Dec. 6, 1927. 1,651,605

L. V. KUHN ET AL

VENDING MACHINE

Filed Nov. 24, 1924 3 Sheets-Sheet 1

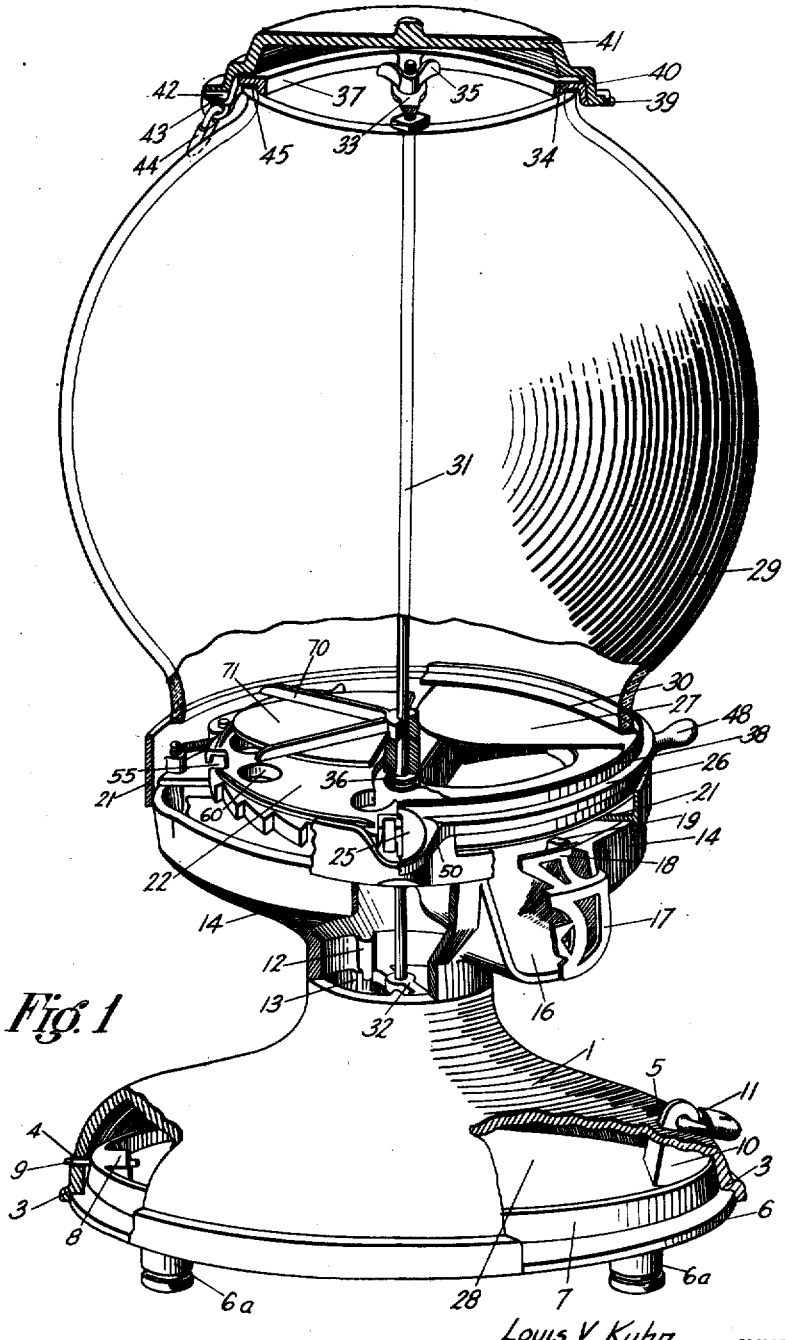

Fig. 1

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Filed Nov. 24, 1924 3 Sheets-Sheet 2

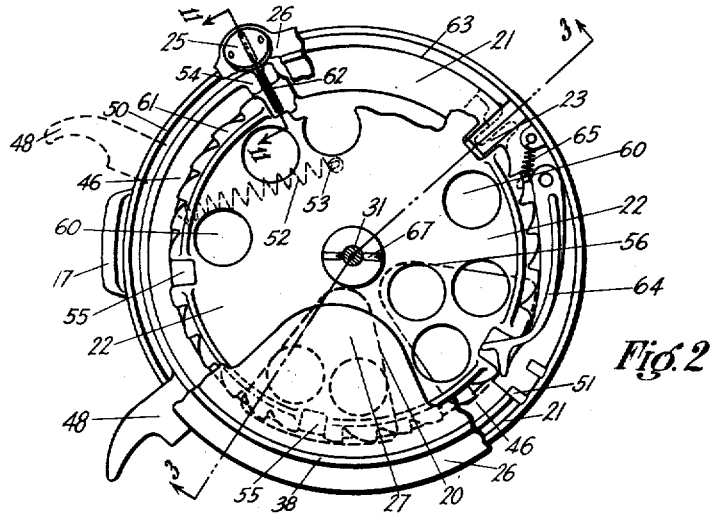

Fig. 2

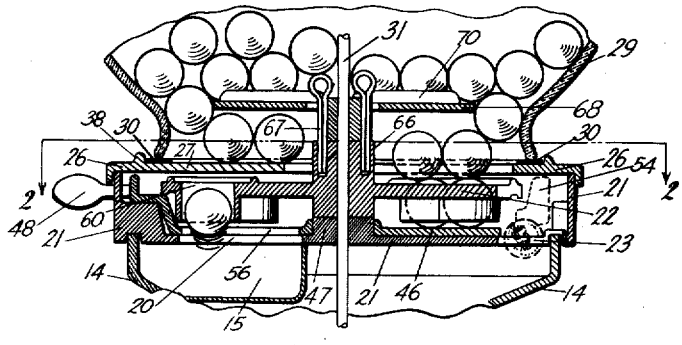

Fig. 3

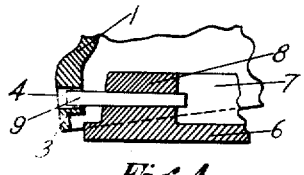

Fig. 4

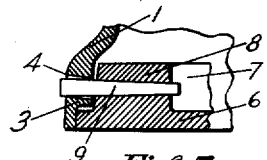

Fig. 5

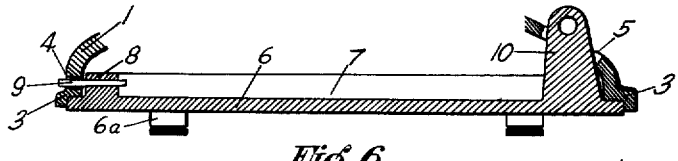

Fig. 6

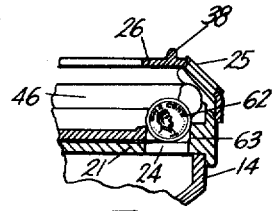

Fig. 11

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VENDING MACHINE

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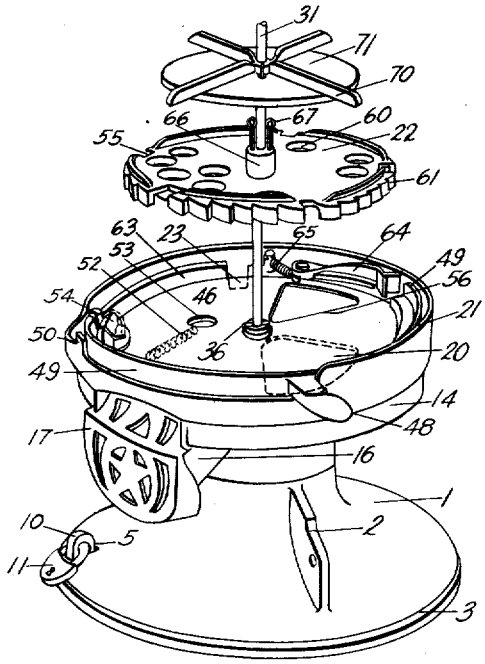

Fig. 7

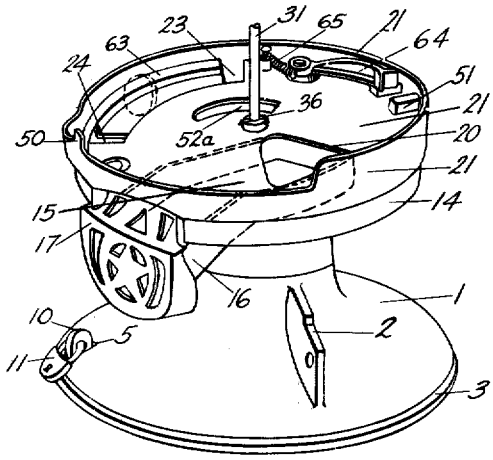

Fig. 8

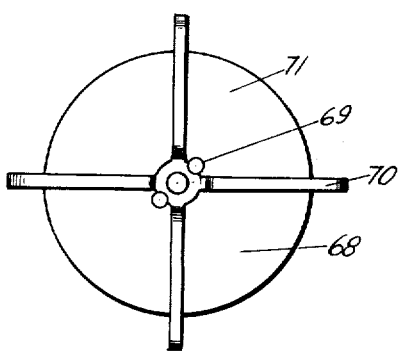

Fig. 9

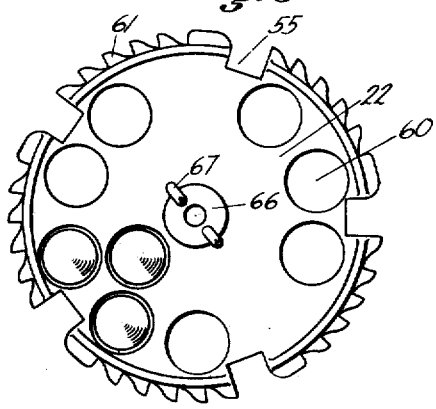

Fig. 10

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Patented Dec. 6, 1927. 1,651,605

UNITED STATES PATENT OFFICE.

LOUIS V. KUHN AND FRANK H. VOGEL, OF COLUMBUS, OHIO, ASSIGNORS TO THE COLUMBUS VENDING COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

VENDING MACHINE.

Application filed November 24, 1924. Serial No. 751,866.

Our invention relates to vending machines and has particularly to do with the provision of an improved machine of the type in which the insertion of a coin or check and the actuation of certain mechanism causes the machine to vend from a containing hopper a predetermined number or quantity of the articles contained therein.

In the past, machines of this type have usually comprised a containing hopper located directly over the delivery mechanism in such a way that the weight of the articles contained in the hopper was supported directly by the delivery mechanism. This construction is objectionable for the reason that excessive weight on the delivery mechanism sometimes causes an imperfect or difficult operation of the machine. Furthermore, much difficulty has been experienced in vending machines which are designed to vend spherical or similar shaped articles because of the articles contained in the hopper compacting, adhering, or assuming such a stable arrangement that they will not feed to the delivery mechanism as required to replace those articles withdrawn by operation of the machine. This stable arrangement of the articles sometimes presents the appearance of a full hopper when in fact it may be nearly empty. Various devices have heretofore been employed to agitate the articles in the hopper to assure a uniform feeding thereof to the delivery mechanism. These agitating devices have generally consisted of an upstanding pin in the containing hopper which is designed to move through and agitate the articles with each operation of the machine. However, it sometimes happens that an arch or cavity caused by the jamming or compacting of the articles will form over the delivery mechanism in such a way that this pin will not be effective to agitate the articles and they will consequently not be delivered when the machine is operated.

We have obviated each of these as well as other objections by providing a preferably integral structure within the containing hopper which will positively agitate and rearrange the articles in the hopper with each operation of the machine, and will also serve to support the articles contained in the hopper, so that excessive weight on the delivery mechanism will be eliminated. This device also serves to feed the articles contained in the hopper to the delivery mechanism in such quantities as required to replace those articles which are withdrawn by operation of the machine, but will not permit such a number or quantity of the articles to feed to the delivery mechanism as would interfere with proper functioning thereof.

A further objection to prior machines has been the fact that defective design of such machines has enabled the operator to obtain from the machine with a single coin or check more articles than he is entitled to obtain. This defect in prior machines we have eliminated by the provision of a novel ratchet and pawl structure which will positively prevent any reverse movement of the delivery mechanism by which it might be possible for the operator to obtain more articles than he had deposited checks or coins to pay for. Another function of this novel device is to properly align the selector plate with the actuating device after each operation, and thereby insure positive and reliable operation of the machine.

One of the objects of our invention is to provide in the article-containing hopper of a vending machine a suitable supporting, feeding and agitating device which will support the weight of the articles in the hopper and thereby relieve the delivery mechanism of unnecessary weight which is apt to cause imperfect or irregular operation. This novel device also serves to feed the articles from the containing hopper to the delivery mechanism as articles are withdrawn therefrom by operating the machine, but will feed only such numbers or quantities of articles to the delivery mechanism as required to replenish the same after operation. A further function of this device is that of agitating or moving the articles in the containing hopper so as to positively prevent any failure in the operation of the machine due to the articles in the hopper adhering to each other or assuming a stable arrangement in which they will not feed to the selecting and vending mechanism as required for proper operation of the machine.

A further feature of our invention is the provision of a novel closure plate of improved design for the coin-receiving compartment, which will effectually prevent per-

sons from inserting small objects, such as wire, into the coin compartment and removing the coins or checks therefrom. This object we accomplish by providing the bottom of the machine and the closure plate with interfitting flanges which are held in close contact with each other by a novel pin and socket arrangement, which will cause the closure plate and the bottom of the machine to tightly interfit with each other.

A still further object of our invention is to provide an improved vending mechanism which is very simple in construction, contains a minimum number of moving parts, which will be easily accessible for cleaning and repair, and will be positive and reliable in operation. By the provision of a suitable selector plate in this vending device, the number or quantity of articles vended will automatically change in a predetermined manner as the operation of the machine is continued. This plate, which can easily be removed and replaced with another having a different construction, will change the number of articles vended by successive operations of the machine so that at one time one number of articles will be vended and at another or subsequent operation a different number of articles will be vended.

Various other features of our invention will be apparent as this description progresses, and will be brought out in the appended claims. The various objects of our invention are preferably obtained by the structure illustrated in the drawings wherein similar reference characters designate corresponding parts and wherein:

Figure 1 is a perspective view with parts cut away, showing our improved vending machine.

Figure 2 is a plan view of the delivery mechanism which is shown both in operative and in inoperative positions.

Figure 3 is a section through the vending mechanism on the section line 3—3 of Figure 2, which shows the position of the various parts of the vending mechanism at the completion of the delivery operation.

Figure 4 is a partial section through the base of the machine which shows our novel method of securing the closure plate in position.

Figure 5 is a fragmentary section through the base of the machine which shows the method of securing the base of the machine and the closure plate in tightly fitting relation to each other.

Figure 6 is a fragmentary vertical section through the base of the machine showing the means for retaining the closure plate in position.

Figure 7 is a perspective view of the base of the machine and the delivery mechanism arranged on the central shaft of the machine.

Figure 8 is a perspective detail view of the base of the machine and the base plate upon which parts of the delivery mechanism are arranged.

Figure 9 is a plan view of our novel agitating device.

Figure 10 is a plan view of our novel selector plate.

Figure 11 is a section through the coin control device taken on the line 11—11 of Figure 2.

The individual parts of our novel vending machine will now be discussed with reference to their construction and respective functions and finally a statement of operation will be given which will set forth in detail the interrelation and cooperative functioning of the entire apparatus.

The base structure of our invention is shown as comprising a suitable hollow base portion 1, which may be of any desired shape or material, and which serves as a support for the machine and is also adapted to receive and contain the coins or checks after they have passed through the operating mechanism in a manner to be hereinafter explained. This base 1 may be provided with an apertured bracket member 2, which is designed to engage with any suitable stationary bracket member (not shown), to securely hold the machine in the desired position. Base 1 may be formed with a downwardly extending offset flange 3. Above the flange 3, the base 1 is provided with an aperture 4, the longitudinal axis of which is inclined inwardly at an angle to the horizontal base 1. Opposite the aperture 4, the base 1 is provided with another opening 5 which, together with aperture 4, serves to engage and securely hold in position a suitable base closure plate 6.

This base closure plate 6 may be formed with a flange member 7, which interfits with base 1 as shown in Figure 1. This base plate 6 is provided with a lug 8, through which projects the pin 9. Opposite the lug 8 on the closure plate 6 is provided another lug 10, a portion of which is apertured and projects through opening 5 in the base 1 when the closure plate 6 is in position. To prevent the machine from scratching or otherwise marring any surface upon which it rests, we have provided the closure plate 6 with a plurality of cushioned supports 6a.

The closure plate 6 is secured to the base 1 by the novel method which we have illustrated in Figures 4, 5 and 6. From Figure 4 it will be obvious that when base 1 is tilted from the horizontal, pin 9 of closure plate 6 will slidably engage with the inclined aperture 4 in the base 1. From this tilted position of the base 1, as shown in Figure 4; said base is lowered to the horizontal position shown in Figure 5, so that the flange member 7 of closure plate 6 will tightly coact with the flange member 3 of the base 1, and

the apertured portion of the lug 10 of the closure plate 6 will pass through the opening 5 in the base 1, in which position it may be removably secured by engaging with the shackle of a suitable lock 11, as shown in Figure 1. This arrangement of the base closure plate 6 will positively prevent persons from inserting small objects between the closure plate 6 and the base of the machine 1 and removing the coins or checks from the coin-containing compartment 28.

The casing member 14 is mounted upon the base 1 and aligned therewith by suitable pins 12, engaging lugs 13 in the base 1. This casing member 14 may be provided with an inclined chute 15, shown in dotted lines in Figure 8, which terminates in a discharge spout 16, closed by gate 17 which is pivotally suspended by trunnions 18 resting in grooves 19 in casing 14.

It will be obvious that any articles discharged from the machine will first traverse the inclined chute 15 and finally lodge against the gate 17 on spout 16, from which spout they may be readily removed by lifting said gate 17. The purpose of providing the inclined chute 15 between the opening 20 in the base plate 21 of the machine and the discharge spout 16 is to prevent persons from operating the machine by inserting objects into the spout 16 and moving the delivery plate 22 in such a manner as to deliver articles from the machine. This arrangement of the opening 20 in the base plate 21 and the spout 16 whereby they are laterally displaced with the chute 15 intervening, assists in keeping the articles in a sanitary condition by making the opening 20 less excessible to dust and moisture-laden air, etc.

The base plate 21 upon which the delivery mechanism is arranged is mounted upon casing member 14 and is aligned therewith. This base plate 21 is provided with an opening 20, shown in Figure 8 and in dotted lines in Figure 7, which registers with the inclined chute 15 in the casing member 14. This base plate 21 is further provided with a coin or check opening 23, shown in Figure 8 and in dotted lines in Figure 7, which permits any proper coin or check to pass into the coin or check compartment 28, after operation of the machine. In the base plate 21, another opening 24, shown in Figure 8 and in dotted lines in Figure 7, is provided immediately beneath the coin or check slot 25 in the top plate 26. This opening 24 in the base plate 21 is provided to permit any spurious coin or check or one which is too small to be supported in slotted lug 54 by shoulder 63, to pass into the coin or check compartment 28 and so prevent operation of the machine by such improper coin or checks.

The top plate 26 is mounted upon the base plate 21 and is properly aligned therewith. This top plate 26 is provided with a suitable coin or check slot 25 and is formed with an inwardly extending lobe 27, which is vertically aligned with the opening 20 in the base plate 21. Since the lobe 27 is vertically aligned with the opening 20 in base plate 21, it will effectually prevent any articles from escaping from the containing hopper 29, except those which are carried into registry with the opening 20 in base plate 21 by the movement of the selector plate 22. Resting upon a suitable gasket 30 on the top plate 26 is a glass-containing hopper 29, which is designed to contain a quantity of the articles to be vended from the machine.

These various members are secured in their respective positions by a central shaft 31, which passes through the cross-bar portion 32 of the base 1 and a similar cross-bar portion 33 in the hopper retaining ring 34 and may be removably secured to these cross-bars 32 and 33 by suitable wing nuts 35. To provide for the removal of the containing hopper 29 without disturbing the assembly of the base 1, the casing member 14, or the base plate 21, we have independently secured these units in position by the pin 36, which passes thru an opening in the central shaft 31, just above the base plate 21, as is clearly shown in Figures 1, 7 and 8.

The hopper-retaining ring 34 may be formed with an inner flange portion 37, which coacts with the containing hopper 29 in such a way as to prevent lateral displacement of either the retaining ring 34 or the containing hopper 29. The lower portion of the containing hopper 29 is held against lateral movement by an upwardly extending flange 38 on the top plate 26. The hopper-retaining ring 34 is formed with a recessed lug 39 on one side for the reception of a pin 40 formed on the cap plate 41, and on the opposite side with a forked extension 42, into which a pierced lug 43 on the cap plate 41 enters, being secured thereto with a suitable lock 44. Between the retaining ring 34 and the containing hopper 29, we provide a suitable gasket 45 to prevent the metal retaining ring 34 from contacting with the glass containing hopper 29.

The delivery mechanism comprises first an oscillating vender lever plate 46 (Figure 7) which is rotatably mounted upon the central shaft 31 and upon a hub bearing 47 on the base plate 21. This vender lever plate 46 is provided with a lever handle 48 which projects through the base plate 21 and serves to assist in vending the articles from the machine in a manner which will hereafter appear. On either side of the lever handle 48, and circumferentially of said plate 46, we have provided guard members 49 which close the opening in the base plate 21 through which the handle 48 projects, so as to prevent the insertion of any object into

the delivery mechanism by which it might be possible to operate the same. The movement of this lever handle 48 on the oscillating vender lever plate 46 is limited by suitable shoulders 50, and lug 51 on base plate 21 with which the heel of vender lever 46 contacts when said lever is in inoperative position as shown in Figure 2. This vender lever plate 46 is held in the position shown in Figure 7 by means of the resilient member 52, one end of which is secured through an opening 52ª to the bottom of the base plate 21, and the other end of which is secured to the vender lever plate 46 at 53. This resilient member 52 will return the vender lever plate 46 to inoperative position after the operation of the machine at which time the heel of vender lever plate will contact with lug 51 on base plate 21 and thereby align slotted lug 54 on vender lever plate 46 with coin slot 25 on top plate 26 to prepare the machine for the next operation. This vender lever plate 46 is further provided with a slotted lug 54, into which any suitable coin or check deposited in slot 25 lodges and is held in operative relation between said vender lever plate 46 and one or another of the notches 55 in the selector plate 22 by shoulder 63 shown in Figure 11. When the forward movement of vender lever plate 46 is completed and handle 48 abuts against shoulder 50, the coin or check retained in the slotted lug 54 by shoulder 63, which terminates at the edge of opening 23 (Figure 2) will drop through the opening 23 in the base plate 21 into the coin-containing compartment 28 in the base of the machine, but, if the coin or check deposited into slot 25 is too small, the same will not be supported by shoulder 63, and while actuating plate 46 is in inoperative position, will drop through the opening 24 in the base plate 21 immediately beneath the coin slot 25 in the top plate 26. This vender lever plate 46 is further provided with an opening 56 which, when the vender lever plate 46 is in operative position will register with opening 20 in the base plate 21 and when the vender lever plate 46 is in inoperative position, the opening 56 will be over the solid portion of the base 21, as shown in Figure 7.

The function of vender lever plate 46 is to impart a step-by-step rotary motion to the selector plate 22, and so successively carry the articles lodged in the openings 60 of said selector plate 22 under the lobe 27 of the top plate 26, and into registry with the opening 20 in the base plate 21. At the same time, the opening 56 in the vender lever plate 46 will also be in registry with said opening 20, and the articles contained in the openings 60 of the selector plate 22 will consequently be discharged into the chute 15 and so into the spout 16, from which they can be easily removed by raising gate 17.

It will be understood that, while we have shown the vender lever plate 46 as being in the shape of a disc, the same might be of any other suitable shape, for instance, that of a bell-crank having at its ends the slotted lug 54 and the handle 48, in which case said plate 46 would not have the opening 56 such as we have described.

The selector plate 22 is mounted upon the central shaft 31 above the vender lever plate 46, and rests upon the hub 47 on the base plate 21. This selector plate 22 is formed with a plurality of openings 60 therein, which may be arranged as shown in Figure 10 for a purpose which will hereinafter appear. The periphery of this selector plate 22 is provided with a plurality of notches 55 and ratchet teeth 61 intermediate said notches, the purpose of which will hereafter be explained. The articles from the containing hopper 29 lodge in the openings 60 of the selector plate 22 and by the intermittent rotation of said selector plate 22 by the vender lever plate 46, are carried under the lobe 27 on the top plate 26 and into registry with the opening 20 in the base plate 21, at which time the opening 56 in the vender lever plate 46 is also in register with lobe 27 and opening 20 in the base plate 21, so that any article contained in the openings 60 will pass therefrom through the opening 56 in the vender lever plate 46 and opening 20 in the base plate 21 and so into the inclined chute 15 to the discharge spout 16, from which they can be easily removed by lifting gate 17.

The article-containing openings 60 are arranged in the selector plate 22 in such a manner, in the same horizontal plane that one or more thereof will register with the opening 56 in the base plate 46 and so deliver from the machine one or more articles with each operation. This novel arrangement whereby we are able to deliver from the machine varying numbers of articles, is clearly shown in Figures 2 and 10, wherein one of the possible arrangements of the openings 60 causes the machine to deliver in sucession 1, 2, 1, 2 and 3 articles. It will be understood that the openings 60 may be arranged in any desired manner in the selector plate 22 to deliver either single articles or combinations other than that shown.

When a suitable coin or check 62 is deposited in slot 25 it will lodge between the slotted lug 54 on vender lever plate 46 and the adjacent notch 55 in the selector plate 22 and be supported therein by a suitable shoulder 63 upon the base plate 21, as shown in Figures 2 and 11. This coin or check 62 will lock the vender lever plate 46 to the selector plate 22 so that any movement of the former will cause a corresponding movement of the latter. As has been heretofore mentioned, any coin or check which is too small

to be supported between the slotted lug 54 and the notches 55 by the shoulder 63 on base plate 21, will drop through the opening 24 in the base plate 21 and so not be effective to lock the vender lever and selector plates in the manner necessary for operation. When the handle 48 has reached the position shown in dotted lines in Figure 2, which position represents the completion of the vending operation, the coin or check between the vender lever plate and the selector plate will, because of reaching the end of shoulder 63, drop through an opening 23 and into the coin compartment 28 in the base of the machine. When this operation is completed, the vender lever plate 46 will be returned to inoperative position by the spring 52, but the selector plate 22 will be prevented from any reverse movement by a pawl 64 engaging with the notches 55 or the teeth 61 on the periphery of the selector plate 22.

The selector plate 22 is provided with the openings 60 which are grouped or arranged in such a manner that sectors of the plate 22 are provided with different numbers of article-containing openings therein. The purpose of providing the selector plate 22 with different numbers of article-containing openings is to afford some inducement to the operator by leaving undetermined the number of articles that will be v nded on the next or succeeding operations of the machine. This mechanical profit sharer causes the operator to take added interest in the machine and so operate the same oftener than would otherwise be the case.

A pawl member 64 is pivoted upon the base plate 21, and is held in contact with the notches 55 and the teeth 61 on the periphery of selector plate 22 by a resilient member 65, one end of which is secured to the base plate 21 and the other end to the pawl 64. This pawl structure serves to prevent any reverse movement of the selector plate 22 and is also adapted to align the notches 55 and the slotted lug 54. The construction of this pawl 64 is clearly shown in Figure 2, from which it will be seen that this pawl is adapted to drag over and engage with the teeth 61 and notches 55 as the selector plate 22 is revolved. This pawl 64 is formed with a peculiarly shaped head which besides locking and so preventing any reverse movement of plate 22, will also by reason of its angular faces align one of the notches 55 with the slotted lug 54 on the vender lever plate 46.

The selector plate 22 is provided with a hub 66, into which are secured the resilient key members 67 with which the agitating plate 68 engages. This agitating plate 68 is mounted upon the central shaft 31 and is provided with a plurality of openings 69 adjacent its center, which openings are designed to engage with the resilient pins 67 in the hub 66 of the selector plate 22. It will thus be obvious that any movement of the selector plate 22 will also move the agitating plate 68. This agitating plate 68 can be removed from the pins 67 by manual effort; however, it is held by such force as to prevent the articles between said agitating plate 68 and the selector plate 22 from unseating the same. The openings 69 in the article supporting or agitator plate 68 are of such size as shown in Figures 2 and 3 as to permit the plate to be moved upwardly to a limited degree by the pressure exerted thereon by the articles. The plate 68 is prevented from becoming unseated by the uplift force of the articles by the resilient pins 67 passing through the openings 69 of the agitator plate 68 securely held in the hub 66 of the selector plate 22. This agitating plate 68 is formed with radially extending ribs 70 which project beyond the intermediate web portion 71. This agitating plate 68 is arranged near the bottom of the containing hopper 29 in such a way as to support the weight of the articles contained in said hopper 29. Between the circumference of the web portion 71 of the agitating plate 68 and the walls of the containing hopper 29 is an annular space through which a single layer of the articles from the containing hopper 29 pass onto the selector plate 22. With each operation of the machine, the agitating plate 68 is revolved. This movement of the agitating plate 68 will agitate and rearrange the articles in the hopper 29 and thereby prevent any failure in the operation of the machine due to the articles contained in hopper 29 compacting, adhering or assuming such a stable arrangement that they will not feed to the selector plate 22. The space between the agitating plate 68 and the selector plate 22 is only large enough to contain a few articles, so that there will be no unnecessary weight on the selector plate 22 and not enough articles between the two plates to arch or otherwise interfere with the articles entering the openings 60 in the selector plate 22.

The operation of our novel vending machine is as follows:

The cap plate 41 is removed and the articles are placed into containing hopper 29 in any convenient manner. The articles in containing hopper 29 will be supported above the delivery mechanism by the agitator 68 which will also agitate the articles in containing hopper 29 with each operation of the machine. The agitator 68 will also feed the articles from containing hopper 29 to the selector plate 22 as required to replace any articles withdrawn by operation of the machine. The articles pass in a single layer downwardly through the annular space between the periphery of the agitator 68 and the walls of containing hopper 29 onto the

selector plate 22 and lodge in the openings 60.

When a suitable coin or check is inserted in the slot 25, it will lodge between the slotted lug 54 on vender lever plate 46 and one of the notches 55 in selector plate 22 and be supported therein by shoulder 63 on base plate 21. This coin or check will lock the vender lever and selector plates together so that when said vender lever plate 46 is moved by handle 48, the selector plate 22 will also be moved a corresponding distance. When one of the notches 55 in selector plate 22 is adjacent the slotted lug 54, a certain number of the openings 60 will be aligned with opening 56 in vender lever plate 46. It will thus happen that when vender lever plate 46 is revolved by lever handle 48, the articles contained in the openings 60 directly over the opening 56 in vender lever plate 46 will be carried beneath lobe 27 on the top plate 26 and into registry with opening 20 in the base plate 21. It will thus be obvious that the articles contained in the openings 60 beneath lobe 27 will be discharged through opening 56 in vender lever plate 46, through opening 20 in base plate 21 and into the inclined chute 15 in the casing member 14 and from there into spout 16 against gate 17 from which they can be readily removed by lifting said gate.

During the movement of selector plate 22 the pawl 64 drags over the ratchet teeth 61 and prevents any reversal in the movement of said plate. When delivery plate 22 has reached the position shown in Figure 3, the pawl 64 will enter another notch 55 and by reason of the angular faces thereof pressing upon the sides of notch 55, it will positively align another notch 55 with the slotted lug 54 and so prepare the machine for another operation.

From the foregoing description it will be clearly understood that we have produced a vending machine which is notably free from the difficulties and imperfections of the prior art, and a machine in which are embodied many entirely new features. Our novel vending machine, for example, provides means for positively positioning and aligning the various parts thereof for cooperative action after each operation, thereby making the operation more reliable. The vending mechanism is protected from fraudulent operation by a novel detent device which coacts with the selector means, and also by coin retaining devices which will effectually prevent improper coins from operatively engaging in the delivery mechanism.

The novel arrangement of elements in the vending mechanism makes for many improvements in construction, reliability and operation. The vending mechanism requires little or no attention and is provided with means for overcoming the conditions which we have found occasion most failures in vending machine operation. The vender lever plate is adapted to seal the article-containing hopper and keep the articles therein in a sanitary condition and away from the air, dust and moisture.

Our novel agitating device greatly improves the functioning of vending machines in that many of the objections heretofore existing in such machines have been obviated by its provision. The articles are supported on a separate means thereby relieving the selector plate web portion of excessive weight, the articles are also positively agitated and rearranged in the hopper to ensure a constant feeding thereof to the delivery mechanism. A further important function of this device is that of feeding the articles from the containing hopper to the selecting and delivery mechanism in regulated and usable quantities.

Having thus described our invention, what we claim is:

1. A vending machine comprising a selector plate and a rotatable plate above said selector plate and spaced therefrom at such a distance as to permit only one layer of the vended material to rest on said selector plate.

2. A vending machine comprising a selector plate and a rotatable agitator plate above said selector plate and spaced therefrom at such a distance as to permit only one layer of the vended material to rest on said selector plate.

3. A vending machine comprising a selector plate and a rotatable plate with agitator fingers thereon above said selector plate and spaced therefrom at such a distance as to permit only one layer of the vended material to rest on said selector plate.

4. A vending machine comprising a hopper, a selector plate, having a plurality of article-receiving pockets normally open at their receiving ends, and a rotatable plate spaced above said selector plate a sufficient distance to ensure that there will never be more than a single layer of articles upon said selector plate.

5. A vending machine comprising a hopper, a selector plate having a plurality of article-receiving pockets normally open at their receiving ends, a rotatable plate spaced above said selector plate a sufficient distance to ensure that there will never be more than a single layer of articles upon said selector plate, said rotatable plate being spaced to permit the passage of a single layer of articles downwardly between the edge of said rotatable plate and the walls of said hopper, and means for rotating the said plate.

6. In a machine for vending spherical articles of approximately uniform size, a magazine having a base forming bottom thereof

comprising a selector plate having a plurality of openings therein, and means disposed within the magazine and spaced above said selector plate a sufficient distance so as to permit the feeding of only sufficient articles to said plate to occupy the openings therein and form a single layer upon said plate which is separated from the article above to prevent the articles contained in the magazine above the said layer from interfering with the free movement of the articles comprising such layer.

7. In a machine for vending spherical articles of approximately uniform size, a selector plate provided with a plurality of notches about the periphery thereof and having openings therein for the reception of an individual article only in each of said openings, and a disc-like member disposed above said plate and spaced therefrom to permit an article to pass between the said plate and disc member for supporting, agitating, and feeding the articles from the said magazine to said selector plate.

8. In a machine for vending spherical articles of approximately uniform size, a selector plate provided with a plurality of notches about the periphery thereof and having openings therein for the reception of an individual article in each of said openings, and a disc-like member disposed above the said plate and spaced therefrom for supporting, agitating and feeding the articles from the said magazine to said selector plate, said disc-like member being provided with radial fins terminating at a point beyond the periphery of said member.

9. In a machine for vending spherical articles of approximately uniform size, a magazine, a selector plate provided with a plurality of notches about the periphery thereof, the said notches defining a plurality of sections and each section having an opening for the reception of spherical articles therein, a disc-like member disposed above said selector plate and spaced therefrom for supporting, agitating and feeding the said articles to said plate, and means for delivering the articles contained in said openings.

10. In a machine for vending spherical articles of approximately uniform size, a magazine, a selector plate provided with a plurality of notches about the periphery thereof, the said notches defining a plurality of sections and each section having an opening for the reception of spherical articles therein, and a lever plate provided with an opening positioned below said plate and adapted to align the said opening with the openings in the said selector plate when the lever plate is in operative position.

11. In a vending machine for vending spherical articles of approximately uniform size, a magazine, a base member provided with an opening therein, a selector plate provided with a plurality of notches about the periphery thereof, the said notches defining a plurality of sections and each section having an opening for the reception of spherical articles therein, a lever plate intermediate said base member and said plate adapted to operate said selector plate and discharge the articles in said openings through the opening in said base member.

12. In a machine for vending spherical articles of approximately uniform size, a magazine, a base member provided with an opening therein, a selector plate provided with a plurality of notches about the periphery thereof, the said notches defining a plurality of sections and each section having an opening therein, a lever plate provided with an opening therein intermediate said base member and said plate adapted to operate said selector plate to discharge the articles in the said openings therefrom.

13. In a machine for vending spherical articles, a magazine, a selector plate provided with a plurality of notches about the periphery thereof, the said notches defining a plurality of sections and each section having an opening for the reception of spherical articles therein, and mechanism for discharging the articles from the openings in said sections.

14. A vending mechanism comprising a selector plate having a plurality of peripheral notches said selector plate divided into one section for each notch, pockets for each section, a plurality of ratchet teeth for each section to render imperative the complete positioning of each section over the delivery opening before the vender lever plate can be returned for another operation.

15. A vending mechanism for a vending machine including a selector plate, a base plate with an opening therein operatively connected therewith, a vender lever plate above said base plate, said vender lever plate being adapted to close the opening in said base plate when in inoperative position.

16. In a vending machine, a selector plate, an article supporting plate mounted upon said plate, and means for permitting the article supporting plate to be moved upwardly to a limited degree by the pressure exerted thereon by the articles but preventing the unseating of said plate by the uplift force of the articles.

17. In a vending machine, a selector plate, an article supporting plate mounted upon said plate, and means carried by said selector plate for securing said article supporting plate to said selector plate, said means permitting the article supporting plate to be moved upwardly to a limited degree by the pressure exerted thereon by the articles but preventing the unseating of said plate by the uplift force of the articles.

18. In a vending machine, a hopper, a se-

lector plate beneath said hopper, an article supporting plate disposed within said hopper and mounted upon said plate, and means carried by said selector plate for securing said article supporting plate to said selector plate, said means permitting the article supporting plate to be moved upwardly to a limited degree by the pressure exerted thereon by the articles but preventing the unseating of said plate by the uplift force of the articles.

19. In a vending machine, a base portion having an opening in one side thereof, and a closure plate having a pin mounted rigidly thereon adapted to engage with the said opening in said base portion to wedgingly hold said plate against the sides of said base portion, the walls of said opening being at an angle to the longitudinal axis of the said pin.

In testimony whereof we affix our signatures.

LOUIS V. KUHN.
FRANK H. VOGEL.

lector plate beneath said hopper, an article supporting plate disposed within said hopper and mounted upon said plate, and means carried by said selector plate for securing said article supporting plate to said selector plate, said means permitting the article supporting plate to be moved upwardly to a limited degree by the pressure exerted thereon by the articles but preventing the unseating of said plate by the uplift force of the articles.

19. In a vending machine, a base portion having an opening in one side thereof, and a closure plate having a pin mounted rigidly thereon adapted to engage with the said opening in said base portion to wedgingly hold said plate against the sides of said base portion, the walls of said opening being at an angle to the longitudinal axis of the said pin.

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CERTIFICATE OF CORRECTION

Patent No. 1,651,605. Granted December 6, 1927, to

LOUIS V. KUHN ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 39, for the word "excessible" read "accessible"; page 4, line 114, for the misspelled word "sucession" read "succession"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of February, A. D. 1928.

M. J. Moore,
Acting Commissioner of Patents.

Seal.

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