O. J. HOTALING.

VENDING MACHINE.

APPLICATION FILED NOV. 13, 1913.

1,135,802.

Patented Apr. 13, 1915.

4 SHEETS—SHEET 1.

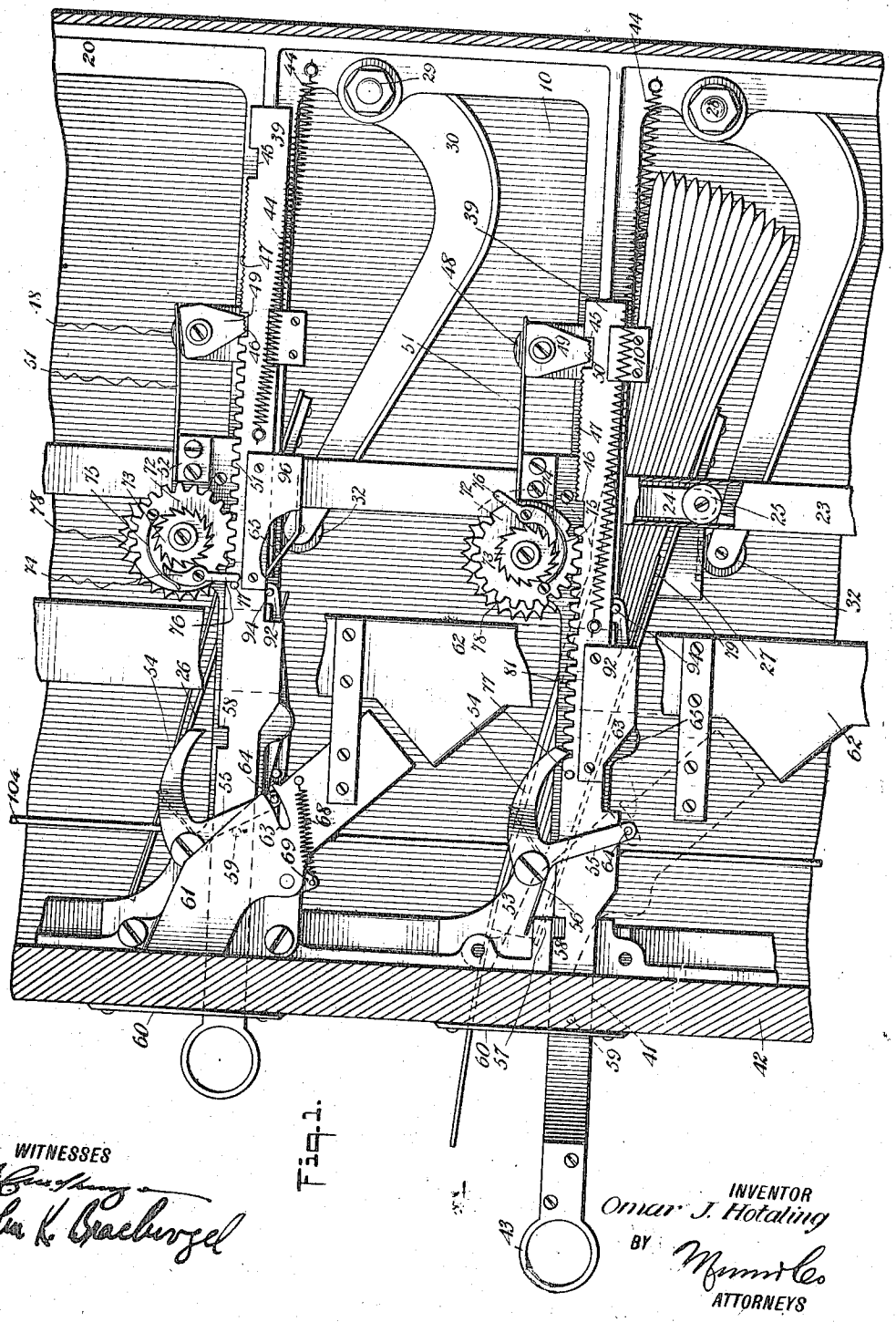


Fig. 1.

WITNESSES

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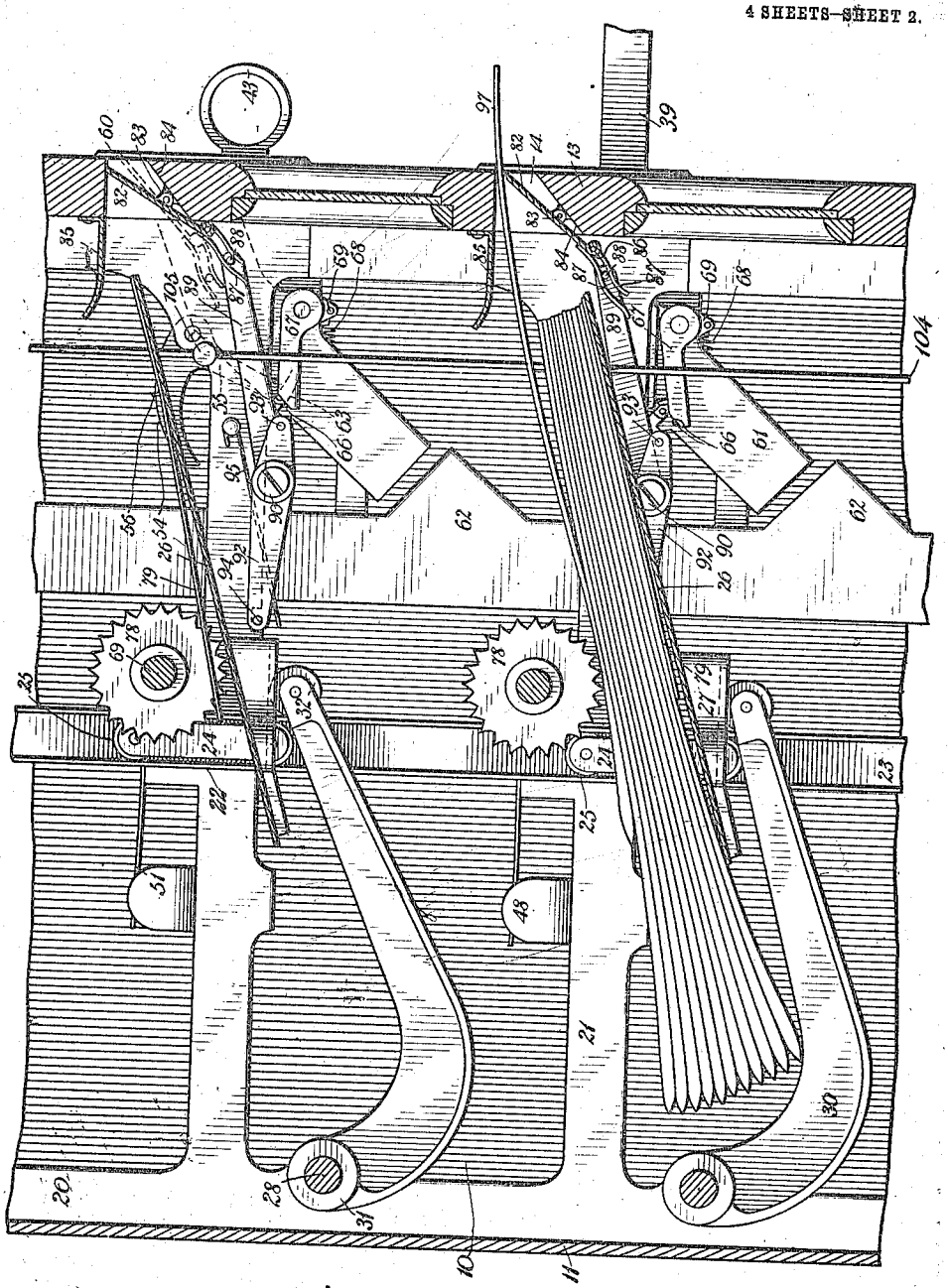


Fig. 2.

WITNESSES

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4 SHEETS—SHEET 3.

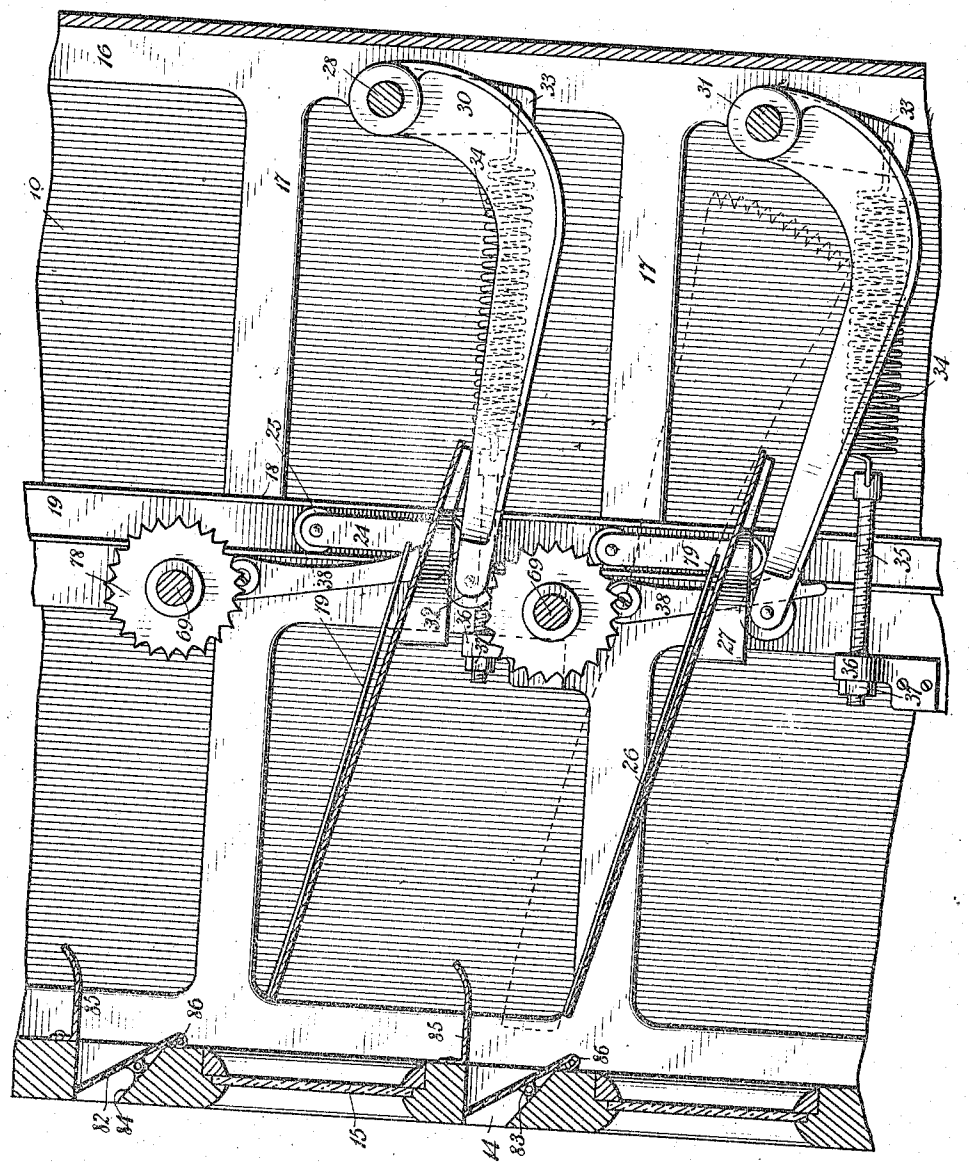


Fig. 2.

WITNESSES

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4 SHEETS—SHEET 4.

Fig. 4.

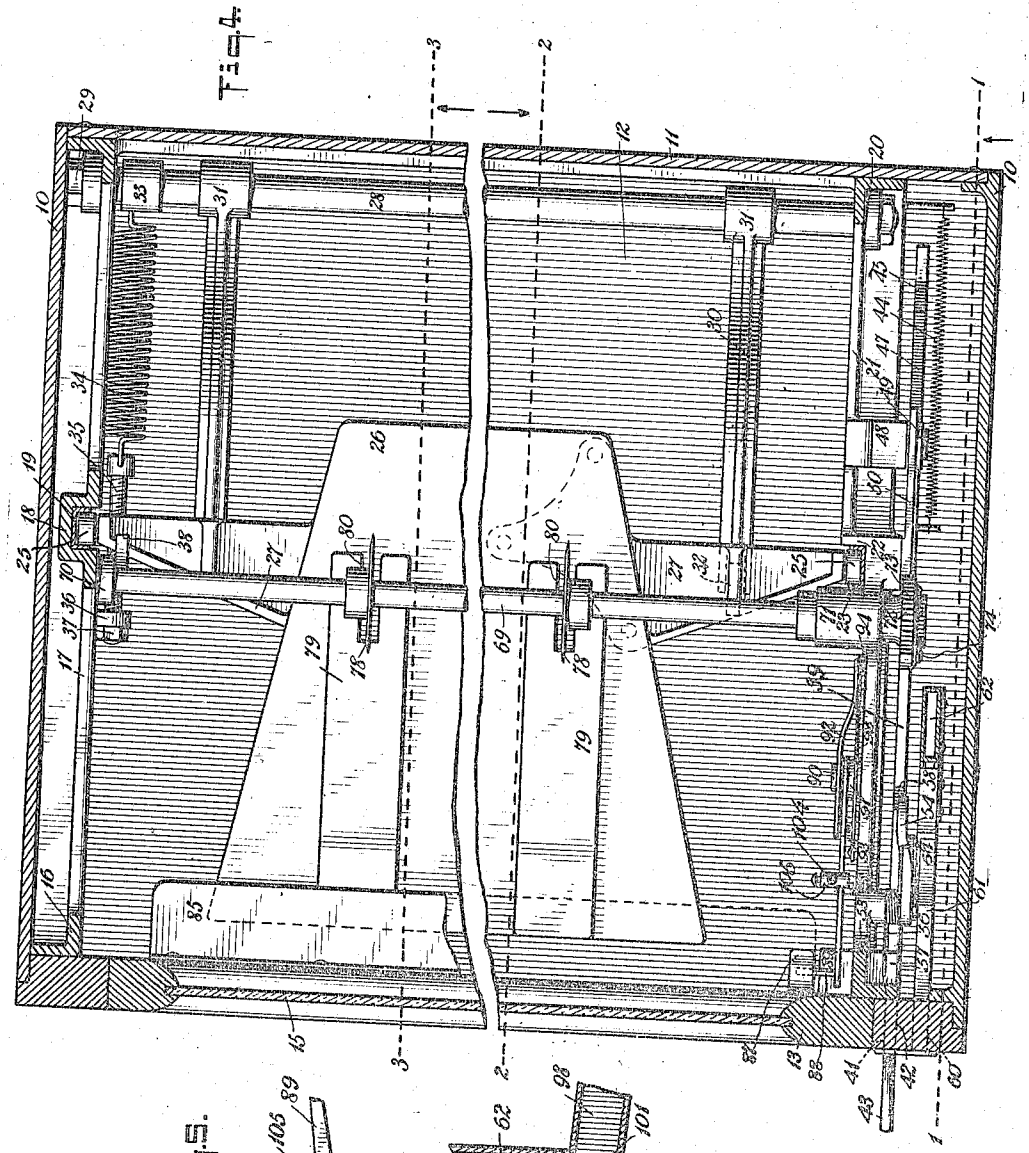
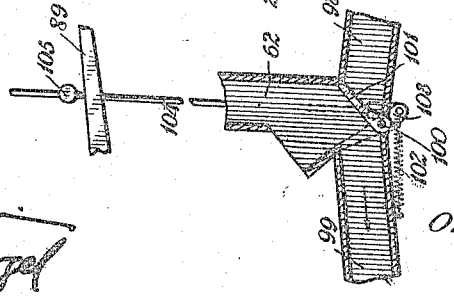


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

OMAR J. HOTALING, OF RUTHERFORD, NEW JERSEY.

VENDING-MACHINE.

1,135,802. Specification of Letters Patent. Patented Apr. 13, 1915.

Application filed November 13, 1913. Serial No. 800,762.

To all whom it may concern:

Be it known that I, OMAR J. HOTALING, a citizen of the United States, and a resident of Rutherford, in the county of Bergen and State of New Jersey, have invented a new and Improved Vending-Machine, of which the following is a full, clear, and exact description.

This invention relates to machines for vending or dispensing newspapers, periodicals, sheet materials and similar articles, and has reference more particularly to a machine of this class in which is provided a movable article-support so arranged that the displacement of the articles from the support is gravitationally resisted, whereby the topmost article of the number on the support can readily be dispensed by sliding it from the next one thereunder, without tending to displace the last-mentioned article.

The invention further relates to a machine of the class in question, which comprises a movable article-support normally inclined to the horizontal, in combination with relatively stationary mechanism for displacing the articles from the support, and advancing them through the outlet of the machine.

My invention further relates to a machine for vending and dispensing newspapers and the like, which comprises a casing having an outlet, a normally inclined, movable article-support in the casing, means for moving the support as the articles are dispensed therefrom, relatively stationary article-dispensing mechanism toward which the support is gradually moved, a normally operative closure for the outlet, and means controlled by the dispensing means, for temporarily displacing the closure.

My invention also relates to the provision of an article-support in a vending machine of the class described, which has means for resiliently supporting the articles upon the support proper.

In addition, the invention includes certain novel details of construction which will appear hereinafter.

The object of the invention is to provide a simple, inexpensive and efficient machine for vending or dispensing newspapers, sheet materials or other articles of substantially flat form which are usually arranged in piles or stacks and are dispensed by slidably removing from the pile or stack the topmost one of the articles, which may be coin or check-controlled or not, as desired, which is so constructed that the possibility of dispensing the articles therefrom otherwise than one at a time is practically eliminated, which, while positive and rapid in operation will not tend to injure the articles being dispensed, which is extremely difficult of unauthorized operation, and which cannot easily be injured or put out of order.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts, and in which—

Figure 1 is a vertical section on the line 1—1 of Fig. 4 of an embodiment of my invention and comprising several superposed, independently operable units; Fig. 2 is a similar view on the line 2—2 of Fig. 4; Fig. 3 is another vertical section, on the line 3—3 of Fig. 4; Fig. 4 is a horizontal section on the line 4—4 of Fig. 1; and Fig. 5 is a fragmentary, vertical section showing a detail of construction.

Before proceeding to a more detailed explanation of my invention it should be clearly understood that while the machine is intended primarily for the vending of newspapers and periodicals, it can also be used for other purposes, and for the dispensing or sale of articles of different kinds. I have found that in machines of the class under discussion one of the greatest difficulties encountered is that from time to time more than one article will be dispensed. In the sale of merchandise such as newspapers, where the margin of profit is extremely small, this fact constitutes an almost fatal defect, and to be successful, a machine of this kind must be so constructed that the possibility stated must be practically eliminated. In other words, the machine must operate with absolute certainty in that regard. A great many expedients have been proposed to prevent such accidental dispensing of more than one article at a time, such as special feed regulators, the arrangement of the articles in separate compartments, and many others. None of these however, in my opinion, offers a satisfactory solution of the problem. I have found however, that by providing a normally inclined support for the articles, that is, a support slanting

upwardly toward the outlet of the machine, the difficulty can be substantially done away. For in a stack of articles upon such a support, the gravitational resistance to displacement toward the outlet is greater than the frictional cohesion between the adjacent articles, providing the support has been given the proper inclination. Consequently, the topmost article can be easily slid from the stack, to and through the outlet, with practically no possibility of carrying with it the article directly under it, to say nothing of those below the latter.

I am aware that it is not new in the art, to provide in a vending machine an inclined support for the articles to be dispensed, but such arrangement of the support has hitherto been an accidental one, and, as far as I know, such inclined supports have always been stationary. The dispensing mechanism itself, to operate successfully, must, in general, be stationary relative to the article-support, which should gradually move toward the dispensing mechanism as the articles are displaced from it.

My invention therefore, resides primarily, in the provision of effectively stationary dispensing mechanism and a normally inclined article-support, which gradually advances toward the stationary dispensing mechanism as the articles are advanced from the machine one at a time. I have found that this construction permits an absolutely positive operation, and requires no feed regulators or other guards against the dispensing of more than one article at a time.

Referring more particularly to the drawings, the preferred embodiment of the vending machine, illustrated herewith, has a suitable metallic or other casing consisting of side walls 10, a back 11, a bottom 12, and a top (not shown). The casing has a hinged front 13, provided with a plurality of transverse, elongated outlets 14, one for each of the units comprising the machine. It will be understood that each machine may consist of one or more units to handle correspondingly, one or more than one different newspapers or the like. For purposes of simplicity I shall hereafter describe but one of these units. The front of the casing may, furthermore, be provided with a series of windows 15 of glass or other suitable transparent material, to enable the interior of the machine to be viewed, so that the purchaser can see the contents of the casing. Within the latter, at one side, is an open framework 16 having a plurality of crossbars 17, each provided with substantially central offsets 18. In these offsets is mounted a vertical, channel-shaped member 19 constituting a guide or bracket, as will appear hereinafter. A similar framework 20, is located at the opposite side of the casing, near the opposite wall thereof, and like the framework 16 is vertically disposed and securely mounted in position. It has crossbars 21, each provided with a central offset or depression 22. In these is mounted a vertical, channel-shaped track or guide 23 corresponding to the member 19 and disposed oppositely to the same.

I provide runners 24 movably arranged within the channel-shaped tracks 19 and 20, and having at the ends, rollers 25 to reduce the friction and permit the runners to slide freely upwardly and downwardly within the tracks. The article-support proper, 26, consists of a metallic or other plate or table, of suitable size and form. As shown for example, herewith, it is of trapezoidal shape and is substantially smaller than the cross section of the casing. It is carried by two laterally extending arms 27, each firmly screwed or otherwise secured to the table and having the outer end rigidly fastened to one of the runners 24, so that the table may move freely upwardly and downwardly. Rotatably journaled in registering bearing openings of corresponding crossbars 17 and 21 is a shaft 28 located near the back of the casing and secured against longitudinal movement by retaining nuts 29 at the extremities. Levers 30 are rigidly secured by means of collars 31 or otherwise, upon the shaft 28, and extend toward the front of the casing. They have the fre , extremities bifurcated and provided with bearing rollers 32 which engage under the arms 27 as is clearly shown in Figs. 1 and 4.

The shaft 28 has near one end a downwardly extending arm 33, to which is secured the extremity of a helical spring 34. The other end of the spring is attached to the extremity of a threaded adjusting rod 35, which passes through a suitable opening of a bracket 36 secured to the frame 16. An adjusting nut 37 is mounted upon the rod 35, so that the tension of the spring can be regulated as desired. It will be understood that the spring tends to pull the arm 33 forwardly to rock the shaft 28, thereby swinging the levers upwardly and tending to raise the article-support 26. Pivotally mounted upon the frame 16 is a latch 38 adapted to engage the adjacent arm 27 to secure the support in a depressed position against the tension of the spring 34 when it is desired to load the vending machine, as will be pointed out more particularly hereinafter.

A slide 39 is arranged in juxtaposition to one of the crossbars of the frame 20 and is guidingly mounted to move in the direction of its length in a bracket 40 carried by the frame 20 and in an opening 41 in a stationary part 42 of the casing front. The slide has at the forward projecting end a ring or other suitable grip 43 by means of which it can be easily manipulated. A helical

spring 44 has the extremities secured respectively to the slide and to the frame 20 and tends to hold the slide in a normal, retracted position. Near the rear end the slide is provided with spaced recesses 45 and 46 between which it has a plurality of ratchet teeth 47. Mounted upon an upward extension 48 of the cross bar of the frame 20 is a pivoted dog 49 having the lower end provided with teeth 50; it is held in a substantially vertical position by the leaf spring 51 fastened upon a lateral extension 52 of the cross bar. The arrangement is such that when the lower end of the dog is received in either of the openings 45 or 46 it is in a normal, vertical position, from which it is displaced when the slide is moved in the direction of its length, so that the dog is inclined to one side or the other as the ratchet teeth 47 pass under it. The arrangement is such that when the slide is moved in a forward direction, a return movement is impossible until the dog has passed from engagement with the ratchet teeth 47 and has entered the recess 45. Similarly, when the slide is moving in a rearward direction, this movement must be completed and the dog enter the recess 46 before the slide can again be advanced in a forward direction. The purpose of this mechanism is to insure a complete forward and backward movement of the actuating member at each operation of the machine.

The frame 20 has at the front, a part 53 upon which is pivotally mounted a bell-shaped lever having a curved arm 54 and a substantially straight arm 55. This lever constitutes a stop and is held in a normal position by a spring 56, the ends of which engage the arm 54 and a projection 57 of the frame. The spring tends normally to rock the lever, to cause the end of the arm 54 to enter a recess 58 of the operating slide to lock the same against forward movement. When the slide is in its normal, retracted position, a stud 59 thereon engages the arm 55 of the lever and holds the same in an inoperative position, as is shown in the upper part of Fig. 1. As soon as the forward movement of the slide begins however, the stop lever is rocked under the tension of its spring, so that the end of the arm 54 engages in the recess 58 and further movement of the slide is prevented.

Each unit of the machine is provided with a suitable coin inlet 60, through which the coin or check can be introduced to release the mechanism. The coin chute 61 is connected with the inlet 60 which is located in the fixed part 42 of the casing front. The coin chute extends inwardly and downwardly to a coin receiver 62 into which the coin, after it has been released, passes, as will be described hereinafter. The coin chute has extending inwardly from the upper edge, an arcuate slot 63 in which is located a stud 64 carried by the arm 55 of the lever. The slot 63 permits the rocking movement of the stop by reason of which the end of the arm 54 can enter the recess 58. When a coin has been introduced into the chute however, it assumes a position in the same in engagement with the stud 64 and thus prevents the rocking movement of the lever when the operating slide is drawn forward from the casing, whereby the operation of the machine is then possible. When the slide approaches its extreme outward position (see Figs. 1 and 2), a spring cam 65, which also serves another purpose to be explained hereinafter, engages the beveled end 66 of a finger 67 pivotally mounted upon the coin chute and constituting a release, which permits the coin to pass beyond the stud 64, escape from the chute 61, and enter the coin receiver 62. The finger 67 is held in a normal position by means of a spring 68 attached to a lug thereof, and to the coin chute. The details of construction of the coin release, as well as others of the parts of the coin controlled mechanism, are not shown or described in full herein, as they form no part of the present invention and may be of any preferred construction.

Extending transversely across the casing is a shaft 69 journaled in bearings 70 and 71 formed integral with, or rigidly secured upon the frames 16 and 20. The shaft extends at one end beyond the bearing 71 and has loosely mounted thereon a gear 72. A ratchet 73 is rigidly secured upon the end of the shaft, beyond the gear. A pawl 74 is pivotally mounted upon the gear, which likewise is provided with a spring 75 engaging the pawl and tending normally to force the same into operative relation with the ratchet. The pawl has an extension or finger 76 which is engaged by a stud 77 of the slide 39 when the slide is in a normal, retracted position. When so arranged, the stud serves to hold the pawl disengaged from the ratchet 73. Rigidly secured upon the operating shaft, intermediate the ends thereof, are two or more toothed disks 78 adapted to engage the topmost of the articles upon the support, and, when the shaft is rotated, to advance the same toward the outlet. The article support is provided with a pair of spring strips 79 preferably secured at their front ends near the forward edge of the supporting table 26, and having at their rear extremities slots 80 which receive the peripheries of the disks 78. The spring strips are so constructed and secured to the support 26 that they tend to spring upwardly at their rear ends, above the supports, and thus resiliently carry an article upon the support. The purpose of these strips is to insure an efficient contact between the advancing disks 78 and the articles, when practically all of

them have been dispensed, and when but one or two are left upon the table. By resiliently supporting the last article slightly above the surface of the table the teeth of the disks can easily penetrate and engage the article to advance it from the casing.

In the operation of the machine, as soon as the operating slide begins to move in a forward direction, the pawl 74 is released and engages the ratchet 73, so that the rotary motion of the gear 72 transmitted to it by a rack section 81 of the slide is in turn transmitted to the ratchet 73, so that the shaft 69 is rotated and the disks 78 slide the topmost article toward the outlet opening at the front of the casing. The parts are so arranged that when the forward movement of the slide is completed the article has been advanced an appreciable distance through the opening 14, as shown in Fig. 2, and can be grasped by the purchaser and drawn all the way out without difficulty.

In drawing the paper all the way from the casing the disks 78 of course continue to revolve, but this further movement does not affect the shaft 69, owing to the loose mounting of the gear upon the shaft, and the pawl arrangement which permits the ratchet to rotate freely in one direction. Similarly, the return movement of the operating slide to its initial position does not affect the shaft in any way, owing to the provision of the pawl and ratchet and loose gear.

In order to charge the machine the hinged front 13 of the casing is opened and the article-support is manually lowered against the tension of the spring 34 until the latch 38 can be engaged with one of the arms 27 to hold the table in depressed position. The desired number of newspapers or other articles is then placed in a stack or pile upon the article support, with the front of the stack substantially flush with the forward edge of the support. The latter is then released by displacing the latch and the table then rises until the topmost article engages the toothed dispensing disk 78. It will be understood that as the articles are dispensed from the machine one by one, the table continues automatically to rise so that the relatively stationary dispensing mechanism is always in operative relation to the articles upon the support.

In order to protect the machine against tampering, or unauthorized removal of articles therefrom, I provide at the opening 14 a hinged closure or shutter 82 extending transversely of the opening within the same, and movably mounted by means of hinges 83, upon the lower inclined edge 84 of the opening. Above the latter I provide an inwardly extending deflector 85 consisting of a plate secured within the front of the casing, at the upper edge of the opening, and extending longitudinally thereof. The deflector has the inner edge upwardly curved and serves to direct the articles to be dispensed, to the opening 14, should such action be necessary. The inner edge 86 of the shutter is preferably beaded. It has at one end rigidly secured thereto a pair of spaced fingers 87 between which is received a stud or projection 88, at the end of a pivoted lever arm 89 movably mounted by means of a pivot screw 90 upon a boss 91 of the frame 20. A lever 92 is similarly mounted to rock upon the boss 91, and has at the respective ends, studs 93 and 94. The former engages the lever arm 89 at the lower edge thereof, so that if the opposite end of the lever 92 is depressed, the lever arm 89 will be swung upwardly and will thus correspondingly rock the shutter into an inoperative position, leaving the opening 14 clear. A strip spring 95 secured to the frame 20, extends rearwardly, diagonally, across the length of the lever 92 and is so arranged that if the rear end of the lever is depressed the stud 94 will engage the spring, which will then resist the rocking of the lever.

The spring cam 65 is secured to the slide 39, by means of a plate 96 screwed or otherwise fastened in position. The forward, upwardly inclined portion of the spring cam is free and can be displaced against its own tension. As the slide 37 moves forward in the operation of the machine, the spring cam engages the stud 94 at the inner end of the lever 90 and depresses the same so that the shutter will be displaced from the opening, as has already been described, so that the newspaper 97 or other article being dispensed can pass freely through the opening. As the movement of the slide continues, the stud 94 will ride along the spring cam 65 and pass beyond the rear end thereof, whereupon the spring 95 will return the lever to its normal position. This would permit the shutter again to obstruct the opening 14, were it not for the fact that the newspaper now projects through the opening, and prevents the closure from returning to its initial position until the purchaser has drawn the article entirely from the machine. The shutter thus again securely obstructs the opening. (See Fig. 5.)

The coin receiver 62 at the lower end terminates in two branches 98 and 99 respectively. The first of these is designed to direct the coin to the proper coin receptacle (not shown), of the casing. The passage 99 serves to return the coin to the purchaser, in the event that all of the newspapers or other articles within the casing have been dispensed. Pivotally mounted at the junction of the passages 98 and 99, by means of a pivot pin or spindle 100, is a vane 101. It is held in a normal position extending across the entrance to the passage 98 and obstructing the same, by means of a spring

102 having its ends secured respectively to the under side of the passage 99 and to an arm 103 rigid with the spindle 100. To control the vane 101 I provide a rod 104 arranged vertically within the casing, adjacent to the lever arm 89, and having rigidly secured thereto a lug 105 adapted to be engaged by the lever as the same is operated by the lever 92. Accordingly, if the lever arm is raised, the rod 104 is correspondingly actuated to swing the vane 101 against the tension of the spring 102, into the position indicated in dotted outline in Fig. 5, that is, into a position obstructing the passage 99, so that the coin or check can pass from the coin receiver, to the receptacle within the casing. The arrangement of the parts is such that if a coin is introduced into the machine after all the articles have been dispensed therefrom, the vane 101 will return to its initial or normal position, before the coin has been released by the finger 67, and the vane will thus serve to direct the coin into the passage 99, through which it can pass to a return opening (not shown), in the front of the casing, whence the intending purchaser can recover it. This operation is due to the fact that the lever arm. 89 is maintained in a raised position by the newspaper or other article 99 passing through the opening 14, and if a coin has been introduced into the machine when no article remains therein, the shutter 82 returns to a closed position, and with it the lever arm 89, to its normal position, as soon as the spring cam 65 has passed beyond the stud 94. That is, before the finger 67 has released the coin in the coin chute. Accordingly, the coin, as soon as it has been released, will pass into the coin receiver and into the coin return passage 99, after the vane 101 has returned to its initial or normal position, as is shown in Fig. 5.

It will be understood that in my vending machine the casing thereof is provided with an outlet opening having a definite position, notwithstanding that the normally inclined article-support is movable, and consequently the dispensing mechanism must have relatively fixed relation to the outlet and likewise to the topmost article of the stack upon the support, which is to be advanced through the outlet. The support automatically adjusts itself as the articles are advanced one by one through the outlet, by the dispensing mechanism.

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

1. A vending machine having a delivery opening, an article-support, a dispensing mechanism engaging the articles on the support, means to move said support toward said dispensing mechanism, a member adapted to reciprocate, engaging said dispensing mechanism, means normally locking said member, means associated with said reciprocating member, whereby the same cannot be retracted until it moves a predetermined distance, and means for restoring said reciprocating member to its normal position.

2. A vending machine having a delivery opening, an article-support, a dispensing mechanism engaging the uppermost article on said support, means automatically moving said support toward said article-dispensing mechanism, and means for operating said dispensing mechanism, comprising a slide, means normally locking the movement of said slide, a connection operable only in one direction from said slide to said dispensing mechanism, means for rendering said connection operative or inoperative, means preventing the reversal of the movement of said slide before the same has reached a predetermined position, and resilient means for restoring said slide to its normal position.

3. A vending machine having a delivery opening, a member normally closing said opening, an article-support, a rotatably mounted dispensing mechanism adapted to engage the uppermost article on said support, means tending to move said support toward said dispensing mechanism, a slide mounted to reciprocate, a mechanism normally locking the movement of said slide, means associated with said slide, whereby the same cannot be retracted until said slide moves through a predetermined distance, means transmitting the movement of said slide to said dispensing mechanism, means associated with said transmitting means, whereby the said dispensing mechanism is rotated only in a predetermined direction, and means connecting said slide to said member closing the opening, whereby when said slide is operated to operate said dispensing mechanism, said member is displaced to permit the delivery of an article through said opening.

4. A vending machine having a delivery opening, a member pivotally mounted in said opening and normally closing the same, an article-support, a rotatably mounted dispensing mechanism normally engaging the uppermost article on said support, means for moving said support toward said dispensing mechanism, a rack mounted to slide, means locking said slide in a predetermined position, a gear engaging said rack and said dispensing mechanism, means connecting said gear to said dispensing mechanism when the same is rotated in a predetermined direction by said rack, means for restoring said rack to its normal position, means controlling the movement of said rack, whereby said rack must reach predetermined positions before it can be re-

versed in its movement, and means connecting said pivotally mounted member in said delivery opening, with said rack, whereby said member is operated when said rack is moved, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OMAR J. HØTALING.

Witnesses:
BENEDICT JOFFE,
PHILIP D. ROLLHAUS.