July 29, 1924. 1,503,072

L. R. SPOONER ET AL

VENDING MACHINE

Filed April 28, 1923 3 Sheets-Sheet 1

Fig. 1.

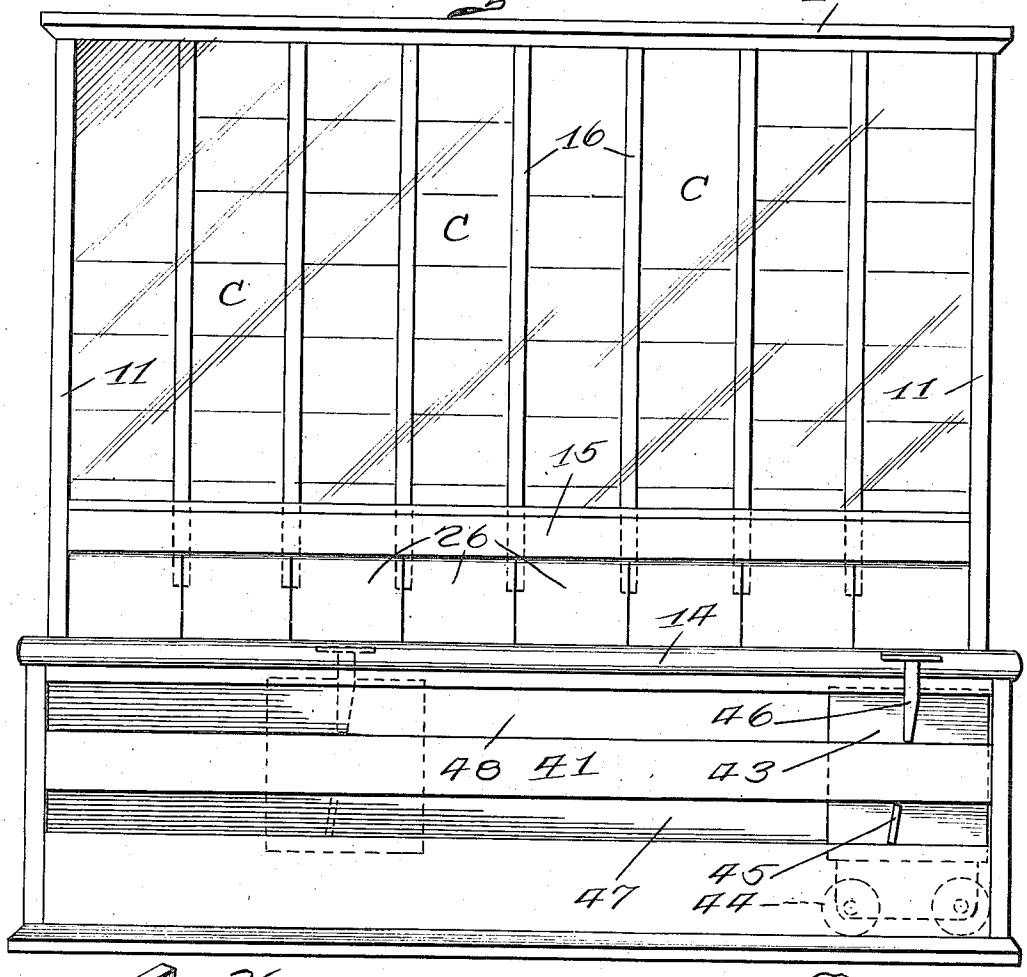
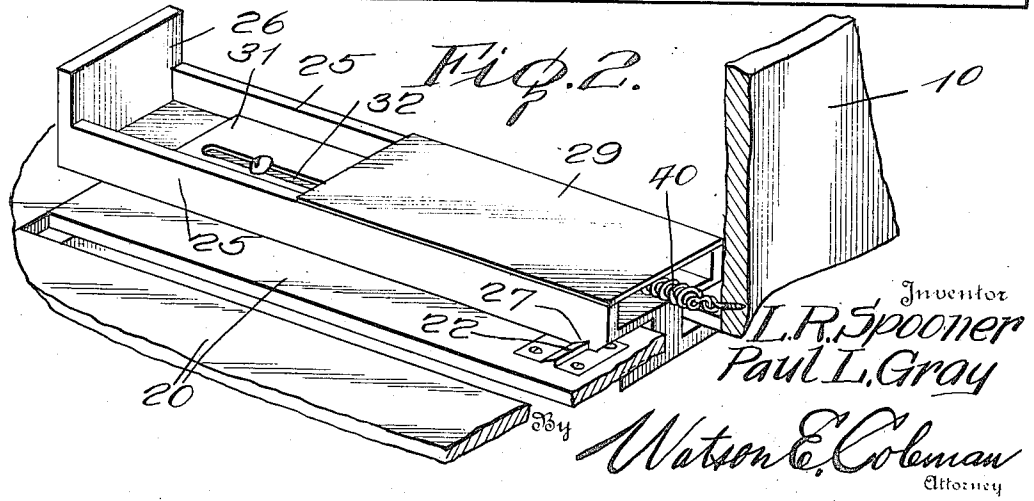


Fig. 2.



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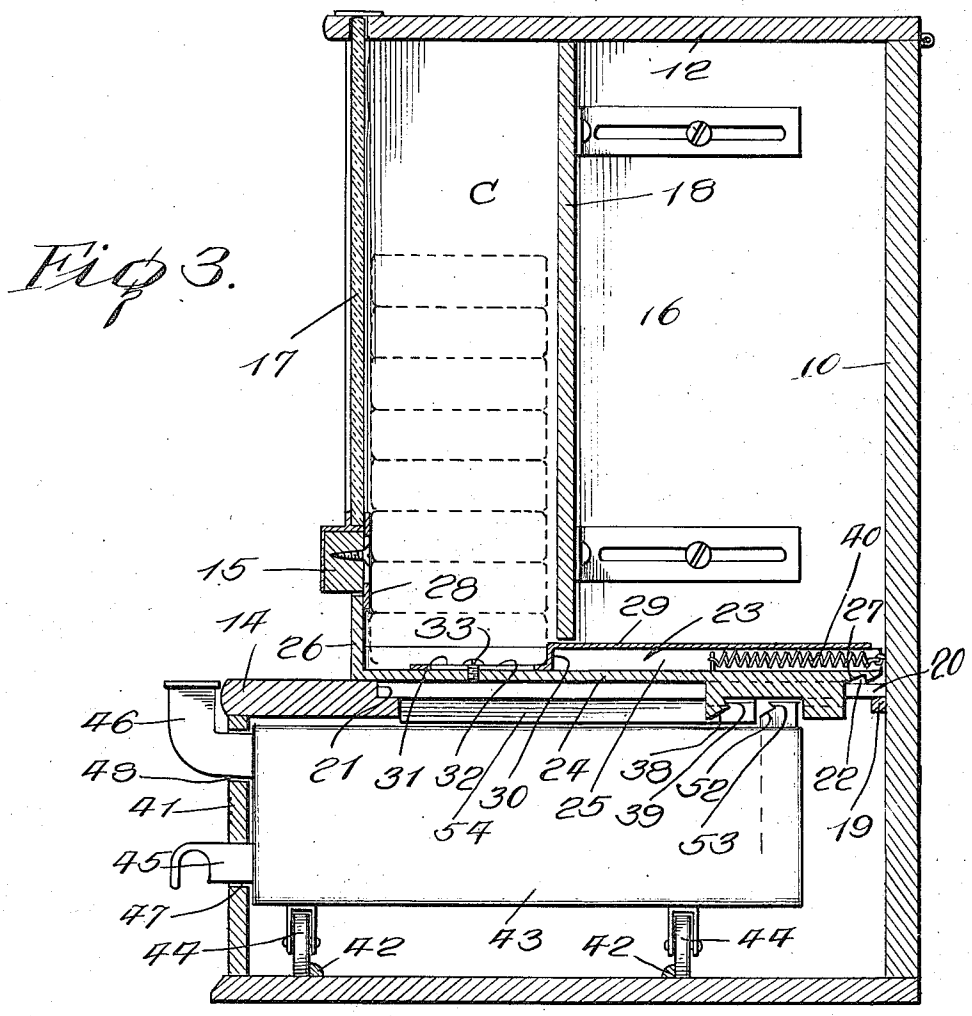
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Fig 3.



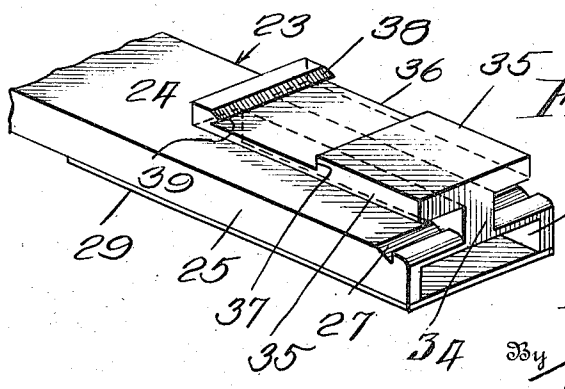


Fig. 4.

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L. R. SPOONER ET AL

VENDING MACHINE

Filed April 28, 1923 3 Sheets-Sheet 3

Fig. 5.

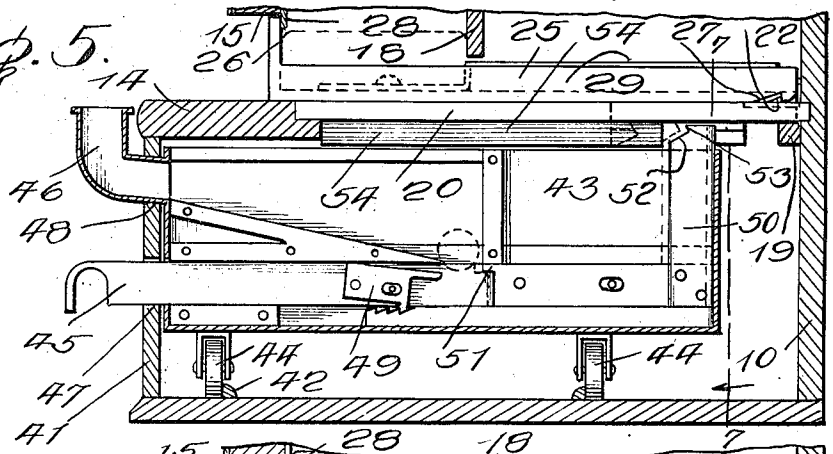
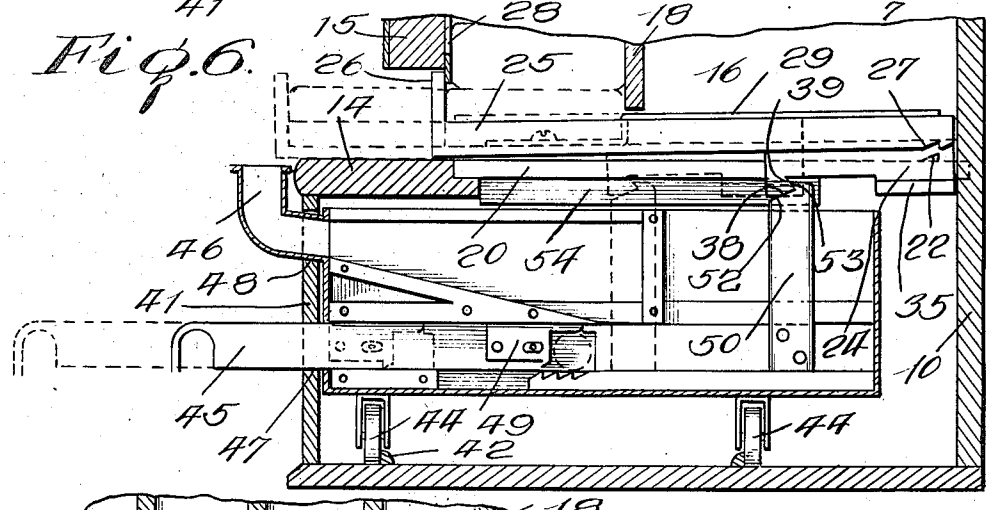


Fig. 6.



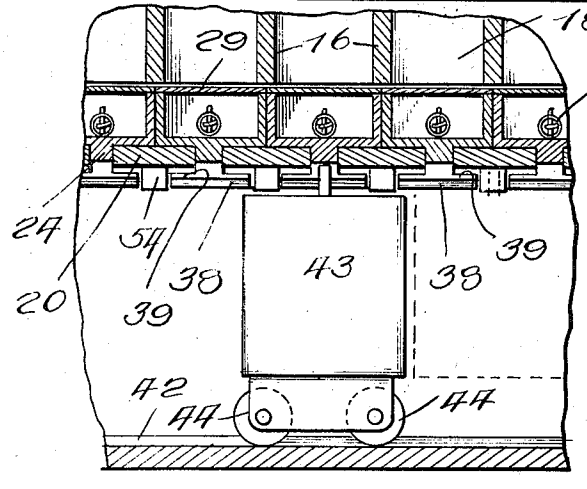


Fig. 7.

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Patented July 29, 1924. 1,503,072

UNITED STATES PATENT OFFICE.

LEE ROY SPOONER AND PAUL L. GRAY, OF WATERTOWN, SOUTH DAKOTA.

VENDING MACHINE.

Application filed April 28, 1923. Serial No. 635,252.

To all whom it may concern:

Be it known that we, LEE ROY SPOONER and PAUL L. GRAY, citizens of the United States, residing at Watertown, in the county of Codington and State of South Dakota, have invented certain new and useful Improvements in Vending Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to vending machines and more particularly to a vending machine for vending a plurality of different articles.

An important object of the invention is to provide a device of this character wherein a plurality of article containing cabinets are employed each having a lock discharge slide, together with a single coin controlled apparatus positionable to unlock and operate the discharge slide of any of the compartments.

A further object of the invention is to provide a novel and improved locking arrangement for the discharge slides of the compartments.

A still further object of the invention is to provide means preventing shifting of the coin controlled slide operating mechanism from one compartment to another until the coin controlled operating mechanism has been returned to the locked position.

A still further object of the invention is to provide a device of this character which is simple in its construction and arrangement and which is adjustable to permit the vending from the same compartment of articles of different lengths.

These and other objects we attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of our invention and wherein:—

Figure 1 is a front elevation of a vending machine constructed in accordance with our invention;

Figure 2 is a perspective view showing the upper side of the ejector mechanism;

Figure 3 is a vertical sectional view through the vending apparatus;

Figure 4 is a perspective view of the bottom side of the ejector mechanism;

Figures 5 and 6 are longitudinal sectional views through the coin controlled mechanism, showing various steps in the operation; and

Figure 7 is a section on the line 7—7 of Figure 5.

Referring now more particularly to the drawings, the numeral 10 indicates a rear wall of the vending machine, 11 the ends thereof and 12 a hinged top therefor. The sides 11 are connected at a point spaced above the base 13 of the machine by a horizontally disposed strip 14. Above this strip in spaced relation thereto a second strip 15 connects the ends 11, to which are secured the forward ends of partitions 16 subdividing the machine above the strips 14 into a plurality of vertically extending compartments. The strip 15 combines with the partition walls 16 to form guides for transparent panels 17 which are removable when the hinged top 12 is swung upwardly. Each compartment C is provided with an adjustable rear wall 18 extending between the adjacent partition walls 16 and mounted for adjustment toward and away from the transparent panel 17 forming the front wall of the compartment, thus permitting the adjustment of the length of the compartment to accommodate the article to be vended.

Secured to the rear wall 10 of the machine is a longitudinally extending strip 19 to which are secured the rear ends of spaced slats 20, the forward ends of which are set in a rabbet 21 formed in the rear edge of the horizontal strip 14 in such a manner that the upper surface of these slats is flush with the upper surface of the strip 14. Two of the slats 20 are arranged beneath each compartment C and at least one slat of each pair is provided adjacent its rear end with a spring catch member 22 for a purpose presently to appear.

Slidably mounted at the bottom of each compartment C upon the upper surface of the slats 20 and strip 14 is an article ejector 23. Each article ejector 23 comprises a base 24 having at its sides flanges 25 and at its forward end a closure plate 26. Each ejector 23 is further provided upon the bottom adjacent the rear end thereof with a notch 27 for receiving the spring catch 22 of its associated slats 20, so that when the ejector is moved rearwardly to the full extent this catch engages in the notch and locks the ejector against withdrawal. When in this position the closure flange 26 thereof is positioned directly beneath the strip 15 supporting the transparent panels 17 and is

engaged against an adjustable gauge plate 28 carried by the strip 15 upon the rear face thereof and spaced from the upper face of the plate 24 of the ejector 23 a distance equal to the thickness of the article to be vended.

Each ejector 23 is provided with an adjustable bumper plate 29 comprising a flat strip of metal of a width equal to the width of the ejector and resting upon the flanges 25 thereof. This plate is provided at its forward end with a depending flange 30 terminating in a right-angular extension 31 slidably engaging the plate 24 between the flanges 25 and having a slot 32 formed therein through which a clamping adjusting element 33 is directed for engagement with such plate 24. By loosening this screw or the like the plate 29 may be adjusted longitudinally of the ejector member so that the space between its flange 30 and the closure flange 26 of the ejector member is equal to the length of the article to be vended. It is pointed out that by the use of this construction the entrance of the article to be vended into the ejector member is prevented until the ejector member has been moved rearwardly to its fullest extent and that, accordingly, the ejector member must be moved to the locked position before a further article will be engaged thereby for withdrawal.

Each ejector member is further provided upon its under surface with a downwardly projecting flange 34 of a width equal to the space between the adjacent edges of the slats 20 associated therewith, the lower end of this flange being provided with angular extensions 35 underlying the slats 20 in spaced relation thereto. These extensions 35 are preferably formed by providing a T head upon the flange 34 and this T head is slotted on its under surface as indicated at 36, the rear edge of the slot being in the form of an abrupt shoulder 37 and the forward edge of the slot providing an inclined cam face 38 and a stop shoulder 39 in combination. The spacing of the upper surfaces of the angular extensions 35, formed by the T head from the under surface of the slats 20, is such as to permit upward movement of the rear end of the ejector 23 a sufficient distance to permit disengagement of the spring catch 22 of the slats from the notch 27 thereof, so as to free the ejector for movement. Each ejector 23 has further secured thereto one end of a spring 40, the opposite end of which is secured to the rear wall 10 of the vending machine, this spring being secured to the ejector upon the plate 24 thereof and beneath the bumper plate 29 so that it is housed and its interference with goods in the compartment C is prevented.

Secured to the base and extending upwardly therefrom beneath the end members 11 is a front or closure plate 41 and upon the upper surface of this other base, between the closure plate 41 and the rear wall 10, is provided a pair of parallel tracks 42 extending longitudinally of the base. The numeral 43 designates a container provided upon its under surface with supporting wheels 44 engaging these tracks to guide the travel of the container 43. The front end of the container 43 is arranged immediately adjacent the rear face of the closure plate 41 and this container encloses a coin controlled lock mechanism, including a plunger 45 and a coin chute 46 which project through longitudinally extending slots 47 and 48, respectively, formed in the plate 41 and provide means whereby the container 43 may be shifted to align the same with the desired compartment. The coin controlled lock mechanism may be of any suitable character, that herein illustrated being the coin controlled mechanism set forth in our co-pending application, Serial No. 626,606, filed March 21, 1923, for coin control locks for vending machines. As set forth in this application, the plunger 45 is positively locked by means of a trip member 49 until the coin of the proper denomination is inserted in the lock at which time the plunger may be longitudinally shifted. In the present construction we provide the rear end of the plunger 45, provided with an upwardly extending arm 50 at its rear end which when the plunger is in the retracted or locked position is positioned in alignment with the slots 36 of the ejector members 23, the rear face of the arm being positioned immediately adjacent the abrupt shoulder formed at the rear edge of these slots. When this ejector member is fully retracted, while positioned in the slot 36 of any of these ejectors, it will accordingly be obvious that the ejector must be positively moved to the closed and locked position. The plunger 45 is inoperative to move forwardly further than a pre-determined distance until a coin is in position therein, for the reason that a portion of this plunger engages against the trip 49, hereinbefore mentioned, thereby checking movement of the plunger since a coin cannot be entered in the plunger to render the same operative until the plunger is fully retracted, for the reason that the plunger embodies a part 51 extending into the coin slot when the plunger is not fully withdrawn. It will be obvious that in order for the device to be operative the plunger must be moved to its rearmost position and accordingly the ejector with which it is associated must be locked. The forward face of the arm 50 is provided with an inclined cam face 52 and a stop shoulder 53 coacting with the inclined cam face 38 and stop shoulder 39, respectively, of the ejector 23 with which it is associated. The inclined cam face 52 comes into engagement with the cam face 38 of the

ejector primarily and accordingly the rear end of the ejector is elevated to disengage the notch thereof from the spring catch 22, so that the ejector is free to move, the stop shoulder 53 then engages with the result that the ejector is moved forwardly to the open position at which time the article contained therein may be removed. In order to prevent movement of the casing 43 to align the ejector arm 50 thereof we secure to the under surface of the slats 20 stop strips 54, extending from the forward ends of these slats toward the rear thereof a sufficient distance that in order to clear the rear end of the strips the ejector arm must be in a fully retracted position.

In the use of the device, in the filling of a compartment the ejector member 23 of the compartment has a plate 29 thereof adjusted to the length of the articles to be placed in the compartment, the rear wall 18 of the compartment is then adjusted forwardly so that the space between it and the front panel 17 is likewise equal to the length of the articles to be contained therein. The gauge 28 is then adjusted so that it is spaced from the upper surface of the plate 24 a distance equal to the thickness of the article, after which the compartment is filled and a panel 17 installed. When it is desired to secure an article from any of the compartments C the casing 43 is shifted by engaging either the coin tube 46 or plunger 45 of the coin controlled lock until the casing is aligned with the desired compartment, a coin is then inserted and the plunger engaged with the hand, with the result that the rear end of the ejector 23 of this compartment is elevated and its rear end freed from the spring catch 22, continued movement of the plunger causes the ejector 23 to be extended so that the article may be removed therefrom. While the ejector is extended the plate 29 limits the downward movement of articles within the compartment C in such a manner as to prevent their withdrawal from the compartment and acts to prevent withdrawal until the ejector is fully retracted. Upon release of the plunger 45 the retraction springs of both the plunger and the ejector will act to return the ejector to the fully retracted position where it is locked.

It will be obvious that the construction hereinbefore set forth is capable of a considerable range of change and modification without in any manner departing from the spirit of our invention and we accordingly do not wish to be understood as limiting ourselves to the specific details of construction hereinbefore set forth except as hereinafter claimed.

We claim:—

1. In a vending machine, the combination with a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector and a shiftable coin controlled mechanism alignable with any of said compartments and having a plunger for shifting the article ejector of the compartment with which it is aligned, said plunger being locked when fully retracted, of means carried by the casing preventing shifting of said coin controlled mechanism from the compartment with which it is aligned until the plunger thereof is fully retracted.

2. In a vending machine and in combination, a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector locked against movement when retracted to its fullest extent, and shiftable coin controlled mechanism aligned with any of said compartments, and having a coin released plunger which when operated operates the ejector of the compartment with which it is aligned to eject an article therefrom, said plunger being locked when fully retracted, means for retracting said plunger, and an engagement between the plunger and the ejector of the compartment with which it is aligned whereby the ejector is fully retracted upon full retraction of the plunger.

3. In a vending machine and in combination, a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector locked against movement when retracted to its fullest extent, and shiftable coin controlled mechanism aligned with any of said compartments, and having a coin released plunger which when operated operates the ejector of the compartment with which it is aligned to eject an article therefrom, said plunger being locked when fully retracted, means for retracting said plunger, an engagement between the plunger and the ejector of the compartment with which it is aligned whereby the ejector is fully retracted upon full retraction of the plunger, and means carried by the casing preventing shifting of the shiftable coin controlled mechanism from the compartment with which it is aligned until the plunger thereof is fully retracted.

4. In a vending machine and in combination with a longitudinally shiftable article ejector locked when in fully retracted position and released for movement upon elevation of the rear end thereof, of a coin-controlled operating plunger for said ejector initially elevating the rear end of said ejector and subsequently shifting the ejector longitudinally.

5. In a vending machine, the combination with a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector and a shiftable coin controlled mech-

anism alignable with any of said compartments and having a plunger for shifting the article ejector of the compartment with which it is aligned, said plunger being locked when fully retracted, of means carried by the casing preventing shifting of said coin controlled mechanism from the compartment with which it is aligned until the plunger thereof is fully retracted, comprising abutment members carried by said casing and paralleling the path of movement of said plunger when actuated to eject an ejector, said abutment members having their lower faces extended below the upper end of the plunger and their rear ends disposed in approximate alignment with the front face of the plunger when in fully retracted position.

6. In a vending machine and in combination, a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector locked against movement when retracted to its fullest extent, and shiftable coin controlled mechanism aligned with any of said compartments, and having a coin released plunger which when operated operates the ejector of the compartment with which it is aligned to eject an article therefrom, said plunger being locked when fully retracted, means for retracting said plunger, and an engagement between the plunger and the ejector of the compartment with which it is aligned whereby the ejector is fully retracted upon full retraction of the plunger, and means carried by the ejector preventing engagement therein of an article from its associated compartment until the ejector is fully retracted.

7. In a vending machine and in combination, a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector locked against movement when retracted to its fullest extent, and shiftable coin controlled mechanism aligned with any of said compartments, and having a coin released plunger which when operated operates the ejector of the compartment with which it is aligned to eject an article therefrom, said plunger being locked when fully retracted, means for retracting said plunger, said article ejectors being each provided in its under surface with a slot into which the plunger extends when the control mechanism is aligned with the compartment thereof, the plunger engaging the rear wall of said slot to thereby shift the ejector to the retracted position during the retraction of the plunger.

8. In a vending machine and in combination, a casing formed to provide a plurality of compartments arranged in a row, each compartment having a shiftable article ejector locked against movement when retracted to its fullest extent, and shiftable coin controlled mechanism aligned with any of said compartments, and having a coin released plunger which when operated operates the ejector of the compartment with which it is aligned to eject an article therefrom, said plunger being locked when fully retracted, means for retracting said plunger, said article ejectors being each provided in its under surface with a slot into which the plunger extends when the control mechanism is aligned with the compartment thereof, the plunger engaging the rear wall of said slot to thereby shift the ejector to the retracted position during the retraction of the plunger, the opposite wall of the slot having a cam face and a cam face formed on the adjacent side of the plunger coacting with said cam face upon actuation of the plunger to release the ejector from the lock thereof.

9. In a vending machine and in combination with a longitudinally shiftable article ejector locked when in fully retracted position and released for movement upon elevation of the rear end thereof, of a coin controlled operating plunger for said ejector initially elevating the rear end of said ejector and subsequently shifting the ejector longitudinally, comprising a slot formed in said ejector in which the end of said plunger operates, one wall of the slot being provided with a cam face and a stop shoulder, the adjacent face of the plunger being provided with a cam face initially engaging the cam face of the wall and elevating the ejector, and a stop shoulder subsequently abutting the stop shoulder of the wall to thereby shift the ejector.

In testimony whereof we hereunto affix our signatures.

LEE ROY SPOONER.
PAUL L. GRAY.