

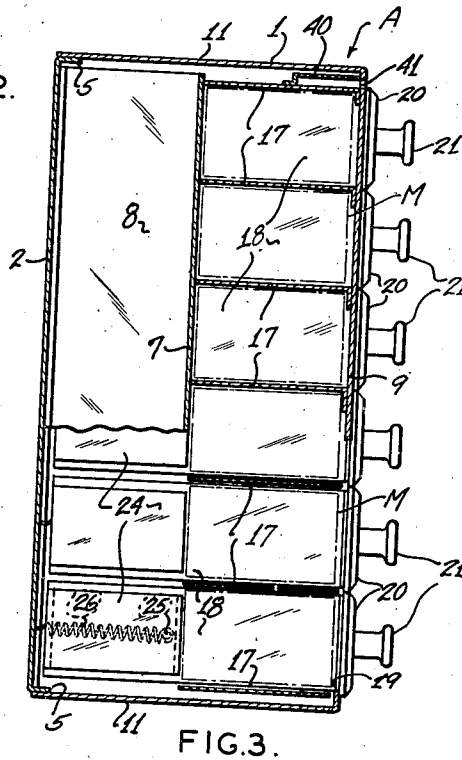
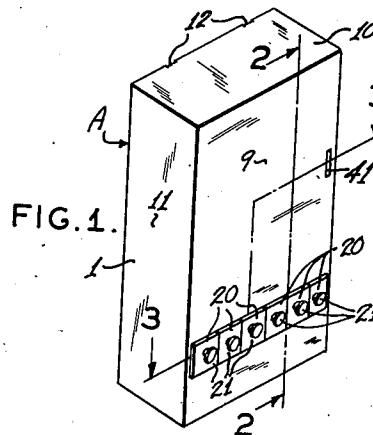
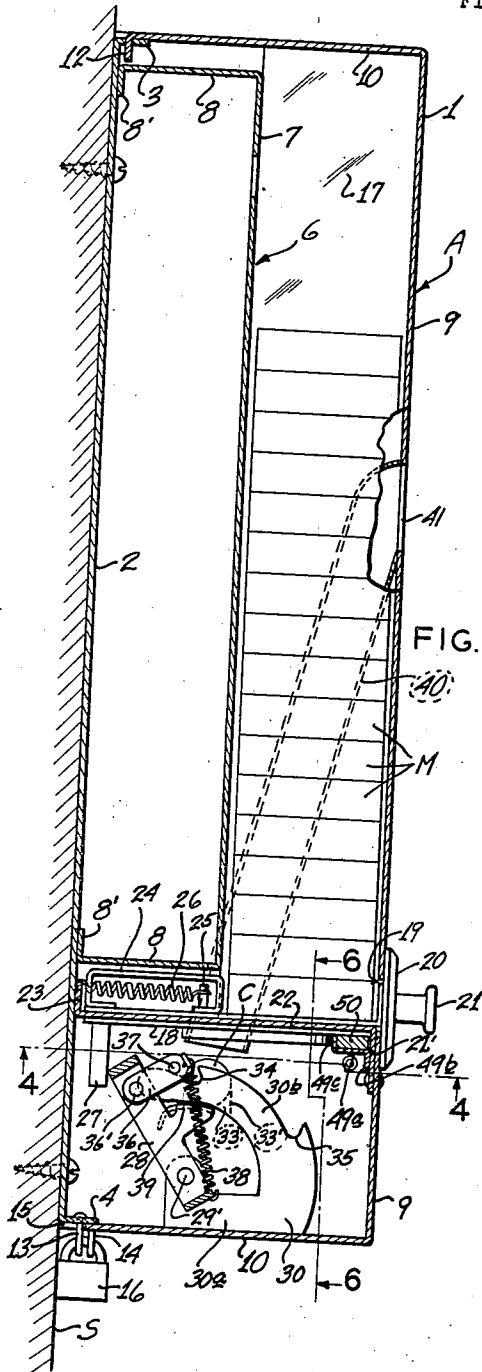
April 6, 1943.

F. NIEWOEHNER
VENDING MACHINE

2,315,811

Filed July 28, 1941

2 Sheets-Sheet 1



INVENTOR
FRED NIEWOEHNER
BY *Frederick Harrington*
ATTORNEY

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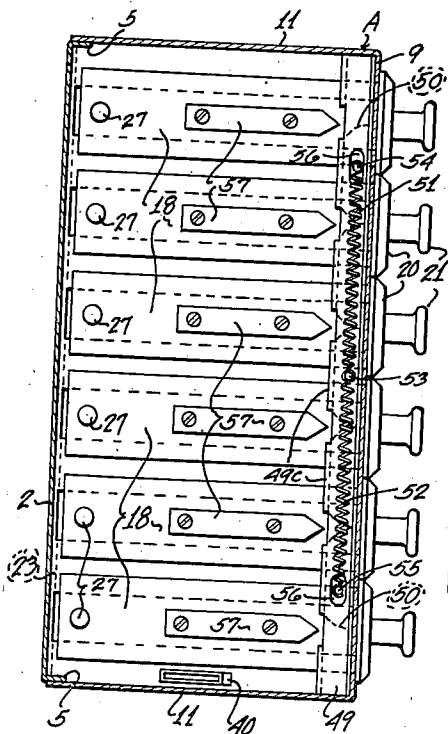


FIG.4.

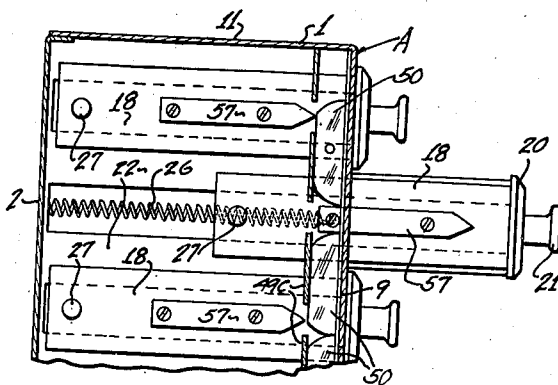


FIG. 5.

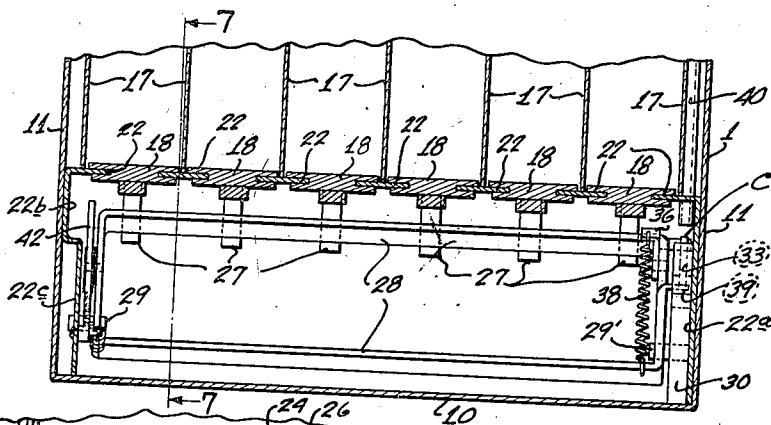


FIG. 6.

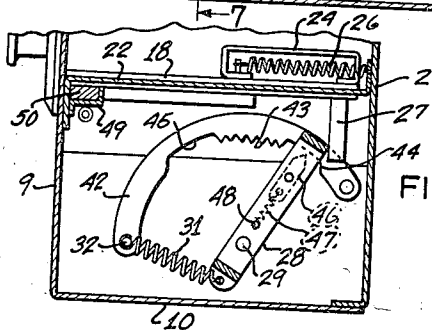


FIG. 7.

FRED NIEWOEHNER INVENTOR.

BY

Enclarrington

AT T O R N E Y

UNITED STATES PATENT OFFICE

2,315,811

VENDING MACHINE

Fred Niewoehner, New York, N. Y., assignor to
Interstate Vending Machine Company of St.
Louis, St. Louis, Mo., a corporation of Missouri

Application July 28, 1941, Serial No. 404,359

5 Claims. (Cl. 194—93)

This invention relates generally to vending machines and more specifically to coin-controlled vending machines for vending articles of merchandise, the predominant object of the invention being to provide an improved coin-controlled vending machine which is of extremely simple and relatively inexpensive construction and arrangement and which is capable of performing its intended function in an improved and highly efficient manner.

Fig. 1 is a perspective of the improved vending machine.

Fig. 2 is an enlarged vertical section of the vending machine illustrated in Fig. 1.

Fig. 3 is an enlarged horizontal section taken on the staggered line 3—3 of Fig. 1.

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 2.

Fig. 5 is a fragmentary horizontal section illustrating a portion of the structure shown in Fig. 4 but showing parts of the structure in moved positions.

Fig. 6 is a fragmentary vertical section taken on line 6—6 of Fig. 2.

Fig. 7 is a fragmentary vertical section taken on line 7—7 of Fig. 6.

In the drawings, wherein is shown for the purpose of illustration, merely, one embodiment of the invention, A designates the improved vending machine generally. The vending machine A includes a housing 1 which is made up of a vertically disposed rear wall 2 having a horizontally extended flange 3 at its upper end and a similar horizontally extended flange 4 at its lower end as shown to good advantage in Fig. 2. Also the rear wall 2 is provided with opposed flanges 5 that extend from the opposite sides of the rear wall 2 as shown to the best advantage in Figs. 3 and 4. The rear wall 2 of the housing 1 may be secured to a suitable support, such, for instance as that illustrated in Fig. 2 and designated by the reference character S. Secured to the rear wall 2 of the housing 1 is a partition structure 6, said partition structure 6 including a vertically disposed wall 7 which is spaced from the rear wall 2, upper and lower horizontal wall portions 8 which extend from said vertical wall 7, and flanges 8' extended inwardly from said upper and lower wall portions in contact with said rear wall 2 and suitably secured thereto.

The housing 1 includes also an outer housing portion which comprises a vertically disposed front wall 9, top and bottom walls 10, and opposed side walls 11. The inner portions of the top and bottom walls 10 and the side walls 11 of the outer

housing portion fit in embracing relation with respect to the top flange 3, the bottom flange 4, and the side flanges 5 of the rear wall 2 of the housing 1, and the top wall 10 of the outer housing portion is provided with downturned tongues 12 which are stamped from the material of said top wall 10 and extend into apertures formed through the top flange 3 of the rear wall 2, as shown in Fig. 2. Additionally the lower flange 4 of the rear wall 2 has fixed thereto and extended downwardly therefrom an eye element 13, and the bottom wall 10 of the outer housing portion has fixed thereto a similar downwardly extended eye element 14. The bottom wall 10 of the outer housing portion is slotted as indicated at 15 in Fig. 2 to receive the eye element 13, said slot being open at the edge of said bottom wall so that the walls of said slot may move inwardly and outwardly relative to said eye element 13 when the outer housing portion is moved to closed and open position with respect to the rear wall 2.

The apertures formed through the upper flange 3 of the rear wall 2 are sufficiently large to permit the tongues 12 to serve as hinge elements that allow the lower portion of the outer housing portion to be swung outwardly far enough to cause the inner edge of the bottom wall 10 of said outer housing portion to clear the lower flange 4 of the rear wall 2. The outer housing portion may then be raised to lift the tongues 12 from the openings in the upper flange of the rear wall in which they are disposed thus permitting the outer housing portion to be completely detached from the rear wall 2 of the housing 1. Also, the eye elements 13 and 14 are disposed in adjacent relation when the outer housing portion is in its closed position so that the shackle of a padlock 16 may be passed through both thereof to lock the outer housing portion in its closed position relative to the rear wall 2 of the housing.

The space between the wall 7 of the partition structure 6 and the front wall 9 of the outer housing portion has disposed therein a plurality of vertically disposed partitions 17 which divide said space into a plurality of vertically elongated merchandise compartments wherein stacks of articles M to be vended by the machine A are arranged, said partitions being provided with flanges at their outer edges at which the partitions are secured to the front wall of the outer housing portion. At the bottom of each of the merchandise compartments provided by the partitions 17 is a slide 18 which is movable from a retracted position, as shown in Fig. 2, to the for-

wardly extended position in which one of the slides is shown in Fig. 5, through an opening 19 formed through the front wall of the outer housing portion. Each of the slides 18 has fixed thereto a facing element 20 which covers the associated opening 19 and has extended therefrom a knob 21 which serves to facilitate movement of the slide inwardly and outwardly relative to the housing of the machine.

The slides 18 are supported for sliding movement by guide members 22, said guide members comprising strips of material that are secured to the lower portions of the partitions 17 and are extended from the front wall of the outer housing portion to the rear wall 2 of said housing, and portions of said strips being projected into grooves formed in opposed portions of the slides 18 to support and guide said slides for sliding movement. By referring to Fig. 6 it will be noted that the end guide strip at one side of the machine is provided with an extension 22a which extends downwardly in contact with, and is secured to, the side wall of the outer housing portion at the corresponding side of the machine. Also, at the opposite side of the machine, as is likewise shown in Fig. 6, the end guide strip 22 is provided with a downwardly projected extension, so shaped that the upper part 22b thereof contacts with and is secured to the adjacent side wall of the outer housing portion, and the lower portion 22c thereof is spaced from said adjacent side wall of the outer housing portion. In addition to the attachment of the guide strips 22 to the lower portions of the partitions 17 said guide strips are provided with flanges 22' which are secured to the front wall of the outer housing portion. Also the various guide strips are joined at their rear ends by a continuous, upstanding flange 23 which is disposed in close proximity to the rear wall 2 of the housing 1 of the machine A.

Supported by each of the slides 18 is an abutment structure 24 which preferably, though not necessarily, is formed from sheet material and is shaped as shown to good advantage in Fig. 2. In other words the abutment structure of each slide, which is only slightly narrower than the merchandise compartment with which it is associated, is provided with a top wall, front and rear walls, and intumed flanges extended from the lower portions of said front and rear walls which are suitably secured to the associated slide 18. The abutment structure 24 of each slide is of the approximate height of the articles being vended by the machine, and is so positioned on the associated slide 18 that one of the articles being vended by the machine may rest upon the slide in interposed relation between the forward face of the abutment structure and the inside face of the front wall of the outer housing portion, as shown in Fig. 2. Each of the slides 18 has fixed thereto an upstanding pin 25 which is disposed beneath the top wall of the associated abutment structure 24, and attached to the pin 25 of each slide is a coil spring 26. The coil springs 26 extend through openings formed through the rear walls of the abutment structures and the rear ends of said coil springs are attached to the continuous flange 23 of the guide strips 22, said coil springs tending to retain the slides in their rearmost positions. Additionally each of the slides 18 has fixed thereto and extended therefrom a downwardly projected pin 27.

Disposed in the lower portion of the housing 1

of the machine A is a rectangular bar structure 28 which is supported by pivot pins 29 and 29' for pivotal movement, the pivot pin 29 being secured to and extended from the extension portion 22c shown in Fig. 6, and the pivot pin being fixed to and extended from an element 30 which will be hereinafter referred to. In its position of rest the structure 28 is disposed as shown to the best advantage in Fig. 2 with its upper bar portion contacting with the downwardly extended pins 27 of the various slides 18, and said structure 28 being retained in that position by a coil spring 31 (Fig. 7) which is attached at one of its ends to the lower portion of said structure 28 and at its opposite end to a pin 32.

Associated with the structure 28 and located at one side of the machine where it is secured to a side wall of the outer housing portion, is the element 30 previously referred to herein as having the pivot pin 29' extended therefrom. The element 30 is shaped in side elevation as shown in Fig. 2; that is to say, said element includes a horizontally disposed lower portion 30a from which an upstanding ear is projected that supports the pivot pin 29', and an upwardly and rearwardly curved portion 30b. At its rear end the curved portion 30b of the element 30 is provided with a slot 33, said slot extending from an abutment face 33' (Fig. 2) rearwardly of said curved portion, and said slot being open at its top and bottom and at the rear end of the curved portion of the element 30. The spaced portions of the curved part 30b of the element 30 which provide the opposed walls of the slot 33 are provided with aligned notches 34 which are shaped as shown in Fig. 2, and also the element 30 is provided with a notch 35 which is shaped as shown in Fig. 2 and serves as an abutment.

Pivotaly secured at 36' to an end bar portion of the structure 28 is a locking member 36, said locking member being in the form of a short arm which supports a pin 37 at its free end that projects from a side of the arm and rides on the top surfaces of the spaced portions of the element 30 located at opposite sides of the slot 33. The locking member 36 is drawn to a position where the projected portion of the pin 37 contacts with the top surfaces of the spaced portions of the element 30 at the slot 33, by a coil spring 38 which is attached at one end to an ear formed on the locking member 36 and at its opposite end to a lower portion of the structure 28. Additionally the structure 28 has formed on an end bar portion thereof an extension 39 which provides a curved coin support, said coin support, when the machine is at rest, being disposed immediately beneath the slot 33 in the element 30. The machine A includes also an inclined coin chute 40 which extends from a coin opening 41 formed in the front wall of the housing 1 of the machine to a point immediately above the slot 33 in the element 30.

At the side of the machine opposite to that at which the element 30 is located an arcuate member 42 is disposed which is fixed to the extension portion 22c. The inner face of the arcuate member 42 includes a portion provided with teeth 43, and at the opposite ends of said toothed portion a pair of cutaway portions 44 and 45 are provided which are of greater depth than the depth of the teeth 43 (see Fig. 7). Also the adjacent end bar portion of the structure 28 supports a double-acting pawl 46 which is pivoted to said end bar portion at its approximate longitudinal center, said pawl having associated therewith a coil

spring 47 which is attached at one of its ends to the lower end of the pawl and at its opposite end to a pin 48 supported by the end bar portion of the structure 28.

Supported by the front wall of the housing 1 of the machine A is a bracket structure 49 which includes a horizontal wall 49a, an outer downturned flange, 49b, which serves as the attaching means by which the bracket structure is secured in place, and a plurality of spaced, upstanding flanges 49c. The bracket structure 49 supports a plurality of elements 50 in the form of blocks which contact with each other at ends thereof. The elements 50 are drawn into such contacting relation by coil springs 51 and 52 which are both attached at their inner adjacent ends to a pin 53 supported by the bracket structure, the coil spring 51 being attached at its outer end to a pin 54 which is fixed to one end element 50, and the coil spring 52 being attached at its outer end to a pin 55 which is fixed to the opposite end element 50. The pins 54 and 55 extend through closed slots 56 formed in the horizontal wall 49a of the bracket structure 49 whereby said pins are capable of only limited movement. The opposite end faces of the elements 50 are curved and each of the slides 18 has fixed thereto at its lower face a member 57 which is provided with a pointed forward end, as shown in Figs. 4 and 5. As will presently appear herein, when the operation of the machine A is described in detail, the pointed forward end of a member 57 of a slide 18 which is drawn outwardly to deliver an article of merchandise being vended by the machine, coacts with one or more of the elements 50 at the curved faces thereof to shift the positions of said elements in a manner and for a purpose to be hereinafter explained.

In the operation of the machine the appropriate coin C is introduced into the coin opening 41 and said coin passes through the coin chute and is discharged from the lower end thereof into the slot 33 of the element 30 where said coin rests upon the coin support 33 and contacts with the abutment 33' at the closed end of said slot. The knob 21 of one of the slides 18 is then drawn outwardly and the forwardly moving pin 27 of the slide being moved causes the upward end of the structure 28 to swing forwardly about the pivots 29 and 29' of said structure 28. As the forward movement of the slide is continued the pin 37 supported by the arm 38 will ride upwardly and forwardly over the coin C in contact with the peripheral edge thereof, and such forward movement of the slide will be arrested by engagement of said pin 37 with the abutment provided by the wall of the notch 35 formed in the element 30. At this time the slide will be in its fully opened position and the article of merchandise carried forwardly therewith by contact of the abutment structure 24 of the slide with the rear end of said article of merchandise may be removed by the purchaser. As the upper portion of the structure 28 moves forwardly as described, the coin support 39 of said structure 28 moving with the structure 28 and with respect to the coin C will pass from beneath the coin and permit the unsupported coin to fall into the bottom of the housing of the machine. Also, when the purchaser removes the article of merchandise from the forwardly drawn slide and releases said slide the coil spring 26 associated with the operated slide will return the slide to its inward position and the coil spring 31 will return the structure 28 to its position of rest.

When a slide 18 of the machine is drawn outwardly as described above to deliver an article of merchandise upon insertion of a proper coin into the coin opening 41, an inclined face or the inclined faces of the pointed end portion of the member 57 of the operated slide will shift the elements 50 by moving in contact with a curved face of one of the end elements 50 or curved faces of a pair of adjacent, intermediate elements 50. The degree of movement of the elements 50 is limited by the lengths of the slots 56 so that said elements may be shifted sufficiently to permit only one member 57 to move outwardly beyond the position of said elements 50. Therefore, if, when one slide has been drawn outwardly to deliver an article of merchandise, an attempt is made to draw a second slide outwardly the elements 50 will not yield to allow the member 57 of the second slide to pass and the second slide will be locked against forward movement by the unyielding elements 50. Also, if an attempt be made to draw two slides 18 outwardly simultaneously the inclined faces of the members 57 of the two slides being moved will tend to move the element or elements 50 in opposite directions at the same time. This being impossible both of the slides being moved will be locked by the immovable elements 50 located between the members 57 of said slides. Likewise, because of the pawl and ratchet arrangement shown in Fig. 7, an operator of the machine may not draw a slide outwardly to a position short of its full open position and work the article of merchandise out of the partially opened slide and then return the slide for a second article of merchandise before the coin is dropped into the bottom of the machine housing. This is so because the double-acting pawl 46 coacting with the teeth 43 in an obvious and well known manner locks the structure 28 against movement in the reverse direction until the movement of said structure in the direction originally started has been completed, at which time the cutaway portions 44 and 45 of the element 30 allow the angular position of the pawl to be adjusted to permit movement of the structure 28 in the reverse direction.

If an attempt is made to draw one of the slides outwardly without inserting a coin in the coin opening 41, the absence of a coin in the slot 33 of the element 30 will permit the spring 32 to draw the pin 37 into the notches 34 of the element 30 whereupon outward movement of the slides will be prevented because the pins 27 thereof will be in abutting engagement with the upper bar portion of the locked and immovable structure 28.

I claim:

1. A vending machine comprising a housing providing a compartment for articles to be vended by the machine, a slide for delivering said articles one at a time from said compartment, and coin-controlled means for normally locking said slide against article-delivering movement and operable on introduction of a proper coin into the machine to release said slide for such movement, said coin-controlled means comprising a structure supported for pivotal movement and engaged by a part of said slide, a locking abutment, a locking member movable with and with respect to said structure and adapted for engagement with said abutment to prevent movement of said structure and movement of said slide, and means including a part of said pivotally supported structure for support-

ing a coin introduced in the machine in such a position that said coin deflects said locking member so that it clears said abutment and permits movement of said structure and said slide.

2. A vending machine comprising a housing providing a compartment for articles to be vended by the machine, a slide for delivering said articles one at a time from said compartment, and coin-controlled means for normally locking said slide against article-delivering movement and operable on introduction of a proper coin into the machine to release said slide for movement to such outwardly extended position, said coin-controlled means comprising a structure supported for pivotal movement and engaged by a part of said slide, a locking abutment, a locking member supported for pivotal movement by and movable with said structure and adapted for engagement with said abutment to prevent movement of said structure and movement of said slide, and means including a part of said pivotally supported structure for supporting a coin introduced into the machine in such position that said coin deflects said locking member so that it clears said abutment and permits movement of said structure and said slide.

3. A vending machine comprising a housing providing a compartment for articles to be vended by the machine, a slide for delivering said articles one at a time from said compartment, and coin-controlled means for normally locking said slide against article-delivering movement and operable on introduction of a proper coin into the machine to release said slide for such movement, said coin-controlled means comprising a structure supported for pivotal movement and engaged by a part of said slide, a locking member supported by said structure for pivotal movement with respect thereto, a member provided with an abutment with which said locking member is adapted for engagement to prevent pivotal movement of said structure and movement of said slide, said member having a coin opening formed therein which is adapted to receive a coin introduced into the machine, and a coin support formed on said pivotally supported structure and disposed during one phase of the operation of the machine beneath the coin opening of said member to support a coin therein and movable during another phase of the operation of the machine with said pivotally supported structure away from its position beneath said coin opening to permit the coin to pass therefrom, said coin when supported in said coin opening serving to deflect said locking member so that it clears the abutment of said member and permits movement of said pivotally supported structure and said slide.

4. A vending machine comprising a housing providing a compartment for articles to be vended by the machine, a slide for delivering said articles one at a time from said compartment, and coin-controlled means for normally locking said slide against article-delivering

movement and operable on introduction of a proper coin into the machine to release said slide for such movement, said coin-controlled means comprising a structure supported for pivotal movement and engaged by a part of said slide, a coil spring for moving said structure in one direction, a locking abutment, a locking member supported for pivotal movement by and movable with said structure and adapted for engagement with said abutment to prevent movement of said structure and movement of said slide, means for supporting a coin introduced into the machine in such position that said coin deflects said locking member so that it clears said abutment and permits movement of said structure and said slide, and a stop adapted to be engaged by said locking member for limiting movement of said pivotally supported structure in one direction.

5. A vending machine comprising a housing providing a compartment for articles to be vended by the machine, a slide for delivering said articles one at a time from said compartment, and coin-controlled means for normally locking said slide against article-delivery movement and operable on introduction of a proper coin into the machine to release said slide for such movement, said coin-controlled means comprising a structure supported for pivotal movement and engaged by a part of said slide, a locking member supported by said pivotally supported structure for pivotal movement with respect thereto, said locking member being provided with a pin extended therefrom, a member provided with an abutment with which the pin of said locking member is adapted to engage to prevent pivotal movement of said pivotally supported structure and movement of said slide, said member having a coin opening formed therein which is adapted to receive a coin introduced into the machine, a coin support forming a part of said pivotally supported structure and disposed during one phase of the operation of the machine beneath the coin opening of said member to support a coin therein and movable during another phase of the operation of the machine with said pivotally supported structure away from its position beneath said coin opening to permit the coin to pass therefrom, said coin when supported in said coin opening serving to have its edge slidably engaged by the pin of said locking member to deflect said locking member so that the pin thereof clears the abutment of said member to permit movement of said pivotally supported structure and said slide, a stop formed on said member and adapted to be engaged by the pin of said locking member for limiting movement of said pivotally supported structure in one direction, and an arcuate face formed on said member between the locations of said abutment and said stop along which the pin of said locking member rides during pivotal movement of said pivotally supported structure.

FRED. NIEWOEHNER.