June 3, 1930. G. R. WEBBER 1,761,604

COMBINATION VENDING MACHINE AND CHANGE TRAY

Filed June 19, 1928 4 Sheets-Sheet 1

Fig. 1

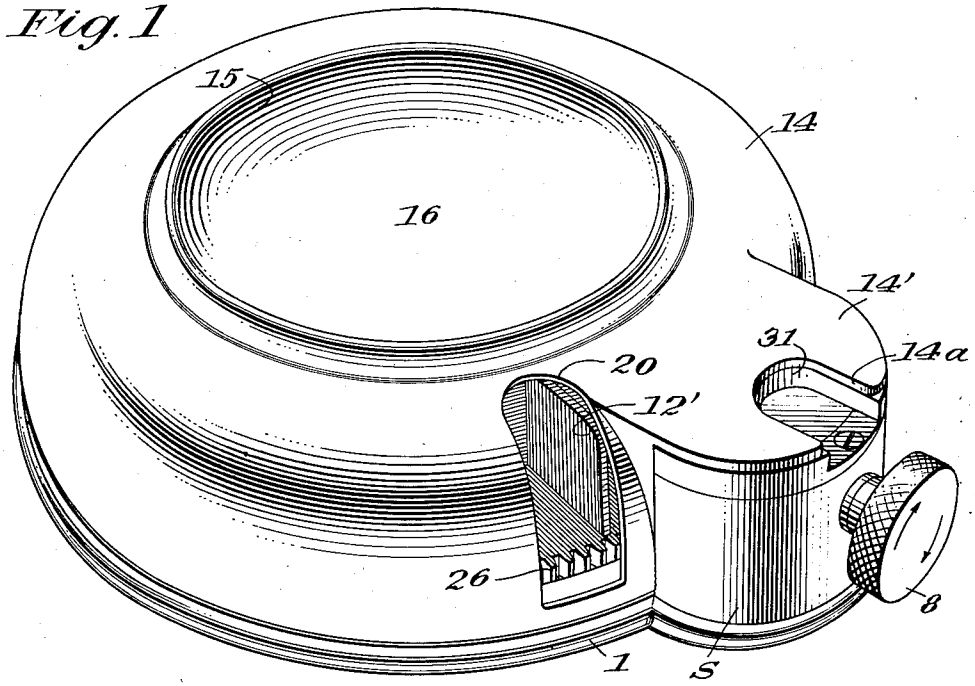
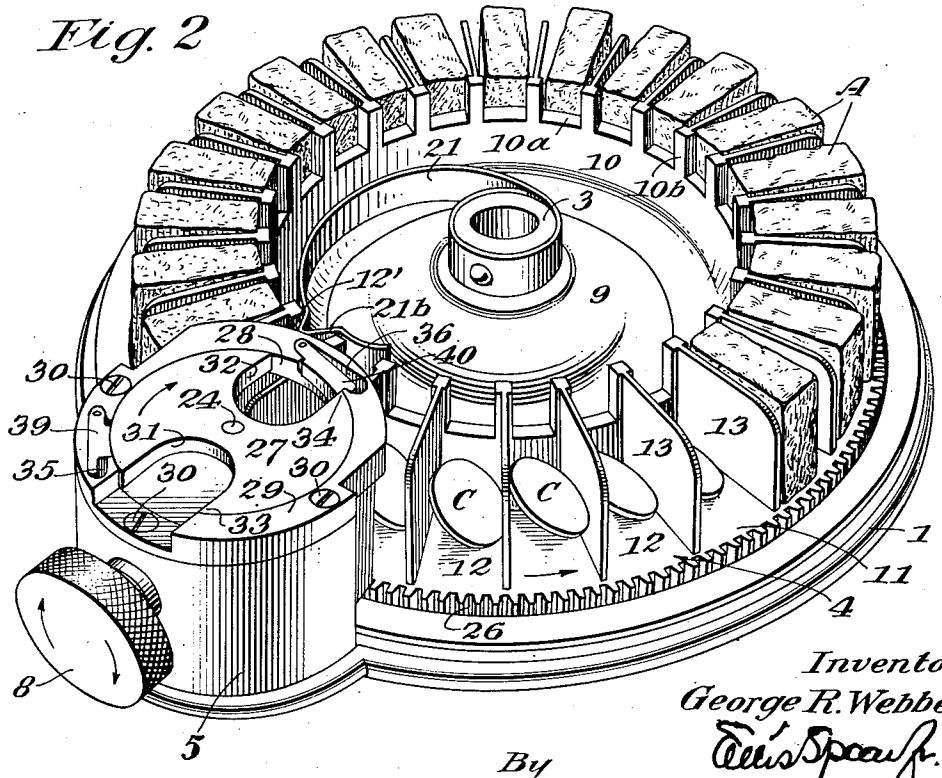


Fig. 2



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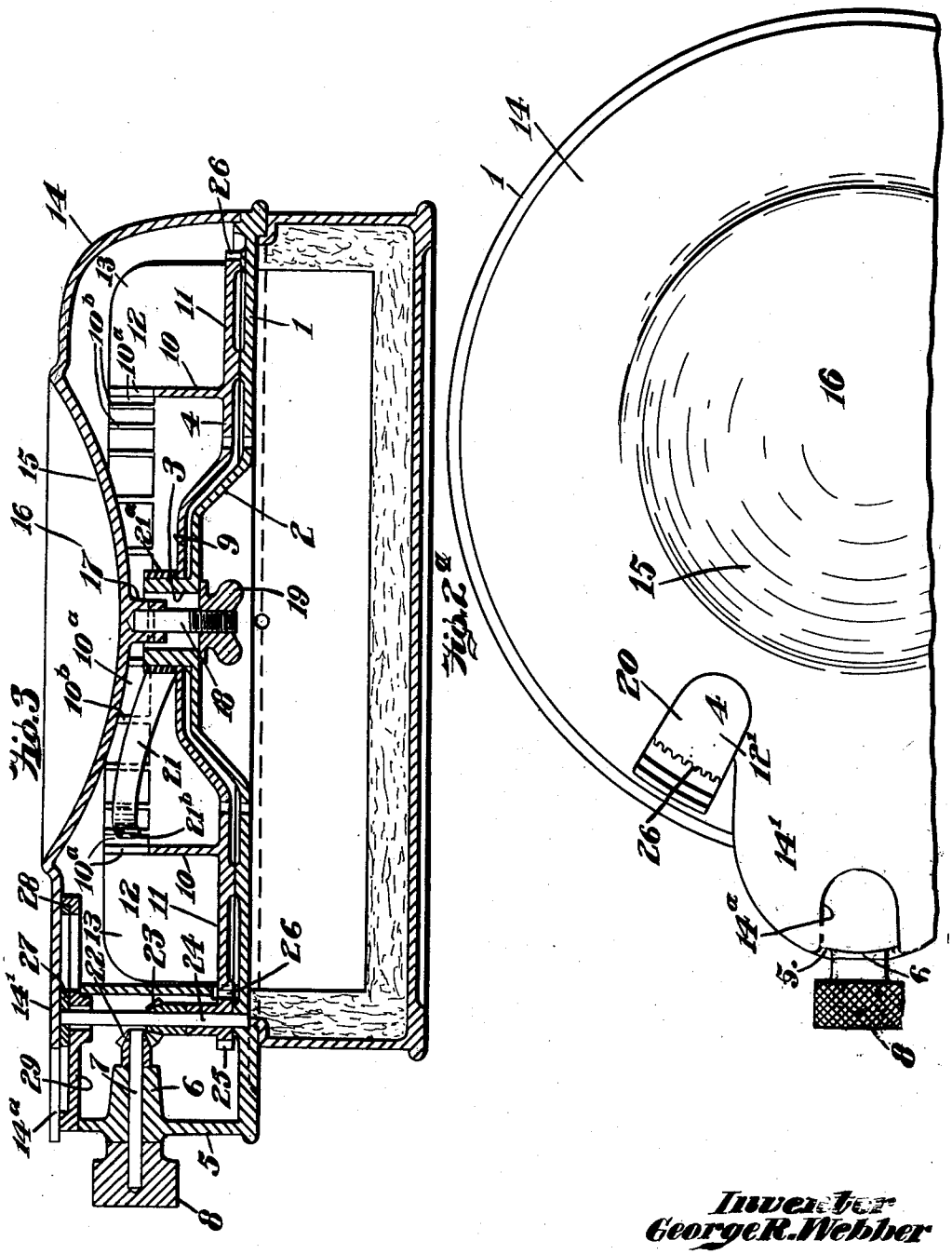


Fig. 3

Fig. 2a

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COMBINATION VENDING MACHINE AND CHANGE TRAY

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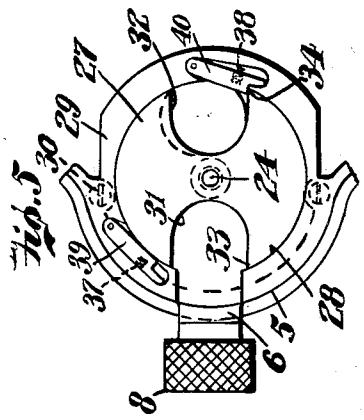


Fig. 5

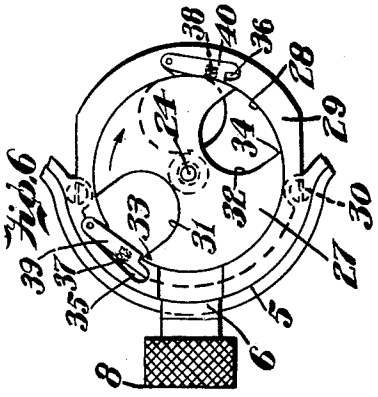


Fig. 6

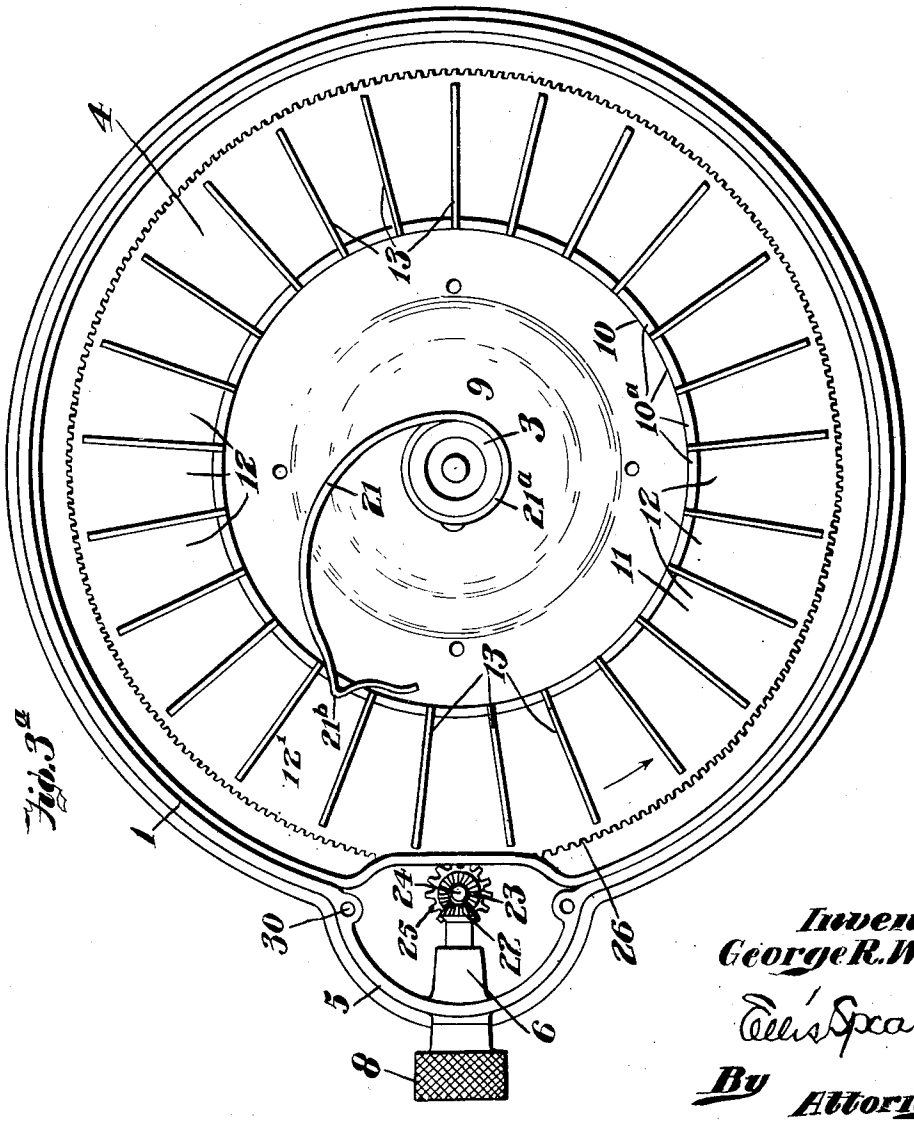


Fig. 3a

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COMBINATION VENDING MACHINE AND CHANGE TRAY

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Fig. 4

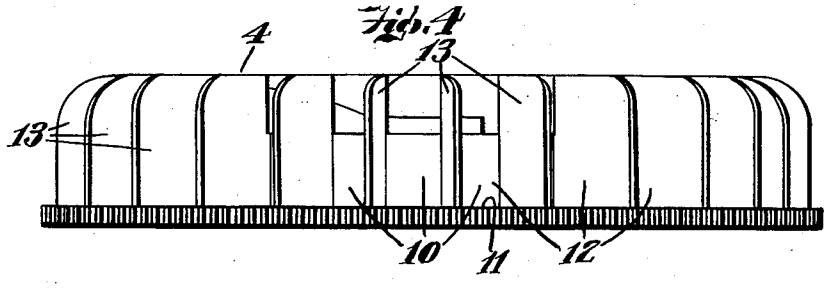


Fig. 7

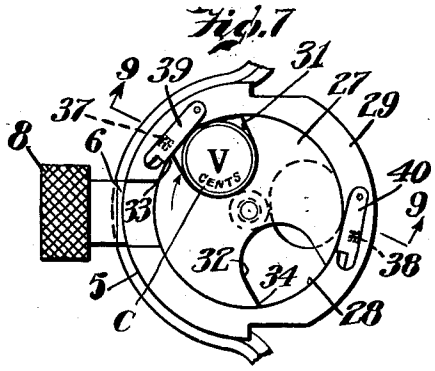


Fig. 8

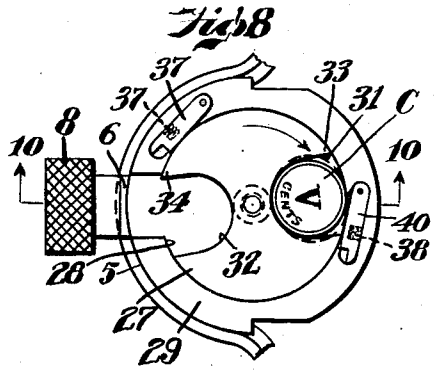


Fig. 11

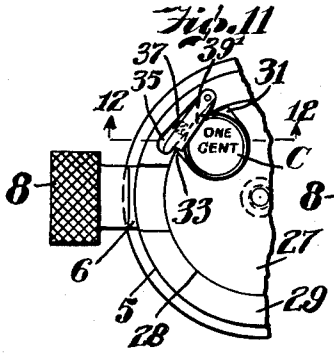


Fig. 13

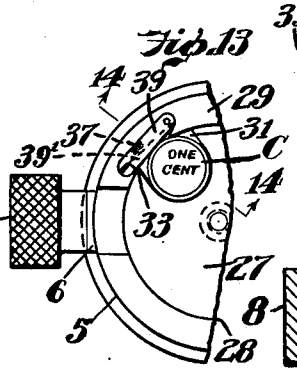


Fig. 9



Fig. 10

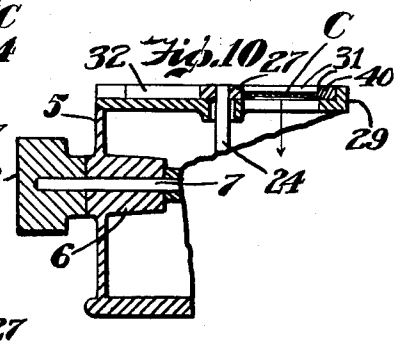


Fig. 12

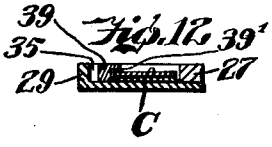


Fig. 14



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Patented June 3, 1930 1,761,604

UNITED STATES PATENT OFFICE

GEORGE R. WEBBER, OF AUGUSTA, MAINE, ASSIGNOR TO POLAR VEND CORPORATION OF AUGUSTA, MAINE, A CORPORATION OF MAINE

COMBINATION VENDING MACHINE AND CHANGE TRAY

Application filed June 19, 1928. Serial No. 286,635.

This invention relates to vending machines of the coin operated type and particularly to such a machine adapted for use as a counter machine.

The location of such a machine upon the counter at which a person has made a purchase and has perhaps received small change from the clerk in charge of the counter is conducive to sales in that the tendency of the purchaser upon noticing the machine and its product is to sample the merchandise vended by the machine, using for this purpose the change refunded to him by the clerk, rather than placing the change in his pocket as might be the case if the machine were not so conveniently located.

My invention is based upon a recognition of this almost universal trait of human nature and, in fact, further stimulates the sales urge in that the top of my machine itself is so constructed as to function as the usual change tray which is generally placed on the counter to facilitate the transfer of change from the clerk to the customer. Such a change tray is generally a flat block of wood, metal, or glass, with a dished change recess in its top, and beyond serving as a change receptacle has no other function unless perhaps to carry some advertising matter descriptive of wares sold at the counter.

By constructing the top of my vending machine itself as a change tray into which the clerk places the change intended for the customer after he has made his purchase at the counter, the physical presence of the change in the dish top of my machine calls attention of the customer to the machine itself and to the product vended by the machine, so that if the customer wishes to sample the product of the machine, the transaction itself is made most convenient for him.

Although the change tray feature is desirable, my machine also possesses certain features of advantage as a vending machine itself without regard to the change tray feature. These advantages reside in the attractive display of the products vended by the machine, in the mechanical construction of the machine whereby certainty of delivery of the articles is insured, in the provision for refrigerating the articles vended, if they be of perishable nature, in the construction of the coin controlled lock whereby cheating of the machine is prevented, in the provision for refunding the customer's coin in case the machine is empty, and in general, in the construction and arrangement whereby a compact, efficient, and comparatively inexpensive machine of this type is obtained which will occupy the minimum counter space consistent with the delivery of the maximum number of articles.

For the purposes of this application, I shall show and describe a machine embodying the principles of my invention, but especially designed for the vending of such a perishable commodity as a yeast cake in which use my machine finds a field of immediate desirability. This treatment, however, is purely illustrative and in no way limiting and it will be understood that my machine may be used for the vending of practically any article whether of a perishable nature or not, and whether in conjunction with refrigerating means or not. In the same way, it will be understood that where the change tray feature is not desired, this may be readily omitted without impairing in any way the efficiency of the machine as a vending machine and without departure from essential principles.

In the accompanying drawings:—

Fig. 1 is a perspective view of a machine in accordance with the principles of my invention, and particularly showing the change tray feature of such machine.

Fig. 2 is a similar view with the cover of the machine removed to expose the underlying structure and particularly illustrating the coin controlled lock and the arrangement whereby the successively emptied compartments of the product carrying rotor become receptacles for the coins used to operate the machine.

Fig. 3 is a vertical section through the machine and through a refrigerating base on which the machine may be mounted if desired.

Fig. 3ª is a plan view of the machine with the top cover removed.

Fig. 4 is an edge view of the product carrying rotor.

Figs. 5 to 8 inclusive are detail views illustrating successive phases of operation of the coin controlled lock when set for use with nickels.

Figs. 9 and 10 are sections on the lines 9—9 of Fig. 7, and 10—10 of Fig. 8 respectively.

Fig. 11 is a fragmentary detail view of the coin controlled lock when set for use with pennies and illustrating the position of the parts where an attempt is made to operate the lock with an insufficient number of pennies.

Fig. 12 is a cross section on the line 12—12 of Fig. 11.

Fig. 13 is a view similar to Fig. 11 and showing the lock successfully operated by a sufficient number of pennies, and

Fig. 14 is a section on the line 14—14 of Fig. 13.

I have indicated at 1 a base which is adapted to rest on the top of the show case or counter. The base 1 is flat and may be equipped with any suitable suction cups or may rest upon a piece of felt or the like, or may rest directly upon the top of the counter or showcase. Preferably, such base is a casting of aluminum or the like, and may be of any shape, as square, circular, or other configuration. As here shown, the base is a flat disc and is provided centrally thereof with an offset portion 2 terminating in a central bearing 3 for a product-carrying rotor 4 which is compartmented to receive the articles A to be vended. At its edge the base is provided with an upstanding portion 5 terminating in a horizontally disposed bearing 6 for a manually operable rotor actuating shaft 7 which is provided with an external operating knob 8 and which, through suitable motion transmitting connections (hereinafter described) is adapted to rotate the product-carrying rotor with a step by step movement subject to a coin controlled lock dominant upon said actuating knob shaft.

In general, the product-carrying rotor may be said to consist of a flat disc having a central bearing portion 9 which is sleeved about the bearing 3 of the base 1 and an annular wall or shell 10 rising vertically from the disc and inset from the peripheral edge thereof, and against which the articles to be vended are abutted in radial spaced assembly. Preferably, the articles, particularly where the square or oblong type as yeast cakes, are assembled edgewise about the rotor, the flat annular rim 11 of the rotor beyond the wall 10 constituting a bottom supporting surface on which the articles rest in edgewise positional relationship and such annular surface 11 being sub-divided into individual article containing compartments 12 by means of the radial partitions 13.

In accordance with my general concept, there is one more article compartment 13 than there are articles to be vended, or expressed differently, at least one of the article containing compartments is empty at all times. As here shown, the rotor is provided with twenty-five compartments but is adapted when originally serviced to contain only twenty-four yeast cakes, leaving one empty or blank compartment 12′ when the machine is filled. The purpose of this arrangement will be described hereinafter.

The rotor and its contained articles is covered by a cover plate 14 which, as contemplated herein, may, but need not necessarily have, its top surface inwardly disposed as indicated at 15 to provide a dished change receptacle as indicated at 16. Whether the top of the cover member is flat or inwardly dished, however, it is provided with a central depending bearing 17 by means of which it may be assembled to the base 1 as a covering unit which may be locked to the base to prevent theft of the products being vended or the coins paid into the machine.

The means whereby the cover and base are locked together against unauthorized tampering with the contents of the machine may be of any approved type. For the purposes of this application, I have simply shown the cover and base as assembled on a holding screw 18 which is provided with a key controlled lock indicated generally at 19, and the keys for which will be in possession of the counter clerk and/or the person responsible for servicing the machine.

The cover rests lightly on the edge of the base as an enclosing member which, if desired, may be transparent so that the products being vended and the operating mechanism of the machine may be visible through the cover. At its edge and preferably to the left of the operating knob 8 (Fig. 1) the cover is provided with an article delivery opening 20 through which the article may be removed by the customer after he has inserted a coin or coins of the proper denomination in the coin controlled lock and has manually rotated the product-carrying rotor by means of the operating knob 8 to bring an article into registry with said discharge opening. Normally, the blank or empty compartment 12′, when the machine is full, is registered with the discharge opening so that at this phase in the use of the machine no article is in position for delivery. When the machine is operated with a coin or coins of the proper denomination, the rotation of the knob shaft 7 by the customer carries the rotor a distance sufficient to bring the article A′ in compartment 12ª into registry with the delivery opening 20 whereupon the rotor is prevented from further rotation and the

customer may remove the article A′ which he has purchased through the slot 20. This may be done by simply reaching into the slot with the fingers and pulling out the article registered therewith or an automatic ejector as the spring controlled plunger 21 may have operated during the rotation of the rotor to push the article A′ sufficiently out of the delivery opening 20 to enable the customer more conveniently to grasp and withdraw it.

Such ejector may be a simple leaf spring anchored at its inner end as at 21^a to any fixed part of the casing, as the bearing 3 and provided near its free end with a bent ejector portion 21^b, which normally lies adjacent the vertical annular wall 10 of the product-carrying rotor 4. With such an arrangement, the wall 10 is vertically slotted at intervals opposite the product compartments, as indicated at 10^a, said slots being spaced by the intervening webs 10^b of the wall itself. Normally the ejector portion 21^b of the ejector spring engages one of the webs 10^b and holds the ejector out of action, but when the machine is operated, the rotation of the product-carrying rotor releases said trigger, allowing the spring to expand and eject the article opposite thereto through the discharge opening 20 of the cover casing, after which the next web of the product-carrying rotor engages and re-sets the spring for the next ejecting operation.

The motion transmitting connections between the operating knob shaft 7 and the product-carrying rotor may be of any desired character and as here shown comprise a beveled gear 22 on the inner end of said shaft meshing with a similar gear 23 fast on a stub shaft 24 which is journaled vertically in suitable bearings carried by the base 1 and cover plate 13. The rotation of the stub shaft 24 is transmitted to the rotor by means of a pinion 25 thereon meshing with an annular rack 26 cut in the peripheral edge of the rotor itself.

As hereinbefore indicated, the rotation of the operating knob shaft 7 is subject to a coin controlled lock mounted in the offset portion S of the base 1 and covered by an extension 14′ of the cover plate 14 of the machine, such extension being provided with an open slot 14^a for the deposit of coins.

Such lock comprises a horizontally disposed disc 27 fast on the upper end of the stub shaft 24 to rotate with said shaft. The disc 27 is set within an annular recess 28 formed in a stationary plate 29 which is loosely sleeved about the shaft 24 and fixed, as by the screws 30 to the upper edge of the offset portion 5 of the machine base.

Two oppositely disposed coin pockets 31 and 32 are formed in the disc 27. One of these pockets (here shown as the pocket 31) normally registers with the coin introduction slot 14^a of the cover member 14. The other normally overlies the compartments 12 of the product rotor 4. The coin introduced into the active pocket (31) is discharged therefrom at a point in the subsequent rotation of the disc 27 wherein it will fall into one of the empty compartments of the rotor 4. The advantages of this arrangement are obvious.

As contemplated herein, the machine can be adjusted to operate either with three pennies or a five cent piece, such adjustment involving simply the substitution of a different locking dog or detent for the coin carrier disc 27. To this end, the coin pockets are of the size of a five cent piece, and the coin carrier itself is of a thickness equal to the combined thickness of three superposed pennies.

Adjacent each coin pocket, the coin disc 27 is formed as an obstructing corner 33 and 34. The annular recess of the locking plate 29 into which the disc 27 sets is provided with a pair of spaced jogs 35 and 36 respectively opening into said recess. Within each jog is a coil spring 37 and 38 backing locking detents 39 and 40. The detents are similar to each other, but are positioned in reverse relation in the jogs of the locking plate. Each detent presents a beveled surface 41 and a stop shoulder 42.

With a coin C of the proper denomination placed in the coin pocket of the disc 27 which registers with the slot 14^a (here shown as the pocket 31), rotation of the knob shaft 7 in a clockwise direction will carry said disc to the left and the product-carrying rotor to the right, thereby bringing a yeast cake into registry with the delivery opening 20. In this action, the physical presence of the coin of proper denomination in the coin pocket pushes the detent 39 inwardly against the action of its coil spring 37 so that the corner 33 of the coin pocket will not be obstructed by said detent, and hence the coin carrier will ride freely past the detent (Fig. 7) which immediately is returned by the action of its coil spring into obstructing position. When the coin carrier completes approximately one-half of its effective rotation in this direction, (Figs. 9 and 10) the coin drops out of the pocket in which it was placed and falls into one of the blank compartments of the product rotor.

In the first operation of the machine, this compartment into which the coin drops will be the compartment 12′ which was originally blank when the machine was filled. In all subsequent operations of the machine, this compartment will be the compartment immediately in advance of the compartment which is brought into registry with the delivery opening 20.

The movement of the coin carrier in this direction has brought the other coin pocket 32 into registry with the coin insertion slot 14^a of the cover plate extension so that upon the next operation of the machine the coin

is placed in pocket 32 and the operation repeated by again rotating the knob in a clockwise direction. In order to permit the proper coin pocket exactly to be registered with the coin insertion slot 14ª, the beveled side of the detent 39 is so positioned as to permit a slight counter-clockwise rotation of the disc 27. The arrangement of the detents is such however as to prevent anyone from turning the coin carrier counter-clockwise back far enough to recover his money or to obtain an article without paying for it. To this end, the opposite detent 40 is so placed in its jog as to bring its stop shoulder into the path of the obstructing corner 34 of the opposite coin pocket 32 which coin pocket, of course, contains no coin and hence cannot press said detent inwardly. (See Fig. 5.) Thus rotation of the coin carrier in reverse direction a distance sufficient fraudulently to operate the machine is prevented, but rotation in reverse direction a distance sufficient to bring the parts in position to repeat the operation is permitted.

As shown in Figs. 5 to 8 inclusive the machine is set for operation with a five cent piece. Where desired, however, the machine may be readily converted for operation by coins of other denomination as, for example, by three pennies and I have shown such adaptation in Figs. 11 to 13. Referring to these Figures, the dog 39 is shown as cut away along the bottom edge of its inner or coin contacting face, as indicated at 39′ to the depth of the combined thickness of two superposed pennies, (Fig. 12) so that if an attempt is made to operate the machine with only one or two pennies, the penny or pennies will pass beneath the dog without pressing the same outwardly to permit the coin carrier to clear the same. When three superposed pennies are placed in the coin pocket of the coin carrier, however, the uppermost penny (Fig. 14) will be disposed at a height sufficient to contact and press outwardly the dog thereby permitting the coin carrier to clear the same.

Where the machine cover is of glass, it is possible to see at a glance whether or not the machine is empty of articles. By the provision for receiving the coins in successively empty compartments of the product-carrying rotor rather than in a coin drawer, however, my machine becomes automatically self refunding, in the event that someone should attempt to operate the same when it is empty. In such event, the coin deposited by the operator in the coin lock would be received into the machine, the machine would operate, and one of the coins which it had received in a previous operation would be brought into registry with the product delivery opening 20, so that the operator of the machine could reimburse himself for his coin with the coin thus presented to him.

Where such automatic refunding feature is not desirable, however, the machines may be arranged to permit the coin to drop into the collection space 43 rather than into an empty compartment, and suitable provision may be made for afterwards collecting the coins therefrom, as by providing such space with a key-controlled locking door.

Where refrigeration of the product is desirable, I arrange to mount the machine as a unit upon a refrigerating base. Such base consists of an open top base 44 which may be lined with any suitable insulating material or may be of the double walled vacuum type. The machine as a unit rests upon the rabbeted edge of the refrigerating base and the base itself it laterally vented as indicated at 45 so as to prevent contamination of the products by the refrigerating medium employed, which may be any artificial refrigerant. If ordinary chipped ice is used, there is no problem of contamination of the product. In either case, however, the refrigerating base may be filled and emptied by simply removing the machine as a unit therefrom.

While I have shown my machine as a counter machine it will be understood that the machine may be variously used in a variety of installations. Similarly, it will be understood that by wholly omitting the detent 39 the machine can be readily converted into a free machine operable at will without the necessity for inserting any coin into the coin carrier. Where the top cover is made of glass any desired advertising matter descriptive of the product being vended can be inserted beneath the glass so as to be legible therethrough, and the glass cover, of course, also admits of the display of the actual articles themselves which are being vended as well as enabling the customer to determine at a glance whether or not the machine is empty.

Various other modifications in the form, design and arrangement of parts may be obviously resorted to within the spirit and scope of my invention as defined by the appended claims.

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

1. In a vending machine, a base, an intermittently revoluble product rotor surmounting said base and having a peripheral series of radially disposed compartments, a cover for said rotor having a laterally disposed delivery opening with which the compartments of said rotor are successively adapted to be registered, manually operable actuating means mounted on said base for intermittently rotating said rotor, and a coin-controlled lock dominant upon said actuating means and so positioned with reference to said rotor that a coin inserted in said lock to operate the same is delivered by and in the subsequent operation of the lock into an

empty compartment of the rotor as the rotor is revolved therepast.

2. In a vending machine, a base, an intermittently revoluble product rotor surmounting said base and having a peripheral series of compartments, a cover for said rotor having an article delivery opening with which the compartments of said rotor are successively adapted to be registered, to permit delivery of the articles therein, manually operable actuating means mounted on said base for intermittently rotating said rotor, and a coin-controlled lock dominant upon said rotor actuating means but permissive of operation of the rotor when a coin or coins of proper denomination are inserted in the lock and the rotor actuating means operated, the operation of said means under said conditions carrying the lock to a position with respect to the rotor that the coin or coins inserted in the lock will be delivered into one of the empty compartments of the rotor.

3. In a distributing machine, an intermittently revoluble product rotor presenting a plane peripheral portion having a series of rack teeth, an internal annular wall, and a plurality of radial partitions extending from said wall over said peripheral portion and sub-dividing the same into individual compartments within which articles to be distributed are individually stacked in vertical edgewise position with their inner faces abutting said wall, a cover for said rotor having a laterally disposed article delivery opening with which the compartments of the rotor are adapted to be successively registered, a manually operable shaft for intermittently rotating said rotor, and a shaft actuated therefrom and actuating said rack of the rotor, and a coin-controlled lock mounted upon said last-named shaft and so positioned with reference to said rotor that a coin inserted in said lock to operate the same is subsequently delivered by and in the operation of the lock into an empty compartment of the rotor as the rotor is rotated therepast.

4. In a distributing machine, a base having a laterally offset portion, a product rotor revoluble upon said base and having a peripheral series of radially disposed compartments for the reception of the articles to be distributed, a cover for said rotor surmounting said base and having an article delivery opening with which the compartments of the rotor are adapted to be successively registered, said cover having a radially projecting portion overlying said offset portion of the base and provided with a coin insertion opening, a manually operable actuating shaft mounted on said base, a shaft actuated therefrom and operatively connected to said rotor for intermittently rotating said rotor, and a coin-controlled lock mounted upon said last-named shaft beneath the coin insertion slot of the cover whereby a coin or coins inserted in said lock to operate the same will be subsequently delivered by and in the operation of the lock into an empty compartment of the rotor as the rotor is rotated therepast.

5. In a distributing machine, a base having a laterally offset portion, a product rotor revoluble upon said base and having a peripheral series of radially disposed compartments for the reception of the articles to be distributed, a cover for said rotor surmounting said base and having an article delivery opening with which the compartments of the rotor are adapted to be successively registered, said cover having a radially projecting portion overlying said offset portion of the base and provided with a coin insertion opening, a manually operable actuating shaft mounted on said base, a shaft actuated therefrom and operatively connected to said rotor for intermittently rotating said rotor, and a coin-controlled lock mounted upon said last-named shaft beneath the coin insertion slot of the cover whereby a coin or coins inserted in said lock to operate the same will be subsequently delivered by and in the operation of the lock into an empty compartment of the rotor as the rotor is rotated therepast, said lock including a pocketed coin carrier and a locking detent normally arranged to prevent rotation of said pocketed coin carrier but actuated by the presence of a coin or coins of proper denomination in the pocket of the coin carrier to permit effective operation of said lock.

In testimony whereof I affix my signature.

GEORGE R. WEBBER.