

June 20, 1933.

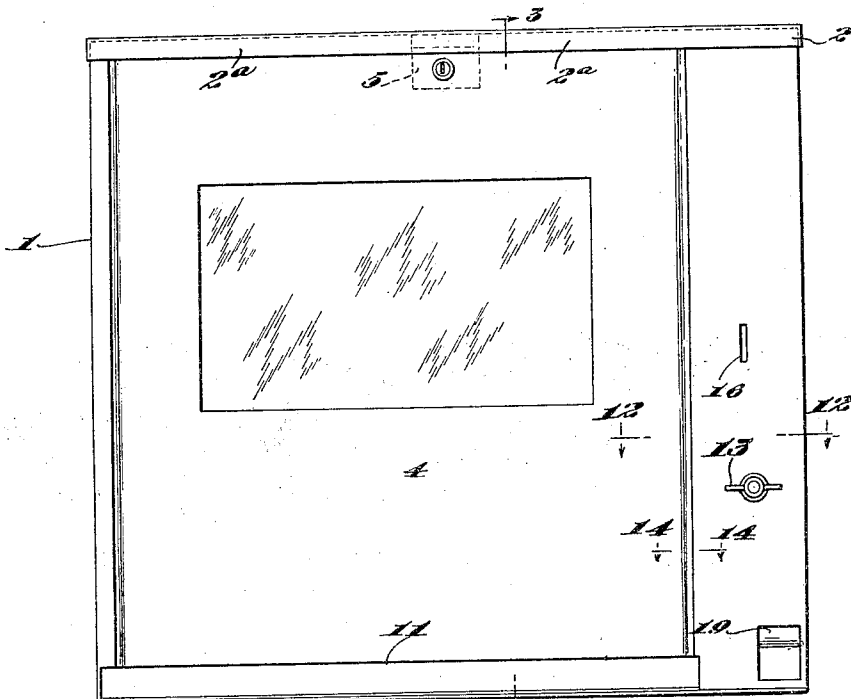
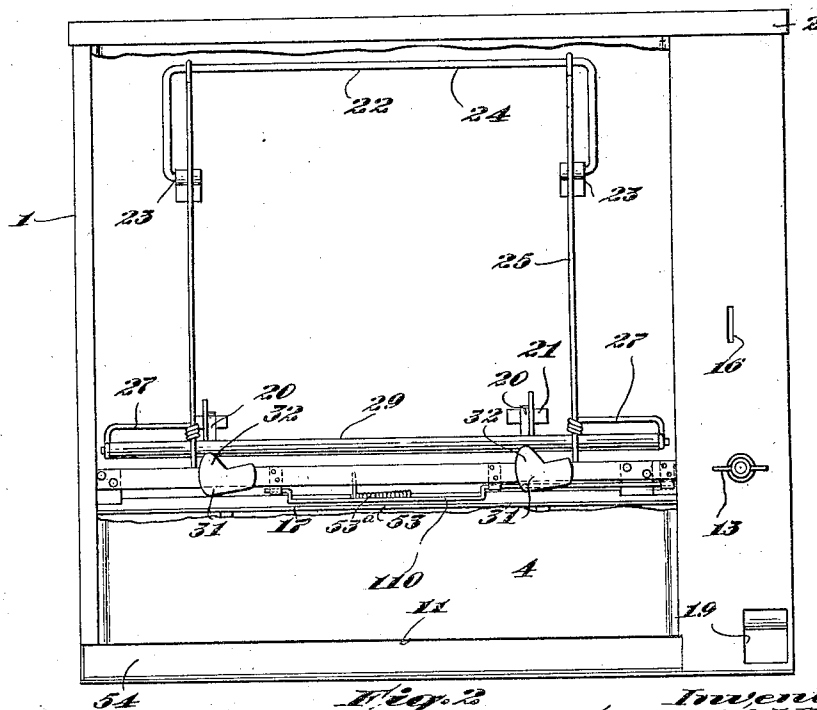
E. C. WHITING

1,914,546

VENDING MACHINE

Filed June 13, 1929

4 Sheets-Sheet 1



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VENDING MACHINE

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4 Sheets-Sheet 2

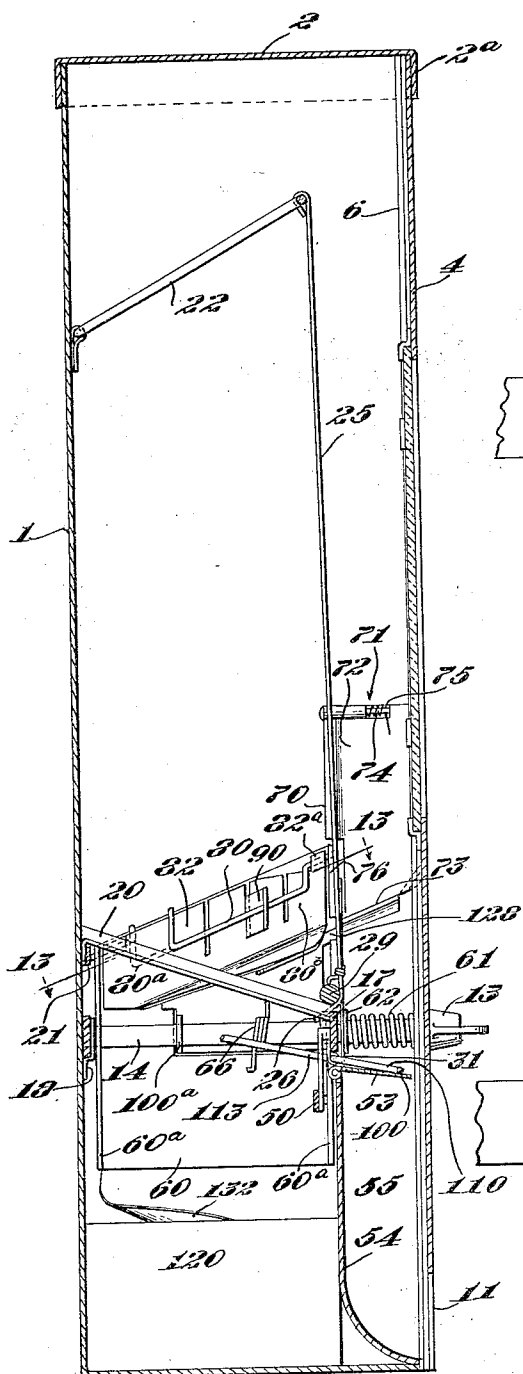


Fig. 3

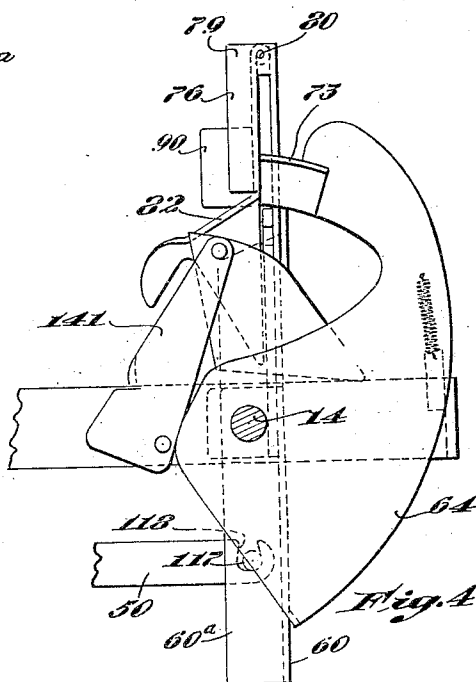


Fig. 4

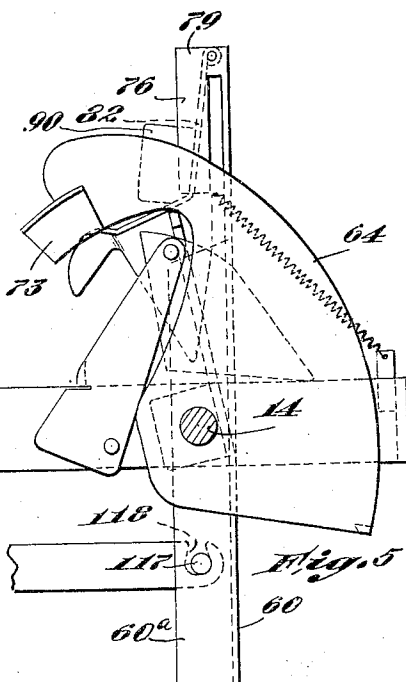


Fig. 5

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June 20, 1933.

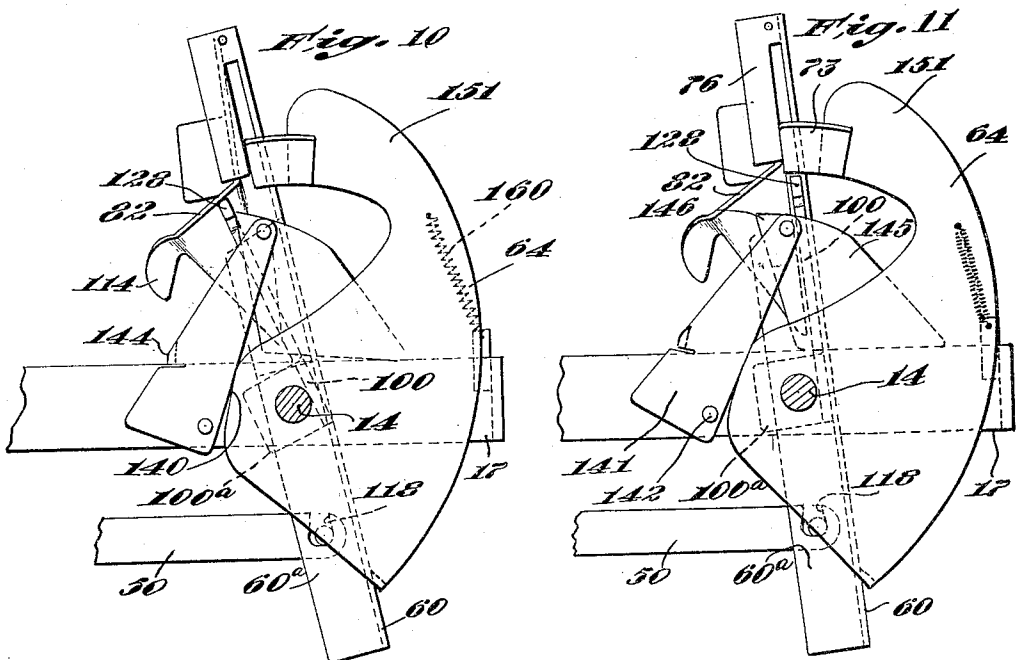
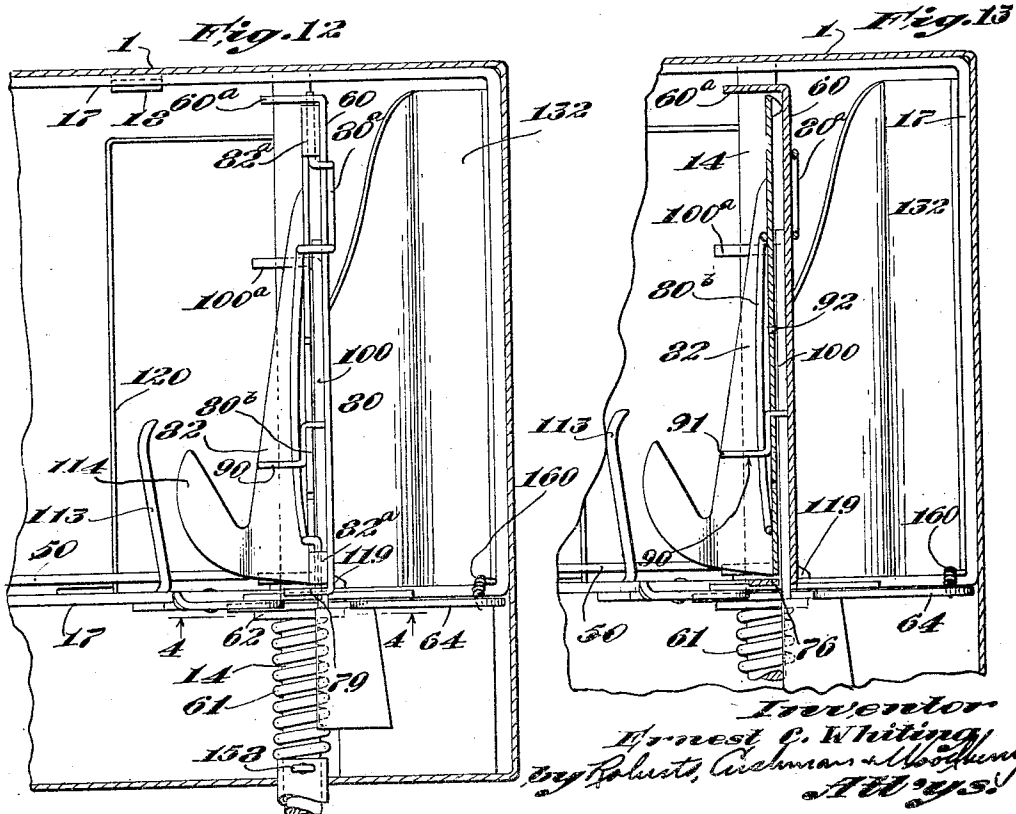
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VENDING MACHINE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

ERNEST C. WHITING, OF BRIGHTON, MASSACHUSETTS

VENDING MACHINE

Application filed June 13, 1929. Serial No. 370,483.

This invention relates to an improved vending machine for dispensing commodities, and more particularly to a machine of this character for the sale of articles such as periodicals.

Heretofore newspapers and magazines were commonly sold by newsboys and news stands and the like, it was discovered, however, that there were many opportunities for selling periodicals at locations where or at times when it was not economical or practical to maintain a sales person for this purpose. Accordingly in many cities so-called "honor boxes" have been provided to expose newspapers for ready withdrawal. These boxes have a receptacle for coins, a person's honor being relied upon for deposit of the latter. Continued use of such devices has indicated, however, that there was a rather large loss of revenue due to the failure of a certain proportion of the public to pay for the papers taken from the "honor boxes".

While there have been several prior attempts to provide vending machines for periodicals, they have in general proved impractical or unsatisfactory due primarily to their complication and necessarily high cost, which made them economically unfit for use in the sale of articles having such a low cost as ordinary newspapers, while their complicated construction made them different and expensive to maintain in operative condition in widely scattered localities. Furthermore, considerable difficulty has been experienced in providing machines of this character which, without adjustment, would readily separate a single newspaper from a group of newspapers despite wide variations in the thickness or number of pages of different editions of the paper. In many cases they have not had a proper provision for the return of the money deposited, if a newspaper was not delivered, especially when a fewer number of coins were deposited than amounted to the sale price of the article. Generally machines of this character have lacked means permitting their ready adjustment to be actuable in response to the deposit of one combination or number of coins rather than another, thus to permit both daily and

Sunday newspapers of different prices readily to be dispensed by the same machine.

The present invention is designed primarily to obviate these deficiencies in the prior art and to afford a practical newspaper vending machine which is characterized by the use of simple, inexpensive sheet metal stampings and riveted parts that permit a nominal cost of manufacture and which avoids unnecessary complications or likelihood of failure under adverse service conditions. The operating mechanism is removable as a unit from the machine, so that it may be readily transported to a suitable location for repair or be conveniently replaced, if desirable, without requiring removal of the entire machine. Furthermore, a novel ejector mechanism is provided that is adapted without necessity for adjustment to effect the sale of papers of widely different sizes. Accordingly a comparatively thin daily paper and a comparatively thick Sunday edition may be sold by the same machine, and similar machines may be used by vendors of periodicals of different sizes without necessity of alterations.

The machine is provided with coin-receiving means that is adapted to hold a coin in a position wherein it is engaged by an actuator to operate the delivery or ejector mechanism. The coin receiving portion or receptacle of the operating mechanism may have its capacity readily adjusted to permit the depositing of a different denomination or number of coins. Accordingly the machine is adapted to ready use by dealers selling papers at different prices or for the sale of daily and Sunday papers at different prices.

In order to protect the prospective buyer against loss, the machine is further provided with coin returning means that automatically insures the return of money deposited in the machine unless a paper is delivered by the same. Accordingly the money is returned if less than the predetermined number of coins is deposited within the machine; for example, when the newspaper is selling for two cents, and the prospective purchaser deposits one cent and finds that he lacks the second cent, the machine is adapted auto-

matically to return the single coin without delivering a paper.

The present machine is of sturdy construction and has its parts so arranged that malicious or mischievous meddling with the same is not likely to cause injury to the machine or loss of money or papers therefrom. To this end, for example, the manually actuable operating handle is arranged so that, should abnormal force be applied to the same, as for example by the application of a wrench, it will rotate without breaking or overstressing the internal mechanism of the machine. Furthermore, a movable apron or guard is arranged adjoining the paper delivery opening in the machine so that it is impossible to reach through the delivery passage into the paper containing portion of the machine.

In the accompanying drawings, which illustrate one concrete exemplification of the invention:

Fig. 1 is a front elevational view of the improved vending machine;

Fig. 2 is a similar view with a part of the front wall removed to show a portion of the paper supporting and ejecting mechanism;

Fig. 3 is a vertical section indicated by line 3—3 of Fig. 1;

Fig. 4 is a section designated by line 4—4 of Fig. 12, and showing the coin-receiving assembly and related operating parts in their normal inactive positions;

Fig. 5 is a view of the assembly shown in Fig. 4, illustrating the position of the parts when a coin is directed to the coin-return passage;

Fig. 6 is a view similar to Fig. 5 but showing the operative position of the parts when the proper coins are disposed within the assembly;

Fig. 7 is a sectional detail of a portion of the ejector mechanism and the guard associated therewith;

Fig. 8 is a top view of one of the ejector elements;

Fig. 9 is a view similar to Fig. 6, but showing the assembly being returned to its normal position, and also disclosing adjoining parts of the ejector mechanism;

Fig. 10 is a sectional detail showing certain parts of the coin-receiving assembly and related parts as the form G is returned to its normal inoperative position;

Fig. 11 is a similar view with the parts somewhat nearer to their normal inoperative positions;

Fig. 12 is a section indicated by line 12—12 of Fig. 1 and showing one end of the machine with the coin-receiving assembly, the operating handle and related parts;

Fig. 13 is a section on line 13—13 of Fig. 3; and

Fig. 14 is a section on line 14—14 of Fig. 1. A machine of the character illustrated in

the accompanying drawings may comprise a box-like container 1, which may be formed of sheet metal or the like and may be provided with a top portion 2 having depending flanges 2^a. A lock 5 carried by the sliding cover 4 normally is secured to the front flange 2^a, thereby supporting the closure 4. The edges of the latter preferably are slidably mounted in guideways 6 at the front of the box (Fig. 14). The lock 5 not only holds the closure in normal place, but serves to prevent access to the interior of the machine except by authorized persons. When the closure is slid downwardly to afford access to the interior of container 1, unsold periodicals may be removed and a new supply of the same be placed within the machine, and the money received may also be removed.

A transverse slot 11 extends along the bottom of the box to permit papers to be delivered from the same. A suitable operating handle 13 is disposed at one side of the machine and is secured by a removable pin 158 to a rotatable shaft 14 (Fig. 12), that is pivotally mounted on a frame member 17 and that extends into the machine substantially to the rear wall thereof. A coin-receiving slot 16 preferably is disposed above the handle while a coin-return passage terminates in a suitable opening 19 below the handle 13.

Referring first to Figs. 2 and 3, it is evident that a plurality of inclined article supporting members 20 are disposed within the box 1. The rear ends of these supports have downwardly projecting extensions received in U-shaped socket elements 21 that are secured to the rear wall of the box and their front ends are secured to a transverse portion of frame 17 which is spaced from the front of the box. The frame member 17 is preferably supported by a plurality of brackets 18 which are secured to the walls of the container 1 and which cooperate with the same in affording open-ended pockets to receive the frame and out of which it may be readily lifted. The U-shaped elements 21 permit a similar removal of the rear portions of supports 20. The latter are adapted to engage the edges of a group of periodicals, such as newspapers which have been folded once along a transverse median in the conventional manner.

A swinging bail 22 preferably has pivot portions 23 mounted upon the back of the box and has an outer transverse bight portion 24 connected to the opposite ends of a substantially U-shaped wire 25, the bight portion 26 of which is disposed below the bars 20 as shown in Figs. 3 and 7. Secured to the downwardly extending portions of the wire 25 are the ends of supporting wires 27 which provide bearings for the reduced end portions of a comparatively heavy roller 29. The latter preferably rests upon the inclined supports 20 and due to its weight and the inclination

of these bars tends to roll toward the lower end of the same adjoining the front of the container 1, thus tending to swing the bail 22 downwardly to the position shown in Fig. 3 and moving the wire frame 25 toward the front of the container. Accordingly frame 25 is yieldably urged toward the front of the container by the weight of roller 29, thus imposing a yieldable pressure upon the group of papers supported by the bars 20 and constantly urging them toward the lower ends of the latter.

When the parts are in their normal inactive positions, extensions 32 of the ejector elements 31 which are pivotally mounted on the frame bar 17 comprise stops adjoining the ends of bars 20 to engage the lower folded edge of the foremost paper to prevent the same from moving off the supports 20 (Fig. 7).

Figs. 7, 8, and 9 may be referred to for an understanding of the ejector members 31, each of which comprises a sheet metal element with a wing-like portion 32 adapted to provide a stop for the foremost paper and with another wing-like portion 34 having a curved propeller-like lip 39 directed inwardly from the plane of the wing portion 32. The sheet metal element may be secured to a cylindrical sleeve 33 which is fixed to a rotatable shaft 35 which extends through the bar 17. The wings 32 and 34 are so disposed in relation to each other that the latter will swing upwardly behind the edge of the foremost paper as the latter swings downwardly out of engagement with the same, so that the propeller-like wing 34 acts as a separator or ejector to separate the foremost article from the remainder of the group and to project the same into the space between the bar 17 and the front of the container 1; at the same time the wing element 34 acts as a temporary stop to prevent movement of the succeeding paper toward the front of the box (member 31 is shown in this position in Fig. 9 and in dot and dash lines in Fig. 7). As soon as the parts are returned to their normal positions the flat wing portion 32 rises into engagement with the succeeding article of the group and the curved wing portion 34 is retracted below the edge of that article as shown in full lines in Fig. 7. A link 50 is connected by crank arms 51 to the axial elements 35 of the members 31 to swing them about their axes upon proper actuation of the coin controlled mechanism.

A swinging apron or guard 53 is pivotally connected to the transverse portion of member 17 and normally extends from the same substantially to the inner face of plate 4. Guard 53 is yieldably urged upwardly by a spring 53^a to a position where its upper face is engaged by the lower edges of ejector elements 31 (Figs. 2 and 7). When elements 31

pivot in response to movement of the link 50, the apron 53 engaged by the same is swung downwardly to permit a paper leaving the supports 20 to pass downwardly into the delivery passage 55 between the bar 17 and the front of container 1. This delivery passage is provided with a downwardly and outwardly curved rear wall 54 which terminates adjoining the bottom of the opening 11 so that papers are directed toward the latter upon actuation of the ejector elements. As soon as these elements return to the positions indicated by full lines in Fig. 7, the spring 53^a returns apron 53 to its normal position wherein it provides a closure for the delivery passage 55.

A coin-receiving passage 71 is disposed adjoining the coin slot 16 with a vertically disposed plate 70 (Fig. 3) forming one of its walls and with a plate 72 forming the opposite wall and pivotally connected to the upper portion of plate 70, as designated by numeral 74 (Fig. 3). A plate 73 or the like preferably is welded to the face of actuator 64 (which will presently be described) to form the bottom of the passage, and a spring 75 normally urges plate 72 toward plate 70. The rear edge of the upper portion of plate 71 is curved inwardly substantially to engage the plate 70 when the parts are in their normal positions to prevent a coin from leaving the space between the plates except through an outlet adjoining the lower portions of the same which is aligned with the coin-receiving receptacle; it being understood that body portions of the plates 70 and 72 are normally spaced apart at a distance substantially corresponding to the thickness of a coin.

A hook-like actuator 64 is pivotally mounted upon the shaft 14 and is held in a normally retracted position by a spring 160 connected to the frame 17. A spring 61 is fixed to shaft 14 (Fig. 12) adjoining the inner face of the front wall of the box and presses a clutch disk 62 against the face of the actuator 64 with such a pressure that under normal conditions frictional engagement between these elements will serve to swing the actuator about shaft 14. However, should abnormal pressure be applied to the handle 13, as for example by the malicious use of a wrench, the clutch disk 62 is adapted to slip in relation to the face of the actuator to prevent damage to the same or other parts of the machine.

The coin receptacle includes a main plate 60 having vertical flanges 60^a which are pivotally mounted upon the shaft 14 so that the main plate may rotate about the same.

A pivot element 117 on the flange 60^a of plate 60 is received in a slot 118 at the end of link 50 so that movement of the plate actuates the link to operate the ejector elements 31 to cause a paper to be separated from the

group and pass into the delivery passage. A coin supporting plate 100 is disposed in a cut-away portion of plate 60 and has outstanding ears 100^a which pivotally engage the mid-portion of shaft 14. Plate 100 is urged in juxtaposed parallelism to plate 60 by a spring 66 (Fig. 3) so that its upper edge may form the inclined bottom of the coin-receiving pocket.

The upper portion of the front of plate 60 is bent at right angles to the body portion thereof, i. e. substantially parallel to the front of the container 1 to provide a flange 79 which has a depending abutment portion 76 with an edge in spaced parallelism to the body portion of the plate at a distance to permit a coin from passage 71 to pass therebetween. The rear flange 60^a and flange 79 have aligned openings receiving the ends of a spring 80 that forms an inclined pivotal support for a swinging coin retaining plate 82. Figs. 3 and 12 may be referred to for an understanding of this spring which has substantially aligned end portions received in the flanges 60^a and 79 and engaging looped portions 82^a of plate 82, and which has a bail-like portion 80^a in engagement with the upper portion of plate 60, and an adjoining somewhat longer bail-like portion 80^b disposed adjoining the upper portion of plate 82. This spring is thus effective in holding plate 82 in juxtaposition to plate 60, and in forming a pivotal mounting for the former. It may be removed from its pivotal engagement with the flanges 60^a and 79 of plate 60 by suitable axial pressure applied to the sides of bail portion 80^a and 80^b respectively.

Furthermore, the portion 80^b of spring 80 forms a guide and retainer for a coin engaging clip 90 which has an outturned flange 91, through which the spring portion 80^b extends so that the clip may be slid along the spring. An intumed portion of the clip is adapted to be received in any one of a plurality of vertical slots 92 in the side of the coin retaining plate 82. These slots are so arranged that the position of the flange of the clip engaged in the same will correspond to the number and denomination of the coins which are to be inserted for the purchase of a paper. Thus, for example, the slot 92 adjoining the front of the plate may be located so that the clip, when engaging the same, will permit the mechanism to be operative in response to a single penny, while the clip in the position shown in Fig. 3 permits the mechanism to be operable in response to the insertion of two pennies. It is evident that the number and relative positions of the various slots 92 may be varied as desired to permit the mechanism to be operable in response to practically any desired number of coins or practically any desired denominations of the same.

When clip 90 is properly positioned and the

proper number of coins are inserted in the machine, the last coin will project beyond the end of plate 60 into the path of the overhanging portion 151 of swinging hook member 64 so that rotation of the latter, due to actuation of the handle 13, will cause the coin-receiving assembly to swing about the shaft 14 as a unit. Fig. 6, for example, shows the parts when they are thus being swung by the actuator 64.

A trip element 110 preferably is pivotally mounted above the apron 53 having its front and rear portions substantially balanced about an axial portion 111 which is received in clips 112 mounted upon the frame 17. Its rearwardly extending portion includes an arm 113 that is engageable with a cam-like extension 114 upon the lower portion of plate 82 (Fig. 9). As an article moves downwardly from the ends of supports 20, it will engage the front portion of member 110, swinging the rear part 113 thereof upwardly into engagement with the cam surface of arm 114, thus tending to swing the plate 82 away from the main plate 60 to open the lower side of the inclined coin-receiving pocket, and thus permitting coins to fall to the left of plate 60 as viewed in Fig. 9, and thus to be received by the coin receptacle 120. As soon as handle 13 is released, actuator 64 tends to return to its normal retracted position under the action of spring 160 and is swung to a position wherein nub 119 engages plate 60. The spring is then also effective in returning the coin receptacle to its normal inactive position. This return movement of the coin receptacle may aid the cam-like engagement of member 114 with the extension 113 of the trip element. It is obvious that the apron 53 will be retained in an open position until the periodical or the like is removed from the machine and that the trip element 110 will similarly be retained in its operative position during this period. As soon as the apron 53 is returned to its normal position under the action of spring 53^a the trip element 110 is tripped to its normal inoperative position shown in Fig. 7.

The edge of actuator 64 is provided with a cam-like surface 140 which engages a swinging element 141 that is pivotally mounted upon the bar 17 as designated by numeral 142 (Figs. 10 and 11). A suitable extension 144 of the member 141 engages the upper portion of frame member 17 to limit this movement. The upper portion of member 141 is pivotally connected to a catch 145, the lower edge of which slidably engages the upper surface of bar 17. A projecting upper corner 146 of catch 145 is thus moved into a position wherein it will engage a forward projection 128 upon the end of the coin supporting plate 100 as the pocket returns to its normal position, thus temporarily holding plate 100 against the action of spring 66 to move the bottom wall of the coin pocket in relation to the same.

Coins may thus drop out of the receptacle to the right of plates 100 and 60 as viewed in Fig. 10, and thence pass to the coin return chute 132 which terminates at the outlet 19.

5 The depending portion of plate 60 is positioned to insure coins released by the relative movement of retaining plate 82 and the assembly dropping to the coin-receiving receptacle 120, while coins released by relative
10 movement of supporting plate 100 and the assembly will fall upon the opposite side of the main plate 160, and thus pass to the return chute 132. Upon continued movement of the coin receptacle toward its normal position, the
15 projection 128 will snap by the projection 146 of catch 145, thus permitting the parts to return to their normal inoperative positions.

If the wrong number of coins is deposited, for example but a single coin when the machine is adjusted to act in response to two
20 coins, the overhanging portion 151 of actuator 64 will move past the end of the coin pocket without engaging a coin to swing the plates 60 and 82 and, referring for example
25 to Fig. 5, the actuator will then engage the forwardly projecting portion 128 of member 100, swinging the same out of its normal position below the coin pocket so that the coins are diverted to the right of the same
30 and thus pass to the coin return chute.

From the foregoing it is evident that when the clip 90 is adjusted to permit the machine to be actuated in response to the predetermined number and denomination of coins,
35 and that when a coin or coins of the proper number and denominations are then inserted through slot 16, they slide through the passage 71 to the swinging coin-receiving pocket where their edges rest upon the plate 100
40 with plates 82 and 60 respectively in juxtaposition to their opposite faces. The coin last inserted projects beyond the end of the coin-receiving pocket, and upon movement
45 of the handle 13 the overhanging portion of actuator 64 engages the coin to swing the coin-receiving assembly to the position illustrated in Fig. 6, thus actuating link 50 to swing the ejector elements 31 to separate the
50 foremost article or paper from the group and to cause the same to be ejected into the delivery passage. The guard or apron 53 is depressed in response to this movement of the ejector elements 31 to permit the paper to pass downwardly to the outlet 11. As the
55 article thus passes in front of the ejector elements 31 it actuates the trip member 110, swinging the rear portion of trip member 110 into engagement with the cam portion 114 of plate 82, thus causing the later to swing
60 away from the remainder of the coin receptacle to permit the coin or coins to drop into the box 120. As soon as the handle 13 is released the spring 160 is effective in returning the actuator 164 to its normal position, the
65 nub 119 engaging plate 60 to return the latter

to its normal position as the actuator is thus moving under the action of spring 160. As the movement of the coin-receiving assembly is continued, the cam-like surface of element 114 may be effective in swinging the member
70 110 back to its normal inactive position, if it has not already been returned to the same by the apron 53, and the spring 80 returns plate 82 into parallelism with plate 60. During this portion of the return movement the
75 catch 145 is effective in engaging the projection 128 of plate 100 and causing the release of coins from the assembly to the coin return chute if the same have not previously been
80 dropped into the coin-receiving box 120 in response to the actuation of the trip member 110 by the delivery of an article engaging the same.

Continued movement of the assembly back toward its normal inactive position permits
85 the plate 100 to be released from engagement with the catch so that the parts of the coin-receiving pocket are in their normal relations to each other as the assembly reaches
90 its vertical position.

It is thus evident that an article will normally be delivered in response to the movement of member 13, if the proper number of coins have been deposited in the machine, and that these coins will be retained due to the
95 action of the trip mechanism if the article is properly delivered. If these coins are not retained in response to the delivery of an article, they will be released by the movement of the plate 100 in relation to the remainder of the coin-receiving assembly and
100 thus returned to the pocket 19. Should a less number of coins be deposited in the machine than is necessary to operate the same, the movement of plate 100 in response to the engagement of the intermediate part of the actuator with projection 128 will effect the return of coins thus deposited. If, for any reason, too many coins should be deposited, or the same should be caught in the coin passage 71, movement of the handle 13 will cause
105 the bottom of this passage to be moved away from the same to permit the coins to drop therefrom to the coin return passage.

At one end of its path the actuator may engage the end of the box as a stop, thus determining its normal inoperative position, as shown for example in Fig. 4. At the other
115 extremity of its path the recessed edge of the actuator may engage the upper portion of member 141 as a stop. Accordingly when excessive pressure is imparted to the handle 13 tending to urge the actuator forcibly against either the wall of the box or the upper portion of member 141, the clutch plate 62 will slip in relation to the actuator and overstraining of the operating mechanism is consequently avoided. Obviously, if desired, any other suitable stop arrangement may be provided for the actuator 64; for example, rear-
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wardly bent extensions of the same may be suitably spaced to engage the upper and lower edges of the bar 17 to limit the movement of the actuator.

It is evident that the operating parts of this machine are supported upon the frame 17, which is carried by the socket elements 18, and that disconnection of the handle 13 from the shaft 14 which is effected by the removal of the pin 158, permits the entire operating mechanism to be lifted out of the machine, the frame 17 thus being removable from the elements 18 and the supports 20 similarly being removable from the socket elements 21.

Furthermore, the arrangement of the pivot element 117 upon the flange 60^a of plate 60 and the slot 118 at the end of the link 60 permits the ready disconnection of the coin-receiving assembly or pocket from the remainder of the operating mechanism upon the removal of shaft 14. Thus servicing of machines of this character may readily be accomplished and should the machines refuse to operate for any reason, the operating mechanism thereof may readily be replaced without necessity of removing the entire machine from the place where it is installed.

From the foregoing it is evident that I have provided a simple, inexpensive and fool-proof machine that is adapted to vend newspapers or the like, and to meet the demands of commercial service, such as the varying prices and the varying thicknesses of different editions.

I claim:

1. A machine of the class described comprising a plurality of inclined supports adapted to engage the edges of a plurality of articles, a roller resting upon the supports and tending to roll toward their lower ends, a frame having its lower end pivotally connected to the roller and its upper end connected to a movable support so that the frame tends to press against the uppermost article on the supports in response to the weight of the roller, stops to engage the foremost article adjoining the lower ends of the inclined supports, a delivery passage extending downwardly from the ends of the supports and operating mechanism to retract the stops and to separate the foremost article from the group, and to push the foremost article into the delivery passage, and a movable guard normally closing the delivery passage, but movable out of its normal position in response to retraction of the stops.

2. A machine of the class described comprising an inclined guide to support a group of articles, a delivery passage adjoining the lower end of the guide, means yieldably to urge the articles toward said passage, a plurality of pivoted elements disposed adjoining the lower end of the guide, said elements

sheet metal wings, each element including a stop wing and an ejector wing, the wings being in substantially the same common plane adjoining the pivotal axis of each element, the ejector wing having an edge inclining away from said plane, and operating means for simultaneously pivoting the elements to retract the stop wings and advance the ejector wings between the foremost article and the succeeding article, whereby the foremost article is ejected into the passage, said operating means including crank arms connected to each of the elements, and a common operating link pivotally connected to said arms.

3. A machine of the class described comprising a guide to engage a group of articles, an element pivotally mounted adjoining the end of the guide, said element having substantially oppositely disposed stop and ejector wings of sheet metal, the wings having surfaces in substantially a common plane adjoining the pivotal axis of the element, the ejector surface inclining away from the common plane, the stop wing being movable out of the path of the articles upon pivotal movement of the element, and the ejector wing being simultaneously movable into engagement with the foremost article, its inclined surface serving to separate that article from the group and to eject the same, a delivery passage to receive the foremost article, a closure normally and yieldably held across the delivery passage, said stop wing when in its retracted position engaging the closure to move the latter out of its normal position, thereby permitting the ejected article to go through the passage.

4. A machine of the class described comprising a casing, inclined supporting means carried thereby to hold a group of articles, a plurality of stops located adjoining the lower end of the inclined means, ejectors associated with said stops and rotatable therewith about common pivot axes, said ejectors having inclined surfaces, pivot elements defining said axes, depending arms connected to said pivot elements, a common link having pivotal connections with said arms, and operating means simultaneously to move the link and arms to swing the stops downwardly out of engagement with the foremost article upon the inclined means and to project the ejectors upwardly between the foremost article and the succeeding article, whereby the ejectors may be effective in separating the foremost article from the group upon the inclined means and sliding the same off the lower end of said means.

5. Apparatus of the class described comprising a casing, an inclined support carried by the casing, a rotary element including ejector and stop wings pivotally mounted adjoining the lower end of the inclined support, the casing providing an outlet passage to receive articles from the lower end of the sup-

port, a swinging closure yieldingly held across
the passage, operating means to cause swing-
ing of the element about its pivot axis thus to
retract the stop from engagement with the
5 foremost article upon the support and to pro-
ject the ejector between the foremost article
and the succeeding article, said stop, when thus
retracted, swinging into engagement with the
closure and moving the same out of its normal
10 position to permit the foremost article that
has been separated by the ejector from the
group of articles upon the support to pass
through the passage and thus be delivered.

Signed by me at Brighton, Massachusetts,
15 this tenth day of June, 1929.

ERNEST C. WHITING.

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