting the clearance between wheel 7 and the hopper side wall 3a. Normally the clearance is due to the relative spacing of the compartmental walls of the feeder with respect to the hopper bottom, set for popped corn. Thus popcorn might require one setting of the plate 3b, while unshelled peanuts would take another setting. Shelled peanuts would take a third setting.

Referring to Figures 13 and 14, the motor 11, operating through reduction gearing, not shown but contained within a casing 11a, drives the shaft 83, which shaft is journaled in a sideward extension 27a of the bracket 27 and in a suitable bearing (not shown) in a plate 105, the plate 105 being supported by studs 106 extending from the bracket 27. Studs 107 extending from the plate 105, support the reduction gearing and casing 11a to which casing the motor 11 is mounted.

While not shown in the drawings, it will be readily understood that I may provide a door or access opening in the casing 1, so that the mechanism may be conveniently inspected and serviced.

It will also be apparent that for convenience in repairing or adjusting one of my machines, the critical parts, actuated by and including the motor 11, may be mounted on a common base plate generally indicated at 110, which plate as indicated in Figure 4, may be spring mounted as at 111 within the casing 1, and readily removable therefrom.

In the claims which follow I have described the machine with the coin actuating mechanism, which forms no part of my invention, as coin actuated without further particularizing the elements of which it is composed.

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

1. In a coin actuated combination carton setting up and merchandise dispensing machine, a horizontally pivoted cradle shaft carrying a cradle for holding a stack of lock type bottom closure cartons folded flatwise, a feed plate, a pressure plate having a universal joint mounting on the cradle for advancing the cartons against the feed plate, a pusher bar for advancing folded cartons from the feed plate end of the stack, at right angles to their side wall surfaces, and a weight

operatively connected with the shaft forming the pivot for the cradle for counterbalancing the cradle to equalize the weight of the cartons as they are fed by the pressure plate to cause substantially uniform pressure of the stack against the feed plate irrespective of the number of cartons in the stack.

2. In a coin actuated combination carton setting up and merchandise dispensing machine, a horizontally pivoted cradle shaft carrying a cradle for holding a stack of lock type bottom closure cartons folded flatwise, a feed plate, a pressure plate having a universal joint mounting on the cradle for advancing the cartons against the feed plate, a pusher bar for advancing folded cartons from the feed plate end of the stack, at right angles to their side wall surfaces, and a weight operatively connected with the shaft forming the pivot for the cradle for counterbalancing the cradle to equalize the weight of the cartons as they are fed by the pressure plate to cause substantially uniform pressure of the stack against the feed plate irrespective of the number of cartons in the stack, an abutment spaced adjacent the filling position and an initial spreader member actuated in a direction parallel to the direction of movement of the pusher bar for preparing the carton for complete squaring up by pressure against an abutment.

3. In a coin actuated combination carton setting up and merchandise dispensing machine, a horizontally pivoted cradle shaft carrying a cradle for holding a stack of lock type bottom closure cartons folded flatwise, a feed plate, a pressure plate having a universal joint mounting on the cradle for advancing the cartons against the feed plate, a pusher bar for advancing folded cartons from the feed plate end of the stack, at right angles to their side wall surfaces, and a weight operatively connected with the shaft forming the pivot for the cradle for counterbalancing the cradle to equalize the weight of the cartons as they are fed by the pressure plate to cause substantially uniform pressure of the stack against the feed plate irrespective of the number of cartons in the stack, an abutment spaced adjacent the filling position and an initial spreader member actuated in a direction parallel to the direction of movement of the pusher bar for preparing the carton for complete squaring up by pressure against an abutment, and resilient means bearing against the lower margin of the carton during the initial spreading operation to steady and prevent rocking of the carton.

4. In a coin actuated combination carton setting up and merchandise dispensing machine, a horizontally pivoted cradle shaft carrying a cradle for holding a stack of lock type bottom closure cartons folded flatwise, a feed plate, a pressure plate having a universal joint mounting on the cradle for advancing the cartons against the feed plate, a pusher bar for advancing folded cartons from the feed plate end of the stack, at right angles to their side wall surfaces, and a weight operatively connected with the shaft forming the pivot for the cradle for counterbalancing the cradle to equalize the weight of the cartons as they are fed by the pressure plate to cause substantially uniform pressure of the stack against the feed plate irrespective of the number of cartons in the stack, and an abutment member against which the lower margin of the leading corner edge of a carton abuts prior to its being squared up by pressure of the pusher bar against the opposed corner of the carton.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
43,129	Partz	June 14, 1864
816,273	Sunderman	Mar. 27, 1906
1,014,003	Hoyt	Jan. 9, 1912
1,437,863	Raymond	Dec. 5, 1922
1,466,310	Mann	Aug. 28, 1923
1,489,134	Ladd	Apr. 1, 1924
2,318,208	First et al.	May 4, 1943
2,550,032	Zabel	Apr. 24, 1951