

July 29, 1941.

J. E. HAGSTROM

2,250,816

VENDING MACHINE

Filed June 20, 1939

4 Sheets-Sheet 1

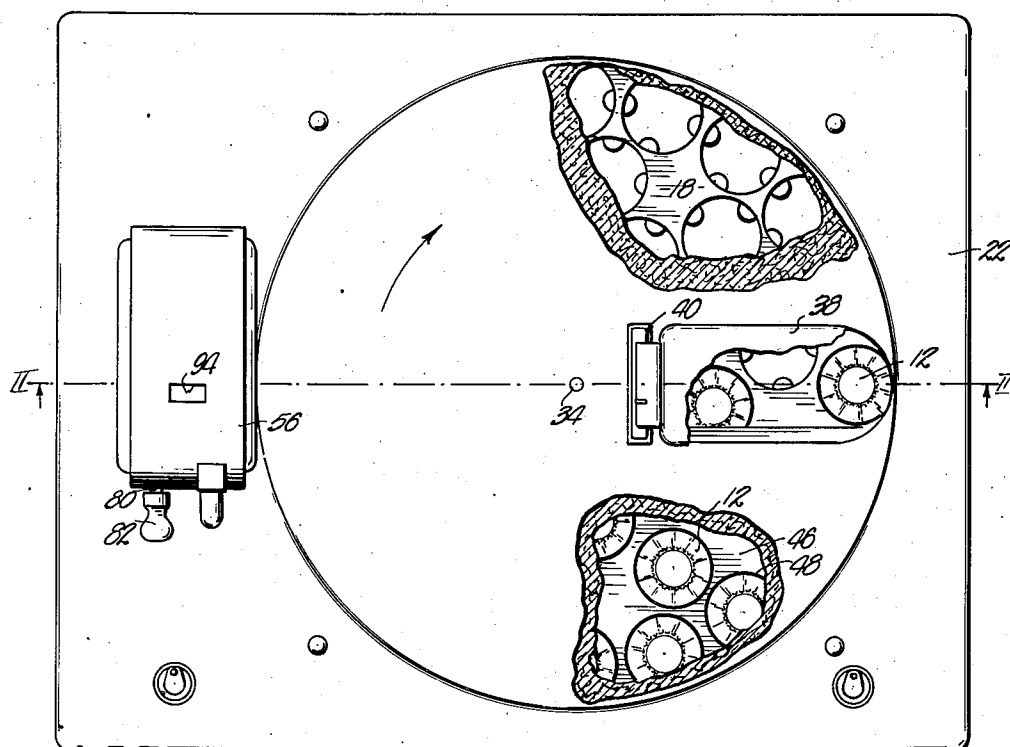


Fig. 1.

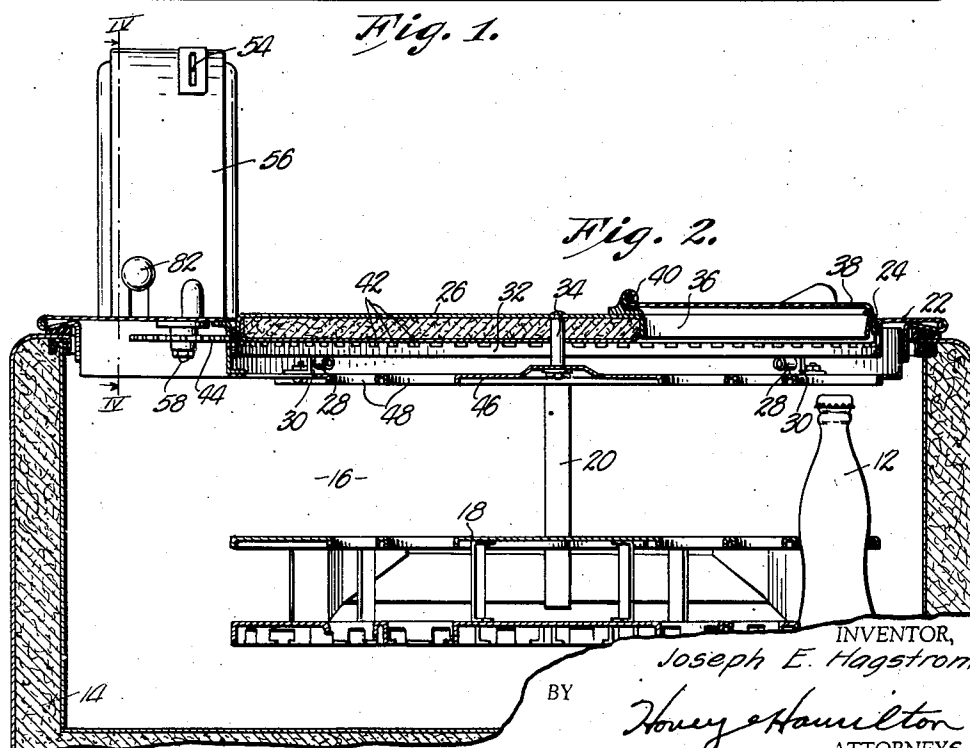


Fig. 2.

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4 Sheets-Sheet 2

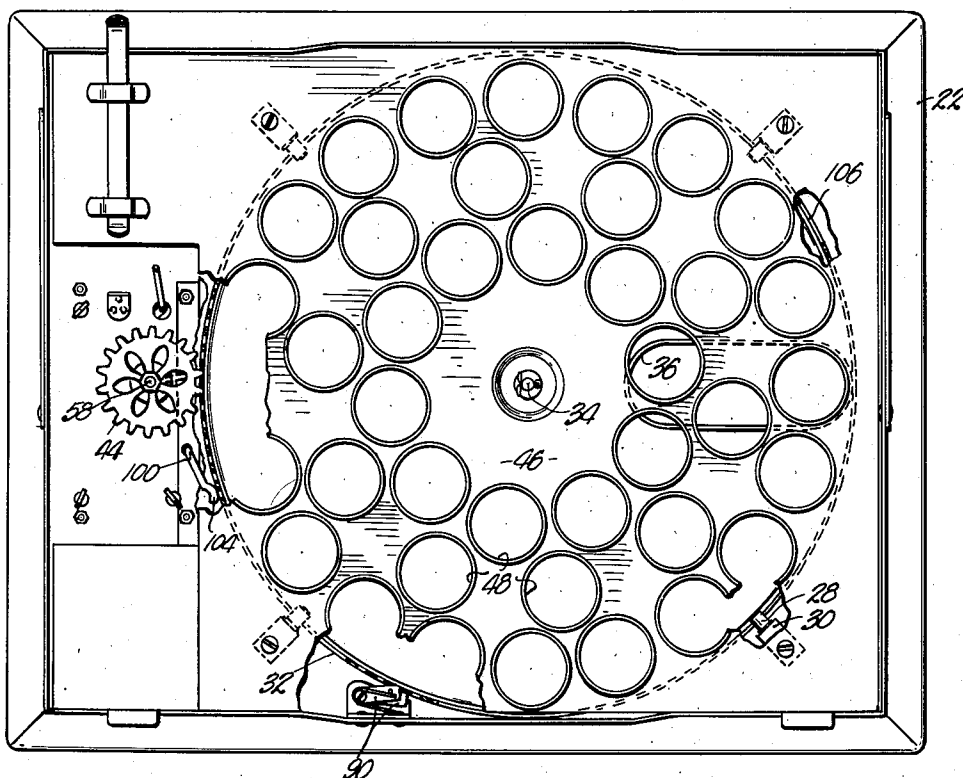


Fig. 3.

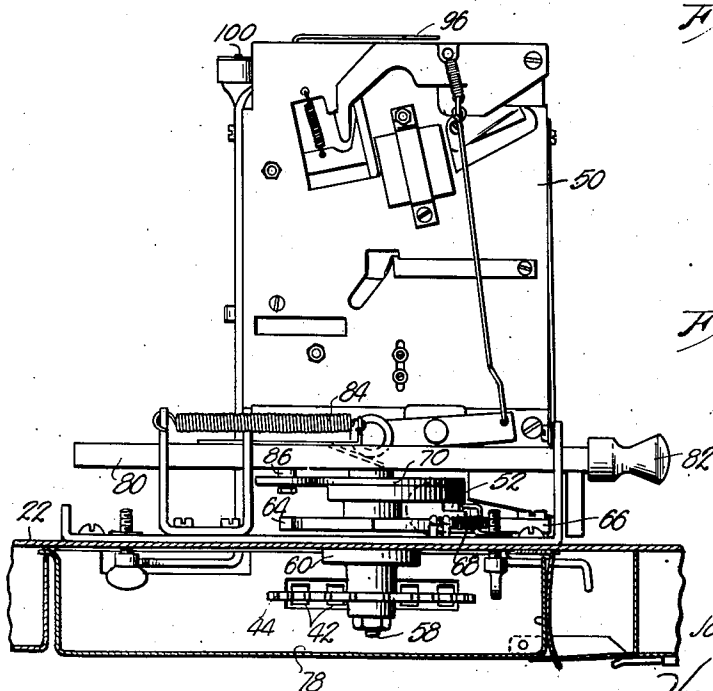


Fig. 4.

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4 Sheets-Sheet 3

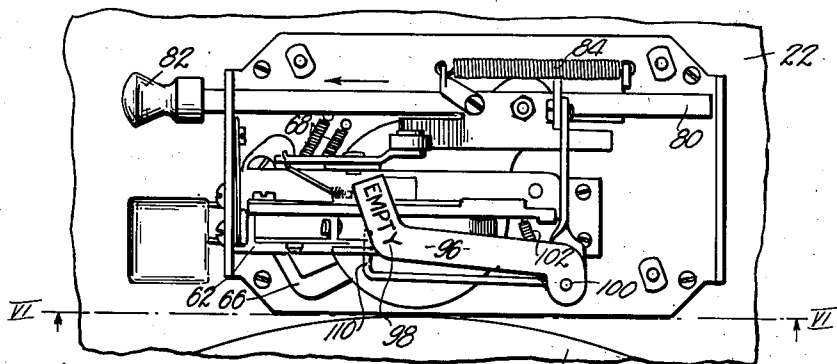


Fig. 5.

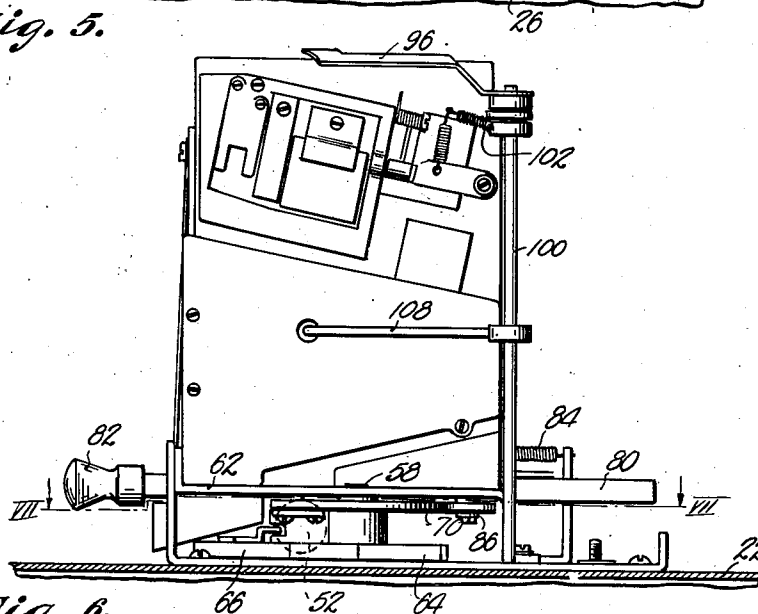


Fig. 6.

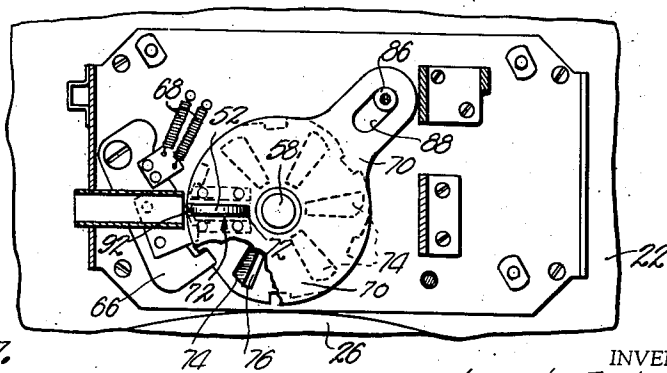


Fig. 7.

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4 Sheets-Sheet 4

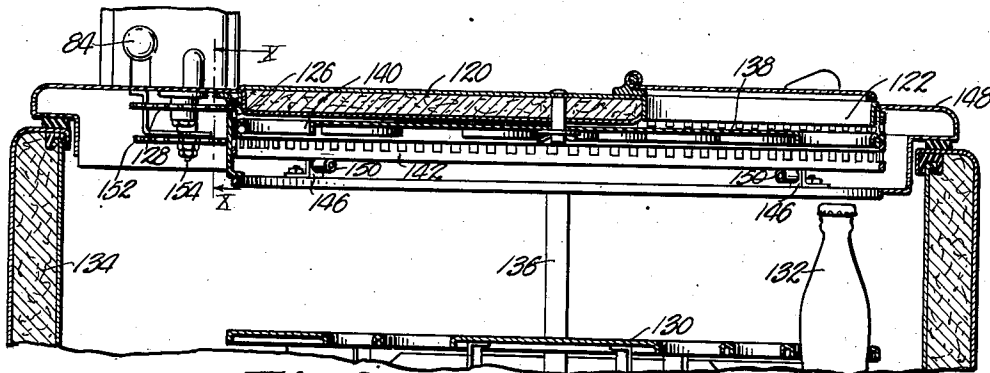


Fig. 8.

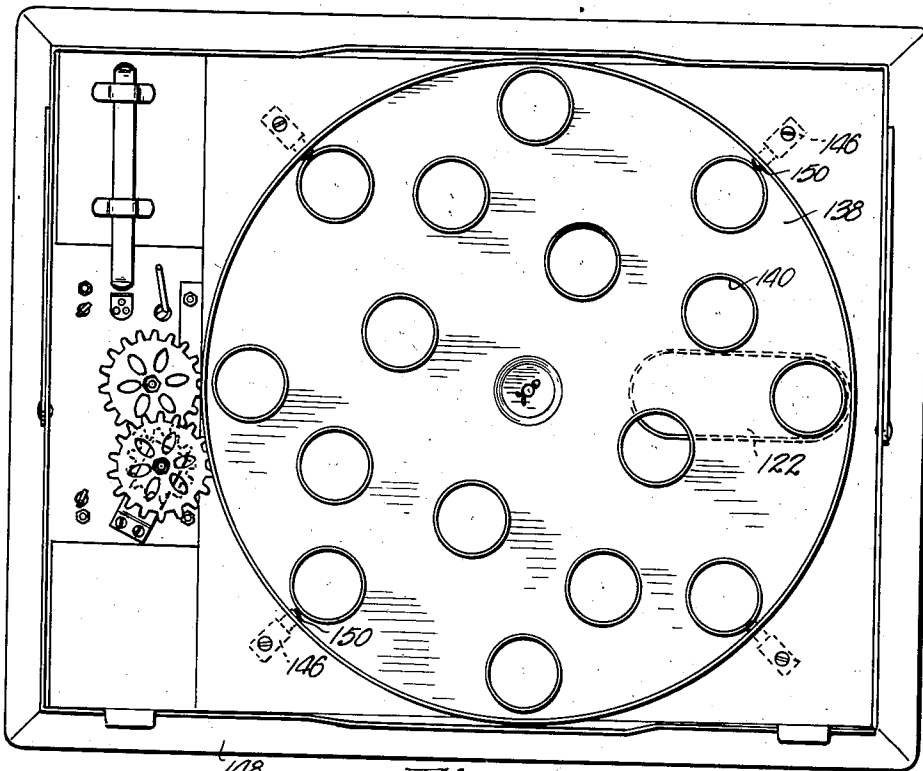


Fig. 9.

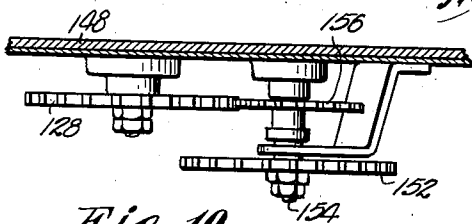


Fig. 10.

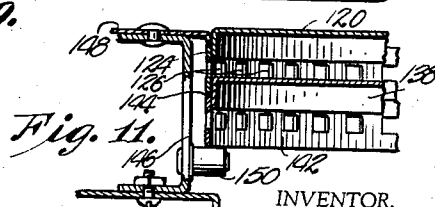


Fig. 11.

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UNITED STATES PATENT OFFICE

2,250,816

VENDING MACHINE

Joseph E. Hagstrom, Kansas City, Mo.

Application June 20, 1939, Serial No. 280,163

5 Claims. (Cl. 312—36)

This invention relates to vending machines of the character wherein is embodied manually operated mechanism for imparting step-by-step movement to specially formed parts of the machine, to the end that one of a plurality of packages is made available to the purchaser, while the remaining packages are guarded.

This invention has for one of its primary aims the provision of a vending machine wherein the plurality of packages to be vended, are held in stationary, annular paths, over which is disposed unique apparatus for rendering the packages available, one at a time, as the purchaser manually manipulates coin controlled mechanism.

Other important objects of the invention are to provide a specially formed guard plate that is uniquely associated with a turntable, and means for moving the turntable and said guard plate, with respect to each other, whereby the packages are made accessible, one at a time, to the operator.

In the drawings:

Figure 1 is a top plan view of a vending machine embodying this invention.

Fig. 2 is a vertical fragmentary sectional view taken on line II—II of Fig. 1.

Fig. 3 is an inverted plan view of the lid and parts associated therewith.

Fig. 4 is an enlarged fragmentary detailed sectional view taken on line IV—IV of Fig. 2, with the housing omitted.

Fig. 5 is a fragmentary plan view of the coin control mechanism for establishing connection with the movable part of the machine.

Fig. 6 is a fragmentary vertical detailed sectional view through a portion of the machine, taken on line VI—VI of Fig. 5.

Fig. 7 is a horizontal sectional view taken on line VII—VII of Fig. 6.

Fig. 8 is a fragmentary vertical sectional view through a vending machine made to embody a modified form of the invention.

Fig. 9 is an inverted plan view of the lid of the modified form, illustrated in Fig. 8.

Fig. 10 is an enlarged fragmentary detailed sectional view taken on line X—X of Fig. 8; and,

Fig. 11 is an enlarged fragmentary detailed view of a portion of the machine shown in Fig. 8, illustrating the manner of supporting the turntable and guard plate.

Vending machines embodying this invention are particularly useful in dispensing bottled goods, where the package 12 is to be chilled, and therefore, case 14 should have the walls thereof thoroughly insulated so as to prevent objectionable lowering of temperature within refrigerated compartment 16, wherein is disposed a holder 18 for packages 12. This holder 18 has a plurality of compartments therein arranged in a number of fixed annular paths, each path having a plu-

rality of compartments arranged in staggered relation with respect to the compartments in the other paths, so that packages 12 may be made individually available while the remaining packages in holder 18 are guarded against removal.

A bracket 20 secures holder 18 in place below lid 22, wherein is provided an opening 24 having a turntable 26 therein, which completely closes said opening.

Turntable 26 is rotatably carried by a plurality of rollers 28, each of which is mounted on a fixture 30 secured to and depending from the underside of lid 22. Rollers 28 underlie the flange 32 at the annular periphery of turntable 26, and pintle 34 at the axis of turntable 26 precludes accidental raising thereof.

A delivery aperture 36 normally closed by cover 38, which is hinged as at 40 to turntable 26, is radially positioned and placed to travel in a path above the paths of compartments in holder 18. The length of aperture 36 is sufficient to cause it to extend across all of the said paths in holder 18. Flange 32 of turntable 26 has a series of holes 42 formed therethrough to create an annular rack, engageable by a driving pinion 44, which is rotated by parts hereinafter described.

A stationary guard plate 46, secured directly to lid 22, lies between holder 18 and turntable 26. Perforations 48, formed through guard plate 46, respectively overlie all of the compartments in holder 18. In the specific instance illustrated, there are three annular paths of perforations 48 in guard plate 46, and three similar paths of compartments for packages 12.

The coin controlled means for permitting the operator to manually actuate turntable 26, is illustrated in Figs. 4 to 7 inclusive, and comprises a conventional coin chute 50 into which is fed coin 52, through slot 54 formed in housing 56, which rests upon lid 22 to contain the parts disposed above the upper surface thereof.

Pinion 44 is mounted upon stub shaft 58, journaled in bearing 60, which holds shaft 58 in a vertical position so that it extends upwardly through the top of lid 22, where the upper end is received by support 62 (Figs. 5 and 6) mounted upon said lid.

Ratchet wheel 64, engaged by dog 66 held in normal position by springs 68, is rigid to shaft 58, as is plate 70 that is provided with a radial slot 72 to receive coin 52 after it has passed downwardly through coin chute 50. Ratchet wheel 64 has a plurality of radial apertures 74 into which coin 52 projects to interlock ratchet wheel 64 and plate 70. A slot 76 formed through lid 22 permits the coin to drop into box 78 when plate 70 has reached one end of its path of travel.

Bar 80 is mounted for rectilinear reciprocation, and a handle 82 on one end thereof, is beyond the confines of housing 56 so that it may

be grasped by the operator. A spring 84 yieldably maintains bar 80 at one end of its path of travel, and a depending roller 86 extending into slot 88 of plate 70, imparts rotary movement to said plate as bar 80 is moved in the direction of the arrow, shown in Fig. 5.

A pair of spring pressed dogs 90, engageable with the holes 42 in flange 32 of turntable 26, preclude movement of said turntable in a direction other than that indicated by the arrow in Fig. 1.

Dog 66 holds ratchet wheel 64, and therefore, shaft, pinion and turntable, 58, 44 and 26 respectively, against movement in the direction of the arrow in Fig. 1, until the coin has been inserted to be drawn against cam face 92 on dog 66 to withdraw the latter from locking engagement with ratchet wheel 64.

Window 94 in housing 56 overlies the path of travel of flag 96, having lettering 98 thereon, which indicates to the operator that the machine is empty when indicia 98 appears below window 94. Flag 96 carried by the upper end of a rotatably mounted shaft 100, is drawn to the operative position by a spring 102, being held from beneath window 94 by the lower end of shaft 100, which is formed to present a head 104 that is in friction engagement with the outer annular surface of flange 32 on turntable 26.

A notch 106 formed through flange 32 receives head 104 after the turntable has made a complete revolution, and when shaft 100 has been moved about its axis by the inward radial movement of head 104, arm 108 carried by shaft 100, is moved to a point where its laterally extended portion 110 is disposed in the normal path of travel of coin 52 as it moves through coin chute 50; thus, the coin will be ejected through the conventional ejector passage of coin chute 50 and cannot serve as a medium for interconnecting ratchet wheel 64 and plate 70. When holder 18 is again filled with packages 12, turntable 26 is moved to a position where head 104 will be outside of notch 106.

The step-by-step movement imparted to turntable 26 is sufficient to successively bring into register delivery aperture 36, one of perforations 48 of guard plate 46, and one of packages 12 in holder 18. All of the remaining perforations 48 are entirely or partially covered by turntable 26 so that when cover 38 is lifted by the operator, only a single package 12 may be manually lifted from within the machine.

In the modified form of the invention, illustrated in Figs. 8 to 11 inclusive, a turntable 120, having delivery aperture 122, is identical with turntable 26 previously described.

The annular downturned flange 124 is provided with a series of holes 126, engageable by pinion 128, that is driven by precisely the same mechanism as that illustrated in Figs. 4 to 7 inclusive.

Holder 130 having packages 132 arranged in a plurality of fixed annular paths, is secured in case 134 by a bracket 136, and between holder 130 and turntable 120 is positioned a rotatable guard plate 138 through which is formed a number of specially located perforations 140. These perforations are located in annular paths concentric with the axis of rotation, and there are a plurality of perforations 140 in each path. The elongated delivery aperture 122 in turntable 120 overlies all of the paths wherein perforations 140 are disposed.

Rotatable guard plate 138, having an annular rack 142 at the periphery thereof, has the upper part circumscribed by the lower portion of rack 126 on turntable 120. An annular shoulder 144 on guard plate 138 bears the weight of turntable 120, and as members 120 and 138 are relatively rotated about their concentric axes, frictional engagement occurs.

A series of brackets 146 carried by lid 148, carry rollers 150 which support the weight of turntable 120 and guard plate 138.

A pinion 152 in mesh with the annular rack on guard plate 138, is rigid to shaft 154 to which is secured gear 156 in mesh with pinion 128. Thus, when pinion 128 is rotated in one direction, pinion 152 will rotate in a direction opposite thereto, for the purpose of oppositely rotating turntable 120 and guard plate 138.

Step-by-step movement is imparted to these last mentioned elements above holder 130, and perforations 140 are arranged as shown in Fig. 9 so that a perforation 140 overlies a package 132 each time handle 82 is drawn outwardly from the normal position. Turntable 120 covers all of perforations 140 other than the one in register with an underlying package 132, and therefore, only one package at a time may be manually withdrawn through delivery aperture 122.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A vending machine of the character described comprising a case; means in the case for holding a plurality of packages in a number of fixed annular paths; a lid on the case provided with an opening therethrough above all the packages in the holding means; a turntable closing the opening having a delivery aperture therethrough movable through a path of travel above all of said annular paths; a guard plate having a number of perforations therethrough, disposed between the packages and said turntable; and mechanism for imparting step-by-step movement to the turntable to successively move the delivery aperture of the turntable into register with one of the perforations of the guard plate, the said one perforation being above one of the packages when in register with the aperture to permit manual removal of the said one package from the holder, the remaining perforations of the guard plate being closed by the turntable when one of the perforations in the guard plate is in register with said delivery aperture and above one of the packages, said perforated guard plate being large enough to underlie all of the turntable, the perforations through said guard plate being arranged in a number of annular paths respectively, above the fixed annular paths of said packages, there being a lesser number of perforations in each of said number of annular paths than there are packages in the fixed annular path below the annular paths respectively, said guard plate being rotatably mounted and operably connected to the mechanism for imparting step-by-step movement to the turntable.

2. A vending machine of the character described comprising a case; means in the case for holding a plurality of packages in a number of fixed annular paths; a lid on the case provided with an opening therethrough above all the packages in the holding means; a turntable closing the opening having a delivery aperture therethrough movable through a path of travel above all of said annular paths; a guard plate having a number of perforations therethrough, disposed be-

tween the packages and said turntable; and mechanism for imparting step-by-step movement to the turntable to successively move the delivery aperture of the turntable into register with one of the perforations of the guard plate, the said one perforation being above one of the packages when in register with the aperture to permit manual removal of the said one package from the holder, the remaining perforations of the guard plate being closed by the turntable when one of the perforations in the guard plate is in register with said delivery aperture and above one of the packages, said perforated guard plate being large enough to underlie all of the turntable, the perforations through said guard plate being arranged in a number of annular paths respectively above the fixed annular paths of said packages, there being a lesser number of perforations in each of said number of annular paths than there are packages in the fixed annular path below the annular paths respectively, said guard plate being rotatably mounted for movement about an axis substantially concentric with the axis of the turntable, said mechanism for moving the turntable having means in engagement with the guard plate for simultaneously rotating the same as the turntable is rotated.

3. A vending machine of the character described comprising a case; means in the case for holding a plurality of packages in a number of fixed annular paths; a lid on the case provided with an opening therethrough above all the packages in the holding means; a turntable closing the opening having a delivery aperture therethrough movable through a path of travel above all of said annular paths; a guard plate having a number of perforations therethrough, disposed between the packages and said turntable; and mechanism for imparting step-by-step movement to the turntable to successively move the delivery aperture of the turntable into register with one of the perforations of the guard plate, the said one perforation being above one of the packages when in register with the aperture to permit manual removal of the said one package from the holder, the remaining perforations of the guard plate being closed by the turntable when one of the perforations in the guard plate is in register with said delivery aperture and above one of the packages, said perforated guard plate being large enough to underlie all of the turntable, the perforations through said guard plate being arranged in a number of annular paths respectively above the fixed annular paths of said packages, there being a lesser number of perforations in each of said number of annular paths than there are packages in the fixed annular path below the annular paths respectively, said guard plate being rotatably mounted for movement about an axis substantially concentric with the axis of the turntable, said mechanism for moving the turntable having means in engagement with the guard plate for simultaneously rotating the same as the turntable is rotated, the said guard plate being rotated in a direction opposite to the direction of rotation of said turntable.

4. A vending machine of the character described comprising a case; means in the case for holding a plurality of packages in a number of fixed annular paths; a lid on the case provided with an opening therethrough above all the packages in the holding means; a turntable closing

the opening having a delivery aperture therethrough movable through a path of travel above all of said annular paths; a guard plate having a number of perforations therethrough, disposed between the packages and said turntable; and mechanism for imparting step-by-step movement to the turntable to successively move the delivery aperture of the turntable into register with one of the perforations of the guard plate, the said one perforation being above one of the packages when in register with the aperture to permit manual removal of the said one package from the holder, the remaining perforations of the guard plate being closed by the turntable when one of the perforations in the guard plate is in register with said delivery aperture and above one of the packages, said perforated guard plate being large enough to underlie all of the turntable, the perforations through said guard plate being arranged in a number of annular paths respectively above the fixed annular paths of said packages, there being a lesser number of perforations in each of said number of annular paths than there are packages in the fixed annular path below the annular paths respectively, said guard plate being rotatably mounted and operably connected to the mechanism for imparting movement to the turntable so that step-by-step movement in a direction opposite to the direction of travel of the turntable is imparted to the guard plate.

5. A vending machine of the character described comprising a case; means in the case for holding a plurality of packages in a number of fixed annular paths; a lid on the case provided with an opening therethrough above all the packages in the holding means; a turntable closing the opening having a delivery aperture therethrough movable through a path of travel above all of said annular paths; a guard plate having a number of perforations therethrough, disposed between the packages and said turntable; and mechanism for imparting step-by-step movement to the turntable to successively move the delivery aperture of the turntable into register with one of the perforations of the guard plate, the said one perforation being above one of the packages when in register with the aperture to permit manual removal of the said one package from the holder, the remaining perforations of the guard plate being closed by the turntable when one of the perforations in the guard plate is in register with said delivery aperture and above one of the packages, said perforated guard plate being large enough to underlie all of the turntable, the perforations through said guard plate being arranged in a number of annular paths respectively above the fixed annular paths of said packages, there being a lesser number of perforations in each of said number of annular paths than there are packages in the fixed annular path below the annular paths respectively, said guard plate being rotatably mounted on the lid, said turntable having an annular rack at the periphery thereof, said guard plate being provided with an annular rack, the mechanism for imparting step-by-step movement to the turntable constituting a pinion in mesh with each rack respectively and a gear operably connecting the pinions and adapted to cause the same to rotate in opposite directions when the mechanism is actuated.

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