Oct. 1, 1968 K. KNICKERBOCKER 3,403,765

COIN-OPERATED DISPENSING MECHANISM

Filed Dec. 30, 1966 6 Sheets-Sheet 1

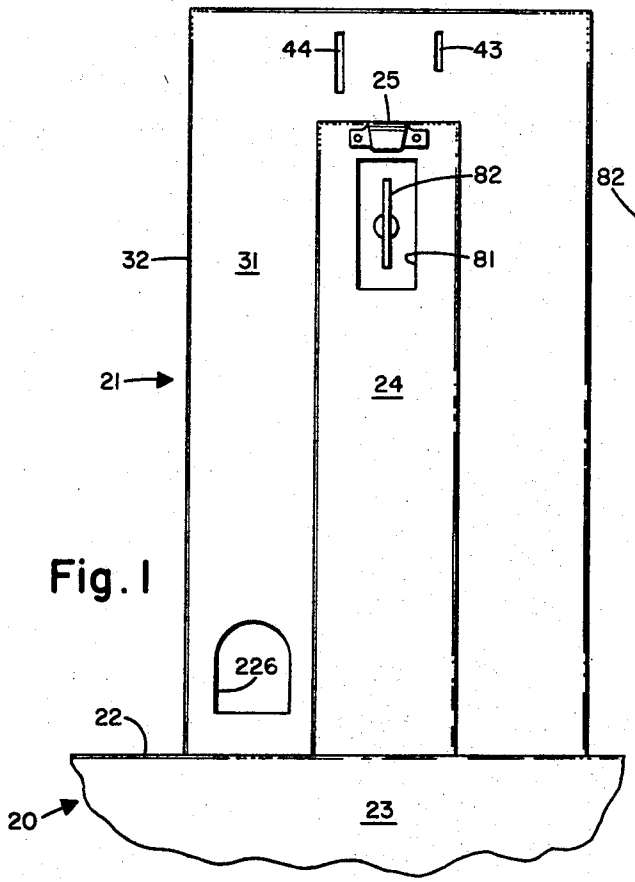



Fig. 1

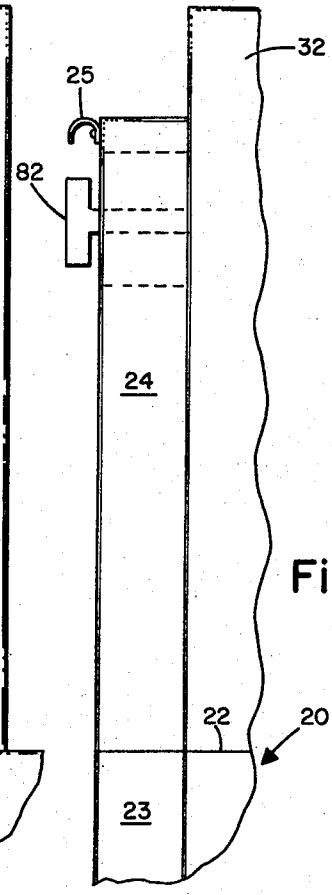



Fig. 2

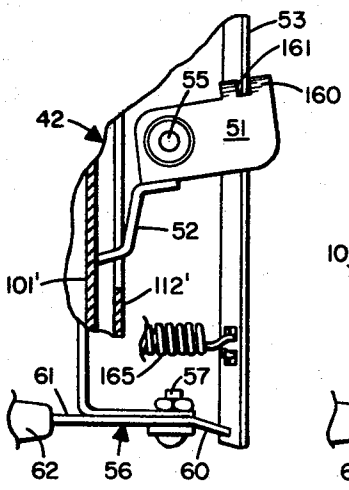



Fig. 16

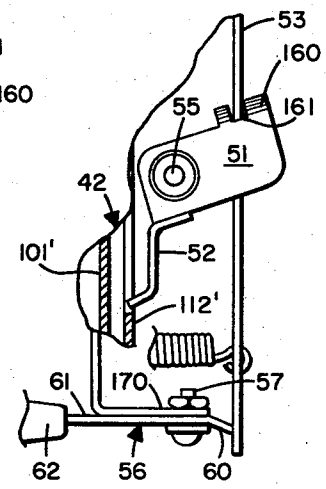



Fig. 17

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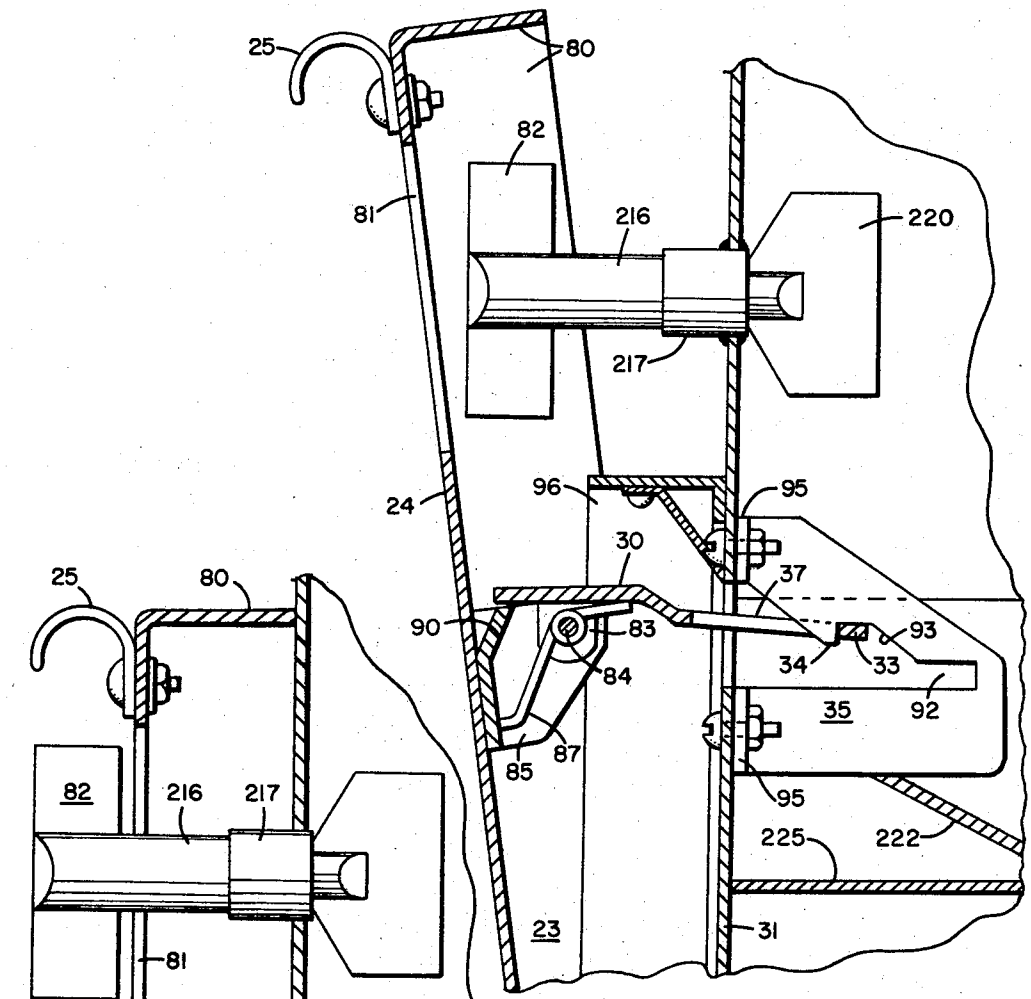



Fig. 4

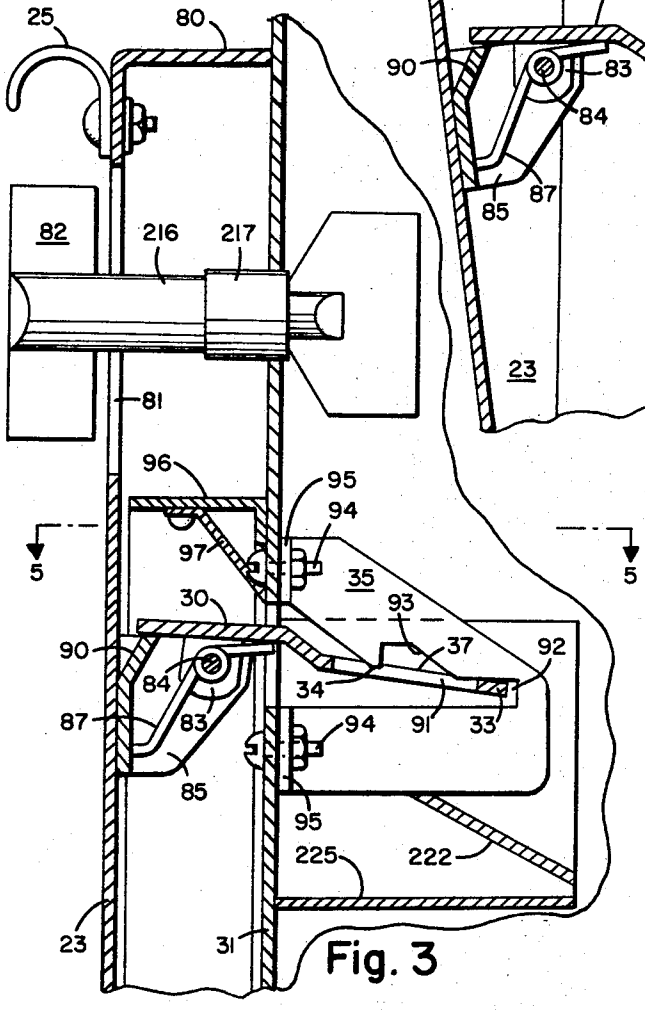



Fig. 3

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COIN-OPERATED DISPENSING MECHANISM

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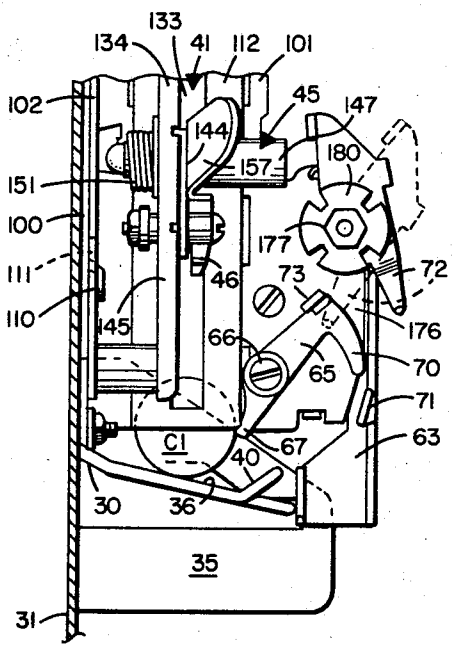



Fig. 6

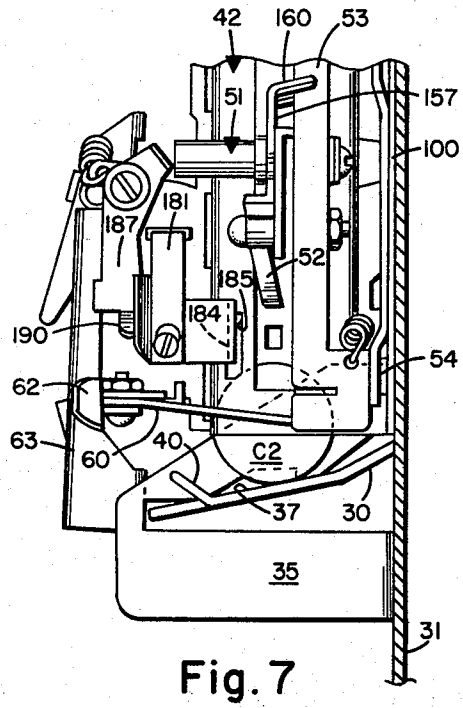



Fig. 7

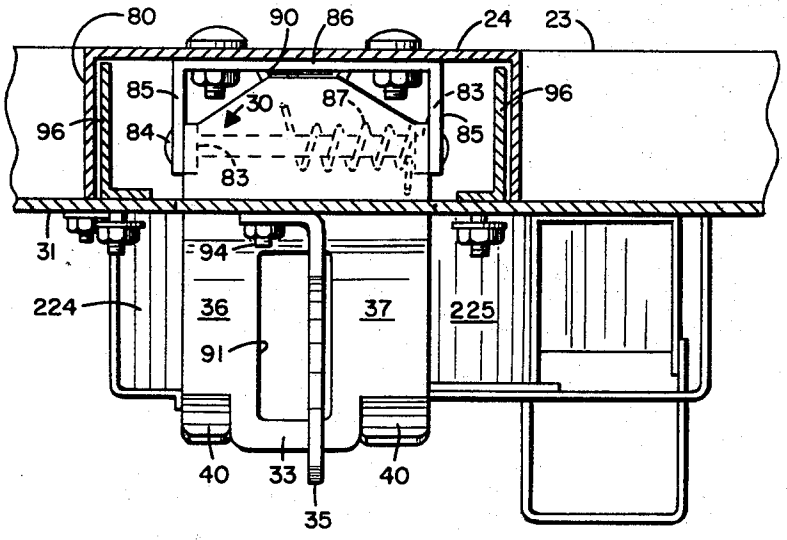



Fig. 5

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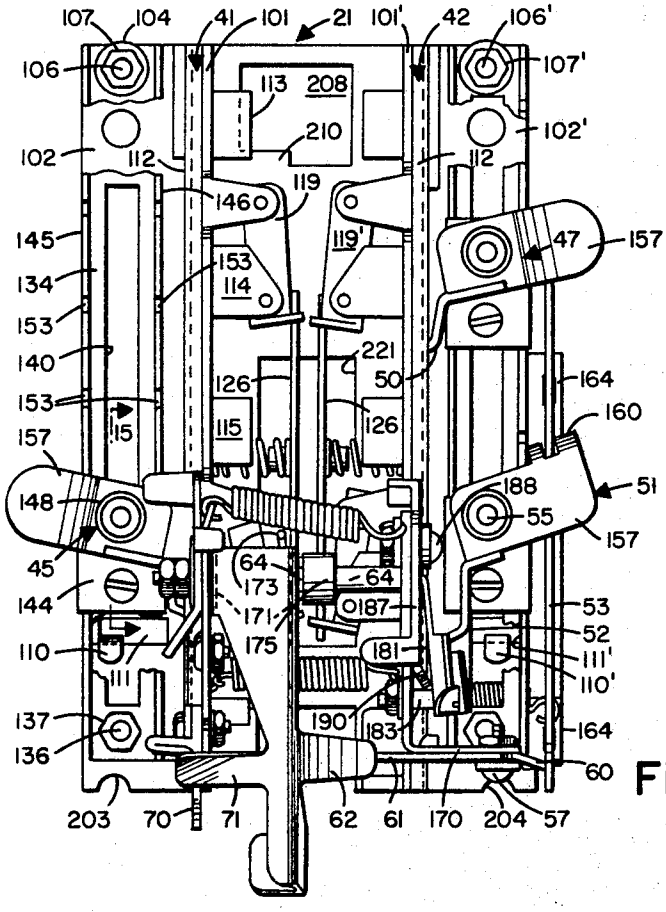



Fig. 8

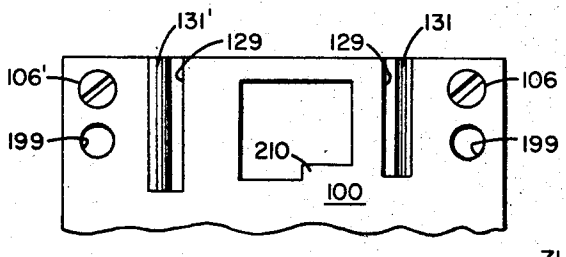



Fig. 11

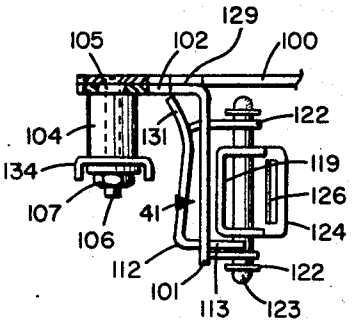



Fig. 14

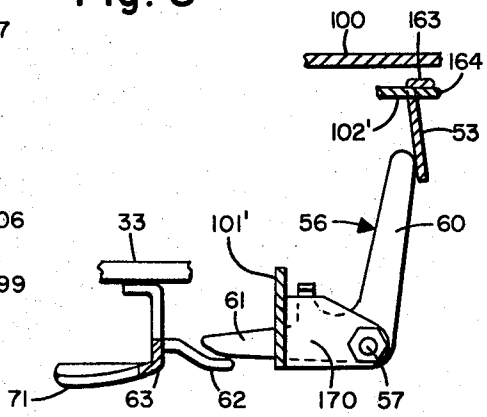



Fig. 13

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COIN-OPERATED DISPENSING MECHANISM

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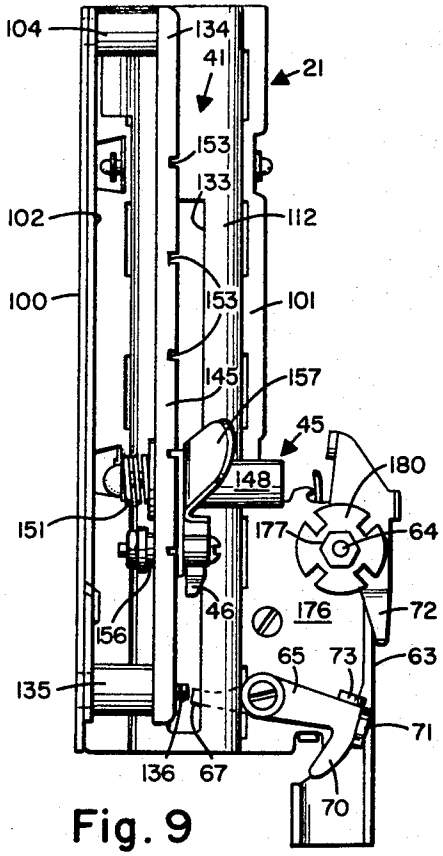



Fig. 9

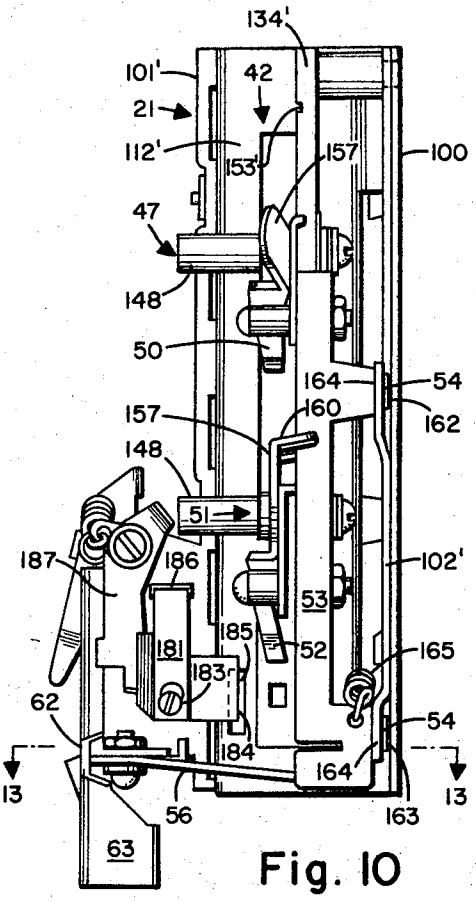



Fig. 10

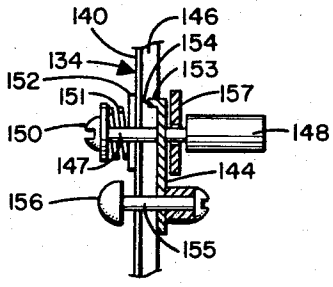
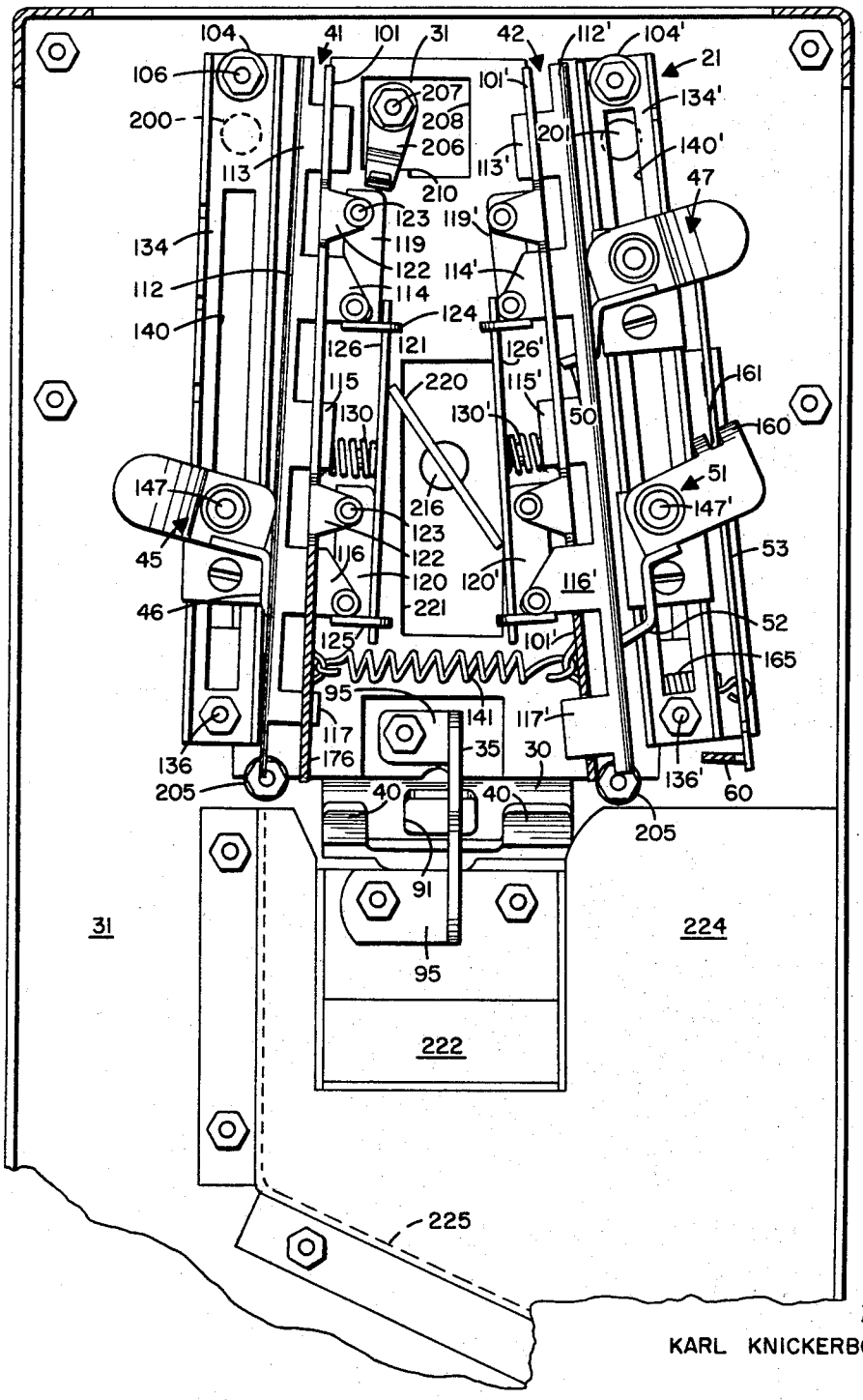



Fig. 15

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COIN-OPERATED DISPENSING MECHANISM

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INVENTOR
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Fig. 12

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3,403,765

# COIN-OPERATED DISPENSING MECHANISM

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Filed Dec. 30, 1966, Ser. No. 606,262
19 Claims. (Cl. 194—54)

## ABSTRACT OF THE DISCLOSURE

The invention comprises a coin-actuated dispensing mechanism of the type utilizing coins to provide abutment means to effect the release of a dispensing member and which has two coin chutes to receive coins of different denominations, the mechanism being arranged to operate the dispenser release by a wide variety of combination of coins of different sizes and denominations.

The present invention relates to coin-operated latch mechanism for use in vending machines and the like in which a dispenser is released for operation when proper coins are deposited in the mechanism.

Coin-operated dispensing mechanisms are in wide use which operate on the principal of utilizing one or more coins in a coin chute to serve as abutment means to release a dispenser latch plate, provided the coin or coins in the chute are of proper diameter or diameters to correspond to a combination of coins totaling the price of the article to be dispensed. It has been the practice to provide a coin chute in the type of mechanism mentioned which receives coins of several different denominations including nickels, pennies and dimes, and inasmuch as the diameters of dimes and pennies are quite close, it is possible for a penny to be substituted for a dime in the coin combination to actuate the dispenser. Thus, for example, if the item dispensed was to cost fifteen cents it is frequently possible for the dispenser to be actuated by the insertion of a nickel and a penny in the coin chute.

A principal object of the present invention is the provision of a coin actuated dispensing mechanism of the type utilizing coins to provide abutment means to effect the release of a dispensing member and which has two coin chutes and is operative by proper coins deposited in one or both chutes corresponding to the price of the item to be dispensed.

Another important object of the present invention is the provision of a coin-actuated dispensing mechanism of the type mentioned having two coin chutes, one of which is restricted in size so that it receives dimes only, and the other of which receives larger coins, such as nickels and quarters, the mechanism being arranged to operate the dispenser release by a wide variety of combination of coins of different sizes or denominations and which cannot be operated by the use of a penny in place of a nickel, dime or quarter, for example.

Another object of the invention is the provision of a coin-actuated dispenser mechanism of the type mentioned having two coin chutes, in which the dispenser release may be actuated by one or more coins in one chute, but only on the condition that a coin is present in the other chute.

A further object of the invention is the provision of a coin-actuated dispenser mechanism of the type mentioned having a relatively short chute structure and which may be actuated to spread the walls of the chutes and release coins therefrom, the released coins being directed into coin return receptacles.

A still further object of the invention is the provision of a coin-actuated dispensing mechanism which is provided with rotary means to open and position the coin chutes to discharge coins into a coin return receptacle and which



rotary mechanism cannot be actuated when the dispensing member is initially moved in a dispensing action so as to prevent actuation of the coin return substantially simultaneously with the latch release of the dispenser.

Other objects and advantages of the invention will be apparent from the following description of preferred forms thereof, reference being made to the accompanying drawings where:

FIG. 1 is a fragmentary front elevational view of a newspaper vending machine embodying the invention;

FIG. 2 is a fragmentary side elevational view of the machine shown in FIG. 1;

FIGS. 3 and 4 are fragmentary sectional views of a portion of the door latching mechanism of the vending machine shown in FIGS. 1 and 2, the parts being shown on a larger scale and in different positions;

FIG. 5 is a sectional view taken substantially along line 5—5 of FIG. 3;

FIGS. 6 and 7 are fragmentary side views, partly in section, showing coins in operative positions in the coin mechanism;

FIG. 8 is a rear elevational view of the coin-operated latch release mechanism;

FIGS. 9 and 10 are elevational views of opposite side of the mechanism shown in FIG. 8;

FIG. 11 is a fragmentary front elevational view of the coin-operated latch release mechanism;

FIG. 12 is a fragmentary elevational view of the rear of the coin-operated latch release mechanism attached to the wall of the vending machine housing and shown in a coin release position, a portion of the mechanism being removed;

FIG. 13 is a fragmentary elevational plan view taken substantially along line 13—13 of FIG. 10;

FIG. 14 is a fragmentary plan view of the coin-operated latch mechanism parts thereof being shown broken away;

FIG. 15 is a sectional view taken substantially along line 15—15 of FIG. 8; and

FIGS. 16 and 17 are fragmentary rear elevational view of the coin-operated mechanism showing parts in different operative positions and certain other parts removed or broken away.

Referring to FIG. 1, a portion of a cabinet type newspaper vending machine **20** is shown having a coin-actuated cabinet door release mechanism **21** embodying the invention, although it will be understood that the invention could be embodied in other types of vending machines. The vending machine **20** comprises a conventional cabinet **22** adapted to contain a supply of stacked newspapers which may be removed individually through a door **23** normally locked by the mechanism **21** but which is released for opening upon depositing the proper coins in the mechanism to correspond with the price of the newspapers to be sold. The door **23** is pivoted at its lower end to the bottom of the cabinet opening and is spring biased closed to normally bring a vertically extending top section **24** thereof into latching engagement with the coin mechanism **21**. The door section **24** has a handle **25** by which the door can be drawn open when proper coins are deposited in the coin mechanism as is described more fully hereinafter. The cabinet **22** and door are not described in detail because such cabinets are well known.

Referring to FIGS. 3, 4 and 5, the latch mechanism for the door **23** is shown, and for clarity the coin-actuated release mechanism **21** has been removed. The door section **24** carries a latch plate **30** which is pivoted thereto and projects through an opening in the wall **31** forming the front of a casing **32** in which the coin mechanism **21** is housed, and has a cenrtal opening which forms a transversely extending latch bar **33** thereon and the plate is upwardly biased so that the bar is adapted to catch on a hook **34** depending from a catch plate **35** bolted to the

inside of wall 31 unless the plate is depressed. The sides of the latch plate 30 form feet 36, 37 which extend along opposite sides of the catch plate 35 and the ends of each of which has a latch cam surface 40. The feet 36, 37 are adapted to receive the edges of coins projecting from two coin chutes of the coin mechanism, as is described more fully hereinafter, and when the door 23 is drawn towards its open position, the cams 40 tend to move the coins upwardly into the respective coin chutes, and if one or the other of the coins is prevented from upward movement into the chutes by valve means described hereinafter, the coins serve to depress the latch plate 30 and release the catch bar 33 from engaging hook 34 whereby the door 23 may be opened. On the other hand, if the coins in the chutes of the mechanism 21 are not blocked against upward movement as the camming surfaces 40 are moved therebeneath, the plate 30 will not be depressed and catch bar 33 will engage hook and prevent opening of the door, as seen in FIG. 4. In the form of the invention shown, it may be said that the door 23 is a movable dispenser member, and that plates 30, 35 form latching means for the member.

Referring generally to the coin mechanism 21, the mechanism is adapted to be removably attached to the inside of wall 31 of the casing 32 above the catch plate 35 and it includes two vertically extending coin chutes 41, 42 positioned on opposite sides of the catch plate. The coin chute 41 is adapted to receive dimes only through a slot 43 in the front wall 31 of the casing 32 and which slot is of such dimensions that coins larger than dimes cannot be inserted. Coins are inserted in the coin chute 42 through a slot 44 formed in wall 31 and which has dimensions sufficient to accept nickels and quarters therethrough. The lower ends of the chutes 41, 42 are spaced above the feet 36, 37, respectively, of the latch plate 30 so that normally coins inserted in the slots drop down the chutes and rest on the feet and extend partially into the chutes, as is illustrated by the coins C1, C2 in FIGS. 6 and 7. The upward bias of the plate 30 is sufficient to prevent depression of the plate by the weight of the coins and the plate is only depressed in the event the coins are blocked from upward movement as the cam surfaces 40 are drawn beneath the edges of the lowermost coins.

Coins in the chute 41 are permitted to drop in the chute but are blocked from upward movement therein by a coin check valve device 45 which includes a finger 46 which yieldingly extends in a downwardly direction and transversely of the chute passage so that a coin dropping in the chute forces it to one side but which finger blocks upward movement of the coin in the chute. The device 45 can be selectively positioned at precise locations along the chute 41 so that a coin or coins of a given diameter must be present to cause the device 45 to block upward movement of the coin resting on the plate 30 and effect release of the latch plate in the manner described above.

A coin check valve 47 is associated with coin chute 42 and includes a finger 50 which projects into the chute 42 in the manner described with reference to the finger 46 of device 45. The device 47 can be selectively positioned along the coin chute 42 to cause a certain coin or coins to depress the latch plate 30 when the door 23 is moved towards open position.

A second coin check valve device 51 is associated with coin chute 42 below the valve device 47 and the device 51 includes a finger 52 which projects downwardly and laterally of the coin chute but is adapted to be normally held outside of the chute in an inoperative position with respect to coins in the chute 42 by a rail 53 which is connected with the finger 52 through a sliding connection and which is normally biased to rotate about pivot points 54 in a direction to swing finger 52 counterclockwise about its pivot 55 as seen in FIGS. 17, 18.

The rail 53 is adapted to be rotated to the right and move finger 52 into the coin chute 42 in response to the presence of a coin in the opposite coin chute 41 and for this purpose a bell crank lever 56 is pivoted at 57 and has one arm 60 engaging the inside of rail 53 and another arm 61 of which is engaged by a lug 62 extending laterally from a follower lever 63 which is pivoted on a pin 64. The follower lever 63 is biased into engagement with the inner end of the catch bar 33 of latch plate 30 and swings clockwise, as viewed in FIG. 6, when the door 23 is moved towards its open position. This movement of lever 63, if unblocked, results in the lever rotating bell crank 56 to swing the rail 53 outwardly and permit finger 52 to enter the coin chute 42, as seen by reference to FIGS. 17, 18.

In the event no coin is present in chute 41 the movement of lever 63 to actuate the bell crank 56 is blocked by a dog 65 pivoted at 66 and having a finger 67 which extends into the coin chute 41, as seen in FIG. 9, and the opposite end portion of which includes a nose 70 which is adapted to be engaged by a lug 71 on the lever 63 as the lever moves clockwise, as viewed in FIG. 9 and prevent the linkage, including arm 56 and rail 53, from swinging finger 52 into chute 42.

When a dime is present in chute 41, the weight of the dime, however, causes the finger 67 to be depressed and raise the nose portion 70 of the dog out of alignment with the lug 71, as seen in FIG. 6, so that the lever 63 will follow the latch plate 30 a distance to cause a swinging of the rail 53 and finger 52 into operative position inside the coin chute 42 and cause a proper coin or coins in the chute to effect release of the latch bar 33, as the door 23 is drawn towards open position. Thus, the latch plate 30 cannot be depressed by a coin in chute 42 unless a dime is present in chute 41 and therefore no dispensing operation can be effected.

In some instances it is desirable to have the coin valve 51 operative regardless of whether or not a dime is in chute 41 and this is effected by positioning the dog 65 so that the nose 70 is above the lug 71 and locking the dog in this position by a keeper 72 rotated beneath a lug 73 on the dog, as seen in dotted lines in FIG. 6.

By the arrangement described, a wide variety of coin combinations can be used to actuate the dispenser latch release. For example, if it is desired to set a sales price of ten cents for each newspaper, the dog 65 is set in the dotted line position of FIG. 6 and the coin check valve 45 is set to block upward movement of a single dime in the chute 41. The coin check valve device 51 is set to be operative to block upward movement of two nickels in the chute 42. Thus, if a dime is inserted in chute 41, the valve 45 will prevent upward movement of the dime as the cam 40 of latch plate 30 is moved thereunder by the door opening movement and the door 23 will be released for a newspaper sale. On the other hand, if instead of a dime in chute 41 two nickels are placed in chute 42, the check valve device 51 being operative by reason of the free movement of lever 63 to follow latch plate 30, will be effective to block upward movement of the two nickels and thus the two nickels will act as abutments to actuate the latch plate 30 and release the door 23. A single nickel in chute 42, on the other hand, would not be checked in its upward movement by the latch cam 40 and therefore the latch would not release.

In the event that a sale price of twenty cents is desired, the coin valve device 45 is set to block upward movement of two dimes in the chute 41 so that two dimes in chute 41 will actuate the latch plate 30 to release the door 23. Also, coin valve device 47 is positioned to be effective to block upward movement of four nickels in the chute 42 and the valve device 51 is set to block movement of two nickels in the coin chute 42. The dog 64 is set as shown in full lines in FIG. 6 to block full movement of lever 63 in the event no dime is present in chute 41. It will be apparent that when one dime and two nickels are inserted in the respective coin slots 43, 44, the single dime in chute 41 raises the dog 65 out of its blocking position relative to the lever 63 and the two nickels in the chute 42 will be blocked by the valve device 51 because the lever 63 will be effective to actuate the rail 53 thereby placing

finger 52 in an operative position in the coin chute 42. Thus, the two nickels blocked by the valve 51 will cause release of the latch plate 30 as the door 23 is moved towards its open position. If no dime is present in chute 41, the lever 56 will not be operative to shift the finger 52 into the chute 42 and the latch plate will not be released.

In the event that only three nickels are deposited in the chute 42, the valve device 51 will be ineffective to block upward movement of the three coins by the latch cam 40 because in the absence of a dime in chute 41, the dog 65 will block movement of lever 63 and therefore rail 53 will maintain finger 52 out of the coin chute and consequently neither the coin valve 47 or the valve 51 will be effective to block upward movement of the three nickels and the latch plate 30 cannot be depressed to its release position. A fourth nickel in chute 42, however, will be blocked from upward movement in the chute by the valve 47 and the four nickels, blocked from upward movement will form an abutment operative to release the latch plate 30 from the hook 34 as the door 23 is moved towards its open position.

It will be seen that in the situation described, any combination of coins totaling less than twenty cents will fail to actuate the latch release and any combination of nickels and dimes which at least twenty cents will be effective to release the latch mechanism and that this total may be accumulated in either one of the chutes or a in a combination of both.

Referring more particularly to the details of construction of the door latch mechanism, the section 24 of the door 23 is formed of sheet metal having inwardly turned side and top flanges 80 and the front wall has a rectangular opening 81 therein for receiving a coin return handle 82, described more fully hereinafter.

The latch plate 30 has lugs 83 struck from opposite sides thereof and extended downwardly to receive a pivot pin 84 supported at its ends in two opposed side arms 85 formed on a U-shaped bracket 86, the yoke portion of which is bolted or otherwise secured to the inside of the front wall of the section 24. A torsion spring 87 is wound about pin 84 and its end sections urge the plate 30 in a counterclockwise direction about the pivot pin, as viewed in FIGS. 3 and 4. A lip 90 struck from the yoke of bracket 86 provides a stop against which one end of the plate 30 engages to limit rotation by the spring 87.

The portion of the latch plate 30 comprising the catch bar 33 has a central opening 91 which forms the cross bar 33 and which receives the hook 34 of plate 35.

Plate 35 has a central opening having slot-like end 92 in which the catch bar 33 is received when the door 23 is in the closed position and the upper edge of the slot 92 leads to an inclined edge 93 which guides the catch bar 33 to engaging position with the hook 34 due to the biasing action of spring 87 which urges the bar 33 against the edge 93 as the door 23 is moved toward its open position. The plate 35 is attached to wall 31 by bolts and nuts 94 which extend through openings through two laterally projecting lugs 95 formed on the plate.

To prevent unauthorized actuation of the latch plate 30, an inverted U-shaped shield 96 is attached to the outside of wall 31 and extends above and on opposite sides of the opening in the wall through which the latch plate 30 extends. A camming plate 97 is attached to the upper wall of the shield 96 to guide the extended end of latch plate 30 into the opening in the wall 31 when the door 23 is moved from its open to its closed position.

Referring more particularly to FIGS. 6 through 17, the coin mechanism 21 comprises a generally rectangular flat base plate 100 on which the coin chutes 41, 42 are supported. The chute 41 comprises a wall member or plate 101 which extends normal to the plate 100 and is L-shaped in transverse sectional configuration and has a laterally projecting foot portion 102 lying against the outer side edge portion of the plate 100 and terminates short of the lower end of the plate. As best seen in FIG. 14, the foot portion 102 is pivotally attached at its upper end to the plate 100 by a spacer post 104 which has a neck 105 extending through an opening in the foot portion 102 to form a pivot about which the plate 101 may freely swing. A screw 106 is extended through a bore through the spacer 104 and an opening in plate 100 and is secured by a nut 107 threaded on the screw. Thus, the wall 101 may swing about the neck 105.

Referring particularly to FIGS. 6 and 8, the lower portion of foot 101 is held in swinging engagement with the lower part of base plate 100 by a tab 110 struck up from the base plate and overlying an edge of a rectangular opening 111 formed through the foot portion 102 of wall plate 101. It will be seen by reference to FIG. 8 that the opposite side edges of opening 111 limit the swinging of plate 101 by engagement with opposite sides of the tab 110.

The wall 101 forms an inside wall of the coin chute 41 and the outside wall of the chute is formed by a shallow channel shaped strip 112. The open side of the strip 112 faces the wall 101 and has extending tab-like portions 113, 114, 115, 116 and 117 which, with the exception of tab 113, are in oppositely disposed pairs, one at each side of the strip and which tabs extend through correspondingly located slots in the wall 101. The tabs 113–117 guide the strip 112 relative to the wall 101 so that it can be moved to and from the wall to expand or open up the coin chute for release of bent coins and the like, as is explained more fully hereinafter.

Channel shaped links 119, 120 are pivotally connected at one end to the respective pairs of tabs 114, 116 by pins 121 supported at their ends by the pairs of tabs and the links are connected at their other end to oppositely disposed sets of lugs 122 struck from wall 101, by pins 123 supported between the respective sets of lugs. The links 119, 120 are preferably formed of sheet metal and have turned end portions 124, 125, respectively, which are slotted and receive the opposite ends of a flat bar 126. The center of the bar 126 has a stub 127 extending laterally therefrom which receives one end of a compression spring 130, the opposite end of which spring is centered on a stub projecting from wall 101. The spring 130 continually urges bar 126 from wall 101 and, through the links 119, 120, yieldingly biases the strip 112 to the wall 101 with the side edges intermediate the tabs 113, 114, 115, 116 and 117 engaging the wall thereby forming a downwardly extending chute for coins.

The upper end of strip 112 has a side edge portion 131 flared outwardly from wall 102, as seen in FIG. 14 and is in registration with elongated slots 129 formed in base plate 100 and the foot portion 102, to guide coins inserted through the slot 43 into the chute 41.

The strip 112 has an elongated slot 133 formed therein through which the finger 46 of the coin check valve 45 extends, and a channel shaped slide bar 134 extends parallel to foot portion 102 and is spaced therefrom by the spacer 104 and a second spacer 135 which is interposed between the foot portion 102 and the lower end of bar 134, and which is attached to the foot portion by a screw 136 and nut 137. The bar 134 has an elongated slot 140 formed therein for receiving a portion of the coin valve device 45 as is described hereinafter.

The coin chute 42 is formed like coin chute 41, and like parts are referred to by the same reference characters having a prime added thereto. Also, slide bar 134' is supported alongside coin chute 42 to provide a support for the coin valve devices 47, 51, the details of which are described more fully hereinafter.

The two coin chute structures 41, 42 are yieldingly urged toward one another to the limit imposed by the lugs 110, 110' in the openings 111, 111', by a tension spring 141 which has its ends hooked in eyes formed in the wall portions 101, 101' of the coin chute structures, as seen in FIG. 12.

Referring to FIGS. 6, 8 and 15, the construction of the coin check valve device **45** comprises a rectangular plate **144** which is adapted to span and bridge outturned flanges **145, 146** on the sides of slide bar **134**. A post **147**, including a knurled handle **148**, is rigidly attached to the plate **144** and has a portion extending through the slot **140** in the slide bar **134**, the end of which portion has a head **150**. A compression spring **151** is interposed between the head and a washer **152** through which the post **147** freely extends and which washer is held to the underside of bar **134** by the spring force so that the handle **148**, together with plate **144**, can be yieldingly separated from the bar **134** to remove a flange **154**, formed across the end of the plate **144**, from oppositely disposed notches **153** formed at intervals along the side flanges **145, 146** of the bar **134**. A bolt **155** is attached to the plate **144** and has a headed portion extending through an opening in the plate and the slot **140** of the bar **134** and the head **156** thereof is of greater diameter than the width of the slot **140** to prevent removal of the device **45** from the slide bar. The finger **46** is pivotally supported on the post **147** by an opening through a flange portion **157** formed at one end of the finger **46** and which is freely rotatable on post **147**, the portion **157** providing a weight which yieldingly urges the finger **46** into the coin chute **41** so that coins dropping through the chute will force the finger to one side but which finger is wedged to the inner wall **101** of the chute when a coin therebelow is urged upwardly against the finger. It will be seen that the device **45** can be readily positioned along the guide bar **134** merely by drawing outwardly on the handle **148** to release flange **154** from the particular set of notches **153** in which it is lodged, and sliding the device along the guide bar to the notches at the location desired. Flange **154** may then enter another set of the notches **153** which are positioned according to the number of dimes it is desired to require to operate the coin release.

The coin check valve mechanism **47, 51** are similar to that described with reference to mechanism **45** with the exception that the flange portion **157** of the finger **52** of device **51** has a flange portion **160** which is turned inwardly toward the base plate **100** and is slotted at **161** to receive the rail **53**. Otherwise, like parts of valve **45** and valves **47** and **51** have like reference characters.

The rail **53** is pivoted to the foot portion **102'** of the plate forming wall **101'** by lug portions **162, 163** which extend through slots in raised portions **164** of the section **102'** which permit the rail **53** to pivot freely about the points **54**. The rail **53** is urged toward the coin chute **42** by a tension spring **165** attached to an eye formed on plate section **102'** and through a portion of the rail and the spring urges the rail in a direction to cause it to rotate finger **52** clockwise about a pivot **147'** which is like pivot **147** of the valve **45**, and to thereby be removed from the coin chute **42**, as seen in FIG. 18. When the rail **53** is rotated outwardly from the chute **42**, the finger **52** is rotated clockwise about pivot **55**, which is like member **147**, so that the lower end extends across the chute **42** and engages wall **101'** thereof, as seen in FIG. 16. The weight of the flange including portion **160** urges the finger **52** to rotate clockwise and portion **160** follows the outward movement of the rail **53**. By interconnecting the rail **53** with the slotted flange **160** of the finger **52** as described, the device **51** can be shifted along the guide bar **134'** and located at appropriate positions along the chute **42** in the manner described with reference to the device **45**, and the rail will operate the finger **52** at all positions of the device **51** along the guide bar. The slot **161** is sufficiently wide to provide lost motion between the portion **160** and the rail **53** so that the finger **52** can be easily moved aside by a coin descending in the chute and the finger will swing by the weight of the flange, including portion **160**, back to its coin checking position to prevent upward movement of a coin therebeneath which is urged upwardly.

The bell crank **56** for actuating the rail **53** to move finger **52** into the coin chute **42** is pivoted on a lug **170** formed on the lower portion of the wall section **101'** by the pin **57**.

The lever **63** is pivoted to the shaft **64**, which is stationary, by a pair of lugs **171** formed on the lever, and a torsion spring **173** encircles the pin **64** and is arranged to urge the lever in a clockwise direction as viewed in FIG. 9 so that the lever engages and yieldingly follows the latch plate **30** when the door **23** is moved from its normally closed position. The force exerted by the spring **173** is sufficient to cause the lever **63** to overcome the force of spring **165** acting on the rail **53**. A head **174** on the rod **64** positions the lever **63** on the rod.

The rod **64** is secured to an extension **176** formed on the lower portion of the wall member **101** and the securing means for the rod includes a threaded portion upon which a nut **177** is threaded. The keeper **73** for holding dog **64** from engagement by the lever **63** is pivoted on the rod **64** between the wall **101** and a friction washer **180** frictionally maintains the keeper in any given angular position, as seen in FIG. 6.

It is desirable to provide a fixed coin check valve construction set at a position in the coin chute **42** for causing a single quarter in the chute to actuate the coin release mechanism. In the form of the invention shown, this valve mechanism is disclosed in FIGS. 8, 10 at **181** and comprises an L-shaped strip member loosely pivoted to a screw **183** attached to the wall portion **101'**. The leg portion of member **181** has an inturned lug **184** which extends through a slot **185** formed in the strip **112'** of the coin chute structure **42** and has a downwardly sloping edge, not shown, which by gravity normally lies in the path of a coin descending the chute so that the member is cammed out of the slot to permit a quarter to pass but is wedged into the chute should the coin therebeneath be urged upwardly, thereby causing the latch bar **30** to be depressed and release the door **23**. The upper end of the vertical arm of member **182** is turned and extends through a slot **186** to loosely secure the member in place.

The valve **181** can be rendered inoperative by a crank shaped member **187** which is pivoted on a pin **188** attached to wall member **101'** and which includes an outwardly flared portion **190** which wedges between member **181** and the adjoining wall member **101'** to force the member outwardly to withdraw the lug **184** from the coin chute. The member **187** is frictionally pivoted so that it is held by friction out of contact with the valve **181** which it is desired to have the valve operative.

The coin mechanism **21** is adapted to be removably attached to the rear of the wall **31** of the case **32** and for this purpose two locating pins **200, 201** are located on the wall **31** and a closely fit circular opening **199** formed in the base plate **100** and foot being somewhat larger to permit swinging of the members relative to the base plate. The lower edge of the base plate **100** has notches **202, 204** the edges of which are adapted to be received between the heads **205** of pins projecting from wall **31** and which prevent movement of the base plate outwardly from the wall. The upper portion of the mechanism **21** is clamped to the rear of wall **31** by a swinging arm **206** pivoted at **207** and which is received through a rectangular opening **208** in the base plate **100** and which has a projection **210** over which the end of the arm **206** lies.

The coin release handle **82** is a flat blade shape and is attached to a shaft **216** which is journaled in a bushing **217** secured in an opening through the wall **31**. The inner end of the shaft **216** has a chisel shaped member **220** which is normally in a vertical position and is disposed between the two bars **126, 126'** when the mechanism **21** is attached to the wall **31**, a rectangular opening **221** being formed in the base plate **100** to receive the member.

Coins dropped from the chutes **41, 42** when the door

23 is opened to withdraw the latch plate 30 from beneath the chutes fall onto a slide 222 which directs the coins rearwardly into the cabnet 32 where they collect on the bottom wall. In the event a bent coin or slug blocks one or the other of the chutes 41, 42, or if it is desired to obtain a return of the coins from the chutes before the door 23 is opened, handle 82 is rotated in either direction which causes the wings of member 220 to press against the bars 126, 126' and force the wall members 101, 101' to swing outwardly to the limits of their outward movements upon which the walls 112, 112' of the chuts 41, 42 separate from the respective inner walls 101, 101'. The strength of the springs 130, 130' are greater than the tension of the spring 141 so that the chute structures will be swung outwardly before the walls 112, 112' separate from walls 101, 101'. Thus, the outlets of the coin chutes 41, 42 are directed to opposite sides of the slide 222 and the separation of the chute walls cause the coins to drop into an open top return trough 224 which has a bottom wall 225 sloping to a coin return opening 226 in the front wall 31 of the housing 32.

It will be noted that when the door 23 is initially moved towards its open position the handle 82 is recessed in the opening 81, as seen in FIG. 4, and is inaccessible for rotation so that a person using the vending machine cannot actuate the coin return handle immediately following release of the latch mechanism and thus effect a coin return simultaneously with a vending operation.

Although but one form of the invention has been described it is to be understood that other forms, modifications and adaptations could be made all falling within the scope of the claims which follow.

I claim:

1. In a coil-operated dispensing mechanism, a movable dispensing member, latch means for latching said member in a nondispensing position, coin responsive means for actuating said latch means to unlatch said dispensing member, said coin responsive means including two downwardly extending coin chutes and mechanism associated with one of said coin chutes and operable to effect actuation of said latch means to release said dispensing member, and means actuated in response to a coin in the other of said coin chutes to render said mechanism operable and coin check valve means operative to prevent upward movement of coins in said one chute, and means for rendering said coin check valve means ineffective and effective in accordance with the absence and presence, respectively, of a coin in the other of said coin chutes.

2. In a coin-operated dispensing mechanism, a movable dispensing member, latch means for latching said member in a nondispensing position, coin responsive means for actuating said latch means to unlatch said dispensing member, said coin responsive means including two downwardly extending coin chutes and mechanism associated with one of said coin chutes and operable to effect actuation of said latch means to release said dispensing member, and means actuated in response to a coin in the other of said coin chutes to render said mechanism operable wherein said means to actuate said latch means comprising the type in which a coin in one of said chutes is prevented from moving upwardly and thereby forms an abutment for effecting shifting of a latch member to a release position relative to said dispenser member, means to prevent upward movement of a coin in said one chute comprising a finger member movable into and out of coin blocking position in said one chute, control means operable by initial movement of said dispenser member towards a dispensing position for shifting said finger member from one of said positions to the other, and means responsive to a coin in the other of said coin chutes to effect operation of said control means.

3. A coin-operated dispensing mechanism set forth in claim 2 further characterized by said finger member being normally urged to a position out of blocking relation to a coin in said chute, said control means being responsive to a coin in said other chute to shift said finger to its coin blocking position.

4. A coin-operated dispensing mechanism set forth in claim 3 further characterized by said finger member being adjustably positionable along said one coin chute.

5. A coin-operated dispensing mechanism set forth in claim 2 further characterized by a check valve means associated with said other coin chute and operative to prevent upward movement of a coin in said other chute, and means to render said check valve means inoperative.

6. A coin-operated dispensing mechanism set forth in claim 5 further characterized by the last mentioned check valve means being adjustably positioned along said other chute.

7. A coin-operated dispensing mechanism set forth in claim 2 further characterized by said control means comprising follower means normally biased to follow movement of said dispenser member towards a dispensing position, linkage means between said follower means and said finger member and adapted to shift said finger member into said chute in response to predetermined movement of said dispenser member, and blocking means normally positioned to block movement of said follower means to correspond to said predetermined position of said dispenser member, said blocking means being movable to a non-blocking position relative to said follower means by a coin in said one coin chute.

8. In a coin-operated article dispensing mechanism as defined in claim 1 characterized by said coin check valve having a blocking member movable into the other of said coin chutes to prevent upward movement of a coin in said other chute, said latch actuating means being operative to actuate said latch by a coin in said other chute when the coin is blocked from upward movement in said other chute, check valve means to move said coin blocking member into coin blocking position in said other chute, said blocking member being normally out of said coin blocking position, and means responsive to a coin in said one chute for moving said check valve shifting means to shift said blocking member into position to block upward movement of a coin in said one chute.

9. A coin-operated dispensing mechanism comprising a vertical support member, two spaced coin chute structures, means attaching said chute structures to said support member with said chutes extending downwardly and adapted to be shifted laterally in opposite directions and each movable between two positions, said chute structures each comprising two spaced parallel wall members arranged to form opposite inner and outer walls of the respective coin chutes, means guiding the outermost of said walls of each chute structure for lateral movement in directions towards and away from the other of the respective inner walls of said chute structures, and means for urging each of said outer walls in a direction to move it from its cooperating inner wall and for shifting said chute structures outwardly from one another.

10. A coin-operated dispensing mechanism as set forth in claim 9 characterized by means resiliently urging said chute structures towards one another.

11. A coin-operated dispensing mechanism as set forth in claim 9 characterized by means resiliently urging each of said outer walls towards the respective inner walls.

12. A coin-operated dispensing mechanism as set forth in claim 10 further characterized by means resiliently urging each of said outer walls towards the respective inner walls, means disposed between said chute structures and operable to urge said outer walls away from one another and from the respective inner walls, and to thereby shift said chute structures away from one another.

13. A coin-operated dispensing mechanism as set forth in claim 12 further characterized by the last mentioned means comprising a rotatable member having extending arms adapted to force said outer walls and said chute structures outwardly when said rotatable member is ro-

tated to move said arms from a generally vertically extending position.

14. In a coin-operated dispensing mechanism, a coin chute structure, a coin check valve means associated with said chute and having a coin passing and checking member extendable into said chute, a check valve guide means extending along said chute structure, said check valve means including a carrier member adapted to move along said guide means and support said coin checking member, resilient means urging said carrier member to said guide means, locating means on said guide means and carrier member including a projection and a recess to closely receive said projection, means for shifting said carrier member from said guide means to separate said projection from said recess of said locating means, and means to limit separation of said guide means and carrier member.

15. A coin-operated dispensing mechanism as set forth in claim 14 characterized by said guide means comprising an elongated member having a straight edge portion along which said carrier member moves, said carrier member having a flange thereon, said edge portion having a plurality of notches adapted to receive said flange to locate said carrier member along said edge portion.

16. In a coin-dispensing mechanism as defined in claim 15 further characterized by said guide means comprising a longitudinally bar having a central longitudinal slot and outwardly turned flanges forming parallel spaced surfaces, said carrier member comprising a plate adapted to bridge said flanges and having a part projecting through said slot, spring means between said bar and said part and urging said plate to said bar, said flanges having spaced notches therealong, said plate having a flange adapted to engage edgewise in said notches, a handle on said plate for moving said plate from said bar, and a guide pin extending from said plate through said slot and having a head to engage the edges of said slot to limit removal of said plate from said bar.

17. A coin-operated dispensing mechanism as set forth in claim 1 further characterized by means to adjust said mechanism to become operative only in response to the presence of a plurality of coins in said one coin chute to effect release of said dispenser member.

18. A coin-operated dispensing mechanism comprising a dispenser housing, a movable dispenser member carried by said housing and shiftable from a normal position to a dispensing position, a coin return mechanism associated with said housing and including a manually shiftable member, a closure structure movably associated with said dispenser member and adapted to be moved from a non-interferring position relative to said shiftable member to an interferring position adjacent said shiftable member and thereby prevent shifting of said shiftable member, said closure structure being in said non-interferring position when said dispenser member is in its normal position further characterized by said shiftable member comprising a rotatable shank having a laterally extending handle member.

19. A coin-operated mechanism as defined in claim 18 further characterized by said dispenser member comprising a door for said housing and swingable from a closed to an open position and having an aperature formed therein adapted to receive a portion of said shiftable member when said door is in its closed position and to move to bring a part adjacent to a second portion of said shiftable member when said door is initially moved towards open position, said second part of said shiftable member comprising a handle for manual shifting of said shiftable member further characterized by said shiftable member comprising a rotatable shank having a laterally extending handle member.

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