Sept. 10, 1946. J. R. CLEM 2,407,402

DISPENSING DEVICE

Filed July 27, 1942 3 Sheets-Sheet 1

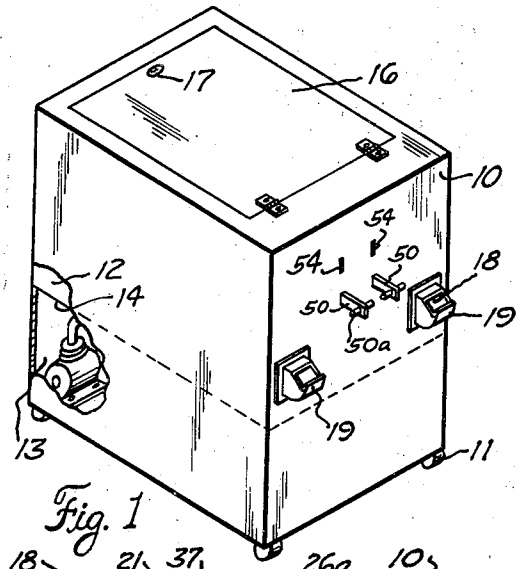



Fig. 1

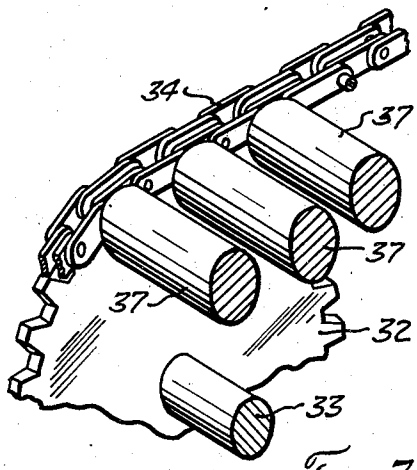



Fig. 7

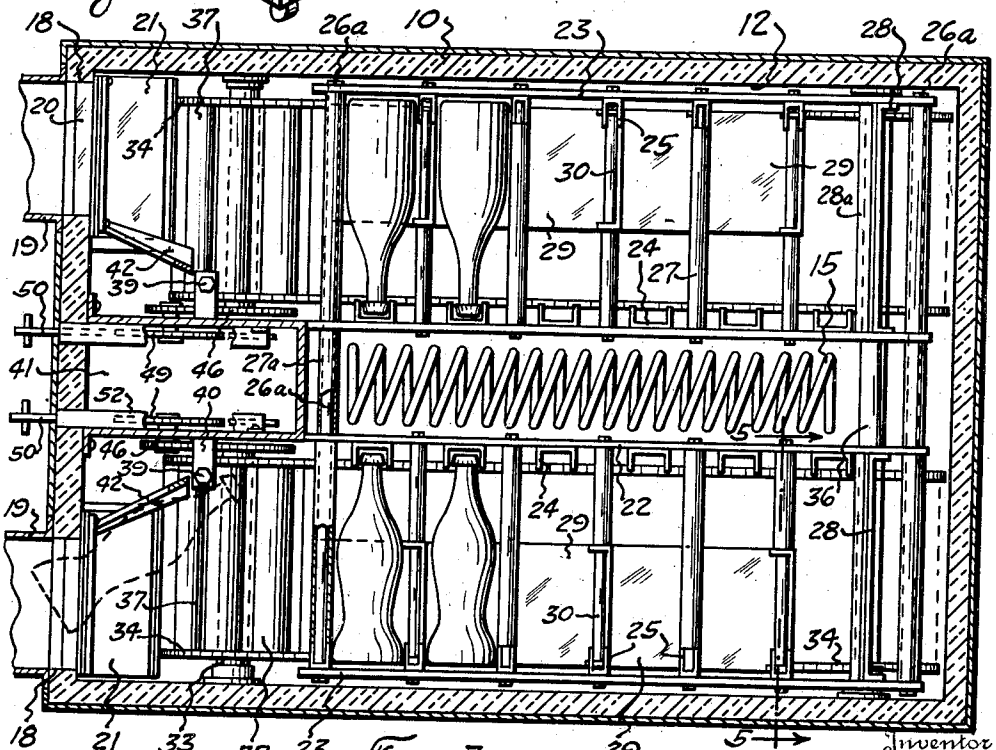



Fig. 3

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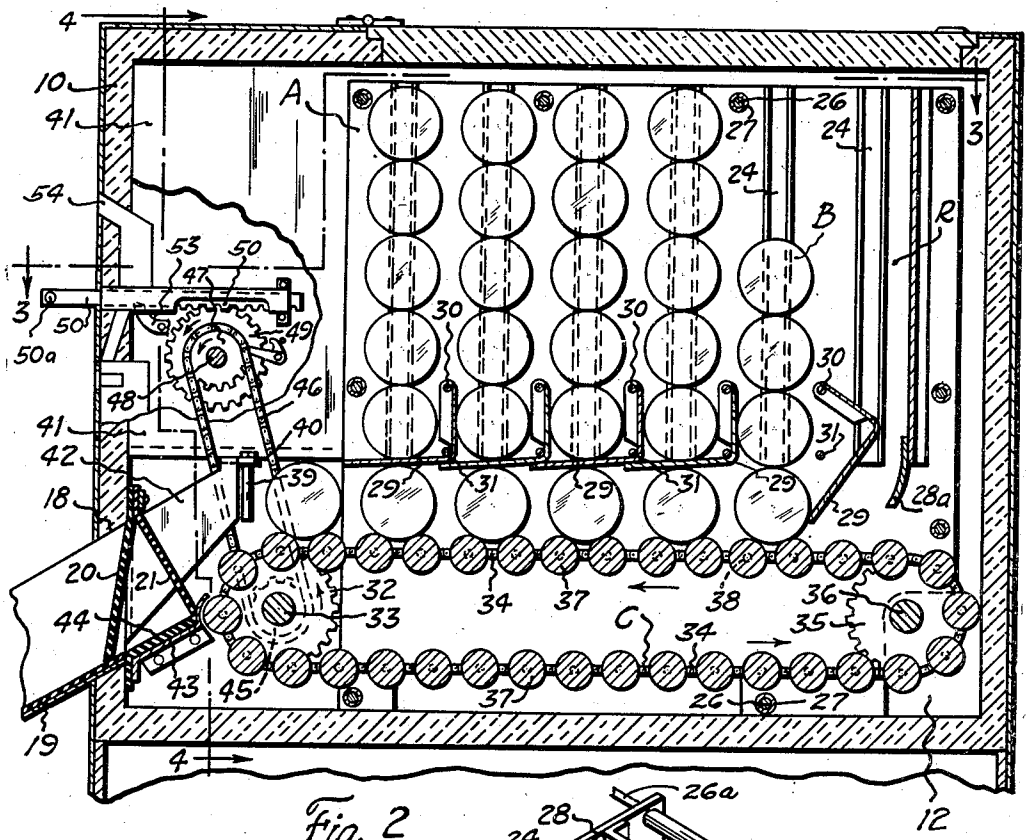



Fig. 2

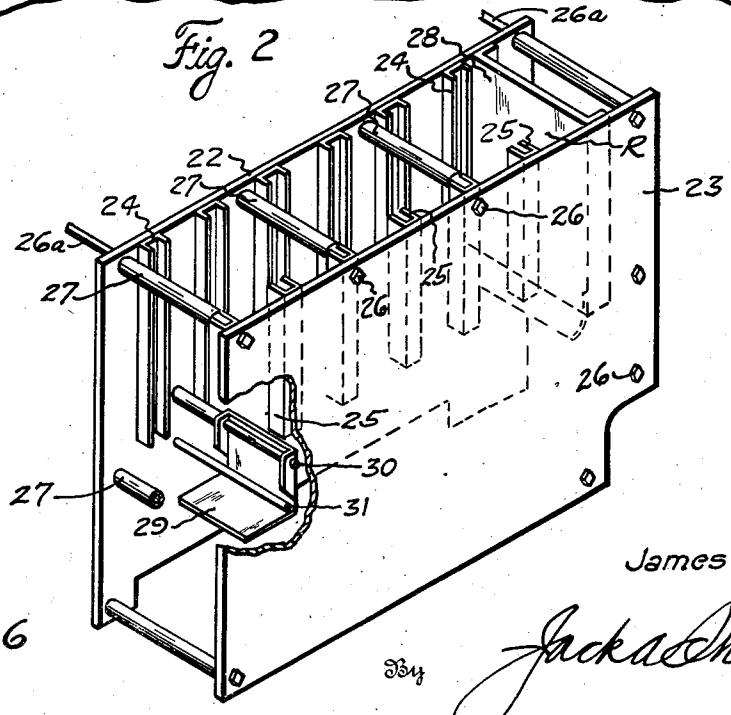



Fig. 6

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DISPENSING DEVICE

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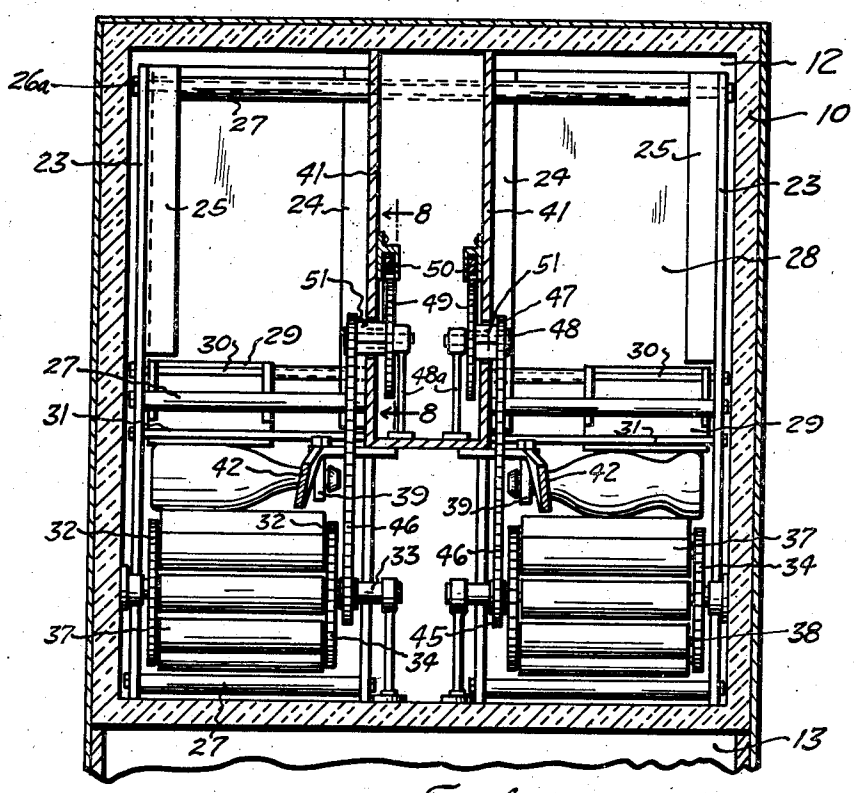



Fig. 4

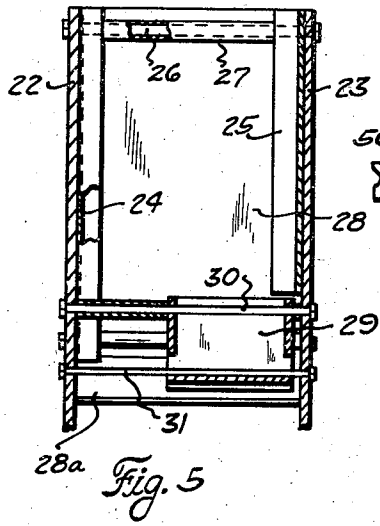



Fig. 5

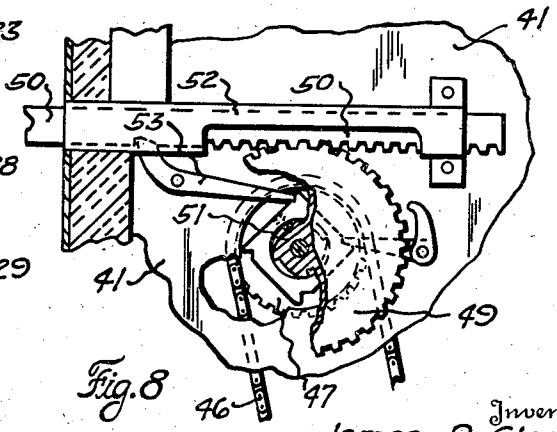



Fig. 8

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Patented Sept. 10, 1946

2,407,402

# UNITED STATES PATENT OFFICE

2,407,402

## DISPENSING DEVICE

James R. Clem, Dallas, Tex.

Application July 27, 1942, Serial No. 452,442

7 Claims. (Cl. 312—46)

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This invention relates to new and useful improvements in dispensing devices.

One object of the invention is to provide an improved device for dispensing a quantity of bottled goods, such as carbonated beverages of various flavors.

A particular object of the invention is to provide an improved dispensing device which is coin-controlled and which is adapted to receive and store bottled goods of various flavors, said device having means for selectively dispensing the goods, whereby the purchasers or consumers may readily select and receive goods of a desired flavor.

An important object of the invention is to provide an improved bottle dispensing device having a plurality of chambers or compartments for storing the bottles to be dispensed, together with a conveyor for receiving said bottles from the compartments and conducting the same to the access or outlet opening from which said bottles are removed from the device; each compartment being constructed to house a number of bottles in superimposed relation, whereby the weight of the bottles is utilized to feed said bottles to the conveyor by gravity and the use of a mechanical feeding means for this purpose is eliminated.

A further object of the invention is to provide a dispensing device, of the character described, wherein the bottles to be dispensed are arranged in vertical rows or stacks which stacks may contain a desired number of bottles, whereby a maximum number of bottles may be stored in a minimum amount of space.

Another object of the invention is to provide an improved device, of the character described, wherein a plurality of adjacent chambers or compartments are each adapted to receive a vertical stack or row of bottles, each compartment having a pivoted closure at its lower end for preventing the discharge of the bottles therein; the device also including a conveyor which is movable beneath the compartments and which is adapted to receive the bottles therefrom, said conveyor being so constructed that the bottles thereon co-act with the closures of the compartments, whereby the compartments are emptied in a predetermined order and the bottles from one compartment cannot discharge until all of the bottles from the preceding compartment have been ejected.

Still another object of the invention is to provide an improved bottle dispensing device having a plurality of units of identical construction mounted within an outer housing or casing, each unit being adapted to receive a plurality of bottles containing goods of the same flavor, whereby the number of units employed is dependent upon the number of different kinds of beverages which are to be dispensed; the identical construction of the units not only simplifying manufacture of the device but also facilitating assembly since it is only necessary to vary the number of units employed to vary the size and capacity of the device.

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A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein an example of the invention is shown, and wherein:

Figure 1 is an isometric view of the dispensing device, constructed in accordance with the invention,

Figure 2 is an enlarged, longitudinal sectional view of said device,

Figure 3 is a horizontal cross-sectional view, taken on the line 3—3 of Figure 2,

Figure 4 is a transverse, vertical sectional view, taken on the line 4—4 of Figure 2,

Figure 5 is a transverse, vertical sectional view, taken through one of the bottle receiving units and approximately along the line 5—5 of Figure 3,

Figure 6 is an isometric view of one of the bottle receiving units,

Figure 7 is an isometric view of a portion of the conveyor and one of the drive gears, and

Figure 8 is an enlarged detail taken on the line 8—8 of Figure 4, showing the clutch mechanism.

In the drawings, the numeral 10 designates a cabinet or casing which is illustrated as substantially rectangular in cross section. The cabinet is mounted on suitable rollers 11 and the interior of said cabinet is divided into an upper chamber 12 and a lower chamber 13. The upper chamber 12 which, as will be explained, is adapted to receive the bottled goods to be dispensed has its walls constructed of a suitable heat insulating material and the chamber 12 is separated from the chamber 13 by a suitable insulated partition 14 (Figure 1) which forms the floor of the upper chamber. Continuous cooling coils 15 are adapted to be mounted upon the partition or floor 14 at the central portion thereof, as is clearly shown in Figure 3 and these coils serve to cool the interior of the chamber 12.

The lower chamber 13 has the usual refrigerat-

ing equipment mounted therein and only a portion of this equipment is illustrated in Figure 1. The coils 15 within the interior of the upper chamber 12 have connection with the refrigerating equipment and thus, the interior of the chamber 12 may be maintained at the desired temperature at all times. It is not necessary that the walls of the lower chamber 13 be insulated and no insulation has been shown.

Access to the interior of the upper cooling chamber 12 may be had through a hinged door 16 which is provided with a suitable lock 17, said door being located at the top of the cabinet. The door 16 is provided for the purpose of introducing the bottled goods into the cooling chamber 12 and the bottles are ejected from said chamber through a plurality of outlet openings 18 which are provided in the front walls of the cabinet. A suitable receiving trough 19 is associated with each opening 18 and is disposed immediately therebelow for receiving the bottle ejected through said opening. Each opening 18 (Figure 2) is normally closed by a pair of hinged flaps 20 and 21 which are constructed of rubber or other flexible material. The flaps normally close the opening 18 to prevent the escape of cool air from the interior thereof and as will be explained, the flaps are swung outwardly by the weight of a bottle falling downwardly through the opening 18.

A plurality of bottle receiving units A are adapted to be mounted within the cooling chamber 12 of the cabinet and the number of these units will vary in accordance with the number of different kinds of bottled goods to be dispensed. Each unit is arranged to receive the bottles of one particular drink or flavor and thus, if it is desired to dispense two different types of drinks, only two units are provided; if a greater number of different kinds of beverages are to be dispensed, then the units are increased accordingly. As shown in the drawings and as described herein, only two units are illustrated, but it is to be understood that any desired number may be employed by merely increasing the size of the cabinet 16.

The various units A are all of an identical construction and it is believed that a description of one will suffice. As is clearly shown in Figure 6, each unit includes a pair of side plates 22 and 23 which are disposed in spaced parallel relation to each other. The plate 22 has a plurality of inwardly directed channel members 24 secured to its inner surface and these channels are spaced throughout the length of the plate. The plate 23 has channel members 25 secured to its inner surface and these channels are mounted in offset relation to the channels 24 of the plate 22, such offsetting being clearly shown in Figure 3. A plurality of tie bolts 26 fasten the plates 22 and 23 to each other in spaced relation and suitable spacer sleeves 27 surround the bolts and serve to properly space the plates from each other. The number and disposition of the tie bolts 26 is of course subject to variation and depends entirely upon the size of the unit A. The rear portion of the plates 22 and 23 are secured together by a transversely extending partition 28 which has its vertical edges flanged and suitably secured to the inner surfaces of said plates.

The disposition of the channels 24 on the plate 22, as well as the disposition of the channels 25 on the plate 23 are in accordance with the particular bottle which is to be dispensed. The channels 25 on the plate 23, in effect, divide the space between the plates 22 and 23 into a plurality of vertical chambers or compartments, each of which is arranged to receive a vertical row of bottles. As is clearly shown in Figures 2 and 6, the channels 24 and 25 terminate well above the lower edge of the side plates 22 and 23 so that the compartments or chambers formed by the channels 25 extend throughout the upper portion of the unit only. Each chamber or compartment is adapted to receive a vertical row or stack of bottles B, the base of each bottle fitting between two of the channels 25 on the plate 23 with the neck or cap of the bottle being insertable within one of the channels 24 on the plate 22. Thus, each row of bottles is confined by the channels 24 and 25 and is guided in its vertical movement. It is noted that the rearmost chamber or compartment R of the unit is formed by the space between the vertical partition 28 and the rearmost channel bar 25.



For supporting each row of bottles to prevent a premature discharge thereof, a pivoted flap or closure 29 is associated with each chamber with the exception of the rearmost chamber R, and each flap is disposed at the lower end of the channels 24 and 25. As is clearly shown in Figure 2, each flap or closure is angular in cross section and has its upper end pivoted upon a transverse bolt 30 which extends between the plates 22 and 23. The flap or closure does not extend completely across the transverse space between the plates but is of a width substantially equal to one half of the area of this space (Figure 3), said flap being located beneath the base portions of the bottles thereabove. A stop rod 31 extends transversely between the plates 22 and 23 and is arranged to be engaged by the flap or closure 29 to limit the swinging movement of said flap in one direction. When the flap or closure is engaging the stop rod 31, said flap or closure is below the row of bottles and is supporting or holding said bottles within the upper portion of the units A to prevent discharge thereof. The various flaps or closures 29 are adapted to overlap each other when in the position shown in Figure 2 holding the various rows of bottles within the upper portion of the unit. As will be explained, each flap is adapted to be swung upon its pivot 30 by the weight of the bottles thereabove and when so swung, said bottles may be discharged from the unit.

For receiving the bottles as they are discharged from the various chambers of each unit A, a conveyor C is mounted within the lower portion of the cooling chamber 12 and is disposed immediately below each unit. Each conveyor includes a pair of forward sprockets 32 which are secured on a rotatable shaft 33 located in the forward portion of the cooling chamber. A pair of chains 34 pass over the sprockets 32 and extend through the lower portion of the unit A between the plates 22 and 23, said chains also passing over a pair of rear sprockets 35 which are mounted on a rear shaft 36. A plurality of rollers 37 which have end studs 38 rotatably connected to the spaced chains 34 extend transversely between said chains, as is clearly shown in Figure 4. The bottles which are discharged from the upper portion of the chamber A fall downwardly onto the conveyor C and are supported and carried therealong by the rollers 37 to the forward portion of the cooling chamber. Each conveyor C has its discharge end disposed immediately behind one of the discharge openings 18 in the forward portion of the cabinet,

whereby the bottles from the conveyor may be discharged outwardly through said opening. Each bottle is individually supported by two of the rollers.

The distance between the upper run of the conveyor C and the pivoted flaps or closures **29** of the unit A is such that when a bottle is lying upon the rollers of this upper run of the conveyor, as is clearly shown in Figure 2, the bottle carried by the conveyor is arranged to rollingly engage the underside of the flap or closure, whereby the same is held in a position supporting its row of bottles. Thus, the bottles upon the conveyor rollers **37** are utilized to maintain the flap in a position preventing the discharge of bottles from the unit A and will roll between said flap and rollers upon travel of the conveyor. With this arrangement, the row of bottles within the rearmost chamber R of the unit A is first discharged upon the conveyor C and the bottles upon said conveyor maintain the closures of the remaining rows of bottles in a position supporting said remaining rows. As has been stated, the rearmost chamber R is formed by the partition **28** and one of the channels **25** and has its lower end constantly open, the flap **29** being omitted; instead, a curved guide plate **28***a*, secured to the lower edge of the partition, guides the bottles from this chamber onto the conveyor. After the rearmost row of bottles has been discharged from the unit A and said bottles have been moved outwardly by the conveyor C through the discharge opening **18**, the flap of the next row of bottles is permitted to swing downwardly, whereby the second row is discharged, as is illustrated in Figure 2. As this second row discharges, the remaining rows of bottles cannot be ejected because so long as bottles remain upon the conveyor C, the flaps of these rows are maintained in a bottle supporting position. It is only when a sufficient number of bottles have been removed from the conveyor C that the next flap or closure is permitted to swing to an open position to allow the discharge of the next row. In this manner, the bottles upon the conveyor are utilized to coact with the pivoted flaps or closures **29** to maintain the same in a position supporting the remaining rows of bottles within the unit A. Obviously, the bottles are discharged in a predetermined order from the unit A, the rearmost row being the first to be ejected and the remaining rows being discharged in proper succession or order.

As the conveyor C is moved forwardly toward the discharge opening **18**, the bottles carried thereby are also moved forwardly. The end bottle will finally drop or fall from the end of the conveyor as the chains **34** of said conveyor move around the forward sprocket **32**. As the bottle leaves the conveyor, the neck of said bottle is engaged by a vertically extending pin **39** which is mounted in a horizontal bracket **40**, the latter being secured to the bottom of a central compartment or chamber **41** which is secured to the inner front wall of the cabinet. As is clearly shown in Figure 3, the compartment **41** is disposed at the center of the cabinet and is located forwardly of the units A. As the bottle leaving the conveyor C strikes the vertically extending pin **39**, the base of the bottle is swung forwardly toward the opening **18**, as is indicated by dotted lines in Figure 3. As the bottle turns in this manner, it is guided into the opening by an inclined deflector plate **42** which extends from the pin **39** to the opening **18**. A receiving chute **43** extends from the forward end of the conveyor C to the lower end of the opening **18** and this chute is suitably cushioned by a flexible pad **44** which is secured to its upper surface. Thus, as the bottle falls from the conveyor, it strikes the pin **39** and is turned so that its base is directed forwardly. As the bottle falls downwardly, it is guided into the opening **18** by the deflector plate **42** and the receiving chute **43**. The fall of the bottle is retarded by the flexible flaps **20** and **21** which must be flexed outwardly by the weight of the bottle in order to permit said bottle to slide through the opening **18** and into the trough **19** which is secured to the exterior of the cabinet outside of the opening.



The conveyor C is actuated in a step by step manner, that is, the conveyor moves a predetermined distance upon each operation. When the conveyor is stationary, a bottle is positioned behind the pin **39**, as is shown in Figure 2 and upon actuation of the conveyor, this bottle falls therefrom and is discharged through the opening **18** into the trough. Each operation of the conveyor moves the next bottle into position immediately behind or adjacent to the deflecting pin **39**.

It is of course preferable that the operation of the conveyor be manually controlled and that the manual control be in turn, locked against operation until the insertion of the proper coin into the device. For driving the forward sprockets **32** of the conveyor C in order to transmit movement to said conveyor, the shaft **33** of said forward sprocket has a reduced sprocket **45** mounted thereon. The sprocket **45** has connection through a chain **46** with a sprocket **47** which is journaled on a stub-shaft **48**, the latter being supported in a suitable bracket **48***a* disposed in the compartment **41**. An enlarged drive gear **49** which is located within the compartment **41** is journaled or freely rotatable on the shaft **48** and is in constant engagement with a gear rack **50**. The gear **49** is arranged to be connected to the sprocket **47** through a suitable clutch or ratchet wheel arrangement **51** (Figure 8) whereby when the gear is rotated in one direction, a rotation is imparted to the sprocket **47**; rotation of the gear **49** in an opposite direction will not, due to the slippage of the clutch **51**, impart rotation to said sprocket **47**.

The rack **50** is disposed within a suitable guide housing **52** which is secured to the wall of the compartment **41** and the outer end of the gear rack extends through the front wall of the cabinet and this projecting end has a transverse pin **50***a* therein, whereby a hand hold is provided. As explained, a suitable clutch arrangement **51** is associated with the drive gear **49** and the sprocket **47** and is so arranged that when the gear rack **50** is pulled outwardly, a counter-clockwise rotation is imparted to the drive gear **49** and sprocket **47**, whereby a forward movement of the conveyor C is had. When the gear rack **50** is again moved into the cabinet or back to its original position, the clutch **51** functions to disconnect the drive gear **49** from the sprocket **47**, whereby upon the reverse movement of the gear rack, no motion is imparted to the conveyor C. The clutch arrangement includes a laterally-directed collar or flange made integral with the sprocket **47** and having a substantially square shape, as is clearly shown in Figure 8. A circular bore is formed in the sprocket collar and receives a clutch element carried by the drive gear **49** and freely rotatable therewith on the shaft **48**. The clutch element

has a plurality of radially-extending shoulders and its outer periphery is so formed that it curves gradually from the base of one shoulder to the high point of the adjacent or next shoulder. A spring-pressed pin is mounted in the sprocket collar and projects into the bore thereof, whereby one of the shoulders of the clutch element will strike the pin and impart a counter-clockwise rotation (Fig. 8) to said sprocket collar and the sprocket 47 upon rotation of the drive gear 49 and the clutch element in such direction. However, a rotation of the drive gear and clutch element in a reverse or clockwise direction will merely result in a depression of the pin. Thus, the clutch arrangement provides an overriding clutch and rotation in one direction only can be imparted to the sprocket 47. However, it is noted that any desired clutch arrangement may be employed.

A suitable coin-controlled locking pawl 53 (Fig. 8) is pivotally mounted adjacent the clutch arrangement 51 for preventing a counter-clockwise rotation of the drive gear 49 by the gear rack 50. The horizontal leg of the pawl is adapted to coact with a plurality of lugs formed on the external periphery of the sprocket collar, which lugs are preferably spaced equidistant from each other. An upstanding portion is formed on the pawl 53 and extends through a slot in the housing 52, within which the gear rack is slidable, so as to be disposed beneath the coin chute 54. When a coin is inserted into a coin chute 54, which is disposed in the front wall of the cabinet above each gear rack 50, said coin cooperates with the locking pawl to disengage the same from the gear rack and swing the end of its horizontal leg out of the path of the peripheral lugs of the sprocket collar, whereby said rack may be pulled outwardly to impart the desired or proper movement to the conveyor C. When the gear rack 50 is again returned to its original position after operation of the conveyor, the locking pawl 53 again re-engages the rack and one of the lugs of the sprocket collar to prevent further operation thereof until the next coin is inserted. The details of the coin mechanism have been omitted since they form no part of the present invention. The coin mechanism illustrated in my co-pending application, Serial No. 416,151, filed October 23, 1941, is adaptable for use with the present operating mechanism and may, if desired, be employed therewith.

In the operation of the device, the units A are placed within the cabinet 10, each being located on one side of said cabinet, as is illustrated in Figure 3. If desired, the end bolts 26 which holds the plate 22 and 23 of each unit A together may be extended so as to fasten the two units to each other in spaced relation. These bolts have been indicated at 26a in Figure 3 and that portion of the bolts between the units is surrounded by a suitable spacer sleeve 27a which properly separates the two units. The conveyors C are of course located beneath the units A and are each connected with a manually actuated gear rack 50. A coin chute 54 is associated with each gear rack 50.

In filling each unit A, the operator obtains access to the interior of the cabinet through the door 16 in the top of the cabinet. The rearmost chamber of each unit is first filled with bottles and these bottles are guided in their downward movement by the channels 24 on one side and by one of the channels 25 and the transverse partition 28 on the opposite side. The bottles fall downwardly and are guided by the curved plate 28a from this particular chamber onto the rollers 37 of the conveyor C therebelow. The conveyor is operated until the entire upper run of said conveyor is filled with bottles, as illustrated in Figure 2 and these bottles upon the conveyor co-act with the closures or flaps 29 of the remaining chambers of the unit A to maintain said closures in a horizontal closing position. After a sufficient number of bottles have been introduced to substantially fill the upper run of the conveyor, additional bottles are fed into the rearmost chamber to fill this chamber. The remaining chambers are then filled with bottles, said bottles having their caps engaged within the channels 24 with their bases confined between the channels 25. These additional rows or stacks of bottles cannot discharge from their particular chambers because the flaps or closures 29 thereof are held in a horizontal position by the bottles on the conveyor C. The machine is now ready for operation.

Upon the insertion of a coin into the coin slot, the locking pawl 53 is disengaged from the gear rack 50 and the operator may pull said gear rack outwardly of the cabinet. This outward movement of the particular gear rack which the operator has selected will impart a rotation to the forward sprocket 32 of the selected conveyor C, said sprockets rotating in a counter-clockwise direction in Figure 2. The amount of travel or rotation imparted to the sprockets is sufficient to discharge the first bottle on the conveyor from said conveyor and to move the next bottle into the position which the first bottle had prior to such operation. As the first bottle moves off of the conveyor, its neck engages the depending pin 39, whereby the weight of the bottle falling from the conveyor will result in the bottle turning so as to direct its base toward the outlet opening 18. As the bottle is turned and falls downwardly, it is guided into the outlet opening 18 by the deflecting plate 42 and the inclined receiving chute 43. The fall of the bottle is retarded or cushioned by the flexible flaps 20 and 21 which must be swung out of the way by the weight of said bottle and thus, the bottle falls through the outlet opening 18 into the receiving trough 19 from which it may be removed by the purchaser or consumer.

As the first bottle was removed from the conveyor, the travel of the conveyor is sufficient to bring the next bottle into position ready for discharge upon the next subsequent operation. This travel of the conveyor also moves the rearmost bottle on said conveyor from beneath the rearmost row of bottles within the last chamber of the unit A, thereby permitting the next bottle to fall from the rearmost chamber of said unit onto the conveyor. Therefore, another bottle is automatically fed onto the conveyor C upon the discharge or ejection of each bottle and the upper run of the conveyor is kept filled at all times.

After the last bottle from the rearmost chamber of the unit A falls onto the conveyor C, it is fed forwardly by the subsequent travel of said conveyor. As soon as this last bottle moves from beneath the closure or flap of the second chamber of the unit, the flap or closure of this second chamber is permitted to swing downwardly and rearwardly, whereby the next row of bottles is free to fall by gravity onto the conveyor. This next row of bottles is then fed in succession onto the conveyor until the entire row is depleted. As

the conveyor continues to be moved by the subsequent operations, the bottles from the second row are all finally discharged and carried forwardly by said conveyor and when this occurs, the next flap or closure is permitted to swing downwardly and rearwardly to permit discharge of the next row. Thus, the bottles are discharged from the various rows or stacks in order, beginning with the rearmost row and continuing forwardly until the forward row of bottles is finally discharged from the unit A. Because of the fact that the bottles on the conveyor coact with the various flaps or closures **29** of the unit A, it is impossible for one row to discharge until the preceding row of bottles has been ejected. The entire feeding of the bottles onto the conveyor is by gravity and since the rows are relatively short, that is, only a relatively few number of bottles are disposed in each row, an excessive weight is not placed on the lowermost bottle. The elimination of this excessive weight provides for an efficient gravity feed without the danger of binding the bottles or of breaking the same.

As has been pointed out, each unit A is adapted to receive and store a particular beverage and by providing a plurality of units, a plurality of beverages may be dispensed from the same cabinet. As illustrated, only two units are shown but obviously, this number may be increased to any amount. An operating gear rack **50**, as well as a coin chute **54**, is associated with each unit A and thus, the purchaser or consumer may selectively actuate any of the gear racks to obtain the desired beverage. As previously noted, the units A are of identical construction and this facilitates the manufacture and assembly thereof. Since the side plates **22** and **23** are merely bolted together, it is possible to easily vary the distance between these plates by changing the length of the bolts and the length of the various spacer sleeves **27**, whereby bottles of various heights may be accommodated. The space between the units A not only permits the mounting of the usual cooling coils **15** for cooling the interior of the chamber **12** but also provides a pre-cooling space or area for the reception of bottles prior to their insertion within the various compartments of the units A. By employing the guide channels **24** and **25**, the various rows of bottles may be positively guided in their sliding movement within the units without the necessity of providing transverse partitions which might impede the circulation of cool air through the units. Also, since the bottles may be stacked in rows, a maximum number of bottles may be mounted in a minimum amount of space and a gravity feed may be had without placing an excessive weight on the lowermost bottles.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A dispensing device including, a casing having a discharge opening in one wall thereof, a bottle receiving unit within the casing and having an open lower end, a conveyor below said unit for receiving bottles therefrom and for delivering the same to the discharge opening, said unit including spaced plates having guide channels on their inner walls, whereby the bottles may be disposed in vertical rows within the unit, the guide channels of one plate being laterally offset relatively to the guide channels of the other plate whereby the channels of one plate receive the reduced ends of the bottles and the large ends of said bottles are confined between a pair of oppositely disposed channels, and pivoted means disposed at the lower end of each row of bottles and resting upon the bottle upon the conveyor therebelow for supporting the row and swinging from beneath said row for permitting discharge of the bottles from the row when said conveyor therebelow is void of bottles.



2. A bottle dispensing device including, a casing having a discharge opening in one wall thereof, means within the casing for storing a plurality of bottles in vertical rows, a pivoted supporting element at the lower end of each row of bottles and adapted to support said row when in one position, swinging of the element to another position permitting the bottles of said row to fall downwardly below said element, the element being angular and having an upstanding portion contiguous to and engaging the lowermost bottle of an adjacent rearward row when in its supporting position whereby swinging of said element to its discharging position is prevented until after discharge of the bottles from said adjacent rearward row, and a conveyor below the bottles for receiving said bottles when the supporting elements are swung to allow downward movement of the bottles, the bottles upon the conveyor supporting the elements in their supporting position, said conveyor extending to a point adjacent the discharge opening whereby said bottles are delivered to said opening and discharged therethrough.

3. A bottle dispensing device including, a casing having a discharge opening in one wall thereof, means within the casing for storing a plurality of bottles in vertical rows, a pivoted supporting element at the lower end of each row of bottles and adapted to support said row when in one position, swinging of the element to another position permitting the bottles of said row to fall downwardly below said element, the rows of bottles being in close proximity so as to dispose the supporting elements adjacent one another, each element extending laterally beyond its row so as to underlie an adjacent forward element and prevent swinging of the same to discharging position whereby swinging of each element is prevented until the adjacent rearward element has swung from its underlying position, and a conveyor below the bottles for receiving said bottles when the supporting elements are swung to allow downward movement of the bottles, said elements being maintained in their supporting position by the bottles upon the conveyor therebelow, said conveyor extending to a point adjacent the discharge opening whereby said bottles are delivered to said opening and discharged therethrough.

4. A dispensing device as set forth in claim 3 wherein each supporting element is angular and has an upstanding portion contiguous to and engaging the lowermost bottle of an adjacent rearward row and swinging of the element is prevented until discharge of all of the bottles from the adjacent rearward row.

5. A dispensing device as set forth in claim 2 wherein the upstanding portion of the supporting element is pivotally supported at its upper extremity, the device including means extending transversely of the upstanding portion for limit-

ing the upward swinging movement of said flap.

6. A dispensing device as set forth in claim 3 including, transverse rollers rotatably mounted upon the conveyor for supporting the bottles thereupon and maintaining the same in engagement with the supporting elements, said conveyor being of the continuous travelling type and the rollers being so positioned that each bottle is supported by a pair of rollers, whereby said bottles are rolled with minimum friction between said elements and rollers upon travel of the conveyor.

7. A bottle dispensing device including, a casing having a discharge opening in one wall thereof, a bottle unit mounted in the casing and having upright side walls spaced apart to receive bottles disposed lengthwise therebetween, guide means carried by the unit for maintaining bottles therein in upwardly disposed columns, closures hinged in the unit for supporting bottles in columns therein, an endless conveyor mounted in the casing below said closures having one end located adjacent the discharge opening of the casing and having pairs of transverse rollers disposed to receive bottles therebetween and support said bottles in engagement with said closures to maintain the latter closed, the closures being angular in cross-section and each depending from its hinge and having its depending portion in engagement with the lowermost bottle supported by an adjacent rearward closure, means carried by the casing for limiting the closing swing of the closures and said guide means guiding bottles to the conveyor.



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