July 18, 1961 R. H. RAY 2,992,756

COIN CONTROL MACHINE FOR DISPENSING NEWSPAPERS AND OTHER PERIODICALS

Filed Sept. 8, 1958 2 Sheets-Sheet 1

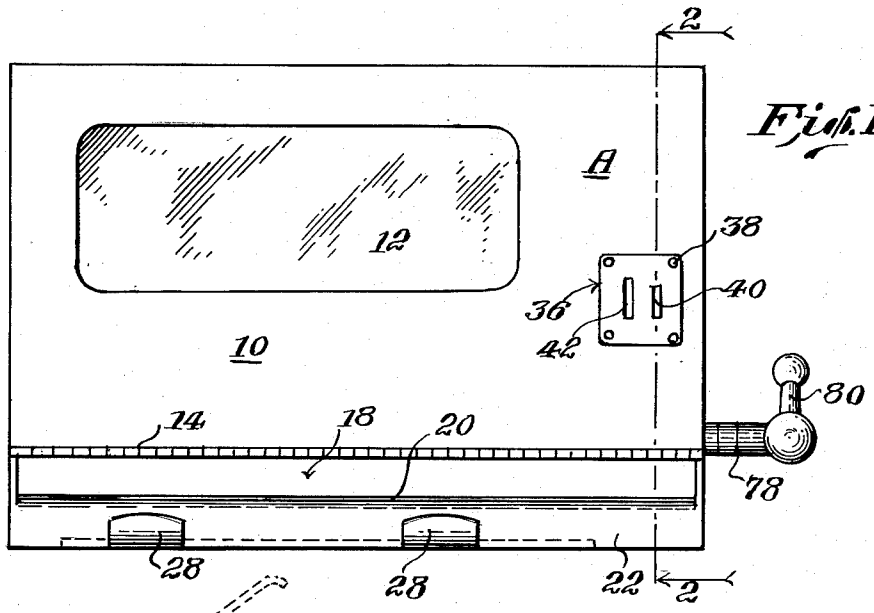


Fig. 1.

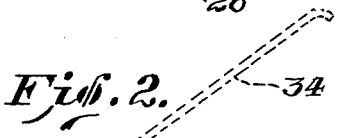
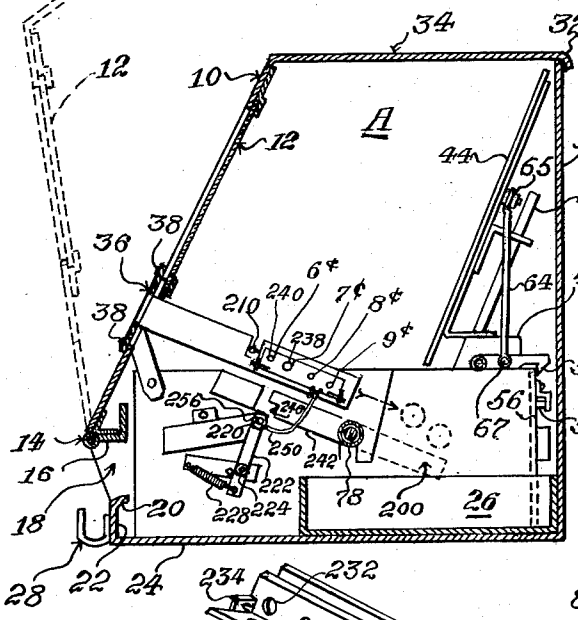


Fig. 2.



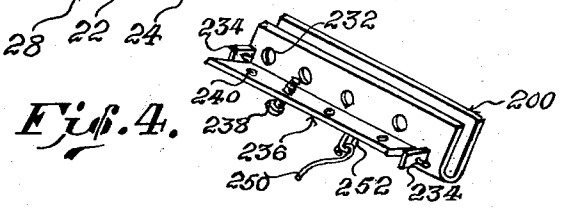


Fig. 4.

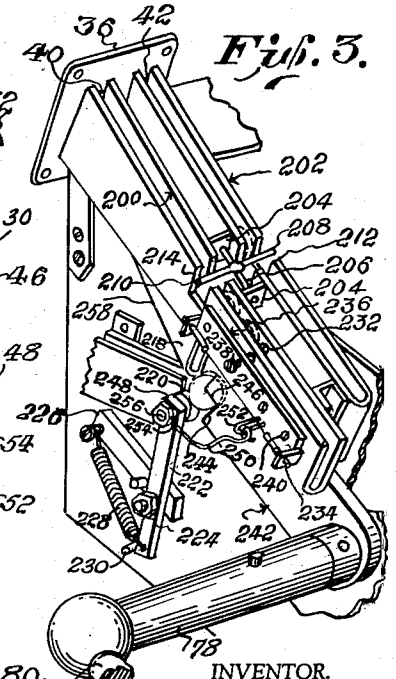


Fig. 3.

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COIN CONTROL MACHINE FOR DISPENSING NEWSPAPERS AND OTHER PERIODICALS

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Fig. 5.

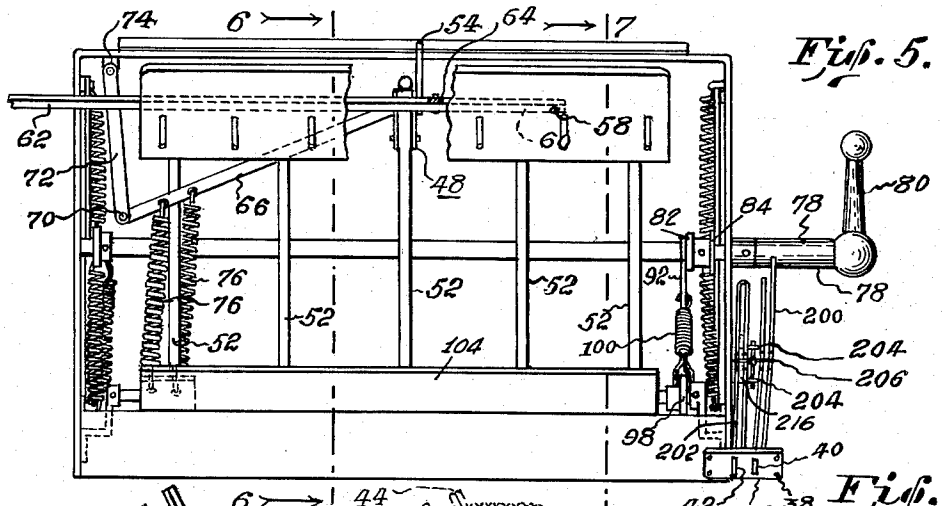


Fig. 9.

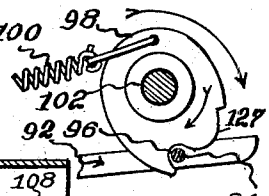


Fig. 6.

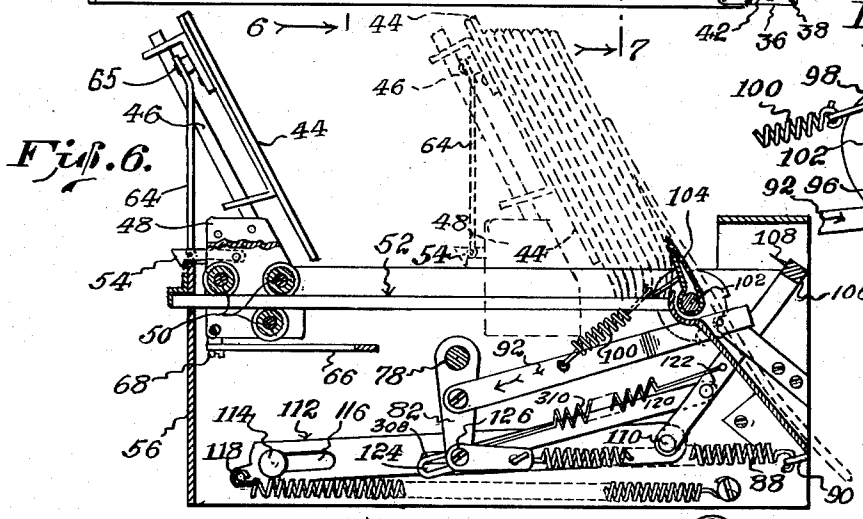


Fig. 8.

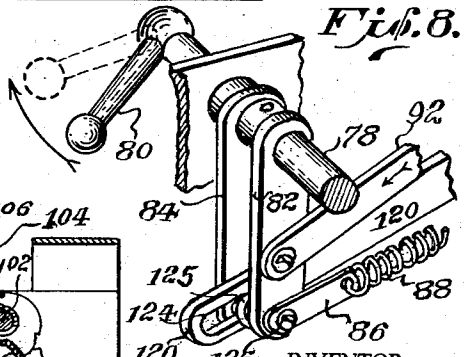
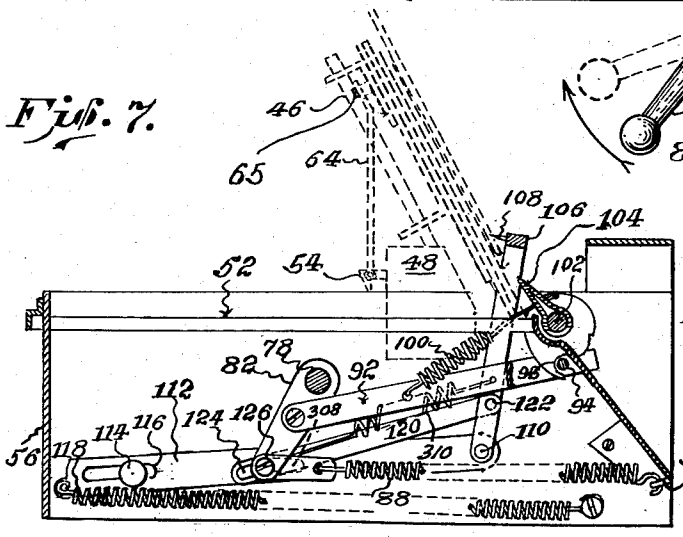


Fig. 7.



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COIN CONTROL MACHINE FOR DISPENSING NEWSPAPERS AND OTHER PERIODICALS

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Filed Sept. 8, 1958, Ser. No. 759,518
6 Claims. (Cl. 221—213)

This invention relates to a coin control machine for dispensing newspapers and other periodicals.

An object of the invention is to provide a manually operated compact machine for dispensing papers which comprises a minimum number of parts and which is not apt to get out of order.

Another object is the provision of a machine which may be adjusted to dispense periodicals, hereinafter referred to as newspapers, whereby the cost of each of the newspapers may be adjusted upwardly or downwardly in accordance with prevailing newspaper prices.

A further object is to provide a readily adjustable coin control newspaper dispensing machine which automatically resets itself after each dispensing operation.

Other objects will appear hereinafter throughout the specification.

In the drawings:

FIGURE 1 is a front elevational view of the newspaper dispensing machine of this invention;

FIGURE 2 is a section on the line **2—2** of FIGURE 1;

FIGURE 3 is an enlarged perspective view of the coin control mechanism;

FIGURE 4 is an enlarged perspective view of the coin gate;

FIGURE 5 is a top plan view of the structure of the interior of the newspaper dispensing machine;

FIGURE 6 is a vertical section taken on the line **6—6** of FIGURE 5;

FIGURE 7 is a sectional view on the line **7—7** of FIGURE 5;

FIGURE 8 is an enlarged detail perspective view, partly in section, of the handle and crank mechanism for operating the paper feeding mechanism, parts being omitted for the sake of clarity; and

FIGURE 9 is an enlarged side elevational view, partly in section and partly broken away, of the cam and its operating mechanism.

Referring to the drawings and particularly to FIGURES 1 and 2, the machine comprises a casing "A" having an inclined front portion **10** provided with a window **12**, the lower portion of which is hinged at **14** to the upper wall **16** of the opening **18**. There is a lower substantially horizontal wall **20** forming the lower side of the slot or opening **18**, and a short vertical wall **22**.

The base of the casing is shown at **24**, and as indicated in FIGURE 2 the base supports the removable coin receptacle **26**. As shown in FIGURES 1 and 2, the vertical wall **22** is provided with a plurality of ledge members **28** for the purpose of supporting each paper as it is delivered from the machine. It will be understood, however, that a single continuous ledge, not shown, could be substituted for the short ledges shown in the drawings.

The outer casing "A" has a back portion **30** over the top edge of which the hooked end **32** engages. This end forms a part of the top **34**, the latter being integral with the pivoted front portion **10**.

The front portion as seen in FIGURE 1 is also provided with a plate **36** having a screw-threaded attaching means **38**. This plate has a plurality of slotted openings **40** and **42** for the insertion of different denominations of coins. For example, slot **40** may be used for the reception of pennies and slot **42** for the reception of nickels. It will be appreciated that other size openings for different denominations of coins may be used in place of those shown.

Referring now to FIGURES 5 to 9, a support or follower **44** is supported by an inclined supporting rod **46**, as seen in FIGURE 6. A carriage **48**, as shown in FIGURE 6, is provided with a plurality of rollers **50** which roll along the central rod **52**. The other rods **52** shown in FIGURE 5 form a "bed" to prevent the newspapers from getting too low in the machine during insertion therein.

The support **44** carries a latching mechanism comprising a pivoted arm **54** which is pivoted to carriage **48**. The arm **54** is adapted to engage the ledge **56** at the back of casing A, in order to retain the support **44** in its inoperative position. When this support is released, it is urged to the right, as seen in FIGURE 6 in dotted lines.

The pivot **58** supports an arm **60** having a handle portion **62**. This arm is pivotally connected intermediate its length at **65** to a vertical arm **64**, the lower end of which is pivotally connected to the latching mechanism at **67**. The handle **62** will raise the arm **64** to disengage the latching means from the ledge. The carriage **48** upon release of the latching mechanism is urged forwardly to position the papers to the right, as viewed in FIGURE 6, by means of the rod **66**, which rod is pivoted to the carriage at **68**. The other end of the rod is pivoted at **70** to an anchoring rod **72**, which latter is pivotally connected to the mechanism supporting member at **74**. Springs **76** are attached to the rod **66** and tend to pull the rod downwardly, as viewed in FIGURE 5, to cause the feeding of the papers forwardly, as seen in FIGURE 6.

Referring particularly to FIGURES 6 to 9, the mechanism supporting casing **56** is provided with sides which support the main operating shaft **78** having an operating handle **80**. Pinned on the shaft **78** are downwardly extending links **82** and **84**. At the lower end of these links is a pivoted link **86**, the opposite end of which is connected to a spring **88**. The opposite end of spring **88** is anchored to the mechanism supporting casing **56** at **90**. The shaft **78** is biased to rotate in a counterclockwise direction to cause the links **82** and **84** to assume the position shown in FIGURE 8. A cam actuating link **92** is pivoted to link **82** and is actuated thereby. The opposite end of this link is provided with a pin **94** which is adapted to engage in a notch **96** of a cam **98**, which cam is biased to rotate in a counterclockwise direction by the spring **100**. This cam is mounted on the shaft **102**. This shaft mounts a paper retaining bar **104**, seen in FIGURE 6, which bears against the paper until released by the cam. When the pin **94** is moved to the left upon actuation of the rod or link **92** and the cam and retaining bar are rotated clockwise as seen in FIGURE 6, this causes a momentary release of the foremost paper by the bar **104**. The sequence of operation briefly is that bar **104** is in engagement with the foremost paper; then when the bar moves clockwise, as seen in FIGURE 6, the foremost paper is released. The parts then assume the FIGURE 7 position and a pin raises the foremost paper and releases it as the top of a pin bar orbits to the right, whereupon it falls by gravity as seen at the right in FIGURE 6, where it moves over the right edge of bar **104**, and substantially simultaneously the retaining bar is moved counterclockwise with the rotation of shaft **102** to clamp the lower portion of the next rightmost paper. It is at this time that the pin bar **106** raises and releases the foremost paper which moves through the opening **18** until engaged by the ledge members **28**. The pin bar is provided with spaced pins **108** for engaging the foremost paper. When the foremost paper is raised by the pins **108** of bar **106**, retaining bar **104** is out of contact with the paper as seen in FIGURE 7. Bar **104** is next released to engage the next foremost paper, following which pin bar **106** moves downwardly and to the right, as shown in FIGURE 6, to release the foremost paper and permit it to slide down-

wardly over the retaining bar **104** and out of slot **18** of the casing A. A link **120** serves to cause the pin bar **106** to have a leftward, then upward, then downward and rightward movement as viewed in FIGURES 6 and 7, during each complete dispensing paper operation. The pins **108** are pulled out of the foremost paper as the pin bar moves to the right to the position shown in FIGURE 6.

The pin bar **106** is connected at its lower end by a pivot **110** to a sliding link **112** that rides on a pin **114**. This pin engages a slot **116**, the link **112** being biased to the right in FIGURE 7 by a spring **118**, and is actuated by means of shaft **78** through links **82** and **84** and pin **126** moving in a slot **308** in link **112**. The link **120** is pivoted at **122** to the pin bar **106**. The other end of the link **120** has a slot **124** which is engaged by the pin **126** that is on the lower end of the link **82** and connects this link to link **84**. A washer **125** is shown between the link **82** and the link **120**. Pin **126** moves to the left of slot **124** when the pin bar **106** reaches the limit of its upward movement. Above the pin bar pivot **122** is affixed a spring **310** whose other end is anchored on pin **126**. This spring is not under tension with the parts in the position shown in FIGURE 6, but when the pin bar moves to engage the foremost newspaper, due to rearward movement of pin **126**, the spring becomes tensioned. This spring's only function is to assist in returning the parts to their original position, as shown in FIGURE 6, after the paper is released. Actually the several links, as shown in FIGURE 6, and their springs, such as springs **88**, **100** and **118**, accomplish the same purpose, with the spring **310** assisting these links and springs. Link **112** has a slot **308** for receiving pin **126** in order to allow a slight movement of the link **112** relative to pin **126**. Pin **126** also moves in slot **124**, as will be noted by comparing the positions of these parts in FIGURES 6 and 7.

Rotation of the shaft **78** in a clockwise direction causes the pin bar to move vertically. Due to the linkage recited above the pin bar will then move to the left to engage a paper, and as it pivots it pulls the paper upwardly as the pins **108** engage the foremost paper. At this time the pin **94** has moved the cam clockwise to momentarily cause the pressure bar **104** to release the paper. Then following the elevation of the paper and its release, as the pin bar comes back, the pin **94** is pulled beyond the notch **96** with the rotation of cam **98**, whereupon the spring **100** restores the cam to its original position, as with the parts shown in full lines in FIGURE 6. FIGURE 9 shows the parts in the position where the cam has been partially rotated by link **92** and pin **94**.

With reference to FIGURE 8, the parts are shown of the lower righthand corner of FIGURE 5 with element **112** omitted. These same parts are also located at the left lower corner of FIGURE 5, except the link **92** and the cam **98** are omitted, because there is no cam or link at this latter point in FIGURE 5. Only one cam and actuating link **92** are necessary for the operation of the retaining bar **104**.

Referring now to FIGURE 3, the back of the plate **36** has attached thereto a plurality of inclined coin chutes **200** and **202**, which are in alignment with the slots **40** and **42**, respectively. The slot **40** and its chute **200** are used for coins of small denominations, such as pennies, and slot **42** with its aligned chute **202** is used for larger coins, such as nickels.

Between the ends of the chutes are spaced plates **204** for supporting the pivoted coin blocking member **206**. Extending in opposite directions and integral with the member **206** are fingers **208** and **210**, which preferably extend across the slots **212** and **214**, respectively.

The weight and momentum of the coins as they roll down the chute **200** raises finger **210** which causes coin blocking member **206** to pivot, whereby finger **208** moves into slot **212**. This movement will prevent the movement of coins, such as nickels, past the point where the nickel engages the finger **208**. When the coin strikes this finger **208** it is stopped, assuming that the finger is being

held in the slot **212** by a penny in slot **200**. The nickel then drops through an opening **216**, see FIGURE 5, in the bottom of chute **202**, this slot being located immediately below the finger **208**. The nickel then falls into the intermediate chute **218**, as seen in FIGURE 3, and rolls down this chute to the position shown in this figure. In such position the nickel rests between the roller **220** on the end of the arm **222** and the notch **244** of a rock arm **242**. This arm is pivoted at **224** to the block **226**, which latter is fixed to the supporting casing **56** by welding or other suitable means. The lower end of the arm **222** has affixed to it a spring **228**. A stop **230** limits the clockwise movement of the arm **222** to allow it to pivot for only a predetermined amount.

Referring to FIGURES 3 and 4, chute **200** is provided with a plurality of spaced openings **232** on one of its sides to the right of the slot **214**, as viewed in FIGURE 3. Pivoted at **234** on this side of the slot is a gate **236** having a plurality of threaded apertures **240**, each being in line with an aperture **232** of the chute. A screw **238** is adapted to be threadedly engaged in any one of the apertures **240**. When it is threaded into one of said apertures, said screw will extend into its corresponding aperture **232** of the chute **200** so as to extend across the chute and block the passage of coins in this chute. The screw will then form an adjustable stop for one or more coins depending upon the opening **240** which is used in the operation of the machine. If the screw **238** is in the leftmost of the apertures **240**, only one penny will force finger **208** into slot **212**. The position of the screw, therefore, predetermines the number of coins allowed to enter the portion of the slot which is beyond the slot **214**. As indicated in FIGURE 3, the adjustment shown is for two coins, such as pennies. The second of the two pennies, with this adjustment, tips the finger **210** upwardly, therefore moving the finger **208** downwardly, thus blocking further passage of the coin (nickel) in slot **202**. This will cause the coin in slot **202** to pass through opening **216** down chute **218** where it comes to rest on the roller **220**. The greater length of finger **210** gives it greater weight, so that it automatically moves to the position where it protrudes into slot **214** when free to pivot.

Fixedly attached to the main shaft **78** is the rock arm **242** the free end of which is provided with a receiver or notch **244** for the partial reception of the coin which rests upon the roller **220**. This recess in effect provides a bifurcated end for the rock arm **242**, and as seen in FIGURE 3, partially encloses the coin which rests on the roller **220**. The end of the rock arm is also provided with a cut-away shoulder **246**.

This shoulder **246**, upon the counterclockwise movement of the rock arm, as actuated by handle **80**, and assuming no coin is resting upon the roller **220**, will engage the squared upper end **248** of the arm **222**. Further movement of the rock arm will thus be prevented by the engagement of these parts when no coin is resting on the roller **220**, and only a small amount of rotation of the shaft **78** will be allowed, thus preventing actuation of the paper pin bar **106** and retaining bar **104** which cause the paper to be raised and released to pass through the opening **18** shown in FIGURE 2. After passing through the opening, each paper is supported on the ledge **28** where it may be grasped by the hand for removal from the machine.

The opening and closing movement of the gate **236** is controlled by a wire **250**, one end of which is connected to an eye-shaped member **252** on the gate, the other end of which is numbered **254** and is connected to the upper end of the pin **256** of arm **222**. The latter mounts the roller **220** on arm **222**. This connection may be readily effected by forming an eye at the end of the wire so that it will pass over the pin, following which suitable securing nut or other means is attached to fasten the same to the upper end of the arm **222**.

The wire **250** is preferably slightly bowed in shape so

as to provide for flexibility between the gate **236** and its operating arm **222**. The gate **236** is returned to vertical position by means of the wire **250** as the link **222** rotates in a counterclockwise direction, as viewed in FIGURE 2. This wire is fixed so as to move with the link in such manner that it is returned to its vertical position as the link moves as stated.

It will be noted that as the arm **222** rotates counterclockwise when actuated by the rock arm **242**, and assuming a nickel is resting on the roller **220**, such movement of said arm **222** will open the gate **236** to the position shown in FIGURE 4. This will release all the coins, which will run down the chute and fall into the receptacle **226**, as shown in FIGURE 2. When the nickel is released by relative movement of the arms **222** and **242**, the spring **228** returns the arm **222** to its rightmost position, the wire preventing further clockwise movement once the gate **236** has been moved to a vertical position.

Operation

Assuming the cost of a paper is seven cents, the screw **238** will be in engagement with the apertures as shown in FIGURES 3 and 4. Two pennies are first placed in the slot **40**. These roll down the chute **200** until they come in contact with the screw **238**, as shown in FIGURE 3. The last inserted penny has, at this time, raised the finger **210** and lowered finger **280** into slot **212** of chute **202**. A coin of higher denomination, such as a nickel, is then inserted in the slot **242**, and this rolls down the chute **202** until it is stopped by the finger **208**. If the coin is undersized it rolls under the finger **208** and continues to the end of the chute where it drops into the ejector slot **258** and finally drops to the receptacle **26**.

Assuming the nickel has been placed in the chute **202**, following the deposit of the two pennies, and that it is a slug, it will drop through the slot **216**, roll down chute **218**, and come to the position shown in FIGURE 3, where it will rest on the roller **220** with a portion of it peripherally engaged by the bifurcated end of the rock arm **242**. Rod **92** releases at about the end of its stroke.

The handle **80** is then pulled upwardly. This action causes counterclockwise movement of the arm **222**, opening the gate **236**, which action simultaneously permits the nickel to drop into the box **26** while the pennies that have been released by the screw **238** roll to the end of the chute and drop into the coin box **26**, as shown in FIGURE 2.

Simultaneously, because the arm **222** has been moved out of the way of the shoulder **246** of arm **242**, the shaft **78** continues to rotate in a counter clockwise direction for a short amount of rotation. This additional rotation causes links **82** and **84** to rotate clockwise, as seen in FIGURE 3, thus moving the link **92** to the left, causing the pin **94** by its engagement in the notch **96** to rotate the cam **98** against the tension of the spring **100**, as shown in FIGURES 8 and 9. As the cam rotates, its raised portion **127** causes the pin to be pushed out of the notch **96** in a downward direction as viewed in FIGURE 9, causing the arm **92** to assume the position shown in dotted lines. When the notch is cleared by the pin, the spring **100** snaps the cam back to its original position.

However, before the cam is snapped back to its original position, its rotation has caused shaft **102** to cause the retaining pin **94** to release as it moves to the right from the position shown in FIGURES 7 and 9.

At the same time that the pin bar is released from the paper and prior to the release of the cam **98**, the link **120** has been moved to the right. The links **112** and **120** cause the pin bar **106** to move in an upward arcuate path to engage the foremost paper by the pins **108**. These pins lift the paper upwardly while at the same time the retaining bar is moved away from the paper to release it, as actuated by the cam shaft **102**.

It will be noted that the retaining bar **104** is fixed to the shaft **102** on which the cam is mounted.

Since the cam released the pin, the cam **98** and shaft **102** move in a counterclockwise direction with the retaining bar engaging the next paper. When the pin bar is released by cam **127**, the links **82**, **84**, **92**, **112**, and **120**, as well as the shaft **78** are returned to their normal operative positions shown in FIGURE 6. FIGURE 7 shows the parts in the position for release of the paper by the retaining bar **104** at the time the pin bar **106** is moving the foremost paper upwardly.

In the series of movements of the parts, particularly the movements of the retaining bar **104** and the pin bar **106**, the retaining bar does not move away from the papers until about the time the pin bar has moved up and impaled the foremost paper on the spaced pins **108**. Then the pin bar moves upwardly with the paper on it and at the time it reaches its height, the cam portion **127** of cam **98** releases the pin **96** which immediately causes the retaining bar to slip back into position below the raised paper; then as the pin bar moves downwardly to the right, as viewed in FIGURE 7, the paper after its release by the pins slides over on top of the retaining bar and out through the slot **16** where it rests on the ledges **28**. The machine upon release of the handle **80** is restored to its normal position by the several springs shown in FIGURES 5 to 8, the handle being caused to move downwardly by the said springs.

The expression in certain of the claims, "said retaining bar is moved in one direction and said pin bar is moved relatively in a substantially opposite direction," includes structure having means for moving the retaining bar and pin bar in different directions, such as the direction of movement of the retaining bar away from the foremost paper as the pin bar moves upwardly and inwardly towards the foremost paper.

The above description and drawings disclose a single embodiment of the invention, and specific language has been employed in describing the several figures. It will, nevertheless, be understood that no limitations of the scope of the invention are thereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

I claim:

1. A paper vending machine comprising a housing adapted to receive papers to be dispensed, said housing having a discharge opening, a follower having means for pressing papers toward said discharge opening, an ejector mechanism including: a main rotary shaft, means for operating said shaft, a retaining bar, spring means for forcing said retaining bar in engagement with the foremost newspaper on said follower, a cam shaft, a cam mounted thereon and rotated thereby in either direction, said retaining bar being also mounted on said cam shaft and being rotatable thereby, a pin bar, link means including a plurality of links including a first and second link, crank means fixed on said main shaft and attached to said first and second links at their adjacent ends, said first link having a pin and adapted to partially rotate said cam shaft and said retaining bar in one direction when actuated by said first link, said second link having means for connecting the same to said pin bar whereby upon partial rotation of said main shaft, said cam shaft, cam, and retaining bar are partially rotated in one direction and said pin bar is actuated in order to first release said retaining bar from said papers and subsequently to cause one of said papers to be raised by said pin bar, said cam having a portion for releasing said link pin from said cam, spring means for partially rotating said cam and pin bar in the opposite direction upon release by said link pin of said cam portion, and additional spring means for moving said links for said cam and pin bar in the opposite direction when said cam is released by said pin, whereby said links partially rotate said main shaft in the opposite direction to its original position.

2. The structure of claim 1 wherein said crank means comprises a rock arm, said links being pivotally mounted on said rock arm at spaced points thereon.

3. The structure of claim 1 wherein a third link is connected in spaced relation to said pin bar.

4. A paper vending machine comprising a housing adapted to receive papers to be dispensed, said housing having a discharge opening, a follower having means for pressing papers toward said discharge opening, an ejector mechanism including: a main rotary shaft, means for operating said shaft, a retaining bar, means for forcing said retaining bar in engagement with the foremost newspaper on said follower, a pin bar, means fixed on said main shaft and adapted to partially rotate said retaining bar in one direction when actuated by said shaft, said shaft having means for connecting the same to said pin bar, whereby upon partial rotation of said shaft, said retaining bar is moved in one direction and said pin bar is moved relatively in a substantially opposite direction in order to first release said retaining bar from said papers and subsequently to cause said foremost paper to be raised by said pin bar, and means for moving said retaining bar and pin bar in opposite directions of their previous movements, whereby said foremost paper is released and falls through said discharge opening and the next foremost paper is engaged by said retaining bar.

5. A paper vending machine comprising a housing adapted to receive papers to be dispensed, said housing having a discharge opening, a follower having means for pressing papers toward said discharge opening, an ejector mechanism including: a main rotary shaft, means for operating said shaft, a retaining bar, means for forcing said retaining bar in engagement with the foremost paper on said follower, a pin bar, means including a cam means mounted adjacent said retaining bar for actuating the same together with means fixed on said main shaft and adapted to engage said cam means to move said retaining bar in one direction when actuated by said shaft, said shaft having means for connecting the same to said pin bar, whereby upon partial rotation of said shaft, said retaining bar is moved in one direction and said pin bar is moved relatively in a substantially opposite direction in order to first release said retaining bar from said papers and subsequently to cause said foremost paper to be raised by said pin bar, and means for moving said retaining bar and pin bar in opposite directions of their previous movements, whereby said foremost paper is released and falls through said discharge opening and the next foremost paper is engaged by said retaining bar.

6. A paper vending machine comprising a housing adapted to receive papers to be dispensed, said housing having a discharge opening, a follower having means for pressing papers toward said discharge opening, an ejector mechanism including: a main rotary shaft, means for operating said shaft, a retaining bar, means for forcing said retaining bar in engagement with the foremost newspaper on said follower, a pin bar, means comprising link means fixed on said main shaft and adapted to move said retaining bar in one direction when actuated by said shaft, said shaft having means for connecting the same to said pin bar, whereby upon partial rotation of said shaft, said retaining bar is moved in one direction and said pin bar is moved relatively in a substantially opposite direction in order to first release said retaining bar from said papers and subsequently to cause said foremost paper to be raised by said pin bar, and means for moving said retaining bar and pin bar in opposite directions of their previous movements, whereby said foremost paper is released and falls through said discharge opening and the next foremost paper is engaged by said retaining bar.

References Cited in the file of this patent

UNITED STATES PATENTS

1,022,680	Johnson	Apr. 9, 1912
1,398,283	Stice	Nov. 29, 1921
1,600,623	Chesnut	Sept. 21, 1926
2,444,389	Wagner	June 29, 1948
2,858,047	Williams	Oct. 28, 1958