

March 21, 1950

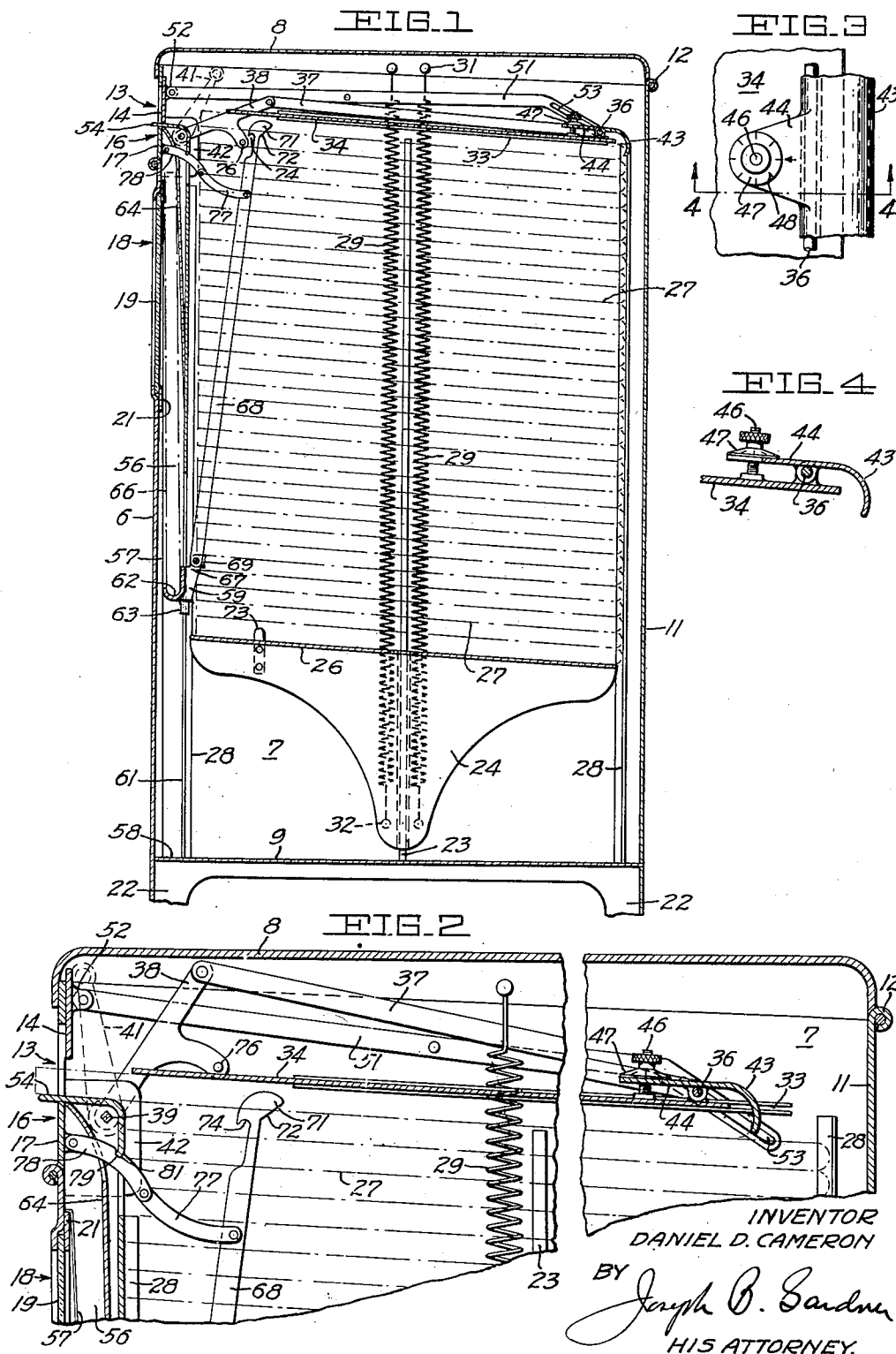
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2,501,434

NEWSPAPER VENDING MACHINE

Filed May 11, 1946

2 Sheets-Sheet 1



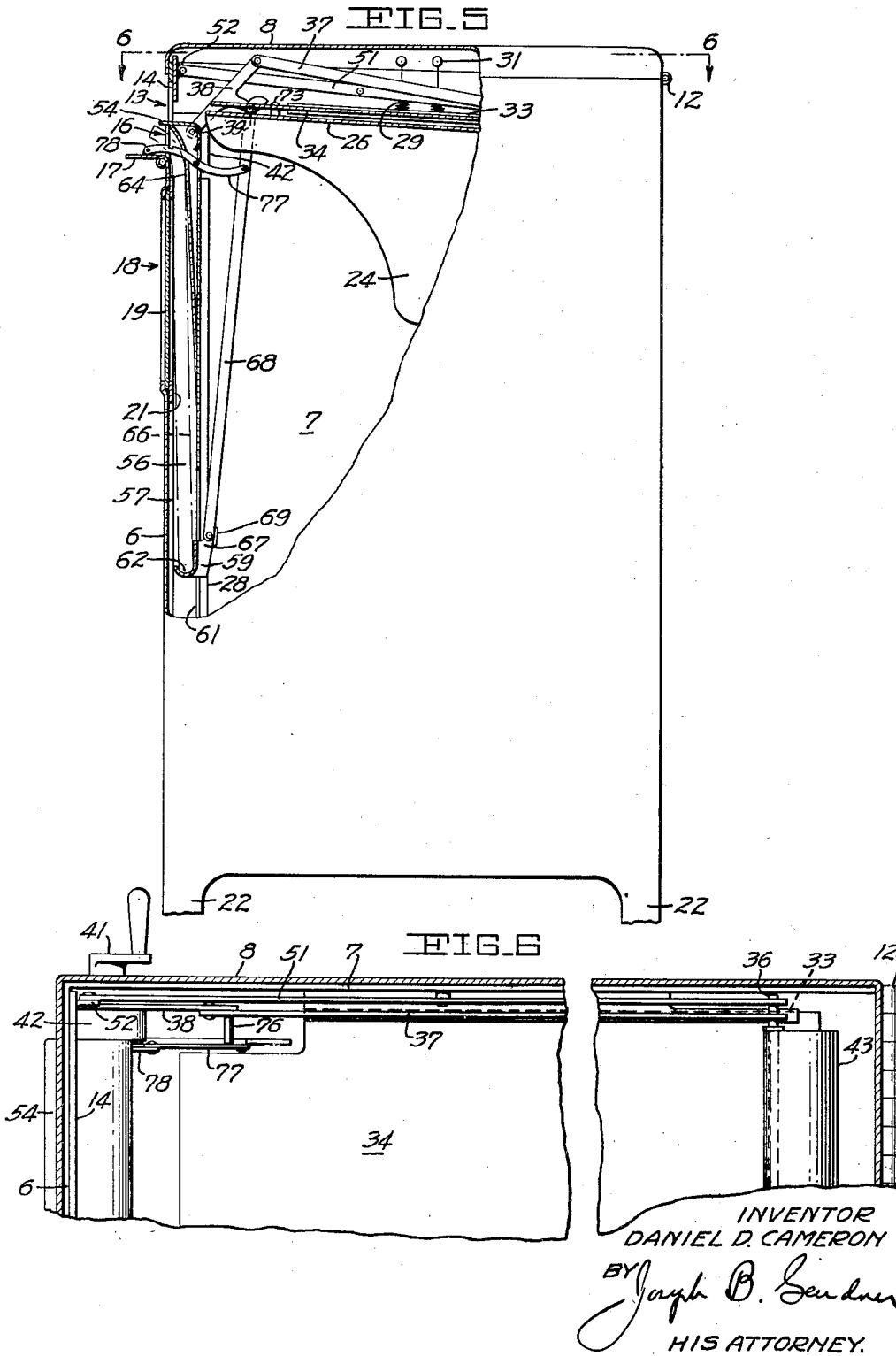
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UNITED STATES PATENT OFFICE

2,501,434

NEWSPAPER VENDING MACHINE

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Application May 11, 1946, Serial No. 669,126

4 Claims. (Cl. 312—56)

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This invention relates to coin-controlled vending devices for dispensing newspapers or articles of a similar nature.

An object of the invention is to provide a machine of the character described in which a vertically arranged stack of newspapers or the like may be progressively advanced toward an elevated discharge opening so that successive of the papers may be passed outwardly from the machine through said opening.

Another object of the invention is to provide, in a vending machine for newspapers or the like wherein a concealed main stack of papers and a separate display paper are contained, means for dispensing the main stack to depletion and for thereafter dispensing the separate display paper.

A further object of the invention is to provide, in apparatus of the character described wherein a stack of newspapers is forcibly urged bodily toward and to engage a pusher device by means of which successive of the stacked papers are moved to a dispensing position, means operative to maintain a substantially uniform pressure of the stack against the pusher device regardless of the aggregative weight of the number of papers contained in the stack.

Still another object of the invention is to provide, in a newspaper dispensing machine wherein a pusher device serves successive papers from a stack thereof, means capable of evaluable adjustment and associated with said pusher device for accommodating various thicknesses of newspapers which may make up said stack from time to time.

Yet another object of the invention is to provide, in a dispensing device of the character described provided with a plurality of dispensing openings through which sequential passage of articles contained within the device may take place, means for closing said openings between passages of articles therethrough, and further means for retaining one of said openings in closed condition during the time required to pass a given number of articles through the other opening and for conditioning the former opening for the passage of an article after said given number of articles has passed through said other opening.

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 show-

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ing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a vertical sectional view of the vending machine of my invention, portions of the view being broken off so as to conserve space in the drawing.

Figure 2 is an enlarged vertical sectional view of the upper portion of the structure shown in Figure 1.

Figure 3 is a portional plan view of the hook adjustment mechanism.

Figure 4 is a vertical sectional view of the structure shown in Figure 3. The plane of section is indicated by the line 4—4 in Figure 3.

Figure 5 is a view of the vending machine, partly in side elevation and partly in vertical section, illustrating the operation of the display paper ejecting mechanism.

Figure 6 is an enlarged horizontal sectional view of a portion of the vending machine. The plane in which the view is taken is indicated by the line 6—6 of Figure 5.

In the practical application of my invention shown in the views above described, I provide a cabinet, preferably constructed of sheet metal and comprising a front panel 6, duplicated side panels 7, a top 8 and a bottom 9, all of which are secured together at their respective engaging edges to form a unitary structure. The back of the cabinet comprises a door panel 11 pivotally mounted, by hinges 12, to swing outwardly and upwardly from the cabinet body so as to provide therein an enlarged charging opening through which the articles to be dispensed may be introduced into the cabinet. A suitable lock or other means, not shown, may be provided for securing the door in closed position and to prevent unauthorized access to the interior of the cabinet. The front panel 6, in the upper portion thereof, is provided with a main delivery aperture 13 closable by a sliding door 14, with a secondary delivery opening 16 immediately therebelow and closed by a hinged door 17 and with a display window 18 covered by a sheet of glass 19 or other transparent material which is secured in the window opening by clips 21 or other suitable means secured to the marginal portions of the panel surrounding the latter opening. The cabinet may be of a reasonable vertical height, so that the delivery aperture 13 is within convenient and comfortable reach of the person being served, and may be fitted with suitable ground-engaging supporting legs 22, or the legs may be dispensed with

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and the cabinet proper extended downwardly to engage the ground and thus increase the storage capacity of the machine.

Means are provided in the cabinet for supporting therein an orderly stack of the articles to be dispensed and for moving the stack bodily toward the delivery opening so that successive of the articles may be dispensed through said opening. Mounted on and substantially horizontally medially of the inner surface each side panel 7 is a vertically extending guide rail 23 on which is slidably mounted the complementarily grooved side bracket 24 of a pressure plate 26 on which the newspapers 27, or other similar articles to be dispensed, may be stacked as shown. Guide angles 28, also mounted on the side plates 7, are provided which slidably engage the respective vertical corners of the stack so as to maintain the articles therein in superposed registry at all times. Coil springs 29, having their upper ends secured by anchor pins 31 or the like to the cabinet and their lower ends attached by pins 32 or similar devices to the side brackets 24, are provided for forcibly urging the pressure plate 26 and its associated stack of articles 27 upwardly toward the upper end of the cabinet. The springs are so designed that as they are extended their recoil force will slightly exceed the weight of the stack of articles carried by the pressure plate 26 so as to constantly exert an upward pressure on the stack. As the stack becomes depleted and the pressure plate rises, the weight on the plate will correspondingly decrease as will the tension in the springs as they contract. Thus, regardless of the number of articles in the stack, the upward pressure of the springs thereon will, at all times, be substantially constant.

Means are provided for dispensing successive of the articles contained in the stack through the delivery aperture 13 and for opening and closing the door 14 preceding and following each delivery. Slidably disposed in grooves 33 provided in the side panels 7 and paralleling the upper surface of the uppermost article 27 in the stack, is a pusher plate 34 against the underside of which the stack is pushed by the upwardly urged pressure plate 26. Mounted on the rear side of the pusher plate is a transversely extending rod 36 on the ends of which are journaled links 37 extending forwardly of the cabinet and pivotally secured to levers 38 carried by an operating shaft 39 journaled in the cabinet just below the delivery opening 13 and having one end projecting exteriorly of the cabinet and fitted with an operating lever 41 associated with coin-controlled mechanism 42. The latter mechanism need not be described in detail since its structure is familiar to those skilled in the vending machine art and it will suffice to state that upon the insertion of the proper coin into the mechanism 42, the lever 41 will be freed to be moved through a cycle of reciprocation. The rear end of the pusher plate is provided with gripping means comprising a downwardly extending hook 43 carried by a pivot member 44 journaled on the rod 36 and operatively connected with an adjusting screw 46 mounted on and rotatable relative to the pusher plate. A dial 47 carried by the screw 46 bears indicia 48 registrable with a reference mark or device 49 on the pusher plate so that selective duplications of settings of the adjusting screw may be effected. The parts are so constructed and arranged that by manipulating the adjusting screw, the hook 43 may be made to extend as

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far as desired below the lower surface of the pusher plate. This provides for adjustment of the hook to compensate for changing thicknesses of papers or other articles making up the stack. Mounted for pivotal movement on the inner surfaces of the side panels 7 and positioned just above the pusher plate guides 33 are levers 51 having their forward ends pivotally connected to brackets 52 carried by the door 14 and being provided at their rear ends with cam slots 53 in which are slidably engaged longitudinally extended end portions of the rod 36. At the start of a delivery operation, the operating handle 41 is locked by the coin-receiving mechanism 42 in "off" position and the pusher plate 34 is positioned at the rear of the cabinet with the hook 43 engaged over the rear edge of the paper 27 or other article in the stack. Upon depositing the proper coin in the mechanism 42 and pulling forwardly and downwardly on the lever 41, the shaft 39 will be rotated to move the levers 38 forwardly of the cabinet thereby effecting, through the links 37, a corresponding forward movement of the pusher plate 34. As the pusher plate starts its forward movement, the ends of the rod 36 will ride along the cam grooves 53 thus causing the levers 51 to pivot and to raise the door 14 so as to open the delivery opening 13. Also as the pusher plate moves forwardly the hook 43 will push the uppermost paper or article in the stack horizontally through the delivery opening 13 and over the delivery apron 54 to a position sufficiently extended from the cabinet as to permit it to be grasped by the customer and completely withdrawn from the cabinet. Return of the operating lever to "off" position will cause the pusher plate to recede toward the rear of the cabinet, the hook to pass over the rear edge of the next succeeding article in the stack and the delivery opening door to close. Pressure of the springs 29 raises the stack against the underside of the pusher plate whereupon the mechanism is conditioned for the next delivery which may be repeated until all of the articles in the stack have been dispensed through the delivery opening.

Means is provided for supporting in the cabinet, and in view of prospective customers, a sample paper or article similar to those contained in the main stack, and means is further provided for automatically conditioning mechanism, after the main stack of articles has been depleted, to deliver the sample article during the succeeding operation of the vending machine. Within the cabinet and rearwardly of the window 19 is provided a chamber 56 in which is provided a plurality of stretched wire supports 57 secured at their upper ends to the front panel 6 just below the secondary delivery opening 16 and at their lower ends to a suitable supporting plate 58 attached to the front panel and functioning as a portion of the bottom of the chamber 56. An elevator slide 59, slidably engaged with vertical rails 61, is provided with a hook 62 extending along its lower edge and forming a further portion of the bottom of the chamber 56. Stops 63 on the rails 61 limit the downward travel of the elevator slide and a deflector plate 64, having its upper end curving forwardly of the cabinet toward the upper side of the opening 16, forms the back of the chamber 56. The sample paper or article 66 may be inserted into the chamber 56 through the delivery opening 16 and is adapted to rest therein in substantially vertical planar relation to the window 19 and having its lower

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edge resting in the hook 62. The wires 51 engage the front face of the paper or article and prevent its coming in contact with the window. Brackets 67 carried at the sides of the elevator slide 59 are pivotally engaged with upwardly extending links 68 having extensions 69 at their lower ends, which engage the brackets 67 and limit the degree of tilt of the links rearwardly of the cabinet, and provided at their upper ends with cam lugs 71 having inclined surface portions 72 engageable by and cooperative with trip dogs 73 carried by and projecting upwardly from the sides of the pressure plate 26. Each of the links 68 is provided on its forward edge with a notch 74 having hooked ends and an open throat arranged in one position of the link to pass therethrough an operating stud 76 secured to and extending horizontally from a side of the lever 38. The relationship of the parts is such that as long as any papers or other articles remain in the main stack, the lever pins 76 may pass freely into and out of the notches 74 during each delivery operation. However when the last article in the main stack has been delivered, as shown in Figure 3, the trip dogs 73 of the elevated pressure plate 26 will engage the cam surfaces 72 of the links 68 and will move the latter forward slightly toward the front of the cabinet. This will cause the intermediate links 77, which are pivotally connected to the links 68 and to locking levers 78 pivotally carried by the door 17 and having a notch 79 engaging an edge portion 81 of the apron 54, to move forwardly thus releasing the portion 81 from the notch 79 and unlocking the door. When the operating handle 41 is next moved forwardly, the pins 76 will engage the upper hooked portions of the notches 74. This will connect the levers and links together operatively and as the pins 76 rise along their arcuate paths of travel, the links will be drawn upwardly as will be the elevator slide 59. As soon as the elevator slide starts upwardly the door 17 will swing open. The engagement of the hook 62 with the article 66 will cause the latter to rise in the chamber and project outwardly thereof through the opening 16 to a position wherein it may be grasped by the customer and completely pulled from the vending machine. Release of the handle 41 will cause the parts of the mechanism to return to their normal positions of rest and will secure the door 17 in locked position.

Having thus described my invention in detail, what I claim as new and desire to secure by Letters Patent is:

1. A vending machine having therein a main chamber provided with a main delivery opening and a secondary chamber provided with a secondary delivery opening adjacent said main delivery opening and further having therein a viewing window, means for supporting in said main chamber a stack of articles to be delivered successively through said main delivery opening, means for supporting in said secondary chamber and adjacent said window a single article to be delivered through said secondary delivery opening after depletion of the articles in said stack, separate doors associated with and movable to open and close said main and secondary delivery openings, pusher mechanism for successively opening said main delivery opening door and for moving therethrough an article from said stack thereof, means operative as successive articles are removed from said stack for moving said stack bodily into operative relationship with said pusher mechanism, secondary pusher mechanism for opening said

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secondary delivery opening door and for moving therethrough said article contained in said secondary chamber, and means carried by said stack supporting means and engageable with said secondary pusher mechanism for conditioning said latter mechanism to eject said article from the secondary chamber.

2. A vending machine having therein a main chamber provided with a main delivery opening and a secondary chamber provided with a secondary delivery opening adjacent said main delivery opening and further having therein a viewing window, means for supporting in said main chamber a stack of articles to be delivered successively through said main delivery opening, means for supporting in said secondary chamber and adjacent said window a single article to be delivered through said secondary delivery opening after depletion of the articles in said stack, separate doors associated with and movable to open and close said main and secondary delivery openings, separate means to lock the respective doors in closed position, separate pusher mechanisms for moving through the respective delivery openings the uppermost article in said stack and the article contained in said secondary chamber, respectively means associated with the respective pusher mechanisms for unlocking and opening the respective doors, means for moving said stack bodily into operative relationship with the pusher mechanism associated therewith, and means carried by said stack moving means and engageable with an element of one of said pusher mechanisms for positioning said element to establish inter-engagement and cooperative relationship between said pusher mechanisms.

3. A vending machine having therein a main chamber provided with a main delivery opening and a separate secondary chamber provided with a secondary delivery opening and a viewing window associated with said secondary chamber, a pressure plate mounted to move in said chamber toward said main delivery opening and on which a stack of superimposed articles to be dispensed may rest, spring-pressed means for urging said pressure plate and the stack of articles carried thereby toward said main delivery opening, means to support a single article to be dispensed in said secondary chamber and in position to be viewed through the window thereof, movable doors associated with and for opening and closing the respective delivery openings, reciprocable pusher mechanism associated with said stack of articles and movable toward said main delivery opening for moving therethrough successive articles from the top of said stack, means carried by said stack pusher mechanisms for engaging the uppermost article in said stack during each reciprocation of the pusher and mechanism, means for opening the door associated with the main delivery opening prior to reciprocation of the stack pusher mechanism and for closing and locking said door after said reciprocation, pusher mechanism in said secondary chamber engaging and for moving the article in said latter chamber toward and through said secondary delivery opening, means carried by said pressure plate and engageable with an element of said secondary chamber pusher mechanism for interlocking said mechanisms for concurrent operation, and means operative by and upon movement of said secondary chamber pusher mechanism for unlocking the delivery opening door of said secondary chamber.

4. A vending machine having therein a main chamber provided with a main delivery opening

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and a separate secondary chamber provided with a secondary delivery opening and a viewing window associated with said secondary chamber, a pressure plate mounted to move in said chamber toward said main delivery opening and on which a stack of superposed articles to be dispensed may rest, spring-pressed means for urging said pressure plate and the stack of articles carried thereby toward said main delivery opening, means to support a single article to be dispensed in said secondary chamber and in position to be viewed through the window thereof, movable doors associated with and for opening and closing the respective delivery openings, reciprocable pusher mechanism associated with said stack of articles and movable toward said main delivery opening for moving therethrough successive articles from the top of said stack, means carried by said stack pusher mechanisms for engaging the uppermost article in said stack during each reciprocation of the pusher and mechanism, means for adjusting said engaging means to compensate for differences in vertical thickness in individual stacked articles, means operative by said reciprocable pusher mechanism for opening the door associated with the main delivery opening, pusher mechanism including a connecting link in said secondary chamber engaging and for moving the

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article in said secondary chamber toward and through said secondary delivery opening, said connecting link having a cam lug thereon, a dog carried by said pressure plate and engageable with the cam lug of the connecting link, when said stack of articles has been depleted, for moving the connecting link into a position wherein it is engaged by and upon movement of the stack pusher mechanism, and latch mechanism normally maintaining said secondary delivering opening door in closed position operative by and upon movement of said secondary chamber pusher mechanism for unlocking said secondary delivery opening door.

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