

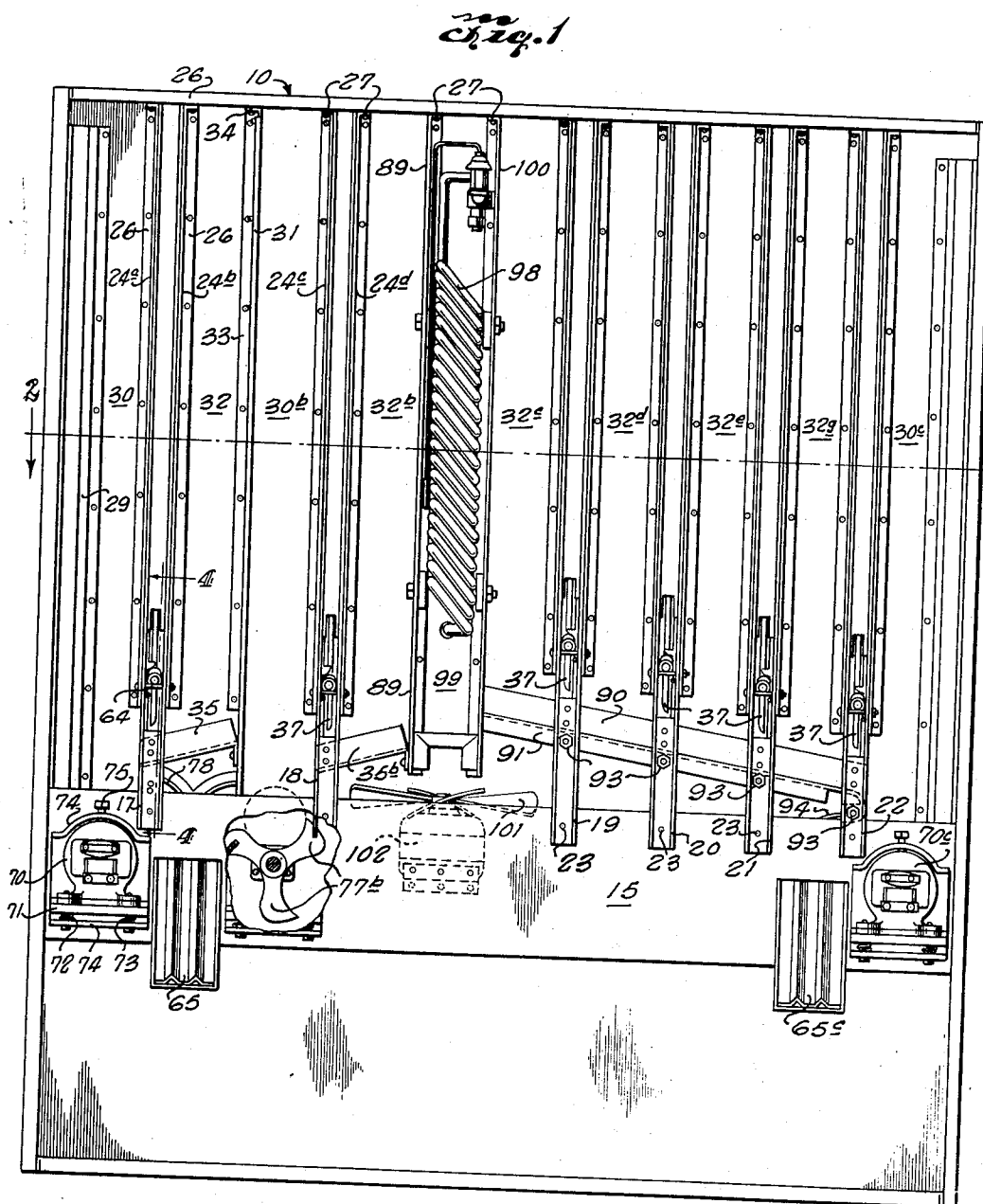
June 1, 1954

F. N. JAMES
DEVICE FOR CONTROLLING THE DELIVERY
OF ARTICLES IN VENDING MACHINES

2,680,050

Filed April 4, 1951

3 Sheets-Sheet 1



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BY

ATTORNEY

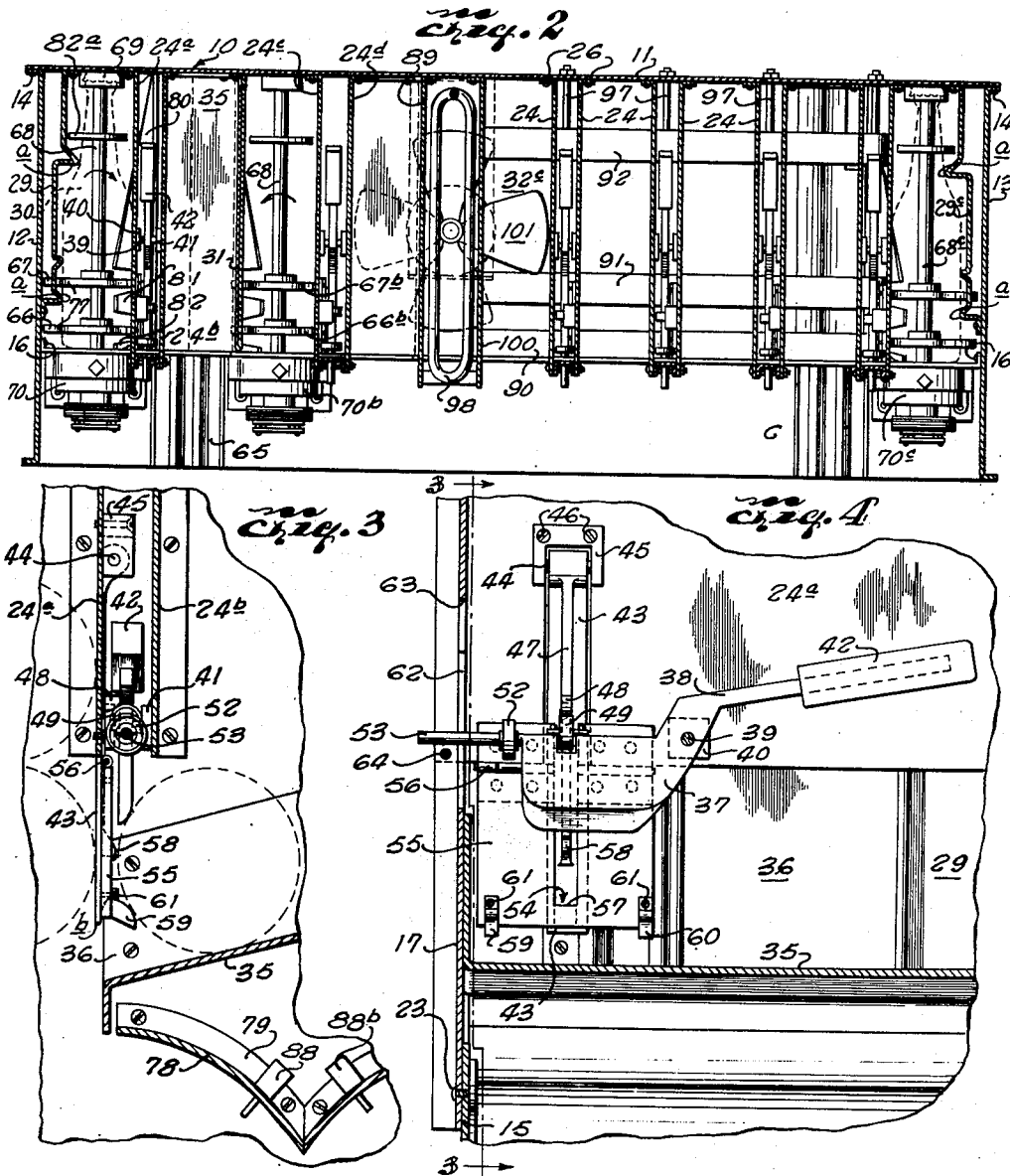
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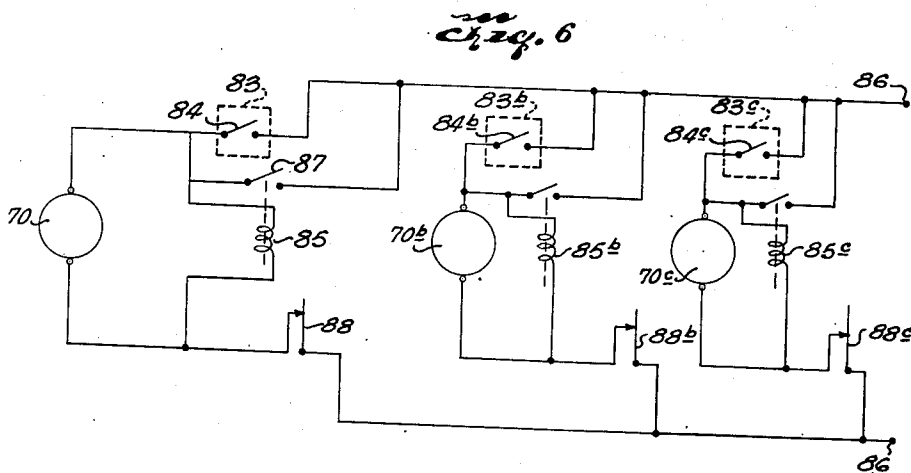
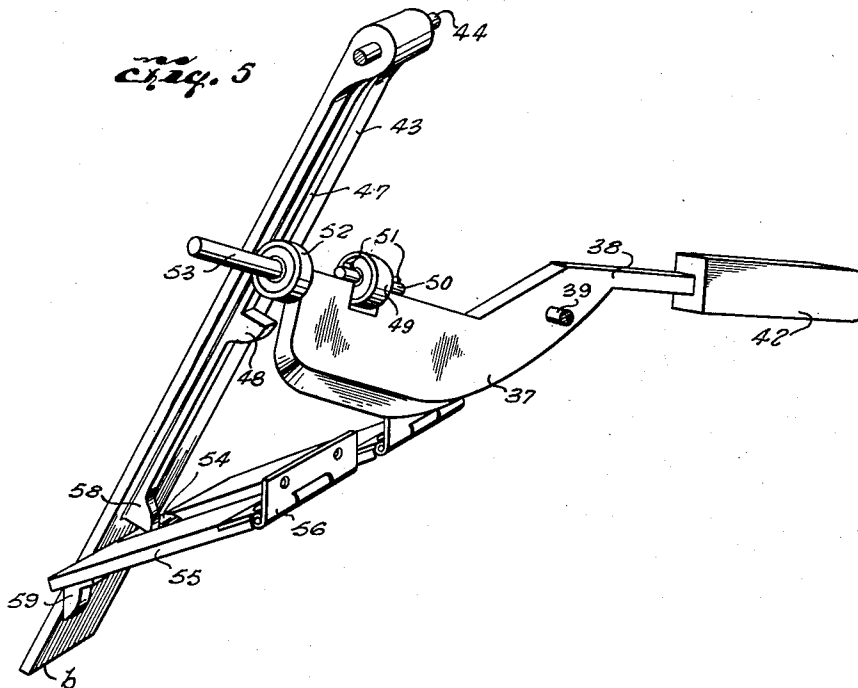
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,680,050

DEVICE FOR CONTROLLING THE DELIVERY
OF ARTICLES IN VENDING MACHINESFrazier N. James, Dallas, Tex., assignor to Lone
Star Vender Corp., Dallas, Tex.

Application April 4, 1951, Serial No. 219,252

10 Claims. (Cl. 312—48)

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This invention relates to vending machines and more particularly to machines for vending bottles or similar articles.

In machines for vending bottles of beverage or similar articles, it is often necessary, due to space limitations and other factors, to store the bottles in two or more narrow vertical chutes, each chute containing a single column of bottles. A dispensing device is located beneath one of the chutes to dispense the lowermost bottle during each vending operation. The bottles in the chute immediately above the dispensing device which may be termed the main chute, are all vended before any bottles from the other chute, which may be termed an auxiliary chute are allowed to move into the main chute to be vended in their turn. In order that the bottles in the auxiliary chute be prevented from interfering with the movement of the bottles in the main chute, a control device must be provided to prevent movement of bottles from the auxiliary chute into the main chute until the topmost bottle in the main chute falls below a predetermined movement and to allow such movement when the topmost bottle falls below the predetermined level. Moreover, the control device must prevent the bottles moving from the auxiliary chute into the main chute from moving upwardly in the main chute.

Accordingly, it is an object of the invention to provide a new and improved vending machine for bottles or the like.

It is another object to provide a new and improved vending machine having a pair of vertical chutes, each adapted to contain a column of articles, and a control device for preventing the articles in one chute from entering into the other chute until the topmost article in the other chute falls below a predetermined level.

It is still another object of the invention to provide a new and improved vending machine having two vertical chutes and means for dispensing articles from the chutes, all the articles from one chute being dispensed before any articles from the other chute are dispensed.

It is a further object of this invention to provide a new and improved control device to prevent movement of articles from one storage chamber until articles from an adjacent chamber are exhausted.

It is a still further object of this invention to provide a new and improved control device to prevent movement of articles from one storage chamber until articles from an adjacent chamber are exhausted and to prevent upward movement of the articles from the storage chamber

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after the articles in the adjacent chamber are exhausted.

Briefly stated, the new and improved control device for preventing movement of articles from one vertical chute into another through passage communicating with both chutes comprises a pivoted lever having at one end a blade which is adapted to partly close the passage and prevent the passage of articles therethrough from one chute to the other and having at the other end a mass which tends to move the blade upwardly to open the passage. A locking bar is pivotally hung on the wall of one chute and is provided with a spur which is adapted to lock the blade in closed position. The locking bar is maintained in locking position by articles in one of the chutes which contact it and is moved into unlocked position by the force exerted by an article or articles in the other chute when the articles in the first chute fall to positions where they no longer contact the locking bar. A hinged flap also partly closes the passage and is moved upwardly by articles moving from one chute to the other. A second spur on the locking bar limits the upward movement of the flap which is thus maintained in an obstructing position in the other chute to prevent upward movement of the articles therein.

For a better understanding of the invention, reference may be had to the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the drawing,

Figure 1 is a front plan view, with the front door removed, of a vending machine equipped with the control device;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 4;

Figure 4 is a sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a perspective view of the blade, locking bar and flap gate as they appear when the blade is in open position; and,

Figure 6 is a diagrammatic illustration of the electrical control circuit for the motors driving the dispensing devices.

In the drawing the general frame structure of the cabinet of the machine is indicated by the numeral 10 and comprises a back wall 11 and side walls 12 and 13 which may be rigidly secured to back wall by screws 14 or in any other conventional manner. A supporting panel 15 is secured

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to the walls 12 and 13 by screws 16. A plurality of vertical channel members 17 to 22 have their lower ends rigidly secured to the supporting panel 15 by means of screws 23. The channel members 17 to 22 support the front edges of vertical partitions 24 whose rear flanges 26 are secured to the rear wall 11 and whose upper flanges 27 are secured to the top 28 of the structure 10. Any conventional means, such as screws or bolts may be employed to secure the partitions 24.

The partition 24a and an irregularly shaped plate 29 secured to the rear wall 11 and the side wall 12 form a vertical main chute 30 while the partition 24b and a partition 31 form an auxiliary chute 32. The plate 29 is provided with vertical ridges a which serve as guides to maintain the bottles properly positioned in the main chute. The partition 31 has a rear flange 33 secured to the rear wall and an upper flange 34 secured to the top 28. The bottom of the auxiliary chute 32 is closed by an inclined trough-shaped member 35 which is secured to the rear wall 11, the channel member 17 and the partition 31 by screws or other conventional means. The lower edge of the inclined member 35 is disposed beneath and spaced from the lower edges of the partitions 24a and 24b so that bottles from the auxiliary chute 32 may roll down the inclined member 35 into the main chute 30 through the passage 36 so formed.

The lowermost bottle in the auxiliary chute 32 which rests on the inclined member 35 is prevented from rolling into the main chute, when bottles are disposed in the chute to a level above the lower edge of the inclined member, by a blade 37 on one end of a lever 38 pivotally mounted on a pin 39 whose ends are journaled in a pair of blocks 40 and 41 rigidly secured to the partitions 24a and 24b by any conventional means. A mass or counterweight 42 is secured to the other end of the lever 38 and tends to raise the blade 37 to open the passage 36. It is necessary, therefore, to provide a locking device to maintain the blade 37 in its lowermost closed position.

The locking device comprises a locking bar 43 whose upper end is pivotally hung on a pin 44 whose ends are journaled in a bifurcated bracket 45 secured to the partition 24a by screws 46. The locking bar 43 has a central rib 47 from which extends substantially perpendicularly a spur 48 having a cam surface b which is adapted to engage a roller 49 rotatably mounted on the upper edge of blade 37 by means of a shaft 50. The shaft 50 may be secured to the blade 37 by screws 51. When the locking bar 43 is in the position shown in Figures 3 and 4, the spur 48 engages the roller 49 and prevents upward movement of the blade 37. If the locking bar is now swung to the left, the blade will move upwardly since the weight 42 overbalances blade 37. A second roller 52 is rotatably mounted on the extension 53 of the blade and normally bears against the partition 24a. The roller 52 is provided to maintain the blade in proper position. The rollers 49 and 52 are employed instead of knobs, which could be used in their stead, to decrease friction and prevent binding which could occur due to wear, corrosion of contacting surfaces or the presence of foreign matter therebetween.

The central rib 47 of the locking bar 43 is adapted to enter a slot 54 in a flap 55 pivotally mounted on the partition 24a by a hinge 56. The edge 57 of the flap 55 which defines the inner edge of the slot 54 is adapted to bear against a second spur 58 to limit the upward movement of the

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flap, see Figure 5. The flap 55 is provided with a pair of bottle engaging stops 59 and 60 fastened along the lower edge of the flap by screws 61. These stops hold bottles in spaced relation to the flap and prevent frictional wear thereon. The extension 53 extends through a slot 62 in the web of the channel member 17. The upper edge 63 of the slot limits the pivotal upward movement of the extension 53 and therefore of the blade 37. A bolt 64 extends through the flanges of the channel member 17 and the partitions 24a and 24b and limits the pivotal downward movement of the extension 53.

The locking bar 43 and the flap 55 will remain in the positions shown in Figures 3 and 4 as long as a bottle is positioned in the main chute 30 which bears against the locking bar 43. The bottle need exert only a very slight force on the locking bar since the contact of the spur 48 with the roller 49 will prevent the blade from moving upwardly. The locking bar and the blade will remain in the positions shown in Figures 3 and 4 as long as no force is exerted on the flap or the locking bar to move it to the left as seen in Figure 3. The blade 37 will restrain the lowermost bottle in the auxiliary chute 32 from entering into the main chute. This will be true even if a considerable number of bottles are stacked one on top of another in the auxiliary chute. The lowermost bottle in the auxiliary chute also exerts a very slight force on the flap 55, and therefore on the locking bar 43, tending to move their lower ends upwardly. When the topmost bottle in the main chute 30 descends below the lower end b of the locking bar therefore, the locking bar will be moved pivotally about its pin 44 toward the position shown in Figure 5. The weight 42, of course, also tends to move the locking bar about its pin 44 toward the position shown in Figure 5 since the roller 49 contacts and bears against the spur 48. The spur will then disengage from the roller 49 on the blade 37 and the blade will be moved upwardly by the weight 42. The lowermost bottle will then move by gravity into the main chute 30 pushing the flap 55 upwardly as it does so. The upward movement of the flap 55 will be limited by spur 58 which will contact the edge 57 of the flap at the end of the slot 54. This limiting action of the spur 58 is necessitated by the tendency of the weight of the bottles in the auxiliary chute to force the lowermost bottle into the main chute even though a bottle has already moved into the main chute from the auxiliary chute. The latter bottle is sometimes moved upward in the main chute and the bottles tend to jam. This tendency of the bottles may be likened to the tendency of water to seek its own level. The forces exerted are relatively great especially when the auxiliary chute is nearly full since at such time some fifteen or more bottles are stacked in a column one on top of the other in the auxiliary chute.

Briefly stated; when the last remaining bottle in the main chute 30 has moved to vending position, pressure thereof tending to hold the flap 55 closed is relieved. Counterbalancing weight 42 causes the blade 37 to be in opposition to the spur 48 on the locking bar 43 when pressure of the said bottle in the main chute 30 is removed therefrom, said weight 42 lifting the blade 37, causing roller 49 to push upward against the cam surface c of the spur 48 which action rotates the bar 43 on its pivot 44 and causes the spur 48 to move out from locked position with roller 49, permitting the blade 37 to rotate on its pivot 39,

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whereupon the flap 55 will yield to the lowermost bottle in the auxiliary chute which will move under the blade 37 into vending position.

The flap 55 also serves to slow down the movement of the lowermost bottle in the auxiliary chute when the blade 37 is moved upwardly. The relatively great weight of the bottles in the auxiliary chute would otherwise impart a relatively great acceleration to the lowermost bottle and it would hit strongly against the ridges of the plate 29 with some danger of breakage of the bottle as well as damage to the plate 29. Considerable noise would also be created if such rapid acceleration were allowed to take place.

The lowermost bottle in the main chute 30 is dispensed from the main chute 30 to a slide 65 positioned below the auxiliary chute 32 by a pair of armed members 66 and 67 rigidly mounted on a shaft 68. The shaft 68 is journaled in a block 69, which is rigidly secured to the back wall 11 in any conventional manner, and extends through a suitable aperture in the supporting panel 15. The shaft 68 is driven by a motor 70 mounted on a plate 71 yieldably supported by springs 72 and 73 on a bracket 74 rigidly fastened to the supporting panel 15. A bolt 75 extending through the upper arced portion 76 of the bracket 74 contacts the upper portion of the motor and holds it in position against the resistance of the springs.

Each of the armed members 66 and 67 has curved arms 77 which are aligned with the arms of the other. As the shaft 68 is rotated, an aligned pair of arms 77 engages the lowermost bottle in the main chute 30 and carries it past an arced shield or shroud 78 which serves to keep the bottle in engagement with the arms until it is carried to a position from which it will fall by gravity to the slide 65. The shroud 78 has opposite flanged ends, such as the flanged end 79 shown in Figure 3 which are secured to the rear wall 11 and the supporting panel 15 by screws or other conventional means. The slide 65 is similarly fastened to the panel 15 and the rear wall 11. The slide 65 has lateral extensions 80, 81 and 82 which are disposed beneath the main chute and held to guide the bottle onto the slide 65. A disk 82a is secured to the shaft 86 and serves to keep the necks of the bottles properly positioned.

The motor 70 is started when a coin is deposited in a conventional coin operated device 83 momentarily to close a switch 84. The switch connects the motor 70 and also a relay coil 85 across a supply circuit 86. The coil 85 actuates a contact 87 which now connects the motor and the coil across the supply circuit. The motor will now continue to operate, even though the switch 84 moves back to open position, until the bottle falling onto the slide 65 from a pair of aligned arms 77 opens the switch 88 mounted on the shroud 78. The motor will stop and will not start until a coin is again deposited in the device 84. Thus a bottle will be dispensed from the main chute 30 onto the slide 65 each time the switch 84 is deposited in the coin operated device 83. The coin operated device may be installed in the front door (not shown) of the machine and the lower end of the slide may be disposed in a suitable aperture in the door as is conventional in the art.

Bottles of beverage of one flavor may be stored in the main chute 30 and the auxiliary chute 32. Bottles of beverage of a different flavor may be stored in the main chute 30b and the auxiliary chute 32b formed by the partitions 31, 24c, 24d 75

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and 89. The motor 70b driving the shaft 68b will cause the arms 77b of the armed members 66b and 67b to deliver the lowermost bottle in the main chute 30b to the slide 65 each time a coin is deposited in the coin operated device 83b.

It will be noted that the components of the vending machine delivering bottles from the main chute 30b correspond and are substantially identical to the components delivering bottles from the main chute 30. A detailed description of these components is not necessary and is not given. Each of these components has been given the reference numerals with the letter b added, of its corresponding component associated with the main chute 30. The main chute 30b is not provided with a ridged plate such as the plate 29 of the main chute 30. This plate is necessary in chute 30 because the armed members 66 and 67 prevent the side wall 12 from being positioned sufficiently close to the partition 24a. The armed members 66b and 67b, however can underlie the partition 31 which may be spaced properly from the partition 24c so that an additional plate, such as the plate 29 is not needed.

If a beverage of a particular flavor is very popular and outsells the beverages in the chutes 30 and 30b, a plurality of auxiliary chutes 30c, 30d, 30e and 30g may be provided for use with the main chute 30c. These chutes are constructed in a similar manner as the chutes 32 and 32b, but instead of the inclined trough-like members 35 and 35b, are provided with an inclined angle member 90 and two inclined channel members 91 and 92. The channel members are supported by rods 93 which extend through the flanges of the channel members, the rear wall 11, and the vertical channel members 19, 20, 21 and 22. The ends of the rods are threaded to receive nuts which rigidly hold the rods in place. The webs of the channel members 91 and 92 and the horizontal leg of the angle member 90 have extensions which are curved downward as at 94 to form guides similar to the arced members 78.

A blade 37 and its associated structures are disposed between each pair of auxiliary chutes, as well as between the main chute 30c and the auxiliary chute 32g, so that the bottles from the main chute 30c are dispensed first then the bottles from the auxiliary chute 32g, then 32e, and so on.

It will be apparent now that a bottle of beverage of any one of three flavors may be selected by dropping a coin in one of the coin operated mechanisms 83a, 83b or 83c.

The cooling coils 98 of a conventional refrigerating unit may be placed in a vertical chamber 99 formed by the partitions 89 and 100. The compressor unit and condenser coils of the refrigerating unit are not shown. A fan 101 driven by a motor 102 may be provided for circulating air past the coils 98 and the bottles in the chutes. The various partitions may be provided with suitable apertures to promote circulation of the air throughout the cabinet of the machine.

It will be apparent now that a vending machine has been described and illustrated which has a main vertical chute and an auxiliary chute connected by a passage which is closed by a pivoted blade as long as a bottle is disposed in the main chute above a predetermined level. A hinged flap has also been disclosed which slows down the movement of bottles from the auxiliary

chute into the main chute and which prevents upward movement of bottles in the main chute.

It will be obvious that various changes and modifications can be made in the illustrated vending machine without departing from the invention and it is intended, therefore, in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a lever pivotally mounted intermediate its ends on said structure, said lever having a blade on one end for closing said passage to prevent passage of articles from said auxiliary to said main chute, said blade being subjected to the full force exerted by the lowermost article in said auxiliary chute; a mass on the other end of said lever, said mass tending to pivot the lever and raise the blade to open the passage; a lock bar pivotally mounted on said structure and having a side exposed to contact with the articles in said main chute; and a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade contacting said spur and tending to cam said lock bar away from said blade due to the action of said mass; said spur being maintained in the path of upward movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

2. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a lever pivotally mounted on said structure for pivotal movement about a first horizontal axis, said lever having a blade on one end for closing said passage to prevent movement of articles from said auxiliary chute to said main chute, said blade being subjected to the full force exerted by the lowermost article in said auxiliary chute; a weight on the other end for biasing said blade to an open position; a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second axes being perpendicular to one another, said lock bar having a side exposed to contact with the articles in said main chute; and a spur on said lock bar contacting said blade for preventing movement of the blade to said open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said weight; said spur being maintained in the path of movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade, said blade moving to open position to permit movement of

articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

3. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a blade pivotally mounted on said structure for closing said passage to prevent movement of articles from said auxiliary chute to said main chute; means biasing said blade to an open position said blade being subjected to the full force exerted by the lowermost article in said auxiliary chute; a lock bar pivotally mounted on said structure and having a side exposed to contact with articles in said main chute; a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said biasing means, said spur being maintained in the path of movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

4. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a blade pivotally mounted on said structure for pivotal movement about a first horizontal axis for closing said passage to prevent movement of articles from said auxiliary chute to said main chute said blade being subjected to the full force exerted by the lowermost article in said auxiliary chute; means biasing said blade to an open position; a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second horizontal axes being perpendicular to one another, said lock bar having a side exposed to contact with articles in said main chute; and a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said biasing means, said spur being maintained in the path of movement of said blade while an article in said chute contacts said side of said lock bar to tend to move said lock bar toward said blade, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

5. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of

said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a lever pivotally mounted intermediate its ends on said structure, said lever having a blade on one end for closing said passage to prevent passage of articles from said auxiliary to said main chute; a mass on the other end of said lever, said mass tending to pivot the lever and raise the blade to open the passage; a lock bar pivotally mounted on said structure and having a side exposed to contact with the articles in said main chute; a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said mass; said spur being maintained in the path of upward movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade; a flap pivotally mounted on said structure and closing said passage; and a second spur on said locking bar, said flap being pivotally and upwardly movable into said main chute to permit movement of articles from said auxiliary chute to said main chute, said second spur limiting upward movement of the flap to block off the upper portion of the main chute and prevent upward movement of articles into said upper portion, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

6. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a blade pivotally mounted on said structure for closing said passage to prevent movement of articles from said auxiliary chute to said main chute; means biasing said blade to an open position; a lock bar pivotally mounted on said structure and having a side exposed to contact with articles in said main chute, a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said biasing means, said spur being maintained in the path of movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade; a flap pivotally mounted on said structure and closing said passage; and a second spur on said locking bar, said flap being pivotally and upwardly movable into said main chute to permit movement of articles from said auxiliary chute to said main chute, said second spur limiting upward movement of the flap to block off the upper portion of the main chute and prevent upward movement of articles into said upper portion, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

7. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with

said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a lever pivotally mounted on said structure for pivotal movement about a first horizontal axis, said lever having a blade on one end for closing said passage to prevent movement of articles from said auxiliary chute to said main chute; a weight on the other end for biasing said blade to an open position, a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second axes being perpendicular to one another, said lock bar having a side exposed to contact with the articles in said main chute; a spur on said lock bar contacting said blade for preventing movement of the blade to said open position, said blade in contacting said spur tending to cam said lock bar to open position due to the action of said weight, said spur being maintained in the path of movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade; a flap pivotally mounted on said structure for pivotal movement about a third horizontal axis parallel to and spaced from said second horizontal axis, said flap closing said passage; and a second spur on said locking bar, said flap being pivotally and upwardly movable into said main chute to permit movement of articles from said auxiliary chute to said main chute, said second spur limiting upward movement of the flap to block off the upper portion of the main chute and prevent upward movement of articles into said upper portion, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

8. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a blade pivotally mounted on said structure for pivotal movement about a first horizontal axis for closing said passage to prevent movement of articles from said auxiliary chute to said main chute; means biasing said blade to an open position, a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second horizontal axes being perpendicular to one another, said lock bar having a side exposed to contact with articles in said main chute; a spur on said lock bar contacting said blade for preventing upward movement of the blade to open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said biasing means, said spur being maintained in the path of movement of said blade while an article in said chute contacts said side of said lock bar to tend to move said lock bar toward said blade; a flap pivotally mounted on said structure for pivotal movement about a third horizontal axis parallel to and spaced from said second horizontal axis, said flap closing said passage; and a second spur on said locking bar, said flap being pivotally and upwardly movable into said main chute to permit movement of articles from said auxiliary chute to said main chute, said second spur limiting upward movement of the flap to block off the upper portion

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of the main chute and prevent upward movement of articles into said upper portion, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

9. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost article in the auxiliary chute may pass into the main chute; a lever pivotally mounted on said structure for pivotal movement about a first horizontal axis, said lever having a blade on one end for closing said passage to prevent passage of articles from said auxiliary chute to said main chute; a weight on the other end for biasing said blade to an upper open position; a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second axes being perpendicular to one another, said lock bar having a side exposed to contact with the articles in said main chute and being pivotally and upwardly movable into said main chute; and a spur on said lock bar contacting said blade for preventing upward movement of the blade to said open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said weight, said spur being maintained in the path of upward movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

10. In an article dispensing device, a structure providing a vertical main chute and a vertical auxiliary chute, each of said chutes being adapted to contain a single column of articles, said structure also providing a passage communicating with said main chute and the lowest portion of said auxiliary chute whereby the lowermost

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article in the auxiliary chute may pass into the main chute; a lever pivotally mounted on said structure for pivotal movement about a first horizontal axis, said lever having a blade on one end for closing said passage to prevent passage of articles from said auxiliary chute to said main chute; a weight on the other end for biasing said blade to an upper open position; a lock bar pivotally mounted on said structure for pivotal movement about a second horizontal axis, said first and second axes being perpendicular to one another, said lock bar having a side exposed to contact with the articles in said main chute and being pivotally and upwardly movable into said main chute; a spur on said lock bar contacting said blade for preventing upward movement of the blade to said open position, said blade in contacting said spur tending to cam said lock bar away from said blade due to the action of said weight, said spur being maintained in the path of upward movement of said blade while an article in said main chute contacts said side of said lock bar to tend to move said lock bar toward said blade; a flap pivotally mounted on said structure for pivotal upward movement into said main chute about a third horizontal axis parallel to and below said second horizontal axis, said flap closing said passage, said locking bar being disposed between said main chute and said flap; and a second spur on said locking bar, said flap being pivotally and upwardly movable into said main chute to permit movement of articles from said auxiliary chute to said main chute said second spur limiting upward movement of the flap in said main chute and preventing upward movement of articles into said upper portion, said blade moving to open position to permit movement of articles from said auxiliary chute to said main chute when no article in said main chute prevents movement of said lock bar away from said blade.

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