July 18, 1933. W. B. BRUNTON 1,918,737

VENDING MACHINE

Filed Feb. 16, 1931 4 Sheets-Sheet 1

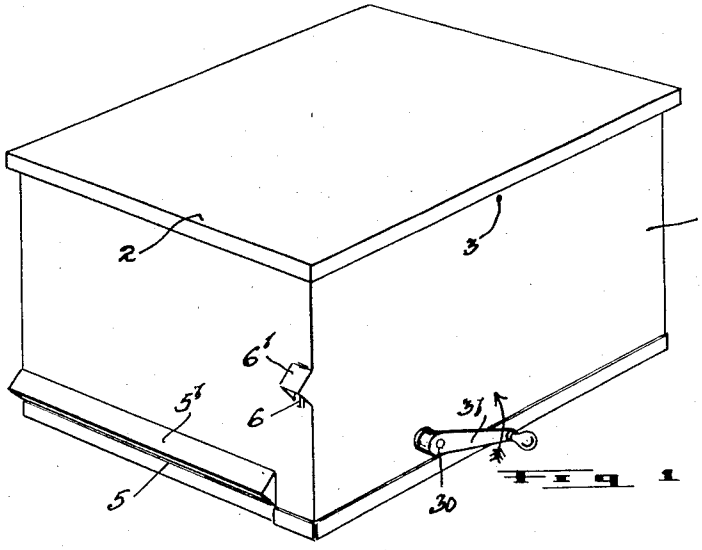


Fig 1

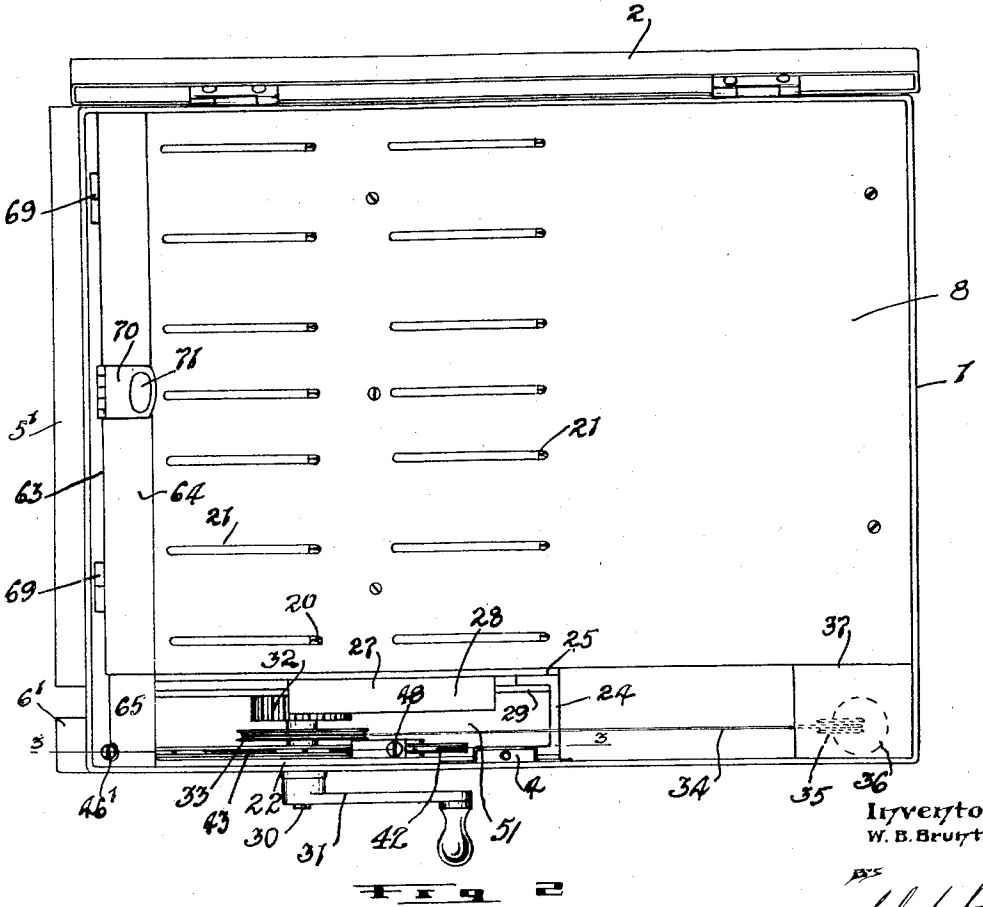


Fig 2

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VENDING MACHINE

Filed Feb. 16, 1931 4 Sheets-Sheet 2

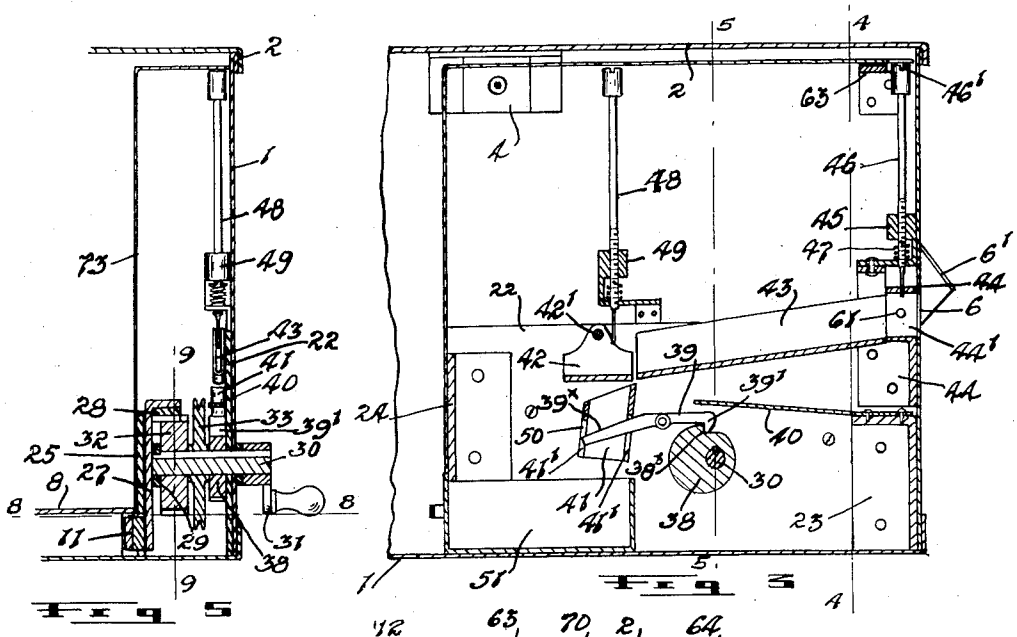


Fig 5

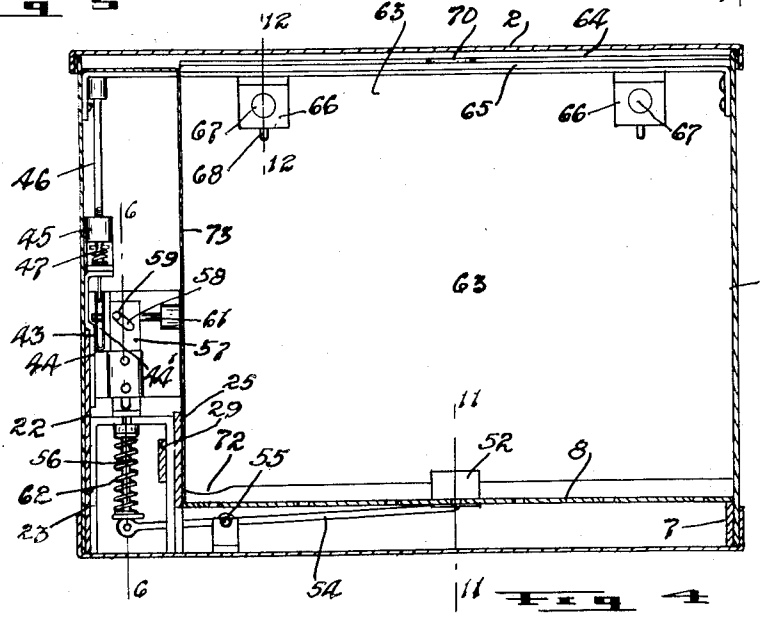


Fig 4

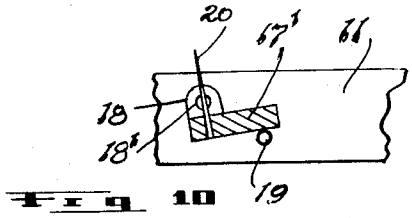


Fig 10

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VENDING MACHINE

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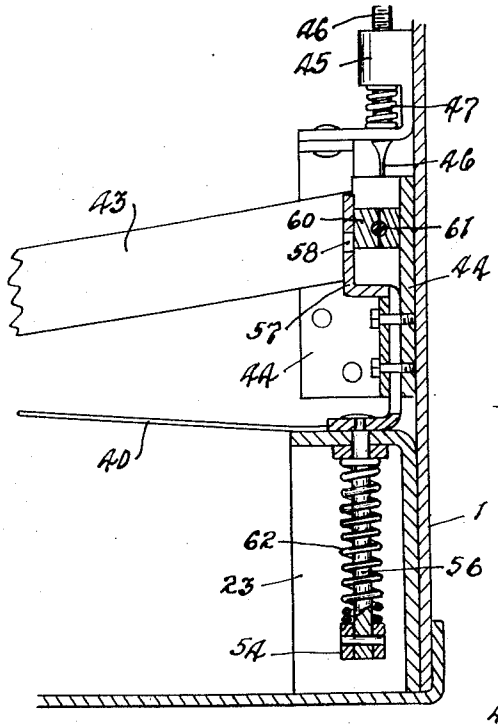


Fig 6

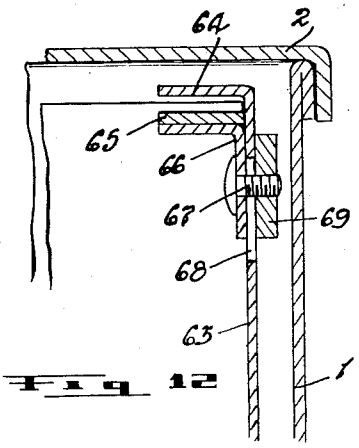


Fig 12

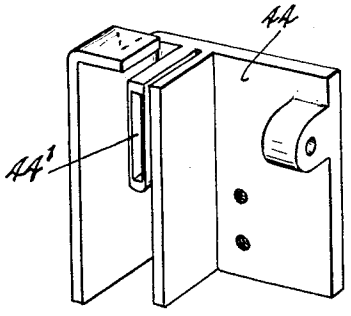


Fig 7

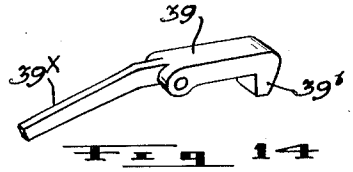


Fig 14

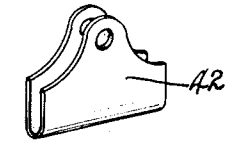


Fig 15

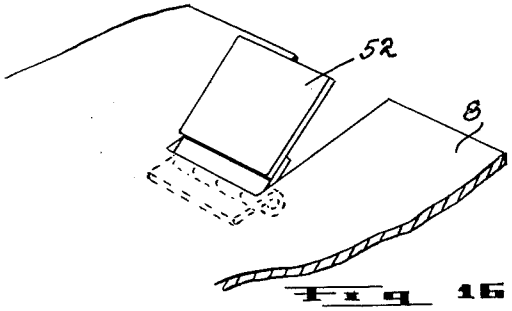


Fig 16

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VENDING MACHINE

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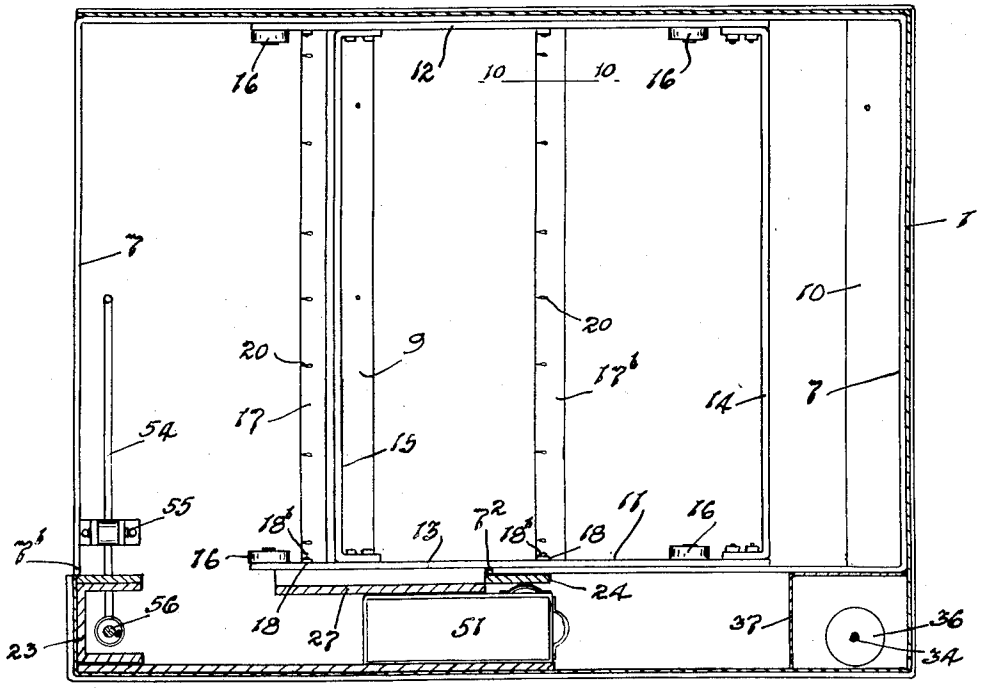


Fig 8

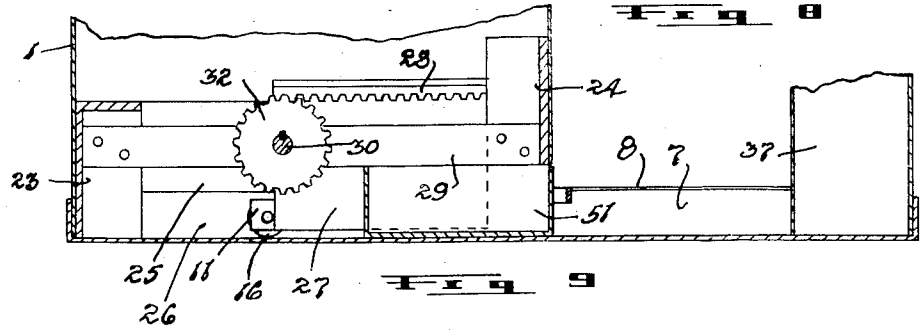


Fig 9

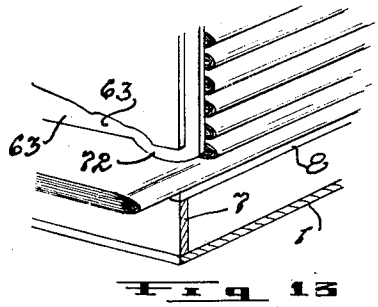


Fig 10

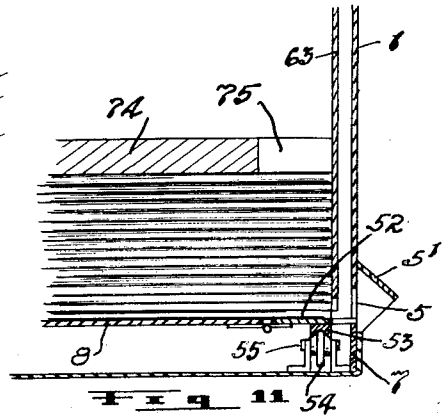


Fig 11

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Patented July 18, 1933

1,918,737

UNITED STATES PATENT OFFICE

WILLIAM B. BRUNTON, OF WINNIPEG, MANITOBA, CANADA

VENDING MACHINE

Application filed February 16, 1931. Serial No. 515,993.

The invention relates to improvements in vending machines and an object of the invention is to provide a machine particularly adapted for selling newspapers, magazines and the like in public places, the papers or magazines being locked in the machine and the machine being arranged so that the public by inserting a proper coin and manipulating an actuating lever, can obtain a magazine or paper.

A further object is to construct the machine so that it can be readily adjusted to accommodate magazines of different price and size, such embodying means which can be adjusted to limit the diameter of the coin inserted and means which can be adjusted in accordance with the thickness of the individual papers or magazines placed in the machine.

A still further object is to construct the various parts of the machine in a simple and durable manner and so that it can be relied upon to operate continuously and without requiring constant attention.

A further object is to construct the machine so that it cannot be operated should a coin of smaller diameter than that for which it is set be inserted therein and further to construct the machine so that when all papers have been exhausted therefrom, the coin admitting slot will be automatically closed to prevent the insertion of further coins.

With the above more important and other minor objects in view which will become more apparent as the description proceeds, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:—

Fig. 1 is a perspective view of the machine.

Fig. 2 is an enlarged detailed plan view with the cover open and certain internal parts removed.

Fig. 3 is a vertical sectional view at 3—3 Figure 2.

Fig. 4 is a vertical sectional view at 4—4 Figure 3 and looking to the right.

Fig. 5 is a vertical sectional view at 5—5 Figure 3.

Fig. 6 is an enlarged detailed vertical sectional view at 6—6 Figure 4.

Fig. 7 is a perspective view of the corner bracket.

Fig. 8 is a horizontal sectional view, the section being taken at 8—8 Figure 5.

Fig. 9 is a vertical sectional view at 9—9 Figure 5.

Fig. 10 is an enlarged detailed vertical sectional view at 10—10 Figure 8.

Fig. 11 is an enlarged detailed vertical sectional view at 11—11 Figure 4.

Fig. 12 is an enlarged detailed vertical sectional view at 12—12 Figure 4.

Fig. 13 is a perspective view showing the relation of the stack of folded papers in respect to the paper outlet slot and with the lowermost paper projected.

Fig. 14 is a perspective view of the latch.

Fig. 15 is a perspective view of the sling.

Fig. 16 is a perspective view of a portion of the false bottom.

In the drawings like characters of reference indicate corresponding parts in the several figures.

This machine is particularly designed for vending newspapers, magazines and the like in public places, the newspapers or magazines being placed in a vertical stack in the receiving casing which latter is locked and the machine is arranged so that the public by inserting a coin of fixed denomination and manipulating a lever provided, can obtain a paper, the paper being discharged through an outlet slot provided as the lever is actuated. Provision is also made so that should the machine be loaded with a stack of papers or magazines costing more or less than those previously contained therein, the coin slot can be regulated to the diameter of the coin required to pay for the paper or magazine.

The machine is now described in detail and is herein shown of a size designed for vending newspapers, it being understood that the newspapers are folded once as is usual and are placed in a vertical stack within the machine. The size of the casing and other parts could, of course, be readily modified to receive and vend magazines without in any way departing from the spirit of the inven-

tion as set forth in the claims appearing hereinafter.

A casing 1 is provided which is substantially rectangular and is provided with a hinged top 2 which can be suitably locked closed by the application of the conventional key in the key hole 3, the lock being indicated generally by the reference numeral 4. In the front end of the casing, a horizontally disposed outlet slot 5 is provided through which the paper or magazine as the case may be is discharged. A coin slot 6 is also provided in the front end of the casing and both of these slots are suitably protected by overhanging deflector plates 5′ and 6′.

A spacing strip 7 rests on the bottom of the casing, such strip starting at the point 7′ and terminating at the point 7^2 (see Figure 8) so that there is an open space reserved at the side between the ends 7′ and 7^2. This strip is utilized to support and space a false bottom or relatively stiff plate 8 which has the rear end thereof engaging the rear wall of the casing, the front end thereof riding the under side of the slot 5, the left hand edge thereof engaging the wall of the casing and the right hand edge thereof spaced from the right hand wall of the casing to admit parts later described. Supporting blocks 9 and 10 across the bottom of the casing and also support the plate and here I might mention that this plate carries the weight of the stack of papers placed thereon.

A carriage 11 operates on the bottom of the casing, this carriage comprising opposing side bars 12 and 13 connected by cross bars 14 and 15, the side bars being provided each with a pair of rollers 16 riding the bottom of the casing. This carriage is guided at its sides by the bar 7 and the block 9 is located so that it will engage with the bar 15 to limit the inner travel of the carriage. A pair of suitably spaced similar cross bars 17 and 17′ cross the carriage and have their ends provided with upstanding lugs 18 pivotally attached at 18′ to the sides of the carriage. The bars are held normally in a substantially horizontal position by stop pins 19 carried by the carriage and engageable with the under sides of the bars (see Figure 10). Each bar 17 and 17′ carries a plurality of suitably spaced upstanding piercing prongs or pins 20, the pins being located adjacent the forward edge of the bars.

By observing Figure 10, it will be seen that a clockwise rotation of the bars is prevented by the pins 19 and that should a pull to the left be exerted on the latter pins, the bars can swing freely in a counter clockwise direction to free the pins from the article such as a paper exerting pressure on the pins. The plate 8 is provided with a plurality of longitudinally extending slots 21 through which the pins protrude and when the carriage is manipulated, the pins move forwardly and backwardly within such slots.

I might here mention that the carriage is utilized to expel through the slot 5, the lowermost paper of a stack of papers resting on the plate, such paper moving with the carriage due to the fact that the pins are piercing the paper and cannot swing in a clockwise direction when the carriage is advanced towards the said slot and further that when the carriage returns, the pins are free to swing clear in a counter clockwise direction.

Adjacent the inner side of one of the side walls of the casing, I locate a vertically extending plate 22 suitably fastened to the casing and this plate is provided at its forward end with a box 23 and at its rear end with a horizontal lying, elevated, channel shaped bar 24 and the bar and the box carry an inner, vertically disposed plate 25 which has the lower edge thereof elevated from the bottom of the casing to reserve a horizontal lying slot as indicated at 26 Figure 9. A standard 27 is located to the outer side of the plate 25 and has the lower end thereof permanently secured in any suitable manner and through the slot with the adjacent side of the carriage and the said standard has the upper end thereof out turned and supporting a horizontal rack bar 28 which extends lengthwise of the casing. A horizontally disposed, supporting bar 29 is carried also at its ends by the box and the bar 24, this bar being spaced from the plate 25 to admit the upgoing intervening standard. An operating shaft 30 is provided, this shaft being rotatably carried in suitable bearings provided by the plate 22 and the bar 29 and having one end extending through the adjacent side wall of the casing and fitted with a hand crank or lever 31.

To the shaft, immediately to the outer side of the bar 29, I secure permanently a pinion 32 which is continuously in mesh with the rack bar, the arrangement being such that when the crank is turned, the rack bar is actuated to shift the carriage in one direction or the other endwise of the casing. To the shaft, I permanently secure also a pulley 33 and to the pulley I connect a flexible line 34 which passes over a guiding pulley 35 and is provided with a weight 36 located in a suitable weight box 37. The parts just described are utilized for returning the carriage to its inner position after the lever has been actuated to deliver the paper and subsequently released.

To deliver the paper through the front slot, the lever is swung forwardly in the direction indicated by the applied arrow in Figure 1 and as the lever swings ahead, the line winds on the pulley and lifts the weight so that upon the lever being subsequently released, the falling weight operates through the pinion and rack bar to bring the carriage back to its original position.

To the shaft I secure also a cam 38 presenting an abrupt shoulder 38′ and on the plate 22 I pivotally mount a latch 39 having one end provided with a hook 39′ adapted to engage the shoulder of the cam and the other end having the upper edge thereof forming an inclined runway indicated at 39× (see Figure 3). A spring 40 is secured to the box 23 and overlies the hooked end of the latch being normally clear of the same.

When the carriage is at its inner or normal position, the hook of the latch is engaged with the shoulder of the cam and accordingly the crank 31 cannot be turned in a counter clockwise direction until the hook is released. The hooked end of the latch is heavier than the other end (see Figure 14) so that the said hooked end normally gravitates toward the cam. The non-hooked end of the latch is mounted for vertical swinging movement within an approximately vertically disposed coin guide 41 permanently secured to the inner face of the plate 22, the sides of the guide being slotted as indicated at 41′ to receive the latch and the said latch actually closing the lower end of the guide. The upper end of the guide is cut away at an angle as best shown in Figure 3 and directly above it, I mount pivotally a relatively narrow, horizontally disposed, U-shaped sling 42, the sling being pivotally attached to the plate 22 by a supporting pin 42′.

A coin guiding trough 43 is also provided and this trough has the rear end thereof directly in advance of the front end of the sling and immediately adjacent the upper end of the coin guide. The forward end of the trough is secured in any suitable manner to an angle bracket 44 located in the front right hand corner of the casing, said bracket (see Figure 7) being provided with a coin slot 44′ which communicates with slot 6 and is adapted to direct the coin entered at the slot 6 into the front end of the trough. The trough 43 is inclined so that the entered coin will roll rearwardly under the action of gravity into the sling which operates in a manner shortly to be described to select whether the coin will be passed down through the coin guide or out clear of the coin guide, and here I might remark that if the coin is passed into the coin guide, it actuates the latch and if not, the latch remains inert.

The papers, magazines or similar commodities placed in this machine will have a fixed retail price and accordingly it is necessary to provide means for preventing the admission of a coin of too large a denomination and a means for preventing the delivering of a paper should a coin of smaller denomination than that representing the retail price of the paper, be inserted.

The bracket 44 carries a guide member 45 which is screw threaded to receive the screw threaded portion of a vertically extending shank 46 which has the upper end terminating in a head and cross slotted as indicated at 46′ to receive a screw driver and the lower end contracted and projecting into the upper part of the slot 44′. By utilizing a screw driver, one can adjust the vertical distance between the lower end of the shank and the bottom of the latter slot and this will accordingly determine the diameter of the largest coin which can be passed edge on through the slot.

In this locality the regular editions of newspapers sell for five cents and the adjustment of the shank will be made such that the well known large five cent piece can be passed through the slot. A spring 47 is associated with the shank to prevent it turning due to vibration.

I associate a similar adjustable shank 48 with the sling, this shank screw threading through a guiding member 49 carried by the side of the casing. The lower end of this shank is positioned in respect to the sling as best shown in Figure 3 and one by adjusting the shank can vary the distance between the lower end of the shank and the bottom of the sling. It will be observed that the lower end of the shank overlies the front end of the sling and that the sling normally lies under the action of gravity in the balanced horizontal position shown in said latter figure. The distance between the lower end of the shank and the bottom of the sling will be gauged so that it is slightly less than the distance between the lower end of the shank 46 and the bottom of the slot 44′.

In other words, where the five cent piece mentioned is used, the shank 46 is adjusted to let said five cent piece through the slot 44′ and the shank 48 is adjusted so that when the said coin rolls off the rear end of the trough and onto the forward end of the sling, it will be momentarily stopped by contact with the lower end of the shank 48 and this momentary stopping causes the right hand end of the sling to swing in a clockwise direction due to the weight of the imposed coin. This swinging of the sling positively stops the coin and discharges it into the upper end of the coin guide where it drops onto the inclined face 39× of the latch and causes the hook 39′ to clear the shoulder of the cam and the hooked end of the latch to engage the spring 40.

This spring is designed at such time to support the coin resting on the opposite end of the latch and at such time the exit slot from the coin guide and specifically indicated at 50 Figure 3, is of a length somewhat less than the diameter of the coin resting on the latch. The slot 50 at this time is that part of the slot 41′ appearing above the non-hooked end of the latch. In view of the above arrangement, it will be seen that if the proper diameter coin be inserted

through the slot 44′, it will release the latch from the cam but will not escape from the coin slot until the operator actuates the lever 31 in a proper direction and when he does, the cam is designed to lift the hooked end of the latch to increase the height of the slot 50 and liberate the coin which falls down into a suitable underlying coin box 51. I might here point out that if the coin were not prevented from escaping from the coin guide immediately it actuated the latch, the hooked end of the latch could fall down and engage the shoulder of the cam before the operator actuated the lever.

The sling serves the additional function of guarding the latch against coins of smaller diameter than the large five cent piece mentioned. If such a coin were inserted in the machine, it would run down the trough and cross the sling and would discharge into the coin box over the rear end of the sling as such coin would not be arrested by the lower end of the shank 48.

The above completes the description of what might be termed the coin actuated mechanism for releasing the carriage so that it can be manipulated by swinging the lever 31 in the direction of the applied arrow Figure 1.

It is desirable when all the papers have been sold, that is, when the casing is empty, that means be provided for preventing the insertion of a coin through the slot 44′. To this end I have centrally slotted the forward end of the plate 8 (see Figure 16) and in this slot, I have located an upwardly swingable hinged gate 52 and to the under side of the gate I have attached a socket 53. A transversely extending lever arm 54 is mounted on the bottom of the casing adjacent the front end, said arm being pivotally supported by a pivot pin 55. One end of the arm is upturned and seats in the socket and the other end of the arm is connected pivotally to the lower end of a vertically extending rod 56 contained in the box 23 and passing slidably through the upper end of the box and fastened permanently to the lower end of a vertically extending sliding bar 57. This sliding bar extends upwardly to the inner side of the angle bracket 44 and has the upper end thereof supplied with a diagonal slot 58 which receives slidably a pin 59 carried by a block 60 positioned between the angle bracket 44 and said bar. A horizontally disposed spindle 61 is slidably carried by the angle bracket and has one end thereof adapted upon the end shifting of the spindle to cross the slot 44′. The spindle is carried by the block.

To make the operation of the above parts clear, I might here explain that when the folded papers are lying on the plate 8, the gate is held by the papers in the plane of the plate 8 and consequently through the connections provided, the spindle is held in a withdrawn position in respect to the slot 44′. On the other hand, however, as soon as the last paper has been withdrawn from the machine, the gate is freed and the parts are then free to be actuated by a coiled spring 62 associated with the rod 56 and continuously pressing the underlying end of the lever arm 54 downwardly.

The downward movement of the rod occasioned by the spring upon the release of the gate operates through the inclined slot and pin therein to extend the spindle across the slot 44′ and prevent the entrance of any further coin.

The height of the slot 5 hereinbefore mentioned is not designed to control the thickness of the folded paper which can be expelled through such slot as in practice, it is found that the thickness of different editions of papers vary. In other words, the regular daily editions of any particular paper when folded are approximately the same thickness whereas a special edition such as a Saturday or Sunday edition is very much thicker than the regular daily edition.

In order that the outlet for the paper from the machine may be gauged to suit the varying thicknesses of the daily or special editions, I have provided a vertically extending guard and gauge plate 63 spaced from the inner front end of the casing which has the lower edge thereof suspended clear of the front end of the plate 8 and the upper end provided with an inturned flange 64 which flange overlies a stationary cross bar 65 extending between the side walls of the casing. The cross bar is supplied at its under side with a pair of similar stationary brackets 66 and these brackets carry adjusting bolts 67 which pass through vertical slots 68 provided in the plate 63 and have their forward ends fitted with nuts 69.

The flange 64 is supplied centrally with a hinged tongue 70 having a finger hole 71 therein, such permitting one to readily lift the plate 63 when desired for adjustment purposes, the tongue being swung upwardly and the finger caught in the hole 71 at such time.

The lower edge of the plate 63 is provided at the right hand corner with a downwardly extending curved tongue 72 and the position of this tongue in respect to the plate 8 controls the thickness of paper which can be expelled from the machine. When the flange 64 is resting on the cross bar 65, the lowermost part of the tongue 72 will be approximately a sixteenth of an inch clear of the plate 8. When one is ready to place a stack of similar folded papers in the box, he will take one of those papers and place the folded edge between the flange 64 and the bar 65, both of the bolts 67 being at such time released. The bolts will then be tightened up

to hold the combined gauge and guard plate in its adjusted position and at such time, the lowermost part of the tongue 72 will be spaced from the underlying plate 8 a distance equal to the thickness of the folded paper plus the original sixteenth inch space reserved. This total distance is the controlling factor in the discharge of the paper and while it is wide enough to let one folded paper clear through, it is not wide enough to let two papers escape. The lowermost paper of the stack will be free to clear out from the machine but the one lying directly above it at the time it is being cleared will be arrested positively by the tongue 72.

By placing the plate 63 inwardly from the front end of the casing, I prevent one from tampering with the papers and also decrease the amount of the paper which is projected from the casing when the hand lever is operated, it being only necessary in this regard that the paper be projected sufficiently far to insure the buyer getting a good grip of it to remove it.

The coin actuated mechanism is all enclosed by a cover plate 73 supplied.

When the machine is to be loaded with papers, the once folded papers are placed therein in a stack, their front ends being butted against the plate 63 and their folded edges being against the cover plate 73, the folded papers lying one on top of the other as shown best in Figure 13. After the stack of papers have been placed in the box, a board or flat weight 74 is placed over the papers, this insuring that they will all lie flat until the last one has been expelled from the machine. The board is provided with a slot 75 to receive the gate 52.

The box will carry prominently information as to the particular coin required to be used and the one buying the paper will deposit this coin in the slot 6 and it will run down and drop onto the latch and release the cam. This permits the crank to be swung ahead as previously explained and as the crank goes ahead, the lowermost paper of the stack is discharged through the slot 5 as the pins 20 are piercing the under side of such paper and will accordingly carry such paper ahead with the carriage which is actuated by the crank. The paper is discharged far enough to allow the buyer to grip it between thumb and finger and he will then pull the paper out and at such times the pins tilt ahead and withdraw from the paper and the carriage returns under the action of the weight 36 back to its original position as soon as the lever 31 is released.

Obviously the stack of papers will gravitate in the box immediately the lowermost paper is withdrawn and as soon as the carriage gets back to its initial position, the latch automatically locks the carriage in such position as the coin has been discharged into the coin box and the latch is free to gravitate to locking position which is with the hooked end thereof caught against the shoulder of the cam.

Should a coin of less diameter than the proper coin be inserted in the slot 6, it will be thrown out into the box by the sling and will not release the latch so that the lever 31 remains locked and the paper cannot be discharged.

When the last paper has been withdrawn from the casing, the gate 52 is free to swing upwardly and the spring 62 accordingly operates to project the spindle 61 across the slot 44′ which prevents any further coins being entered in the machine until it is reloaded with papers.

As the shanks 46 and 48 can be readily adjusted to control the coin used and the tongue 72 can be adjusted in relation to the plate 8, it is possible to set the machine in regard to the thickness of the commodity to be sold and in regard to the price of that commodity.

What I claim as my invention is:—

In combination, a closed casing receiving a stack of flat lying papers, said casing being provided towards the bottom and in the front wall thereof with a paper outlet passage, a stationary false bottom crossing the lower part of the casing and supporting the stack of papers with the lowermost paper of the stack opposing the outlet passage, said false bottom being provided with a plurality of slots, a wheeled carriage underlying the false bottom and riding on the bottom of the casing and movable thereon towards and away from the passage, a rack bar secured to one side of the carriage, a pinion rotatably carried by the casing and continuously engaging the rack bar, an exterior crank for rotating the pinion, a winding pulley turning with the pinion, a weighted pulling line attached to the pulley, spaced cross bars crossing the carriage and having their ends provided with corner lugs pivotally attached to the carriage, a row of upstanding piercing prongs carried by the rear edge of each bar and projecting upwardly through the slots in the false bottom and engageable with the lowermost paper of the stack and stop pins carried by the carriage and engaging the forward corners of the bars to prevent the rotary movement thereof in a clockwise direction.

WILLIAM B. BRUNTON.