Oct. 21, 1930. G. E. NORRIS 1,778,833

VENDING MACHINE

Filed March 13, 1928 7 Sheets-Sheet 1

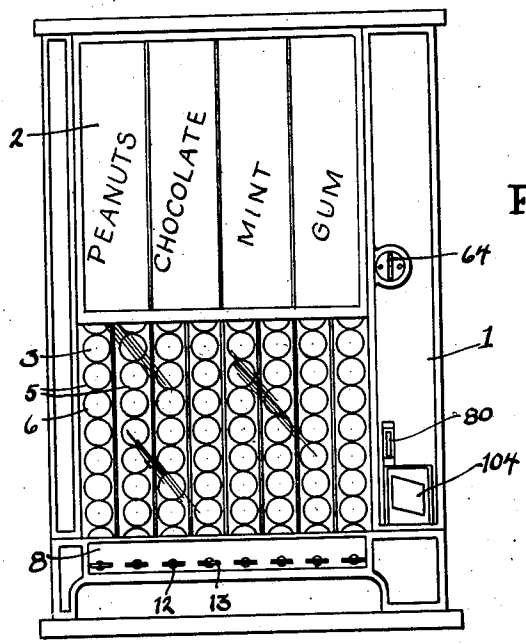


FIG. 1

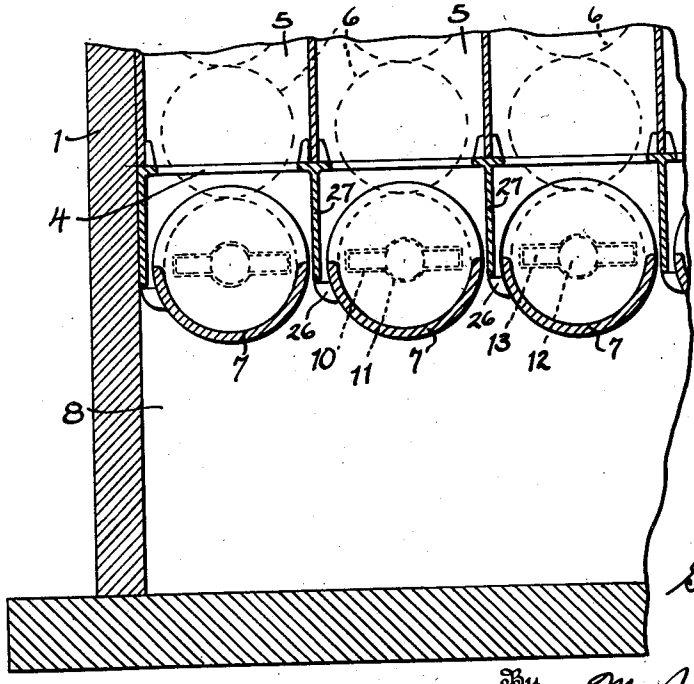


FIG. 2

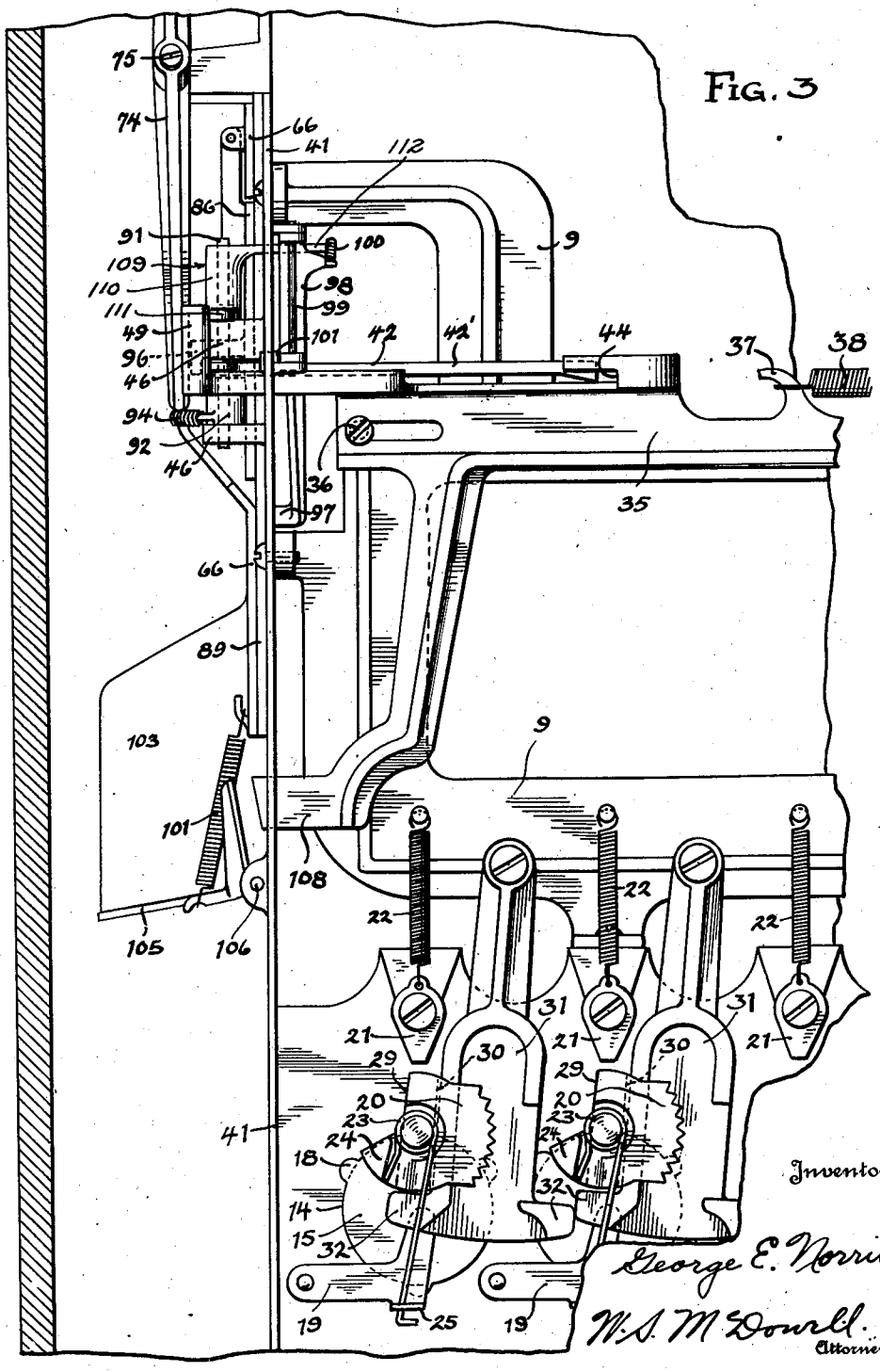
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VENDING MACHINE

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FIG. 3



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VENDING MACHINE

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FIG. 4

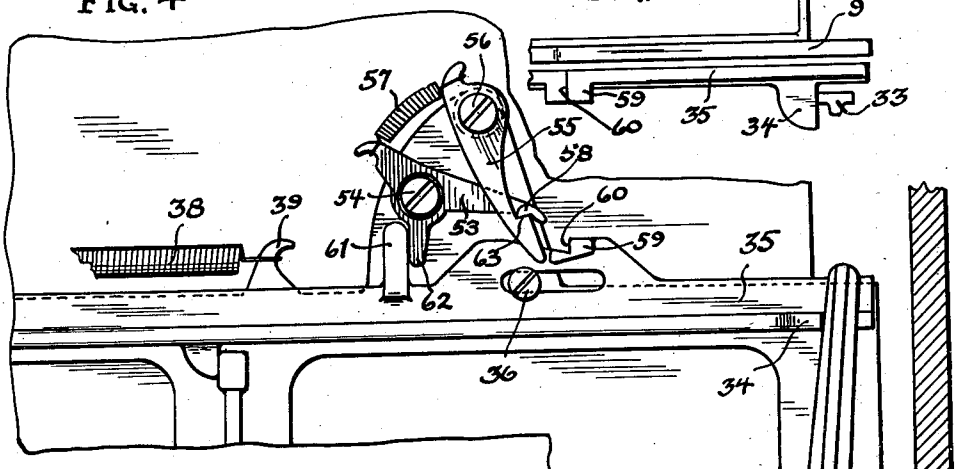
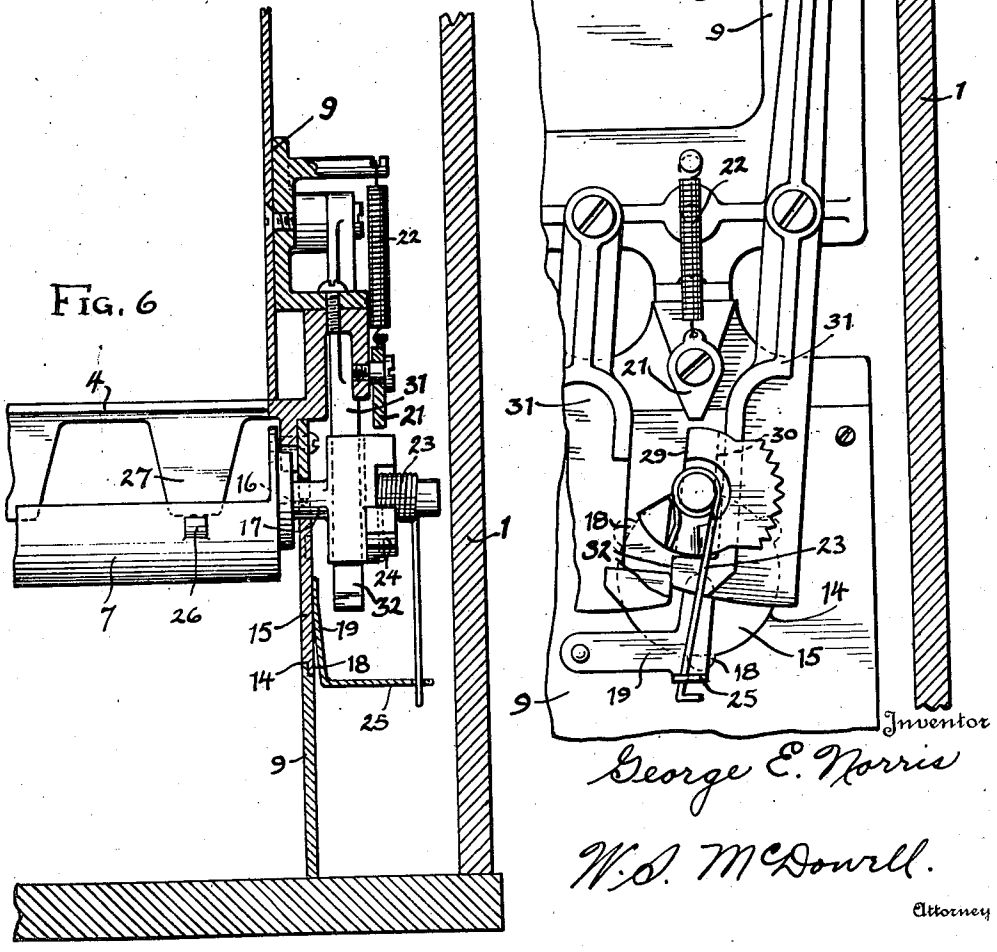


FIG. 5

FIG. 6



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VENDING MACHINE

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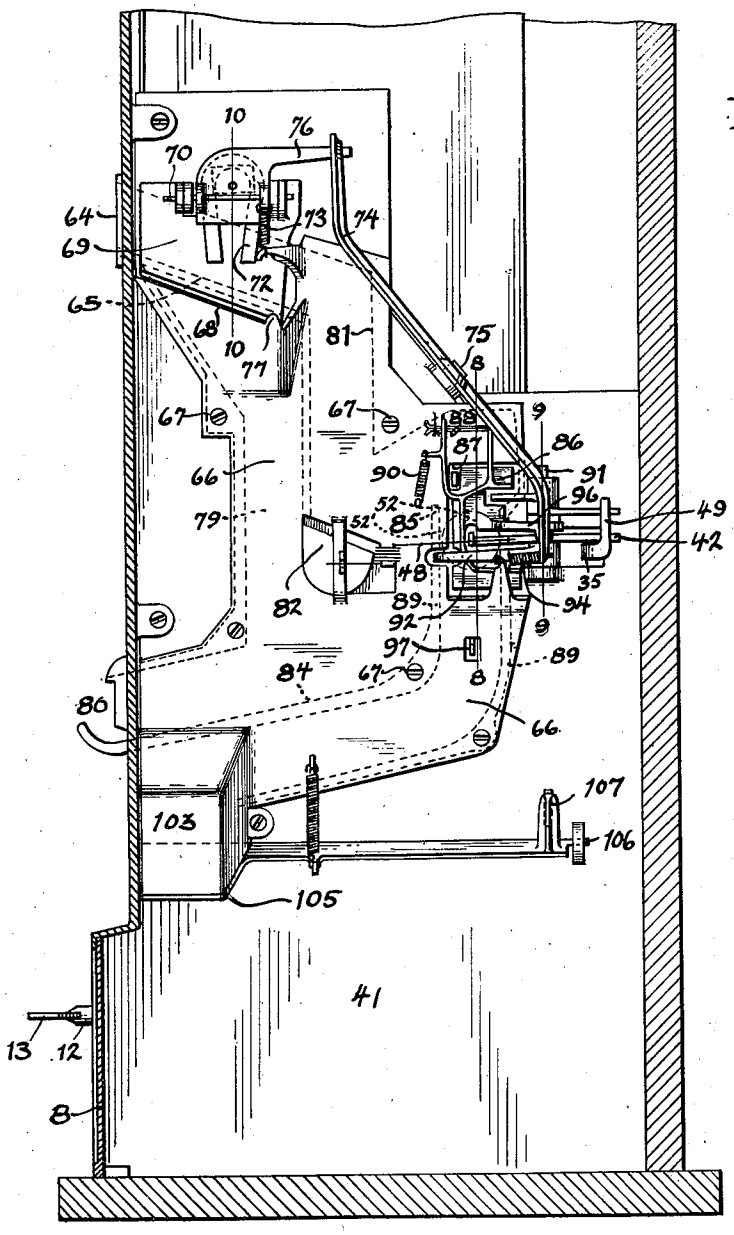


FIG. 7

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VENDING MACHINE

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FIG. 8

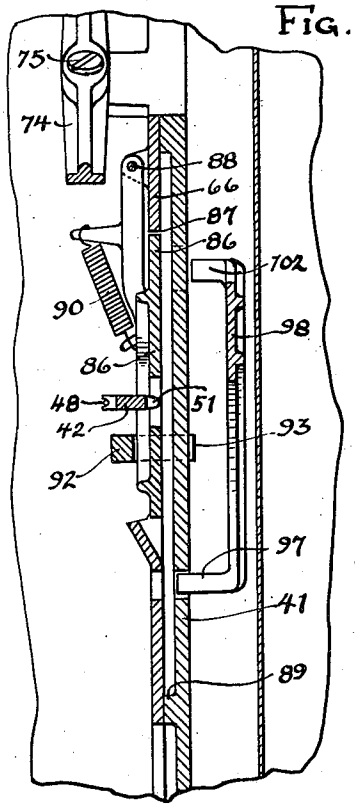
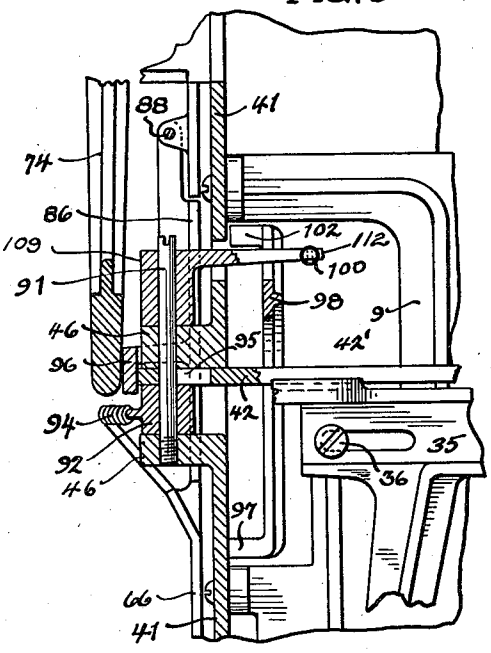


FIG. 9



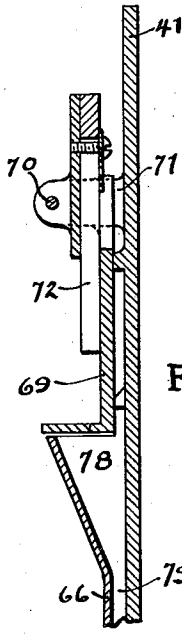
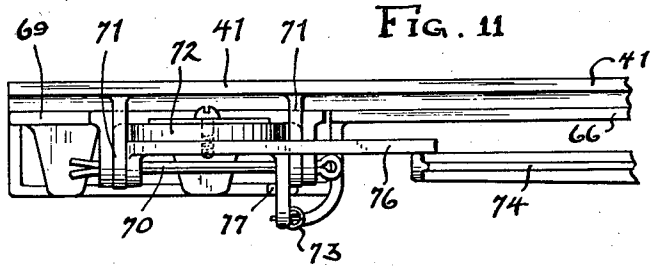


FIG. 10

FIG. 11



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VENDING MACHINE

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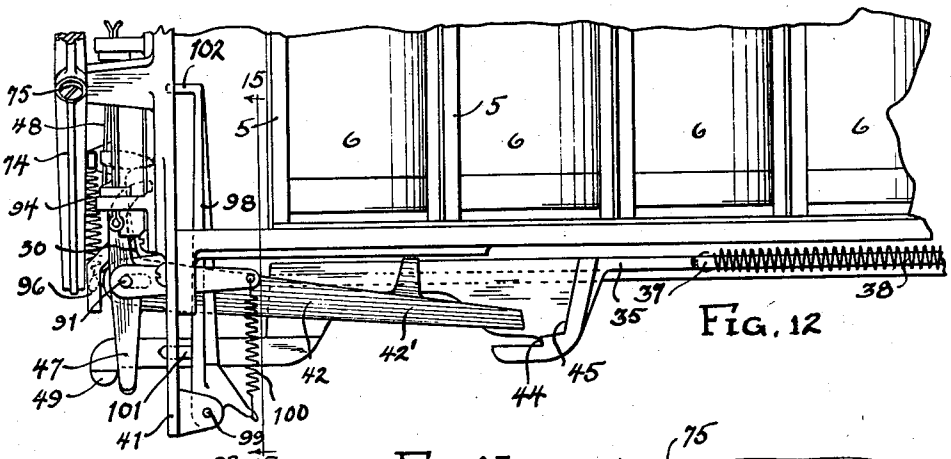


FIG. 12

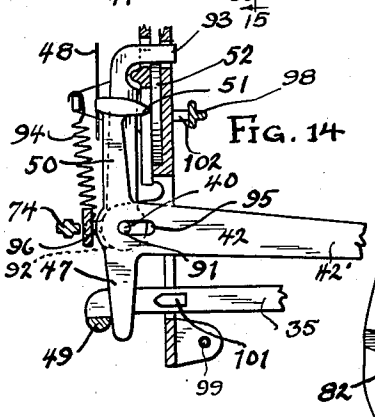


FIG. 14

FIG. 15

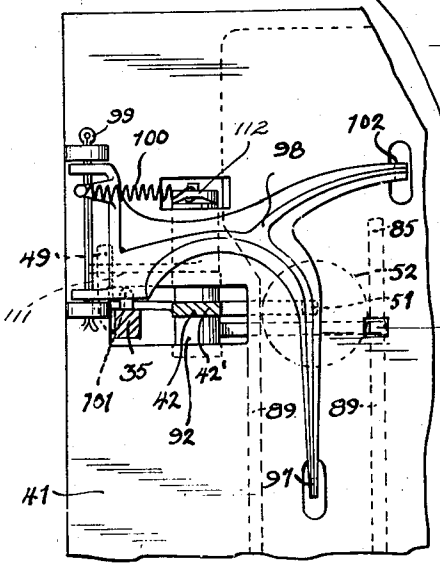
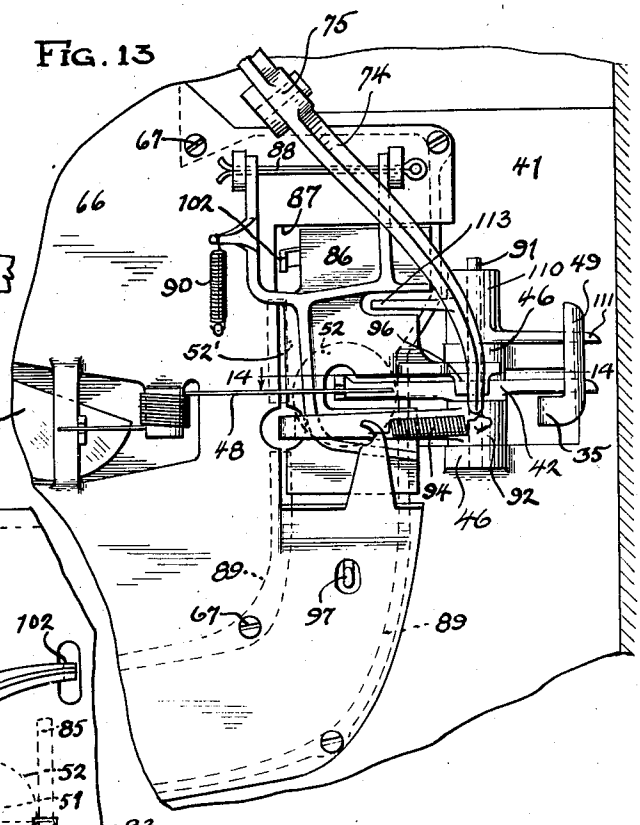


FIG. 13



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VENDING MACHINE

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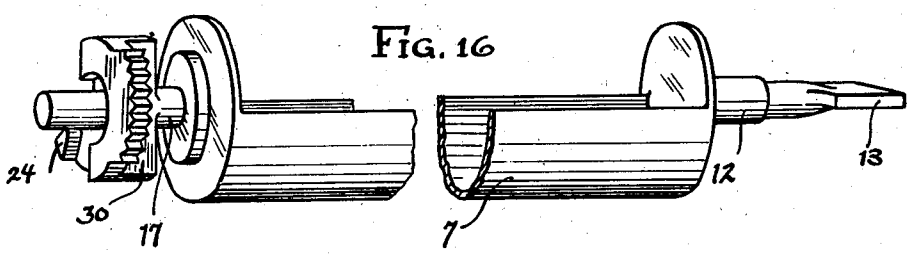


FIG. 16

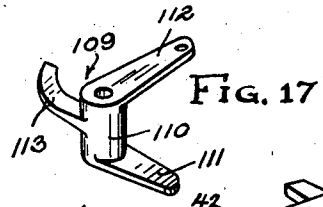


FIG. 17

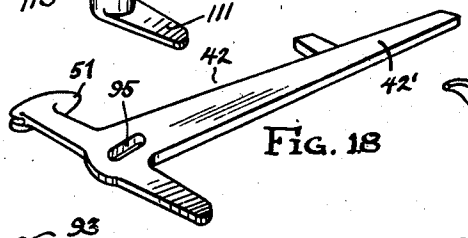


FIG. 18

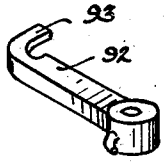


FIG. 19

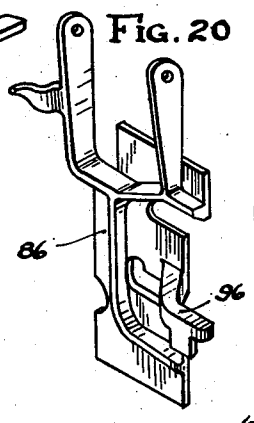


FIG. 20

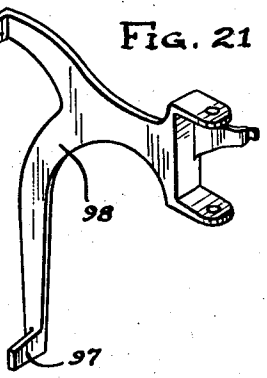


FIG. 21

FIG. 22

FIG. 24

FIG. 23

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Patented Oct. 21, 1930 1,778,833

UNITED STATES PATENT OFFICE

GEORGE E. NORRIS, OF COLUMBUS, OHIO

VENDING MACHINE

Application filed March 13, 1928. Serial No. 261,202.

This invention relates to improvements in coin controlled vending machines, and has for a primary object the provision of positive and improved vending mechanism wherein is embodied a plurality of selectively operable vendors, which have their operation governed by a single coin controlling means.

Another object of the invention resides in a vending machine wherein upon the deposit of a proper coin the operation of any one of the multiple vendors may be effected but wherein after such operation has been initiated, the remaining vendors will be maintained locked against operation until a full cycle of operation on the part of the selected vendor has been completed. A further object of the invention resides in the provision of a vending machine constructed particularly for the dispensing of substantially cylindrical objects and wherein a rotatable trough member, which rocks about a horizontal axis, is provided in the extreme lower part of each of a plurality of article receiving compartments, in order that the articles to be dispensed may be fed by gravity into the trough members, which are normally held in locked position, but which, upon the operation of the coin controlling mechanism, may be released so that said trough members may be revolved to discharge a single article from each compartment while at the same time sustaining the main bodies of such articles arranged in the compartments above the trough members.

There are many other important objects of the present invention as well as unusual features of construction and design which may be readily understood by reference to the following description and to the accompanying drawings, wherein:

Figure 1 is a front elevation of a vending machine constructed in accordance with the present invention,

Figure 2 is a detail vertical sectional view disclosing the article receiving compartments and the revolving trough members provided in the bottoms thereof,

Figure 3 is a view in elevation looking toward the rear of the vending and coin controlling mechanism, disclosing more particularly the mechanism for governing the release and locking of the trough members,

Figure 4 is a similar view of the sliding master bar which governs the operation of the multiple vendors and illustrating, also, the supplemental locking means for limiting the operation of the machine to put a single trough member upon any given cycle of operation,

Figure 5 is a top plan view of the mechanism disclosed in Figure 4,

Figure 6 is a vertical longitudinal sectional view through one of the rotatable trough members and the mechanism connected therewith for governing or permitting of rotation, thereof,

Figure 7 is a vertical transverse sectional view through the vending machine casing and disclosing in front elevation the coin controlling mechanism,

Figure 8 is a horizontal sectional view taken on the plane indicated by the line 8—8 of Figure 7,

Figure 9 is a vertical sectional view on the plane indicated by the line 9—9 of Figure 7,

Figure 10 is a vertical sectional view taken on the plane indicated by the line 10—10 of Figure 7,

Figure 11 is a plan view of the structure disclosed in Figure 10,

Figure 12 is a fragmentary plan view of the locking bar and the cooperative coin controlled mechanism,

Figure 13 is a view in end elevation of the coin controlling mechanism as seen from the left of Figure 12,

Figure 14 is a sectional view taken on the plane indicated by the line 14—14 of Figure 13,

Figure 15 is a vertical sectional view on the plane indicated by the line 15—15 of Figure 12, looking in the direction indicated by the arrows,

Figure 16 is a detail perspective view of one of the revolving trough members,

Figures 17 to 21 inclusive are perspective views showing the various parts of the coin controlling mechanism,

Figure 22 is a perspective view of the locking bar,

Figure 23 is a similar view of one of the locking fingers,

Figure 24 is an elevation of the inner side of one of the removable disks used in connection with the revolving troughs.

Referring more particularly to the drawing the numeral 1 designates the casing of the vending machine comprising the present invention. In the particular form of the invention here disclosed, the casing is of box like form and includes a front wall 2 provided with a transparent panel 3 through which the contents of the machine may be viewed, as indicated in Figure 1.

Arranged within the casing 1 is a frame structure 4 which supports a plurality of vertically disposed transversely extending walls, which are relatively spaced to produce a plurality of vertically extending article or commodity receiving compartments 5. In this instance the compartments are constructed for the reception of tubular containers 6 in which the merchandise to be dispensed is received. It will be understood that this merchandise may be of any suitable character, such as articles of confectionery, wearing apparel, tobacco and et cetera. I prefer to use the cylindrical container, however, since it simplifies and improves the construction and operation of the dispensing or vending mechanism proper and possesses many advantages over the ordinary rectangular type of box or package. The containers are grouped in vertical order within the several compartments and if desired the front wall 2, above the panel 3, may be provided with suitable indicia pointing out the grade or character of the merchandise contained within the containers of each compartment. Any suitable number of the containers are disposed within each compartment and as the containers are dispensed by the operation of the machine, such containers gravitate toward the bottom of the compartment 5, providing a gravity feed which is both simple and positive. The panel 3 permits the containers within each compartment to be viewed by the purchaser and also enables the latter to note any empty compartment or compartments.

Arranged within the bottom of each compartment is a revolving holder or trough 7. Each of these holders or troughs, as shown in Figure 2, is of semi-circular form and of a diameter conformable to that of the container 6 which it dispenses. The lowermost container is received within the holder or trough and through the provision of correlated apparatus, controlled by a coin, the trough may be rotated about its longitudinal axis so as to effect the discharge of such containers.

To effect the removable support of each of the holders or troughs 7, the frame structure 4 is provided with spaced front and rear walls 8 and 9 respectively. The front wall 8, in advance of each holder, is provided with a slot 10 having an enlarged centrally located bearing portion 11. Receivable within this bearing portion is the operating shaft 12 which projects axially and forwardly from each holder. The extreme forward end of the shaft 12 is provided with a flattened finger engaging web 13 which is arranged to the exterior of the machine, as shown in Figure 1, and may be gripped by the operator or customer for the purpose of revolving a selected holder. It will be observed that the slot 10 possesses slightly greater proportions than the shaft 12 and the bar 13. This is done in order to permit of the removal of the holder from its operative position within the frame structure, the slot 10 allowing the parts 12 and 13 to be moved rearwardly through the front wall 8.

The rear wall 9 of the frame structure, in registration with each of the holders, is provided with a circular opening 14 which possesses a diameter exceeding that of the circular front and rear walls of the holder or trough 7. Receivable within each of the openings 14 is a removable disk 15, which has its periphery provided with a circular recess 16 which is adapted to register with a corresponding recess provided in the rear wall 9. When the recesses 16 are in registration a circular opening is produced which serves as a bearing for the reception of the trunnion stud 17 which projects axially and rearwardly from each of the holders. Each of the plates or disks 15 has its periphery provided with outwardly projecting beads 18, receivable with corresponding sockets formed in the rear wall 9. The beads 18 serve to securely position the disks 15 so that the recess 16 therein will register with the corresponding recess in the rear wall 9. To hold the disk 15 within the opening 14 there is provided for each disk a pivoted keeper 19, which resiliently engages one face of each disk so as to press the latter securely within its seated position within the opening 14. It will be seen by rotating the keeper 19 to a position free of its particular disk 15, the latter may be removed from its operative position within the opening 14. The removal of the disk 15 then permits the holder or trough 7 to be slipped longitudinally and rearwardly out of its supported position within the frame structure 4, enabling repairs and adjustments to be very quickly effected. In addition the construction permits of convenience in the assembly of the holders or troughs in assuming their operative positions.

To govern the rotation of the holders or troughs, each of the latter has its stud 17 provided with a fixed ratchet member 20 and adapted to engage with each ratchet member is a pivoted pawl 21 which is carried in con-

nection with the rear wall 9. The operation of the pawls is rendered positive by connecting with each thereof a coil spring 22, one end of each spring being connected with one of the pawls 21 and the other end with posts which project outwardly from the rear wall 9. The springs 22 thus serve to maintain the pawls 21 normally in substantial vertical positions. The holders or troughs 7 are normally maintained in the position disclosed in Figure 2, by the provision of torsion springs 23. These springs surround the stud 17 and have one end of each thereof bearing upon a lug 24 integrally formed in connection with each of the ratchet members 20. The opposite end of each spring is connected with an outstanding foot 25 provided upon each of the keepers 19. It will thus be seen that the springs 23 serve to rotate the holders or troughs so that the lug 26, provided upon each of said holders will engage with the lower edges of the division walls 27 which separate the compartments 5. When rotated each holder is moved against the resistance offered by its spring 23, the balance of the holders remaining stationary.

When the holders 7 are rotated to discharge a container it will be observed, by reference to Figure 2, that owing to the cross sectional formation of each holder, the latter will act to permit of the discharge of but one container and when in a discharging position the back or bottom of the holder will act to support the containers disposed thereabove. It will be appreciated that the lugs 26 also act to limit the rotation of each holder when the latter is revolved to a discharging position, limiting the rotation of the holder to an arc of substantially 180 degrees. The discharged container is allowed to drop to the bottom of the casing 1 where it can be readily reached through an opening provided in the front wall 2 below the holders.

Each of the studs 17 to the rear of the ratchet member 20 is provided with a web 28 formed to include opposed plane surfaces 29 and 30. Normally arranged to engage with the surfaces 30 of the webs 28 are the side edges of pivotally depending locking fingers 21. These fingers are mounted for swinging movement about horizontally disposed studs projecting from the rear wall 9 of the frame structure. The intermediate portion of the fingers 31 are of such width that the side edges of the fingers engage totally with the surfaces 30 of the webs 28 but not with the surfaces 29 of said webs. The extreme lower end of the locking fingers are widened to produce shoulders 32 which engage with one another, as shown in Figure 3, so that when oscillatory motion is imparted to one of said fingers corresponding motion will be imparted to all.

One of the fingers 31, preferably the finger at the extreme right when looking towards the rear of the machine, is provided with an upstanding arm 33. The upper end of this arm engages with a lug 34 which projects outwardly and laterally from a locking bar 35. This bar contiguous to its ends is provided with elongated slots for the reception of headed screws 36, which are carried by the frame structure 4 and serve to support the locking bar for limited sliding movement in a longitudinal direction. The bar 35, midway of its length, is provided with a hook 37 with which is engaged one end of a coil spring 38, the opposite end of said spring being connected with a stationary hook 39 formed in connection with the rear wall 9. The normal tendency of the spring 38 is to force the bar 35 rearwardly. This results in imparting swinging movement to all of the fingers 31 by reason of the arm 33 and the leg 34. In this manner the spring 38 serves to retain the locking fingers normally in engagement with the surfaces 30 of the web 28.

In order to prevent sliding movement of the locking bar except upon the insertion of a proper coin, there is pivoted as at 40 upon the side wall 41 of the frame structure 4 a pivoted detent 42. The longer arm 42′ of this detent extends through an opening in the side wall 41 and occupies a horizontal plane immediately over the upper edge of the locking bar 35. The locking bar is provided with an integral abutment 43 which is shouldered as at 44 and 45. In the event the machine is operated, without first depositing a proper coin, as will be later described, the arm 42′ of the detent oscillates so that its extreme end will engage with the shoulder 44, thereby limiting the movement of the locking bar and consequently the holders 7 so that no merchandise will be then released from the machine. The detent 42 is pivoted as at 40 upon a vertical shaft which is carried by a pair of laterally projecting ears 46 formed with the side wall 41 and arranged in vertically spaced relationship, the detent swinging in a horizontal plane about the axis of the pin carried by said ears.

Adjacent to its pivotal axis the detent is provided with a rearwardly and laterally extending foot 47 which, by means of a spring 48, is pressed constantly into engagement with an upstanding finger 49 formed at the extreme forward end of the locking bar 35. Thus when the locking bar is slidably moved in a forward direction the foot 47, responding to the influence of the spring 48, follows the finger 49 of the locking bar, and this allows the arm 42′ of the detent to oscillate into engagement with the first shoulder 44, thus locking the bar 35 and its associated mechanism against further actuation.

In order to permit of full operation on the part of the locking bar and the release of merchandise from any one of the compart-

ments 5, there is provided a coin pocket in the wall 41 in registration with the detent 42 which is so disposed that when the pocket receives a coin of the proper denomination, the coin will be momentarily arrested so as to be in a position of registration in relation to the shorter arm 50 of the detent 42. The extreme outer end of the arm 50 is provided with a beveled nose 51 which is adapted to engage with the side wall of the coin 52 arranged within the pocket. By this arrangement, when the coin is positioned as shown, forward movement of the locking bar results in the advance of the finger 49 but the movement of the foot 47 of the detent in following said finger is limited by reason of the contact of the nose 51 with the side of the coin 52. Therefore, oscillatory movement on the part of the longer arm 42′ of the detent is precluded, so that the extreme outer end of the arm 42′ will not come in contact with the first shoulder 44, as is the case when no coin is disposed within the pocket. Thus, the locking bar may continue its movement free of the shoulder 44 moving past the outer end of the arm 42′ until the outer end of said arm comes into contact with the second or more remote shoulder 45. This movement, however, on the part of the locking bar allows the fingers 31 to oscillate sufficiently so that one of the holders 7 may be rotated through an arc of substantially 180 degrees to permit of the discharge of one of the containers 3. It will be appreciated that when one of the holders is being rotated, as thus described, the remaining holders are locked against rotation by the position of the fingers 31 which are moved to engage with the surfaces 29 of the webs 28 of the remaining holders. By this arrangement the machine is limited in any one cycle of movement to the operation of but a single holder, thus preventing accidental or unauthorized actuation of more than one of said holders.

After the deposit of a proper coin and initial rotation on the part of a selected holder, it is impossible to reverse the operation of the selected holder until the container carried thereby has been released from the machine and full actuation of the holder obtained. This is due to the inclusion of the pivoted pawls 21, which cooperate with the ratchet members 20 so as to prevent rearward movement of the holders until after said holders have been fully rotated to a merchandise discharging position. At this time the pawl will drop down to a vertical position, under the influence of its spring 22 so that the ratchet member may then move in the opposite direction. As soon as this return movement, however, has been initiated the pawl again cooperates with said ratchet member to prevent the return of the holder to a discharging position. The pawls, therefore, serve to compel the operator to move the selected holder from one extreme position to the other and prevent duplication of movement on the part of the holder between these two extreme positions.

As an additional safeguard for the purpose of preventing actuation of more than one of the troughs or holders upon the insertion of a single coin, there is provided a supplemental locking mechanism disclosed particularly in Figure 4. This supplemental locking mechanism comprises a dog 53, which is pivoted as at 54 about the upper part of the back wall 9. Co-operative with the dog 53 is a locking pawl 55, which is pivoted as at 56 on the wall 9. Connecting adjoining ends of the dog 53 and the pawl 55 is a coil spring 57. The dog 53 is provided with a foot 58 which is adapted to be forced into engagement with a shouldered abutment 59 provided in connection with one end of the locking bar 35. When the locking bar is moved to an extreme forward position and the movement thereof is limited by the engagement of the arm 42′ with the shoulder 45, the foot 58 will engage with the upper surface of the abutment 59. Then, upon the return of the locking bar to a retreated or normal position the foot 58 engages with a shoulder 60 provided upon said abutment and prevents return movement of the locking bar in a forward or advance position. The engagement of the foot 58 with the shoulder 60 occurs just at the time the pawl 21 is being released from engagement with the ratchet member 20 upon the return movement of the holder following release of a container. Further return movement of the locking bar permits the engagement of a lug 61 on said bar with an arm 62 of the dog 53. This results in elevating the foot 58 so as to remove the bar from engagement with the dog. The dog is maintained in its elevated position by means of the pawl 55, which under the influence of the spring 57, swings about its pivot 56 so that the shoulder 63 on said pawl will engage with the foot 58 to retain the dog in an elevated or inactive position. The dog is held in this position during forward movement of the locking bar and is not released until the abutment 59 contacts with the extreme lower end of the pawl 55 for the purpose of releasing the foot 58 from engagement with the shoulder 60. The foot of the dog then engages with the upper surface of the abutment 59 beyond the shoulder 60 in order that the dog will be in position to lock the bar 35 upon return movement of the latter to a normal or starting position.

The coin controlling mechanism includes a coin slot 64 in the front wall 2. The slot 64, as shown in Figure 7, is disposed in registration with an inclined chute or coin guide 65. The guide 65, contiguous to the slot 64 is defined by means of the side wall 41 and also by a separable side plate 66, the latter

being fastened to the wall 41 by means of screws indicated at 67. Adjacent to the guide 65 the plate 66 is cut away as at 68 for the reception of a movable wall 69. This wall is pivotally mounted for swinging movement about a horizontally disposed shaft 70, which is carried by registering ears 71 provided in connection with the wall 41 and the plate or wall 69. Also carried by the shaft 70 is a swinging magnet of the permanent type as indicated at 72. The magnet has an independent swinging movement with respect to the wall 69, but a spring 73 co-operates with said magnet so as to force the lower portion thereof normally into engagement with the wall 65.

In the event a slug of iron or steel is placed into the guide 65 such slug will be held in engagement with the inner surface of the wall 69 by reason of the influence of the magnet 72. In order to discharge this slug without permitting it to enter into the operating mechanism of the machine use is made of a lever 74 which is pivotally mounted as at 75 on the side wall 41. The upper end of this lever engages with an outstanding finger 76 formed in connection with the magnet 72 and it will be seen that when the lever 74 is oscillated it will cause the wall 69 and the magnet 72 to move in unison away from the side wall 41. The swinging movement of the wall 69 is limited by the contact of the lower portion of said wall with a stop 77 formed by the side plate 66. Further swinging movement on the lever results in moving the magnet away from the wall 69. This further swinging movement on the part of the magnet releases the slug from the influence thereof and allows said slug to drop into the open throat 78 formed by the plate 66. The throat 78 is situated on the upper end of a slug return chute 79 which has an outlet 80 in the front wall of the machine casing. It will be understood that the lever 74 is oscillated by the operation of the locking bar 35, which co-operates with the lower end of said lever, as shown in Figure 7.

An ordinary coin, which is formed from a more precious metal, is not affected by the magnet 72, and therefore passes said magnet and rolls down the inclined guide 65. This guide terminates in a straight vertically extending portion 81, at the base of which is a block of metal 82, which is usually cast integrally with the side wall 41. This block is provided with an inclined upper surface 83 upon which the coin sharply strikes as it falls through the vertical portion of the coin guide or chute. In event a lead slug or a slug of soft metal which is not affected by the magnet 72, drops upon the block 82, the elasticity of the material comprising such a slug results in but a slight or small bounce on the part of such slug which causes the same to drop into an outlet guide 84 leading to the slug return 80. However, a coin of a more precious metal having greater elasticity, upon striking the block 82 rebounds or bounces away from said block at an angle of substantially 45 degrees to an extent sufficient to enable the coin to clear an upright rib 85 formed in connection with the side wall 41, permitting of the deposition of the coin within the pocket 52'.

Within the pocket 52' the coin 52 then occupies a position permitting of the actuation and release of the locking bar 35 as previously described. This pocket 52' is formed by means of a gate 86 which occupies a recess 87 formed in the plate 66. The gate 86 is pivotally suspended from a shaft 88 carried by a pair of ears formed in connection with the side plate 66. Normally the inner surface of the gate 86 registers with coin guide ribs 89 provided in connection with the side wall 41, the gate being maintained in engagement with the ribs by means of a spring 90.

To limit the movement of the coin within the pocket 52' a vertical shaft 91 carried by the ears 46 carries a horizontally swinging arm 92, which terminates in an inwardly directed nose 93, the latter being received directly within the coin guide. Normally, the position of the nose 93 and the rib 89 is such as to be slightly less than the diameter of the coin employed to actuate the machine, the spacing being slightly less than the width of the coin chute. By this construction when the coin bounces from the block 82 it is retained momentarily in said pocket by the position of the nose 93. The arm 92 is normally maintained in this position by the medium of a spring 94.

It will be understood that when the coin is seated within the pocket 52' and is retained by the nose 93, the holders may then be rotated so as to effect the reciprocation of the locking bar. Full reciprocation on the part of the locking bar may be obtained by virtue of the fact that the detent 42 has its shorter arm 50 arranged in contact with the coin 52 disposed within the pocket. This permits of full operation of the holder and allows the material to be discharged from the machine which has been purchased. As previously explained, in advancing the locking bar 36 with a coin in position, the longer arm 42' of the detent contacts with the second shoulder 45. Since the pivotal portion of the detent is provided with a slot 95 continued forward movement of the locking bar also advances the detent longitudinally in unison therewith a distance equal substantially to the length of the slot 95. The movement of the detent longitudinally when engaged with the shoulder 45 results first in moving the nose 51 away from the coin 52.

At the same time the pivotal portion of the detent strikes a laterally offset arm 96 formed integrally with the gate 86, thus swinging the gate slightly about the axis of its shaft 88. This swinging movement of the gate is transmitted to the arm 92, swinging the latter about its pivot sharply so that the nose portion 93 thereof is moved away from the coin guide for the purpose of allowing the coin to drop upon a stud 97.

This stud is carried by a swinging yoke 98 which is pivoted upon a vertical shaft 99 carried by the side wall 41. Normally a spring 100 serves to maintain the stud 97 out of the coin chute, but provided on the locking bar 35 is a lug 101 which engages with the yoke 98 to hold the stud 97 free of the coin slot or chute. However, upon forward movement of the locking bar the lug is moved out of engagement with the yoke which permits the spring 100 to act on said yoke in order that the stud 97 will be positioned within the coin chute to support the coin momentarily before its discharge. The yoke 98 also carries a second stud 102 which is arranged above the first stud 97. The second stud 102 also enters the coin chute to prevent a second coin from being dropped into the pocket 52′ while the latter is occupied by a coin employed to actuate the machine.

Upon the return of the locking bar to a normal position the stud 97 is retreated which allows the coin to roll down the bottom of the coin chute into a coin box 103. This box is situated immediately to the rear of a window 104 formed in the front wall of the casing 1 and by this arrangement the operator of the machine can see the coin which he has employed in effecting any given operation. The bottom of the box 103 is provided with a swinging door 105, journaled for rotation about a horizontal shaft 106 carried in connection with the side wall 41. The shaft 106 is formed with slug 107 arranged for engagement with a depending arm 108 integrally formed with the locking bar 35. Thus upon each subsequent operation of the machine the coin received within the box 103 is released and allowed to fall into a main coin receptacle arranged within the casing.

As shown in Figure 17, there is provided a rock member 109 which is provided with a hub portion 110 received for rotation about the upstanding shaft 91. The member 109 is provided with a laterally projecting finger 111 which engages normally with the upstanding arm 49 formed upon the end of the master bar 35. The member 109 is further formed with an inwardly extending crank arm 112, which is arranged to project through the wall 41 and is connected with the spring 100, as shown in Figure 12. The spring serves to rotate the member 109 so that a curved finger, indicated at 113 in Figure 17 will enter the coin chute immediately adjacent to the swinging gate 86. The position of the finger 113 is such that normally it does not interfere with the dropping of the coin 52 into the operative position shown by dotted line in Figure 13. In the event, however, that two coins are dropped into the coin chute at practically the same time and before the stop 102 becomes effective, such coins will be deposited one upon the other in the coin delivery chute immediately back of the gate 86. Under this condition when the locking bar is advanced the member 109 swings by reason of the influence of the spring 100, so that the curved finger 113 will frictionally grip or engage with the upper of said coin, holding the latter stationary or inoperative during the desired operation of the machine with the lower coin. Then upon the return of the machine to normal the finger 113 is operated to release the temporarily held coin so that the latter may drop to an operating position.

In view of the foregoing it will be seen that the present invention provides a vending machine wherein by the provision of a single coin controlling mechanism a plurality of selectively operable venders may be actuated. The machine particularly provides for a very close control of its operation, preventing particularly unauthorized or duplicate operations or other forms of actuation which do not involve the placing of a coin of proper denomination in the machine. All slot or vending machines are subject to improper operation by the use of slugs, checks or an understanding of various mechanical motions which give rise to fraudulent operations, which reduce the profits of the owners or lessees. In view of the foregoing it will be seen that in carrying out the present invention the mechanism has been so designed as to reduce to a minimum the possibility of unwarranted, unlawful or surreptitious operation and yet to accomplish this by means of simple, positive and economical features of construction capable of imparting extended service without liability of mechanical disorder and the need for frequent repair.

While I have described what I consider to be the preferred form of the present invention, nevertheless it will be understood that variations and modifications of the structure herein disclosed and specifically described may be made from time to time without departing from the scope and spirit of the invention as the latter has been expressed in the following claims.

What is claimed is:

1. In a vending machine, a casing provided with a plurality of article receiving compartments, rotatable trough members situated in the bottom of said compartments, movable locking fingers interposed between

said members and normally holding the latter against rotation, a locking bar movable in unison with said fingers, and a coin control mechanism permitting of the movement of said locking bar to a finger releasing position, said locking bar when in an extreme position of movement serving to permit of limited movement on the part of said fingers so that one of said trough members may be revolved to an article discharging position, the remaining trough members being held by said fingers in locked or non-rotative positions.

2. In a vending machine, a casing provided with a plurality of article receiving compartments, a rotatable trough member arranged in the bottom of each of said compartments and adapted to receive the lowermost article within each of the compartments, means for rotatably supporting said trough members for movement about their longitudinal axes, an axially disposed head provided at one end of each of said trough members, spring means cooperative with said head and normally serving to maintain the trough member within each compartment in an article receiving position, and a coin controlled release mechanism cooperative with said members to permit upon any given operation of the release and rotation of any one of said trough members, the balance of said trough members being held in locked position.

3. In a vending machine, a casing provided with a plurality of article receiving compartments, rotatable trough members situated in the bottom of said compartments, an axially disposed head provided at one end of each of said trough members, a web formed with each of said heads, movable locking fingers interposed between said members and engaging one side of said web so as to hold said members normally against rotation, a locking bar movable in unison with said fingers, and a coin controlled mechanism permitting of the release of said locking bar so that said bar and fingers may be moved by the rotation of a selected trough member permitting the latter to be revolved to an article discharging position, the remaining trough members being held from rotation by said fingers moving into engagement with the other side of said webs.

4. In a vending machine, a casing provided with a plurality of article receiving compartments, a rotatable trough member arranged in the bottom of each of said compartments and adapted to receive the lowermost article within each of the compartments, means for rotatably supporting said trough members for movement about their longitudinal axes, an axially disposed head provided at one end of each of said trough members, an elongated web formed with each of said heads and normally extending in a vertical position, pivoted locking fingers interposed between said members having web engaging surfaces on each side thereof, one of said surfaces being in engagement with said webs and normally holding said members from rotation, a locking bar movable in unison with said fingers, and a coin controlled mechanism permitting of the release of said locking bar so that said bar and fingers may be moved a limited extent to a position permitting of the rotation of one of the selected trough members, the balance of said trough members being held from rotation by the position of said fingers with respect to said webs.

5. In a vending machine, a plurality of article receiving compartments, rotatable vendors situated in the bottom of said compartments, movable locking fingers interposed between said vendors and normally holding the latter against rotation, a locking bar movable in unison with said fingers, a single coin controlled mechanism for releasing said bar and fingers for permitting of the rotation of a selected vendor, and means for locking the bar and a selected vendor against return movement to an initial position until such vendor has been moved to a position of article discharge.

6. In a vending machine, a plurality of article receiving compartments, rotatable vendors situated in the bottom of said compartments, pivoted locking fingers interposed between said vendors, one of said fingers being formed with an upwardly directed extension, a slidable locking bar having engagement with said extension, spring means acting on said bar serving to hold said fingers in a position to normally prevent rotation of said vendors, and a coin controlled mechanism including a pivoted detent associated with said bar and which normally serves to lock the latter and prevent operation of said vendors but when upon the insertion of a coin in said mechanism will be released from said bar and permit the latter to move a limited extent so that one of said vendors may be moved to an article discharging position, the balance of said vendors being held in a locked position.

7. In a vending machine, a merchandise container divided into a plurality of article receiving compartments, a rotatable trough member arranged in the bottom of each of said compartments and adapted to receive the lowermost article within each of the compartments, means for rotatably supporting said trough members for movement about their longitudinal axes, a slidable locking bar, means associated with said bar and trough members and serving normally to hold the latter against rotation, and a coin controlled mechanism permitting of the release of said locking bar so that said bar may be moved a limited extent to a position permitting of the rotation of a selected trough member, the

balance of said trough members being held against rotation by the position of said means associated with said bar and trough members.

8. In a vending machine, a merchandise container divided into a plurality of article receiving compartments, a rotatable trough member arranged in the bottom of each of said compartments, and adapted to receive the lowermost article within each of the compartments, means for rotatably supporting said members for movement about their longitudinal axes, a lateral extension formed at one end of each of said trough members and rotatable therewith, a slidable locking bar, movable locking elements associated with said bar and extensions, and a coin controlled mechanism permitting of the movement of said locking bar to a trough releasing position, said locking bar when in an extreme position of movement serving to permit of the rotation of one selected trough member, the balance of said trough members being held against rotation by the position of said bar and locking elements.

9. In a vending machine, a plurality of article receiving compartments, rotatable vendors situated in the bottom of said compartments, movable locking elements interposed between said vendors, a locking bar movable in unison with said elements, and a single coin controlled mechanism for releasing said bar for permitting of the rotation of a selected vendor, the remainder of said vendors being held against rotation by the position of said bar and locking elements.

10. In a vending machine, a plurality of article receiving compartments, rotatable vendors situated in the bottom of said compartments, a member formed with one end of each of said vendors, movable locking means interposed between said members and engaging the latter, a locking bar controlling the movements of said elements and vendors, and a single coin controlled mechanism for releasing said bar effecting the movement of said elements for permitting of the rotation of the selected vendor and for holding the remaining vendors against rotation.

11. In a vending machine, a plurality of article receiving compartments, a rotatable vendor positioned in the bottom of each of said compartments and adapted to receive the lowermost article therein, trunnions formed at the ends of said vendors for rotatably supporting said vendors for movement about their longitudinal axes, a member formed at one end of each of said vendors and extending laterally of one of the trunnions, substantially vertically positioned locking elements interposed between said members for movable engagement therewith and which normally serve to lock the vendors against rotation, a horizontally arranged member for keeping said locking elements in their relative positions, and a coin controlled mechanism co-operative with said member and elements to permit upon any given operation of the release and rotation of any one of said vendors, the balance of said vendors being held in locked position.

In testimony whereof I affix my signature.

GEORGE E. NORRIS.