

July 15, 1969

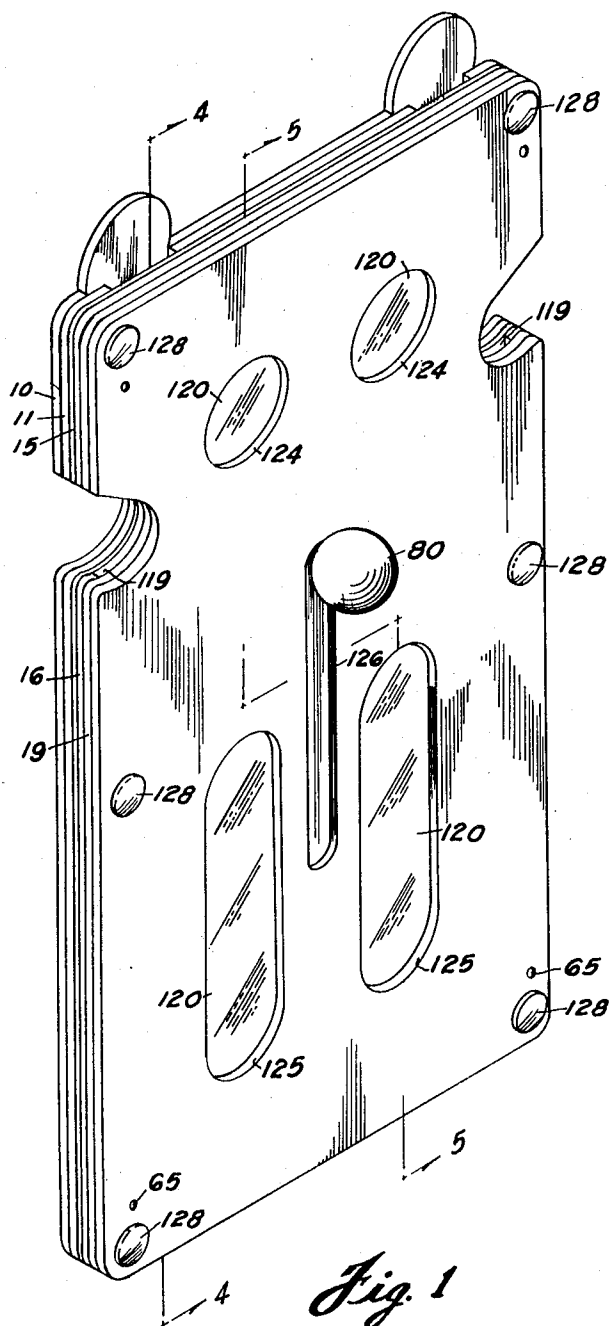
W. D. TINSLEY, JR

3,455,427

COIN CONTROLLED ACTUATING MECHANISM

Filed Nov. 4, 1966

4 Sheets-Sheet 1



July 15, 1969

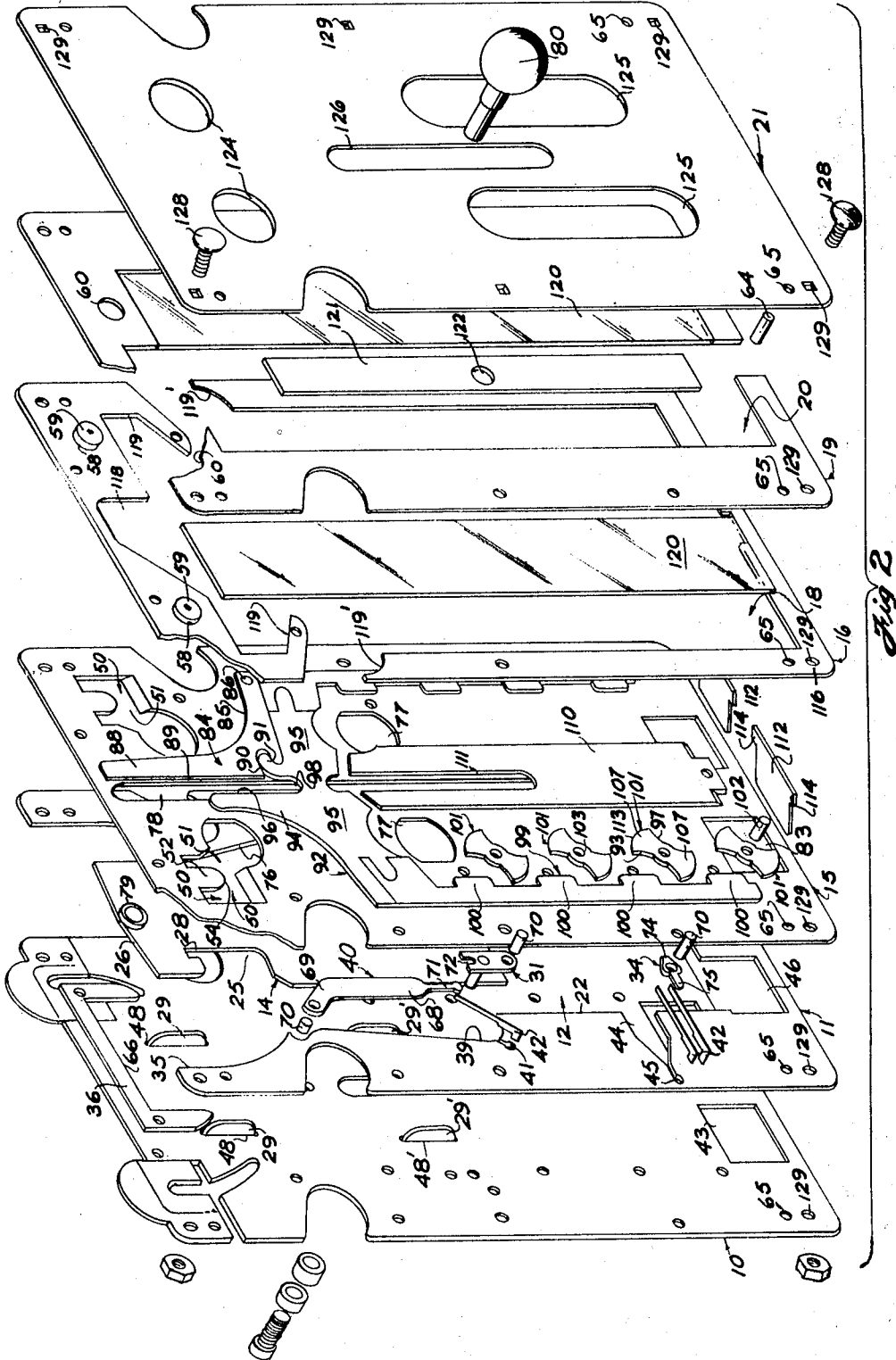
W. D. TINSLEY, JR

3,455,427

COIN CONTROLLED ACTUATING MECHANISM

Filed Nov. 4, 1966

4 Sheets-Sheet 2



July 15, 1969

W. D. TINSLEY, JR

3,455,427

COIN CONTROLLED ACTUATING MECHANISM

Filed Nov. 4, 1966

4 Sheets-Sheet 3

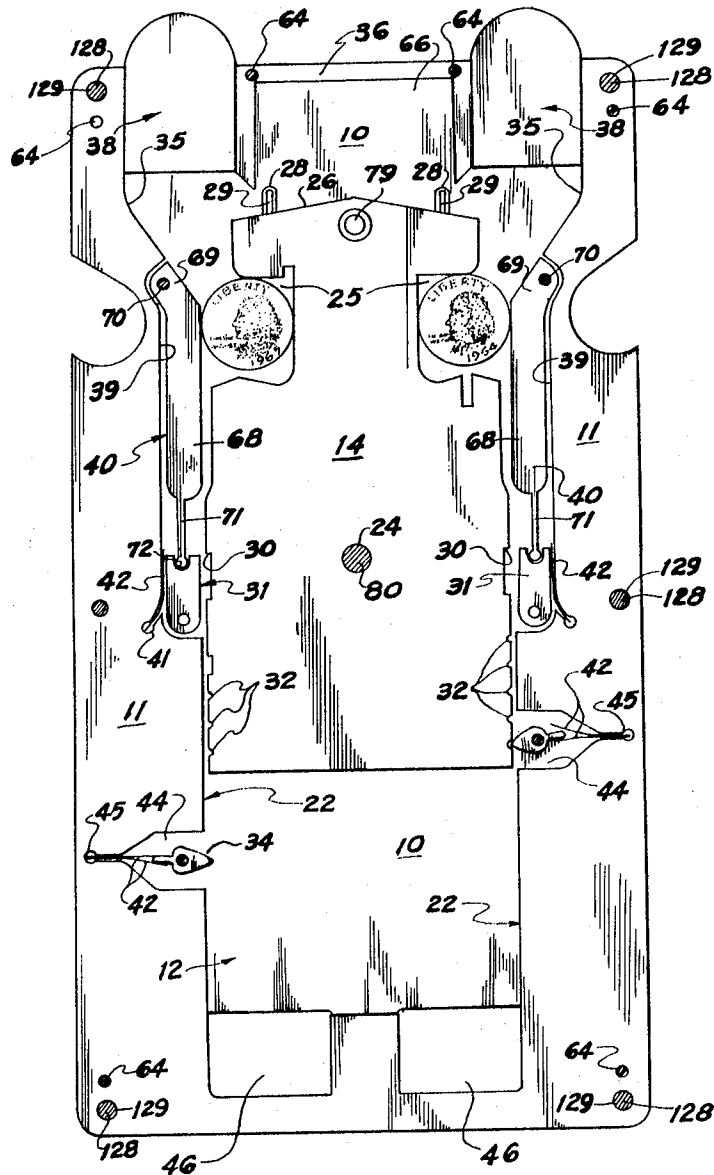


Fig. 3

INVENTOR
WILLIAM D. TINSLEY, JR.
Kewton, Hopkins,
Jones & Ohmsby
ATTORNEYS

July 15, 1969

W. D. TINSLEY, JR

3,455,427

COIN CONTROLLED ACTUATING MECHANISM

Filed Nov. 4, 1966

4 Sheets-Sheet 4

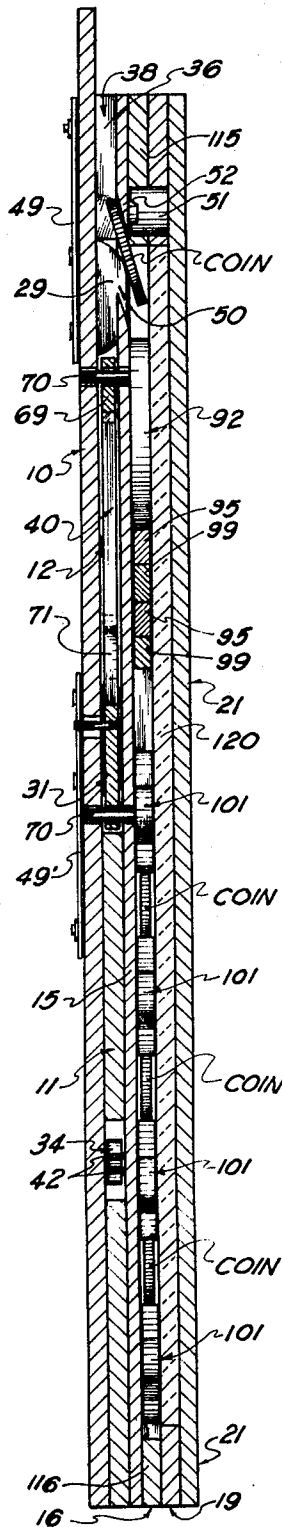


Fig. 4

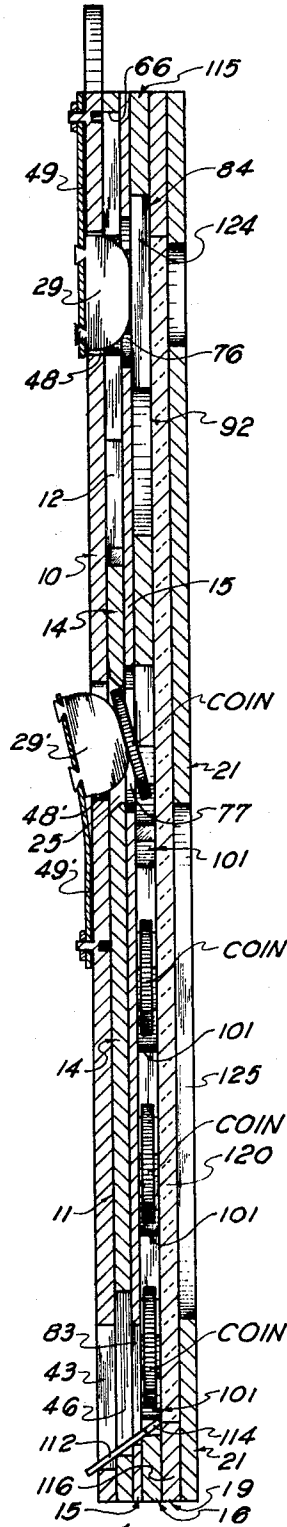


Fig. 5

INVENTOR
WILLIAM D. TINSLEY, JR.
*Newton, Hopkins,
Jones & Chisley*
ATTORNEYS

1

3,455,427

COIN CONTROLLED ACTUATING MECHANISM
William D. Tinsley, Jr., % Ezzell Manufacturing Co.,
Eufaula, Ala. 36027

Filed Nov. 4, 1966, Ser. No. 592,102

Int. Cl. G07f 5/02, 3/02

U.S. Cl. 194—55

12 Claims

ABSTRACT OF THE DISCLOSURE

Downward movement of a slide carries coins to disengage lock means and on further movement allow cams to laterally displace the coins to a viewing means where they are supported on the cam edges of detents. As the slide is moved upwardly the detents rotate to let the coins gravitate to lower detents in the display.

This invention relates generally to coin controlled actuator mechanisms and more particularly to coin controlled actuator mechanism for use in a vending machine.

Coin controlled actuator mechanisms for use on vending machines are well known in the art, however, these actuator mechanisms generally are rather expensive to manufacture and unreliable in service due to the inclusion of a number of springs in critical locations which frequently break or become inoperative. Moreover, these prior art actuator mechanisms will not be operative if the mechanism is not positioned in a predetermined plane.

Accordingly, one of the objects of the present invention is to provide a coin controlled actuator mechanism inexpensive to manufacture.

Another object of the present invention is to provide a coin controlled actuator mechanism which operates while positioned in a plurality of different planes.

Another object of the present invention is to provide a coin controlled actuator mechanism in which the selection of coin sizes for use to activate the mechanism may be easily changed.

Another object of the present invention is to provide a coin controlled actuator mechanism in which the coins used to activate the mechanism are visual for an extended period of time after the machine has been activated.

Another object of the present invention is to provide a coin controlled actuator mechanism utilizing a minimum number of springs which tend to get out of adjustment.

Another object of the present invention is to provide a coin controlled actuator mechanism having a sufficient stroke to actuate substantially all vending machines.

Another object of the present invention is to provide a coin controlled actuator mechanism capable of being attached either internally or externally to the vending machine without any modifications to the vending machine.

Another object of the present invention is to provide a coin controlled actuator mechanism which is unaffected by changes in temperature and immersion in liquids.

Another object of the present invention is to provide a coin controlled actuator mechanism effective to reject coins of improper size and which contain ferrous qualities.

These and other objects, features and advantages of the present invention will become more clearly understood upon consideration of the following specification and accompanying drawings wherein like characters of reference designate corresponding parts throughout and in which:

FIG. 1 is a perspective view of one embodiment of the invention;

FIG. 2 is an exploded view of that embodiment of the invention shown in FIG. 1;

FIG. 3 is an elevational view of the last two plates of the invention shown in FIG. 1 illustrating the coins acti-

2

vating the coin calipers to unlock the slide lock to permit operation of the slide;

FIG. 4 is a cross-sectional view taken along the line 4—4 in FIG. 1 showing the slide in coin rejecting position; and

FIG. 5 is a cross-sectional view taken along the line 5—5 in FIG. 1 illustrating a coin in coin viewing position and the position of the slide for discharging the coin into viewing position.

These figures and the following detailed description disclose one specific embodiment of the invention however, it is to be understood that the inventive concept is not limited thereto since it may be embodied in other equivalent forms.

Referring to FIGS. 1 and 2, it will be seen that the invention is a built-up structure comprising a series of plates. A base plate 10 serves to locate the parts of the invention, a slide spacer 11 is carried by the base plate 10 and provides a slide cavity 12 into which a slide 14 is positioned, a sub-base plate 15 is carried by the spacer 11 and serves as a cover for the cavity 12 and a base for other parts of the invention, a coin display spacer 16 is carried by the sub-base plate 15 and provides a display cavity 18 within which coins that have actuated the invention are displayed; a window frame 19 is carried by the display spacer 16 and defines a window cavity 20 therein; and a cover plate 21 is carried by the window frame 19 and serves to retain, in combination with the base plate 10, the parts of the invention therebetween.

The base plate 10 is a thin flat rectangular sheet member which is stamped from flat material and is provided with various cutouts as will be explained hereinafter. The slide spacer 11 is also a stamped thin flat sheet member having a substantially rectangular shape and defines a central cutout 22 of a width sufficient to slidably receive the slide 14 therein.

The slide 14 is a substantially rectangularly shaped thin sheet member having a centrally located aperture 24 extending therethrough. A coin carriage recess 25 is provided on each side of the slide 14 just below the top 26 of the slide 14. A forwardly extending spring urged discharge cam 29 is received in each recess 25 when the slide 14 is in its uppermost position to discharge coins carried in the recesses 25. It is to be understood that the particular size and shape of the recesses 25 will be determined by the coins to be used therein and may differ for different applications.

On each side of the slide 14 below the recesses 25 is a slide locking notch 30 effective to engage caliper operated slide locks 31 upon movement of the slide 14 without proper size coins within the recesses 25. Below the locking notches 30, the slide 14 is provided with a plurality of check notches 32 on each side thereof which are effective to engage advance checks 34 in a manner hereinafter described.

The cutout 22 opens at the top of the slide spacer 11 and the spacer 11 is provided with an arcuate coin entry recess 35 which, in combination with a coin spacer 36, defines a coin entry passage 38 on each side of the top of the invention. Each passage 38 is so shaped to deliver a coin deposited therein to one of the recesses 25 when the slide 14 is in its uppermost position. When the slide 14 is not in its uppermost position, the discharge cam 29 is effective to retain the coin in the passage 38 until the slide 14 is returned to its uppermost position. The top 26 of the slide 14 is appropriately shaped to insure displacement of the coins for the slide 14 to pass thereby in moving to its uppermost position.

A caliper recess 39 which opens into the cutout 22 is provided on opposite edges of the cutout 22 to receive a caliper 40 therein which is pivotably carried by the base

plate 10 as hereinafter set forth. Pivotably positioned within the lowermost portion of each of the caliper recesses 39 is one of the slide locks 31 which is operatively connected to the caliper 40. The lower corner of the recess 39 is provided with a keyhole slot 41 effective to carry a keyed leaf spring 42 therein which urges the upper end of the locks 31 toward the side of the slide 14. Since the spring 42 urges the extending end of the slide lock 31 toward the slide 41, it in turn urges the caliper 40 toward the slide 14.

A check recess 44 is provided in the slide spacer 11 under each of the recess 39 and a short distance above the bottom of the cutout 22. Each of the check recesses 44 opens into the cutout 22 at one end and connects with a key hole slot 45 to receive a pair of keyed leaf springs 42 therein which connect with the advance check 34 and serve to retain the check 34 in a predetermined position. The bottom of the cutout 22 connects with a pair of coin discharge openings 46 through which a coin is discharged after being displayed.

The base plate 10 is provided with a pair of cam apertures 48 appropriately located to underlie the coin recesses 25 of the slide 14 when it is in its uppermost position. The discharge cams 29 extend through the apertures 48 and the recesses 25 when the recesses 25 and the apertures 48 are aligned. The cams 29 are appropriately rounded at each end thereof to be urged rearwardly by the slide 14 and permit the slide 14 to pass thereby when a force is applied thereto. The cams 29 are urged forwardly through the apertures 48 in the back of the base plate 10 by leaf springs 49.

The leaf springs 49 are of a substantially L-shaped configuration and are mounted on the rear side of the base plate 10. The springs 49 are provided with apertures therethrough which receive partially punched material from the base plate 10 therethrough. After this material has been received through the apertures, it is peened over to hold the springs 49 in place. This results in an inexpensive and efficient construction.

Below the discharge apertures 48 and vertically aligned therewith is a second pair of discharge apertures 48' located so that cams 29' slidably carried therethrough extend into the coin carriage recesses 25 when the slide 14 is at its lowermost position. The cams 29' are urged forward by the leaf springs 49' also fixedly attached to the back of the base plate 10.

The slide spacer 11 is positioned on the base plate 10 by locating pins 64 extending through the alignable holes 65 in the base plate 10 and the spacer 11. The coin spacer 36 is also positioned on the base plate 10 by locating pins 64 extending through alignable holes 65 in the baseplate 10 and the coin spacer 36. This is effective to properly place the spacer 11 and spacer 36 so that the coin passages 38 are properly defined. The spacer 36 has a limit cutout 66 therein to receive the upper end of the slide 14 therein and limit the upward movement of the slide 14.

The caliper 40 has an elongate shoe 68 which contacts the edge of the slide 14 below the recess 25 when the slide 14 is in its uppermost position and has integral with the upper end thereof an angularly outwardly inclined pivot arm 69 pivotably pinned to the base plate 10 by a pivot pin 70. The pin 70 is located so that the caliper 40 is carried within the caliper recess 39.

The lower end of the shoe 68 is integral with a downwardly extending operating extension 71 which engages, at its lower extending end, the slide lock 31. The slide lock 31 is an elongate member having an engaging slot 72 in the upper end thereof which receives the extension 71 therein. The lock 31 is pivoted to the base plate 10 by a pivoting pin 70 so that it is located in the lower portion of the recess 39, and the leaf spring 42 bears against the upper portion of the lock 31 to urge the lock 31 and thus the shoe 68 toward the slide 14.

The advance check 34 is pivotably mounted on the base

plate 10 by a pivot pin 70 so that the check 34 is located within the recess 44. The check 34 has a tapered engaging tooth 74 at the inner edge thereof effective to engage the check notches 32 as the slide 14 moves from its uppermost position to its lowermost position. The outer edge of the check 34 is integral with an operating tab 75 received between the pair of leaf springs 42 carried within the keyhole slot 45. This is effective to urge the check 34 toward a rotational position substantially perpendicular to the center line of the base plate 10. Therefore, as the slide 14 moves within the cutout 22 in the slide spacer 11, the teeth 74 of the advance checks 34 engage the check notches 32 in the sides of the slide 14 and permit movement of the slide 14 in one direction which cannot be reversed until the stroke of the slide 14 is completed.

The sub-base plate 15 has the same general shape as the base plate 10 and is placed over the spacer 11 and located by the pins 64 extending through holes 65 in the sub-base plate 15. A pair of reject discharge apertures 76 extend through the plate 15 and overlie the cams 29 extending through the apertures 48. The discharge apertures 76 are of sufficient size to receive therethrough coins that may be forced forwardly from the recesses 25 by the discharge cams 29.

A reject cutout 50 substantially rectangular in shape extends through the sub-base plate 15 just upwardly of the centerline of the aperture 76 and just outwardly of the circumference thereof. An angularly disposed passage 51 connects the inner side of the cutout 50 with each of the apertures 76 and a magnet retaining tab 52 integral with the sub-base plate 15 extends downwardly into the cutouts 50 from the upper side thereof. Each of these tabs 52 tapers forwardly on the rear side thereof so that the lowermost edge 54 thereof is thinner than the base thereof. This is effective to allow a coin passing thereby to be pivoted forwardly if the coin is urged forwardly. If the coin contains any ferrous metal content, it will be urged forwardly by a magnetic force as explained hereinafter.

The lower side of the cutouts 50 tapers rearwardly so that the side is thinner than the thickness of the sub-base plate 15. This allows a coin that has been pivoted forwardly by a magnetic force through the tab 52 to shift in front of the sub-base plate 15 and be rejected. It should be noted here that the material of the components of the invention are of non-magnetic material such as aluminum so that the magnetic force will not effect the operation of the invention.

A centrally located vertically extending elongate slot 78 is defined through the sub-base plate 15 and is effective to receive therein an alignment roller 79 rotatably and centrally carried by the upper extending end of the slide 14. This is effective to maintain the slide 14 in vertical alignment within the slide cavity 12 as it is moved up and down therein. The slot 78 is sufficiently long to receive therethrough an operating handle 80 which extends through the central aperture 24 in the slide 14, and permit movement of the slide 14 and handle 80 to the lowermost position of the slide 14. A pair of operating discharge apertures 77 are provided through the sub-base plate 15 which overlie the discharge cams 29' so that coins discharged from the coin carriage recesses 25 by the cams 29' are allowed to pass therethrough. The lower end of the sub-base plate 15 is provided with a pair of discharge openings 83 which have the same shape as the discharge openings 46 in the slide spacer 11 and overlie these openings.

Pivotably mounted on the forward side of the sub-base plate 15 is a coin display actuator 84 which has a generally L-shaped configuration. The actuator 84 comprises a pivot arm 85 pinned to the forward side of the sub-base plate 15 by pin 86 and an actuator arm 88 positioned adjacent the slot 78 through the sub-base plate 15 at the upper portion thereof. The actuator arm 88 has a cam surface 89 which is engaged by the alignment roller 79 of the slide 14 so as to maintain the actuator arm 88 in

vertical alignment when the slide 14 is in its upper positions.

A connecting slot or recess 90 is provided at the junction of the arms 88 and 85 and receives therein an actuator tab 91 of a driving plate 92. The driving plate 92 is substantially T-shaped with a vertical guide arm 94 positioned on the opposite side of the slot 78 from the actuator arm 88 and a pair of driving arms 95 extending outwardly therefrom substantially perpendicular thereto. The guide arm 94 is provided with a cam surface 96 effective to engage the alignment roller 79 and maintain the drive plate 92 in alignment therewith during the operation thereof.

A trip recess 98 is provided at the junction of the guide arm 94 and the driving arm 95 and is engaged by the alignment roller 79 as it approaches the lower limits of its downward stroke to displace the drive plate 92 downwardly. As the drive plate 92 is displaced downwardly, the actuator 84 is pivoted about pin 86 through actuator tab 91 since the alignment roller 79 has now cleared the cam surface 89 of the actuator arm 88. This allows the plate 92 to be operated while still being connected to the actuator 84. As the slide 14 is moved upwardly again, the alignment roller 79 engages the cam surface 89 and forces the actuator arm 88 back to its original position thereby causing the recess 90 to lift the driving plate 92 back to its original position through the actuator tab 91.

Attached to the outer extending ends of each of the driving arms 95 is a downwardly extending advancing arm 99 provided with a series of advancing cams 100 on the inside thereof which engage advancing detents 101 pivotally carried on the sub-base plate 15 through pins 102. As can be seen from FIG. 2, the advancing arms 99 are provided with four advancing cams 100 and four advancing detents 101 on either side thereof so that three coins will be displaced to view in the device during the operation thereof. It will be seen that each of the detents 101 comprise a circular web portion 103 and a pair of actuating sectors 107 integral therewith and extending radially outward therefrom on opposite sides thereof. Each of the sectors 107 has an upper camming edge 93 and a lower camming edge 97. The outer peripheral edges of the sectors 107 will be designated as 113.

Since the advancing detents 101 on the left side of the device are identical to the advancing detents 101 on the right side of the device, the operating characteristics of the advancing detents 101 on the left side of the device will be described in detail, it being understood that those advancing detents 101 on the right side of the device operate in substantially the same manner. It will be seen that as the alignment roller 79 moves the driving plate 92 downwardly, the advancing arms 99 will be moved downwardly. This causes the advancing detents 101 to be moved counter-clockwise as seen in FIG. 2 by the advancing cams 100. This is effective to allow a coin to drop from the uppermost edges 93 of the advancing detents 101 and be engaged by the peripheral edges 113 thereof. As the driving plate 92 is pivoted upwardly by the upward movement of the alignment roller 79 engaging the cam surface 89 of the actuator arm 88, the advancing detents 101 will be rotated clockwise so that the coin drops from the outer peripheral edges 113 of the advancing detents 101 to the upper edge 93 of the next adjacent lower detents 101 and retained there so that the coin will be displayed.

A spacer plate 110 is mounted between the advancing detents 101 on the left side of the device and the advancing detents 101 to retain coins therebetween for the display thereof. It will also be noted that the spacer plate 110 has a vertical slot 111 in the upper portion thereof effective to receive the handle 80 therethrough to permit movement of the slide 14 vertically.

A deflection plate 112 is mounted through each of the discharge openings 83 and 46 and the discharge

openings 43 in the base plate 10 and serves to deflect a coin dropping from the peripheral edges 113 of the advancing detents 101 rearwardly and out of the back of the device. A pair of shoulders 114 is provided on either side of the deflection plates 112 and serve to retain the deflection plates 112 within the device.

The coin display spacer 16 is seen to comprise an upper spacer plate 115 and a lower spacer plate 116. The upper spacer plate 115 has the same general exterior configuration of the upper portion of the sub-base plate 15 and is provided with a recess 118 therein which allows pivotal movement of the actuator arm 88 without engaging the upper spacer plate 115. The recess 118 also has a pair of extension cutouts 119 on opposite sides thereof effective to provide a space to receive coins discharged through the apertures 76 or cutouts 50. The pair of magnet cutouts 58 are provided in the upper spacer plate 115 and are effective to locate magnets 59 received therein immediately forward of the tabs 52 to provide the necessary magnetic force to deflect ferrous coins for rejection.

After passage through the apertures 76 or cutouts 50, a coin will drop on one of the driving arms 95 or the upper surface of the pivot arm 85 and roll outwardly until engaged by a recess 119 in the upper extending ends of the lower spacer plate 116 having a generally U-shaped configuration effective to guide the advancing arms 99. Therefore, it will be seen that as a coin is discharged through the apertures 76 or cutouts 50, it rolls downwardly until retained by the recess 119' at the upper extending end of the lower spacer plate 116.

The window frame 19 is positioned over the coin display spacer 16 and the window cavity 20 thereof is effective to carry a pair of spaced display windows 120 therein in side by side relationship. The windows 120 receive a vertical slide 121 therebetween provided with an aperture 122 for the receipt of the handle 80 therethrough so that the vertical slide 121 is moved vertically as the handle 80 is operated. A pair of magnet apertures 60 aligned with the cutouts 58 are provided in the upper portion of the frame 19 for the receipt of the magnets 59.

The cover plate 21 is positioned over the window frame 19 and serves to retain the display windows 120 and the vertical slide 121 in position. The cover plate 21 is provided with a pair of reject display apertures 124 to permit the visual inspection of the reject mechanism behind the windows 110 and the lower portion thereof is provided with a pair of elongate coin display slots 125 which permit the visual inspection of the coins held within the display mechanism. Centrally located in the cover plate 21 is a vertical aperture 126 effective to permit vertical movement of the handle 80 extending therethrough so that the machine may be operated. The entire assembly is held together by a series of nut and bolt assemblies 128 which extend through appropriate apertures 129 in each of the plates 10, 11, 15, 16, 19 and 21.

OPERATION

In operation it will be seen that, assuming that slide 14 is in its uppermost position, coins may be inserted in each of the coin entry passages 38 so that they travel therealong until they rest in the coin carriage recesses 25 in each side of the slide 14. The handle 80 is then grasped and forced downwardly carrying the slide 14 and coins inserted therein downwardly with it. Assuming the coins are of the proper size, they will engage each of the calipers 40 and deflect these calipers outwardly to deflect the slide locks 31 outwardly so as not to engage the locking notches 30 in the slide 14. As the slide 14 passes downwardly, the advance checks 34 engage the check notches 32 in the sides of the slide 14 to prevent the slide 14 from being moved upwardly until the stroke is completed.

When the slide 14 reaches its lowermost position, the coins carried in the recesses 25 are discharged forwardly

through apertures 77 by the discharge cams 29'. This places the coins in displaying position whereby they rest on the lower camming edge 97 of each of the detents 101 and against the edge of the spacer plate 110. In this position, the vending machine has been activated through its connection with the handle 80.

As the handle 80 and slide 14 are moved upwardly, the actuator 84 causes the drive plate 92 to be lifted thereby causing the advancing arms 99 to pivot the detents 101 clockwise to drop the coins from the first pair of detents 101 onto the outer peripheral edge 113 of the second pair of detents 101, the coins still resting against one edge of the spacer plate 110. The advance checks 34 engage the check notches 32 in the sides of the slide 14 to prevent the slide 14 from being moved downwardly again before it reaches its uppermost position. The mechanism may be operated again upon the proper size coins being placed in the coin entry passages 38 and manipulating the handle 80. Each time coins are discharged into displaying position, the detents 101 are rotated so that the coins already being displayed are moved down one detent. On the fourth operation of the mechanism, the lowermost coins being displayed are dropped from the detents 101 and discharged rearwardly by the plates 112 extending through the discharge openings 83, 46 and 45 into a conventional coin receptacle (not shown).

If a slug is placed in the coin entry passages 38 and contain any ferrous metal therein, the magnets 59 pivot the lower edge of the coin forwardly as permitted by the tapered tabs 52 in the reject cutout 50. This causes the lower edge of the coin to be displaced in front of the lower side of the cutout 50 so that the coin will fall to the space provided for rejecting the coins by the upper surface of one of the driving arms 95 or the pivot arm 85 and roll outwardly to be removed from the mechanism.

The size of the coins to be utilized by the mechanism may be changed simply by replacing the coin spacer 36, the slide 14, and the spacer plate 110 so that the different size coin can be deposited into the device and activate the calipers 40 as slide 14 is moved downwardly.

What is claimed as my invention is:

1. An actuating mechanism using coins of a predetermined size for the control of the operation thereof comprising:

- (a) a body defining therein a coin entry passage arranged to provide for the passage of coins there-through under the force of gravity, a slide cavity, a display cavity laterally spaced from said slide cavity, and a discharge aperture connecting said slide cavity and said display cavity, said entry passage opening on the exterior of said body and communicating at its lower end with said slide cavity;
- (b) slide means movably positioned in said slide cavity effective to receive coins from said entry passage and move the coins along said slide cavity, as said slide means moves;
- (c) check means movably carried in said slide cavity and effective to normally engage said slide means to prevent the movement thereof, said check means being displaced from engagement with said slide means by said coin of a predetermined size carried by said slide means to permit movement of said slide means and said coins;
- (d) discharge means carried by said body effective to laterally transfer said coins from said slide means to said display cavity when said slide means reaches a predetermined position; and
- (e) a plurality of pivotally mounted detent means carried in said display cavity, each detent means selectively retaining one of said coins for viewing and selectively releasing said coin for movement thereof under gravity to the next detent means for selectively retaining said coin for further viewing.

2. An actuating mechanism as set forth in claim 1 wherein said body comprises:

- (a) a base plate pivotably carrying said check means

and said discharge means, and defining one side of said coin entry passage and said slide cavity;

- (b) a slide spacer carried adjacent said base plate and defining the edges of said slide cavity;
- (c) a sub-base plate carried adjacent said slide spacer and defining the other side of said central cutout and one side of said discharge cavity, said sub-base plate defining said discharge apertures therethrough connecting said central cutout and said discharge cavity, said sub-base plate carrying said detent means in said display cavity;
- (d) a coin display spacer carried adjacent said sub-base plate and defining the edges of said display cavity;
- (e) transparent cover means adjacent said coin display spacer defining the other side of said display cavity and effective to present coins in said display cavity to the view of an operator; and
- (f) means for securing said base plate, said slide spacer, said sub-base plate, said coin display spacer and said cover together.

3. An actuating mechanism as set forth in claim 1 wherein said slide means includes

- (a) a recess defined therein effective to receive coins from said entry passage and position the coin to activate said check means as said slide means is moved in said slide cavity;
- (b) a notch defined therein effective to be engaged by said check means to prevent downward movement of said slide when the improper size coin is carried within said recess and effective to be released by said check means when said coin carried in said recess in said slide is of said predetermined size; and
- (c) handle means carried by said slide means and extending exteriorly of said body effective to be manually engaged to move said slide in said slide cavity and connected to a vending machine to activate the same as said handle means is moved.

4. An actuating mechanism as set forth claim 1 wherein said check means comprises:

- (a) a caliper member pivotally carried by said body and positioned in said slide cavity adjacent said slide means, said caliper member having a shoe portion engagable by a coin of said predetermined size carried in said recess in said slide means to displace said caliper member from adjacent said slide means;
- (b) a lock member pivotally carried by said body and positioned in said slide cavity, for engagement with said slide means to prevent the downward movement thereof, said lock member operably connected to said caliper member and effective to be moved toward engagement with said slide means as said caliper member is moved toward said slide means and to be displaced from engagement with said slide member as said caliper member is displaced from adjacent said slide means; and
- (c) means for urging said lock member toward engagement with said slide means.

5. An actuating mechanism as set forth in claim 1 wherein said discharge means includes:

- (a) an aperture defined through said body, communicating with said slide cavity and aligned with discharge aperture;
- (b) a discharge cam slidably extending through said aperture and into said slide cavity behind said discharge aperture to discharge coins carried by said slide means through said discharge aperture and into said display cavity when said slide means is at the lowermost position in said slide cavity; and
- (c) a leaf spring fixedly attached to the rear side of said body at one end thereof and carrying said cam at the other end thereof, said spring effective to urge said cam toward said slide cavity at all times, said slide member effective to displace said cam from said slide cavity as said slide means moves within said slide cavity.

6. An actuating mechanism as set forth in claim 1 wherein said detent means comprises:

- (a) a plurality of vertically spaced detent members pivotally mounted on said body and positioned in said display cavity, each of said detent members comprising a central web and a pair of diametrically oppositely extending sector portions effective to engage the coins in said display cavity in one position and to release the coins in an alternate position; and
- (b) linkage means operably connecting said detent members to said slide means for moving said detent members from said one position to said alternate position synchronously with the movement of said slide means.

7. An actuating mechanism as set forth in claim 6 wherein said linkage means comprises:

- (a) a vertically movable advancing arm having cam means thereon operably connected to said detent members and effective to move said detent members from said one position to said alternate position and from said alternate position to said one position upon movement of said advancing arm;
- (b) an actuator pivotally carried by said sub-base plate and engageable with said slide means for movement therewith; and
- (c) connecting means operably connected to said actuator and said advancing arm for moving said actuator and said advancing arm as said connecting means is moved, said connecting means engageable by said slide means for movement therewith.

8. An actuating mechanism as set forth in claim 1 further comprising:

- (a) a recess defined therein effective to receive coins from said entry passage and position the coin to activate said check means as said slide means is moved in said slide cavity;
- (b) a notch defined therein effective to be engaged by said check means to prevent downward movement of said slide when the improper size coin is carried within said recess and effective to not be engaged by said check means when said coin carried in said recess in said slide is of said predetermined size;
- (c) handle means carried by said slide means and extending exteriorly of said body effective to be manually engaged to move said slide in said slide cavity;
- (d) a caliper member pivotally carried by said body and positioned in said slide cavity adjacent said slide means, said caliper member having a shoe portion engageable by a coin of said predetermined size carried in said recess in said slide means to displace said caliper member from adjacent said slide means;
- (e) a lock member pivotally carried by said body and positioned in said slide cavity, for engagement with said slide means to prevent the downward movement thereof, said lock member operably connected to said caliper member and effective to be moved toward engagement with said slide means as said caliper member is moved toward said slide means and to be displaced from engagement with said slide member as said caliper member is displaced from adjacent said slide means;
- (f) means for urging said lock member toward engagement with said slide means;
- (g) an aperture defined through said body and communicating with said slide cavity and aligned with said discharge aperture;
- (h) a discharge cam slidably extending through said aperture and into said slide cavity behind said discharge aperture to discharge coins carried by said slide means through said discharge aperture and into said display cavity when said slide means is at the lowermost position in said slide cavity;
- (i) a leaf spring fixedly attached to the rear side of said body at one end thereof and carrying said cam at the other end thereof, said spring effective to urge

said cam toward said slide cavity at all times, said slide member effective to displace said cam from said slide cavity as said slide means moves within said slide cavity;

- (j) a plurality of vertically spaced detent members pivotally mounted on said body and positioned in said display cavity, each of said detent members comprising a central web and a pair of diametrically oppositely extending sector portions effective to engage the coins in said display cavity in one position and to release the coins in an alternate position, and,
- (k) linkage means operably connecting said detent members to said slide means for moving said detent members from said one position to said alternate position synchronously with the movement of said slide means.

9. An actuating mechanism as set forth in claim 1 further comprising:

- (a) a base plate pivotally carrying said check means and said discharge means, and defining one side of said coin entry passage and said slide cavity;
- (b) a slide spacer carried adjacent said base plate and defining the edges of said slide cavity;
- (c) a sub-base plate carried adjacent said slide spacer and defining the other of said central cutout and one side of said discharge cavity, said sub-base plate defining said discharge apertures therethrough connecting said central cutout and said discharge cavity, said sub-base plate carrying said detent means in said display cavity;
- (d) a coin display spacer carried adjacent said sub-base plate and defining the edges of said display cavity;
- (e) transparent cover means adjacent said coin display spacer defining the other side of said display cavity and effective to present coins in said display cavity to the view of an operator;
- (f) means for securing said base plate, said slide spacer, said sub-base plate, said coin display spacer and said cover together;
- (g) a recess defined therein effective to receive coins from said entry passage and position the coin to activate said check means as said slide means is moved in said slide cavity;
- (h) a notch defined therein effective to be engaged by said check means to prevent downward movement of said slide when the improper size coin is carried within said recess and effective to not be engaged by said check means when said coin carried in said recess in said slide is of said predetermined size;
- (i) handle means carried by said slide means and extending exteriorly of said body effective to be manually engaged to move said slide in said slide cavity;
- (j) a caliper member pivotally carried by said body and positioned in said slide cavity adjacent said slide means, said caliper member having a shoe portion engageable by a coin of said predetermined size carried in said recess in said slide means to displace said caliper member from adjacent said slide means;
- (k) a lock member pivotally carried by said body and positioned in said slide cavity, for engagement with said slide means to prevent the downward movement thereof, said lock member operably connected to said caliper member and effective to be moved toward engagement with said slide means as said caliper member is moved toward said slide means and to be displaced from engagement with said slide member as said caliper member is displaced from adjacent said slide means;
- (l) means for urging said lock member toward engagement with said slide means;
- (m) an aperture defined through said body and communicating with said slide cavity and aligned with said discharge aperture;
- (n) a discharge cam slidably extending through said aperture and into said slide cavity behind said dis-

11

charge aperture to discharge coins carried by said slide means through said discharge aperture and into said display cavity when said slide means is at the lowermost position in said slide cavity;

- (o) a leaf spring fixedly attached to the rear side of said body at one end thereof and carrying said cam at the other end thereof, said spring effective to urge said cam toward said slide cavity at all times, said slide member effective to displace said cam from said slide cavity as said slide means moves within said cavity;
- (p) a plurality of vertically spaced detent members pivotally mounted on said body and positioned in said display cavity, each of said detent members comprising a central web and a pair of diametrically oppositely extending sector portions effective to engage the coins in said display cavity in one position and to release the coins in an alternate position; and
- (q) linkage means operably connecting said detent members to said slide means for moving said detent members from said one position to said alternate position synchronously with the movement of said slide means.

10. An actuating mechanism for operating a vending machine, said mechanism using coins of a predetermined size to control the operation thereof comprising:

- a body including a first plate, a second plate and a third plate, said first plate juxtapositioned on one side of said second plate and said third plate juxtapositioned on the side of said second plate opposite said first plate;
- said second plate defining a cutout communicating with the exterior of said body for the introduction of the coins into said cutout;
- slide means slidably carried within said cutout between said first and third plates for moving the coins received in said cutout, said slide means defining at least one coin receiving recess therein to receive the coins introduced into said cutout;
- check means carried within said cutout for selectively precluding movement of said slide means within said cutout, said check means responsive to the diameter of the coin in said recess for permitting movement of the said slide means when the coin is of a predetermined diameter and for precluding movement of said slide means when the coin is of a diameter other than said predetermined diameter; and
- manually engageable means carried exteriorally of said body and operatively connected to said slide means for moving said slide means within said cutout.

11. An actuating mechanism for operating a vending machine, said mechanism utilizing coins of a predetermined size to control the operation thereof comprising:

- a first plate;
- a second plate arranged in juxtaposition with said first plate;

12

a third plate arranged in juxtaposition with said second opposite said first plate;

said second plate having a cutout therein and a coin entry passage communicating with the exterior of said mechanism and with said cutout for providing entrance of the coins into said cutout;

a slide means slidably carried in said cutout and between said first and third plates, said slide means defining a coin receiving recess therein constructed and arranged to receive coins therein from said coin entry passage when said slide means is in a first position and to retain the coin therein as said slide means is moved from said first position to a second position in said cutout;

check means operatively associated with said slide means for selectively precluding movement of said slide means from said first position to said second position in response to the diameter of the coins carried in said recess in said slide means, said check means permitting movement of said slide means from said first position to said second position when the coin in said recess is of a predetermined diameter and precluding movement of said slide means from said first position to said second position when the coin in said recess is not of said predetermined diameter;

said third plate defining first aperture adapted to receive coins therethrough from said recess when said recess is in said first position;

first camming means carried by first said plate and constructed and arranged for moving coins from said recess through said first aperture when said slide means is in said first position;

said third plate defining a second aperture therethrough constructed and arranged to overlie said recess in said slide means when said slide means is in said second position and adapted to receive coins therethrough from said recess; and

second camming means carried by said first plate and constructed and arranged to move coins from said recess through said second aperture when said slide means is in said second position.

12. The mechanism of claim 11 wherein said third plate defines a second cutout therethrough adjacent said coin entry passage and further including magnetic means for moving any coin containing ferrous material from said coin entry passage through said second cutout.

References Cited

UNITED STATES PATENTS

2,223,052	11/1940	Vantuyl et al.	194—93 X
2,271,109	1/1942	Wahl	194—93 X
3,011,614	12/1961	Palladino	194—55

55 STANLEY H. TOLLBERG, Primary Examiner

U.S. Cl. X.R.

194—102