June 2, 1964 A. C. WOODRUFF 3,135,422

ARTICLE DISPENSING DEVICE

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Fig. 1

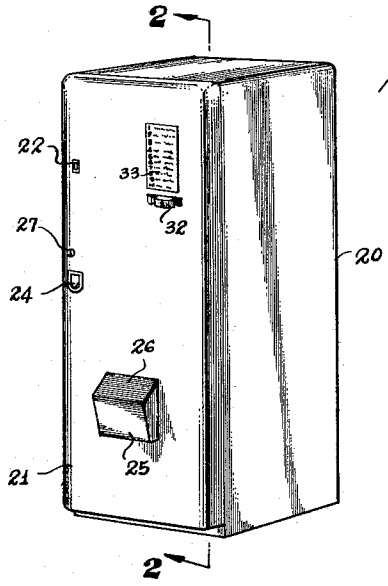


Fig. 3

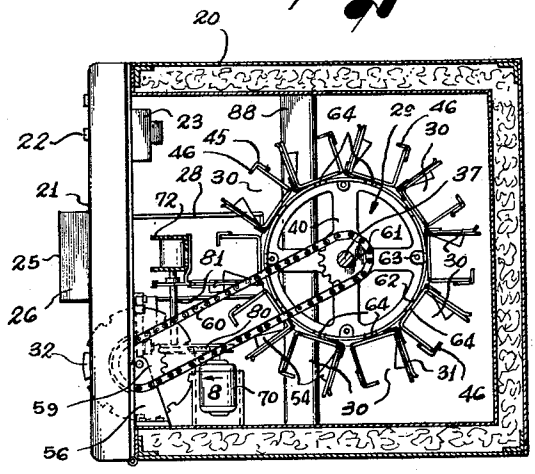


Fig. 4

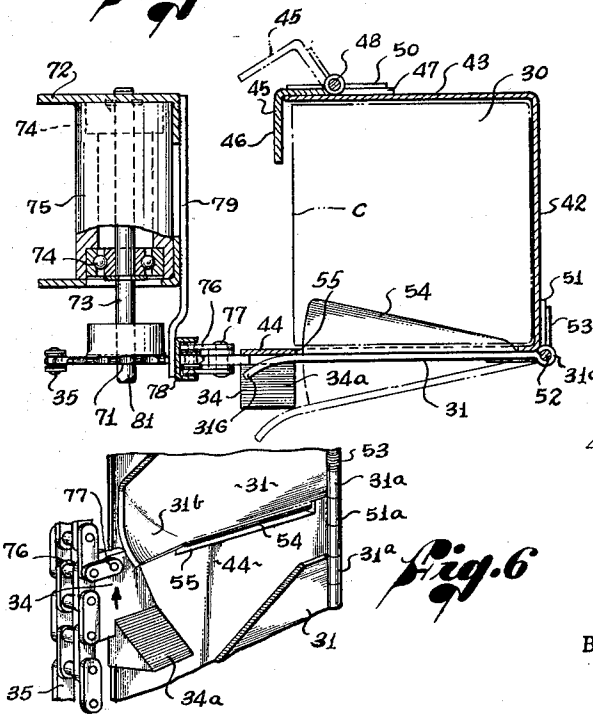


Fig. 6

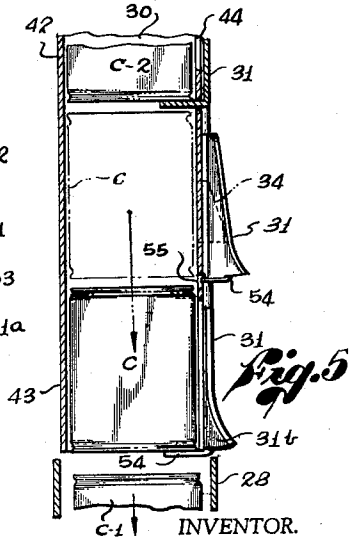


Fig. 5

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ARTICLE DISPENSING DEVICE

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Fig. 2

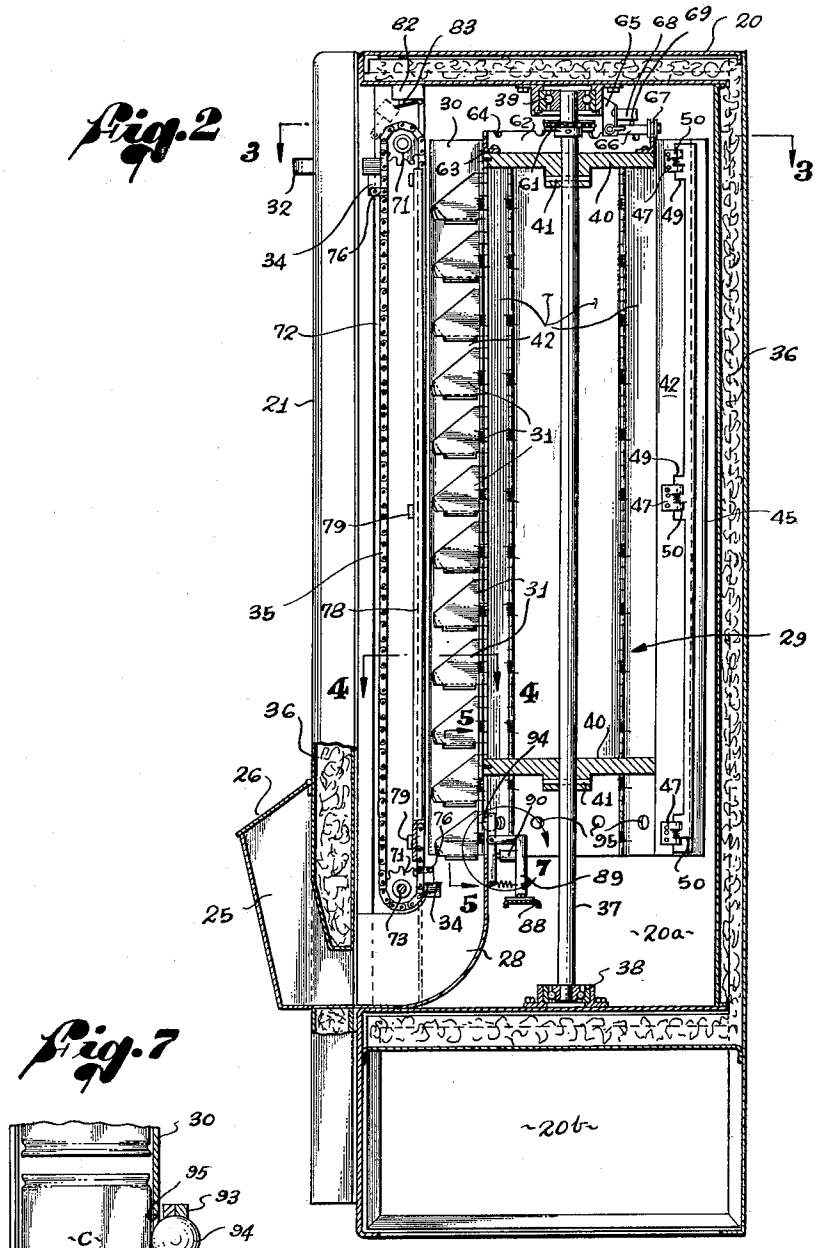
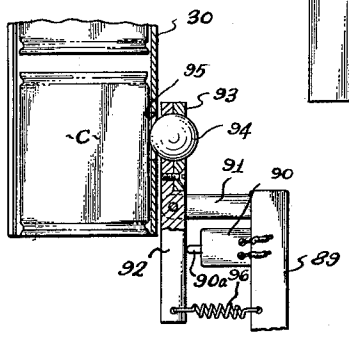


Fig. 7



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ARTICLE DISPENSING DEVICE

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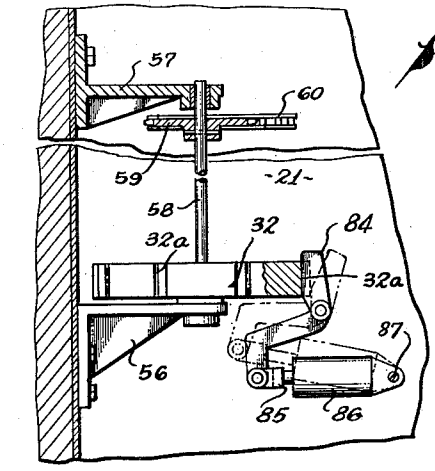


Fig. 8

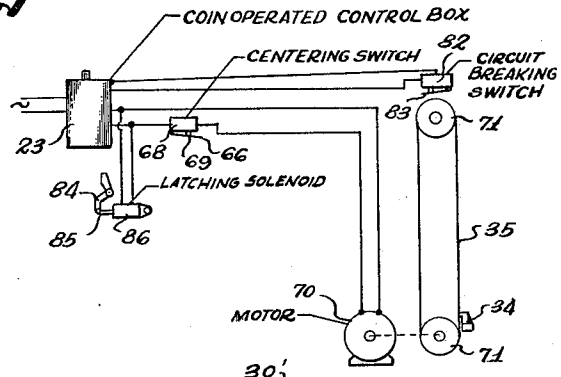


Fig. 9

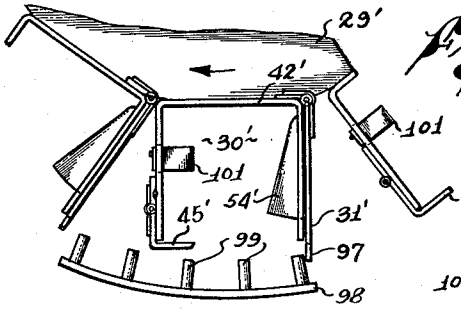


Fig. 11

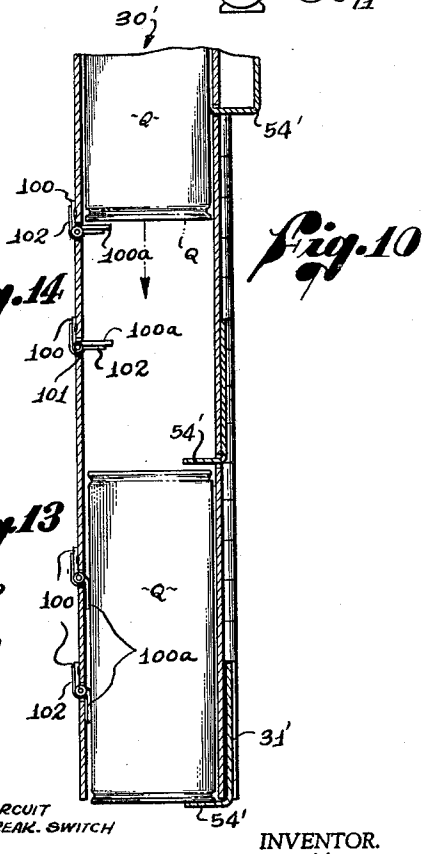


Fig. 10

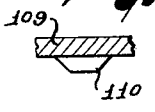


Fig. 14

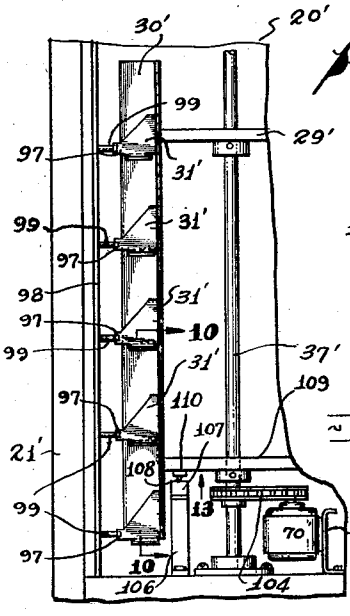


Fig. 12

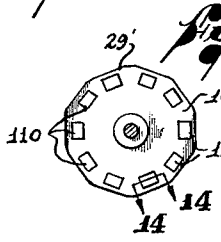


Fig. 13

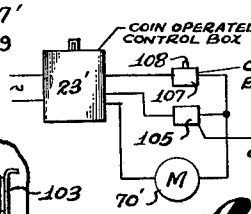


Fig. 15

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United States Patent Office 3,135,422 Patented June 2, 1964

3,135,422

ARTICLE DISPENSING DEVICE

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Filed Mar. 5, 1958, Ser. No. 719,407
18 Claims. (Cl. 221—9)

The present invention relates generally to vending machines and particularly to an improved coin actuated apparatus for dispensing a variety of articles such as, for example, cartons of a beverage.

The invention will be disclosed with particular reference to a dispenser for vending cartons of beverages. While the invention has many advantages in the handling of such cartons, it is to be understood that its use is not restricted to this type of commodity. As will be apparent, the dispenser of my invention is suitable for vending cans, bottles, boxes, packaged and unpackaged goods, hot or cold foods, and a great variety of other articles.

It has become common to package many varieties of beverages in wax coated disposable paper cartons and many such beverages are dispensed through the media of coin actuated vending machines. Although a variety of carton vending devices have heretofore been devised and marketed these prior devices have a number of disadvantages. As is well known, such cartons are available either with peaked or flat tops. In the case of the former design of carton the peak may prevent vertical stacking since the peaked roof or top does not provide a stable platform for the carton immediately above it. In the case of both peaked and flat top cartons, the low bursting strength thereof due to the fact that the cartons are made of a paper board material may render impractical vertical stacking of the cartons, since the lowermost carton would then be subjected to the weight of all upper cartons.

These same considerations have impeded efforts to provide a carton dispensing device in which the cartons are gravitationally lowered to position for dispensing. It will be appreciated that since the cartons are of relatively low bursting strength that if a vertical column of several cartons is dropped simultaneously towards a dispensing position that the lowermost receives the force of the combined weight of the cartons resting on top of it, with the consequent risk of bursting or leaking through minute fractures. It will be recognized however, that the utilization of a gravity feed dispensing mechanism has the advantage of avoiding a large power requirement such as is utilized in some of the prior art devices wherein all of the cartons stored in the dispenser are shifted for each vending operation of the machine. Taking into consideration the weight of the vended commodity, this power requirement may be substantial, although machines of this type may have the advantage of utilizing but a single dispensing mechanism assembly adapted for dispensing all of the cartons stored in the dispenser.

In other varieties of vending machines, something less than all of the stored articles are moved for each vending operation. However, dispensers of this variety commonly store the articles in completely independent groups so that a separate dispensing mechanism assembly is required for each group. Recognizing these and other disadvantages of the prior art devices, I have provided a dispensing device in which but a single dispensing mechanism assembly is utilized for vending all of the articles in the machine and in which only a portion of all of the stored articles is moved in each vending operation. Furthermore, recognizing the economies in manufacture, maintenance and use to be achieved by a gravity feed device, I have provided a novel dispensing apparatus of extremely simple structure utilizing gravitational advancement of articles arranged in vertical columns. The apparatus is adapted to support each article independently in such a way that the articles are sequentially independently lowered one step upon actuation of the apparatus, with the lowermost article of the column being dispensed.

With the foregoing objects of my invention in mind, it is also an object of the invention to provide a dispensing apparatus of a completely automatic nature which at the same time is extremely simple and efficient. As a result the dispenser of my invention is particularly adapted for installation at relatively low volume marketing points which would not warrant the installation of one of the complicated prior art devices.

Another important object of my invention is to provide a coin actuated vending device utilizing a novel actuating mechanism for permitting a column of articles to be gravitationally lowered into dispensing position and for dispensing the lowermost of such articles.

Another object of the invention is to provide a dispensing apparatus in which a single actuating mechanism is adapted for operative association with any one of a plurality of supply columns, which columns may include the same or several different kinds of articles.

Yet another object of the invention is to provide a dispenser which can be loaded quickly and easily.

Another object of the invention is to provide a coin actuated dispensing apparatus which can handle different sizes as well as different varieties of beverage cartons.

The foregoing and many other objects and advantages of my invention will be apparent from the following description of a presently preferred embodiment thereof as well as an alternate embodiment thereof and from the annexed drawings in which:

FIGURE 1 is a front perspective view of a refrigerated cabinet dispenser embodying my invention;

FIGURE 2 is a vertical sectional and elevational view, on an enlarged scale, taken in the direction of the arrows 2 of FIGURE 1;

FIGURE 3 is a horizontal sectional view taken along the line 3—3 of FIGURE 2 and particularly showing the means for selecting one of the plurality of columns of beverage contained in the dispenser cabinet;

FIGURE 4 is a cross sectional view, on an enlarged scale, taken along the line 4—4 of FIGURE 2 and showing one of the storage chutes for holding a column of beverage cartons, and the associated actuating mechanism;

FIGURE 5 is a partial vertical sectional view taken along the line 5—5 of FIGURE 2 and particularly showing the method of operation of the actuating mechanism;

FIGURE 6 is a partial perspective detail of the actuating mechanism of the preferred embodiment of my invention;

FIGURE 7 is a partial, vertical elevational and cross sectional view of the area 7 of FIGURE 2 showing a means for indicating emptiness of one of the storage chutes of the dispenser;

FIGURE 8 is a partial, vertical cross sectional view taken in the direction of arrow 8 of FIGURE 3 showing a latching solenoid means for preventing movement of the rotary storage drum of the dispenser during a dispensing operation;

FIGURE 9 is a diagram of the electrical circuit of the presently preferred embodiment of the invention shown in FIGURES 1 through 8;

FIGURE 10 is a partial vertical sectional view of an alternate form of storage chute, particularly adapted for large sizes of beverage cartons, the view being taken along the line 10—10 of FIGURE 12;

FIGURE 11 is a fragmentary plan view of an alternate form of actuating means particularly adapted for use with a chute of the form shown in FIGURE 10;

FIGURE 12 is a partial elevational view of an alter-

nate form of dispenser embodying my invention employing the storage chute and actuating means shown in FIGURES 10 and 11;

FIGURE 13 is bottom plan view, on a reduced scale, taken in the direction of the arrow 13 of FIGURE 12;

FIGURE 14 is a partial sectional view, on an enlarged scale, taken on the line 14—14 of FIGURE 13; and

FIGURE 15 is a diagram of the electrical circuit of the device shown in FIGURE 12.

Referring now to the drawings, FIGURES 1 through 9 illustrate a presently preferred embodiment of the invention particularly adapted for the vending of half pint cartons of the same or a variety of beverages, and also adapted without substantial change for the vending of pint cartons. For convenience, and not by way of limitation, this embodiment of the invention will be referred to as the "half-pint dispenser" while the embodiment shown in FIGURES 10 through 15 will be referred to as the "quart dispenser."

The general arrangement of the half-pint dispenser can best be understood from an examination of FIGURES 1 through 3. A refrigerated cabinet 20 of generally rectangular form is provided with a door 21, which comprises substantially the entire front panel of the cabinet. Opening onto the surface of the door 21 is a coin slot 22 which communicates with a coin actuating device 23 mounted on the interior surface of the door as indicated in FIGURE 3. The device 23 is of conventional construction and collects, inspects and rejects coins and can also be adapted for making change if desired. Also opening into the front surface of door 21, at a position beneath coin slot 22, is a coin return slot or opening 24, through which small change or rejected coins can be returned to the customer.

Near the bottom of door 21 and protruding outwardly therefrom, is a receiving tray 25 adapted to receive the vended carton of selected beverage which is removed by the purchaser through a normally closed gate 26 mounted on the upwardly opening mouth of the tray 25. The door 21 is, of course, normally held closed by a key actuated lock 27, seen at the lefthand side of door 21 in FIGURE 1. When closed, the door-mounted receiving tray 25 communicates at its inner end with a discharge chute 28 mounted inside cabinet 21.

A supply of the cartons to be vented is stored inside the cabinet 20 on a drum or magazine assembly 29 rotatably mounted on a vertical axis. The magazine assembly 29 includes a plurality of vertically extending supply chutes 30 equally circumferentially spaced thereabout. Each supply chute 30 contains a plurality of cartons, each of the cartons being individually supported by a member 31 resiliently mounted along one side of the chute 30. A beverage selector wheel 32 is pivotally supported in an upper interior portion of cabinet 20 but protrudes outwardly through the door 21 through a suitable opening for actuation by the customer. The selector wheel 32 is drivingly engaged with the magazine assembly 29 so that upon actuation by the customer of wheel 32 any selected one of supply chutes 30 can be halted in registration with the discharge chute 28. One of the cartons in the selected chute 30 can then be dispensed into the tray 25. In order to inform the customer of the variety of beverages available within the dispenser, a placard 33 is mounted on door 21 immediately above selector wheel 32, the placard 33 identifying each of the available beverages by a suitable identification number, which is correlated with a corresponding number imprinted on the selector wheel 32.

In order to actuate the dispenser, the coin device 23 is electro-mechanically operatively associated with a pair of cam members 34 carried at axially or diametrically opposite points on an endless roller chain 35. The assembly including the roller chain and cam members is stationarily mounted on suitable bracket means inside cabinet 20 in vertically extending position. Whenever

one of the supply chutes 30 is halted in registration with the discharge chute 28, one of the cam members 34 is adapted for slidably engaging each of the support members 31 when the dispenser is actuated.

Referring to FIGURE 2, for each actuation of the dispenser the cam members 34 travel one-half the length of the chain 35. The upward travel of the inside cam member 34 is consecutively translated into a releasing movement of each support member 31. Each carton is thus dropped one step (the length of one compartment) to be caught by a support member 31 in the next lower compartment, which returns to supporting position before a carton is dropped from the compartment above. The inside cam member 34 thus sequentially releases each of the cartons for a drop of one step with the lowermost carton of the chute being dropped into the discharge chute 28 and receiving tray 25. At the completion of a single dispensing operation, the inside cam member 34 engages a suitable switch to de-energize the coin device circuit, while the outermost cam member 34 has been advanced and lowered to a position in readiness for the next operation of the dispenser.

More specifically, the cabinet 20 is of conventional construction and has a larger upper compartment 20*a* adapted to enclose the actuating mechanism and storage magazine. A smaller bottom compartment 20*b* is provided in the cabinet to house a refrigeration unit of conventional design to maintain the compartment 20*a* at a desired reduced temperature. The walls of cabinet 20 defining the compartment 20*a*, as well as door 21, are of a double-wall construction to hold a suitable insulating material 36.

The magazine assembly 29 is rotatably mounted by means of an elongate, vertically extending shaft 37, approximately centrally located within the compartment 20*a* of the cabinet. The lower end of shaft 37 is journalled in a thrust bearing 38 which is rigidly secured by a suitable fitting to the floor of compartment 20*a*. The upper end of shaft 37 is similarly held on the ceiling of compartment 20*a* and rotatably mounted within a ball bearing 39.

Supper for the supply chutes 30 is provided by a pair of annular spoked support members 40 which are rigidly concentrically affixed to shaft 37 at vertically spaced positions between the bearings 38 and 39 by a pin 41 intersecting the hub of each support 40 and shaft 37. The supply chutes 30 are affixed to the peripheral edges of supports 40 by suitable fasteners, as, for example, by flush head screws passing through the web portion of the channel-shaped chutes 30 and penetrating the rim of supports 40. As has already been indicated, supply chutes 30 are arranged in vertically extending position and are parallel to shaft 37. It will particularly be noted from FIGURE 3 that the web portions, or innermost walls, of chutes 30 define a substantially cylindrical encolsure, the chutes 30 being arranged closely together in order to minimize the spacing therebetween. Referring to FIGURE 2, it will be observed that suitable clearance space is provided between the lower edges of the circularly grouped chutes 30 and the floor of compartment 20*a* in order to accommodate the discharge chute 28, as well as other parts of the dispenser.

All of the supply chutes 30 are identical in structure, and accordingly, but one of them will be described. Referring to FIGURE 4, it can be seen that each supply chute 30 includes an elongate, channel-shaped member 42, preferably made of sheet metal and dimensionally adapted to vertically, slidably receive therein a plurality of cartons C of the size or sizes intended to be dispensed.

One of the side walls of member 42, indicated by the numeral 43, is of lesser width than the opposite side wall 44 and on the exterior surface thereof mounts an elongate retainer member 45 of approximately the same length as member 42. The retainer 45 is generally L-shaped in configuration and adapted to move between the position indicated in solid and dotted outlines. In the latter position, the retainer 45 permits unobstructed access to the

supply chute 30, whereby the chute can very quickly and easily be loaded with a supply of the cartons C. When retainer 45 is in the full line position of FIGURE 4, its frontally disposed flange 46 serves to retain cartons C within the chute 30.

In order to hold retainer 45 in a normally closed position, it is mounted on the elongate channel member 42 by the means seen on the right hand side of FIGURE 2. A plurality of vertically spaced hinge plates 47 are securely fastened by spot welding or the like to the exterior of the narrow side wall 43 of elongate channel member 42. Each plate 47 mounts a suitable hinge pin 48 which is also mounted in a suitable hinge portion 49 formed in that leg of the retainer 45 which is adapted to lie against the side wall 43 when the retainer is closed. A hinge type of connection is thus provided between the hinge plates 47 and retainer 45 and a suitable torsion spring 50 is mounted on each hinge pin 48 to normally bias retainer 45 to the closed position indicated in full outline in FIGURE 4.

In order to support a plurality of cartons C in each supply chute 30, the wider side wall 44 of channel shaped member 42 is adapted to support a plurality of the support members 31. As is indicated in FIGURE 2 each of the members 31 is generally of a right triangular shape with the vertical edge thereof being formed with a piano hinge portion 31*a*. As is shown in FIGURE 4, an elongate strap 51 is securely affixed, as by spot welding or by other suitable means, to the web portion of the channel shaped member 42 at the corner defined by the web and the wider side wall 44. At spaced intervals along this corner, the strap 51 is formed with piano hinge edge portions 51*a* adapted to register with the piano hinge portions 31*a* of members 31. An elongate hinge pin 52 is inserted through all of the aligned hinge portions and adjacent each support member 31 is provided with a torsion spring 53 adapted to normally bias the support member 31 against the exterior surface of side wall 44.

Referring to FIGURE 4 it will be seen that each support member 31 is provided with a generally triangularly shaped carton-supporting flange 54 formed along the lower horizontal edge thereof. At each support member 31, the side wall 44 is provided with a complementary horizontally extending slot adapted to freely pass the support flange 54 therethrough. Thus, when a support member 31 occupies the position shown in full outline (to which position it is normally biased by the associated torsion spring 53) its support flange 54 extends through a side wall slot 55 to catch or support a carton C in the adjacent chute compartment. When the dispenser is actuated, one of the cams 34 displaces support member 31 to the position shown in dotted outline to momentarily withdraw the support flange 54 from within the confines of the chute 30. The carton in that compartment is thus released to be dispensed, or moved one step towards dispensing position.

It will be seen from FIGURES 2 and 3 that the magazine assembly 29 includes 10 supply chutes 30, each of which is provided with 12 compartments, so that 120 cartons can be vended from the dispenser. It is apparent that the number of supply chutes or compartments in each chute can be varied. However, it should be noted, with respect to this specific embodiment of the invention, that it can dispense either half-pint or pint sizes of the same or of a variety of beverages. The cartons C, although illustrated as being of flat-top configuration, could also be of the peaked top variety. Thus, the spacing between support flanges 54 can be adapted to either the flat-topped or peaked-top type of carton. When it is desired to dispense pint sizes rather than half-pint sizes, alternate ones of the support members 31 can be held out of carton supporting position by suitable wedges or the like which can be affixed thereto to hold the support members in the phantom line position of FIGURE 4.

The selector wheel 32, by means of which the customer determines which of the supply chutes 30 is positioned in a dispensing location over discharge chute 28, is preferably mounted in the manner indicated in FIGURES 3 and 8. As is shown in FIGURE 8, a suitable bracket 56 is fastened to a side wall of the cabinet 20. Another bracket 57 is securely fastened to the same cabinet wall in order to journal the upper end of the shaft 58 on which the selector wheel 32 is affixed, the lower end of shaft 58 being journaled in the first-mentioned bracket 56. A sprocket 59 is keyed to the upper end of shaft 58 and drivingly mounts one end of a continuous roiler chain 60, which drivingly engages another sprocket 61 that is concentrically rigidly affixed to the upper end of the magazine assembly shaft 37. Thus, rotation of selector wheel 32 induces a corresponding angular movement of magazine assembly 29 in order to bring the desired supply chute 30 into a vending position.

In order to halt magazine assembly 29 with the selected supply chute 30 in direct alignment with discharge chute 28, the dispenser includes means which are also adapted to cause rejection of any coins in the event of misalignment of the supply chute and discharge chute. As seen in FIGURE 2, cylindrical ring 62 is fastened to the upper surface of the uppermost support member 40 by suitable bolts 63 or the like. The upper edge of this ring is provided with equally circularly spaced notches 64 equal in number to the number of chutes 30, and preferably positioned immediately above the longitudinal center lines of chutes 30. A bracket 65 is affixed to the stationary support for the ball bearing 39 and pivotally mounts an outwardly extending arm 66 whose outer end carries a flanged wheel 67. The lever arm 66 is preferably weighted or sprung downwardly to normally bias the wheel 67 into rolling contact with the upper edge of the ring 62. The flanges of the wheel 67 serve to retain the wheel against lateral displacement from the track defined by ring 62. Upon rotation of selector wheel 32, dropping of wheel 67 into one of the notches 64 is perceptible to the customer and indicates the moment at which selector wheel 32 should be released. When the wheel 67 engages one of notches 64, the selected supply chute is then releasably positioned in alignment with discharge chute 28.

In order to prevent actuation of the dispenser in the event of misalignment of a supply chute 30 and discharge chute 28, a centering switch 68 is mounted on the bracket 65 immediately above the lever arm 66. The switch 68 is normally closed and is provided with a resiliently mounted switch button 69 normally protruding downwardly to engage lever arm 66. It will be apparent that when wheel 67 is riding along the upper edge of ring 62 the button 69 will be depressed whereby the normally closed switch 68 will be open. When the wheel 67 falls into one of the notches 64 of the control ring, switch button 69 will be released by the lever arm 66 whereby switch 68 returns to its normally closed position.

Referring to FIGURE 9, it will be observed that the centering switch 68 is serially connected in an electrical circuit with an actuating motor 70 adapted to drive the cam members 34. Thus, when control wheel 67 registers with one of the control ring notches 64, switch 68 will be permitted to assume its normally closed position whereby deposit of a coin in the coin actuating device 23 causes the motor 70 to be energized for vending a carton. However, in the event that a supply chute 30 is not in the correct alignment with discharge chute 28, the lever arm 66 will depress switch button 69 to cause the switch to be opened. Deposit of a coin in the device 23 will then have no effect on motor 70, and the coin, preferably, will be rejected by device 23 and returned to the customer through slot 24.

The positioning of a supply chute 30 in alignment with discharge chute 28 by the means just described, also serves to bring the support members 31 of the selected chute into operative alignment with the cam members 34. As is indicated in FIGURE 2, the pair of sprockets 71

which support the endless roller chain 35 that carries cam members 34 are mounted on a vertically extending bracket assembly 72. The bracket assembly 72 is centrally located within cabinet 20 near the front thereof and is rigidly connected to the floor and ceiling of compartment 20*a*. In some cases it may be preferable to mount the bracket assembly on the inner surface of door 21 so that when the door is opened, unobstructed access is had to supply chutes 30 for refilling them.

As is indicated in FIGURE 4, each of the sprocket wheels 71 is mounted on a protruding end of a shaft 73 which, in turn, is mounted in suitable ball bearing supports 74 carried in a bearing sleeve 75 fastened to an end of bracket assembly 72. The sprockets 71, and therefore the chain 35 and cam members 34 carried thereby, are disposed in alignment with the wider side wall 44 and support members 31 of the selected chute 30. Each cam member 34 is connected to chain 35 by a pair of chain links 76 which support a pin 77 engaged with a suitable bore formed in the cam member. Since the cam member 34 in order to actuate each of support members 31 must slidably run along the exterior surface of wider side wall 44, it will be apparent that it is of some importance to insure the aforementioned accurate alignment of each supply chute 30 with the discharge chute 28 and the corresponding alignment of cam members 34 and support members 31.

Referring to FIGURE 2, it will be observed that the pair of cam members 34 are carried on diametrically opposite links of the roller chain 35. As will presently be apparent, a single cam member 34 could be used; however, a pair of such cam members are used in order to reduce by one half the length of each cycle of operation. It is also possible to use a construction in which a cam member or even two cam members is carried by the chain 35 for each of the support members 31. I have found, however, that the use of a pair of cam members is the most efficient.

As viewed in FIGURE 6, the leading portion of each cam member 34 is a flat sheet of substantially uniform thickness and develops on one side into a trailing portion that defines a cam surface 34*a* tapering downwardly and outwardly from the flat leading edge portion. Each of the support members 31 on its forwardly extending apex portion is formed into a cam follower portion 31*b*. As is indicated in FIGURE 4, the cam portion 34*a* and cam follower portions 31*b* cooperate to translate upward travel of the cam member 34 into carton-releasing movement of each of the support members 31.

This operation is particularly illustrated in FIGURE 5 wherein the cam member 34 is indicated in phantom outline as being momentarily in camming engagement with the support member 31 of the second compartment of the supply chute 30. Thus, in this figure it will be seen that the carton C–1 (a portion of which is shown) has been delivered into the discharge chute 28. The carton C, which formerly occupied the position shown in dotted outline, has now been gravitationally advanced to the lowermost compartment of the chute from which it will be dispensed on the next vending operation of the apparatus.

The nature of the cooperating cam means 34*a* and 31*b* is such that when cam member 34 advances to a position in engagement with the member 31 which now holds the carton C–2, the support member 31 for the second compartment will have been released and returned to carton-supporting position. Therefore, when cam member 34 forces the support member for the carton C–2 to carton-releasing position, the carton C–2 will drop into a supported position in the compartment formerly occupied by the carton C. Thus, as the cam member 34 slides upwardly along the outer surface of the wider chute side wall 44, each of the cartons contained in that chute will be caused to be lowered one step into the next lower compartment. It will particularly be observed that during this operation there is no danger that the support flange 54 of a member 31 will come into contact with a falling carton since cam member 34 is adapted to hold support members 31 completely out of supporting position for the brief moment that it takes a carton to drop one step.

Since the roller chain 35 is of a flexible nature, it is desirable to provide some means of support for the inner vertical flight of the chain. For this purpose I have provided a chain guide 78 seen in FIGURE 2, which also serves to maintain the proper alignment of the cams 34 and support members 31. The guide 78 is an elongate, relatively narrow channel-shaped member which opens inwardly and is placed in between the vertical flights of the chain 35 immediately adjacent the inner flight. Guide 78 is securely held in place by a plurality of sheet metal straps 79 or the like which are vertically spaced apart and securely mounted to the guide 78 and the bracket assembly 72 by welding or other suitable fastening means.

In FIGURE 2, the pair of cam members 34 are halted in a position wherein the cam member carried on the inner flight of chain 35 is positioned beneath the level of the lower edges of supply chutes 30. Magazine assembly 29 can thus be freely rotated to bring any one of the supply chutes into vending position. When a supply chute 30 has been selected and properly aligned with discharge chute 28, so that centering switch 67 is closed, the deposit of a coin in coin device 23 closes the circuit including motor 70, which is then energized to drive the cam members 34 for actuation of the support members 31. As is shown in FIGURE 3, the output shaft of motor 70 is drivingly engaged to the lower sprocket wheel 71 by suitable chain and sprocket means 80 drivingly engaged with a shaft 71 that comprises an extension of the shaft 73.

Referring again to FIGURE 2, it will be observed that when the inner cam member 34 has progressed to the upper end of supply chute 30, that in turning around the upper sprocket wheel 71 a portion of member 34 engages the switch arm 83 of a stationarily mounted circuit-breaking microswitch 82, which serves to immediately de-energize the motor 70. This arrangement is indicated in FIGURE 9. The other cam member 34, which formerly occupied a position on the outer flight of the chain 35, is now positioned on the inner flight of the chain in immediate readiness for use upon the next actuation of the dispenser.

It will be seen that injury to the dispensing mechanism would result if a customer were to attempt to turn selector wheel 32 during a dispensing operation. To prevent this, I have provided a latching solenoid lock such as is seen in FIGURE 8. This lock includes a latch or crank member 84 pivotally mounted to the inner surface of the door 21 and having an upwardly extending arm engageable with suitable notches 32*a* formed in the periphery of selector wheel 32. The other arm of crank 84 is pivotally connected to the armature 85 of a solenoid device 86, also pivotally mounted on the inner surface of the door 21, as indicated at 87.

The armature 85 (by means not shown) is biased outwardly of solenoid device 86. When the circuit shown in FIGURE 9, which includes solenoid 86, is open, the parts of the assembly occupy the positions shown in dotted outline in FIGURE 8, whereby selector wheel 32 is freely rotatable by the customer. However, when the customer has actuated selector wheel 32 to cause closure of the centering switch 67 in the manner previously described, one of the notches 32*a* of the selector wheel is in confronting relationship to the upper arm of crank 84. Therefore, when a coin is deposited in device 23 the circuit including the solenoid device 86 is energized whereupon the crank 84 is pulled into the position indicated in full line in FIGURE 8. The crank 84 thus prevents rotation of selector wheel 32 by the customer until actuation of circuit breaking switch 82.

In order to indicate emptiness of a supply chute disposed in vending position and also, preferably, to prevent

actuation of the dispenser when an empty supply chute is thus positioned, the dispenser is provided with a mechanism best seen in FIGURE 7. A bar **88** is rigidly mounted between the opposite side walls of cabinet **20** under magazine assembly **29** in order to support a switch bracket **89** adjacent the inner surfaces of the web portions of the supply chutes **30**. A stationary, rigid support is thus provided for a normally closed switch **90** adapted for cooperation with each of the supply chutes **30** as magazine **29** is rotated past the switch **90**.

An arm **91** at the upper end of bracket **89** extends towards the supply chutes **30** and at its free end pivotally supports the mid portion of a lever **92**. A ball seat is formed in the upper end of the lever **92** and in a part of a removable cover plate **93** secured onto the lever whereby to support a single ball **94**. As can be seen in FIGURE 2, each of the supply chutes **30** along the longitudinal center line of the channel member **42** and in the same horizontal plane with the ball **94** is formed with an opening **95** adapted to be penetrated by the ball. A spring **96** is interconnected to the lower end of lever **92** and switch bracket **89** and normally biases ball **94** against the web portion of supply chutes **30**. Thus, the magazine **29** is rotated, the ball **94** is received in each of the openings **95** as it passes by.

A resiliently mounted switch button **90***a* of switch **90** bears against an edge of lever **92**. Thus, when a carton occupies the lowermost compartment of the selected chute **30**, the switch **90** is prevented from moving to its normally closed position. If this compartment is empty, the ball **94** penetrates thereinto an amount sufficient to permit closing of switch **90**, whereby a circuit (not shown), including this switch and a suitable annunciator, located on the cabinet door **21**, is closed to indicate via the annunciator that the supply chute is empty. This same circuit also preferably includes conventional rejection means in the coin-actuated device **23** so that if a coin is inadvertently placed in the dispenser when the supply chute is empty, the coin will be rejected through the return slot **24** and the dispenser thus prevented from operating.

An embodiment of my invention particularly adapted for handling larger sizes of beverage cartons, such as quarts, is illustrated in FIGURES 10 through 15, and may conveniently, although not by way of limitation, be referred to as the "quart dispenser." This alternate embodiment is substantially similar to the previously described embodiment of the invention and, therefore, will be described only with reference to certain points of difference. As will be apparent to those skilled in the art, certain of the structural features about to be described could be incorporated in other sizes or types of dispensers. For example, the support members and associated actuating means therefore of the quart size dispenser could be used in the half-pint dispenser in lieu of support member **31** and cam member **34**. Additionally, thus quart dispenser also illustrates means which can be employed for use in a dispenser of any size in which but one variety of beverage is dispensed and in which chute selector means thus can be eliminated.

As before, a magazine **29'** of the quart dispenser includes a plurality of supply chutes **30'**. In this case the opposite side walls of the elongate channel member **42'** are of approximately the same width or depth and one of the side walls mounts a spring loaded retainer **45'** for the same purpose and functioning in the same manner as the retainer **45** of the half-pint dispenser.

The other side wall of the chute member **42'** mounts a plurality of vertically spaced-apart support members **31'** which are of the same general overall configuration as the previously described members **31**. However, in lieu of the cam follower portion **31***a* used in the half-pint dispenser, this embodiment employs a lip **97** integrally formed with each of support members **31'** comprising flat, co-planar extensions of the body portions of the support members.

Immediately above the dispenser's discharge chute (not shown) a vertically extending member **98** is mounted inside the cabinet **20'** with the opposite ends thereof rigidly affixed to the floor and ceiling of the compartment **20***a*, or alternatively, rigidly mounted on the interior surface of door **21'**. As can be seen from FIGURE 11, the member **98** is preferably inwardly concave in transverse section with a radius of curvature corresponding to its distance from the axis of rotation of magazine **29'**. A plurality of actuating pins **99**, equal in number to the number of support members **31'** on each supply chute **30'**, is rigidly affixed to the inner surface of member **98** in laterally and vertically spaced-apart relationship.

As can be seen from FIGURE 12, each of the pins **99** is adapted for contact with the lips **97** of all support members **31'** lying in the same horizontal plane, i.e., one support member of each supply chute **30'**. As examination of FIGURE 11 will show, when the dispenser is actuated to rotate the magazine **29'** in a clockwise direction, as viewed in this figure, all of the support members **31'** of the particular supply chute **30'** then disposed over the discharge chute will consecutively be actuated in a sequence beginning with the lowermost compartment and progressing upwardly along the chute to the highest compartment of the chute. Each of the cartons Q in the supply chute is thus dropped one step, with the lowermost carton Q being dispensed. It is also apparent from FIGURE 11 that all of the actuating pins **99** lie within an angle substantially equivalent to the amount of angular rotation undergone by the magazine **29'** during each actuation of the device. Thus all of the supply chutes **30'** pass in sequence over the discharge chute of the dispenser and past the actuating pins **99**.

Since the full quart cartons Q are relatively long and heavy, unimpeded dropping for a distance of one step imposes a considerable stress on the paper board material thereof. Accordingly, it is desirable to provide means to prevent acceleration of the quarts Q to a velocity at which the impact of the carton on the support flange **54'** of a support member **31'** would entail any risk of rupture of the carton. A brake means for this purpose is shown in FIGURE 10.

Each compartment of the supply chute **30'** has at least one small hinge **100** having one leg rigidly secured, as by welding, to the exterior surface of one of the chute sidewalls. The other leg **100***a* protrudes into the supply chute through a suitable aperture **101** formed in the sidewall. The hinge pin is preferably located within the aperture **101** and mounts a torsion spring **102** that normally biases leg **100***a* to a horizontally disposed position against an upper edge of the aperture **101**. The leg **100***a* thus yieldably resists the dropping of a carton Q and thus exerts a braking action.

When a chute compartment contains a carton Q, as indicated in the lowest compartment in FIGURE 10, legs **100***a* are folded downwardly against the side wall of the chute. When the support member **31'** associated with the compartment is moved to carton-releasing position by one of the actuating pins **99**, release of the carton immediately permits the legs **100***a* to revert to horizontally disposed position to resiliently break the fall of the carton descending from the compartment above. It will be observed that legs **100***a* serve not only to break the fall of a carton descending from above, but also impede acceleration of the carton being released.

Since the magazine **29'** moves through a predetermined arc upon each operation of the dispenser, it will be apparent that the discharge chute employed with this dispenser should have a mouth area approximately equal to the arc subtended by a supply chute **30'** during a single vending operation.

In order to rotate the magazine **29'** through the above-mentioned predetermined arc, the quart dispenser includes the mechanism shown in FIGURE 12. A channel-shaped beam **103** extends horizontally between the opposite side

walls of cabinet 20' in the lower portion of the upper compartment and is rigidly affixed at opposite ends thereof to these side walls. A motor 70' is mounted on bracket 103 and its output shaft is drivingly connected to the magazine shaft 37' by chain and sprocket means 104.

Referring to FIGURE 15 it will be observed that the motor 70' is serially connected in a circuit with a momentarily on switch 105 and the conventional coin-actuating device 23' mounted on the door 21' of the dispenser. Thus, when a suitable coin or token is deposited in the device 23', motor 70' is immediately energized to induce angular movement of the magazine 29' and consequent dispensing of a carton Q.

In order to arrest magazine 29' with the next supply chute 30' in a correct alignment with the dispenser's discharge chute, an electro-mechanical circuit-breaking arrangement is provided operatively associated with the circuit of FIGURE 15. A bracket 106 is rigidly mounted on the floor of the upper compartment of cabinet 20' to stationarily support a normally closed switch 107 which surmounts the bracket. A resiliently mounted switch button 108 protrudes upwardly from switch 107 and yieldably presses against the lower surface of the lower magazine supporting member 109. A plurality of equally circularly spaced cam elements 110, of the configuration shown in FIGURE 14, protrude downwardly from support member 109, there being one such cam element for each of the supply chutes 30' whereby the spacing between elements 110 is proportional to the spacing between the supply chutes. When one of the supply chutes 30' is positioned in the desired alignment with the dispenser discharge chute, switch button 108 is depressed by one of cam elements 110 whereby switch 107 is held open.

The switch 107 is electrically connected in parallel with momentarily on switch 105 and in series with motor 70' and coin device 23'. After motor 70' is then initially energized by the deposit of a coin in the device 23', rotation of magazine 29' removes the switch button from the restraining cam element 110 whereby switch 107 is permitted to assume its normally closed condition. As the magazine completes its rotation through the desired predetermined arc another cam element 110 comes into contact with switch button 108 to depress this button for returning switch 107 to an open condition, thereby interrupting the circuit to motor 70' to halt the next supply chute 30' in registration with the dispenser discharge chute.

While I have shown and described specific embodiments of my invention particularly adapted to meet the requirements of specific applications, it will be understood that various of the components may be combined in different ways than are set forth herein. Therefore, my invention is not to be restricted to the foregoing details of construction except as defined in the claims.

What is claimed is:

1. In a dispenser, the combination of: a storage means arranged for gravity feed of a plurality of articles therefrom; a plurality of article-supporting members on said storage means, one for each of said articles, each member mounted for movement into and out of article-supporting position independently of movement of the others of said members; and normally inactive actuating means operatively associated with said members including an actuator movable in an endless path to momentarily and sequentially move said members out of article-supporting position upon each actuation of said actuating means to permit gravitational advancement of all of said articles whereby the lowermost of said articles is discharged from said storage means, said members returning to said supporting position after said momentary outward movement to arrest gravitational advancement of the other of said articles; and means to activate said actuating means only for a sufficient period of time to effect contact of said actuator with each of said members once.

2. In a dispenser, the combination of: a storage means for containing a column of articles adapted to gravitationally advance towards the lower end of said means; a plurality of spaced-apart support members, one for each of said articles, movably mounted on said storage means and adapted to releasably support one of said articles; means associated with said members to yieldably maintain said members in article-supporting position; an actuating member mounted adjacent said storage means for movement in a path to sequentially engage all of said support members during each operation of said actuating member, said actuating member and said support members being complementarily adapted to translate movement of said actuating member along said path into consecutive, momentary, article-releasing displacement of said support members whereby upon such movement the lowest of said articles is discharged from said storage means and the remaining articles are consecutively gravitationally advanced in said storage means, each of said support members returning to its normal article-supporting position after contact with said actuating member to arrest further gravitational advancement of an article descending from above; drive means to move said actuating member through said path; and means to deactivate said drive means after each operation of said dispenser.

3. In a dispenser, the combination of: a storage means for containing a column of articles adapted to gravitationally advance toward the lower end of said means; a plurality of spaced-apart support members, one for each of said articles, independently movably mounted on said storage means and adapted to releasably support one of said articles; means associated with said members to yieldably maintain said members in article-supporting position; an actuating member mounted adjacent said storage means for movement in a path to sequentially engage all of said support members during each operation of said actuating member, said actuating member and said support members being complementarily adapted to translate movement of said actuating member along said path into momentary article-releasing displacement of said support members whereby upon such movement the lowest of said articles is discharged from said storage means and the remaining articles are consecutively gravitationally advanced in said storage means, each of said support members returning to its normal article-supporting position after contact with said actuating member to arrest further gravitational advancement of an article descending from above; a motor for driving said actuating member; means for closing the circuit to said motor; and means positioned in the path of said actuating member for breaking the circuit to said motor after said actuating member has engaged all of said support members and engages said circuit-breaking means.

4. In a dispenser, the combination of: a storage means for containing a column of articles adapted to gravitationally advance towards the lower end of said means; a plurality of support members, one for each of said articles, spaced apart along said storage means and mounted thereon for movement between article-supporting and article-releasing positions thereof to arrest and permit, respectively, gravitational movement of said articles; means on each of said members to yieldably bias said members into supporting position; a cam member adapted to engage a cam follower portion formed in each of said support members whereby movement of said cam member causes momentary displacement of an engaged support member to article-releasing position to permit gravitational advancement of an article; normally inactive drive means adjacent to said storage means drivingly engaged to said cam member and adapted to carry said cam member in a path to engage all of said support members, said drive means when actuated carrying said cam member into sequential engagement with all of said support members to cause release of all of said articles whereby the lowest of said articles is discharged from said storage means, each of said support members returning to its normal supporting position after being momentarily displaced to arrest movement of an article

descending from above; means to activate said drive means; and means engageable with said cam member to deactivate said drive means after said cam member has engaged all of said support members.

5. In a dispenser, the combination of: a substantially vertically extending supply chute for slideably containing a plurality of articles arranged for gravitational advancement through said chute; a plurality of independently operable support members, one for each of said articles, vertically spaced along said chute and pivotally mounted thereon, each member having an inwardly turned support flange adapted to freely pass through a complementary opening formed in the wall of said chute; spring means on each of said members to normally bias said members against the wall of said chute with said flanges intercepting the passage of said chute to normally releasably support an article thereon; a cam slideably engageable with said chute and with a cam follower portion formed on each of said members and adapted to momentarily displace one of said members at a time outwardly from said chute whereby the support flange of a displaced member is withdrawn from said chute to permit dropping of the article formerly supported thereon; and drive means connected to said cam and adapted to carry said cam into engagement with each of said members in a sequence proceeding upwardly from the lowest of said members to cause consecutive release of said articles when said drive means is actuated whereby the lowest article is discharged from said chute, said members consecutively returning to normal supporting position of said flanges after momentary displacement by said cam to arrest falling of an article descending from above.

6. In a dispenser, the combination of: a substantially vertically extending supply chute for slideably containing a plurality of articles arranged for gravitational advancement through said chute; a plurality of independently operable support members, one for each of said articles, vertically spaced along said chute and pivotally mounted thereon, each member having an inwardly turned support flange adapted to freely pass through a complementary opening formed in the wall of said chute; spring means on each of said members to normally bias said members against the wall of said chute with said flanges intercepting the passage of said chute to normally releasably support an article thereon; and an actuating member mounted adjacent said chute for movement in a path to sequentially engage all of said support members during each operation of said actuating member, said actuating member and said support members being complementarily adapted to translate movement of said actuating member along said path into momentary article-releasing displacement of said support members whereby upon such movement the lowest of said articles is discharged from said chute and the remaining articles are consecutively gravitationally advanced in said chute, each of said support members returning to its normal article-supporting position after contact with said actuating member to arrest further gravitational advancement of an article descending from above.

7. In a dispenser, the combination of: a vertically extending, substantially chanel-shaped supply chute for slideably containing a vertical column of articles and having an open front for the loading of articles therein; an elongate vertical retainer pivotally mounted on a side wall of said chute adjacent said open front and having an inwardly turned flange adapted to overlie said open front to prevent falling of said articles therethrough; spring means yieldably biasing said retainer into retaining position thereof; a plurality of independently operable support members, one for each of said articles, vertically spaced along the other side wall of said chute and pivotally mounted thereon, each member having an inwardly turned support flange adapted to freely pass through a complementary opening formed in said other wall of said chute; spring means on each of said members to normally bias said members against the adjacent wall of said chute with said flanges intercepting the passage of said chute to normally releasably support an article thereon; a pair of cams, each of which is slideably engageable with said other side wall of said chute and also with a cam follower portion formed on each of said members, each of said cams being adapted to momentarily displace one of said members at a time outwardly from said chute whereby the support flange of a displaced member is withdrawn from said chute to permit dropping of the article formerly supported thereon; a stationary, vertically extending bracket mounted adjacent the front of said chute; drive means for said cams including an endless chain arranged in vertical flights on a pair of sprockets mounted in said bracket, said pair of cams being carried at diametrically opposite positions on said chain with one of said cams being vertically positioned in alignment with said cam follower portions of said members under the lowest of said members whenever said drive means is idle, said drive means being adapted to carry said cam members through one half the length of said chain upon each actuation thereof to carry said one cam into engagement with each of said members in a sequence proceeding upwardly from the lowest of said members to cause consecutive release of said articles whereby the lowest article is discharged from said chute, said members consecutively returning to normal supporting position of said support flanges after momentary displacement by said one cam to arrest falling of an article descending from above, and the other of said cams moving to a position in readiness for camming engagement with said members upon the next actuation of said drive means.

8. In a dispenser, the combination of: a substantially vertically-extending supply chute for slideably containing a plurality of articles arranged for gravitational advancement through said chute; a plurality of support members, one for each of said articles, vertically spaced along said chute and mounted thereon for independent movement into and out of article-supporting position to arrest and permit, respectively, falling of said articles; spring means connected to each of said support members to yieldably bias said members into supporting position; an actuating member mounted adjacent said chute for movement in a path to sequentially engage all of said support members during each operation of said actuating member, said actuating member and said support members being complementarily adapted to translate movement of said actuating member along said path into momentary article-releasing displacement of said support members whereby upon such movement the lowest of said articles is discharged from a vending position in said chute and the remaining articles are consecutively gravitationally advanced in said chute, each of said support members returning to its normal article-supporting position after contact with said actuating member to arrest further gravitational advancement of an article descending from above; a motor to operate said actuating member; means for closing the circuit to said motor; and means to prevent closing of said circuit when said chute is empty including a member at the lower end of said chute held against penetrating said chute by an article in said vending position, and adapted to penetrate said vending position of said chute when empty to prevent closing of said circuit.

9. In a dispenser, the combination of: a storage magazine mounted for rotation about a vertical axis and having a plurality of vertically extending supply chutes each of which is adapted to contain a column of articles arranged for gravity feed through said chutes; a plurality of support members on each of said chutes, one for each of said articles, normally resting in an article-supporting position and movable from said position to permit gravitational advancement of articles in said chutes; actuating means mounted adjacent said magazine and adapted upon

said rotation of said magazine to be consecutively disposed in operative association with one of said supply chutes, actuation of said means momentarily and sequentially moving the members of a selected chute out of article-supporting position to permit gravitational advancement of said articles whereby the lowest of said articles is discharged from said chute, each of said members being biased to return to normal supporting position after such momentary displacement to arrest gravitational advancement of the remaining articles in said chute; and means drivingly engaged with said magazine to selectively position one of said chutes in operative association with said actuating means.

10. In a dispenser, the combination of: a storage magazine mounted for rotation about a vertical axis and having a plurality of vertically extending supply chutes, each adapted to contain a stack of articles arranged for gravity feed through said chutes; a plurality of support members on each of said chutes, one for each of said articles, normally yieldably biased into an article-supporting position and independently movable out of said position; actuating means mounted adjacent said magazine for consecutive operative alignment with said chutes when said magazine is rotated, actuation of said means momentarily displacing the members of a selected chute out of supporting position in a sequence commencing with the lowest of said members and proceeding upwardly therefrom whereby the lowest of the articles is discharged from said chute and the remaining articles are consecutively gravitationally advanced, said members returning to normal supporting position after such momentary displacement to arrest the descent of said remaining articles; and means drivingly engaged with said magazine to selectively position one of said chutes in operative alignment with said actuating means.

11. In a dispenser, the combination of: a storage magazine mounted for rotation about a vertical axis and having a plurality of vertically extending supply chutes, each adapted to gravitationally, slideably contain a plurality of articles; a plurality of vertically spaced-apart support members on each of said chutes, one for each of said articles, mounted for independent movement in and out of article-supporting position; means on each of said members yieldably maintaining said members in said supporting position; a vertical bracket stationarily mounted adjacent said magazine and next to which any one of said chutes can be selectively positioned in a dispensing location by rotation of said magazine; an actuating member mounted on said bracket for movement in an endless path to sequentially contact all of the support members of a chute in said dispensing location during each vending operation of said actuating member, said actuating member when idle being normally positioned in alignment with said support members and under the lowest support member, said actuating member and said support members being complementarily adapted to translate movement of said actuating member along said path into momentary article-releasing displacement of said support members whereby upon such movement the lowest of said articles is discharged from said chute and the remaining articles are consecutively gravitationally advanced in said chute, each of said support members returning to its normal article-supporting position after contact with said actuating member to arrest further gravitational advancement of an article descending from above; and selector means drivingly connected to said magazine to position a selected one of said chutes in said dispensing location with the support members thereof in operative alignment with said actuating member.

12. In a dispenser, the combination of: a storage magazine mounted for rotation about a vertical axis and having a plurality of vertically-extending supply chutes, each adapted to gravitationally, slideably contain a plurality of articles; a plurality of vertically spaced-apart support members on each of said chutes, one for each of said articles, mounted for independent movement between article-supporting and article-releasing positions thereof to arrest and permit, respectively, gravitational movement of said articles; means on each of said members to yieldably bias said members into supporting position; a vertical bracket stationarily mounted adjacent said magazine and next to which any one of said chutes can be selectively positioned in a dispensing location by rotation of said magazine; a cam member mounted on said bracket for movement in an endless path to sequentially contact all of the support members of a chute in said dispensing location during each vending operation of said actuating member, said cam member, when idle, being normally positioned in alignment with said support members and under the lowest support member, said cam member being adapted to engage a cam follower portion formed in each of said support members whereby movement of said cam member in said path causes momentary displacement of an engaged support member to article-releasing position to permit gravitational advancement of an article whereby the lowest of said articles is discharged from said chute, each of said support members consecutively returning to its normal supporting position after being momentarily displaced to arrest movement of an article descending from above; and selector means drivingly connected to said magazine to position a selected one of said chutes in said dispensing location with the support members thereof in operative alignment with said cam member.

13. In a dispenser, the combination of: a storage magazine mounted for rotation upon a vertical axis and having a plurality of vertically extending supply chutes, each adapted to gravitationally, slideably contain a plurality of articles; a plurality of independently operable support members, one for each of said articles, vertically spaced along each of said chutes and pivotally mounted thereon, each member having an inwardly turned support flange adapted to freely pass through a complementary opening formed in a wall of said chutes; spring means on each of said members to normally bias said members against the wall of the chute associated therewith with said flanges passing through said complementary openings to intercept the passage of said chute to normally releasably support an article thereon; a vertical bracket stationarily mounted adjacent said magazine and next to which any one of said chutes can be selectively positioned in a dispensing location by rotation of said magazine; a cam mounted on said bracket for movement in a generally vertical endless path, said cam when idle being normally positioned in alignment with the support members of a chute in said dispensing location and under the lowest support member, said cam when actuated moving upwardly to slidably engage a cam follower portion on each of said support members to momentarily displace one of said support members at a time outwardly of said chute whereby said flange permits dropping of the article formerly supported thereon, all of said articles being consecutively released to discharge the lowest article from said chute, said support members consecutively returning to normal supporting position of said flanges after momentary displacement by said cam to arrest the descent of the articles remaining in said chute; and selector means drivingly connected to said magazine to position a selected one of said chutes in said dispensing location with the support members thereof in operative alignment with said cam.

14. A dispenser as set forth in claim 13 in which said cam is carried by an endless chain arranged in vertical flights on a pair of sprockets mounted in said bracket, and a second cam is carried on said chain at a position diametrically opposite from said first-mentioned cam with one of said cams being vertically positioned in alignment with said cam follower portions of said support members under the lowest of said support members whenever said chain is idle, said cam members moving through one-half the length of said chain upon each actuation of said dispenser to carry said one cam into engagement with

each of said support members in a sequence proceeding upwardly from the lowest of said support members to cause consecutive release of said articles, the other of said cams concurrently moving downwardly to a position in readiness for camming engagement with said support members upon the next actuation of said dispenser.

15. In a dispenser, the combination of: a cabinet; a rotatable magazine in said cabinet having a plurality of vertically extending supply chutes; a plurality of vertically spaced-apart support members on each of said chutes, one for each of the articles supported in said chutes, normally yieldably biased into an article-supporting position and independently movable out of said position; means operable from the exterior of said cabinet to rotate said magazine for positioning a selected one of said chutes in a dispensing location over a discharge chute formed in said cabinet; an actuating member mounted adjacent said discharge chute for operative alignment with the support members of a chute in said dispensing location, said member being mounted for movement in a vertically-extending endless path to consecutively engage all of said support members during each operation of said actuating member, said member being adapted to momentarily displace said support members out of article-supporting position in a sequence commencing with the lowest of said support members and proceeding upwardly therefrom whereby the lowest of the articles is discharged from said chute and the remaining articles are consecutively dropped, said support members returning to normal supporting position after such momentary displacement to arrest the descent of the remaining ones of said articles; a motor for driving said actuating member; means for closing a circuit to said motor; and means positioned along the path of said actuating member for breaking the circuit to said motor after said actuating member has engaged all of the support members of a chute in said dispensing location and said actuating member engages said circuit breaking means.

16. A device as set forth in claim 15 further characterized by a ring affixed to an end of said magazine having a plurality of circularly spaced notches, one for each of said chutes; a centering member adjacent said ring and yieldably biased thereagainst to releasably engage one of said notches when one of said chutes is in said dispensing location to releasably maintain a selected chute in said location; and a switch mounted adjacent said centering member adapted to open and close in response to disengagement and engagement, respectively, of said centering member and said notches, said switch being electrically connected to said means for closing the circuit to said motor to permit closing of said circuit only when said switch is closed.

17. A device as set forth in claim 15 further characterized by a selector wheel accessible from the exterior of said cabinet and drivingly connected to said magazine-rotating means; a latch pivotally mounted inside said cabinet adjacent said wheel and movable into engagement with complementary notches formed on said wheel to prevent manual rotation of said wheel; a solenoid device

mounted in said cabinet having an armature yieldably biased outwardly therefrom and drivingly connected to said latch to normally hold said latch out of locking engagement with said wheel, said solenoid device being arranged in an electrical circuit with said switch and with said means for closing the circuit to said motor to move said latch into locking engagement with a notch of said wheel when said switch is closed and said circuit to said motor is closed, whereby rotation of said wheel is prevented during operation of said actuating member.

18. In a dispenser, the combination of: a supply chute for slidably containing a plurality of articles for gravitational advancement through said chute; a plurality of support members, one for each of said articles, spaced along said chute and pivotally mounted thereon for movement into and out of article supporting position to arrest and permit, respectively, gravitational advancement of said articles; spring means on each of said members to normally bias said members into article supporting position to normally releasably support an article thereon; a cam slidably engageable with said chute and engageable with a cam follower portion formed on each of said members; drive means connected to said cam and adapted to carry said cam into camming engagement with each of said members in a sequence proceeding from the lowest of said members, said cam causing consecutive, momentary displacement of said members to release said articles when said drive means is actuated whereby the lowest article is discharged from said chute, said members consecutively returning to a normal supporting position after momentary displacement by said cam to arrest gravitational descent of articles from above; and means engageable by said cam for deactivating said drive means after said cam has engaged all of said cam follower portions of said support members.

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