W. A. KRAEMER & G. F. HOWELL, Jr.

PAPER VENDING MACHINE.

APPLICATION FILED JUNE 10, 1907.

927,055.

Patented July 6, 1909.

4 SHEETS—SHEET 1.

Fig. 1.

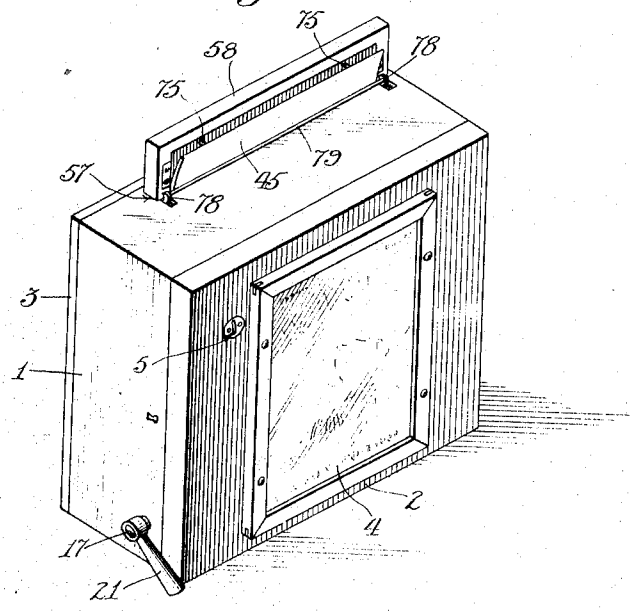
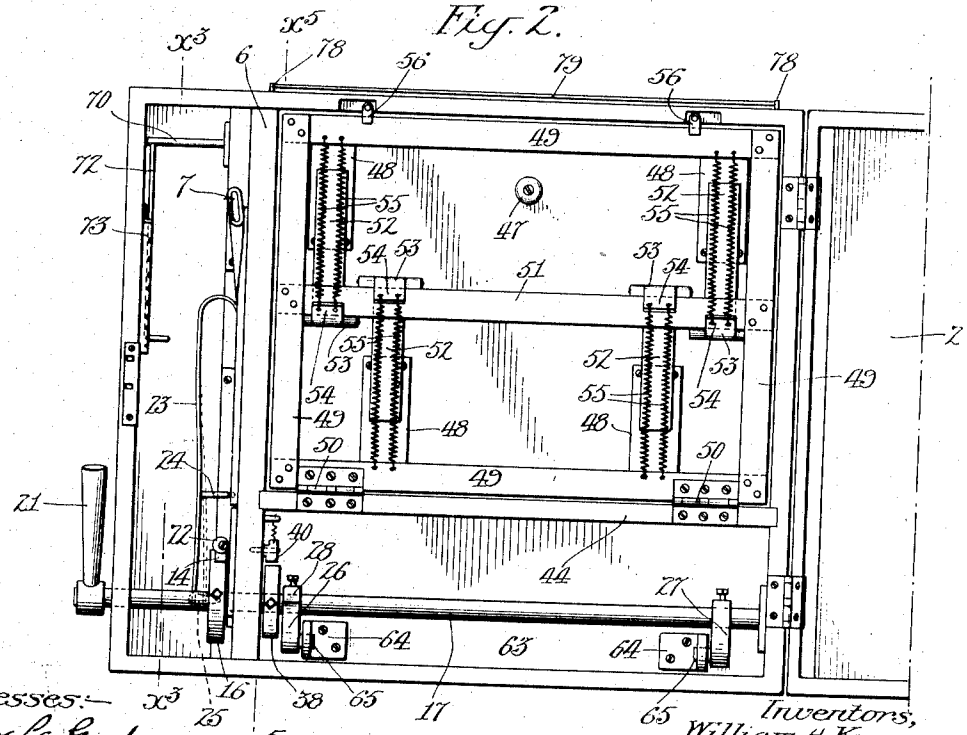


Fig. 2.



Witnesses:—

Frank La Graham.

Louis W. Gratz.

Inventors,

William A. Kraemer;

George F. Howell Jr.

by Townsend Sparkman Buckley & Knight

Their Attys

W. A. KRAEMER & G. F. HOWELL, Jr.

PAPER VENDING MACHINE.

APPLICATION FILED JUNE 10, 1907.

927,055.

Patented July 6, 1909.

4 SHEETS—SHEET 2.

Fig. 3.

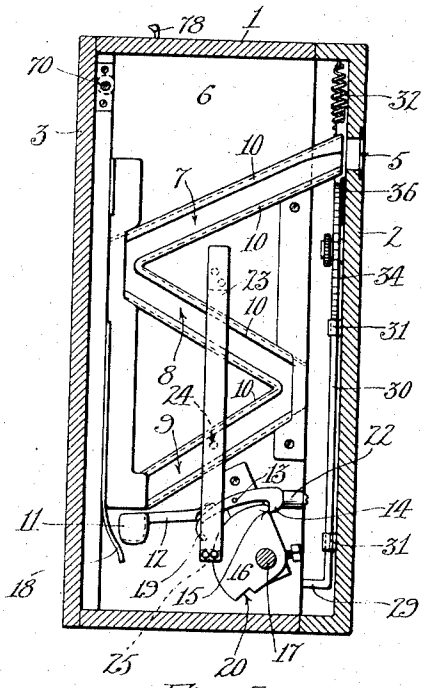


Fig. 4.

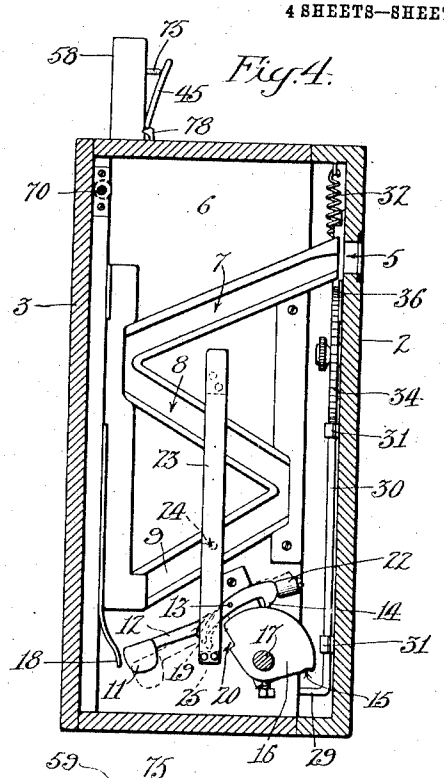


Fig. 5.

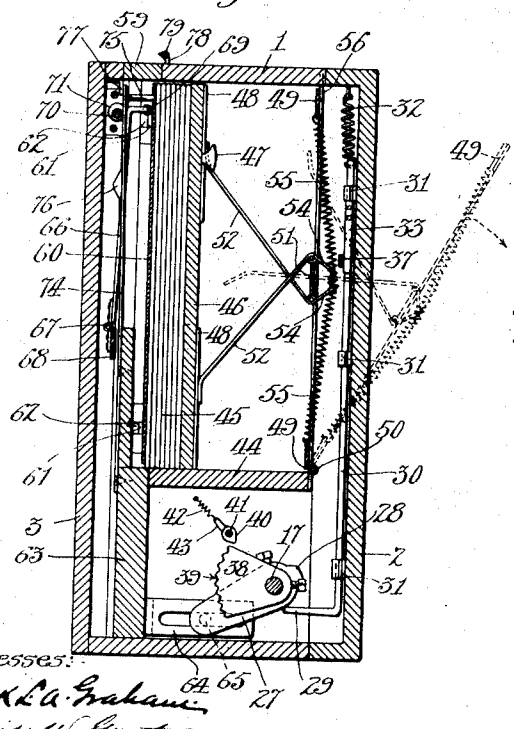
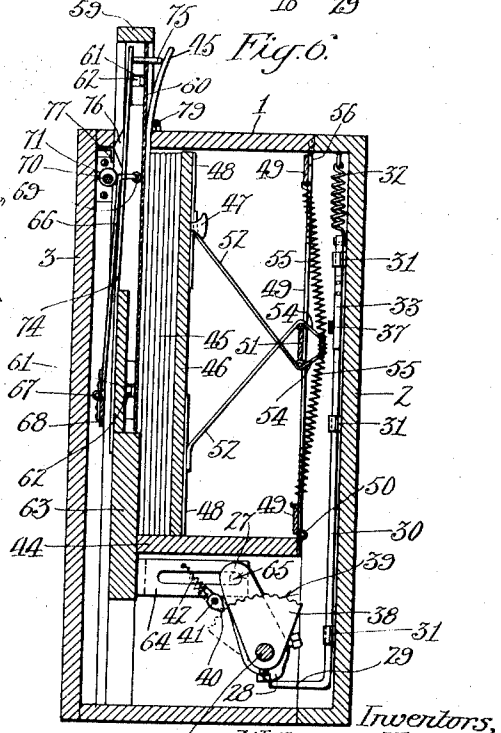


Fig. 6.



Witnesses:
Frank L. A. Graham
Louis W. Gratz.

Inventors,
William A. Kraemer;
George F. Howell Jr.
by Townsend & Townsend & Hazeltine Knight
their Attys.

W. A. KRAEMER & G. F. HOWELL, JR.

PAPER VENDING MACHINE.

APPLICATION FILED JUNE 10, 1907.

927,055.

Patented July 6, 1909.

4 SHEETS—SHEET 3.

Fig. 7.

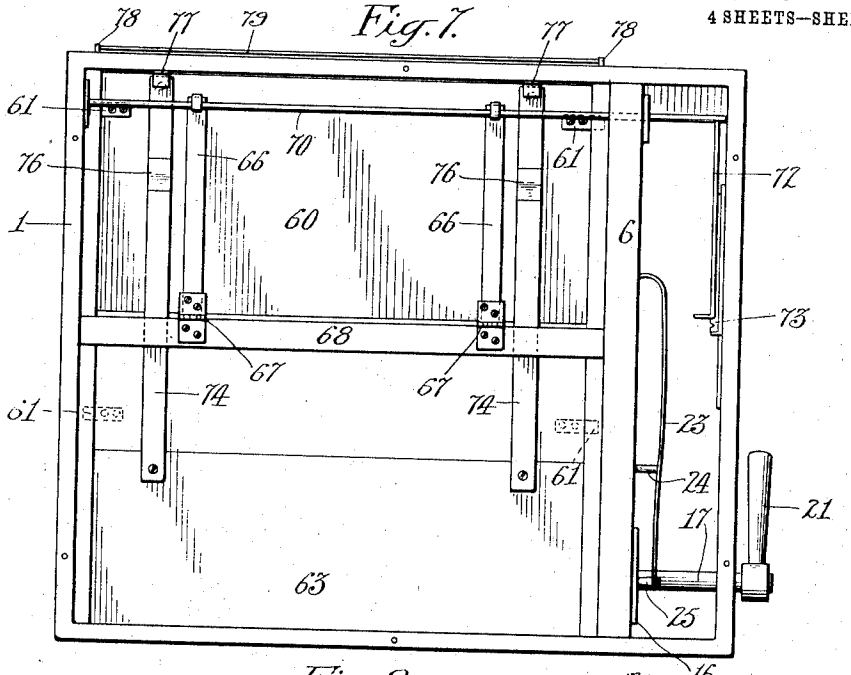
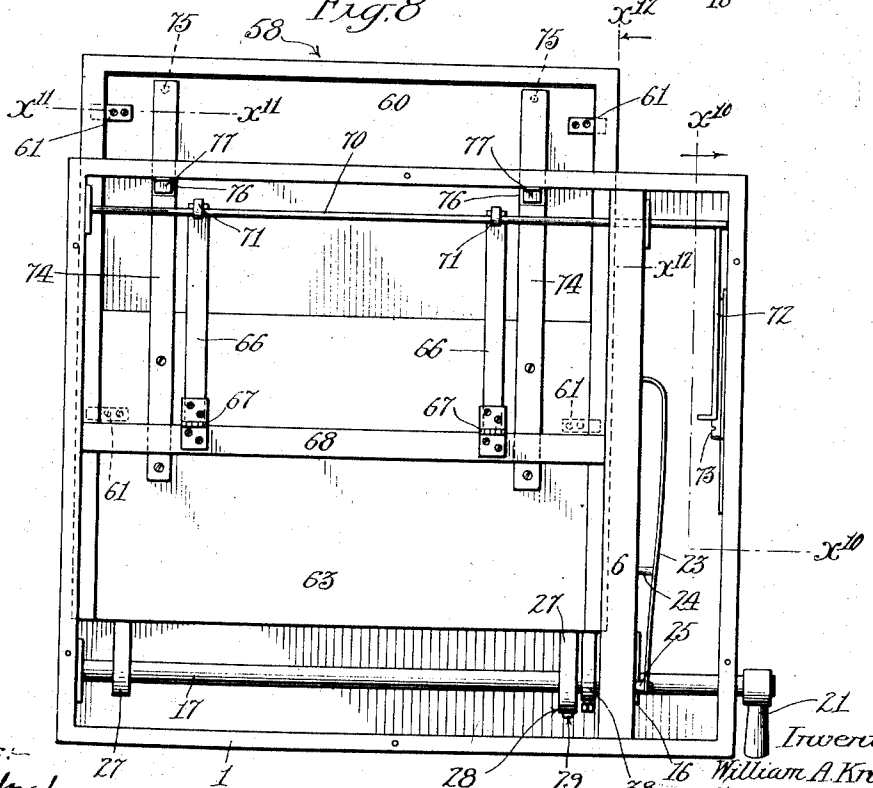


Fig. 8.



Witnesses:-
Frank L. Graham.
Louis W. Gratz

Inventors,
William A. Kraemer,
George F. Howell Jr.
by Townsend Sanford Hackley & Knight
Their Attys.

W. A. KRAEMER & G. F. HOWELL, JR.

PAPER VENDING MACHINE.

APPLICATION FILED JUNE 10, 1907.

927,055. Patented July 6, 1909.

4 SHEETS—SHEET 4.

Fig. 9.

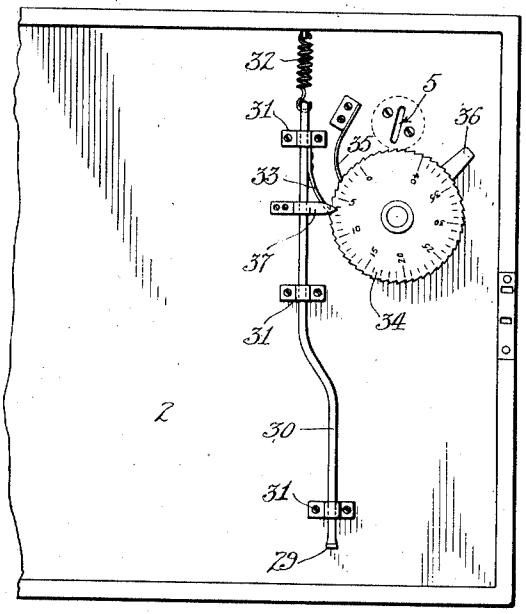


Fig. 10.

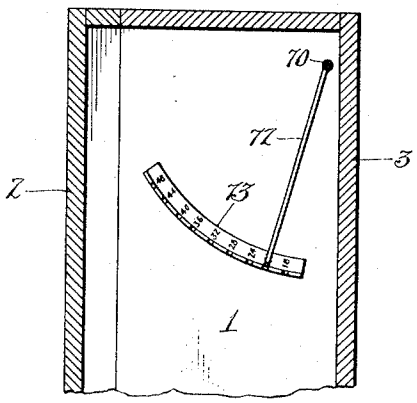


Fig. 11.

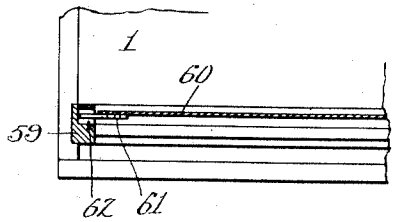


Fig. 12.

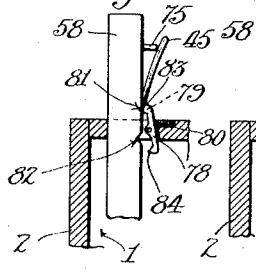


Fig. 13.

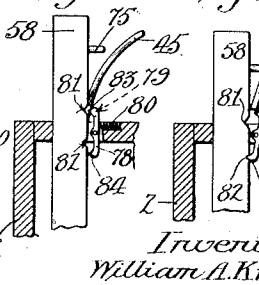


Fig. 14.

Witnesses:—
Frank L. A. Graham.
Louis W. Gratz.

Inventors,
William A. Kraemer;
George F. Howell Jr.
by
Townsend Sontag Lackey & Knight
Their Attys.

UNITED STATES PATENT OFFICE.

WILLIAM A. KRAEMER AND GEORGE F. HOWELL, JR., OF PASADENA, CALIFORNIA.

PAPER-VENDING MACHINE.

No. 927,055. Specification of Letters Patent. Patented July 6, 1909.

Application filed June 10, 1907. Serial No. 378,280.

To all whom it may concern:

Be it known that we, WILLIAM A. KRAEMER and GEORGE F. HOWELL, Jr., both citizens of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Paper-Vending Machine, of which the following is a specification.

This invention relates to vending machines and particularly to a machine designed for vending newspapers, magazines, or the like, and the objects of the invention are to provide a device of the character described which is comparatively simple in construction, effective in operation and durable in use.

The accompanying drawings illustrate the invention, and referring thereto:—Figure 1 is a perspective view of the complete machine, showing the drawer raised to permit the extraction of a paper. Fig. 2 is an elevation of the front of the machine with the front cover swung open, the parts being in normal position. Fig. 3 is a section on line x^3—x^3 Fig. 2, the parts being in normal position. Fig. 4 is a view similar to Fig. 3, showing the parts as having been operated to permit the extraction of a paper. Fig. 5 is a section on line x^5—x^5 Fig. 2, dotted lines illustrating the follower frame swung part way back. Fig. 6 is a view similar to Fig. 5, showing the parts as having been operated to permit the extraction of a paper. Fig. 7 is an elevation of the rear of the machine, showing the parts in normal position, the rear cover being removed. Fig. 8 is a view similar to Fig. 7, showing the parts as having been operated to permit the extraction of a paper. Fig. 9 is a view looking toward the interior face of the front cover, showing the registering device which controls the coin slot. Fig. 10 is a section on line x^{10}—x^{10} Fig. 8. Fig. 11 is a section on line x^{11}—x^{11} Fig. 8. Fig. 12 is a section on line x^{12}—x^{12} Fig. 8; showing the drawer catch in one position. Fig. 13 is a view similar to Fig. 12 showing the drawer catch in the next position, Fig. 14 is a view similar to Fig. 12 showing the drawer catch in its third position.

The apparatus is contained in a box 1 having a front cover 2 hinged thereto and provided with a removable back 3. The front cover 2 is provided with a transparent panel 4, behind which may be displayed a copy of the issue of the publication which is being vended by the machine. The cover 2 is provided with a coin slot 5. As shown in Fig. 2 a vertical partition 6 is arranged in the box 1 near the left hand wall thereof and supported on the partition 6 is a coin chute having three legs 7, 8 and 9. The coin chute has flanges 10 and the upper chute, as shown in Fig. 2, is slanted laterally, and the space between its flanges 10 is such that if a coin, which is smaller than the required size, is inserted through the slot 5, it will roll but a short way down the upper leg 7 and will be tipped out sidewise by the slant of the upper leg 7 and fall out of the chute and drop to the bottom without operating any of the parts.

A coin of the required size and weight will roll to the bottom of the coin chute and drop into a coin pocket 11 which is arranged on the end of a lever 12 which is pivoted at 13, and will raise a hook 14 on the lever 12 out of engagement with a shoulder 15 formed on a plate 16 fixed on a shaft 17. A curved guard 18 which lies back of the pocket 11 will retain the coin in the pocket 11 to hold the lever 12 tipped while the shaft 17 is being turned to operate the machine. As the shaft 17 is turned, the plate 16 is rocked therewith and the lever 12 is sustained by a finger 19 which bears against the curved edge of the plate 16 until the plate is turned far enough to allow the finger 19 to drop into a recess 20 in plate 16, whereupon the weight of the coin depresses the lever 12 slightly farther a sufficient amount to allow the coin to roll out of the pocket 11 under the lower edge of the guard 18. The outer end of shaft 17 is provided with an operating handle 21 as shown in Figs. 1 and 2, but the shaft 17 cannot be rocked forward until the shoulder 15 of plate 16 is freed by the hook 14 of lever 12, and the lever when weighted by the coin, is held free from the plate as described until the plate has been turned. The lever 12 is suitably counterbalanced by a weight 22 on the forward end thereof.

A flat spring 23 having a bowed upper end, as shown in Fig. 2, is secured to the partition 6 and at an intermediate point a pin 24 projects inward from the spring 23. The lower end of spring 23 is provided with a shoe 25 which normally rests against the flat face of the plate 16 thus holding the spring 23 in the position shown in full lines in Fig. 2. When, however, the shaft 17 has been rocked forward to operate the machine and the plate 16 has been moved into the position shown in Fig. 4, the shoe 25 is freed from the plate

16 and the spring 23 bends inward into the position shown in dotted lines in Fig. 2 and causes the pin 24 to project into the leg 9 of the coin chute so that if, while the parts are in this position, a coin is inserted in the machine, that coin will be arrested in its downward travel by the pin 24 and will be held there until the parts have been restored to normal position, at which time the spring 23 is again sprung back by plate 16 and withdraws the pin 24 and the coin will then roll down and drop into the pocket 11 and operate the lever 12. As at this time the machine is again in normal condition, and the coin has tipped up the lever, the customer may operate the machine and get his paper. This prevents a customer from losing his coin without receiving a paper if he should drop the coin in at a time when the machine was not in normal condition.

Fixed to the shaft 17 is a pair of arms 26 and 27 as shown in Fig. 2, and the arm 26 is provided with an abutment 28, clearly seen in Figs. 5 and 6, which is adapted to act upon a foot 29 to depress an operating rod 30 every time the handle 21 is operated forward to work the machine. The operating rod 30, as shown in Fig. 9, is slidable vertically in brackets 31 which are screwed to the inside of the front cover 2. A coil spring 32 is attached to the upper end of rod 30 for drawing it up. A spring pawl 33 is attached to rod 31 and operates a dial 34 having ratchet teeth. A spring retaining pawl 35 is provided for preventing reverse movement of the dial. Fastened to the dial 34 is a shutter 36 which, when the dial 34 has been turned far enough, will stand back of the coin slot 5 and prevent the insertion of a coin. The dial 34 is provided with numerals, and an indicating finger 37 is fastened to the cover 2. The dial 34 is operated one step for each operation of the machine and the handle 21 must be operated the full stroke in order to bring the shoe 28 against the foot 29 to operate the rod 30 and this prevents the dial being turned unless the machine is given a complete operation. The dial 34 may be manually set so that after the certain number of papers with which the machine has been supplied have been vended, the shutter 36 will have progressed into a position shutting the slot 5, the dial 34 making one step for each paper vended. In filling the machine with the papers it is a simple matter to set the dial so that the numeral on the dial which corresponds to the number of papers supplied stands opposite the pointer 37.

In order to positively insure that the handle 21 will be operated through a full stroke before it can be returned to normal position, a segmental plate 38 is fixed on shaft 17 as clearly shown in Figs. 5 and 6. This plate is provided with V-shaped teeth 39 and a pawl 40 is pivoted at 41 and has a spring 42 connected to a centrally located lug 43, such that the pawl 40 is operative to check reverse movement of the plate 38 when the plate is being moved in either direction. For example, in moving the plate 38 forward from the position shown in Fig. 5, the pawl will permit this forward movement but will prevent reverse movement until after the plate 38 has been moved forward sufficient to clear the plate 38 as shown in Fig. 6. Then in moving the plate 38 back, the pawl acts against the other side of the teeth 39 and prevents reverse movement of plate 38 until it has been completely restored, it being necessary when the plate has been partially moved along the pawl, to complete the movement and bring the plate entirely out of engagement with the pawl to permit the plate to be turned back, and vice versa.

A horizontal shelf 44 is provided, as shown in Fig. 2, and the papers 45 which are to be vended are arranged in pack form on the shelf 44 as shown in Fig. 5. The papers are introduced in position from the front of the machine and the pack is automatically pressed rearward by a follower 46 which consists of a flat plate preferably having a knob 47 by which it may be removed when freed. The follower 46 if constructed of wood is preferably provided with four metal face-plates 48. A follower frame 49 is hinged at 50 to the shelf 44 to swing outwardly. The follower frame 49 is a rectangular frame and has a horizontal central bar 51 as clearly shown in Fig. 2. A pair of fingers 52 are hinged at 53 to the upper edge of the bar 51 and, as shown in Figs. 5 and 6, each finger 52 has a short arm 54 with which coil springs 55 are connected which serve to yieldingly hold the fingers 52 against the two lower face plates 48. A similar pair of fingers 52 and associated devices are extended above the bar 51 and bear against the two upper face plates 48. The arms 54 are comparatively short and thus partake of a relatively small amount of movement compared to that of the free ends of the arms 52. This construction allows a wide range of movement of the follower 46 and the arms 52 yieldingly press the follower 46 rearwardly and the pack of papers with it as fast as the papers are vended. The follower frame 51 is held in normal position by a pair of buttons 56 which engage the upper edge of the frame as shown in Fig. 2. By releasing the buttons 56, the follower frame 51 and parts carried by it may be swung back bodily as indicated in dotted lines in Fig. 5. The front cover, of course, must be opened to give access to the interior before this can be done. In this view the follower frame is shown as having been swung only part way back, it being possible to swing the follower frame to a horizontal

position and even lower which obviously gives perfect access to the follower 46 to remove or replace the same and permits the papers 45 to be easily placed in position. After the papers are placed in position and the follower 46 placed next to them, the follower frame 51 is then swung into a vertical position and caught by buttons 56. The upper wall of the box 1 is provided with a slot 57 through which a drawer 58 is adapted to slide. The drawer 58 comprises a rectangular frame 59 having near its front a thin plate 60 formed preferably of aluminum, see Figs. 5 and 6. This plate 60 is permitted to yield slightly in the frame 59 and has lugs 61 which slidably fit in grooves 62 formed in the wall of the box 1 and partition 6. The purpose of this is to enable the drawer to be adjusted to vend papers of different thicknesses, as will be more fully described. The lower part of the drawer 58 is connected to a rectangular block 63, and projecting forward from the block 63 is a pair of slotted brackets 64 as shown in Figs. 2 and 5, and the arms 27, before referred to, are provided with studs 65 which engage in the respective slotted brackets 64 so that as the shaft 17 is rocked, the drawer 58 is moved vertically.

The upper edge of the block 63, that is, that slight portion of its edge which is forward of the plate 60, acts as an abutment which lifts against the lower edge of the paper to be lifted and vended. This is clearly seen in Figs. 5 and 6. In Fig. 5 the block 63 is shown in normal position, and the rearmost paper 45 is resting with its lower edge upon the upper edge of the block 63, and the plate 60 is flatly supporting the rearmost paper 45 of the pack. The plate 60 is adjustably held against the paper by a pair of arms 66, see Figs. 5, 6, 7 and 8, the lower ends of arms 66 being hinged at 67 to a stationary thin horizontal bar 68 which extends across the box. The upper end of each arm 66 is provided with a roller 69 which bears against the plate 60. A shaft 70 extends across the machine and is provided with a pair of cams 71 which bear against the respective arms 66. By turning the shaft 70 the cams 71 are adjusted to move the fingers 66 forward or allow the fingers to retract according to the space required in front of the plate 60 as determined by the thickness of the paper being vended. These rollers reduce friction during the sliding movement of the plate, and their adjustment determines the space between the plate and front wall of the slot through which the drawer slides. It will be seen that the plate is not rigid but is free to rock slightly on the rollers to adjust itself flatly to the paper. An arm 72 is attached to one end of shaft 70 and is detachably held in place by a notched dial 73, arranged on the inside of the left end of the box, see Fig. 10 and Figs. 7 and 8. The dial 73 serves to indicate the position in which to set the arm 72 for certain thicknesses of papers.

A pair of spring arms 74 are fastened to the back of the drawer 58, and each arm 74 at its upper end has a forwardly projecting pin 75 which is adapted to be projected through a registering hole in the plate 60, as shown in Fig. 6, to press forward the upper edge of the paper 45. This action is accomplished automatically by means of shoes 76 which are arranged on the back of the respective arms 74 and which ride over brackets 77 at the upper wall of the box 1, the brackets 77 being stationary and causing the shoes 76 to press the arms 74 forward as the drawer is slid up, this action taking place only during a short upward movement of the drawer as the shoes 76 ride over the short brackets 77. As the arms 74 are thus automatically moved forward, the pins 76 are thrust against the edge of the paper 45, bending the paper forward into a position such that it may be easily grasped by the hand and withdrawn from the machine. A pair of rock arms 78 are pivoted in the upper wall of the box and project above the same and are connected by a bail 79. A coil spring 80 is arranged in front of each rock arm and serves to press it rearwardly. The drawer 58 on each side has a pair of notches 81 and 82 and each rock arm has upper and lower detents 83 and 84.

When the drawer is pushed up to vending position as shown in Figs. 1, 4, 6, and 12, the detents 83 engage in the notches 81 and sustain the drawer. As the customer pulls out the paper it is necessarily drawn somewhat forward over the bail 79 and moves the bail forward which draws the detents 83 out of the notches 81 and moves the detents 84 against the smooth face of the drawer frame slightly below the notches 82, this position of the parts being shown in Fig. 13; the drawer having thus been released by detents 83, drops slightly until the notches 82 come opposite detents 84 whereupon the latter are moved into notches 84 and the detents 83 are above the line of notches 81, as shown in Fig. 14. The drawer is thus held up until the paper has been completely withdrawn whereupon, pressure of the paper against bail 79 being removed, the springs 80 rock the detents 84 out of notches 82 and move the detents 83 against the smooth face of the drawer above the notches 81 and the drawer being thus released falls down and resumes its normal closed position. This double acting catch thus automatically latches the drawer while open and holds the door up while the paper is being withdrawn, and automatically unlatches the drawer and allows it to fall after the paper has been withdrawn. After the paper has been withdrawn, the follower plate moves the pack of papers back against the plate 60 and the drawer drops and the parts return to normal position. It is obviously

necessary that the drawer and all parts be restored to normal position before another paper will be vended, and if another coin should be inserted while the drawer was open, the coin will not act until the parts are returned to normal position, as heretofore explained.

What we claim is:—

1. In a paper vending machine, a receptacle for the papers, a drawer slidable in the receptacle and having an abutment adapted to engage the edge of a paper, means for operating said drawer, mechanism for controlling said operating means, and means for automatically bending forward the upper edge of a paper from the drawer when it has protruded from the receptacle.

2. In a paper vending machine, a receptacle for the papers, a drawer having paper engaging means and slidable through the receptacle, means for operating the drawer, means for controlling the drawer operating means, means for supporting papers in pack form in the receptacle against the drawer comprising a follower plate, a follower frame hinged to the receptacle to swing outwardly, said follower frame having a central bar, fingers hinged to said bar, each finger having a short arm, and coil springs connecting the short arms with the frame for pressing the ends of the fingers against the follower plate.

3. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for adjusting said plate for various thicknesses of paper, means for operating the drawer, and means for controlling the drawer operating means.

4. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for operating the drawer, means for controlling the drawer operating means, and means for automatically bending the upper edge of the paper away from said plate when the drawer protrudes from the receptacle.

5. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for operating the drawer, means for controlling the drawer operating means, arms pivotally carried by the drawer, pins on the arms adapted to protrude through holes in said plate to press the upper edge of the paper away from the plate, cams mounted on said arms, and stationary abutments over which said cams slide for tilting said arms.

6. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for operating the drawer, means for controlling the drawer operating means, arms hinged to a stationary support, rollers on the upper ends of the arms bearing against said plate, a shaft, and means on the shaft for adjusting said arms for varying the position of said plate.

7. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for operating the drawer, means for controlling the drawer operating means, arms hinged to a stationary support, rollers on the upper ends of the arms bearing against said plate, a shaft, means on the shaft for adjusting said arms for varying the position of said plate, an arm on the end of said shaft for adjusting the shaft, and a dial for indicating positions in which to set said arms for different thicknesses of paper.

8. In a paper vending machine, a receptacle for the papers, a drawer slidable in said receptacle, said drawer having an abutment, means for supporting the papers in pack form with the rearmost paper resting with its lower edge on said abutment, a plate carried by said drawer against which the rearmost paper is flatly pressed, means for operating the drawer, means for controlling the drawer operating means, a front cover closing the receptacle, and a transparent panel on the front cover through which a copy of the paper being vended may be displayed.

9. In a paper vending machine, a receptacle for the papers, a drawer having an abutment for engaging a paper and slidable through a wall of the receptacle, slotted brackets on the drawer, a shaft, arms on the shaft having studs projecting into the slotted brackets, a handle on the shaft outside the receptacle, and means for controlling the movement of said shaft.

10. In a paper vending machine, a receptacle for the papers, a drawer having an abutment for engaging a paper and slidable through a wall of the receptacle, slotted

brackets on the drawer, a shaft, arms on the shaft having studs projecting into the slotted brackets, a handle on the shaft outside the receptacle, means for controlling the movement of said shaft, a segmental plate on the shaft having V-shaped teeth, a pivoted pawl having a V-shaped detent arranged rearwardly of the pivot thereof and having a lug extending rearwardly of the pivot in line with the detent, and a coil spring attached to the lug for holding the detent in mid position when it is engaged from the plate, the detent being adapted to work against the plate when the plate is moved in either direction, and preventing the plate from being reversed except when out of engagement with the detent, thereby insuring a full operation of the handle each time.

In testimony whereof, we have hereunto set our hands at Los Angeles, California, this 25th day of May 1907.

WILLIAM A. KRAEMER.
GEORGE F. HOWELL, JR.

In presence of—
GEORGE T. HACKLEY,
FRANK L. A. GRAHAM.