April 16, 1935. D. F. HLADKY ET AL 1,998,194

VENDING MACHINE

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Fig. 1.

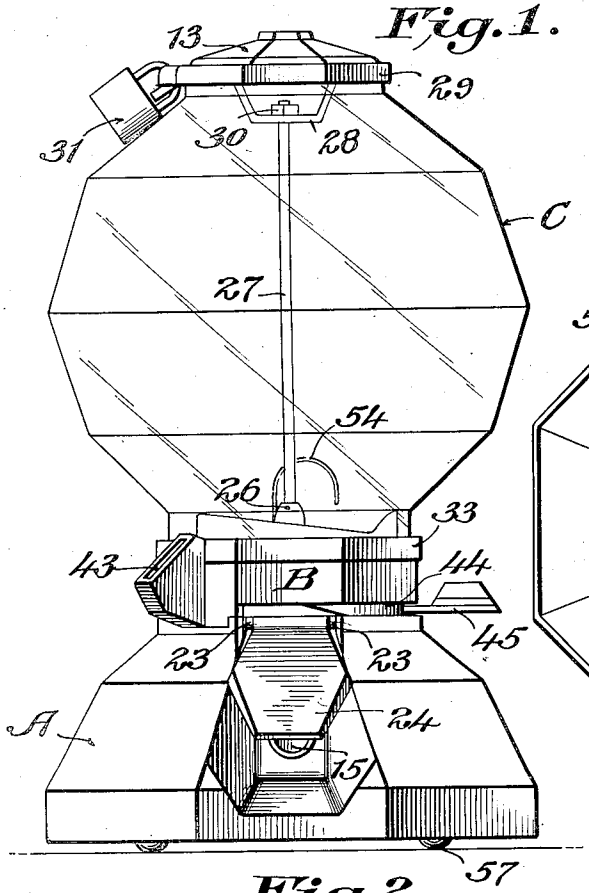


Fig. 3.

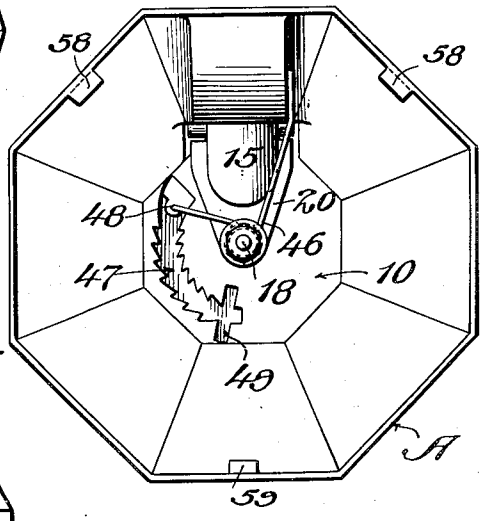


Fig. 2.

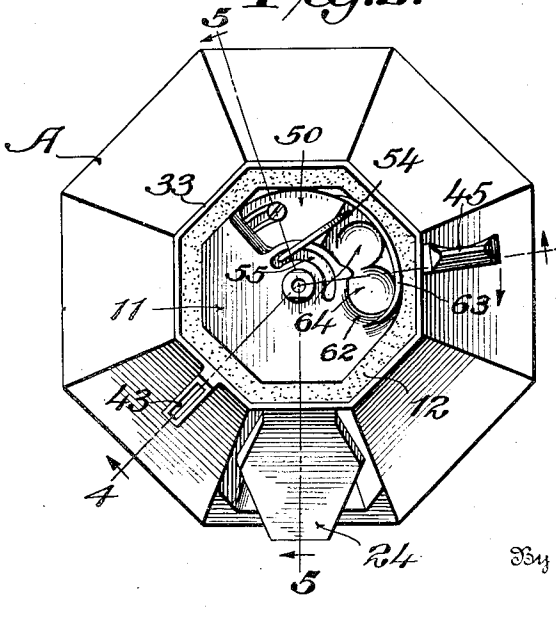
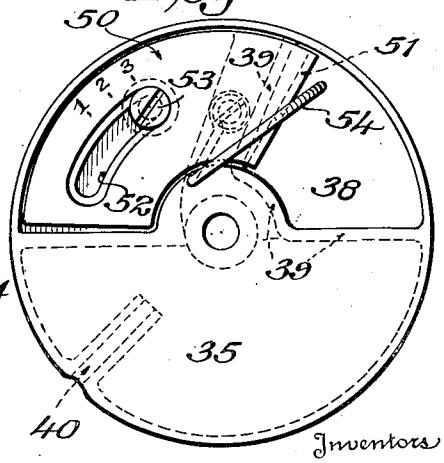


Fig. 7.



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Fig. 4.

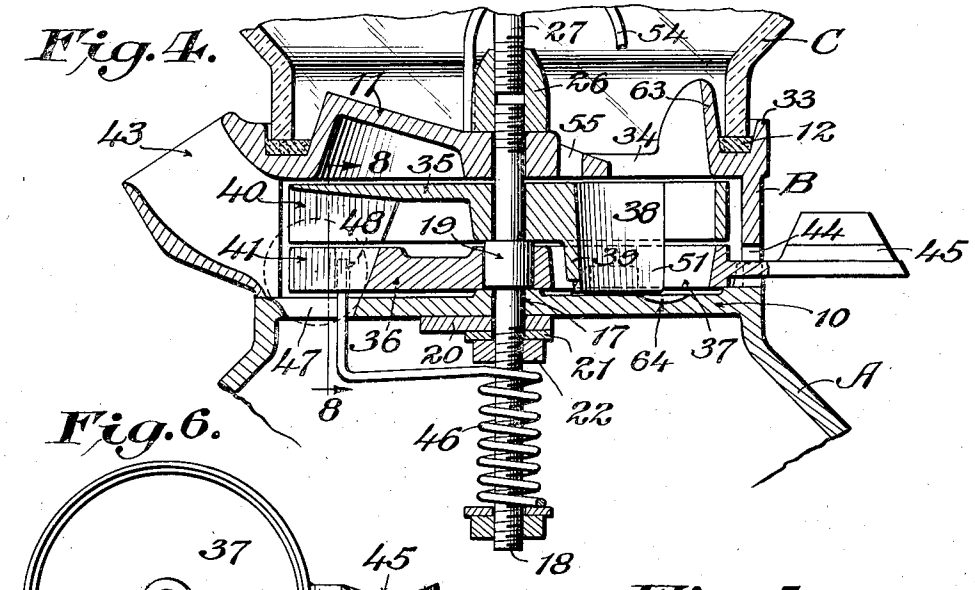


Fig. 6.

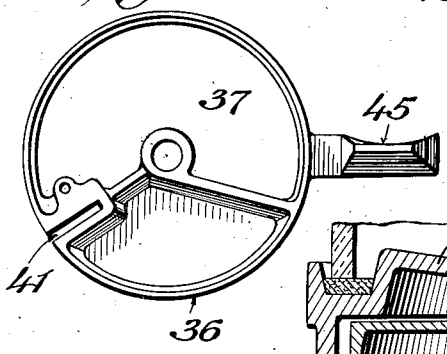


Fig. 5.

Fig. 8.

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VENDING MACHINE

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10 Claims. (Cl. 194—85)

This invention relates to vending machines, and has particular reference to a machine especially designed for vending articles such as peanuts, candy balls, chewing gum balls and the like.

The general object of the invention is to provide a machine for vending articles of the character mentioned, which machine is of simple, strong and durable construction and of comparatively low production cost, and which is thoroughly reliable and efficient in operation.

More particularly, the invention has in view to provide, in a machine for vending articles of the character mentioned, novel and simplified means to prevent operation of the machine except by the deposit of a proper coin or check in the machine; a novel combination and assembly of a pair of cooperating coin or check controlled article delivery members; a novel delivery spout mounting and a novel mounting for the spout cover; a novel arrangement of spring means for returning the movable elements of the machine to their normal positions following vending or dispensing actuation of said elements, and, in general, a compact, simplified assembly of all of the operating parts of the machine and a sturdy construction of such parts.

With the foregoing and various other objects in view which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction and in the novel combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different views:

Fig. 1 is a front elevation of a vending machine constructed in accordance with the invention.

Fig. 2 is a top plan view of the machine with the article holder removed.

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

Fig. 4 is a section on the line 4—4 of Fig. 2.

Fig. 5 is a section on the line 5—5 of Fig. 2.

Fig. 6 is a top plan view of the lower of the two rotatable and cooperating dispensing members.

Fig. 7 is a top plan view of the upper of the two rotatable dispensing members; and

Fig. 8 is a detail sectional view on the line 8—8 of Fig. 4.

Referring to the drawings in detail, it will be observed that the machine is inclusive of a hollow base A, that the top of said base is closed by a wall 10, that a hollow member B closed at its top by a wall 11 and open at its bottom, rests on the top wall 10 of the base, and that a container C for the articles to be vended is supported at its open bottom on the top wall 11 of the member B through an interposed gasket 12 and at its open top is closed by a removable cap or cover 13.

Formed through the top wall 10 of the base A is an article delivery opening 14, and underlying this opening is the inner end portion of a delivery spout 15 which extends downwardly and outwardly to the exterior of the base A through an opening 16 in the side wall thereof.

Formed centrally through the top wall 10 of the base A is an opening 17, and extending downwardly through this opening is a threaded rod 18 which is provided, above the wall 10, with an enlargement 19 which engages the upper side of said wall and thereby limits downward movement of said rod.

The inner end portions of the side walls of the spout 15 are formed with flat top edges to engage the under face of the top wall 10 of the base A to either side of the delivery opening 14 in said top wall, while extending inwardly from the inner end of said spout 15 is tongue 20 which lies against the under side of the top wall 10 and which has the rod 18 extending downwardly therethrough. A washer 21 on the rod 18 engages the under face of the tongue 20, and threaded on said rod against said washer is a nut 22 which serves to clamp the spout 15 in its operative position against the under side of the top wall 10 of the base A as shown in Fig. 5 of the drawings.

Recesses are formed in the side walls of the spout 15 and open through the upper edges thereof, and in these recesses are seated trunnions 23 which project laterally from the sides of a spout cover 24, whereby the spout cover is mounted to be raised to permit the vended articles to slide out of the trough 15, and to drop by gravity to a normal position, as shown in Fig. 5 in which a downward projection 25 near its free or outer end closes the outer end of the spout.

The rod 18 extends upwardly from the enlargement 19 through a central opening in the top wall 11 of the hollow member B and, above said wall 11, has threaded thereon a nut 26 which is drawn tightly against said wall 11 thereby to clamp the hollow member B securely against the top wall 10 of the base A. Another rod 27 is threaded at its lower end into the nut 26 and at its upper end extends through a yoke 28 depending from a plate 29 and has threaded thereon a nut 30 whereby the plate 29 is clamped

against the top of the container C and the latter is clamped against the hollow member B. The cap 13 serves to close an opening in the plate 29 through which the container C may be filled and through which access may be had to the nut 30, and said cover normally is fastened in position closing the top of the container by a padlock 31.

It is, of course, necessary to provide means to prevent rotation of the container C relative to the hollow member B and rotation of the latter member relative to the base A, as otherwise it would be possible by relative rotation of these parts to effect their disassembly. This may be accomplished in any desired manner, but a practical means for accomplishing the purpose resides, as shown, in forming the member B of octagonal or other polygonal shape, in providing lips or flanges 32 on the base A to engage one or more of the flat sides of the member B, and in forming the lower, open end of the container C of octagonal or other polygonal shape and providing an upstanding flange 33 at the top of the member B to embrace the lower end of the container.

As best illustrated in Figs. 2, 4 and 5 of the drawings, the top wall 11 of the hollow member B is provided with an opening 34 through which articles such as peanuts, candy or chewing gum balls or the like, contained within the container C, may gravitate into said hollow member, and in order to assist gravity in causing the articles to gravitate through said opening, the said top wall 11 is inclined downwardly towards said opening.

The opening 34 is of somewhat elongated, arcuate shape and is disposed diametrically opposite the discharge opening 14 in the top wall 10 of the base A, while arranged within the hollow member B are upper and lower cooperating, relatively rotatable, coin-controlled, disk-like elements 35 and 36, respectively, which are operable to convey the articles gravitating through the opening 34, to the opening 14.

The upper disk-like element 35 is journaled on the rod 18 and is supported on the upper face of the enlargement 19 of said rod with its lower edge suitably spaced above the top of the lower disk-like element 36 which is journaled on the enlargement 19. Thus, each disk-like element is free to rotate without tendency to impart rotation to the other disk-like element, except as hereinafter explained.

The lower disk-like element 36 has formed therethrough a relatively wide, arcuate slot 37 of considerable circumferential extent as illustrated in Fig. 6 of the drawings, while opening through the top of the upper disk-like element 35 is a well 38 which is open at its bottom and the lower portion of which is defined by flange-like walls 39 which depend from said upper disk-like element 35 through the slot 37 in the lower disk-like element 36 and terminate at their bottoms slightly above the top wall 10 of the base A.

Formed in the upper disk-like element 35 and opening through the edge and the bottom thereof is a coin slot 40, while formed through the lower disk-like element 36 and opening through the edge thereof in a coin slot 41. In addition, the side wall of the hollow member B is provided with a coin chute or slot 43 and also with a circumferential slot 44 through which extends an operating handle 45 which projects outwardly from the lower disk-like element 36.

The lower disk-like element 36 is rotatable through a fixed angle which may be predetermined in any suitable manner, as, for example by the length of the slot 44 the ends of which constitute abutments engageable by the handle 45, or by providing any other suitable spaced stops engageable by the handle 45 or by any other suitable abutment carried by said lower disk-like element, and the arrangement in this respect is such that when said lower disk-like element 36 is at its limit of movement in one direction, i. e., its normal, retracted position, its coin slot 41 is alined with the coin chute 43, the wall defining the forward end of its slot 37 is engaged with the forward depending flange wall 39 of the upper disk-like element 35, and the well 38 and the coin slot 40 of the latter element are alined, respectively, with the opening 34 in the top wall 11 of the hollow member B and the coin chute 43.

Yieldable means are provided to tend constantly to urge the disk-like element 36, and thereby the disk-like element 35, to their normal, retracted positions mentioned, and in the present instance this yieldable means comprises a spring 46 coiled about the rod 18 and having one end suitably anchored, and its other end extended upwardly through an arcuate slot 47 in the top wall 10 of the base and suitably engaged with the disk-like element 36 as indicated at 48.

The forward end of the slot 47 is alined with the coin chute 43 and is of only slightly narrower width than the diameter of the particular coin or check through the instrumentality of which the machine is rendered operative. On the other hand, the length of the chute or slot 43 in cross section is such as to prevent the insertion therein of a coin or check of greater diameter through the particular coin or check through instrumentality of which the machine is rendered operative. Thus assuming that the machine is to be rendered operative by the insertion of a penny in the chute or slot 43, it is apparent that a coin or check of greater diameter than a penny cannot be inserted in said chute, and that if a coin or check of lesser diameter than a penny is inserted in said chute it will pass through the alined slots 40 and 41 in the disk-like elements 35 and 36 respectively and drop through the forward end of the slot 47 into the base of the machine. If, however, a penny is deposited in the chute 43 it will roll down said chute and will enter the alined slots 40 and 41, but will not gravitate through the slot 47 due to the penny being of greater diameter than the width of said slot 47. Consequently, the two disk-like elements 35, 36 will be interlocked by the penny and rotation of the lower disk-like element 36 will result in rotation of the upper disk-like element 35 therewith.

In view of the foregoing the operation of the machine will be apparent: The spring 46 holds the disk-like element 36 normally retracted with its coin slot 41 alined with the coin chute 43, and since the wall defining the front end of the slot 37 in said element 36 engages the front wall 39 of the well 38 of the disk-like element 35 when the said disk-like element 36 is retracted, the disk-like element 35 is held in a retracted position in which its coin slot 40 is alined with the coin chute 43 and the coin slot 41 of the element 36, and in which its well 38 is alined with the opening 34 in the top wall 11 of the hollow member B. Thus, normally, the well 38 is filled due to articles gravitating into the same from the container C. Now, unless a proper coin or check is inserted in the chute 43 to interlock the

disk-like elements 35, 36, rotation of the disk-like element 36 by its handle 45 will simply result in idle rotation of said disk and lack of rotation of the disk 35, because the slot 37 in the disk-like element 35 is of such length as to permit full rotation of said disk-like element 35 to its forwardmost position without contact of the wall defining the rear end of its slot 37 with the rear wall 39 of the well 38. On the other hand, if a proper coin or check is inserted in the chute 43 such coin by reason of being retained in the slots 40, 41 of the disk-like elements 35, 36 will interlock, said disk-like elements for unitary rotation, and thus, if the disk-like element 36 then is rotated to its forwardmost position the disk-like element 35 will be correspondingly rotated with the result that the closed portion of the disk-like element 35 rearwardly of the well 38 will move beneath the opening 34 and will, in effect, close said opening, and the well 38 will become alined with the opening 14 with consequent gravitation of the contents of said well through the open bottom thereof and through the opening 14 into the spout 15. Then, upon release of the handle 45, the spring 46 will function to retract the disk-like elements 35, 36 to their normal positions in which the well 38 again will become filled in readiness for the next operation of the machine.

By reference to Fig. 3 of the drawings it will be observed that the slot 47 is widened at its rear end as at 49, for the free passage of a coin therethrough and that the walls defining the sides of said slot are of saw tooth or ratchet form whereby, once a proper coin is inserted in the chute 43 and forward rotation of the disk-like elements 35, 36 is initiated, it is impossible for said elements to be retracted until their forward or article dispensing rotation has been completed because of the coin cooperating as a dog with the ratchet teeth until the coin is advanced into alinement with the widened portion 49 of said slot 47. Consequently, it is not possible to in any way refill the well 38 during any one cycle of operation of the machine.

In order to provide for varying the effective capacity of the well 38, there is employed a plate 50 which is disposed in a recess in the top of the disk-like element 35 and which has a flange 51 depending into the well 38 and constituting the effective rear wall of said well. The plate 50 is slotted as at 52 and a fastening screw 53 extends through this slot into the element 35. Thus, the plate may be adjusted to dispose its depending flange 51 closer to or farther away from the front wall of the well 38 thereby to vary the effective capacity of the well, and, of course, by means of the screw 53 the plate may be fastened in any desired adjusted position.

Preferably, but not necessarily, the upper disk-like element 35 is provided with a wire arm or the like 54 which extends upwardly through an arcuate slot 55 in the top wall 11 of the member B into the container C so as to move with said disk-like element 35 and thus agitate the contents of the container in the vicinity of the opening 34 each time the machine is operated, thus to loosen the articles in the container in the event they may tend to jam and to assure filling of the well 38.

Following delivery of articles into the spout 15 the cover 24 may be lifted at will to permit the articles to gravitate into the hand or into any desired receptacle.

A suitable lock controlled removable closure 56 is provided for the bottom of the base A and this closure is provided with knobs 57 of rubber or other material whereby the machine may be supported on polished surfaces without danger of marring such surfaces. The base A is provided with one or more inwardly directed lugs 58 (Fig. 3) which underlie and hold one side of the closure 56, while another lug 59 which extends inwardly from the base overlies the closure 56 and constitutes a keeper above which the bolt 60 of the closure carried lock 61 is engageable to secure the closure in closing relation to the open bottom of the base. When the bolt 60 is retracted the closure is free to be removed from and applied to the base.

As indicated at 62 in Fig. 2 of the drawings, the wall 11 is beveled to a relatively thin edge at the forward end of the slot 34 to avoid any possibility of crushing of articles between the wall defining the forward end of said slot and the rear wall of the well 38 when the disk-like element 35 is moved forwardly.

As illustrated in Figs. 2 and 4 of the drawings, the top wall 11 of the member B has a flange 63 extending upwardly therefrom at the outer side of the slot 34. When the machine is used for dispensing balls of candy, chewing gum or the like it is usual to provide for delivery of two such balls during each cycle of operation of the machine by proper adjustment of the member 50, and the purpose of the flange 63 is to prevent bridging by a third ball of two balls which drop into the well 38, thus to assure that only two balls will be delivered by the machine during each cycle of operation thereof. In this connection another feature of the invention resides in the provision of a pair of depressions 64 in the upper face of the wall 10 as illustrated in Figs. 2 and 4 to receive and thus maintain properly spaced the two balls which gravitate into the well 34 during each cycle of operation of the machine. Because of the depressions 64 acting to hold the balls in predetermined spaced relationship, and acting in conjunction with the flange 63 to prevent wedging of a third ball into the well 38 there is obtained additional insurance against the delivery of more than two balls during any one cycle of operation of the machine. Obviously, by increasing the effective length of the well 38 and by providing an additional depression or depressions 64, the machine may readily be adapted for delivery of three or more balls during each cycle of operation thereof. Moreover, it is apparent that while the disks 35, 36 have been illustrated in the present instance as being rotatable in horizontal planes, it is within the purview of the invention to construct the machine so that these disks are rotatable in vertical planes.

From an inspection of the drawings the compactness and simplicity of the present machine, the disposition of the spring 46 in an isolated position within the base A, the simple mounting of the disk-like elements 35 and 36 and various other features of advantage will be readily appreciated. Moreover, it is believed in view of the drawings and the foregoing description that the construction and operation of the machine will be clearly understood. It is desired to point out, however, that while only a single specific embodiment of the machine has been illustrated and described, the same is readily capable of various modifications and that the different features thereof are readily capable of embodiment in machines of different design, within the spirit and scope of the invention as defined in the appended claims.

We claim:

1. A vending machine of the character described comprising a container for articles to be dispensed, means providing a chamber at the bottom of said container, said chamber being inclusive of a top wall constituting a closure for the bottom of the container and having an opening therein, said chamber further being inclusive of a bottom wall having an opening therein disalined from the opening in the top wall, upper and lower rotatable disks within said chamber, the lower disk having a slot, the upper disk having a well extending downwardly through said slot, means exterior of the chamber for rotating the lower disk, yieldable means tending constantly to urge the lower disk to a retracted position, means whereby movement of the lower disk to its retracted position moves the upper disk to a retracted position in which its well is alined with the opening in the top wall of the chamber, the lower disk being movable normally in an opposite direction independently of the upper disk, and means for the utilization of a coin to interlock the disks for unitary rotation so that advance rotation of the lower disk is effective to advance the upper disk to aline the well therein with the opening in the bottom wall of the chamber.

2. A vending machine as set forth in claim 1 in which the lower disk is provided with an agitating element extending into the container.

3. A vending machine as set forth in claim 1 in which a rod extends through the top and bottom walls of the chamber and constitutes a journal for the disks, said rod having an enlargement on which the lower disk is journaled and on the upper face of which the upper disk is supported.

4. A vending machine as set forth in claim 1 in which the wall defining the front end of the opening in the top wall of the chamber is beveled to prevent crushing of articles thereagainst as the disks are moved forwardly.

5. A vending machine of the character described comprising a hollow base having a top wall provided with an opening, a hollow member open at its bottom and seated on the top wall of the base and having a top wall provided with an opening disalined from the opening in the top wall of the base, a chute beneath the top wall of the base underlying the opening therein and extending exteriorly of the base, a container having an open bottom seated on the top wall of said hollow member, upper and lower rotatable disks within said hollow member, the lower disk having an elongated arcuate slot, the upper disk having a well extending downwardly through said slot, means exterior of the hollow member for rotating said lower disk, a rod on which said disks are journaled, said rod extending into the base, a spring coiled about said rod and anchored at one end and engaged at its other end with the lower disk and tending constantly to urge said lower disk to a retracted position, means whereby movement of the lower disk to its retracted position moves the upper disk to a retracted position in which its well is alined with the opening in the top wall of the hollow member, the lower disk being movable normally in an opposite direction independently of the upper disk, means for the utilization of a coin to interlock the disks for unitary rotation so that advance rotation of the lower disk is effective to advance the upper disk to aline the well therein with the opening in the top wall of the base.

6. A vending machine as set forth in claim 5 in which the chute is provided with a tongue through which the rod extends, and in which a nut is threaded on said rod against said tongue to clamp the chute in operative position.

7. A vending machine as set forth in claim 6 in which the side walls of the chute are notched, and in which a chute cover is provided with trunnions seated in the notches of said chute walls.

8. A vending machine as set forth in claim 1 in which a flange extends upwardly from the top wall of the chamber at the outer side of the opening in said top wall.

9. A vending machine as set forth in claim 1 in which the bottom wall of the chamber is provided in its upper face with a plurality of depressions alined with the opening in the top wall of said chamber.

10. A vending machine as set forth in claim 1 in which the well extending from the upper disk through the slot in the lower disk includes end walls, and in which one of said end walls is mounted for adjustment towards and away from the other to vary the effective size of the well.

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