United States Patent

[11] 3,545,586

[72] Inventor **Francis A. Wittern**
Des Moines, Iowa

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[73] Assignee **Fawn Engineering Company**
Des Moines, Iowa
a corporation of Iowa

[54] **ADJUSTABLE PRICE SETTING MECHANISM FOR A VENDING MACHINE**
3 Claims, 17 Drawing Figs.

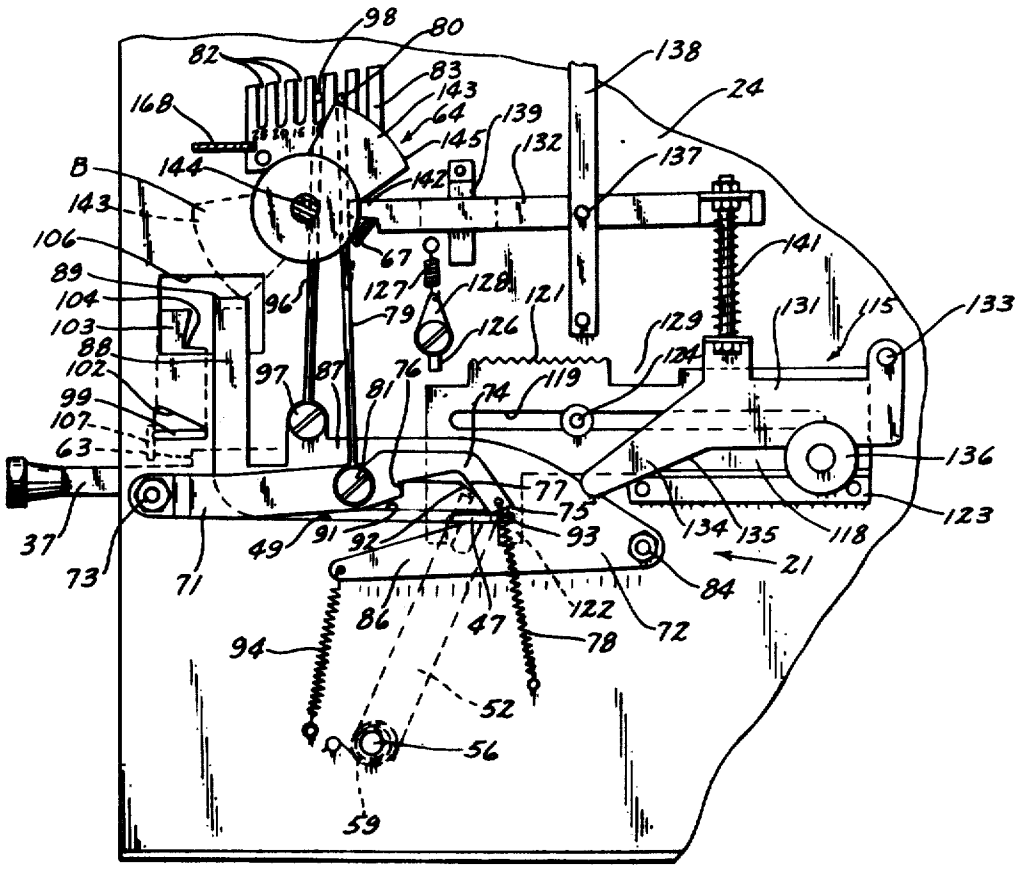
[52] **U.S. Cl.** **194/2, 194/48**
[51] **Int. Cl.** **G07f 11/00,**
[50] **Field of Search** ..... 74/568; 194/48, 57, .02, 2

[56] **References Cited**
UNITED STATES PATENTS

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Primary Examiner—Robert B. Reeves
Assistant Examiner—David A. Scherbel
Attorney—Rudolph L. Lowell

ABSTRACT: The price setting mechanism includes a coin operated means which produces information indicative of the value of coins inserted therein. An adjustable linkage means responsive to the information produced by the coin operated means is operably associated with high and low priced article vending members of the vending machine, to selectively lock such vending members in a nonvending position in accordance with the value of the coins received by the coin operated means. The machine thus functions to separately vend either a high or a low priced article. The linkage means is adjustable relative to a coin information cam unit of the coin operated means to regulate the monetary difference between the low and the high priced article. The cam unit in turn is adjustable to vary, between predetermined limits, the price range of the low and high priced articles. The price limits of the articles are thus determined by the adjustment of the cam unit and the monetary difference between the high and low priced articles, within such price limits, is determined by the adjustment of the linkage means.



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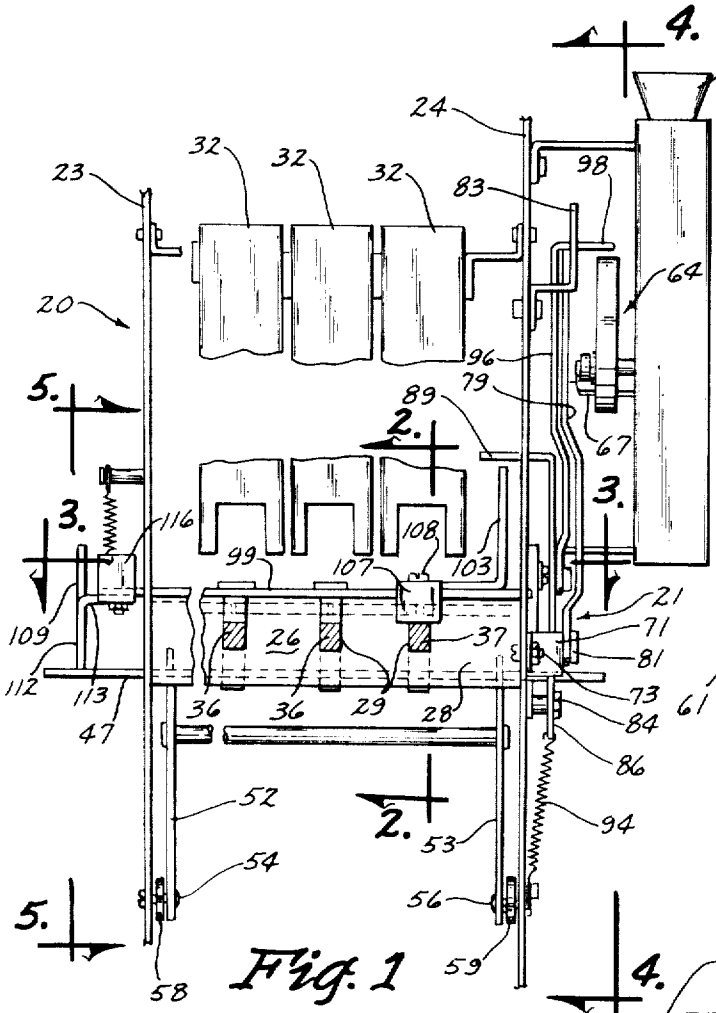


Fig. 1

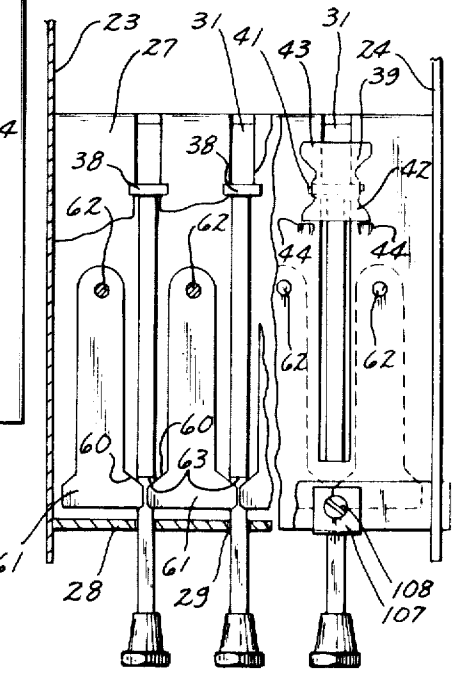


Fig. 3

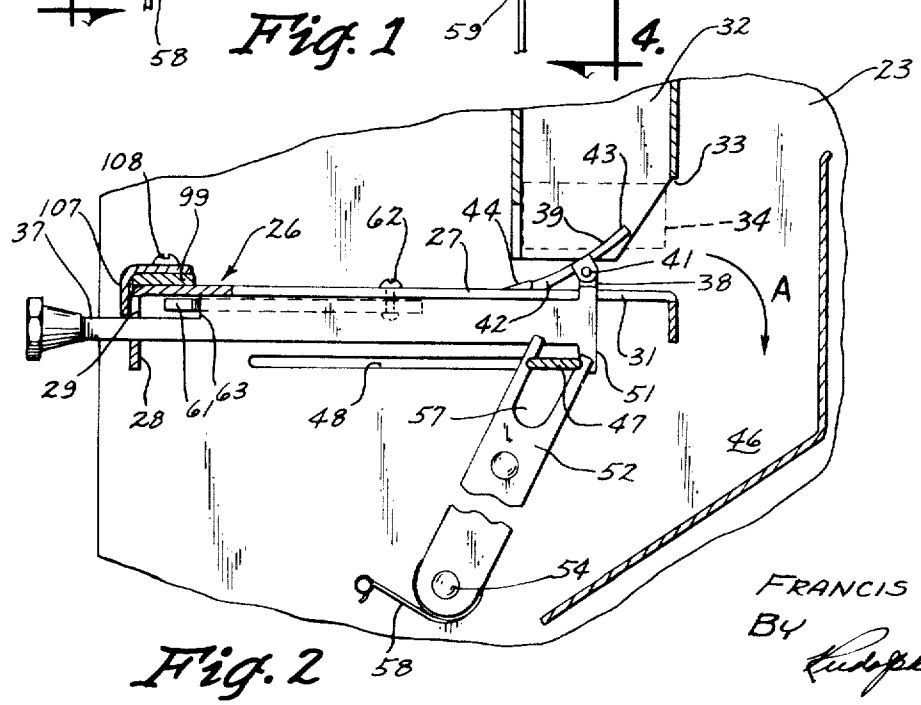


Fig. 2

INVENTOR
FRANCIS A. WITTERN
BY Rudolph L. Russell
ATTORNEY

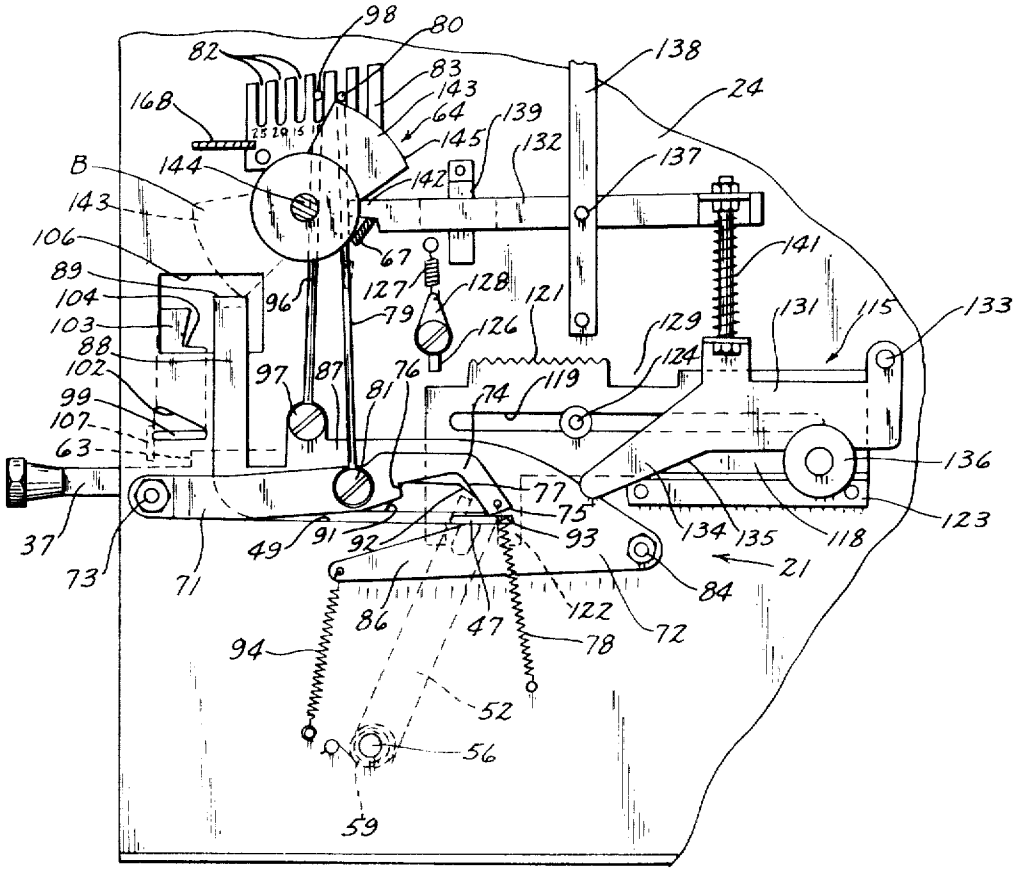


Fig. 4

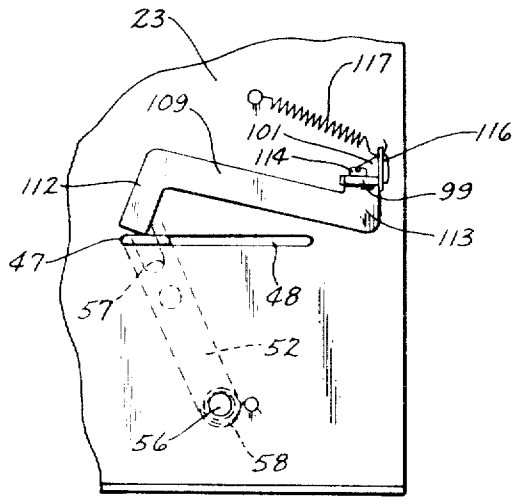


Fig. 5

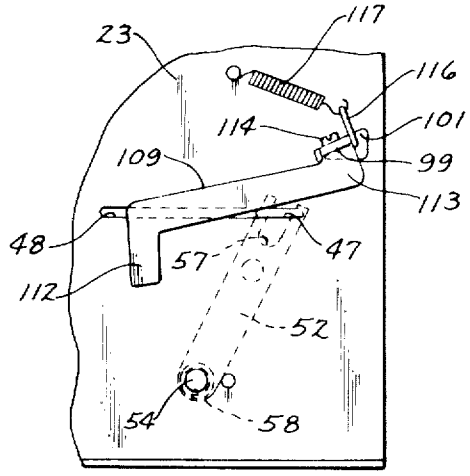


Fig. 6

INVENTOR
FRANCIS A. WITTERN
BY Rudyard L. Lowell
ATTORNEY

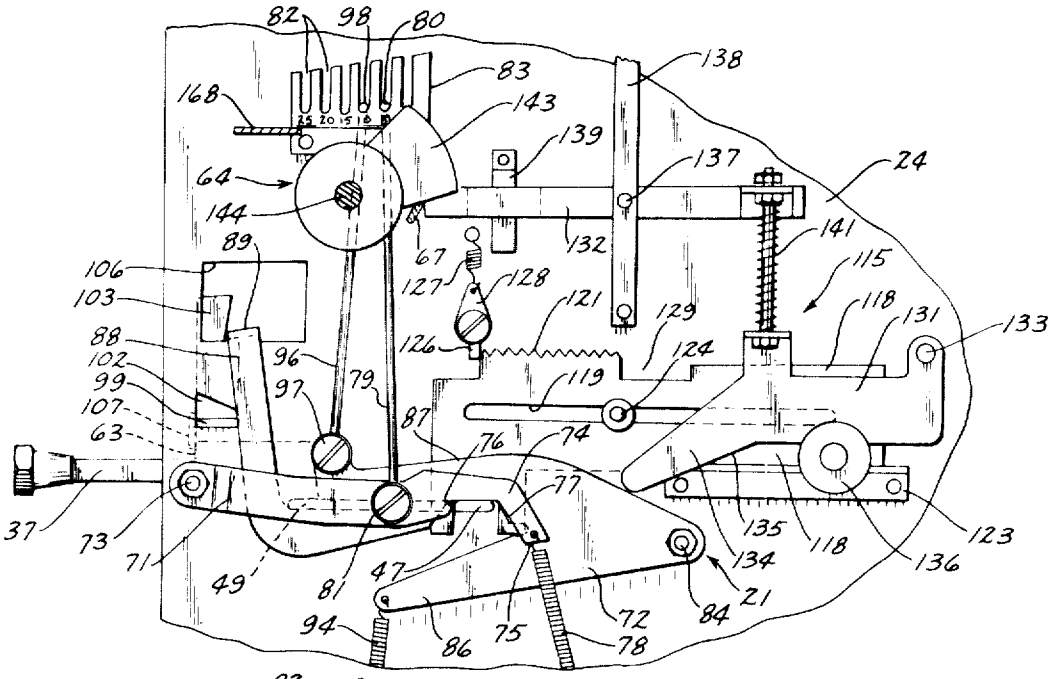


Fig. 7

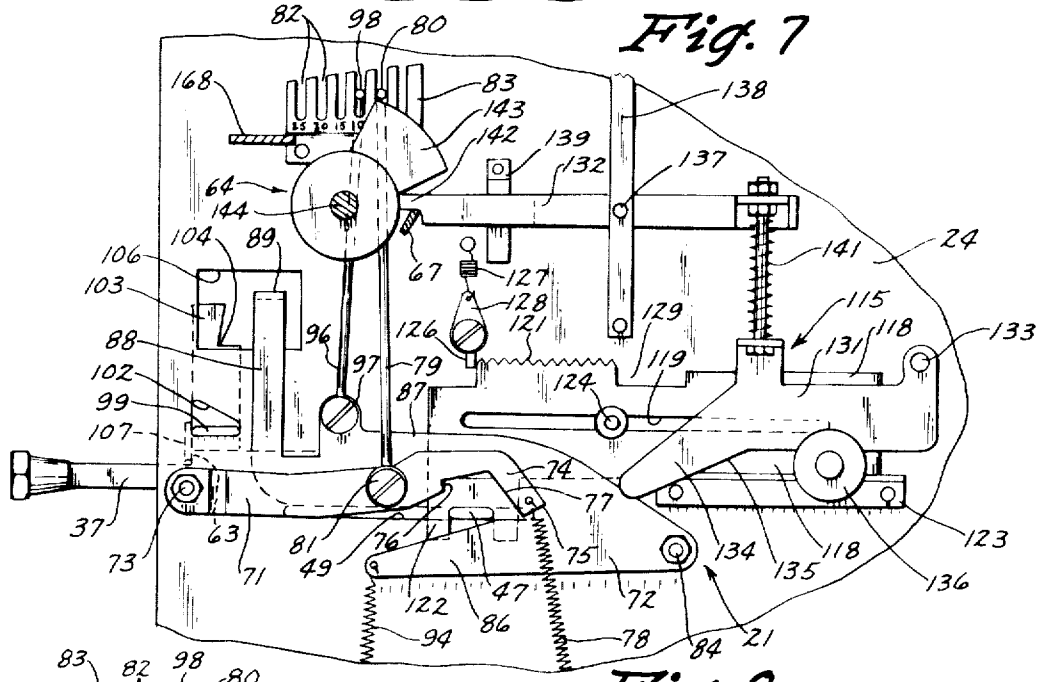


Fig. 8

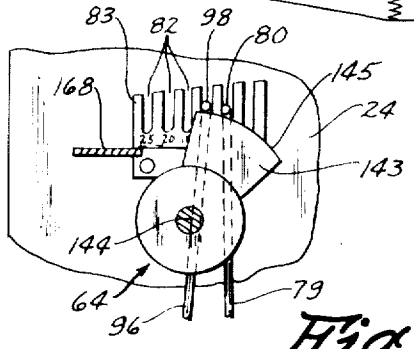


Fig. 9

INVENTOR
FRANCIS A. WITTERN
BY Rudolph R. Powell
ATTORNEY

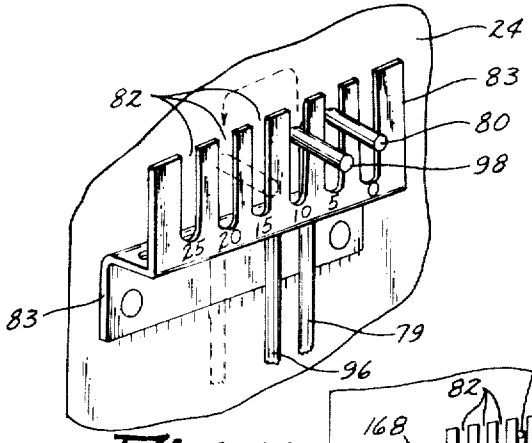


Fig. 10

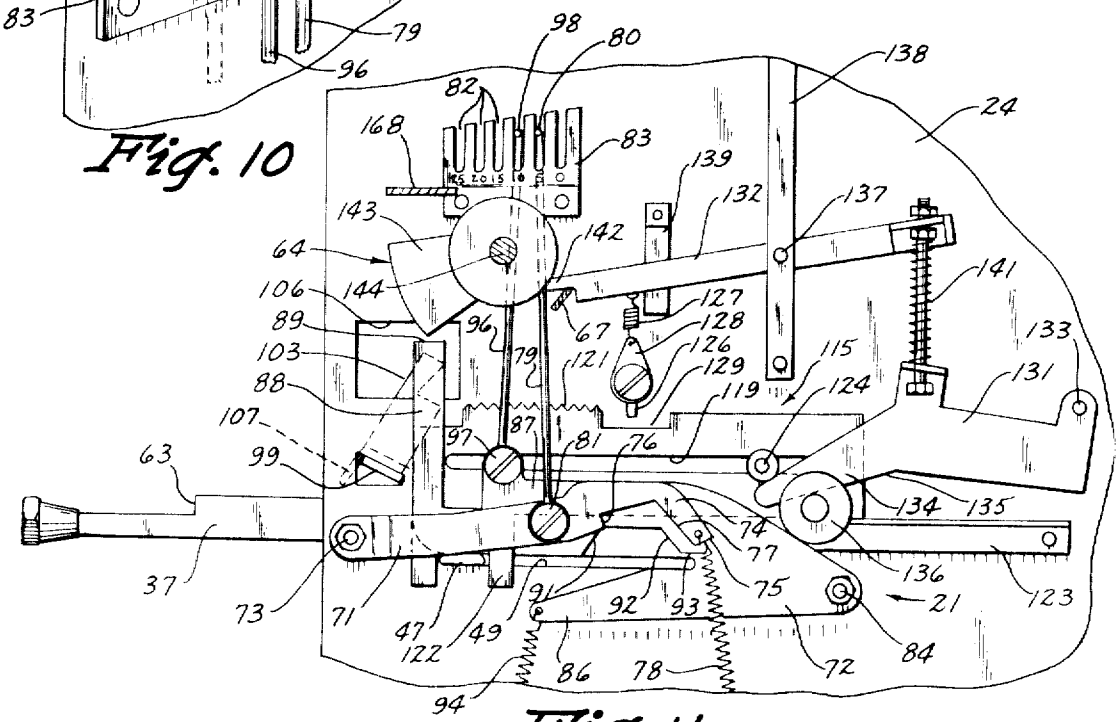


Fig. 11

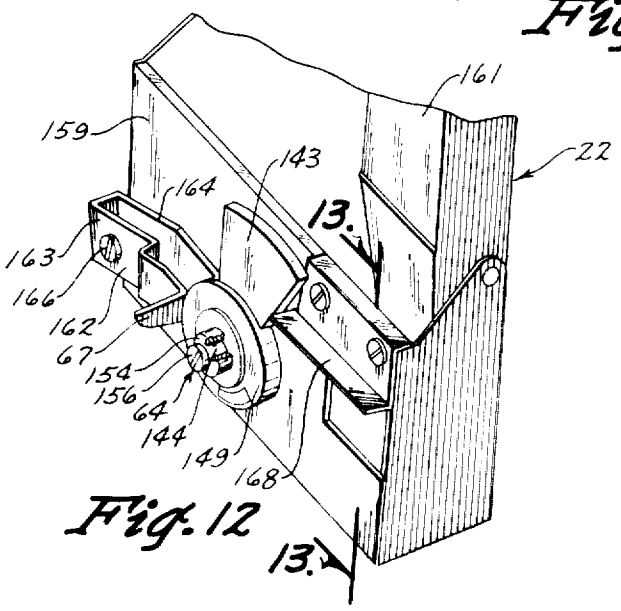


Fig. 12

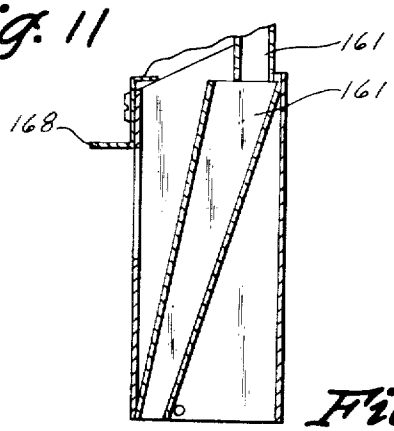


Fig. 13

INVENTOR
FRANCIS A. WITTERN
BY
Rudolph P. Lovell
ATTORNEY

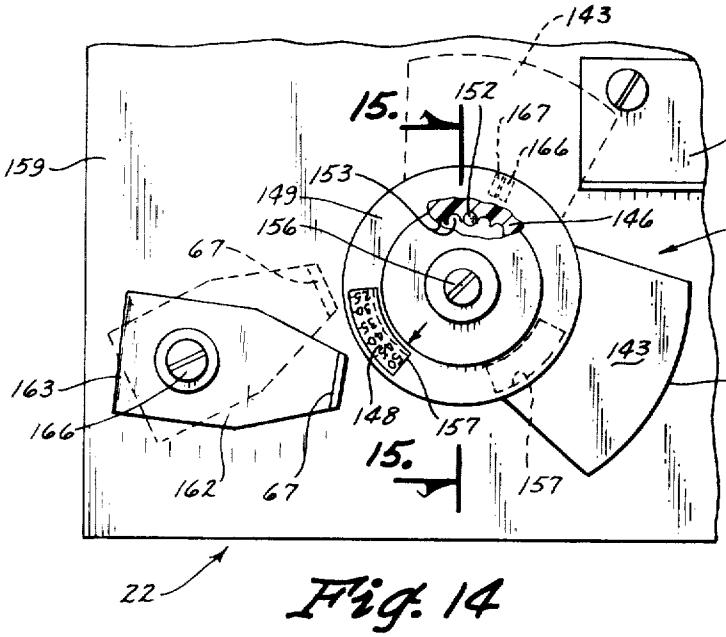


Fig. 14

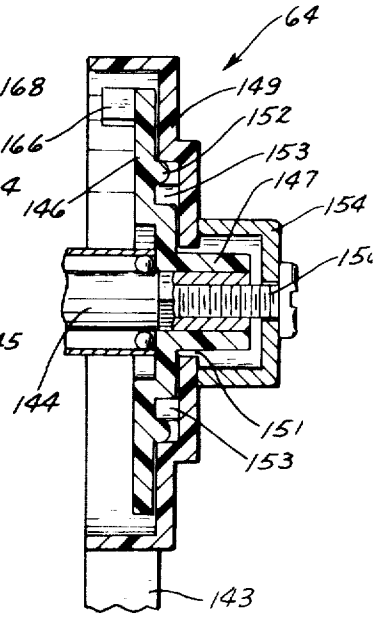


Fig. 15

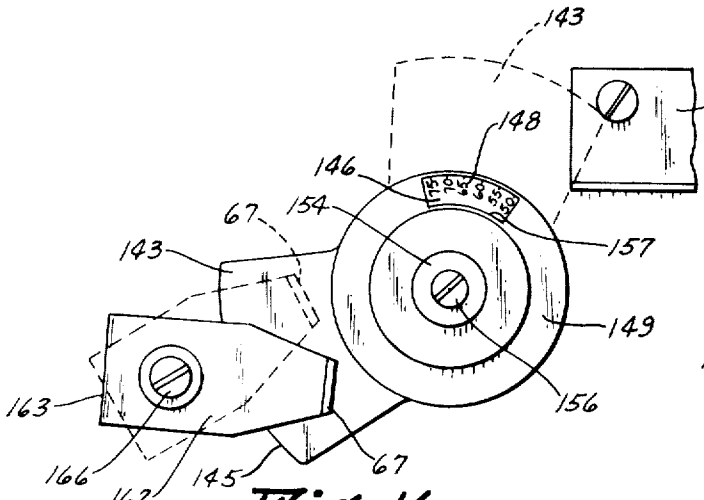


Fig. 16

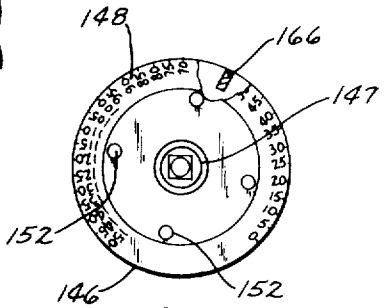


Fig. 17

INVENTOR
FRANCIS A. WITTERN
BY Rudolph L. Parulle
ATTORNEY

ADJUSTABLE PRICE SETTING MECHANISM FOR A VENDING MACHINE

BACKGROUND OF THE INVENTION

This invention is an improvement on the price setting mechanism for a vending machine disclosed in U.S. Pat. No. 3,139,167. The vending machine of U.S. Pat. No. 3,139,167 is of limited application to the vending of high and low priced articles within a relatively narrow price range, and is capable of varying prices only within such narrow range. The present invention embodies the coin operated means and linkage means of U.S. Pat. No. 3,139,167 in the same operative relation disclosed therein. The improvement consists in providing for a wide price range in the articles to be vended and the regulation of the monetary difference between high and low priced articles, as taught by U.S. Pat. No. 3,139,167, within a preselected portion of the wide price range.

SUMMARY OF THE INVENTION

The invention provides a price setting mechanism for a vending machine which is of a simple and compact construction and capable of being readily adjusted to set a price differential between low and high priced articles, over a wise price range. The price of the articles may be varied over a price range of up to $1.50, with the price differential between the high and low priced articles being variable within a preselected 25-cents portion of such price range. The means for adjusting the prices are readily accessible within the machine so that adjustments can be made in a minimum of time by the lessee or owner of the vending machine. As a result the machine is readily adapted to the vending of high and low priced articles within 25-cent increments from a minimum low priced article of 5 -cents up to a maximum high priced article of $1.50.

DETAILED DESCRIPTION OF THE INVENTION

Further objects, features and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawing, wherein:

FIG. 1 is a front elevational view of an article vending machine that incorporates the price setting mechanism of this invention;

FIG. 2 is a sectional view taken along the line 2–2 of FIG. 1;

FIG. 3 is a sectional view as seen on line 3–3 of FIG. 1;

FIG. 4 is a side elevational view of the control linkage, taken on line 4–4 of FIG. 1, for regulating the price differential between high and low priced articles to be vended;

FIG. 5 is a side elevational view of a part of the control linkage as seen along the line 5–5 in FIG. 1;

FIG. 6 is illustrated similarly to FIG. 5 and shows the parts thereof in changed positions;

FIG. 7 is a side elevational view of the control linkage, illustrated similarly to FIG. 4, showing the relation of the locking parts prior to the vending of a low priced article.

FIG. 8 is illustrated similar to FIG. 4 and shows the relation of the locking parts in the vending of a low priced article;

FIG. 9 is illustrated similar to FIG. 4 and shows the position of the coin information cam unit relative to the lever control rods when a high priced article is to be vended;

FIG. 10 is a perspective view of the slotted guide bracket for the lever holding rods of the control linkage;

FIG. 11 is illustrated to FIG. 4 and shows the relation of the locking parts of the control linkage after a vending operation has been completed;

FIG. 12 is an enlarged perspective view of the coin information cam unit which forms part of the coin operated means of the vending machine, and which is adjustable to regulate the price range within which the low and high priced articles are to be vended;

FIG. 13 is a sectional view taken along the line 13–13 of FIG. 12;

FIG. 14 is an enlarged front elevational view of the cam unit of FIG. 12 with some parts broken away and other parts shown in section to more clearly show its construction;

FIG. 15 is an enlarged sectional view taken along the line 15–15 of Flg. 14;

FIG. 16 is illustrated similarly to FIG. 14 and shows parts of the cam unit in changed positions; and

Flg. 17 is a front elevational view of a part of the cam unit showing the indicia for indicating a predetermined price range.

Referring to FIGS. 1 and 2 of the drawings there is shown an article vending machine 20 that incorporates the linkage means 21 and coin operated mechanism 22, of U.S. Pat. No. 3,139,167, and wherein the linkage means 21 is adjustable relative to the coin operated mechanism 22 to regulate the monetary difference between the low and high priced articles to be vended. This machine 20 has a frame which includes a pair of horizontally spaced vertical sideplates 23 and 24. A channel-shaped member 26 is extended between and secured to the sideplates with the web 27 thereof positioned horizontally between the side plates. A front flange 28 of the channel member 26 projects downwardly and is formed with a plurality of horizontally spaced openings 29 corresponding to the number of separate articles to be vended. As shown in FIG. 3, the web 27 is provided with laterally extended slots 31 each of which is in alinement with a corresponding one of the openings 29 of the flange 28.

A series of upright article storing guides or chutes 32 (FIGS. 1 and 2) disposed over the rear portion of the channel member 26 are secured to the frame sideplates 23 and 24 and correspond in number to the number of separate articles 34 to be vended (FIG. 2). The lower end of each chute 32 is disposed above a slot 31 and is formed in its rear wall with an opening 33 through which articles 34 are dispensed.

The articles 34 (FIGS. 1 and 2) are pushed from the lower ends of the chutes 32 and through the openings 33 by associated parallel vending members or pull rods 36 and 37 that are slidably supported in the channel-shaped member 26 with their forward ends extended through a corresponding opening 29 in the channel member front leg 28. When a rod 36 is operated a low priced article is vended and when the rod 37 is operated a high priced article is vended. The rod 37 is positioned below the channel member web 27 and has an upwardly extended T-shape projection 38 at its rear end (FIGS. 2 and 3) which projects through the slot 31 with the lower surface of the cross arm portion thereof engageable with the upper surface of the web 27. The projection 38 thus guides the rod 37 for reciprocal movement longitudinally of the slot 31.

A pivoted pawl 39 is associated with each rod 36 and 37 to control the operation thereof relative to a loaded or unloaded condition of a corresponding article holding chute 32. Thus, as shown for the rod 37 in FIG. 2 the pawl 39 is pivoted to the projection 38 by a pin 41 which extends normal to the longitudinal direction of the slot 31. The front arm 42 of the pawl 39 is substantially heavier than the rear arm 43. Thus, when the rod 37 is in its rearmost moved or normal "in" position, and the chute 32 corresponding thereto is empty, the front arm 42 is tiltable downwardly into engagement with a stop 44 on the channel member web 27. The rod 37 is thus locked in its normal "in" position against forward movement when the chute 32 does not contain articles to be dispensed.

When an article 34 is in the chute 32 the pawl 39 is pivoted by the weight of the article 34 to a substantially horizontal position out of engagement with the stop 44. The rod 37 is thus permitted to be moved forwardly to its "out" position. When the rod 37 is pulled by the customer to the "out" position the pawl 39 is moved forwardly out from under the article 34 and pivots in a counterclockwise direction, as viewed in FIG. 2, to engage the front arm 42 with the stop 44 and to raise the rear arm 43. Concurrently with the movement of the pawl 39 from beneath the lowermost article 34, such article drops to the bottom of the chute 32 in a supported position on the channel member web 27. On a return rearward movement of the rod to the "in" position, the rear end of the arm 43 engages the front part of the lowermost article 34 and forces the article rearwardly in the direction of the arrow A, through the opening 33, and into a receiving passage 46 where it can be retrieved by the customer.

The rods 36 and 37 (FIGS. 1, 2 and 4) are biased to the "in" position by a horizontal bar 47 which is slidably mounted in horizontal slots 48 and 49 formed in the sideplates 23 and 24, respectively. The rear edge of the bar 47 is engageable with a downward projection 51 (FIG. 2) at the rear end of each of the rods 36 and 37. A pair of transversely spaced upwardly and rearwardly extended arms 52 and 53 (FIGS. 1 and 2) are pivotally mounted below the bar 47 to the sideplates 23 and 24 by means of pins 54 and 56, respectively.

The upper end of each arm is provided with a yoke 57 for receiving the bar 47 so that on rotation of the arms 52 and 53 about the pins 54 and 56 the bar 47 is moved in a horizontal plane parallel to the axis of rotation of the arms. A pair of torsion springs 58 and 59 associated with the pins 54 and 56 urge the arms 52 and 53 in a rearward direction or clockwise as viewed in FIG. 2.

As shown in FIGS. 2 and 3, flat T-shaped keys 61 are pivotally mounted on a vertical axis from the lower side of the web 27 of the channel member 26 by rivets 62. A single key 61 is horizontally positioned between adjacent pull rods 36 and 37 so that cam surfaces 60 on the rear sides of the heads of adjacent keys are engageable with a vertical face 63 of a step formed on the body member of a rod 36 or 37. Thus, the heads of adjacent keys 61 abut each other and are engageable with the face 63 of a common rod 36 or 37. The heads of the outside keys 61 abut the sideplates 23 and 24 so as to limit the pivotal movement of the keys in response to the outward movement of one of the rods 36 and 37. The width of the head of a key 61 coupled with the limited pivotal movement of the keys enables the keys 61 to lock all of the rods, except one, in the "in" position. In other words, when a rod 36 or 37 is pulled forwardly to the "out" position, the keys 61 to each side of the pulled rod are pivoted to lock all of the remaining rods in the "in" position. This locking function of the keys 61 prevents the concurrent movement of more than one of the rods to an "out" position.

The selective movement of the rods 36 and 37 to their "out" position is controlled by the locking linkage 21 which it released by the coin operated mechanism 22 (FIGS. 1 and 4). The mechanism 22 responds to one or more coin denominations to produce position information on a cam unit 64 which is a function of the monetary sum of the coins supplied to the mechanism. In other words, for example, if a quarter is inserted into the mechanism the cam unit will be rotated to a position corresponding to low price information. The addition of a nickel will produce a rotated position of the cam unit corresponding to high price information. A suitable coin operated mechanism 22 is manufactured under the name of SCS Accumulator or Totalizer by the National Register Company, of St. Louis, Mo.

The mechanism 22 includes a coin receiving chute 66, a position output cam unit 64 of this invention, and a reset trip lever 67 (FIG. 1). The angular rotated position of the cam unit 64 relative to its normal rest or home position is a function of the monetary sum of the coins inserted into the coin receiving chute 66. Thus, on the placement of coins in the chute 66 the cam unit 64 is rotated from its home position to a moved position depending upon the monetary value of the coins. In the Totalizer available from the National Register Company the shaft which supports the cam unit 64 is moved in equal angular increments for each 5-cent value. Actuation of the trip lever 67 permits the cam unit 64 to rotate back to its initial or home position.

The cam unit 64 releases a first lever means 71 (FIG. 4) and a second lever means 72 to control the separate vending operation of the machine. The first lever 71 is pivoted at its forward end to the sideplate 24 by a pine 73 for pivotal movement about a horizontal axis. The rear section 74 of the first lever means 71 is of a reduced width to form a locking abutment 76 for engaging the forward side of the bar 47 to limit its outward movement in the slots 48 and 49. The lever rear section 74 has a downwardly and rearwardly extended cam surface 77 spaced longitudinally rearwardly from the abutment 76 and terminating in a substantially horizontal surface 75. The cam surface 77 is engageable with the rear edge of the bar 47 to raise the lever 71 to an inoperative position when the bar 47 is in the "in" position.

A tension spring 78 is secured to the lever rear section 74 and the sideplate 24 to bias the lever 71 into engagement with the bar 47. An upright lever holding rod 79 pivoted at its lower end to the lever 71 by means of a bolt 81, is provided with a laterally extended finger 80 that is engageable with the coin information cam unit 64. The finger 80 is guidably received within a selected one of a series of upright slots 82 of a guide bracket 83 that is mounted on the sideplate 24. The distance between the outer ones of the slots 82 determines the amount of arcuate movement of the coin information cam unit 64 that is necessary to control the locking linkage 21. The finger 80 can be placed in different slots 82 in accordance with the desired indexed price differentials.

The second lever means 72 is pivotally mounted at its rear end on the sideplate 24 by means of a pin 84 for rotation about a horizontal axis (FIG. 4). The lever 72 has a first arm 86 extended forwardly from the pivot 84 and a second arm 87 is inclined upwardly and forwardly relative to the first arm. The front end of the second arm 87 terminates in an upwardly directed finger 88 having at its upper end an inwardly extended horizontal projection 89 (FIGS. 1 and 4), the purpose of which will be described hereinafter. Forwardly of the junction of the arms 86 and 87, the underside of the lever 71 is formed with a recess to provide an upwardly and rearwardly inclined cam surface 91 (FIG. 4) and a downwardly and rearwardly sloped cam surface 92 which terminates in a rearwardly extended flat surface 93. When the bar 47 is biased in the "in" position the lever 72 is moved to a raised position by the action of the rearward edge of the bar 47 on the surface 92 and is held in the raised position by the flat surface 93. A tension spring 94 interconnects the front terminal portion of the arm 86 with the side plate 24 to bias the lever 72 in a downward direction.

An upright lever holding rod 96 (FIG. 4) is pivotally connected at 97 to the arm 87 of the lever 72. The upper end of the rod 96 terminates in a horizontal finger 98 receivable in a slot 82 of the bracket 83 for engagement with that portion of the coin information cam unit 64 which represents high price information. The finger 80 of the rod 79 extends through a slot 82 located rearwardly of the slot 82 for the finger 98 and is engageable with that portion of the cam unit 64 which represent low price information.

As shown in FIGS. 1, 2 and 4, a bar 99 extends horizontally across the forward upper edge of the channel-shaped member 26 and is pivoted in triangular-shaped openings 101 and 102 in the sideplates 23 and 24, respectively, (FIGS. 4 and 5) for pivotal movement about its rear edge. An upwardly extended arm 103 (FIG. 4) is secured to the upper surface of the bar 99 adjacent the finger 88 of the lever 72. The arm 103 has a notch 104 in its rear side for receiving the projection 89 on the finger 88 of the lever 72. The projection 89 extends through a square opening 106 in the sideplate 24 and moves into and out of engagement with the arm 103 in response to the pivotal movement of the lever 72. The cam surfaces 91 and 92 when engaged by the edges of the bar 47 determine the pivotal movement of the lever 72. The locking action between the arm 103 and the lever 72 is carried forward to the rod 96 by the use of an angular tab 107 (FIGS. 2 and 4) secured to the upper surface of the bar 99 by means of a screw 108. The angular tab 107 can be selectively positioned adjacent the rods 36 and 37 by moving the screw 108 into another threaded hole in the bar 99 to provide the various stations of the vending machine with a high price pull rod or vending member.

The angular position of the bar (FIGS. 1 and 5) is controlled by a rearwardly and upwardly extended arm 109 that has a rearwardly and downwardly projected leg 112 and a forwardly located projection 113. The projection 113 lies adjacent the lower surface of an end of the bar 99 and is secured thereto by means of a bolt 114. A tab 116 is secured by the bolt 114 to the bar 99. A tension spring 117 is interconnected between

the tab 116 and the plate 23 and functions to pivot the bar 99 upwardly about its rear edge. The terminal portion of the leg 112 engages the bar 47 and holds the bar 99 in a horizontal position when the plate 47 is in the "in" position.

In order to prevent the reverse operation of the control linkage 21 of the vending machine 20 there is provided a reversible one-way positive brake 115 which prevents reverse motion of the rods during their operation between the "in" and "out" positions. In other words, the selected rod 36 and 37 must be moved to the "out" position before it can be moved back to the "in" position thereby preventing the vending of more than one article.

As shown in FIG. 4, the brake 115 includes an upright slideplate 118 formed with a longitudinally extended slot 119. The forward top side of the slideplate has a rack 121 and the forward bottom side of the slide member is formed with a fork or yoke 122. The slideplate 118 is slidably mounted for horizontal movement on the side member 24 by means of a guide bracket 123 and a pin 124 extended through the slot 119. The yoke 122 receives the bar 47 in a driving relation therewith. A pawl 126 pivotally mounted on the frame sideplate 24 is operatively associated with the rack 121 to engage the rack when the bar 47 is moved from the "in" position to the "out" position so as to prevent a reversed movement of the pull rods 36 and 37 between such positions.

A spring 127 connected to a projection 128 on the pawl 126 yieldably holds the pawl in a perpendicular relation with the rack 121 when the pawl is moved out of engagement with the rack. With the bar 47 in the "out" position the pawl 126 enters a recess 129 formed in the slide plate 118 rearwardly of the rack 121. This action of the pawl 126 provides for the movement of the rack 121 and the bar 47 from the "out" position back to the "in" position, and prevents movement of the bar 47 back to the "out" position after movement to the "in" position has been initiated.

As shown in FIG. 4 the coordination of the "in" and "out" movement of the pull rods 36 and 37 with the resetting of the coin operated mechanism 22 is accomplished by a pair of levers 131 and 132 operatively connected to the slideplate 118 so that when the slide is moved to the "out" position the lever 132 will trigger the trip finger 67 thereby resetting the coin operated mechanism.

The lever 131 has its rear end pivotally mounted at 133 on the frame sideplate 24 and is integrally formed with a forwardly and downwardly inclined front section 134. The bottom side 135 of the lever constitutes a cam surface having a rear horizontal cam section and a front inclined section that are ridable on a guide roller 136 rotatably supported adjacent the rear end of the slideplate 118. The lever 132 is pivoted at 137 intermediate its ends on the frame sideplate 24 for pivotal movement between guide members 138 and 139 secured to the sideplate 24. The levers 131 and 132 are yieldably interconnected by a spring and rod connecter 141 for pivotal movement of the lever 132 in response to the pivotal movement of the lever 131, as effected by the travel of the slideplate roller 136 along the bottom side 135 of the lever 131.

The forward end portion 142 of the lever 132 is movable into engagement with the trip finger 67. When the slideplate 118 is moved to the "out" position the lever 131 is rotated in a clockwise direction, as viewed in FIG. 4, to move the yieldable connecter 141 in an upward direction. This upward movement of the connecter 141 pivots the lever 132 in a counterclockwise direction, as also viewed in FIG. 4, whereby the forward portion 142 of the lever 132 engages the trip finger 67 to reset the coin operated mechanism 22.

The initial angular position of the coin information cam unit 64 prior to the insertion of a coin in the mechanism 22 is shown in FIG. 7 wherein the pull rods 36 and 37 are locked in the "in" position by the levers 71 and 72. The locking abutment 76 on the lever 71 engages the forward surface of the bar 47 restricting the movement thereof to the "out" position. The second lever 72 engages the arm 103 through the projection 89 to hold the angular tab 107 in the path of movement of the face 63 of the step in the rod 37. The lever 71 stops the outward movement of the bar 47 before the pawl 126 engages the rack 121 of the one way positive brake 115 thereby allowing the springs 58 and 59 to move the bar 47 back to the "in" position as shown in FIG. 4.

After a sufficient number of coins have been deposited in the coin operated mechanism 22 equal to the monetary sum of the low priced article, the coin information cam unit 64 is angularly moved to the position shown in FIGS. 4 and 8. In this position the forward end of a cam member 143 of the cam unit 64 lies adjacent the horizontal finger 80 of the lever holding rod 79 and limits the downward movement of the lever 71. As shown in FIG. 4 the bar 47 when in the "in" position engages the terminal face 75 of the finger 74 of the lever 71 so as to hold the lever in an "up" and inoperative position against the force of the spring 78.

The bar 47 also engages the horizontal surface 93 of the second lever 72 to hold this lever in an "up" and inoperative position. When the bar 47 is in the "in" position as shown in FIGS. 4 and 5 the terminal portion of the leg 112 of the arm 109, as shown in FIG. 5, engages the bar 47 to hold the tab 107 (FIG. 2) in the outward path of movement of the step of the pull rod 37. When the bar 47 is moved toward the "out" position the lever 72 is moved down by the spring 94 until the bar 47 engages the surface formed between the converging cam surfaces 76 and 77. When the lever 72 is in the lower position shown in FIG. 8, the projection 89 on the arm 88 engages the arm 103 to hold the tab 107 in the path of movement of the step 63 of the rod 37. As a result the rod 37 is held against movement to the "out" position whereby to prevent the vending of a high priced article.

On a continued movement of the bar 47 toward the "out" position the forward edge of the bar 47 engages the cam surface 91 and moves the projection 89 from the arm 103 by raising the lever 72. The bar 99 is rotated about its rear edge by the spring 117 (FIG. 6) to move the tab 107 from the path of movement of the step face 63 of the rod 37. This outward movement of the bar 47 is the result of the outward movement of one of the pull rods 36. Thus, as shown in FIG. 3 when one of the rods 36 or 37 is moved toward the "out" position the keys 61 lock the remaining rods in the "in" position. The keys 61, therefore, prevent the outward movement of the rod 37 when a low priced article is being vended.

When a high priced article is to be vended additional coins are inserted in the coin operated mechanism 22 to move the cam member 143 of the coin information cam unit 64, to the angular position shown in FIG. 9. In this position the cam member 143 is adjacent the horizontal finger 80 of the rod 79 and the horizontal finger 98 of the rod 96. The outer peripheral surface 145 of the cam member 143 holds the rods 79 and 96 and the first and second levers 71 and 72 in a raised position. When the levers 71 and 72 are held in the raised position, the pull rod 37, which is indicative of a high priced article, can be moved to the "out" position and returned to the "in" position to vend the high priced article.

The "OUt" position of the bar 47 is shown in FIG. 11. In this position the locking function of the linkage 21 has been completed, and the coin operated mechanism 22 has been tripped to its reset position by the action of the levers 131 and 132 on the trip finger 67. When the slideplate 118 is in the out position the rotatable pawl 126 is in the recess 129 and is movable against the spring 122 into a nonengaging position relative to the teeth on the rack 121 to permit the slideplate 118 to move back to the "in" position. The tab 107 is held out of engagement with the pull rod 37 by the force of the spring 117 acting on the bar 99 (FIG. 6). The bar 47 engages the lower surface of the arm 109 to control the angular position of the bar 99. Movement of the bar 47 from the "out" position to the "in" position rotates the bar 99 about its rear end edge thereby moving the locking tab 107 into the path of movement of the step 63 of the pull rod 37.

The above described vending machine **20** and the operation thereof is the subject matter of the invention disclosed in U.S. Pat. No. 3,139,167. In such patent the coin information cam, which forms part of the coin operated mechanism **22**, is limited in its rotational movement and can only provide for the dispensing of a high priced article having a maximum cost of 50cents and a low priced article having a minimum cost of 30-cents. The monetary difference between the high and low priced articles thus takes place only between a single price range of from 30-cents to 50-cents.

In the present invention the coin information cam unit or credit wheel **64** is rotatable through substantially 360° and is adjustable relative to the finger portions **80** and **98** of the feeler rods **79** and **96**, respectively, in the control linkage means **21** to provide for the dispensing of a high priced article having a maximum cost of $1.50 and of a low priced article having a minimum cost of 5-cents. Additionally, the monetary difference between the high and low priced articles may be varied within any 25-cent increment over the complete price range of from 5-cents to $1.50.

Referring to FIGS. **12** and **14**, the coin information cam unit **64** is carried on a shaft **144** rotatably mounted on the coin operated mechanism **22** for rotational movement in response to the monetary value of the coins supplied to the mechanism **22**. The cam unit **64** (FIGS. **14** and **15**) is comprised of a base wheel **146** having a hub **147** mounted on the shaft **144** for rotation therewith. The peripheral portion of the outer face of the wheel **146** is provided with peripherally spaced price indicating numerals **148**.

A cam member **149** of a generally dish shape having a central shaft receiving opening **151** is positioned about the shaft **144** so as to enclose the base wheel **146**. A series of outwardly extended circularly spaced teeth **152** on the outer face of the wheel are selectively engageable with a series of circularly spaced teeth **153** formed in the inner face of the cam member **149** to interlock the cam member for rotation with the base wheel **146**. The cam member **149** and wheel **146** are held in this interlocked relation by a sleeve washer **154** positioned about the end of the shaft **144** and clamped against the outer face of the cam member **149** by a clamping screw **156** threadably axially into the shaft **144**.

On release of the screw **156** the teeth **153** on the cam member **149** are axially movable out of engagement with the teeth **152** on the wheel **146** to provide for the rotatable adjustment of the cam member relative to the wheel **146** to a rotated position corresponding to a selected price setting of the high and low priced articles as indicated by the numerals **148**. As shown in FIG. **17** the numerals **148** are numbered in sequence from 0 to $1.50 in 5-cent increments through an arcuate window or opening **157** formed in the cam member **149**. The teeth **153** are spaced apart a distance corresponding to the spacing of the numerals **148**, so that the adjustment of the cam member **149** by one tooth **153** relative to the wheel **146** corresponds to a 5-cent change as indicated by the numerals **148**.

The cam section **143** of the cam member **149** extends radially from the cam member **149**. As shown in FIG. **7**, the finger portions **80** and **98** of the lift rods **79** and **96**, respectively, are selectively received within the slots **82**, of the guide bracket **83** and are illustrated as six in number. The slots **82** are spaced apart from each other a distance corresponding to a 5-cent increment over a price range of 25-cents. The arcuate length of the cam surface **145** on the cam section **143** is substantially equal to the distance between the end ones of the slots **82** so as to be movable into engagement with the finger portions **80** and **98** for any positions thereof in the slots.

As best shown in FIGS. **4** and **12** the coin information cam unit **64** is rotatable adjacent the side panel **159** of the coin operated mechanism **22**, free of any interference with the coin discharge chutes **161** (FIGS. **12** and **13**) of the mechanism **22**. The trip reset finger **67** (FIGS. **11** and **12**) is formed as a laterally outwardly extended terminal on a leg section **162** of a U-shape trip member **163**, the other leg section **164** of which is connected with the reset portion (not shown) of the coin operated mechanism **22**. The trip member **163** is pivotally supported on the side panel **159** by a pin **166** extended through the leg sections **162** and **164** remote from their free ends.

The cam section **143** is thus movable between the pivoted leg sections **162** and **164** which function to interconnect the trip finger **67** with the reset portion of the coin operated mechanism **22**. Rotation of the cam member **149** is thus permitted through an angular distance from its full line position shown in FIG. **14**, to the dotted line position shown in the same figure, providing for the vending of a high pi priced article having a maximum cost of $1.50.

Rotation of the wheel **146** in a counterclockwise direction, as viewed in FIG. **14**, to its reset or home position shown in full lines in the same figure, is defined by the engagement of a stop lug **166** projected from the inner surface of the wheel **146**, with a stop block **167** secured to the side panel **159** in the path of rotation of the lug **166**. Rotation of the wheel **146** in a clockwise direction to a vending position is limited by the engagement of the cam section **143**, as shown in dotted lines in FIG. **14**, with a stop bracket **168** secured to and projected outwardly from the side panel **159**. This vending position of the wheel **146** provides for the cam section **143** acting on the finger portions **80** and **98** for any locations thereof within the slots **82** without permitting the cam section to rotate beyond a vending position relative to the finger portions.

As previously mentioned the arcuate length of the window **157** provides for the viewing therethrough of the numerals **148** in increments of 25-cents. The rotatable adjustment of the cam member **149** relative to the wheel **146** functions essentially to locate the cam surface **145** relative to the finger portions **80** and **98**, so that such surface remains out of engagement with the finger portions until the coins inserted in the coin operated mechanism **22** total an amount equal to 5-cents less than the lowest number of the numerals that are viewable through the window **157**. As a result the cam surface **145** engages the finger portions **80** and **90** only over the price range which is visible through the window.

Thus, for example, and as shown in FIG. **14** the price range indicated through the window **157** is from $1.25 to $1.50. In this price range it is desired to vend a low priced article at a cost of $1.30 and a high priced article having a cost of $1.35. With the wheel **146** in its reset position shown in FIG. **14** the cam member **149** is adjusted relative thereto until the values $1.25 through $1.50 appear in the window **157**. The finger portion **80** is positioned in the slot **82** corresponding to the marking "5" to set the $1.30 cost of the low priced article, namely, $1.25, the lowest value appearing in the window **157**, plus the 5-cents indicated by the slot marking "5." Likewise the finger portion **98** is located in the slot having the marking "10" to set the $1.35 cost of the high priced article, namely, $1.25 plus 10 cents.

In response to coins having monetary values of 5, 10, and 25-cents inserted within the coin operated mechanism **22** to a total amount of $1.25 the cam section **143** will be rotated progressively in a counterclockwise direction from its position shown in FIG. **11** to the position in FIG. **7** wherein the leading end of the cam surface **145** is at the slot indicated by a "0" marking. This slot corresponds in value to the lowest numeral or the $1.25 value appearing in the window **157**. In other words if the finger portion **80** were in the "0" marking slot a low priced article having a cost of $1.25 would be vended.

With the cam surface in the position of FIG. **7** it is moved into engagement with the finger portion **80**, to its position in FIG. **8**, by the insertion of an additional nickel in the coin operated mechanism **22**, whereby to provide for the vending of a $1.30 low priced article in the manner as previously described in connection with FIGS. **4** and **8**. If the vending of the $1.35 high priced article is wanted, a dime added to the coin operated mechanism **22**, would provide for the movement of the cam surface **145** from its position in FIG. **7** to its position in FIG. **9**.

The above described adjustment of the coin information cam unit **64** and resultant vending of high and low priced articles would be the same for any selected 25-cent increment within the price range of the numerals **148**. It is to be understood that the selected 25-cent increment would also be determinative of the maximum monetary differential between the high and low priced articles. Thus, if articles were to be vended at a high price of 75-cents and a low price of 55-cents the cam member **149** would be adjusted relative to the wheel **146** so that the numbers from 50-cents to 75-cents are visible in the window **157** as shown in FIG. **16**. The finger portion **80** would then be located in slot marked "5" and the finger portion **89** in the slot marked "25" (FIG. **10**). For the vending of articles having a high price of 25-cents and a low price of 5-cents the cam member adjustment would be made so that the numerals "0" through " 25" would appear in the window **157**. The finger portion **80** would then be located in slot marked "5" and the finger portion **98** in the slot **82** marked "25" (FIG. **10**). In this case the cam surface **145** would, prior to the insertion of any coins in the mechanism **22** have its leading end at the slot marked "0." Thus the insertion of only a nickel in the mechanism **22** would provide for the vending of the low priced 5-cent article and a quarter the high priced article.

In the setting of the cam member **149** it will be noted that the lowest value appearing in the window corresponds to a location of the leading end of the cam surface **158** at the slot **84** in FIG. **10** having the "0" marking, so that such slot provides a reference base for locating the finger portions **80** and **98** to give a desired price differential between high and low priced articles.

It is seen, therefore, that the cam unit **64** is not only simple and compact, but is readily and easily accessible within the vending machine for quick adjustment relative to the finger portions **80** and **98** to provide for the vending of high and low priced articles over a wide price range and at a maximum monetary differential of 25-cents. The price range may vary from 5-cents to $1.50 and the articles to be vended may be sold within any 25-cent increment within such range. This 25-cent increment is readily indicated through the window **157** during adjustment of the cam member **149**, and the price differential within such 25-cent increment is set by the location of the finger portions **80** and **98** within selected slots **82**.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes can be made therein which are within the full intended scope of this invention as defined by the appended claims.

I claim:

1. A mechanical control system for a vending machine having a frame and high and low priced article vending members comprising:

a. coin operated means having a shaft rotatable in response to monetary coins inserted therein to produce low and high priced information which is a function of the angular position of the shaft;

b. first lever means including a lever holding rod, said first lever means being operably connected to the article vending members to releasably lock said members in a non-vending position in response to both the low and high priced information;

c. first pivot means mounting the first lever means on a horizontal axis to the frame;

d. second lever means including a lever holding rod, said second lever means being operably connected to the high priced vending member to releasably lock said high priced member in response to said high priced information;

e. second pivot means mounting the second lever means on a horizontal axis to the frame;

f. a coin information cam unit including a first member fixed on said shaft for rotation therewith, and a second member on said shaft having a cam surface;

g. means for adjusting said second member to a rotated position relative to said first member to vary the angular position of the second member relative to the first member;

h. coacting means on said first and second members for indicating a predetermined price range corresponding to the adjusted angular relation of said two members; and

i. means on said frame for adjustably positioning said lever holding rods relative to the cam surface of said cam unit to hold said first lever means in an inoperative position in response to said low priced information and said first and second lever means in inoperative positions in response to the high priced information, and to vary the values of the low and high priced information within the limits of said predetermined price range.

2. The control system for a vending machine according to claim **1** wherein:

a. said coacting means comprises price indicia circularly arranged on one side of said first member, with said second member having an arcuately extended opening therein movable over said indicia so that the indicia appearing in said opening define said predetermined price range; and

b. said indicia being arranged in successive equal 5-cent increments and said opening being of an arcuate length to visibly show only five of said increments.

3. A mechanical control system for a vending machine having a frame, high and low priced article vending members movable between an "in" position and an "out" position, and a bar engageable with said vending members, said bar being slidably mounted on the frame for movement with said members comprising:

a. coin operated means having a shaft rotatable in response to monetary coins inserted therein to produce low and high priced information which is a function of the angular position of said shaft;

b. a first lever means pivotally mounted on the frame and engageable with said bar to lock said bar in the "in" position thereby holding said vending members in the "in" position, said first lever means being held out of locking engagement with the bar in response to both the low and high priced information;

c. lock means pivotally mounted on the frame and operably associated with the high priced article vending members for releasably locking said members in the "in" position;

d. second lever means pivotally mounted on the frame and engageable with said lock means to hold said lock means in the lock position and to release said lock means in response to said high priced information;

e. a coin information cam unit including a first member fixed on said shaft, and a second member on said shaft having a cam surface;

f. means adjustably supporting said second member on said shaft for rotation of said cam surface to an adjusted angular position relative to said first member;

g. coacting means on said first and second members for indicating an angular relation therebetween corresponding to a predetermined price range; and

h. means on said frame for adjustably interconnecting the first and second lever means relative to the cam surface on said coin information cam unit so that the low and high priced information can be varied within said predetermined price range.