

April 11, 1939.

J. C. IRWIN

2,154,205

VENDING MACHINE

Filed Oct. 25, 1937

2 Sheets-Sheet 1

Fig. 1.

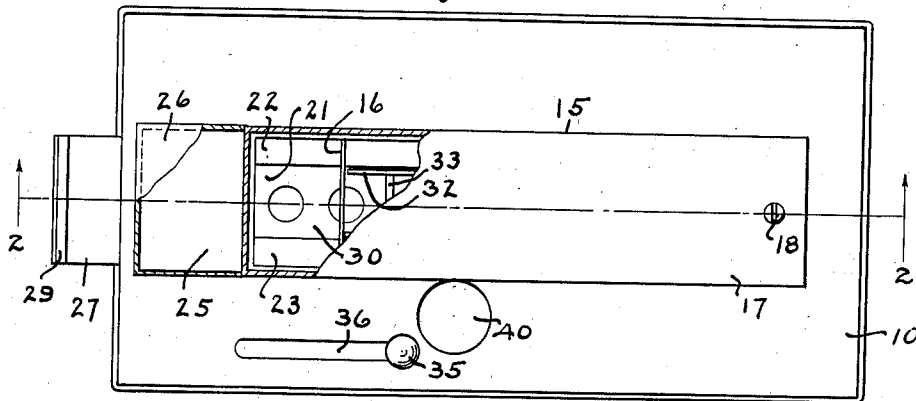


Fig. 2.

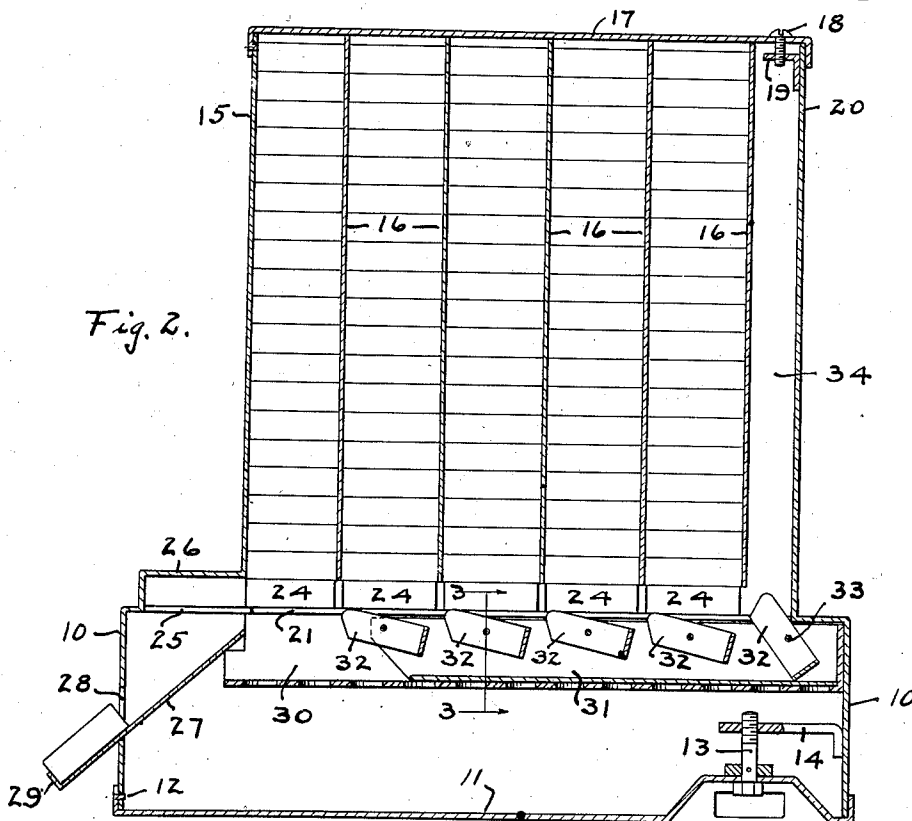
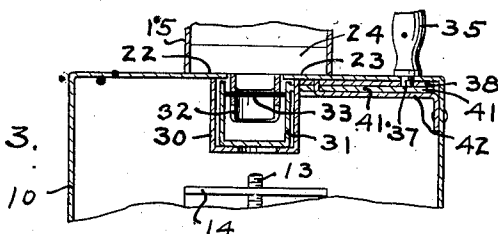


Fig. 3.



Inventor,
Justus C. Irwin,
By Minter & Minter,
Attorneys

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Fig. 4.

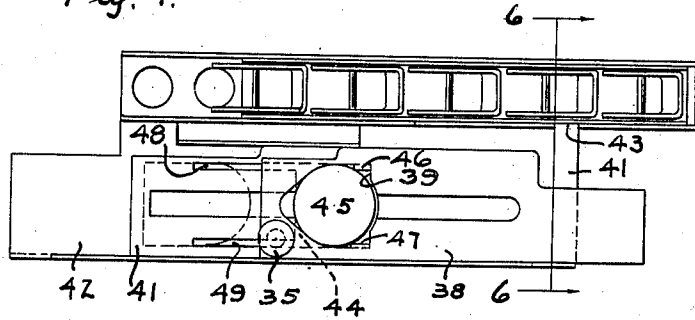


Fig. 5.

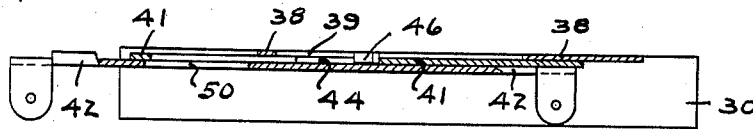
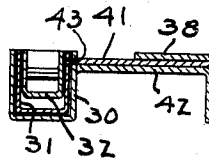


Fig. 6.



Inventor,
Justus C. Irwin,
By Minter & Minter,
Attorneys

UNITED STATES PATENT OFFICE

2,154,205

VENDING MACHINE

Justus C. Irwin, Minneapolis, Minn., assignor to
Herman B. Laymon, Spencer, Ind.

Application October 25, 1937, Serial No. 170,796

4 Claims. (Cl. 312-67)

This invention relates to the art of vending machines of the type for vending commodities in uniform packages. A primary object of the invention is to provide a simple structure wherein a large quantity of packages may be stored and vended one at a time from a unit occupying very little space.

A further primary object of the invention is to provide means for vending a similar package one at a time one after another from a plurality of columns of packages stacked one above the other whereby one entire column is emptied before packages are vended from the next adjacent column.

These and other objects and advantages of the invention will become apparent to those versed in the art in the following descriptions of the invention as illustrated in one particular form in the accompanying drawings, in which

Fig. 1 is a top plan view of a structure embodying the invention;

Fig. 2 is a vertical longitudinal section on the line 2-2 in Fig. 1;

Fig. 3 is a detail in vertical section on the line 3-3 in Fig. 2;

Fig. 4 is a detail in top plan view of the actuating mechanism;

Fig. 5 is a detail in side elevation in partial section of the actuating mechanism, and

Fig. 6 is a detail in transverse section on the line 6-6 in Fig. 4.

Like characters of reference indicate like parts throughout the several views in the drawings.

A base 10 is provided with a removable floor 11 normally secured to the base in closed position by telescoping up over the lower ends of the base side walls to have a pin 12, Fig. 2, extend from an upturned flange on the floor through a hole in an end wall of the base and to have a bolt 13 pass up through the floor to screw-threadedly engage a bracket 14 carried by the base. Preferably the base is recessed as indicated in Fig. 2 to receive the head of the bolt 13 and permit the base 10 to stand on any suitable table, counter or the like in a level position.

On the top of the base 10 is mounted a magazine 15 for carrying the goods to be vended. This magazine in the form herein shown consists of a rectangular box divided into a number of vertical compartments herein shown as five in number by means of the transversely disposed partitions 16. A removable magazine cover 17 is provided to fit over the top end of the magazine and is normally retained in position by means of the screw 18 passing through the cover 17 and

engaging a bracket 19 carried by an end wall 20 of the magazine. It has a pin 12' from a downturned flange on the cover through a hole in an end wall of the magazine 15, similar to the pin 12 of base 11 and for a like purpose.

The top of the base 10 is cut away centrally under the magazine 15 in the form of a longitudinal slot 21, the slot being cut to leave flanges or tracks 22 and 23 along the underside of the magazine 15 on which the columns of packages 24 normally rest.

At the left hand end of the slot 21, a communicating opening 25 is provided in the top of the base 10 of a sufficient width and length as will permit an individual package 24 to be dropped therethrough when that package is pushed sufficiently far to the left to leave the ends of the tracks 22 and 23. An enclosure 26 is provided over this opening 25 in the form of a rectangular box as indicated in Figs. 1 and 2. Immediately under the opening 25 within the base 10 is mounted an inclined floor 27. This floor 27 is continued downwardly and outwardly through an opening 28 in the end wall of the base 10 and terminates exteriorly of the base by an upturned flange 29 whereby a package 24 dropping through the opening 25 will drop down on to the floor 27 and slide outwardly through the opening 28 to come to rest against the flange 29, Fig. 2.

Immediately under the slot 21 is mounted a U-shaped trough 30, Fig. 3, to have the upturned ends of the trough secured to the underside of the tracks 22 and 23 respectively by any suitable means such as by welding. Within this trough 30 is a slide 31 freely shiftable along the trough. This slide 31 is likewise U-shaped in cross section and is turned with the open side upward to carry a plurality of ejector dogs 32, here shown as five in number, one for each column in the magazine. These dogs are rockable upon transverse pins 33 extending between the legs of the slide 31. These dogs are mounted so that they will normally rock downwardly by their right hand ends to have the other ends turned upwardly as indicated by that dog to the extreme right, Fig. 2. In the form herein shown, each dog is a U-shaped member having the cross or tie bar on the right hand side to act as a weight to rock the dogs as above indicated. The pins 33 carrying the dogs are located on the slide 31 such that when one pin is centrally positioned under one of the magazine columns the next adjacent pin will likewise be centered under the next adjacent column.

As indicated in Figs. 1 and 2, the magazine housing is made to be of sufficient length as will permit a space 34 between the last vertical partition 16 and the wall 20. This space is provided to permit the dog 32 at the right hand end of the carrier 31 to rock normally to tilt its left hand ends upwardly to the right of the package 24 appearing at the bottom of the first column. When the slide or carrier 31 is moved to the extreme right hand position to permit this automatic positioning of the right hand dog 32, the other four dogs 32 are held against rocking by reason of their free ends bearing against the undersides of the packages 24 appearing in the various columns thereover. Also when the carrier 31 is in that position, there is no dog under the last or left hand column of packages as indicated in Fig. 2.

Now when the slide 31 is pushed to the left in the trough 30, the tilted dog 32 will come into contact with the end of the package 24 in the right hand column. Since the other end of the dog bears against the bottom of the slide 31, the dog can rock no further and therefore serves as a means for pushing against the package 24. Continued movement of the slide 31 will carry that end package against the next succeeding package and so on until the package 24 at the bottom of the extreme left hand column is pushed on over the hole 25 and drops therethrough to be discharged down the incline 27. At this position, the end of the slide 31 will strike the end of the incline 27 and prevent further travel. Of course packages in the extreme right hand column will drop down the distance of one package behind the pushing dog 32 to present a package in that column in front of the right end dog 32 for the next operation. Return movement of the slide 31 is made in which case the dogs 32 will slide back under the various packages without causing any movement thereof and the right hand dog 32 is again brought to the operating position as before.

After all of the packages 24 have been removed the dog 32 under that column will then turn upwardly and act as the ejecting member by pushing on packages dropping down in the next adjacent column to the left. This action is repeated for each of the various columns as they empty. In order to control the movement of the slide 31, an external handle 35 is provided, here shown as extending vertically from the top of the base 10 to have a shank extending through a slot 36 in the top of the base. This shank 37 is secured to a slide plate 38. This plate has an opening 39 provided therein which will register under the opening 40 in the top of the base 10 when the handle 35 is pulled to the right hand end of the slot 36. Under the slide 38 is a plate 41 slidably mounted on a bracket 42 which is supported by the base 10. This under slide 41 is interconnected with the slide member 31 by the finger 43, Fig. 4.

The slide member 41 is provided with a major opening 44 of sufficient size as will permit a coin 45 to be dropped through the hole 40 of the base and through the hole 39 in the plate 38. The plate 38 is provided with a pair of down turned fingers 46 and 47 which enter within the hole 44 in the plate 41 and when the coin 45 is pushed in the hole 44, these two fingers 46 and 47 will push against the coin and the coin in turn will push against the side of the hole in the plate 41 and thereby through travel of the handle 35 shift the slide or carrier 31 to cause ejection of

a package 24 in the manner above described. When there is no coin 45 in position as indicated, the two fingers 46 and 47 will travel freely through slots 48 and 49 entering the slide 41 from the hole 44. Thus when there is no coin, there will be no travel of the slide 41 regardless of movement of the handle 35 back and forward. Under the slide 41 at the left hand end of travel is a hole 50 through the bracket 42 which will permit the coin 45 to drop on down into the base 10 to rest on the floor 11 when the handle 35 is released or is started in the right hand direction. Continued movement of the handle 35 in the right hand direction will cause the fingers 46 and 47 to be brought against the right hand edge of the hole in the plate 41 and thereby carry the plate 41 back to in turn bring the carrier 31 to its right hand position.

While I have herein shown and described my invention in the one best form as now known to me, it is obvious that structural variations may be employed without departing from the spirit of the invention and I therefore do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. In a vending machine, a package magazine having a plurality of package carrying columnar compartments each discharging from the bottom, a base under the compartments having a track on which the bottom package in each column may rest and a longitudinal slot in the track, said track being positioned below said compartments a distance equal at least to the height of a package to be carried therein, a sliding member U-shape in cross-section, under said track, a plurality of U-shaped dogs each comprising a pair of parallel bars connected by a cross bar rockably pivoted to and between the sides of the member in the line of said bottom packages to have package ejector ends normally biased by the weight of the cross bars to contact the cross bars with the bottom of the track and rock the upper ends of the dogs upwardly above said track, into the paths of said packages thereon through the slot in the track, and means carrying and limiting the travel of said slide member whereby the member may be initially shifted in one direction to have one of said dog ejector ends rock up beyond an end package first appearing on said track under said compartments while other packages ahead of that package have the ejector ends of other dogs bearing up against their under sides, to permit the slide member then being shifted in the opposite direction along said track to have said rocked dog push on said end package and in turn push other bottom packages ahead of it a distance of at least one package length, said track terminating in a package discharge station receiving the package there pushed.

2. In a vending machine, a base having a slot opening, a package magazine mounted on the base over said opening, a plurality of partitions in the magazine defining vertical boxes to receive packages therein, said partitions terminating at their lower ends above said base a distance sufficient to permit a package at the bottom of one column to be slid over said slot into the bottom of an adjacent column, a slide under said slot of sheet metal bent U-shape in cross section, a plurality of U-shaped dogs rockably mounted on said slide having ejector ends biased to extend normally up through said slot and stopped by contact of the tie bar with the bottom of the

slide, said dogs being spaced apart a distance equal at least to the width of each of said columns, and means for reciprocating and supporting said slide on said base directly under said slot.

5 3. In a vending machine, a base having a slot opening, a package magazine mounted on the base over said opening, a plurality of partitions in the magazine defining vertical boxes to receive packages therein, said partitions terminating at their lower ends above said base a distance sufficient to permit a package at the bottom of one column to be slid over said slot into the bottom of an adjacent column, a slide U-shape in cross-section under said slot bent U-shape in cross-section of sheet metal, a plurality of U-shaped dogs rockably mounted in said slide having ejector ends biased to extend normally up through said slot and stopped by contact of the tie bar with the bottom of the slide, said dogs being spaced apart a distance equal at least to the width of each of said columns, and means for reciprocating and supporting said slide on said base directly under said slot, said base having a package discharge opening at one end of said slot, and having an opening at the other end of said slot beyond the last of said columns to re-

ceive the upturned ejector end of the last dog on said slide.

4. In a vending machine, a base having a slot opening, a package magazine mounted on the base over said opening, a plurality of partitions in the magazine defining vertical boxes to receive packages therein, said partitions terminating at their lower ends above said base a distance sufficient to permit a package at the bottom of one column to be slid over said slot into the bottom of an adjacent column, a slide under said slot of sheet metal bent U-shape in cross section, a plurality of U-shaped dogs rockably mounted on said slide having ejector ends biased to extend normally up through said slot and stopped by contact of the tie bar with the bottom of the slide, said dogs being spaced apart a distance equal at least to the width of each of said columns, and means for reciprocating and supporting said slide on said base directly under said slot, said reciprocating means comprising a plate guided by said base interconnected with said slide member, and a handle, said vending machine having a coin controlled means interconnecting said plate and said handle.

JUSTUS C. IRWIN.