Jan. 2, 1945. D. D. CAMERON 2,366,592

NEWSPAPER VENDING MACHINE

Filed Dec. 29, 1941 2 Sheets-Sheet 1

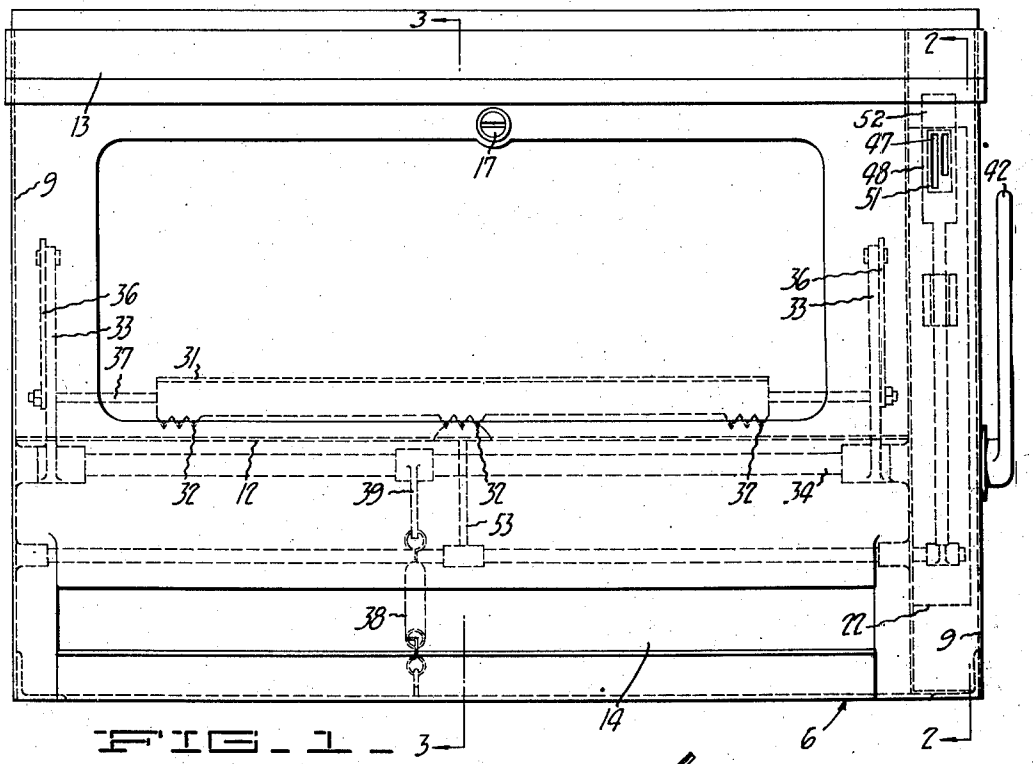


FIG. 1

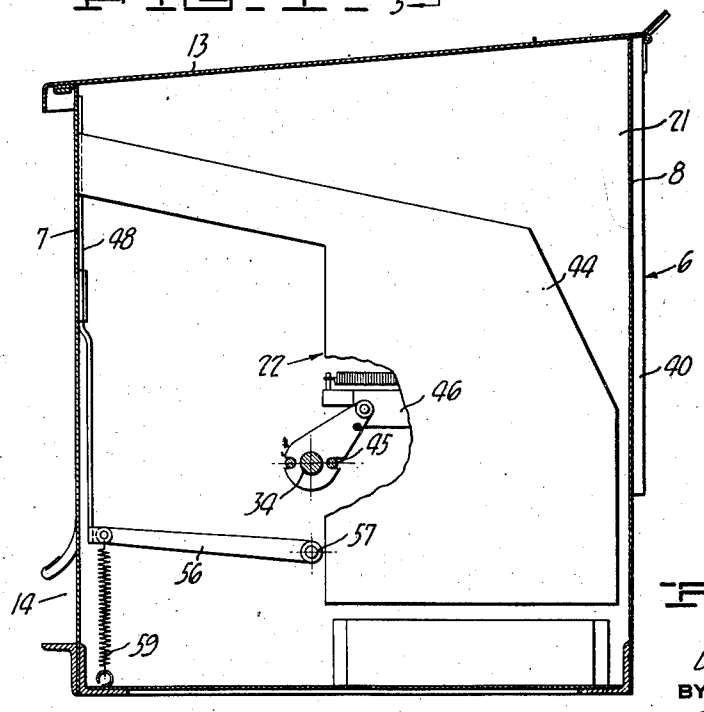


FIG. 2

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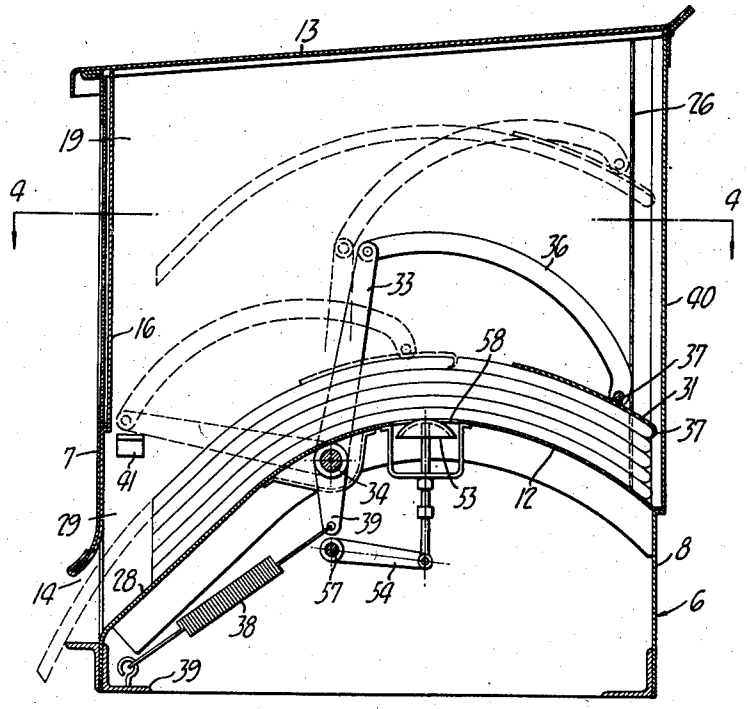


FIG. 3.

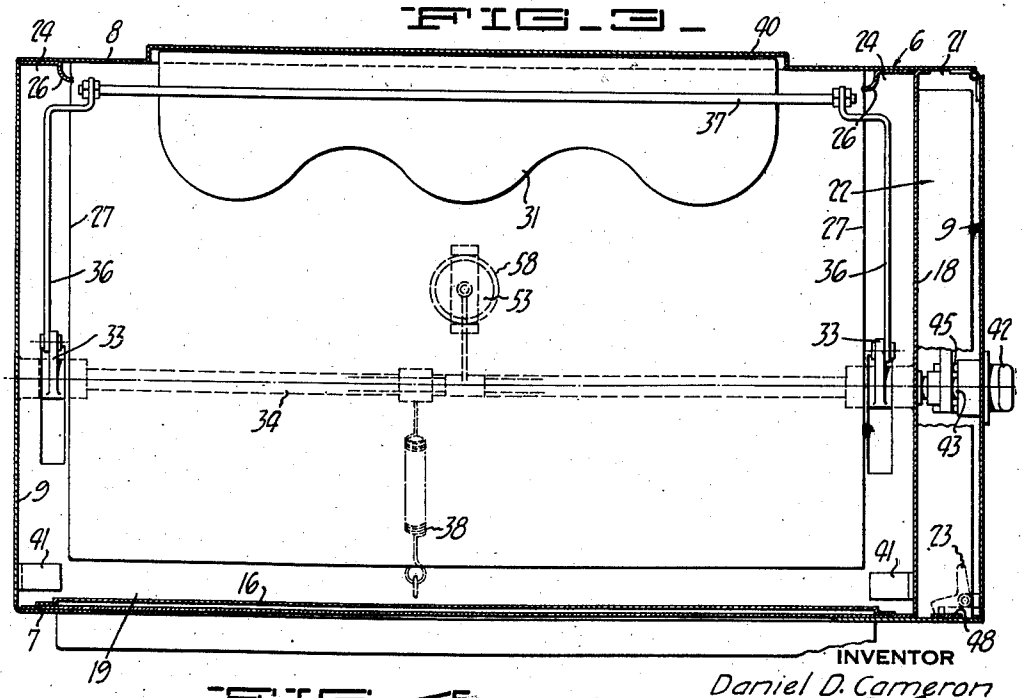


FIG. 4.

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UNITED STATES PATENT OFFICE

2,366,592

NEWSPAPER VENDING MACHINE

Daniel D. Cameron, San Francisco, Calif.

Application December 29, 1941, Serial No. 424,738

7 Claims. (Cl. 312—56)

The invention relates to vending machines and more particularly to machines of this character which are coin-controlled and adapted for dispensing newspapers, magazines and the like.

An object of the invention is to provide a vending machine of the character described, in which the papers or other articles to be vended will be supported in the machine in such manner that the weight and form of the papers may be utilized in effectively retaining the papers within the machine before dispensing and for facilitating the discharge of the papers in the dispensing operation.

Another object of the invention is to provide a machine of the character described which will have minimum dimensions horizontally notwithstanding that the machine is designed to support the papers one upon another in horizontal position.

A further object of the invention is to provide a machine of the character described which will have a large storing capacity for its size, will operate equally well with papers of different thickness, and will function with the same facility regardless of the number of papers contained in the machine.

A still further object of the invention is to provide a machine of the character described in which the operating parts are for the most part out of contact or proximity to the papers, and are of such a simple nature that the machine may be produced at relatively low cost.

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 front view of a vending machine embodying my invention.

Figure 2 is an end view of the machine, with portions broken away and removed so as to disclose the interior of the machine.

Figure 3 is a vertical sectional view of the machine taken on the line 3—3 of Figure 1.

Figure 4 is a horizontal sectional view of the machine taken on the line 4—4 of Figure 3.

The vending machine of my invention as aforementioned, is particularly designed for dispensing newspapers, magazines, and articles of like form, and as here illustrated comprises a casing 6 of rectangular shape and having front and rear walls 7 and 8, end walls 9, and a bottom wall 12. The casing is arranged to receive the papers and the like in folded form and to support same horizontally one above another. A top wall 13 serves as a cover for the casing and is hinged at its rear edge to the wall 8 so that it may be raised to permit insertion of the papers into the casing.

Delivery of the papers from the machine is through a horizontally extending opening 14 adjacent the lower edge of the front wall 7, and desirably the upper portion of such wall is provided with a glass-covered receptacle 16 for displaying in such wall and visible from the exterior of the machine the front page of the paper. The recepacle is open at the top but is covered by the top wall 13, which is held against unauthorized opening by a lock 17.

The interior of the casing is divided by means of a partition 18 into a paper receiving compartment 19 and a compartment 21 for housing a coin-control device 22 arranged for cooperation with the mechanism for dispensing the papers. Access to the compartment 21 is afforded by opening the associated end wall 9 which is hingedly connected to the rear wall and held against release by means of a latch 23 on the inside of the compartment.

The papers are arranged to be supported in a vertical stack directly upon the bottom wall 12, and as will be clear from Figure 3, such wall is curved in vertical section from the front to the rear, in the form of an arc with the highest point adjacent the middle, so that the front and rear portions of the wall extend downwardly in opposite directions. The papers are positioned to rest upon the bottom wall with approximately equal or at least some portions disposed on opposite sides of the middle aforesaid, and in this way due to the form assumed by the papers, the latter will be firmly retained in position and prevented from becoming accidentally dislodged.

The compartment 19 is made wide enough so that a space 24 may be left at each end of the compartment when the papers are stacked therein, and in order that the papers will be still more firmly held in position and at the same time be centrally disposed in the compartment and thereby leave the spaces aforesaid, vertical positioning members 26 are provided adjacent the juncture of the rear and end walls for engaging the side edges 27 of the papers.

The bottom 12 includes a portion 28 which lies

forwardly of the portion arranged to be covered by the stack of papers, and such forward portion and the adjacent part of said latter portion slope sharply downwardly to the lower edge of the paper delivery opening so as to guide and cause the paper to gravitate to the opening when in the course of the dispensing operation; as will be hereafter described the paper is moved forwardly. As will be clear, a vertical space **29** is left between the front wall **7** and the forward edge of the papers in the stack, and as a part of the dispensing mechanism, ejector means are provided for moving the uppermost paper forwardly so that it will fall into the space **29** and be guided therethrough into and out of the delivery opening. Such means as here shown comprises a pusher bar **31** arranged to be reciprocated fore and aft over the top of the stack and having a plurality of serrated portions each providing a catch or hook **32** designed to engage the rear edge of the uppermost paper in the stack. Preferably the extremities of the serrated portions are pointed so that in the event the papers are of extra thickness, the catch may slightly penetrate the paper and thus insure a firm grip between the bar and the paper engaged therewith. The bar **31** may be reciprocated by means of levers **33** mounted within the compartment on a rock shaft **34** extending from end to end of the compartment. The levers **33** are located near the end walls of the compartment so as to lie within the spaces **24**, and are connected to the ends of a fixed rod **37** on the bar **31** by means of links **36**. The bar **31** is normally held in a rearward or retracted position by reason of a spring **38** which is connected to a frame member **39** of the casing and to an arm **39** fixed to the shaft **34** and extending oppositely of the levers.

The papers in the casing, as will be clear from Figure 4, are arranged to be stacked against the rear wall **8**, and in order that the catch **32** may readily engage the rear edge of the paper, the wall **8** is provided with an offset portion **40** opposite to and for the length of the bar, so that the catch may move back of and drop down to engage the rear edge of the paper.

As will be clear, in the operation of the ejector means, the bar **31** will invariably engage the paper uppermost in the stack. This is illustrated in Figure 3, which shows the bar engaging the uppermost paper at different heights of the stack. When the bar is in the retracted position with the catch at the rear of the top paper, appropriate rocking of the levers forwardly will advance the bar and slide said paper to a position, as indicated in broken lines in Figure 3, over the portions of the bottom wall sloping downwardly to the delivery opening. As the paper is moved to such position, it will readily gravitate to and through such opening. The pressure exerted by the bar on the paper, or the inclination of the bottom wall may be so adjusted or designed, that the paper will be caused to either move entirely through the opening or come to a stop with only a portion of the paper extended therethrough, as indicated in the drawings. The forward movement of the levers may be limited by a stop **41**. After the paper is thus ejected, the bar is allowed to return under the urge of the spring **38**, to the retraction position, at which time the catch will drop down to the rear of the paper now at the top of the stack. The mechanism may then again be operated to eject a paper.

It is important to note that since the bar **31** is loosely held by the levers, that is it may move freely vertically, it will readily conform to any distortion or unevenness in the papers without interference with its proper functioning and operation.

The shaft **34** is arranged to be operated by a crank arm **42** fixed on a shaft **43** mounted in the end wall adjacent the compartment **21**. As will be remembered, the end wall aforesaid may be opened by an authorized person, to afford access to such compartment, and in order that the shafts may be operatively connected, clutch members **45** are provided on the shafts.

Rotation of the shaft **34** to operate the ejector means is controlled by a coin-control mechanism **44**, which may be of any suitable design and construction. In the drawings an arrangement is shown substantially the same as in my Patent No. 2,255,538, issued September 9, 1941, and reference may be had thereto for an explanation of such mechanism and other means disclosed in this application similar to that in said patent. Included as a part of the coin-control mechanism, is an operating member **46** which normally locks the shaft **43**, but is arranged to release same for rotation upon insertion of a proper coin in the coin-slot **47**. Means are also here shown for preventing the insertion of a coin in the slot when the machine is empty, such means including a slidable plate **48** mounted at the rear of the slot and having open and solid portions **51** and **52**, one or the other of which is presented to the slot in accordance with the position of the plate. The plate is moved to one position or another by a plunger **53** which is connected to the plate through levers **54** and **56** fixed to a shaft **57**. The plunger is mounted so that it may be moved into the paper compartment through an opening **58** in the bottom wall **12**. As long as one or more papers cover such opening the plunger is prevented thereby from moving upwardly and is held against the resistance of a spring **59** in a depressed position wherein the open portion **51** of the plate registers with the slot. When, however, no more papers are left in the machine, the plunger will rise and thereby cause the solid portion of the plate to be presented at the slot.

I claim:

1. A vending machine for newspapers and the like, comprising a casing having a paper delivery opening in a wall thereof and a bottom member having a portion above said opening arranged to receive thereon a stack of papers one upon the other in side by side relation and a portion sloping downwardly from said first portion to said opening, a plate ejector resting flatwise upon the uppermost paper of the stack and having a rear downward extension to engage the rear edge of the topmost paper and means to move said plate forwardly over the stack and to said sloping portion.

2. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, means for supporting the papers one upon the other with the forward and rear edges below the middle thereof and with the forward edge in spaced relation to the front wall of the casing to thereby define a paper passage leading to said opening, means at the bottom of said passage for guiding the paper from said passage to said opening, and ejector means for the papers including a member resting on the uppermost paper of the stack and having a rear down-

ward extension to engage the rear edge of the topmost paper, and a device for moving said member to advance the paper to said passage.

3. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, means for supporting the papers one upon the other with the forward and rear edges below the middle thereof and with the forward edge in spaced relation to the front wall of the casing to thereby define a paper passage leading to said opening, means at the bottom of said passage for guiding the paper from said passage to said opening, and ejector means for the papers including a vertically movable pusher member resting flatwise on the uppermost paper of the stack and having a rear downward extension to engage the rear edge of the topmost paper, and a device controlled from the exterior of the casing for reciprocating said member to advance the paper to said passage and to return for operative engagement with the succeeding uppermost paper.

4. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, means for supporting the papers one upon the other with the forward and rear edges below the middle thereof and with the forward edge in spaced relation to the front wall of the casing to thereby define a paper passage leading to said opening, means at the bottom of said passage for guiding the paper from said passage to said opening, and ejector means for the papers including a manually controlled member mounted for movement to and from the front wall of the casing, a pusher member connected to said first member for movement about a horizontal axis and arranged to rest upon the uppermost paper, said second member having a catch thereon for engagement with the rear edge of the paper, and means in the rear portion of the casing for centering and holding the papers against rearward and endwise displacement.

5. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, a bottom for said casing having its upper surface convex in vertical section from front to the rear of the casing and with the forward portion extending further downwardly than the rear portion and to said delivery opening, the relation of the papers and the distance between the front and rear walls of the casing being such that the papers may be stacked one upon the other upon said bottom with a space between the forward edge of the papers and the front wall, and the relation between the rear wall of the casing and the top portion of the bottom being such that when the papers are stacked upon the bottom with the rear edge against the rear wall the greater part of each paper will lie forwardly of said top portion and the forward edge of the paper will be lower than the rear edge, and a pusher member formed and positioned to engage the rear edge of the uppermost paper and mounted for reciprocative movement between the front and rear of the casing and to remain in engagement with the paper during such movement.

6. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, a bottom for said casing having its upper surface convex in vertical section from the front to the rear of the casing and with the forward portion extending further downwardly than the rear portion and to said delivery opening, the relation of the papers and the distance between the front and rear walls of the casing being such that the papers may be stacked one upon the other upon said bottom with a space between the forward edge of the papers and the front wall, and the relation between the rear wall of the casing and the top portion of the bottom being such that when the papers are stacked upon the bottom with the rear edge against the rear wall the greater part of each paper will lie forwardly of said top portion and the forward edge of the paper will be lower than the rear edge, a pusher member formed and positioned to engage the rear edge of the uppermost paper and mounted for reciprocative movement between the front and rear of the casing and to remain in engagement with the paper during such movement, said rear wall having an offset portion to accommodate the paper edge engaging part of said pusher member, and means at the ends of the casing for positioning the papers and holding same against displacement.

7. A vending machine for newspapers and the like, comprising a casing having a horizontally extending paper delivery opening adjacent its lower forward edge, a bottom for said casing having its upper surface convex in vertical section from front to the rear of the casing and with the forward portion extending further downwardly than the rear portion and to said delivery opening, the relation of the papers and the distance between the front and rear walls of the casing being such that the papers may be stacked one upon the other upon said bottom with a space between the forward edge of the papers and the front wall, and the relation between the rear wall of the casing and the top portion of the bottom being such that when the papers are stacked upon the bottom with the rear edge against the rear wall the greater part of each paper will lie forwardly of said top portion and the forward edge of the paper will be lower than the rear edge, a pusher bar arranged for positioning upon the uppermost paper and having a catch for engaging the rear edge of the paper, and means to reciprocate said pusher bar including levers at the ends of the casing, and links connecting said levers and bar.

DANIEL D. CAMERON.