May 29, 1934. H. OLSEN 1,960,546

COIN CONTROLLED DISPENSING APPARATUS

Filed Oct. 7, 1931 4 Sheets-Sheet 1

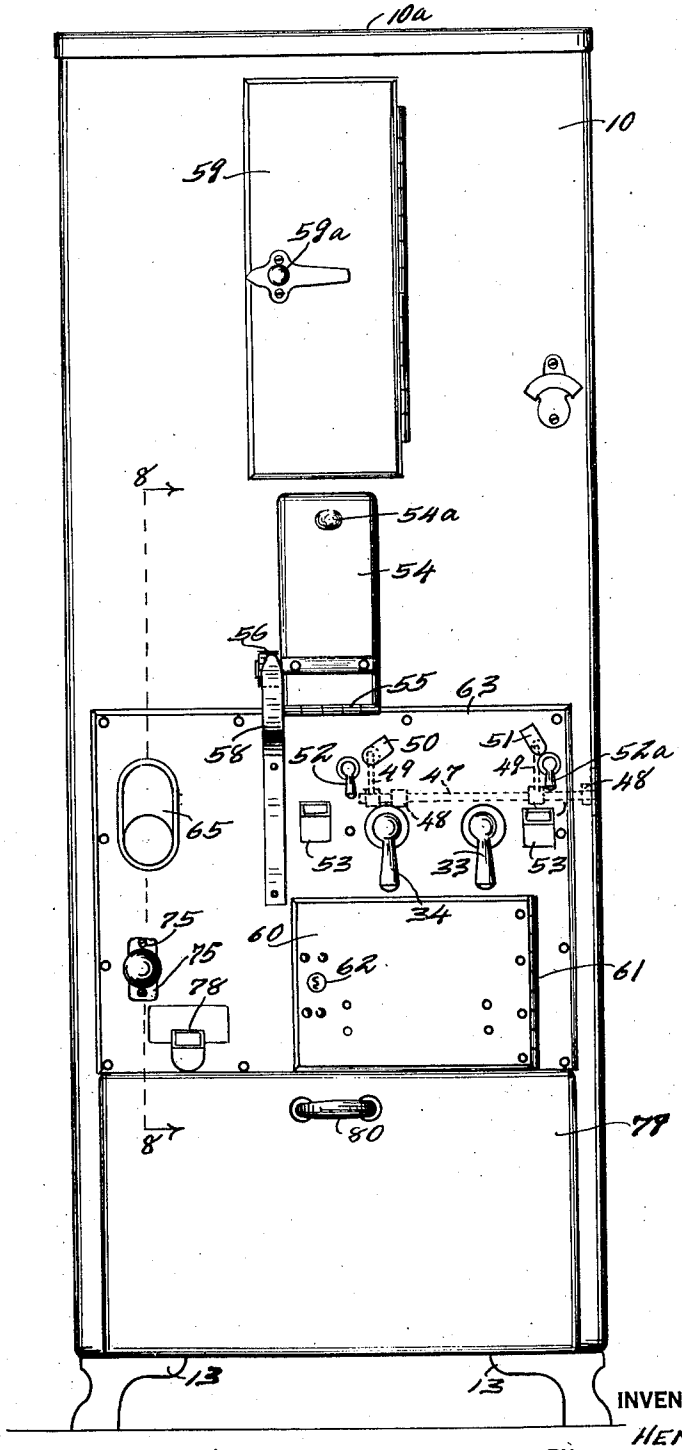


Fig. 1.

INVENTOR
HENRY OLSEN
BY Reis & Braddock
ATTORNEY

May 29, 1934. H. OLSEN 1,960,546

COIN CONTROLLED DISPENSING APPARATUS

Filed Oct. 7, 1931 4 Sheets-Sheet 2

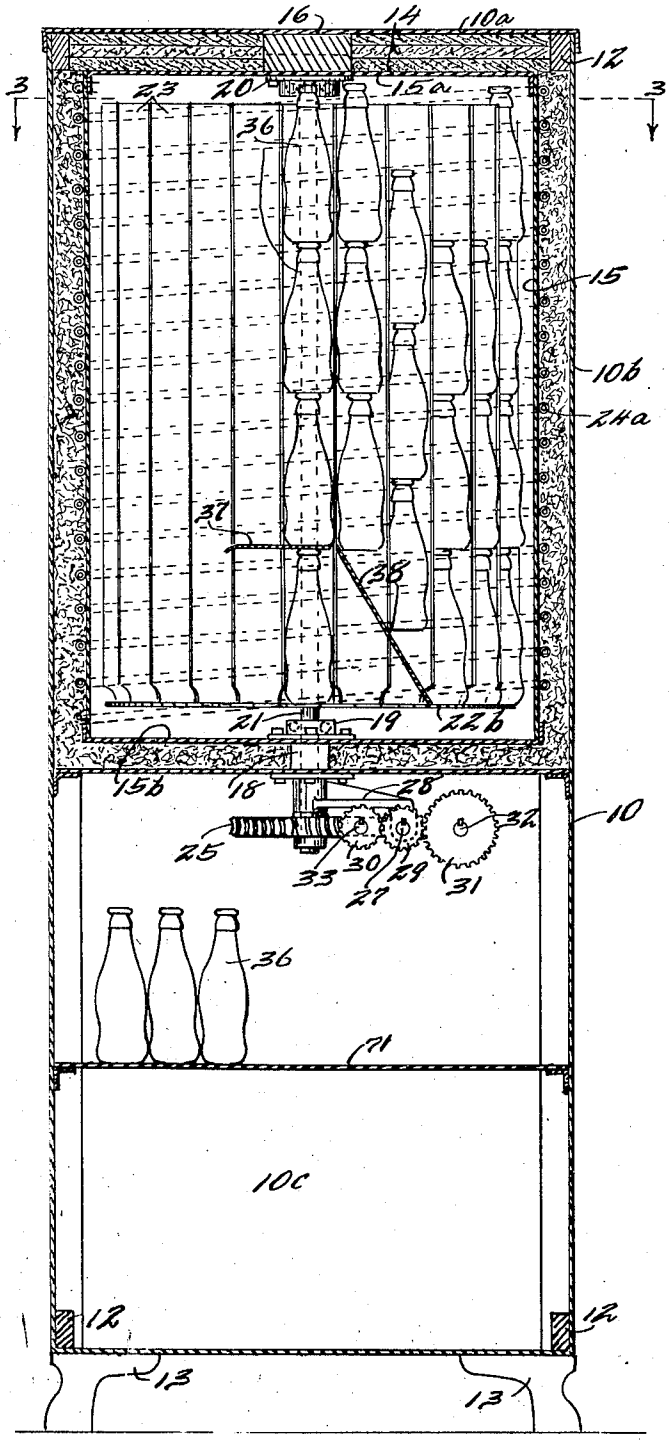


Fig. 2.

INVENTOR
HENRY OLSEN
BY Peirce & Paddock
ATTORNEY

May 29, 1934. H. OLSEN 1,960,546

COIN CONTROLLED DISPENSING APPARATUS

Filed Oct. 7, 1931 4 Sheets-Sheet 3

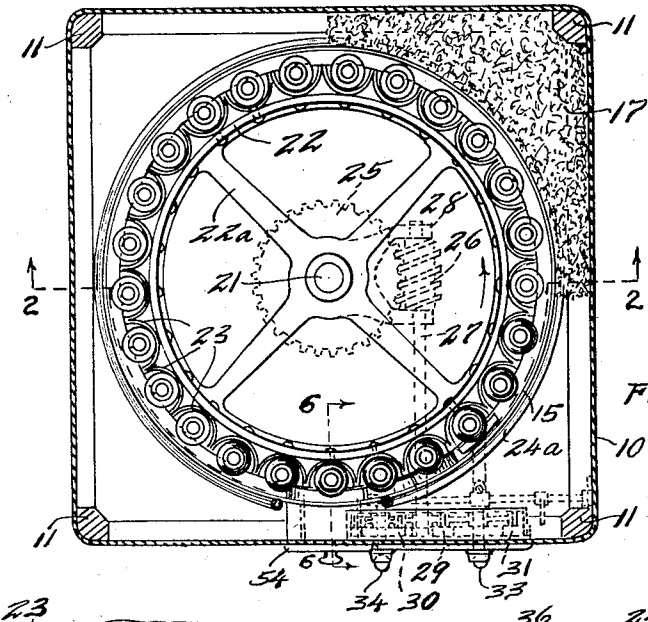


Fig. 3.

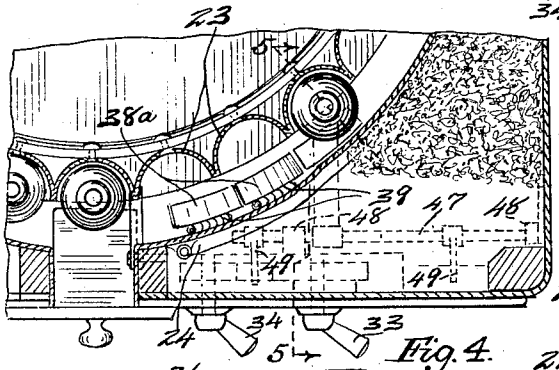


Fig. 4.

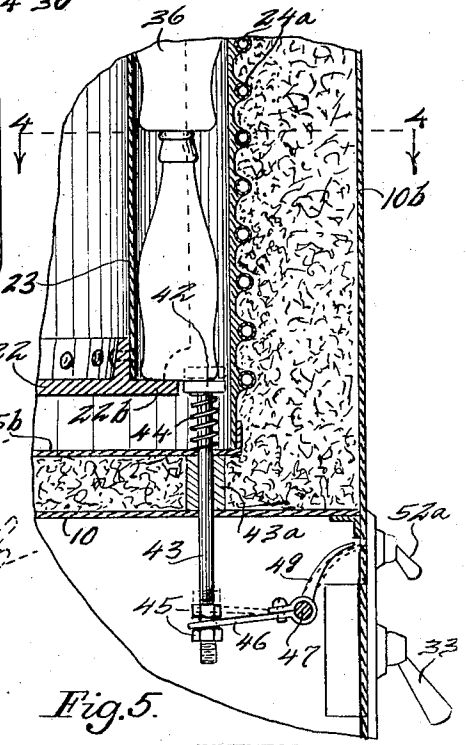


Fig. 5.

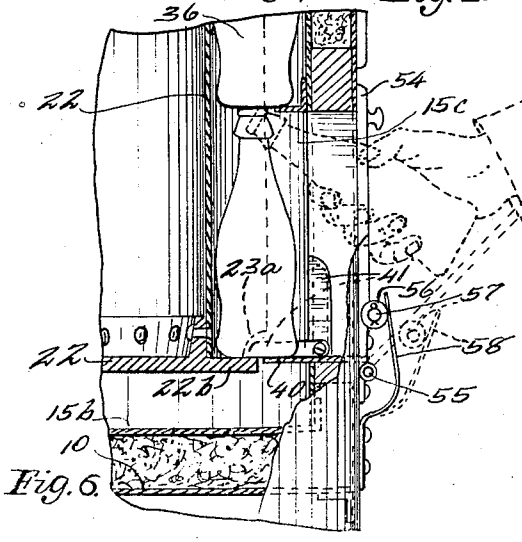


Fig. 6.

INVENTOR
HENRY OLSEN
BY Peirce & Shaddock
ATTORNEY

May 29, 1934. H. OLSEN 1,960,546

COIN CONTROLLED DISPENSING APPARATUS

Filed Oct. 7, 1931 4 Sheets-Sheet 4

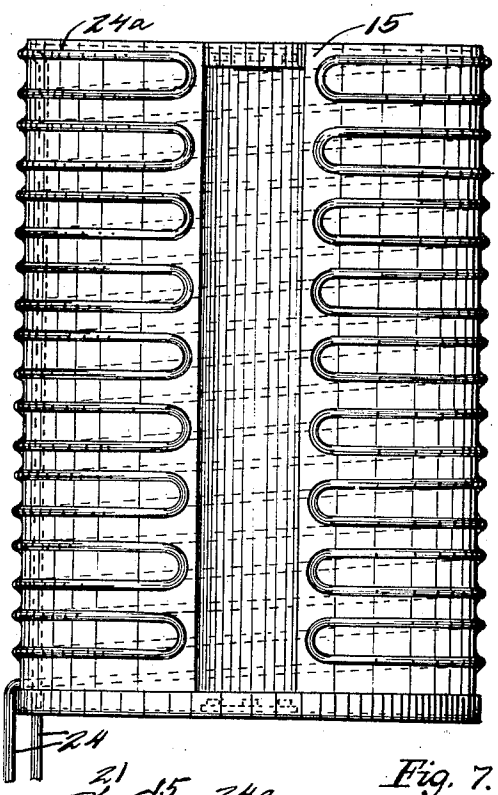


Fig. 7.

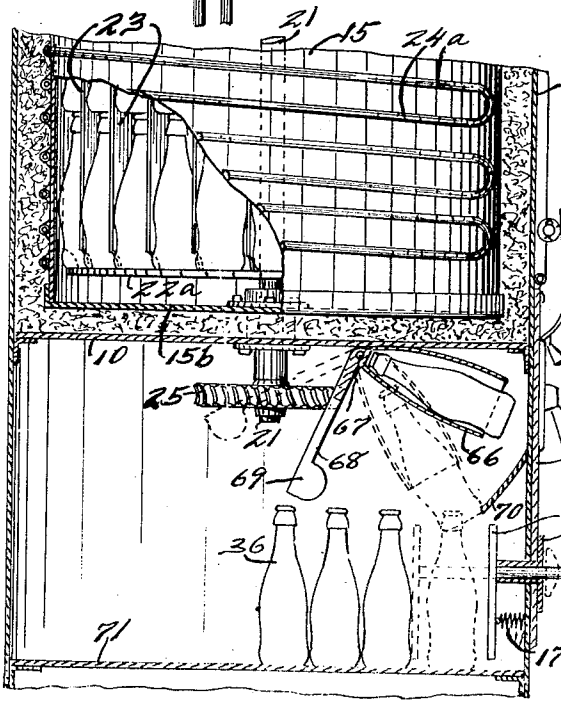


Fig. 8.

INVENTOR
HENRY OLSEN
BY Reis & Bradduck
ATTORNEY

Patented May 29, 1934 1,960,546

UNITED STATES PATENT OFFICE

1,960,546

COIN CONTROLLED DISPENSING APPARATUS

Henry Olsen, Minneapolis, Minn.

Application October 7, 1931, Serial No. 567,336

11 Claims. (Cl. 312—36)

This invention relates to a dispensing device and while the device may be used to dispense various objects or containers, one particular use for which it has been designed is that of dispensing bottled beverages. It is now desired to dispense bottled drinks at various places where it is not profitable or desirable to maintain an attendant. In such places, therefore, a dispensing machine which will dispense the bottle in return for the deposit of a coin is desirable. Such a machine must be simple in operation and dependable, so that the customer will always get his bottled drink for the money deposited. It is desirable in such a machine, to have the bottles and contents cooled, and with many types of drinks, the bottles must be gently handled in order to prevent foaming and other objectionable actions on the liquid.

It is an object of this invention, therefore, to provide a simple and efficient dispensing device which will dispense bottled goods in response to the deposit of a coin and which will handle the bottles so that they are not dropped and the contents are not unduly agitated.

It is a further object of the invention to provide such a device adapted to contain a large number of bottles, one of which will be brought to dispensing position in response to the deposit of a coin, means being provided for cooling the bottles in the device, said device also preferably being provided with means for indicating when the supply of bottles is nearing an end.

It is more specifically an object of the invention to provide a machine for dispensing bottles comprising a rotatable member having a plurality of vertically extending compartments on its periphery in which the bottles are stacked end on end, said member having means for supporting the lowermost bottle and said member being surrounded by a casing having cooling means thereabout, and a coin control means being provided for rotating said member.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views and in which:—

Fig 1 is a view in front elevation of the device;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 3;

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 2;

Fig. 4 is a partial horizontal section taken on line 4—4 of Fig. 5;

Fig. 5 is a vertical section taken on line 5—5 of Fig. 4;

Fig. 6 is a vertical section taken on line 6—6 of Fig. 3, said sections being taken as indicated by the arrows;

Fig. 7 is a view in front elevation of the casing used; and,

Fig. 8 is a view partly in front elevation and partly in vertical section, showing the bottle return mechanism, the section being taken on line 8—8 of Fig. 1.

Referring to the drawings, a device is shown comprising an outer casing 10 and while this casing might be made of various forms, in the embodiment of the invention illustrated it is shown as rectangular in horizontal cross section with slightly rounded corners. Said casing is secured to and supported by corner members 11 and the horizontally extending members 12 at the bottom and top thereof, the bottom members 12 being supported on four legs 13 at the corners of the casing and at the lower side thereof. The top 10*a* of the casing is shown as having a vertical flange overlapping the sides 10*b* thereof and layers of insulating material 14 are disposed beneath the top 10*a* and between the same and the top 15*a* of the inner casing 15, a block 16 being disposed centrally of casing 10 and between the tops 10*a* and 15*a*. The casing 15 is illustrated as cylindrical and has the bottom portion 15*b*. Insulating material 17 is disposed between the walls 10*b* of casing 10 and the cylindrical wall of casing 15 and between the bottoms of casings 10 and 15. A block 18 is disposed between the bottoms of casings 10 and 15 centrally thereof and a step bearing 19 is supported upon the bottom 15*b* centrally thereof and above block 18, said bearing being bolted to the bottom 15*b*. Another bearing 20 is secured to the top 15*a* of casing 15 below the block 16 and a shaft 21 extends between and is journaled in the bearings 19 and 20, said shaft being secured to and supporting a cylindrical member 22 having central hubs and spider portions 22*a* extending from the shaft to its cylindrical wall. Said member 22 has a flange 22*b* at its bottom and semi-cylindrical members or shells 23 are secured to the outer side of said member above flange 22*b*, extending from said flange to the top of said member. Members 23 are arranged with their central portions inward so that a radius of member 22 extends radially through each of said members. Casing 15 is shown as having a plurality of circumferentially

extending ribs each having a concave depression therein and convolutions 24a of conduit 24 are seated in said depressions and extend about casing 15 in contact therewith. The convolutions 24a do not extend entirely around casing 15, but have return bends disposed in spaced vertical lines as shown in Fig. 7, so that a vertical space is left between the ends of the return bends. As shown in Fig. 7, said convolutions extend helically about casing 15. The conduit 24 will be connected to the refrigerant supply of a mechanical refrigerator disposed in the compartment 10c in the bottom of casing 10. The member 22 is rotated by rotating shaft 21, which latter has secured to its lower end a worm wheel gear 25. Gear 25 is rotated by a worm 26 carried on a shaft 27 journaled at each end of worm 26 in a bracket 28 secured to the bottom of casing 10 below the block 18. Shaft 27 extends to the front of casing 10 and has secured thereto a spur gear 29 having meshing therewith at one side thereof a gear 30 and having meshing therewith at the other side thereof, a gear 31 of twice the diameter of gear 30. Gear 31 is carried on a shaft 32 which extends to the outer side of the casing 10 at the front thereof and has secured thereto a hand lever 33. Gear 30 is secured to a shaft 33 which extends at the outer side of the casing 10 at the front thereof and has secured thereto a lever handle 34.

It will be noted that the inner side of casing 15 is comparatively close to member 22. The flange 22b acts as a support for the bottles or objects to be dispensed, and as shown in Figs. 2, 5, 6, and 8, the bottles 36 are carried on support 22 and stacked end on end in the compartments formed by shells 23. The bottles cannot fall outwardly, due to casing 15. The casing 15 has an opening 15c adjacent its bottom, the height of which is substantially the same as the height of one of the bottles 36 and the width of which is slightly wider than the width or diameter of one of the bottles 36. A support in the form of a plate 37 is provided for the bottles, immediately above the opening 15c, and means is provided for lowering the bottles in the second tier of bottles to the flange 22b after the bottles pass the opening 15c or the plate 37. This means comprises a downwardly inclined support or chute 38 extending substantially from plate 37 to flange 22b. The chute 38 is made of a plurality of sections shown as two in number, designated 38a as shown in Fig. 4, which sections are hinged by the hinges 39 to the inner side of casing 15 so that they may swing outwardly and upwardly. A plate 40 extends inwardly at the bottom of the opening 15c to a point adjacent the edge of flange 22b. A small pivoted plate or dog 41 is provided, adapted to extend across the edge of plate 40 at one side thereof. The lower ends of shells 23 are cut away as shown at 23a to pass the dog 41. A plate 42 is disposed between flange 22a and the inner side of casing 15 beyond member 38 which is carried at the top of a rod 43 vertically movable in a block 43a in the bottoms of casings 10 and 15, and a coiled compression spring 44 surrounds rod 43 and is disposed between plate 42 and the bottom of casing 15. Rod 43 at its lower end is threaded to receive a pair of nuts 45 between which is disposed the forked end of a lever 46 embracing rod 43 and engageable by nuts 45. Lever 46 is secured to a rod 47 pivoted in bearings 48 carried by the casing 10 and has secured thereto arms 49 which are curved and extended upwardly so that when rod 43 or lever 46 is lifted, they will be swung forwardly and will prevent the operation of the coin-controlled mechanism used with the device.

As shown in Fig. 1, coin receiving chutes 50 and 51 are shown, the chute 51 being designed to receive dimes, while chute 50 is designed to receive nickels. The coin devices are operated by small hand levers 52 and 52a respectively, which move the coins into the positions whereby handles 33 and 34 may be operated. The device is constructed to use the coin handling mechanism disclosed and claimed in applicant's copending application S. N. 524,505, filed March 23, 1931. In the disclosure herein, the shaft 27 corresponds to shaft 41 shown in the prior application. The shafts of handles 51 and 52 correspond to shafts 25 in the prior application, and handles 33 and 34 correspond respectively to handles 22 and 39 in the prior application. Coin chutes 53 are shown somewhat adjacent the handles 52 and 52a, which are provided for the recovery of coins or slugs which will pass through the coin receiving mechanism but will not operate the device.

A door 54 is provided for closing the opening 15c, said door being carried on a hinge 55 and having a roller 56 at one side carried on the pin 57 secured to said door, which roller is engaged by a sear spring 58 secured to the front of said cabinet. Door 54 has a knob handle 54a by means of which it can be swung open against the tension of spring 58, which spring will immediately close the door when it is released. Another door 59 is provided above door 54 through which access can be had to the member 22, door 59 at its inner side having a movable panel fitting in a corresponding opening in casing 15. Door 59 has a knob handle 59a secured thereto. A door 60 is provided below the handles 33 and 34, mounted on a hinge 61, which door is provided with a lock 62. Door 60 carries on its inner side the money box into which the coins drop.

A plate 63 is shown as secured to the front of casing 10 by screws 64, which plate carries door 60, spring 58, and coin chutes 50 and 51.

Plate 63 and casing 10 have an opening 65 therethrough of oblong shape, adapted to receive empty bottles. A bottle carrier 66 is disposed at the inner side of this opening, being of substantially frusto-conical form and being pivoted to a pivot 67. Said carrier has an arm 68 secured thereto with a weight 69 at its end forming a counterweight. When a bottle is placed in carrier 66, it swings down past a guide plate 70 secured to the inner side of the casing 10 and extending downwardly and inwardly therefrom. The bottle can then drop down onto a plate 71 at the lower end of casing 10 and will be in position to be engaged by a vertical plunger 72 carried on a rod 73 extending to the outer side of the casing 10 and slidable in a thimble bearing 74 secured to the front of casing 10 by the screws 75. Rod 73 has a knob handle 76 at its outer end. Plate 72 has connected thereto a tensile coiled spring 77, the other end of which is secured to the inner side of casing 10. The machine is provided with a coin return mechanism so that a nickel is returned when an empty bottle is deposited. A coin return chute 78 is shown on plate 63 at the front of the casing 10 for these returned coins. The coin return mechanism used is of the type disclosed and claimed in applicant's prior Patent No. 1,901,528, dated March 14, 1933. A door 79 is also provided at the front of com-

partment 10c, which door is hinged at its bottom and provided with a handle 80. This door, of course, gives access to the refrigerating apparatus and the driving mechanism therefor which is disposed in the compartment 10c.

In operation, the member 22 will be filled with bottles. The bottles will be placed in said member through the door 59. While the capacity of the device can be varied, in practice one machine has had twenty-five of the members 23 thereon, each holding four bottles, so that one-hundred bottles are accommodated. The refrigerant supplied through the conduit 24 keeps the temperature inside of the casing 15 quite low. This is assisted by the insulation which surrounds said casing. The device is arranged so that a bottle of beverage costing 10¢ can be secured by placing either a dime in the machine or by placing two nickels in the machine. If a dime is to be used, it is placed in the chute 51 and drops downward therein. Handle 52a is then turned and the coin drops into position so that when handle 33 is turned immediately thereafter, gear 31 is rotated and gear 29 is rotated. Gear 29 rotates shaft 27 and worm 26 and worm wheel gear 25 is rotated to bring a bottle of beverage in front of the opening 15c. Following the directions which will appear on cabinet 10, the customer pulls open the door 54 and removes a bottle as indicated by dotted lines in Fig. 6. The bottle can also be grasped by the upper portion and the upper portion pulled forwardly and the bottle thus removed through door 54. It will be seen that a customer has access to only one bottle. The bottle in the next member 23 cannot be removed through opening 15c until member 22 is again rotated. The bottles above the bottle which has been removed, will not be dropped, owing to the fact that they are supported on the plate 37. If the device is to be operated with nickels, the customer will place one nickel in chute 50 and then turn handle 52. He will then turn handle 34 which will make a revolution. He then repeats this operation with another nickel and upon the second operation the next bottle will be moved in front of opening 15c and can be removed. As the bottles are removed and member 22 is successively moved, the bottles in the second tier move off of plate 37 onto the chute 38 and slide down this chute a short distance with each partial rotation of member 22, until they come to rest on flange 22b. With each complete rotation, therefore, of member 22, one circumferential row of bottles is lowered to the flange 22b and they after being lowered, make almost a complete rotation before they come into alinement with opening 15c and are dispensed. When all of the bottles have reached the flange 22b and five have been removed, there will be no bottles in the compartments adjacent the right hand side of opening 15c. It may be stated that member 22 is rotated in a counter-clockwise direction as indicated by the arrow in Fig. 3. When the bottles thus move off of the plate 42, it is raised by spring 44 and the arms 49 will move into position to prevent the operation of the coin receiving mechanism. Attention will then be called to the machine and the party in charge will know that the supply of bottles is near an end. It may be stated that the coins deposited at this time can be removed. It is desirable to have the machine refilled before becoming entirely empty, so that the bottles will have time to be well cooled before being dispensed. It is necessary in filling the machine, that bottles be turned past the chute 38 and it is for this purpose that the chute is made of hinged sections. As the bottles pass the sections will merely swing upwardly and outwardly on their hinges and permit the passage of the bottles. At such times the dog 41 is raised to vertical position so that the bottles can pass.

The dog 41 also prevents an excessive operation of the machine. In practice a pawl is used to limit the movement of gears 30 and 31 as disclosed in applicant's prior Patent No. 1,901,529 issued March 14, 1933. A customer might possibly turn the handles 33 or 34 with such force as to prevent the pawl operating at just the right time, and the coin mechanism might be improperly positioned. However, this is prevented by the bottle in front of opening 15c engaging the dog 41. It will be understood that in actual practice there would be bottles in all of the members 23 shown in Fig. 2. As stated, the plunger 73 is adapted to operate a coin return mechanism, and a nickel is returned each time a proper bottle is deposited. The bottles come to erect position on the plate 71 and are merely pushed about in vertical position on this plate until it is practically covered with bottles.

From the above description it is seen that applicant has provided a simple, efficient and easily operated dispensing apparatus for bottled goods or other objects. The bottles are brought to dispensing position without being dropped or jarred, and for quite a while before being dispensed, are simply moved circumferentially on the flange 22b. The bottles are effectively cooled by the refrigerating coil disposed closely adjacent the casing 15 which forms a retaining wall for the bottles. The device is easily loaded and has very few moving parts for its operation. When operated in connection with the coin receiving and operating mechanism and the bottle return and coin return device, it provides a complete self server and one which can easily be operated by the customer without the necessity of an attendant always being at hand. The money deposited for the bottled goods drops inside of the casing which is kept locked and the door 60 must be unlocked by the lock 62 before the money can be secured. The cabinet formed by casing 10 is, of course, nicely enameled, and the device has a very ornamental and pleasing appearance. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. A dispensing device having in combination, a rotatable member having means for carrying a plurality of vertical stacks of objects such as bottles, said objects being placed one on another in said stacks, an enclosure for said member and objects, means for intermittently rotating said member within said enclosure the distance that two stacks of bottles are spaced, said enclosure having an opening alining with a bottle at the bottom of said stacks through which a bottle at the bottom of a stack may be removed laterally, and means for lowering the bottles in said stacks

to prevent dropping of said bottles as said member is rotated.

2. The structure set forth in claim 1, and means preventing the rotation of said member if the bottle coming opposite said opening in said casing is not removed.

3. A dispensing mechanism having in combination, a member rotatable about a vertical axis, said member having a plurality of vertically extending open compartments on its periphery, a support at the bottom of and carried by said member for supporting bottles in said compartments, stacked one on another, means for rotating said member intermittently the distance between two of said compartments, a casing surrounding said member and having an opening therethrough substantially the height of the bottle and alined with a bottle carried on said support, and through which a bottle may be removed, means for supporting a bottle above said opening, and means on said casing for gradually lowering said bottles from the row above said support to said support after passing said opening, said bottles being lowered to said support in three intermittent movements of said member.

4. A dispensing device having in combination, a member for bearing and moving a plurality of circumferentially arranged vertical stacks of bottles, said bottles being placed end on end in said stacks, means for intermittently rotating said member the distance between two of said stacks, means for dispensing a bottle laterally from the lower end of said stacks, and a downwardly inclined slide engaged by said bottles for lowering the upper bottles in said stacks to the lowest position in said stacks as said means is rotated less than six steps.

5. A dispensing device having in combination, a cylindrical member rotatable about a vertical axis, a member having a series of open compartments extending vertically, side by side on its periphery, a support at the bottom of said member and carried thereby adapted to support bottles or containers stacked one upon the other in said compartments, a casing surrounding said member, said casing having an opening therethrough in alinement with the lowermost bottle in one of said compartments through which a bottle can be moved laterally, means for supporting the bottles immediately above said opening, and a downwardly inclined slide extending from said last mentioned means carried on the wall of said casing engageable by said bottles whereby the bottles in each compartment after passing said opening may move downwardly on said slide and onto said support when a bottle is removed from said opening.

6. A dispensing device having in combination, a cylindrical member rotatable about a vertical axis, a shaft supporting said member, means connected to said shaft for intermittently rotating the same and said member, said member having an outwardly extending flange thereon at its bottom, a plurality of trough-shaped members secured to the periphery of said member and forming compartments open at their outer sides, each compartment being adapted to carry a stack of bottles or similar objects arranged end on end and supporting by said flange, said shaft and member being rotated the distance between two of said compartments at each step a casing surrounding said member and troughs, said casing having an opening therethrough alining with a bottle in the lowest position in said stacks, a support above said opening for the bottles in the positions above said lowermost position, and a downwardly inclined chute on said casing adjacent said opening extending from said support to said flange for lowering bottles to said lowermost position as said member is rotated less than six steps.

7. The structure set forth in claim 6, said chute comprising a plurality of hinged sections.

8. The structure set forth in claim 6, and a pivot member adapted to be swung into position transversely of said flange to prevent the rotation of said cylindrical member if a bottle is not removed through said opening, and adapted to be swung to position to permit rotation of said member if the bottle is not removed.

9. The structure set forth in claim 6, and means supported from said casing and projecting inwardly toward said flange for preventing rotation of said cylindrical member if a bottle is not removed through said opening.

10. A vending machine for bottles or other containers having in combination, a rotatable member having a circular flange at its bottom and a plurality of open sided compartments extending upwardly from said flange, each adapted to receive a plurality of bottles stacked end on end and supported on said flange, means for rotating said member step by step the distance between two of said compartments, a casing enclosing said member and bottles, said casing having an opening at one side thereof of the height of one bottle and alining with the lowermost bottle in said stacks, a door through which a bottle may be removed from the stack through said opening, means for supporting the stack of bottles above the bottle opposite said opening, and a chute carried by said casing extending toward said compartment from a point adjacent said last mentioned means and inclining downwardly to the level of said flange, whereby when said member is rotated, the bottles above the bottle removed pass from said last mentioned means to said chute and slide down said chute onto said flange in several steps of rotation of said member.

11. A dispensing mechanism having in combination, a member rotatable about a vertical axis, said member having a plurality of vertically extending compartments on its periphery, a support at the bottom of and carried by said member for bearing bottles in said compartments, said bottles being stacked one on another, means for intermittently rotating said member a distance between a plurality of said compartments, a casing surrounding said member and having an opening therethrough alined with a bottle carried on said support and through which a bottle may be removed, means for supporting a bottle above said opening, and means for gradually lowering said bottles from the rear above said support to said support, after passing said opening, said bottles being lowered to said support in a plurality of said intermittent movements.

HENRY OLSEN.