Dec. 18, 1951 L. R. DAVIS ET AL 2,579,068

NEWSPAPER VENDING MACHINE

Filed July 13, 1950 2 SHEETS—SHEET 1

Fig. 1.

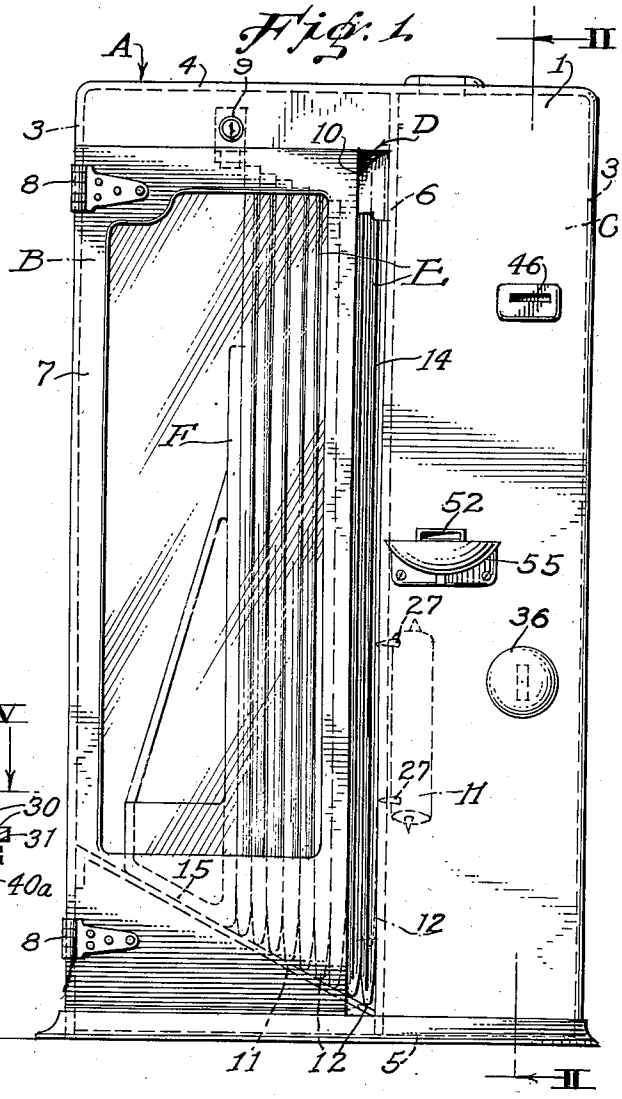


Fig. 4.

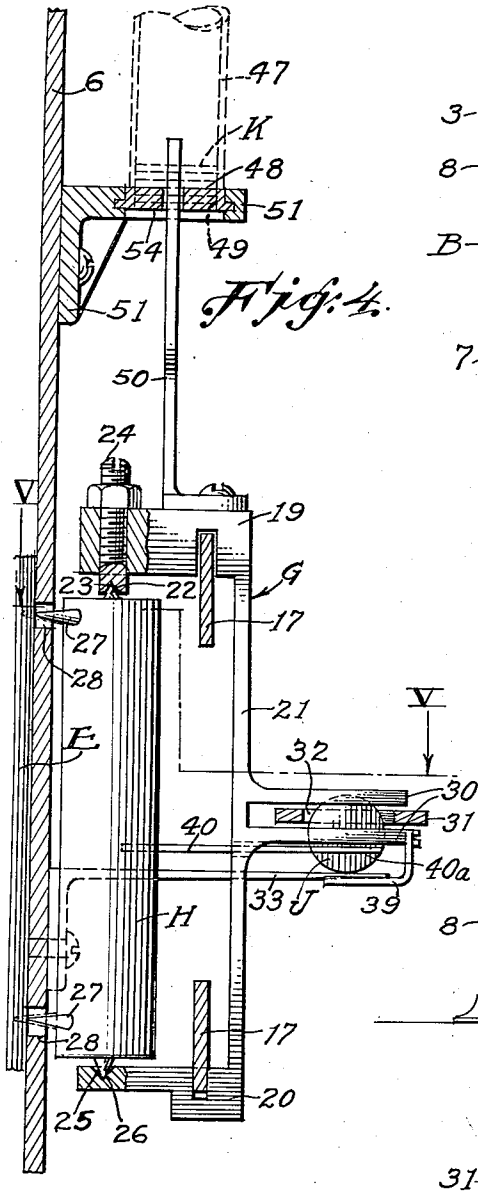
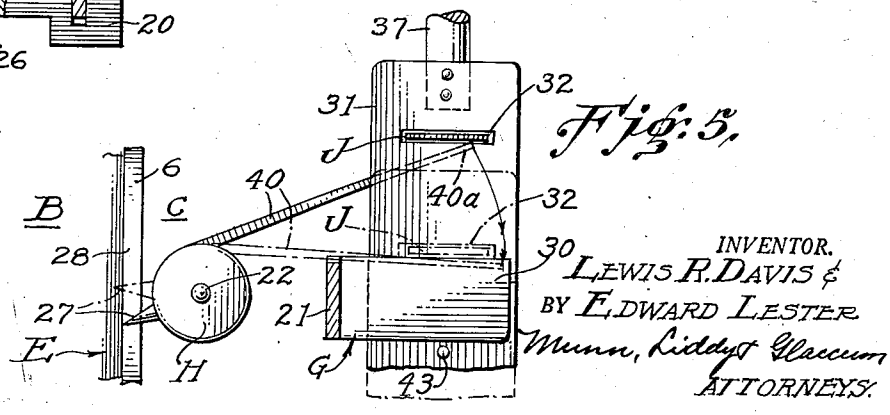


Fig. 5.



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Filed July 13, 1950 2 SHEETS—SHEET 2

Fig. 2.

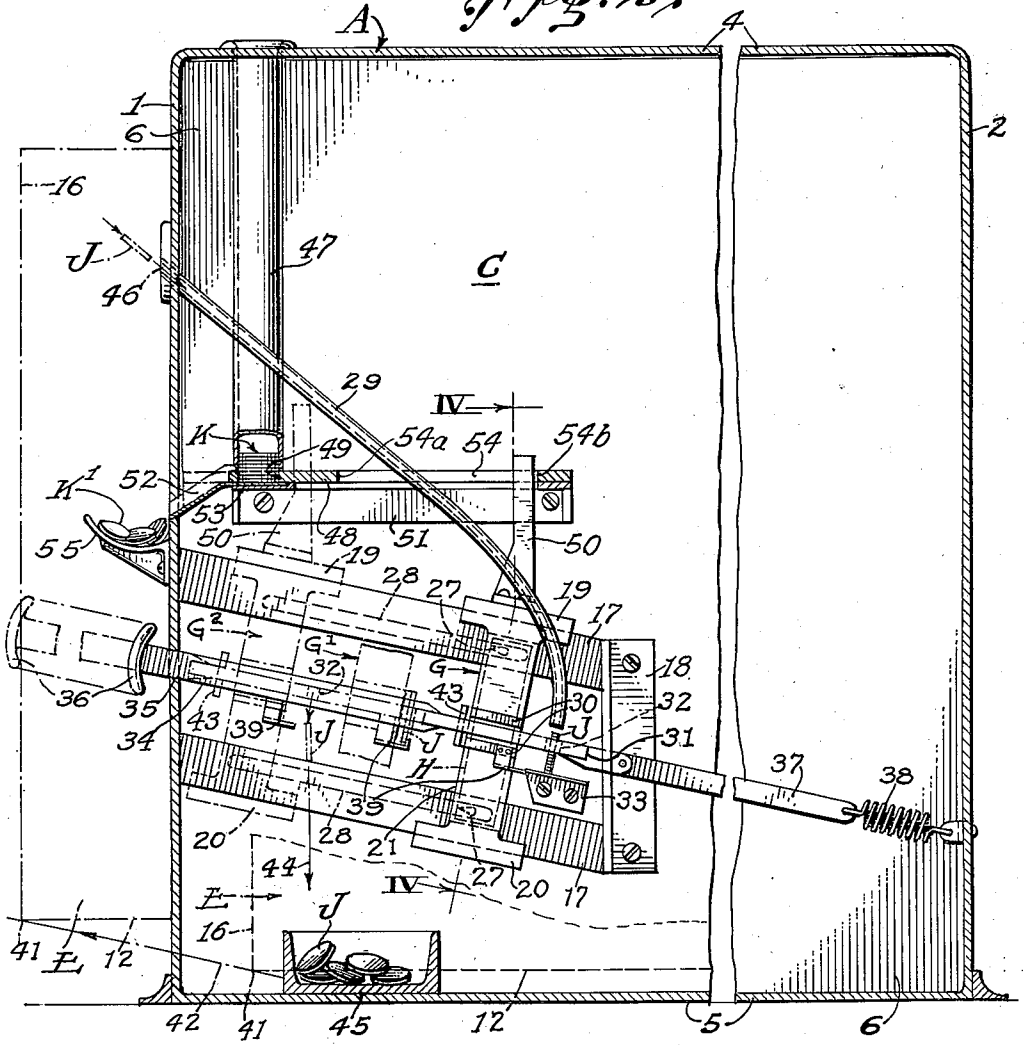
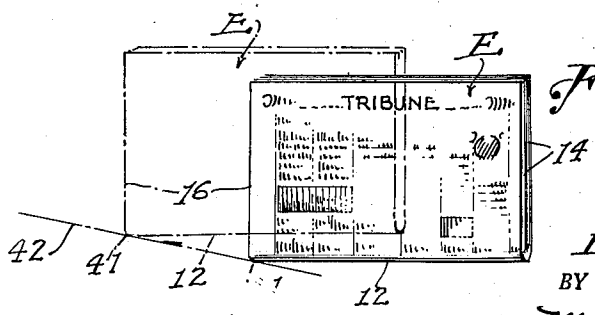


Fig. 3.



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NEWSPAPER VENDING MACHINE

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3 Claims. (Cl. 194—79)

1

The present invention relates to improvements in a newspaper vending machine. It consists of the combinations, constructions, and arrangement of parts, as hereinafter described and claimed.

An object of our invention is to provide a coin-controlled machine which is adapted to vend newspapers, or the like, without marring the newspapers or jamming them in the machine during the vending thereof. This vending machine is arranged to discharge one paper at a time from a stack of such newspapers, resetting itself after each operation for a subsequent vending manipulation.

It is further proposed in this invention to provide a storage compartment adapted to have a stack of folded newspapers placed therein by the dealer, this compartment having an inclined bottom along which the newspapers will gravitate toward a paper delivery slot. As an important object of the invention, we elevate the newspaper being vended relative to the inclined bottom as the paper is ejected, clearing it for easy discharge through the delivery slot.

As a still further object, we provide a newspaper vending machine, which is designed to receive a coin of a predetermined denomination, for instance ten cents, representing an over-payment. During the vending of the paper, the correct change is returned, automatically to the customer, say three cents, thus making the actual cost of the newspaper as seven cents.

Another object is to provide a device of the character described, which is simple in construction, durable and efficient for the purpose intended.

Other objects and advantages will appear as the specification continues, and the novel features will be set forth in the claims hereunto appended.

Drawings

For a better understanding of our invention, reference should be had to the accompanying drawings, forming part of this application, in which:

Figure 1 is a front elevational view of our paper vending machine;

Figure 2 is a transverse vertical sectional view taken along the line II—II of Figure 1;

Figure 3 is a diagrammatic view illustrating the path taken by a folded newspaper during vending thereof from our machine;

Figure 4 is a longitudinal vertical sectional view taken along the line IV—IV of Figure 2; and

2

Figure 5 is a horizontal sectional view through a portion of the machine, as seen from the line V—V of Figure 4.

While we have shown only the preferred form of our invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the spirit thereof.

Detailed description

In carrying our invention into practice, we make use of a housing indicated generally at A. As disclosed in Figures 1 and 2, this housing includes front and rear wall 1 and 2, respectively, opposing end walls 3, top 4, and a bottom 5. Within the housing, we arrange a partition 6 that extends between the front, rear, top and bottom walls.

Thus the partition 6 divides the interior of the housing into newspaper-receiving and mechanism compartments B and C, respectively. Access may be had to the compartment B by a door 7, which is hinged at 8 to one of the end walls. A suitable lock 9 may be used for retaining this door in closed position.

It will be noted from Figure 1 that the free edge 10 of the door is spaced from the partition 6 to define a paper-delivery slot D at the front of the housing. Newspapers E are delivered one at a time through this slot during operation of the machine.

For the purpose of causing the newspapers to gravitate toward the partition 6, and thereby place them in a position for delivery through the slot D, we provide an inclined bottom 11 in the compartment B. The folded edges 12 of the newspapers rest upon this inclined bottom when the papers are placed in the compartment B, with the leaves 14 of the papers extending upwardly.

These newspapers parallel the partition 6, and are urged toward the latter by a weighted follower F. This follower has an inclined base 15, which slides on the bottom 11. As each newspaper is withdrawn through the slot D, the next paper is moved into registration with the slot for subsequent delivery. As indicated in Figure 2, the forward vertical edges 16 of the newspapers are spaced inwardly from the front wall 1 of the housing a sufficient distance to prevent a person from reaching through the slot D and making an unauthorized withdrawal of a paper.

Within the compartment C, we mount a pair of inclined rails 17 on which a carriage G is slidably mounted for movement toward or away from the front wall 1 of the housing A. The rear por-

tions of these rails have been shown as being anchored to a support 18 mounted on the partition 6, while the forward portions of the rails are secured to the front wall 1.

Referring to Figures 2 and 4, it will be observed that the rails 17 are disposed parallel relative to the partition 6, and slope upwardly toward the front wall 1. The carriage G is fashioned with upper and lower notched lugs 19 and 20, respectively, which straddle the rails 17. A bar 21, forming the main body of the carriage G, interconnects these two lugs.

As disclosed in Figure 4, a roller H is mounted between the lugs 19 and 20 in parallel relation with the partition 6 and the bar 22. At the top of this roller we provide a tapered journal pin 22. This pin is rotatably mounted in a conical recess 23 fashioned in the bottom end of an adjustable stud 24 carried by the upper lug 19. Likewise, the lower end of the roller H is provided with a tapered journal pin 25, which seats in a conical recess 26 provided in the lower lug 20.

Of course, the roller H moves with the carriage G as the latter is moved toward or away from the front wall 1 of the housing. This roller has a pair of pointed newspaper-engaging fingers 27 projecting radially therefrom into inclined slots 28 formed in the partition 6. It will be noted from Figure 2 that the slots 28 parallel the rails 17. As the specification proceeds, it will be made clear that the pointed fingers 27 are employed for ejecting one newspaper at a time through the delivery slot D; provided, however, that a coin J of proper denomination has been inserted into the machine through a coin chute 29.

The bar 21 of the carriage G has a pair of spaced-apart arms 30 projecting laterally therefrom. These arms straddle a carriage-shifter bar 31 in which a coin-receiving slot 32 is provided. When the carriage G is fully retracted into the full-line position shown in Figures 2 and 5, the slot 32 is disposed rearwardly of the arms 30. In this position of the carriage-shifter bar, the slot 32 is disposed to receive a coin J gravitating through the chute 29.

Upon discharge of a coin J from the chute 29 into the slot 32, this coin comes to rest on a stationary bracket 33 supported by the partition 6 (see Figure 4). At this time, the coin is disposed substantially vertically in the slot 32 at right angles to the plane of the partition.

The carriage-shifter bar 31 has a pull rod 34 connected thereto, which is guided in an opening 35 formed in the front wall 1. An operating knob 36 on this pull rod is disposed exteriorly of the housing A to be grasped and pulled forwardly by the purchaser of a newspaper. A retraction rod 37 is connnected to the rear portion of the shifter bar 31. Figure 2 shows a tension spring 38 having its ends connected to the rod 37 and the rear wall 2 of the housing. The purpose of this spring is to return the parts to the full-time position shown in Figure 2 when the knob 36 is released.

Assuming that a coin J has been deposited in the slot 32 of the carriage-shifter bar 31, and that the purchaser is pulling outwardly on the knob 36, it is quite apparent that this shifter bar will move relative to the carriage G until this coin comes into contact with the arms 30 of the carriage. At this time, the coin already has been transferred from the stationary bracket 33 to a movable bracket 39 carried by the lowermost arm 30 in Figures 2 and 4.

Further forward pull on the knob 36 will result in moving the carriage G toward the front wall 1, since the coin in the slot 32 will serve as a connecting bridge between the carriage shifter bar 31 and the carriage. In Figures 4 and 5, we show a lever 40 fixed to the roller H so as to extend therefrom, with the free end 40a of this lever disposed in the path of the coin J when the latter is advanced with the carriage shifter bar.

The paper-engaging fingers 27 normally occupy the full-line position disclosed in Figure 5; that is, they project into the slots 28 of the partition 6. However, they do not penetrate into the newspaper E which is bearing against the partition 6. As the carriage-shifter bar 31 is moved forwardly, the coin J in the slot 32 will swing the lever 40 in a clockwise direction in Figure 5, until this lever abutts the bar 21 of the carriage G, as suggested by the dot-dash lines in Figure 5.

This movement of the lever 40, of course, will impart a corresponding partial rotation of the roller H, swinging the pointed fingers 27 into a position to penetrate the newspaper then abutting the partition. As the carriage-shifter bar 31 is pulled outwardly to a greater extent, the coin J is retained by the bracket 39 against the arms 30, and the carriage G and roller H will move as a unit toward the front wall 1 of the housing.

An intermediate position of the carriage is indicated at G1 in Figure 2, while the extreme forward position of the carriage is suggested at G2 in this same view. Obviously, this carriage moves uphill as it is advanced along the inclined rails 17 in Figure 2. This will cause the lower forward corner 41 of the paper to move along the inclined path 42 shown in Figures 2 and 3. Thus the folded edge 12 of the newspaper being vended will be elevated above the inclined bottom 11 as the newspaper is projected through the paper-delivery slot D. This will prevent jamming of the paper.

At this time the vertical leading edge 16 of the newspaper projects well ahead of the front wall 1. The customer may grasp this newspaper and pull it entirely out of the machine. Referring to Figure 5, this extraction of the newspaper will cause the roller H to rotate in a counter-clockwise direction, since the pointed fingers 27 are penetrating into the newspaper. This partial rotation of the roller will free the fingers 27 from the newspaper, and will return the lever 40 to its normal full-line position in Figure 5.

The carriage-shifter bar 31 has an abutment pin 43 fixed thereto ahead of the carriage G. Initially this pin will be moved away from the carriage G as the bar 31 is pulled outwardly, until the coin J in the slot 32 strikes the arms 30 of the carriage. After the knob 36 has been fully extended, and then released, the spring 38 will retract the carriage-shifter bar 31. This will bring the pin 43 up against the carriage, returning the latter from its G2 location to the full-line position G in Figure 2.

As the carriage is retracted, the slot 32 will move rearwardly of the bracket 39, thus allowing the coin J to be ejected. This coin will drop, as suggested by the arrow 44, and will be caught in a coin tray 45 accommodated in the housing.

The entrance slot 46 leading to the coin chute may be designed for receiving a dime. In the event that the actual cost of a newspaper is

seven cents, obviously three cents in change must be returned to the customer. This is accomplished automatically in our machine.

In order to return the correct change to the customer, we provide a tube 47 in the compartment C, in which a stack of coins K are arranged above a reciprocating coin-ejecting plate 48. The latter has an opening 49 therein disposed in registration with the change tube when the carriage G occupies the full-line position shown in Figure 2. This plate has a depth corresponding with the thickness of the coins to be returned as change. In other words, when returning three cents in change, the depth of the plate 48 would be equal to three pennies.

For reciprocating the plate 48, we make use of an arm 50 that is fixed to the carriage G. Any suitable means may be employed for supporting the plate 48, such as a guide 51 fixed to the partition 6 (see Figure 4). A coin-delivery chute 52 has a ledge 53 disposed beneath the opening 49 to prevent the coins K from dropping out of the opening 49 until such time as the plate 48 is moved forwardly.

The arm 50 projects through a relatively long slot 54 fashioned in the coin-ejecting plate 48. It will be noted from Figure 2 that the arm 50 will move through a considerable distance before striking the forward end wall 54*a* of this slot. However, further movement of the arm 50 toward the front wall 1 of the housing will result in bringing the opening 49 of the ejecting plate into a position where the coins carried thereby will be discharged into the chute 52 for delivery into a coin receptacle 55. The change is indicated at K1 in Figure 2, which is accessible to the customer.

Upon movement of the carriage G back into normal position, the arm 50 will strike against the rear end wall 54*b* of the slot 54 in the coin-ejecting plate 48, returning the latter to the full line position shown in Figure 2. This will allow three more pennies to gravitate into the opening 49 for the next operation.

Summary of operation

The operation of our newspaper vending machine is summarized briefly as follows:

In loading the machine with a supply of newspapers E, the door 7 is opened, and these papers are inserted into the compartment B of the housing A. The several newspapers are arranged parallel with the partition 6, with the folded edges 12 of the papers resting on the inclined bottom 11, as shown in Figure 1. The leaves 14 of the papers will point upwardly, and the newspaper adjacent to the partition 6 will register with the paper-delivery slot D. Now the door 7 may be secured in closed position by the lock 9 to prevent unauthorized removal of papers.

Assuming that the selling price of the newspaper is seven cents, the customer inserts a dime J into the entrance slot 46 leading to the coin chute 29. The dime thus inserted will gravitate through the chute, and drop into the transversely-disposed coin-receiving slot 32 provided in the carriage-shifter bar 31. This coin will come to rest on the stationary bracket 33.

Next, the customer pulls forwardly on the knob 36, resulting in the rod 34 moving the carriage-shifter bar 31 toward the front wall 1 of the housing A. This movement will transfer the coin J from the stationary bracket 33 to the movable bracket 39, bringing the coin up against the arms 30 of the carriage G. The bracket 39 will hold the coin in place, even though tension is eased up on the knob 36.

Referring to Figure 5, as the carriage-shifter bar 31 and its coin J are advanced, the lever 40 will cause a partial rotation of the roller H. The pointed fingers 27 on this roller will be moved into the dot-dash line position shown in Figure 5, causing them to penetrate into the newspaper immediately adjacent to the partition 6.

Up to this time, the carriage G remains stationary, that is, it occupies the full-line position disclosed in Figure 2. However, as the customer continues to pull on the knob 36, the carriage will move upwardly along the inclined rails 17 until it reaches the dot-dash line position G2.

Inasmuch as the pointed fingers 27 are engaging with the newspaper E, the lower forward corner 41 of the paper will move upwardly along the inclined path 42, as suggested in Figures 2 and 3. Actually, the folded edge 12 of the paper will move parallel with itself and will be lifted above the inclined bottom 11 as the paper is projected through the delivery slot D in the front of the housing.

The customer now grasps the projecting end of the newspaper and completes withdrawal thereof from the housing. This withdrawal of the paper will result in swinging the roller H back into its full-line position shown in Figure 5.

As the carriage G moves forwardly, the arm 50 rising therefrom strikes against the forward end wall 54*a* of the slot 54 in the coin-ejecting plate 48. During the final movement of the arm 50 toward the front wall, the plate 48 will transfer the proper change, for instance three pennies, from the coin tube 47 to the coin-delivery chute 52. This change K1 will gravitate into the receptacle 55, where it may be removed by the customer.

Upon release of the knob 36, the tension spring 38, acting through the retraction rod 37, will pull the carriage-shifter bar 31 toward the rear wall 2 of the housing. During the initial return movement of the bar 31, the coin J then in the slot 32 of the bar 31 will be freed from the bracket 39. This released coin will drop into the tray 45.

As the bar 31 continues its rearward movement, the pin 43 thereon will strike the carriage G, returning the latter and the roller H to its starting position.

Obviously, when a newspaper is withdrawn through the delivery slot D, the next newspaper in the stack will be pushed against the partition 6 by the gravity-actuated follower F, and the machine will be ready for a repeat operation.

Although we have described our machine in connection with vending newspapers, it will be realized that magazines, periodicals, etc., may be vended by utilizing our machine.

We claim:

1. In a newspaper vending machine: at least one guide rail; a carriage mounted on the rail for movement therealong; a roller supported by and journalled on the carriage for turning movements; the roller being provided with paper-engaging means; the carriage having at least one arm projecting therefrom; a carriage-shifter bar movable relative to the carriage, and arranged adjacent to the arm of the latter; this shifter bar having a slot therein to receive a coin, with the coin projecting from the bar into a position to strike the carriage arm when the shifter bar is advanced with respect to the carriage, whereby further advancement of the bar will move the carriage therewith; and a lever

fixed to the roller to turn the latter; the lever having an end disposed in the path of the coin to be swung thereby as the coin is moved by the shifter bar toward the arm of the carriage.

2. In a newspaper vending machine; at least one guide rail; a carriage mounted on the rail for movement therealong; a roller supported by and journalled on the carriage for turning movements; the roller being provided with paper-engaging means; the carriage having at least one arm projecting therefrom; a carriage-shifter bar movable relative to the carriage, and arranged adjacent to the arm of the latter; this shifter bar having a slot therein to receive a coin, with the coin projecting from the bar into a position to strike the carriage arm when the shifter bar is advanced with respect to the carriage, whereby further advancement of the bar will move the carriage therewith; a lever fixed to the roller to turn the latter; the lever having an end disposed in the path of the coin to be swung thereby as the coin is moved by the shifter bar toward the arm of the carriage; and means for returning the carriage with the shifter bar after the bar has returned a predetermined distance relative to the carriage.

3. In a newspaper vending machine: at least one guide rail; a carriage mounted on the rail for movement therealong; a roller supported by and journalled on the carriage for turning movements; the roller being provided with paper-engaging means; the carriage having at least one arm projecting therefrom; a carriage-shifter bar movable relative to the carriage, and arranged adjacent to the arm of the latter; this shifter bar having a slot therein to receive a coin, with the coin projecting from the bar into a position to strike the carriage arm when the shifter bar is advanced with respect to the carriage, whereby further advancement of the bar will move the carriage therewith; a stationary bracket for initially retaining the coin in the slot; a movable bracket mounted on the carriage in a position to receive and still support the coin in the slot as the coin approaches the carriage arm; means disposed in the path of the coin to swing the roller as the shifter bar is advanced relative to the carriage arm; and means for returning the carriage with the shifter bar after the bar has returned relative to the carriage a distance sufficient to move the coin off the movable bracket.

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