R. W. PERRIN.

VENDING MACHINE.

APPLICATION FILED DEC. 27, 1915.

1,212,674.

Patented Jan. 16, 1917.

3 SHEETS—SHEET 1.

Fig. 1

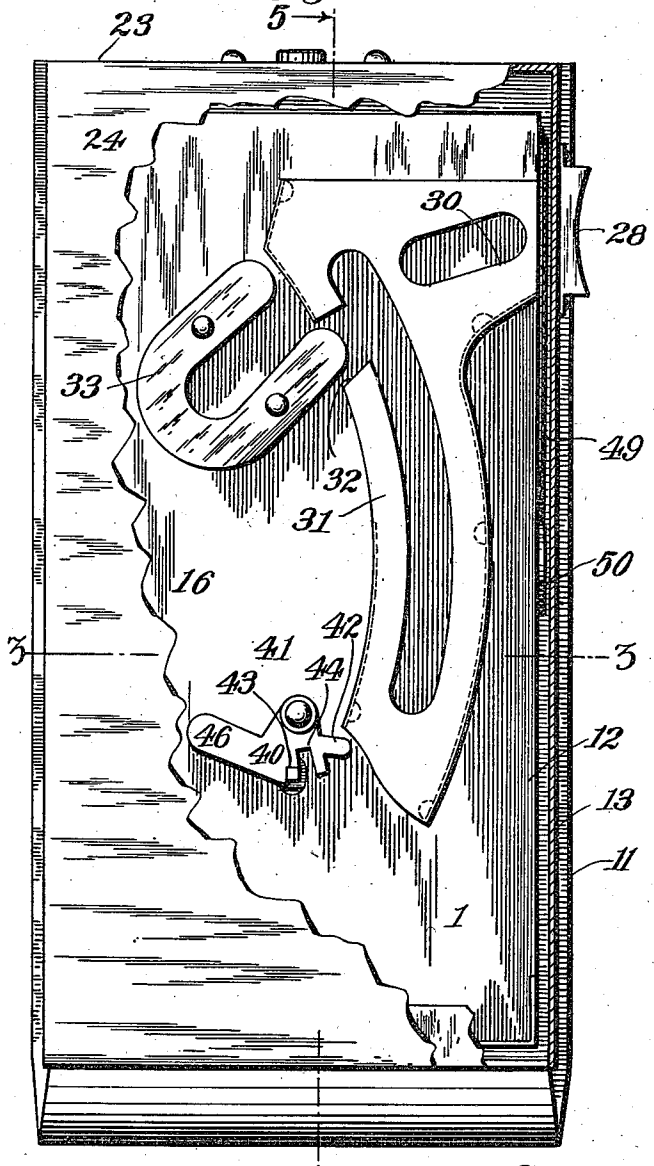


Fig. 2

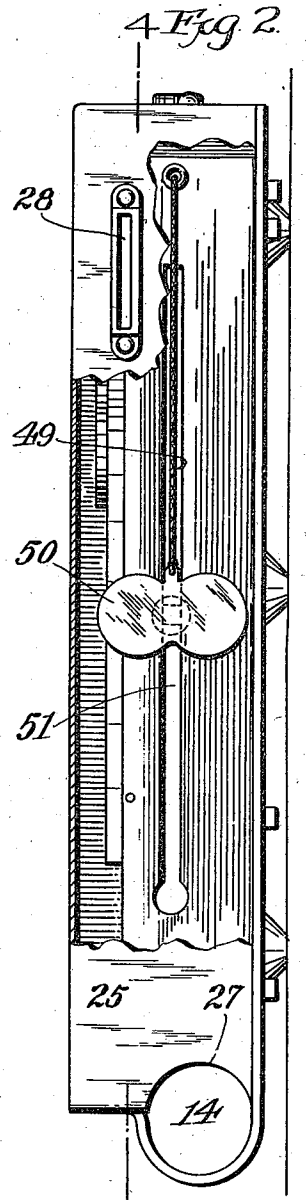
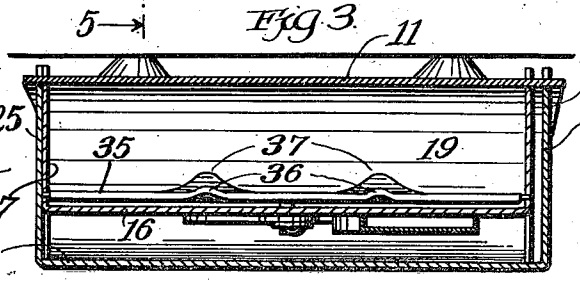


Fig. 3



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3 SHEETS—SHEET 2.

Fig. 4

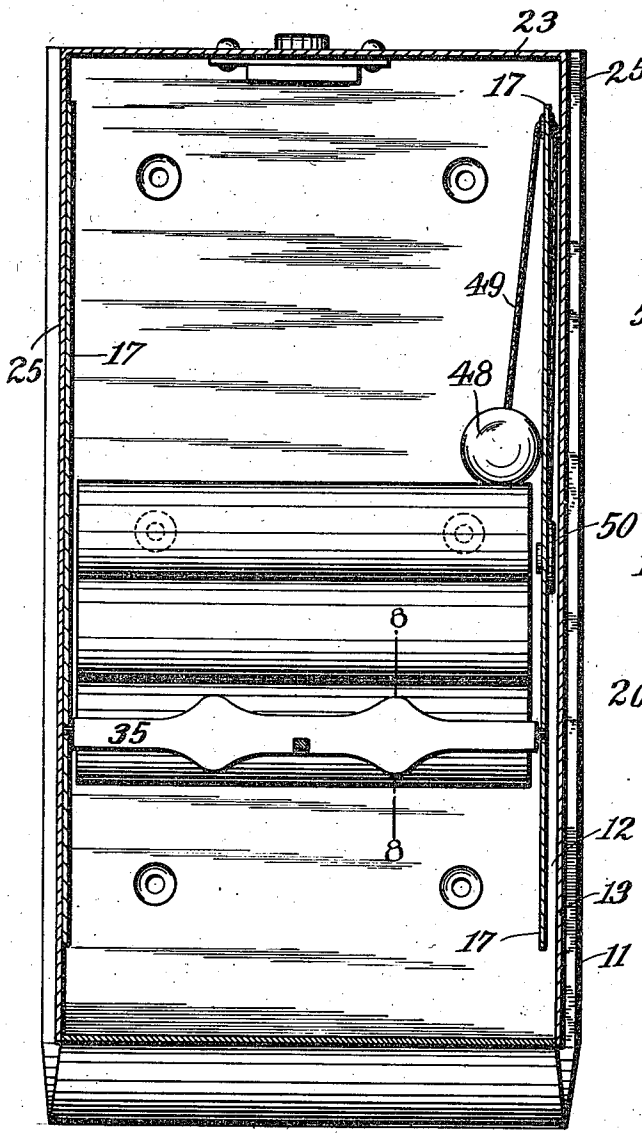


Fig. 5

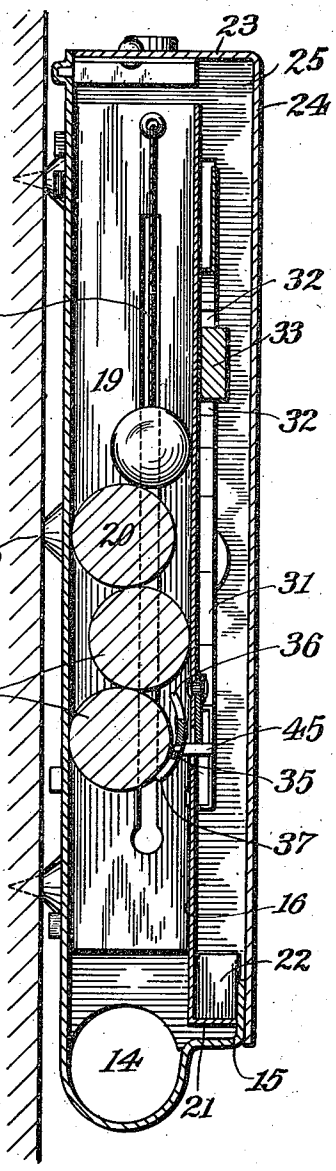
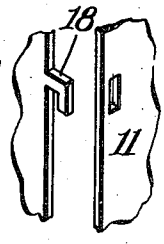


Fig. 6



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3 SHEETS—SHEET 3.

Fig. 7.

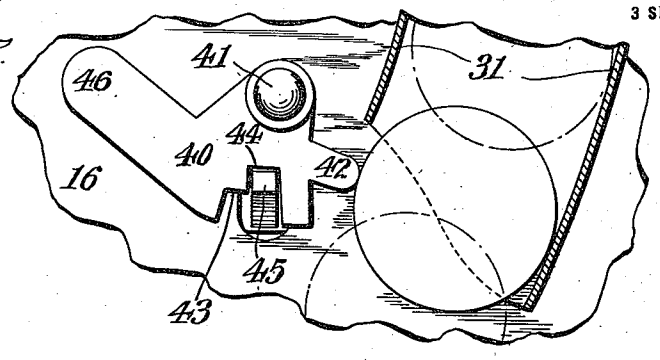


Fig. 8.

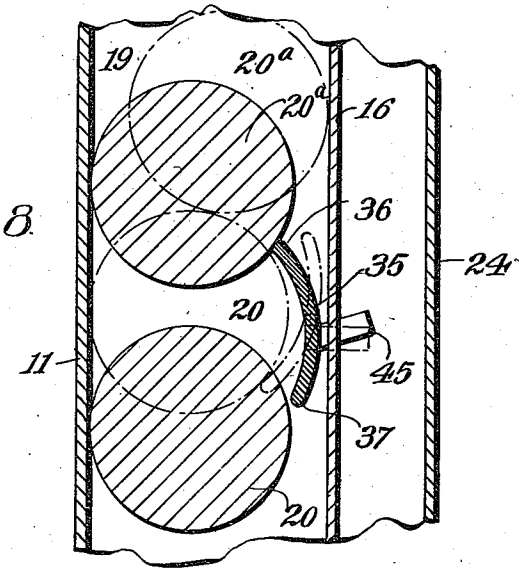


Fig. 9

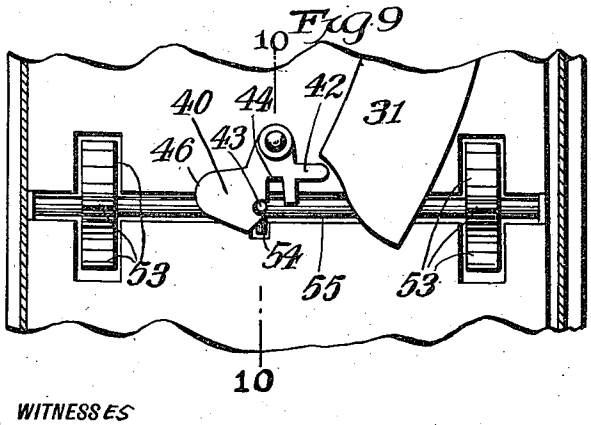
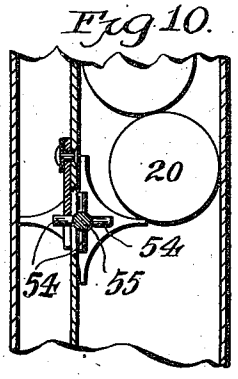


Fig. 10.



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UNITED STATES PATENT OFFICE.

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VENDING-MACHINE.

1,212,674. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed December 27, 1915. Serial No. 68,676.

To all whom it may concern:

Be it known that I, ROGER W. PERRIN, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a full, clear, and exact description.

This invention relates to certain new and useful improvements in vending machines of the type shown and described in my copending application Serial No. 59,168.

In the vending machine which forms the subject matter of this invention, I employ a cradle which is normally held in such a position to retain an article thereon, which article is delivered when the cradle rocks. A detent operating on the escapement principle is utilized to retain the cradle in this position. The detent is associated with a coin chute in such a manner that a descending coin if it is of proper diameter will trip the detent and allow the weight of the article resting on the cradle to rock the cradle and thereafter allow the article resting thereon to fall to a position where it is accessible. Thereafter the weight of the article or articles in the magazine is sufficient to cause the lowermost article to cam against the cradle and rock it to initial position where it is again engaged by the detent. I also improve the slug deflecting devices and the coin entrance shutter devices as will be hereafter pointed out.

In this machine the operation is entirely automatic. No manipulation is required other than the depositing of a coin in the coin slot. In addition the mechanism is extremely simple, cheap to manufacture and not liable to get out of order.

Figure 1 shows a front elevation of my improved machine. Parts of the case are broken away to show the parts beneath. Fig. 2 shows a side elevation of the box looking toward the coin opening shown at the right of Fig. 1. Certain parts of the case are broken away to show the interior construction. Fig. 3 is a central sectional view of Fig. 1 taken on lines 3—3. Fig. 4 is a sectional view taken on line 4—4 of Fig. 2. Fig. 5 is a sectional view of Fig. 1 taken on line 5—5 and looking in the direction of the arrows. Fig. 6 is a detail view showing the method of attaching the sheet metal case parts together. Fig. 7 is a detail view of the detent which holds the cradle. In this view the detent is shown in operated position in which position the cradle is free to rock and deliver an article. Fig. 8 is a detail sectional view taken on line 8—8 of Fig. 4 and showing the cradle in position to discharge an article. Figs. 9 and 10 show detail views of a modified form of cradle in which the cradle is in the form of a star and in which the action is similar to that of a Geneva stop.

In more detail in the drawings the case is of a flat rectangular form as shown in Figs. 1 and 2. The case comprises three portions, one back supporting member 11, an inner shell 12 and an outer shell 13. The back supporting portion is in the form of a plate and is provided with screws to secure the case to any suitable support as 10. The lower portion of the plate is curled up forwardly to form an open end delivery receptacle 14. The end of the curled portion is bent into a right angle as shown at 15.

The inner shell 12 is struck up from a plate and has a front wall 16 and side walls 17. These side walls are provided with hooked lugs as 18 which take into slots in the back plate as shown in Fig. 6. The inner shell and the back plate when secured together coöperate to form a magazine 19 for the articles to be sold. The articles 20, 20^a, etc., are preferably cylindrical in form as shown in the drawings but if desired articles may be of any desired shape and the container cylindrical. The magazine is open at the top and bottom, the inner shell which forms three sides of the magazine having no top or bottom walls. The lower ends of the front and side walls of the inner shell are extended as shown at 21 and 22. These parts closely fit within the angle 15 of the back plate when the inner shell is in hooked position on the back plate.

The outer shell comprises top, front, and side walls 23, 24 and 25, the latter walls terminating at their lower ends in an arcuate cut away portion 27 which defines the upper edge of the delivery receptacle. The side walls 25 are also provided with hooked lugs 18 which take into corresponding slots in the back plate 11 as shown in Fig. 6. In this way the outer shell is secured to the back supporting portion. A suitable lock is also provided to lock the outer shell in position.

Coin chute and slug detector.—As will be seen from Fig. 3 the front walls 16 and 24 of the inner and outer shells are slightly spaced apart. This provides a space for the coin chute and other operating parts and the lower portion of the space thus defined and terminating at the ledge 21 forms a receptacle for the coins. The coin entrance 28 is through the upper portion of one of the side walls of the outer shell. The coin entrance admits a coin to a coin chute which is in two sections. The upper section 30, which is adjacent the coin entrance is inclined slightly to the horizontal and the lower section 31 extends downwardly in the curved path as shown in Fig. 1. At the junction of the upper and lower sections of the chute the edge of the chute opposite the entrance is cut away as shown at 32. Adjacent the cut away portion is a magnet 33 which serves to divert iron slugs through the cut away opening of the chute whereby the iron slugs are prevented from actuating the operating mechanism below the chute. The iron slugs being diverted out of the chute do not clog the chute as is the case where a magnet only is employed and where the chute wall is not cut away. The lower end of the lower section 31 of the chute is curved slightly to the left as shown. The object of this curve is threefold. It serves to direct the coins properly against the detent or escapement mechanism to be hereafter described and also prevents coins of less than the proper diameter from actuating the detent or escapement device. The small diameter coins in descending will closely follow the right hand edge of the coin chute and will thereby pass the detent without operating it. This curved construction of the chute also prevents the tripping of the detent by the insertion of a wire.

Article delivery devices.—To retain the articles in the magazine and to deliver them one at a time to the delivery receptacle I provide a cradle 35. This cradle is pivoted in the side walls of the inner shell and is located adjacent the front wall as shown in Fig. 5. The cradle is slightly curved in form and has upwardly extending portions 36 and lower extending portions 37. The normal position of the parts is as shown in Fig. 5 in which an article 20 rests on the lower portions of the cradle and the upper portions are running back adjacent the front wall 16 of the inner shell. See also dotted line portion of parts in Fig. 8. It will be seen therefore that the lower portions 37 constitute a means for retaining an article on the creadle which is to be delivered. The upper portions 36 of the cradle serve a dual purpose. They prevent more than one article being delivered at once since they swing to the position shown in Fig. 8 and block the descent of the articles which are in the magazine above the cradle. It will be understood that this rocking movement of the cradle from the position shown in Fig. 5 or in dotted lines in Fig. 8 to that shown in full lines in Fig. 8 is imparted to the cradle by the weight of the article upon the cradle and that this movement is normally prevented until a coin is deposited. The locking devices will be presently described. After the cradle has delivered an article it has another rocking movement in a clockwise direction as shown in Fig. 8 and this movement is imparted to the cradle by the weight of the article or articles above it in the magazine. By referring to Fig. 8 it will be seen that article 20^a presses or cams against the upper projecting portions 36 of the cradle and this camming action is such that the cradle will be immediately and automatically rocked by the article 20^a as soon as the article 20 has passed below the ends of the downwardly extending portions. From the above it will be seen that the cradle in my improved machine is operated by the article in two directions and also serves to retain an article on the cradle and to retain other articles above the cradle when delivery is taking place.

Cradle detent mechanism.—The detent for retaining the cradle in the position shown in Fig. 1 operates on the escapement principle, and is tripped by a deposited coin. After being tripped the detent automatically resumes its locking position ready to be again tripped by a descending coin. The detent, as I prefer to term it, is shown in its normal or retaining position in Fig. 1 and in its tripped position in Fig. 7. It consists of a flat member 40 which is freely pivoted at 41 to swing on the front plate 16 of the inner shell. A forwardly extending finger 42 of the detent extends under one of the lower edges of the coin chute in such position that a descending coin of the proper size will impact against it and swing the detent in a clockwise direction. The detent member is also notched as shown at 43 and 44. Notch 43 engages a post 45 which is integral with and which extends rearwardly from the cradle 35. When the detent is tripped, the cradle rocks and the post 45 takes a position in the deeper notch 44 as shown in Fig. 7. The detent remains with the post in the deep notch until the cradle is restored to normal position, in the manner previously explained. Thereafter the projecting portion 46 of the detent acts as a counterweight to swing the detent in a counterclockwise direction and again engage the post 45 in the notch 43. The projecting finger 42, the notch 43 of the detent, and the post 45 have another function. If a coin of proper size be employed and a string be attached to the coin for withdrawing the coin after the detent has been

tripped, the finger 42 extending over the edge of the coin chute will block the entrance of the coin to the chute and prevent the coin being withdrawn. The notch 43 coöperates with the post 45 to prevent the detent from being rocked counterclockwise if such a manipulation be attempted. It will be seen that the detent is entirely automatic and merely tripped by the coin and that the coin itself is not utilized to actually rock the cradle.

Coin entrance shutter.—To prevent the insertion of coins in the machine when it is empty I provide a weighted follower 48 which rests on the top article in the magazine. A flexible connection 49 passes through a hole in the upper part of the side wall 17 and then connects the follower with a shutter 50 which has an extended lug which slides in a slot 51 in the right side wall 17 of the inner shell. When the magazine is empty the follower draws the shutter to a position to block the coin entrance 28. The shutter in addition to being guided by reason of its engagement with the slot is also guided by the side walls 17 and 25 of the inner and outer shells respectively. See Fig. 3.

Modified cradle construction.—If desired, the cradle may be made star shaped with four projecting points as shown in Figs. 9 and 10. In this case with four points on the cradle, four posts 54 will be required to coöperate with the detent 40. These posts will preferably be secured to the shaft 55 which carries the star shaped members. With this construction it will be understood that the cradle has step by step rotation in one direction and not a rocking or back and forth movement like the construction heretofore described. The article vended still supplies the motive power for operating the cradle.

It is to be understood that my invention is not limited to the precise details of construction shown in the drawings but that what I claim as my invention is more particularly pointed out by the appended claims.

What I claim is:—

1. In a vending machine, in combination, an article magazine, an article operated article retaining cradle to retain the articles in the magazine, by the retention of one article on the cradle, said cradle being adapted to be rocked by the weight of an article thereon to deliver the article to the customer, a restraining means for preventing the last mentioned rocking movement of the cradle; and a coin chute adapted to receive coins and direct the coins by a rolling action on the edge of the chute down the chute and in such direction to cause the edge of coins of proper size to impact against the last mentioned means, said coin chute having the edge upon which the coins roll so disposed with respect to the last mentioned means that descending coins of smaller diameter roll down the chute without affecting the beforementioned cradle restraining means.

2. In a vending machine, in combination, an article magazine, an article operated article retaining cradle pivoted in the side walls of the magazine and adapted to retain one article on the cradle, said cradle on being rocked in one direction delivering an article to the customer and when rocked in the opposite direction receiving an article from the article magazine, means for restraining the cradle against the first mentioned rocking movement, said means comprising a pivoted detent having a preponderance of weight on one side of its pivot and adapted to be tripped by a deposited coin and to be thereafter rocked by gravity to return to detaining position upon the rocking of the cradle to receive an article from the article magazine.

3. In a vending machine, in combination an article magazine; an article operated article retaining cradle therein to retain one article on the cradle, said cradle upon being rocked in one direction delivering an article to the customer and when rocking in the opposite direction receiving an article from the article magazine, means for restraining the said cradle against the first mentioned rocking movement, said means comprising a detent adapted to be tripped by impact from a coin and to thereafter automatically return to detaining position upon the rocking of the cradle to receive an article from the magazine, and a coin chute adapted to direct coins with a rolling action against said detent.

4. In a vending machine, in combination, an article magazine, an article operated article retaining cradle to retain one article on the cradle, said cradle on being rocked in one direction delivering an article to the customer and when rocked in the opposite direction receiving an article from the article magazine, means for restraining the cradle against the first mentioned rocking movement, said means comprising a detent adapted to be tripped by a coin and to thereafter automatically return to detaining position upon the rocking of the cradle to receive an article from the magazine.

5. In a vending machine, in combination, an article magazine, a cradle pivoted in the lower part of the article magazine, said cradle having upper and lower article engaging portions, said lower portion being adapted to retain one article thereon, said cradle being adapted to be rocked by the weight of the article on the lower portion to discharge the article thereon and to concurrently swing the upper portion to a po-

sition to prevent the descent of articles from the magazine, said cradle being thereafter rocked by the weight of articles in the magazine to a position in which the upper portion of the cradle permits the descent of an article to engagement with the lower portion of the cradle.

6. In a vending machine, in combination, an article magazine, a cradle pivoted in the lower part of the article magazine, said cradle having upper and lower article engaging portions, said lower portion being adapted to retain an article thereon, said cradle being adapted to be rocked by the weight of the article on the lower portion to discharge the article thereon and to concurrently swing the upper portion to a position to prevent the descent of articles from the magazine, said cradle being thereafter rocked by the weight of articles in the magazine to a position in which the upper portion of the cradle permits the descent of an article to engagement with the lower portion of the cradle and a coin operated detent to restrain the cradle from delivering an article until tripped by a deposited coin.

7. In a vending machine, in combination, an article magazine, a cradle adapted to be rocked in one direction by an article thereon to deliver the article, said cradle being adapted to be rocked in the opposite direction by the weight of articles in the magazine to allow the lowermost article in the magazine to be engaged and retained on the cradle, and a coin operated detent to engage the cradle and retain it in one position.

8. In a vending machine, in combination, an article magazine, an article operated article retaining cradle to retain the articles in the magazine by the retention of one article on the cradle, said cradle being adapted to be rocked by the weight of the article thereon to deliver the article to the customer, a restraining means for preventing the last mentioned rocking movement of the cradle, a coin chute to direct coins thereto and release the aforesaid cradle, and means associated with the restraining means and coin chute for preventing the withdrawing of a coin through the chute by a string after said coin has passed and operated the restraining means.

9. In a vending machine, in combination, an article magazine, an article operated article retaining cradle therein adapted to be rocked in one direction by the weight of an article to deliver the article and to be rocked in the opposite direction by the weight of the articles in the article magazine to receive an article from the article magazine, a pivoted detent to restrain the delivery movement of the cradle until said detent is tripped by a deposited coin, said detent having provisions for preventing an oscillating movement of the cradle taking place and delivering more than one article upon the deposit of a single coin.

10. In a vending machine, in combination an article magazine, an article operated article retaining cradle therein, adapted to be rocked in one direction by the weight of an article thereon to deliver the article and to be rocked in the opposite direction by the weight of the articles in the article magazine to receive an article from the magazine, a pivoted detent to restrain the delivery movement of the cradle until said detent is tripped by a deposited coin, said detent having provisions for preventing an oscillating movement of the cradle taking place and delivering more than one article upon a deposit of a single coin, and said detent having a preponderance of weight upon one side of the pivot whereby it is automatically restored to detaining position upon the rocking of the cradle by the articles in the article magazine.

11. In a vending machine, in combination, an article magazine, an article operated article retaining cradle therein to retain the articles in the magazine and deliver them one at a time to the customer, a post on the cradle projecting through an aperture in the magazine wall, and a detent pivoted on the magazine wall and adapted to engage the post to restrain the cradle from movement until tripped by a deposited coin, said detent having a preponderance of weight on one side of the pivot to automatically return it to the detaining position, and said detent having coöperating notches therein engaging the post whereby a repeat movement and second delivery of an article by the movement of the cradle is prevented.

In testimony whereof I hereunto affix my signature.

ROGER W. PERRIN.