Aug. 21, 1945. D. D. CAMERON 2,382,959

NEWSPAPER VENDING MACHINE

Filed Nov. 2, 1942 2 Sheets-Sheet 1

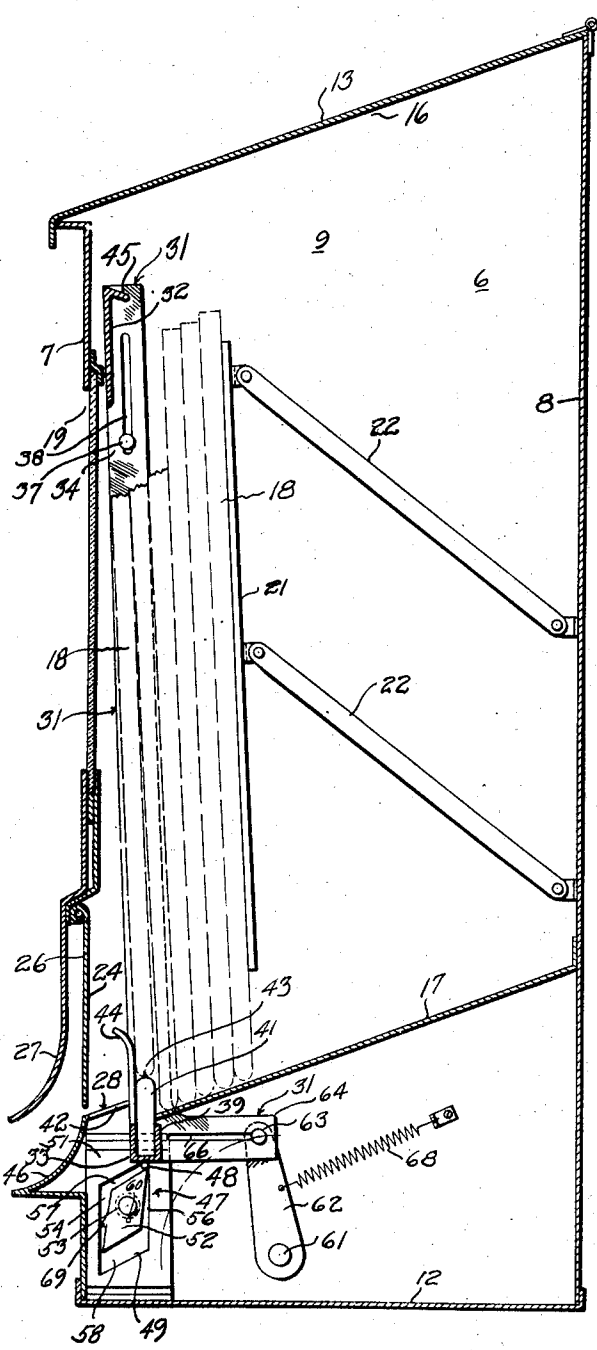


Fig. 1

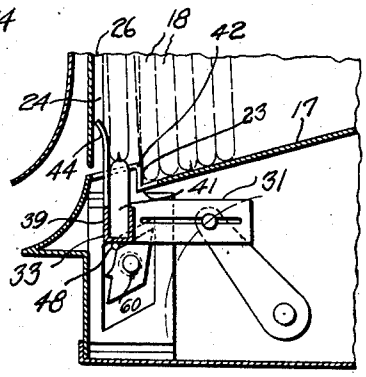


Fig. 2

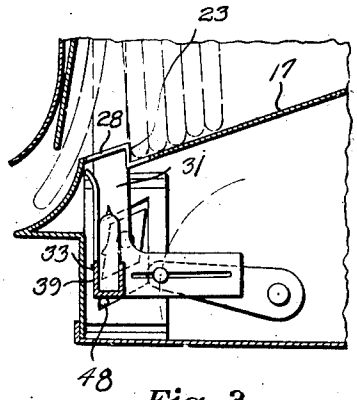


Fig. 3

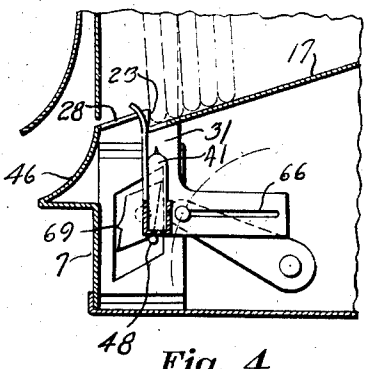


Fig. 4

INVENTOR.
Daniel D. Cameron
BY Gardner & Warren
Attys.

Aug. 21, 1945. D. D. CAMERON 2,382,959

NEWSPAPER VENDING MACHINE

Filed Nov. 2, 1942 2 Sheets-Sheet 2

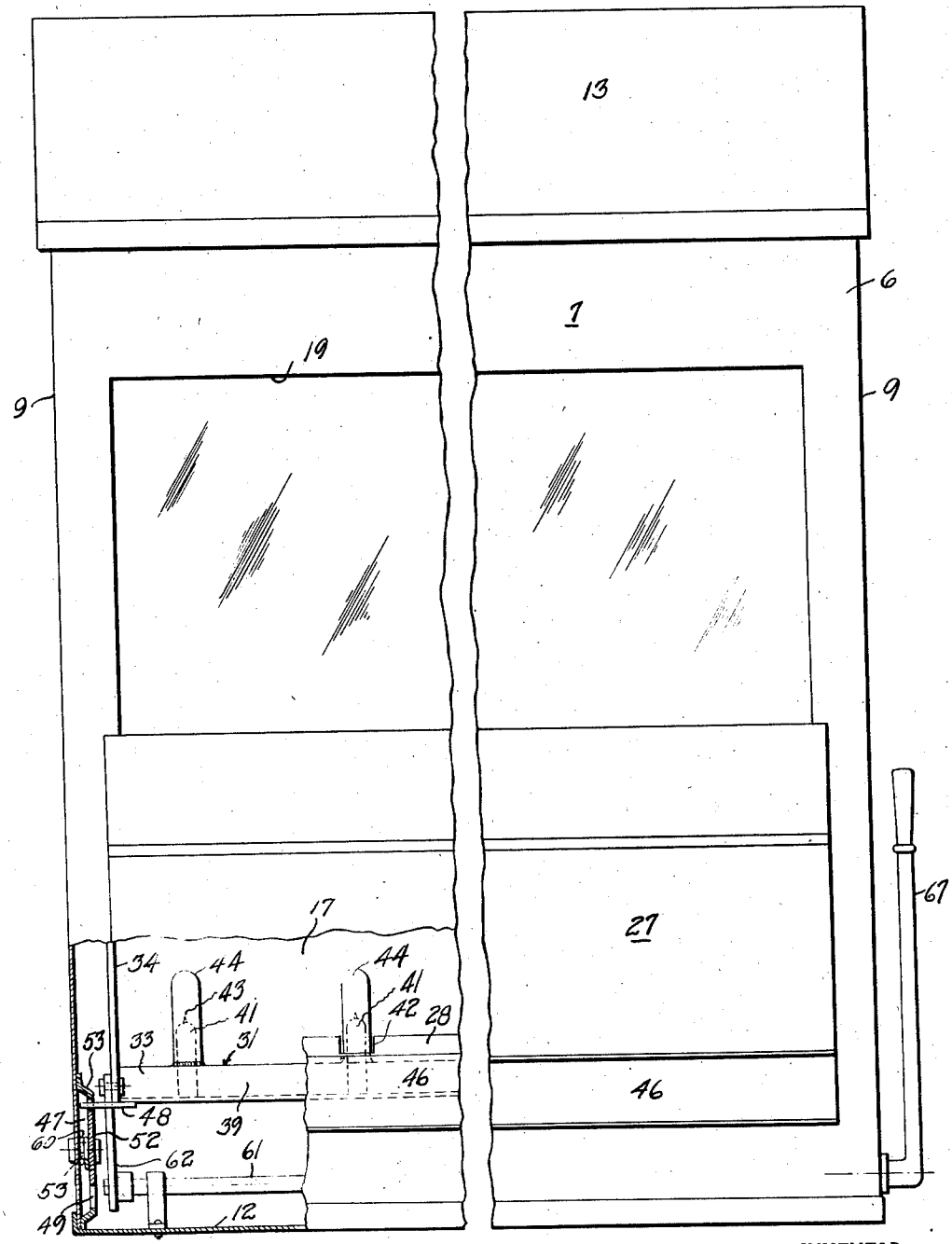


Fig. 5

INVENTOR.
Daniel D. Cameron
BY Gardner & Warren
attys.

Patented Aug. 21, 1945

2,382,959

UNITED STATES PATENT OFFICE

2,382,959

NEWSPAPER VENDING MACHINE

Daniel D. Cameron, San Francisco, Calif.

Application November 2, 1942, Serial No. 464,281

10 Claims. (Cl. 312—57)

The invention relates to coin-controlled machines for vending newspapers, magazines, and the like, and relates more particularly to the type of machine adapted to contain the newspapers in folded form and vertical position, and from which the papers are deliverable one at a time.

An object of the invention is to provide a vending machine of the character described in which the main movable mechanism of the machine is limited to substantially a single member, and in which the parts, both movable and fixed, are extremely simple in construction but will insure perfect and unvarying delivery of the papers contained in the machine.

Another object of the invention is to provide a machine of the character described which will accommodate and properly dispense papers of materially different size and thickness without the necessity of making any adjustments.

A further object of the invention is to provide a machine of the character described which will prevent an operator from manipulating the machine in a manner making possible the jamming of the papers in the machine and derangement of the mechanism thereof.

The invention possesses other objects and features of advantage, some of which with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a vertical sectional view of the machine extending from the front to the rear thereof.

Figures 2, 3 and 4 are views similar to Figure 1, but of a fragmentary portion in successive operating positions.

Figure 5 is a front elevational view of the machine with parts removed to show the hidden structure.

The vending machine in the present form of the invention is particularly designed for use with newspapers in folded form and may be used for dispensing newspapers of varying thickness such as both daily and Sunday papers. The coin-control mechanism for controlling the operation of the machine is not illustrated in the drawings or described herein, but may be of any suitable design and construction.

As here shown, the machine comprises a casing 6 having front and rear walls 7 and 8, side or end walls 9 and a bottom wall 12. A top wall 13 hingedly connected at 14 to the rear wall 8 serves to normally cover an opening 16 through which access is afforded to the interior of the casing for the insertion of the newspapers and inspection, etc., of the mechanism. The top wall 13 is arranged to be locked in closed position.

Within the casing and elevated from the bottom wall 12, is a false bottom or supporting member 17 which slopes downwardly and forwardly from the rear wall 8 and is arranged for the support thereon of the newspapers 18 in vertical side by side relation and with the folded edge lowermost and resting upon the member. The front wall is formed with a glass covered opening 19 through which the name of the paper and the headlines may be viewed from the exterior of the casing. The papers are urged forwardly on the bottom member 17 by reason of the slope of the member and by means of a follower plate 21 pivotally connected to the wall 8 by parallel links 22 and arranged to be positioned against the rearmost paper on the member. A stop means 23 is provided at the forward end of the bottom member 17 for limiting the forward positioning of the papers on the member while resting thereon.

The front wall 7, adjacent the bottom member 17, is provided with a delivery opening 24 for the discharge of the newspapers from the machine, and such opening is engaged by a door 26 hingedly connected to the wall at the top of the opening, the amount which the door may be opened outwardly being limited by a shield 27 overlying the door. At the bottom of the opening there is preferably provided a sloping platform or apron 28 which as here shown, extends from the stop portion of the means 23.

Means are provided for raising the foremost newspaper on the bottom member 17 to a position above the stop 23 so that subject to the control of the coin-mechanism, the operator may manipulate the apparatus to cause such paper to be moved forwardly upon the platform and discharged through the opening 24. Such means as here shown includes in part a movable member 31 made in the form of a rectangular frame having upper and lower parts 32 and 33 and vertical side pieces 34 adjacent each end of the casing. The member 31 is mounted to swing about a horizontal axis adjacent the top of the frame and to this end each of the side pieces is pivotally connected to the end walls of the casing by means of a pin 37, the latter being disposed in a slot 38 in the pieces so that the member may be moved vertically as well as swung about the pivotal axis. As will be clear from Figure 1, the upper part 32 of the frame member extends in front of the upper edge portion of the newspapers and thus serves to support and limit the forward protrusion of such portion of the papers, the part 32 being preferably located more forwardly than the stop 23 so that the papers will be tilted forwardly in normal position. The lower part 33 of the member 31 is arranged for positioning and movement ad-

jacent the forward edge of the bottom member 17, and includes as here shown a channel strip 39 and a plurality of transversely spaced fingers or detents 41 fixed in the strip and projecting upwardly therefrom. The fingers are arranged to move vertically and fore and aft through the bottom member 17, the stop 23, and the apron 28, and in view thereof such parts are formed with slots 42 in which the fingers may engage and move. As will be clear from Figure 4, the part 33 may be moved rearwardly to occupy a position underlying the portion of the bottom 17 normally occupied by the foremost paper thereon when abutting the stop 23. In this way when the fingers are moved directly upwardly through the slots, the fingers will engage the folded edge of said paper and elevate the paper accordingly. As a means of insuring the retention of the paper on the fingers, the latter are provided on the top thereof with sharp prongs 43 which serve to bite into the paper and prevent its displacement on the fingers while engaged therewith. In addition to the prongs, there is also provided in connection with the fingers, guards 44 which are disposed at the front side of the fingers and extend upwardly so as to engage the fore side of the paper and positively prevent the release of the paper from the movable member except as effected by the proper functioning of the parts.

As will be clear from Figure 1, the member 31 is arranged to be elevated high enough to cause the lower edge of the elevated paper to clear the stop 23. With the paper thus held, the member may be moved forwardly so as to position the lower end of the paper directly over the apron 28 at the bottom of the delivery opening as indicated in Figure 2. It will now be evident that with the paper thus positioned over the apron, a downward movement of the member 31 so as to retract the fingers and guards below the apron as illustrated in Figure 3, will serve to disengage the paper completely from the portion 33 and leave the paper deposited on the apron where due to the slope of the latter, the paper will descend out through the delivery opening to the operator.

As a means of insuring the descent of the paper upon the apron with the downward movement of member 31, the upper edge of the top piece of member 31 is bent over to form a hook 45 which is designed to more or less engage the upper edge of the paper when the latter is operatively held in the member 31 as shown in Figure 1. Attention may also be directed to the fact that when the paper is deposited on the apron, it will be practically vertically disposed and thus spaced for the most part from the adjacent paper which is retained by the stop 23 in the tilted position previously referred to. Preferably the apron 28 is formed with an extension 46 which is curved in a manner to retard as desired the speed at which the paper is discharged. After retraction of portion 33 and disengagement of the paper therefrom, the former may be repositioned below the bottom member 17 for engaging and elevating the succeeding foremost paper advanced against the stop 23.

Means are provided for guiding and moving the member 31 through the various positions above described. As a means of thus guiding the member, there is provided in the casing at each end of the portion 33, what may be termed a double-faced cam 47 preferably secured to the end walls of the casing and each provided with opposing inner and outer cam faces which define a generally diamond-shaped course or guideway. Each guideway is engaged by a pin 48 which is fixed to and extends from the ends of portion 33. In the present form of the invention the outer face of the cam is formed by the sides of an opening 49 in a stationary plate 51, while the inner face is formed by the edges of a plate 52 positioned within the opening and mounted to rock about a shaft 53. Each guideway is provided with spaced vertical sections 54 and 56 and upper and lower inclined sections 57 and 58, and as will be clear from the drawings, the plates are by means of a coil spring 60 spring-pressed so as to urge the portions thereof at the juncture of sections 54 and 58 and at the juncture of the sections 56 and 57 toward the opposing portions of the outer cam face and thereby close the guideway at such portions against reverse movement of the pin 48 therein. The pins are positioned in such relation on the member 31 that when the pins are entered in the sections 56, and moved upward therethrough, the fingers will elevate the foremost paper to clear the stop 23, and as the pins are successively advanced through the sections 57, 54 and 58, the fingers will convey the bottom of the paper over the stop and upon the apron 28, thence withdraw under the apron and thereby release the paper for discharge through the delivery opening, and then return under the member 17 for elevating the succeeding foremost paper thereon.

Means for actuating the member 31 to advance the pins through the guideway, is here shown in the form of a crank mechanism which is accessible for operation from the exterior of the casing, such mechanism including a shaft 61 conveniently mounted under the member 17 and having fixed thereto for rotation therewith a crank arm 62 which is connected by means of a pivot 63 to a lateral extension 64 of the member 31. The crank is designed to elevate and depress the member 31 and in order that the latter may have a certain amount of transverse movement relative to the crank as required when the pin 48 moves through the cam portions 57 and 58, the pin 63 is mounted in a slot 66 in the extension 64. A lever 67 affixed to a portion of the shaft 61 protruding exteriorly of the casing, provides a means for use by the operator for actuating the crank mechanism.

By means of a spring 68 connected between the crank arm 62 and the casing wall, the crank is normally retained in a position in which the foremost paper is held elevated by the member 31 above the stop 23. This is an important feature of the invention, since in this manner, when the operator initiates the operation to obtain a paper, the removal of the paper from on the member 17, and the elevation thereof to clear the stop 23 has already been effected at the previous vending operation.

As previously explained, due to the engagement of the inner plate 52 with the outer faces of the cam, the reverse movement of the pin in the cam-way cannot be effected back of such points, once the pin advances thereby. In this way, there will be no danger of the operator reversing the operation of the mechanism and causing the paper to be mutiliated or jammed between and cause damage to the parts. In furtherance of this object, there is also provided on the plate 52 at the side facing the cam-way section 54, a projection 69 which over which the pin 48 passes just as the paper becomes released from the fingers and guards on the portion 33 of member 31. Due to the presence of the projection 69

there will be no danger of any of the parts on the portion 33 backing up and tearing the paper or preventing its discharge from the machine.

I claim:

1. In a newspaper vending machine, a casing having front and side walls and a forwardly and downwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, fixed means at the forward edge of said bottom member providing a stop for the foremost newspaper upon said bottom member and positioned to provide a support for said newspaper when advanced upwardly forwardly of said stop, said casing having at the forward edge of said means a horizontal newspaper delivery slot, a closure member across said slot, a vertically and horizontally movable ejector means engageable with the bottom of the foremost newspaper on said bottom member, and means operative to guide said ejector means as it moves upwardly to release the newspaper from the stop then forwardly to advance the newspaper, then downwardly to deposit the newspaper on the fixed means, and then rearwardly and upwardly.

2. In a newspaper vending machine, a casing having front and side walls and a forwardly and downwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means across the forward edge of said bottom member providing a stop for the foremost newspaper on said member, said casing having at the front of said stop means a newspaper delivery opening, ejector means movable upwardly and thence forwardly to engage the bottom of the foremost newspaper on said member and release same for movement to said delivery opening, and thence downwardly and rearwardly and upwardly to return to position for engaging the succeeding foremost newspaper on said member, and means operable for the exterior of the casing for actuating said ejector means.

3. In a newspaper vending machine, a casing having front and side walls and a forwardly and downwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means across the forward edge of said bottom member providing a stop for the foremost newspaper on said member, said casing having at the front of said stop means a newspaper delivery opening, vertically and forwardly movable means engageable with and arranged to hold the bottom of the foremost newspaper, means operable from the exterior of the casing for actuating said engaging means, movement control means for said engaging means operative on operation of said actuating means to guide said engaging means from a retracted position below said bottom member upwardly into holding engagement with said foremost papers to elevate the paper above the stop, thence forwardly to convey said paper forwardly of said stop and to said delivery opening, and thence downwardly rearwardly and upwardly to return to said retracted position, and means operative to release the newspaper from engagement with said engaging means as the newspaper is conveyed to the delivery opening.

4. In a newspaper vending machine, a casing having front and side walls and a forwardly and downwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means across the forward edge of said bottom member providing a stop for the foremost newspaper on said member, said casing having at the front of said stop means a newspaper delivery opening, a discharge apron adjacent the lower edge of said delivery opening, an upwardly and forwardly movable means arranged to engage and hold against transverse displacement thereon the bottom of the foremost paper elevated above said member, means accessible from the exterior of the casing for actuating said movable means, movement control means for said paper engaging means operative on actuation thereof by said actuating means to guide said engaging means for movement upwardly and forwardly through said bottom member to engage and hold the bottom of the foremost paper and elevate the paper over said stop and move said paper to and upon said apron, and thence guide the return downwardly, rearwardly and upwardly of said engaging means for re-engagement with the paper, said apron serving to effect disengagement of the paper from the engaging means after deposit of the paper thereon.

5. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of said bottom member providing a stop for the foremost paper on said member, said casing having at the front of said stop means a newspaper delivery opening, a transversely extending member mounted for movement vertically and fore and aft in said casing and arranged for positioning adjacent the forward edge of said bottom member, means on said movable member adapted for engaging and holding thereto the bottom edge of the papers, spring pressed guide members and cooperating engaging means adjacent said side walls and on said movable member respectively for controlling the movement of the latter in the directions aforesaid and to thereby convey the foremost paper on said bottom member over said stop and toward said opening and thence return for repeating operation, and means accessible from the exterior of the casing for actuating said movable member.

6. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of said bottom member providing a stop for the foremost paper on said member, said casing having at the front of said stop means a newspaper delivery opening, a transversely extending member mounted for movement vertically and fore and aft in said casing and arranged for positioning adjacent the forward edge of said bottom member, means on said movable member for engaging and holding the bottom edge of individual newspapers, corresponding cams positioned in the casing at the opposite ends of said movable member and defining generally diamond-shaped guide-ways, means accessible from the exterior of said casing for actuating said movable member, and means on said movable member engaging in the guide-ways of said cams whereby upon actuation of said movable member the latter will convey the foremost newspaper on said bottom member over said stop means and toward said delivery opening and thence back for engagement with the next foremost paper on said member.

7. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of said bottom member providing a stop for the foremost paper on said member, said casing having at the front of said stop means a newspaper delivery opening, a transversely extending member mounted for movement vertically and fore and aft in said casing and arranged for positioning adjacent the forward edge of said bottom member, means on said movable member for engaging and holding the bottom edge of individual newspapers, double-faced cams positioned in the casing at the opposite ends of said movable member, means accessible from the exterior of the casing for actuating said movable member, and means on said movable member engaging between the faces of the cams whereby upon actuation of said movable member the latter will engage and convey the foremost newspaper from said bottom member toward said delivery opening and thence return to position for engagement with the succeeding foremost paper, said cams having at least portions of the inner faces spring-pressed to form means to prevent reverse movement of said cam engaging means between the faces.

8. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of said bottom member providing a stop for the foremost paper on said member, said casing having at the front of said stop means a newspaper delivery opening, a transversely extending member mounted for movement vertically and fore and aft in said casing and arranged for positioning adjacent the forward edge of said bottom member, means on said movable member formed and arranged for positioning to engage and hold the bottom of the foremost newspaper above and forward of said bottom member, double faced generally diamond-shaped cams positioned in the casing at the opposite ends of said movable member and arranged with two of the sides substantially vertical and the other two sides sloping downwardly and forwardly, means on said movable member engaging between the faces of the cams and normally positioned adjacent the juncture of the upper and rear sides of the cams, the relationship of said cam engaging means and the paper engaging means on the movable member being such that when the cam engaging means is in the normal position aforesaid or advanced to the forward end of said top side or at the lower end of the front side or at the rear end of the lower side, the paper engaging means will be in said normal position or adjacent said delivery opening or below said opening or at a position below said bottom member preparatory to engaging the next foremost paper respectively, and means accessible from the exterior of the casing for moving said movable member to advance said cam engaging means through all of said positions.

9. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of said bottom member providing a stop for the foremost paper on said member, said front wall having an opening arranged to display said paper, said casing having at the front of said stop means a newspaper delivery opening, a discharge apron at the bottom of said opening, a movable frame member having a transversely extending portion arranged for positioning adjacent the forward edge of said bottom member and having upwardly extending arms at the ends pivotally and slidably secured to the casing whereby said transverse portion may be moved vertically and fore and aft relatively to said bottom member, means on said movable member formed and arranged for positioning to engage and hold the bottom of the foremost newspaper above and forwardly of said bottom member, double faced generally diamond-shaped cams positioned in the casing at the opposite ends of said movable member and arranged with two of the sides substantially vertical and the other two sides sloping downwardly and forwardly, means on said movable member engaging between the faces of the cams and normally positioned adjacent the juncture of the upper and rear sides of the cams, the relationship of said cam engaging means and the paper engaging means on the movable member being such that when the cam engaging means is in the normal position aforesaid or advanced to the forward end of said top side or at the lower end of the front side or adjacent the rear end of the lower side, the paper engaging means will be in said normal position or at said delivery opening below said opening or at a position below said bottom member preparatory to engaging the next foremost paper respectively, and means accessible from the exterior of the casing for moving said movable member to advance said cam engaging means through all of said positions, said cams being formed to prevent reverse movement of the cam engaging means therein when advanced to predetermined points.

10. In a newspaper vending machine, a casing having front and side walls and a downwardly and forwardly sloping bottom member adapted to support a plurality of folded newspapers in vertical position with the folded edge lowermost, means at the forward edge of the bottom member providing a stop for the foremost paper on said member, said casing having a paper delivery opening in front of said stop means, a paper discharge apron at the bottom of said delivery opening, said member and stop and apron having communicating slots, a movable paper engaging member arranged for positioning between said apron and bottom member and mounted at the ends thereof for vertical and fore and aft movement through said slots, means controlling the movement of said paper engaging member whereby the same will be caused to move through said slots and successively elevate the foremost paper to clear said stop, thence convey the paper toward the bottom of said delivery opening and apron, and thence release said paper and return back for elevating the next foremost paper on said bottom member, and means accessible from the exterior of the receptacle for moving said paper engaging member through said positions.

DANIEL D. CAMERON.