Sept. 21, 1926. 1,600,814

J. FRITSCHE ET AL.

VENDING MACHINE

Filed April 18, 1922 5 Sheets-Sheet 1

Fig. 1.

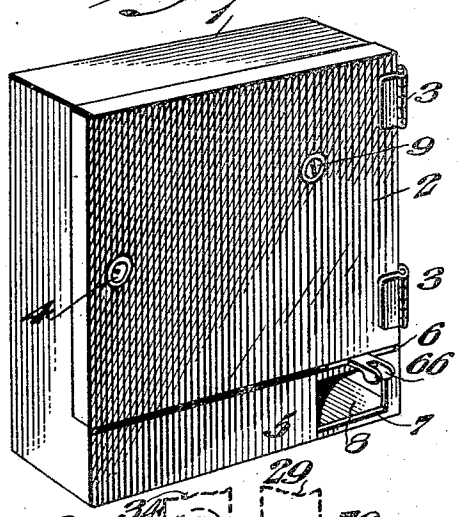


Fig. 2.

ON LINE 2-2. FIG. 5.

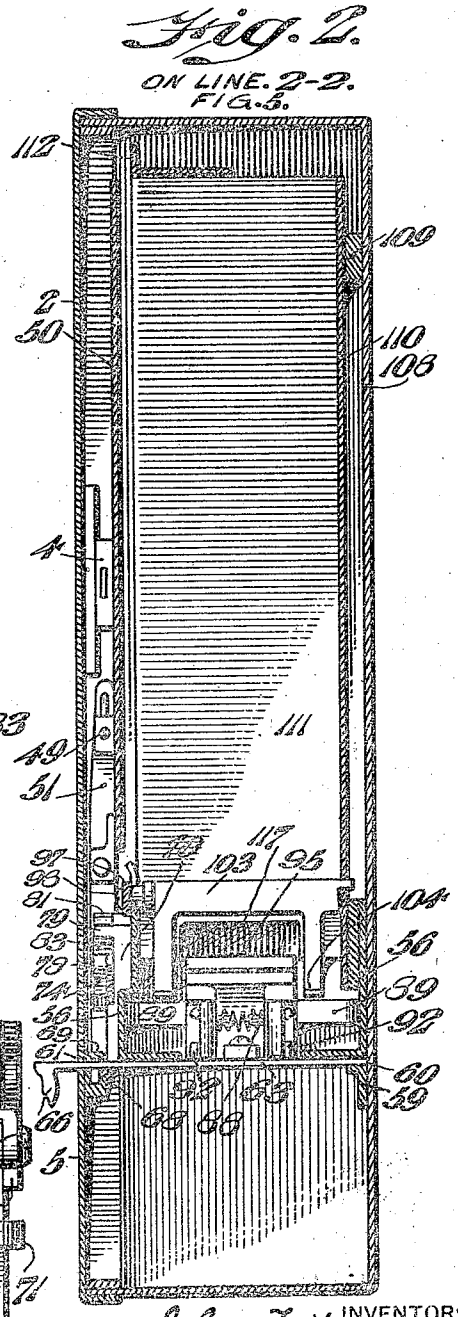


Fig. 3.

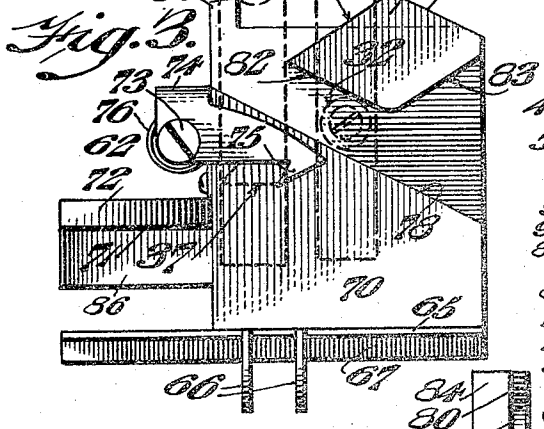
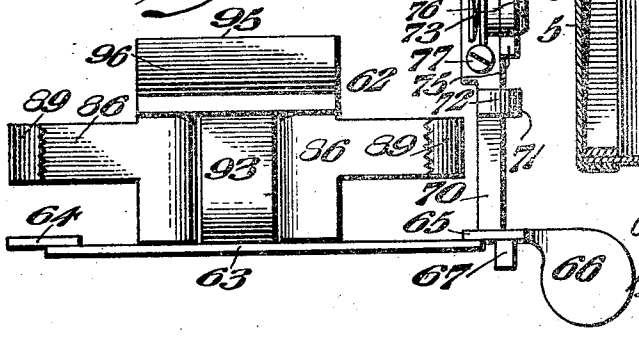


Fig. 4.



INVENTORS
John Fritsche.
Joseph E. Hacik.
BY
Fridersheim & Lombard
ATTORNEYS.

Sept. 21, 1926. 1,600,814

J. FRITSCHE ET AL

VENDING MACHINE

Filed April 18, 1922 5 Sheets-Sheet 2

Fig. 5.

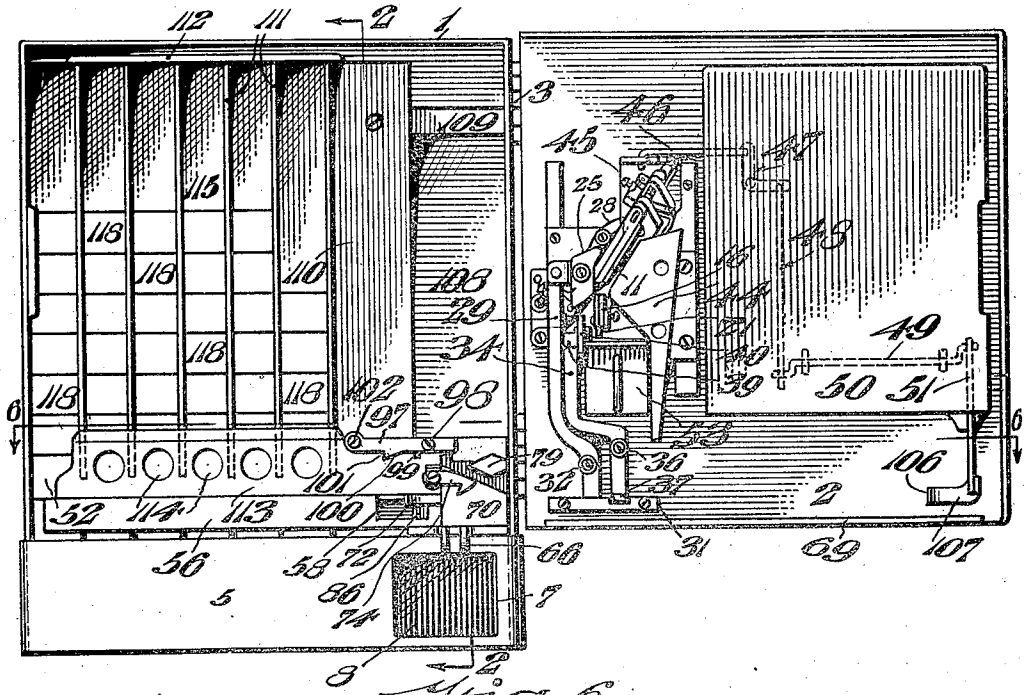
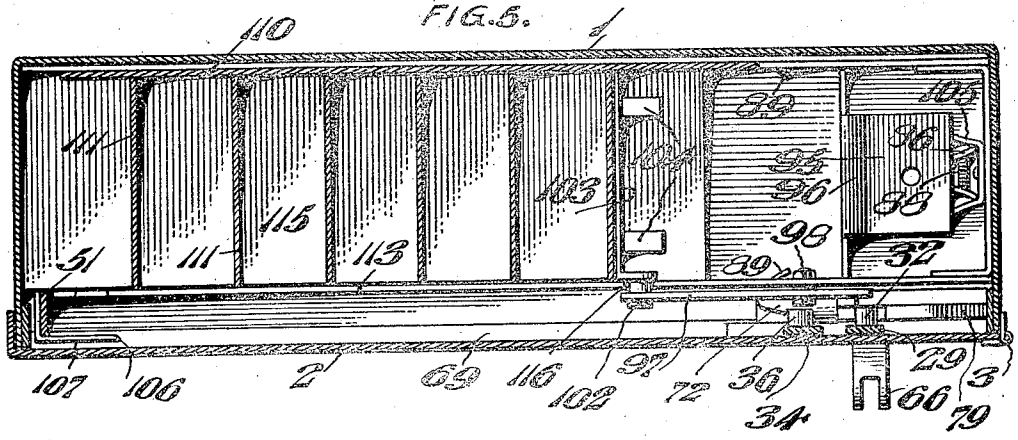


Fig. 6.

ON LINE. 6-6. FIG. 5.



INVENTORS

John Fritsche.

Joseph S. Hadik.

BY

Wiedersheim & Fairbanks

ATTORNEYS.

Sept. 21, 1926. 1,600,814

J. FRITSCHE ET AL

VENDING MACHINE

Filed April 18, 1922 5 Sheets-Sheet 3

Fig. 7.

ON LINE 7-7. FIG. 3.

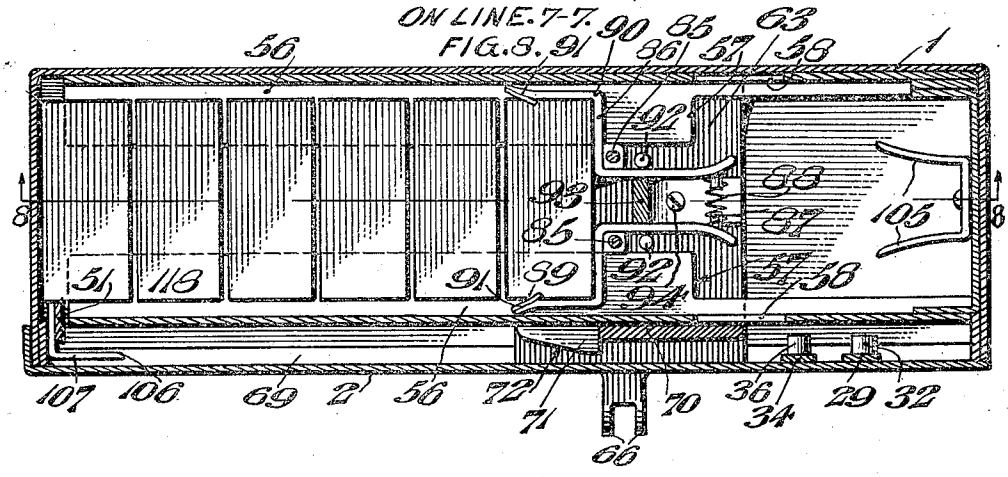
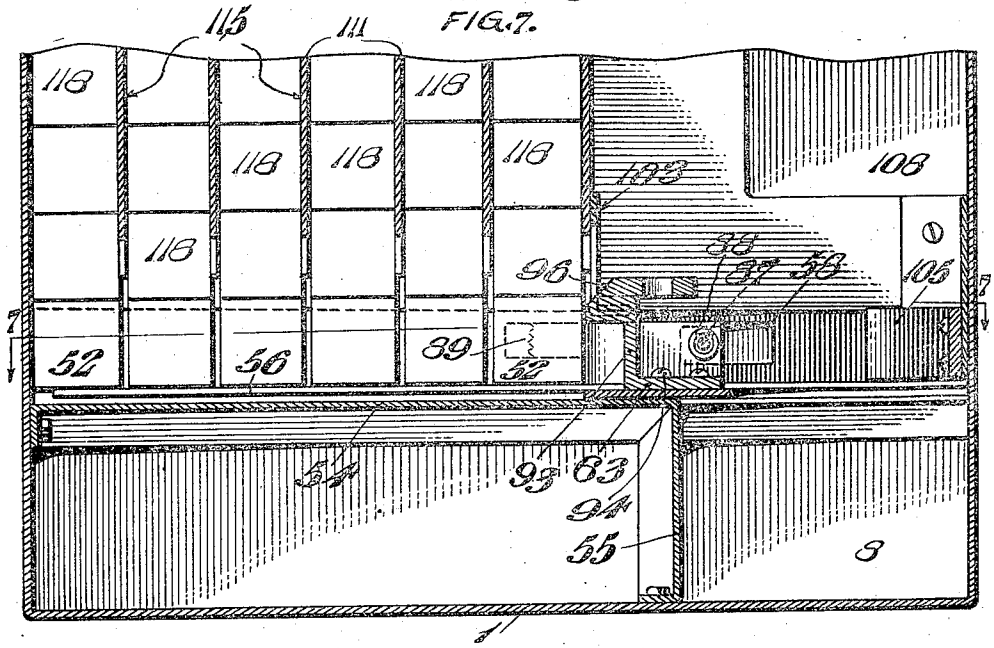


Fig. 8.

ON LINE 8-8. FIG. 7.



INVENTORS

John Fritsche.

Joseph B. Hadik.

BY

Wiedersheim & Fairbanks

ATTORNEYS.

Sept. 21, 1926. 1,600,814

J. FRITSCHE ET AL

VENDING MACHINE

Filed April 18, 1922 5 Sheets-Sheet 4

Fig. 9.

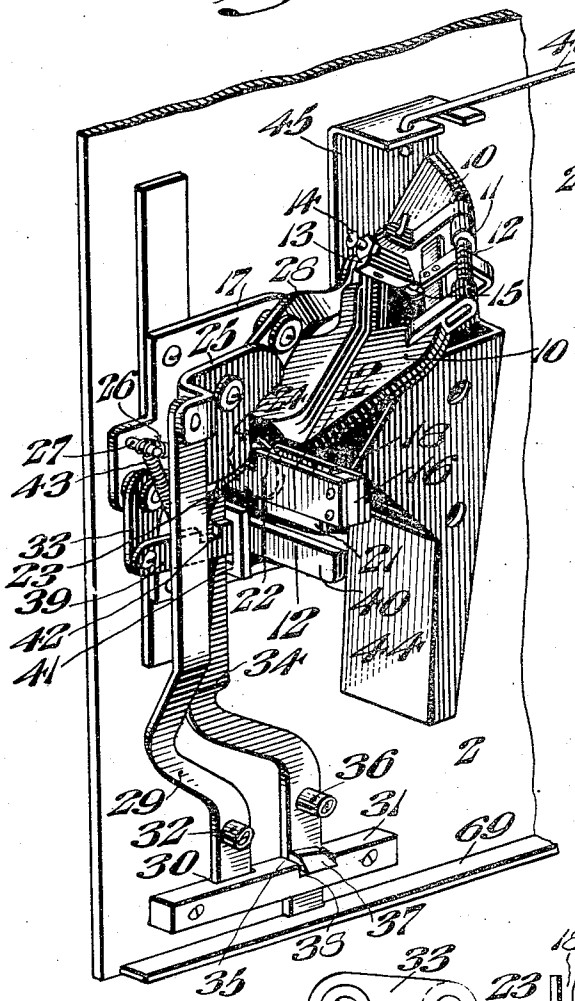


Fig. 10.

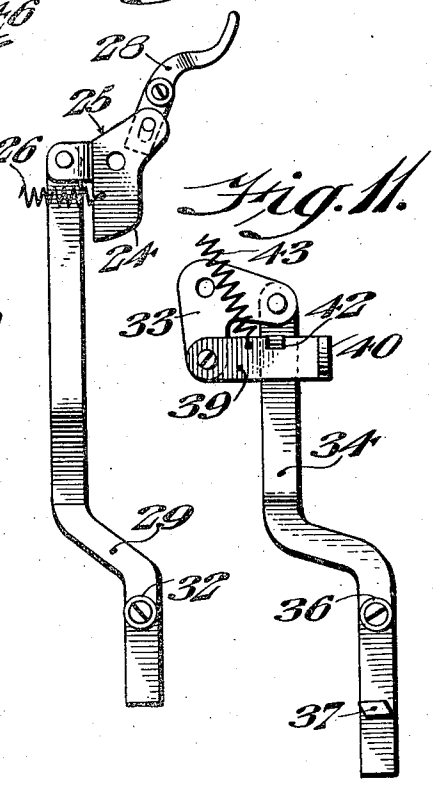


Fig. 11.

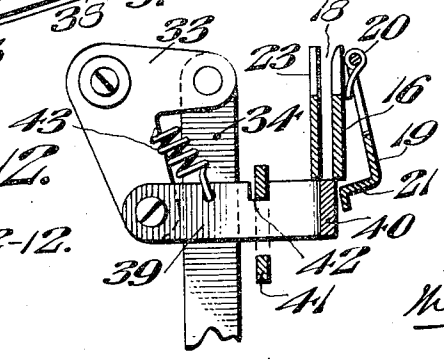


Fig. 12.

ON LINE. 12-12. FIG. 9.

INVENTORS
John Fritsche.
Joseph B. Hadick.
BY
Niedersheim & Lombard
ATTORNEYS.

Sept. 21, 1926. 1,600,814

J. FRITSCHE ET AL

VENDING MACHINE

Filed April 18, 1922 5 Sheets-Sheet 5

Fig. 13.

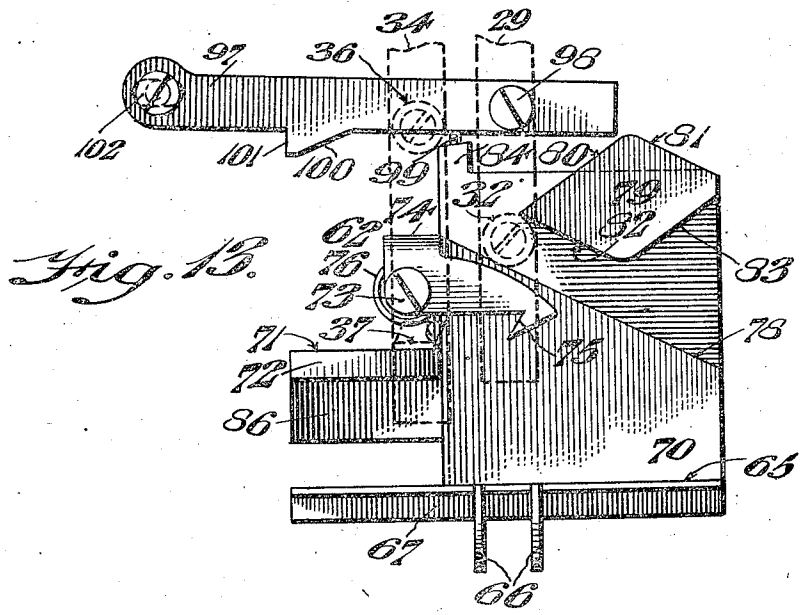
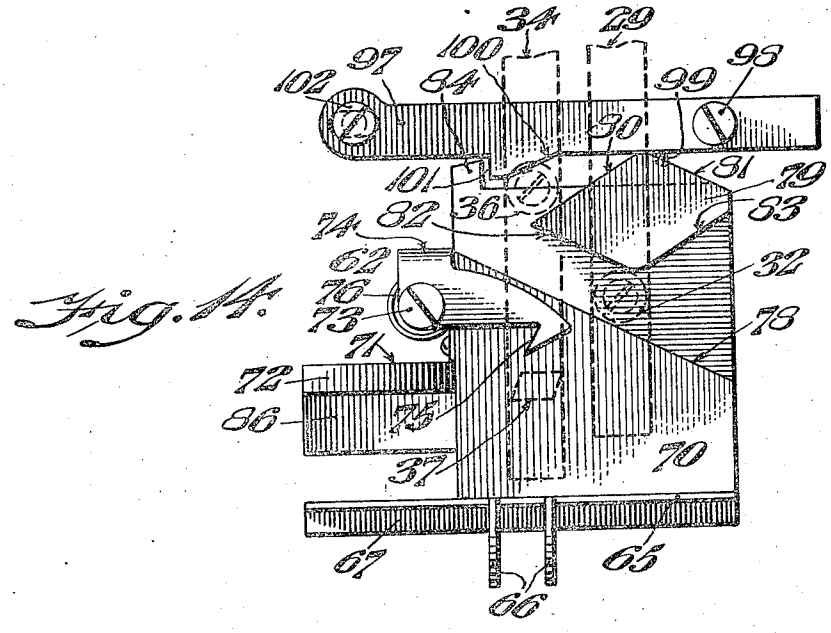


Fig. 14.



INVENTORS

John Fritsche,
Joseph S. Hadik.

BY

Wiederhein & Laubach.

ATTORNEYS.

Patented Sept. 21, 1926. 1,600,814

UNITED STATES PATENT OFFICE.

JOHN FRITSCHE, OF MERION, AND JOSEPH C. HADIK, OF PHILADELPHIA, PENNSYLVANIA; SAID HADIK ASSIGNOR TO SAID FRITSCHE.

VENDING MACHINE.

Application filed April 18, 1922. Serial No. 554,933.

Our present invention comprehends a novel vending machine which is adapted to dispense automatically the article purchased when a check or coin of proper denomination is inserted into the machine.

The articles vented are preferably contained within a package or box although this is not essential with many types of articles.

It further comprehends a novel construction and arrangement of a casing having a series of compartments in which the articles are superimposed; a novel construction and arrangement of an article removing member having means to clamp the article on coming into contact with it; novel means to effect the release of an article when it reaches delivery position; novel means for rendering it necessary for the article removing member to move its full stroke and a novel construction and arrangement of coin controlled mechanism to normally lock the article removing member in its neutral or initial position, to unlock said member and to effect the resetting of the coin mechanism.

It further comprehends novel mechanism cooperating with the article removing member to prevent its return to its initial position unless an article is being carried by such member.

Other novel features of construction and advantage will hereinafter more fully appear in the detailed description and the appended claims.

For the purpose of illustrating our invention, we have shown in the accompanying drawings a typical embodiment thereof which is at present preferred by us, since this embodiment will be found in practice to give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents, in perspective, a vending machine, embodying our invention.

Figure 2 represents a section on line 2—2 of Figure 5.

Figure 3 represents a front elevation of an article delivering mechanism and certain of its adjuncts.

Figure 4 represents, in front elevation, the article delivery member and certain of its adjuncts.

Figure 5 represents a front elevation of the machine with the front door open.

Figure 6 represents a section on line 6—6 of Figure 5.

Figure 7 represents a section on line 7—7 of Figure 8.

Figure 8 represents a section on line 8—8 of Figure 7.

Figure 9 represents, in perspective, the coin controlling mechanism and a portion of the door by which it is carried.

Figure 10 represents a side elevation of certain parts seen in Figure 9.

Figure 11 represents, in side elevation, certain parts seen in Figure 9.

Figure 12 represents a section on line 12—12 of Figure 9.

Figures 13 and 14 represent front elevations of the article removing member in detached position in conjunction with certain co-operating means and shows the parts in different relation with respect to each other from that seen in Figure 3.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:

1 designates the casing of a vending machine, embodying our invention. The top, bottom, sides and rear wall of the casing are closed and the front wall is provided with a door 2 which is hinged to the casing at 3 and which is provided with a key controlled lock 4. The door 2 forms with the rest of the front wall 5 of the casing a slot 6 and the wall 5 is provided with an article delivery opening 7, which communicates with a pocket 8 within the casing and to which the articles are automatically delivered when a check or coin of the proper denomination is inserted in the coin slot 9 carried by the door 2.

The coin mechanism.

The coin controlled mechanism is mounted on the back of the door 2 in order that it may be readily accessible for inspection or repairs whenever desired.

Referring now more particularly to Figures 5 and 9, the coin slot 9 registers with a coin chute 10 which is constructed substantially in accordance with the Fritsche patent for fraud preventative device No. 852,111,

patented April 30, 1907. The coin chute is provided with a pivoted side 11 which is retained against the fixed side of the coin chute by means of a spring 12. The fixed portion of the coin chute is provided with a pivoted arm 13 which is weighted and which is provided with a screw 14 so that the extent of its downward movement can be limited. The arm 13 is in spaced relationship with respect to a set screw 15 carried by the pivoted side 11 of the coin chute. If a check or coin inserted into the coin slot 9 is of the proper dimension and denomination for which the machine is set, it passes from the coin chute 10 into a coin retainer 16 secured to the plate 17 on which the coin controlling mechanism is mounted, said plate being operatively connected with the door 2 in any desired manner. The coin retainer 16 has a slot 18 opening through its top and bottom and the bottom of this slot is normally closed by the laterally deflected portion of a pivoted member 19 which has a spring hinge 20, so that the laterally deflected lip 21 normally closes the bottom of the slot 18 through the coin retainer 16 so that the coin 22 will rest on the lip 21 within the coin retainer.

The coin retainer is provided with a slot 23 into which is adapted to pass the cam shaped portion 24 of a lever 25 fulcrumed on the plate 17. This lever is maintained in its neutral position by means of a spring 26 one end of which is connected with said lever and the other end of which is connected to a fixed point such as, for example, a pin 27 extending from the plate 17. The lever 25 has pivotally connected with it one end of a lever 28 which is fulcrumed on the plate 17 and has its free end bearing against the pivoted side 11 of the coin chute to effect the opening of said coin chute. The lever 25 has also pivotally connected to it one end of a bar 29, the lower end of said bar being guided in the slot 30 of a block 31 secured to the rear of the door 2. The bar 29 carries a roller 32.

33 designates a lever fulcrumed on the plate 17 and this lever is in the form of an elbow lever, the upper arm of which has pivotally connected to it a bar 34 which is guided in a slot 35 in the block 31 and provided with a roller 36. This bar 34 is provided with a cam shaped lug 37 which is adapted to seat at certain times in a recess 38 in the top face of the block 31. The lever 33 has pivoted to it one end of an L-shaped arm 39, the laterally extending arm 40 of which is adapted during the operation to engage the pivoted member 19 and move it into the position seen in Figure 12. The other arm of the L-shaped member 39 is guided in a bracket 41 which is substantially U-shaped and a slot 42 is formed which is adapted to interlock with the bracket 41 as will be hereinafter explained. The spring 43 has one end connected to the arm 39 and its opposite end connected to the pin 27.

44 designates a return chute the upper end of which is opened and positioned beneath the coin chute 10 so that if the coin does not pass through the coin chute and is retained therein it will drop into the return chute 44 and drop into the pocket 8 when the pivoted side 11 of the coin chute is open.

In order to close the coin slot 9 when the machine is empty, we provide a plate 45 pivotally mounted at its lower end and having connected at its upper end one end of a rod 46, the opposite end of which as seen in Figure 5 is connected to one end of an elbow lever 47 to which is also connected a rod 48 which is connected with a rock shaft 49 mounted on a cover plate 50. A pivoted lever 51 is connected to the other end of the rock shaft 49 by means of a pin and slot connection and the parts are so weighted that in the position seen in Figure 5 the coin slot can be closed by the plate 45 and the lower end of the lever 51 will be rocked inwardly towards a package or article to be vended 52 but such inward movement will be limited by the last package in the last compartment; so that when the door 2 is closed the coin slot 9 will be uncovered by the plate 45 until the last package has been vended, as will hereinafter be explained.

Beneath the coin retainer is positioned the money box 53. The casing 1 has secured in its bottom portion in any desired manner a plate 54 one end of which is downwardly deflected, as at 55, to form a wall of the pocket 8. Above this plate 54 are secured the angles 56 the laterally extending lower flanges of which form supports and guides for the articles to be vended. The laterally extending flanges of the angles 56 are cut away, as indicated at 57, see Figure 7, so that when the articles are above the pockets 8 and released from the article carrier they will drop by gravity into such pockets 8. In proximity to the pockets 8 the vertically extending flanges of the angles 56 are provided with the slots 58, see Figure 7 and also 5 and 8.

The rear angle 56, see Figure 2, has a bar 59 secured to the rear wall of the casing below it so as to form a slot 60 and in a similar manner the door 2 and the cover plate 5 form a slot 61 said slot serving as guides for the article removing member 62, see more particularly Figures 3 and 4. The article removing member 62 is provided with a bottom plate 63 to which is secured a bar 64 slidable in the slot 60 and also a bar 65 slidable in the slot 61. This bar 65 is provided with a grasping portion 66 by means of which it is manipulated and also the key 67 which travels in a keyway 68 carried by the front plate 5, see Figure 2.

The door 2 is provided with an inwardly extending bottom flange 69 which contributes to form a guide for the article removing member. The bar 65 has secured to it in any desired manner a vertically disposed cam plate 70 having projecting from its forward edge a cam 71 provided with a forwardly and inwardly extending cam surface 72. Above this cam 71 is pivoted at 73 a stop 74 in the form of an arm having a hook 75 at its forward end and provided with a spring 76 one end of which is connected to the stop 74 as seen in Figure 4 while its opposite end is connected to a fixed point, for example, a screw 77.

The front face of the cam plate 70 is provided with a cam face 78 which inclines forwardly and upwardly. The cam plate 70 carries above the cam face 78 a cam block 79, the top face of which inclines forwardly and downwardly, as at 80, and rearwardly and downwardly, as at 81. Its under face inclines forward and upwardly, as indicated at 82, and rearwardly and upwardly, as indicated at 83, so that the cam block 79 has substantially a diamond contour. The cam plate 70 at its front upper end is provided with the upwardly extending lug 84, the top face of which inclines forwardly and downwardly, see more particularly Figures 3 and 14. The bottom plate 63 of the article removing member has fulcrumed on it at 85 the clamping levers 86, see more particularly Figures 4, 7 and 8. The rear ends of these levers are deflected outwardly and carry on their inner face the studs 87 which position a spring 88, the tendency of which is to move towards each other the forward ends of the clamping levers 86, the forward portions of which are rearwardly and inwardly deflected to form the jaws 89, the free edges of which are preferably serrated. The clamping levers 86 are angularly deflected, as at 90, in order to conform to the shape of the package or article which is to be vended and as the package illustrated is substantially rectangular the clamping levers are clamped to form substantially a right angle.

It will be understood from Figure 7 that the forward portions 91 are bent laterally so that during their forward movement they will ride against the upwardly extending flanges of the angle 56 which causes the clamping or gripping portions of the lever to move towards each other and be retained in such position during the forward movement of the article removing member.

92 designates stops carried by the bottom plate 63. 93 designates a post having a foot flange which is secured to the bottom plate 63 by means of a fastening device 94 and this post carries at its upper end a plate 95, the forward portion of which inclines forwardly and downwardly, as at 96.

The cam face on the lug 84, co-operates with a cam lever 97 see more particularly Figures 5 and 6 which is fulcrumed at 98 to a fixed portion of the machine and provided with a downwardly extending stop lug 99 in advance of which is a cam face 100 and a stop shoulder 101. The forward end of the lever 97 has a pin and slot connection at 102 with a rock shaft 103 mounted in the angles 56 and provided with the depending L-shaped hooks 104 which are raised by a package on the return stroke of the article removing member to raise the lever 97 so that its stop members 101 and 99 will be out of the path of the lug 84 on the cam face 70. The clamping levers 86 are released by means of a U-shaped releasing member 105 secured in any desired manner in fixed position in the path of the outwardly flaring ends of the clamping levers when the article removing member reaches its rearward position.

The releasing member 105 is provided with the spaced arms which preferably diverge towards their free ends. The cam face 72 of the cam 71 is adapted to co-operate with the cam face 106 and the cam 107, see more particularly Figures 5, 6 and 7.

We will next describe the cabinet portion of the machine in which the articles to be vended are sold. As will be understood by reference to Figures 2 and 5, the rear wall 108 of the cabinet has connected with it a bar 109 to which is secured a rear plate 110 to which are connected in any desired manner the rear ends of the partitions 111. The top of these partitions are secured in any desired manner by a top angle 112 and the partitions at their front lower portions are connected in any desired manner to a plate 113 which has apertures 114 opening into each column or vertical chamber 115. The plate 113 is connected with the back plate 110, see Figure 6. This plate 113 is provided with a recess 116 which limits the downward movement of the rock shaft 103, see Figure 6. The lower ends of the partitions 111 are simply cut away, as at 117, see Figure 2. 118 designates the packages or articles which are to be vended which are superimposed upon each other in their respective article receiving chamber 115.

The operation of our novel vending machine will now be apparent to those skilled in this art and is as follows:—

Assuming now that all of the compartments 115 in which the articles are superimposed have been filled and that the parts of the coin mechanism are in their initial or neutral position; that the article carrier is in the position it assumes when at the rear end of the stroke and that the door is locked, the machine is ready for operation. The intending purchaser places a check or coin of the proper denomination in the coin

slot 9 and the coin will pass through the coin chute 10 and be received in the coin retainer 16 and will come to rest on the laterally deflected arm 40 of the member 39. At this time the bar 34 is in its raised position and this bar 34, as will be understood by reference to Figure 11, is connected to the lever 33 which in turn is connected to the member 39 which carries the arm 40 on which the coin is resting, the parts just described being retained in set position by means of the spring 43 and the bracket 41 interlocking with the walls of the slot 42 of the member 39. The purchaser now takes hold of the handle portion 66 of the article removing member and moves it towards the left.

The roller 32 carried by the bar 29 is at this time in its raised position by means of the spring 26. As the article carrier is moved forwardly, the roller 32 is in the path of the cam face 82 so that such forward movement of the article removing member 62 causes the bar 29 to be drawn downwardly, see more particularly Figures 13 and 3. As the bar 29 moves downwardly, it rocks the lever 25 on its fulcrum thereby causing the cam shaped portion 24 to move into the slot 23 and engage the coin or check which is in the coin retainer and this pressure on the check or coin causes the latter to move downwardly sufficiently for the upper arm of the bracket 41 to be released from the recess 42 in the arm 39 whereupon the spring 43 will draw the arm 39 rearwardly and permit the coin to drop from the coin retainer 16 into the money box 53, see Figure 5. This rearward movement of the member 39 rocks the lever 33 on its fulcrum thereby causing the bar 34 to move downwardly and the lug or cam 37 will be received in the recess 38 of the guide block 31, so that the lug 37 is now in the position seen in Figure 9.

As the article removing member moves forwardly in the manner just described, the lug 84, see Figures 13 and 14, rides under the stop member 99 and as it passes by the cam face 100 the arm 97 will be rocked on its fulcrum 98 thereby rocking the rock shaft 103 and as it passes the stop shoulder 101 the lever 97 will drop into its normal position seen in Figure 14 so that after the article removing member has moved forwardly it cannot be returned to its starting position unless an article has been taken up and is being carried by the article removing member on its return movement. As the article removing member moves forwardly, the jaws 89 are moved towards each other by their engagement with the upwardly extending flanges of the angles 56.

The article removing member is moved forwardly until the clamping jaws grip the lowermost article in the first chamber which contains an article and as the spring 88 is provided, see Figure 7, the clamping jaws will resiliently engage and grip opposite ends of an article.

The operator now moves the article receiving member rearwardly and as the article comes in the path of the hooks or fingers 104 the shaft 103 will be rocked so that the cam lever 97 will be raised so that the stop members 101 and 99 will be out of the path of the lug 84 of the article removing member and thereby permit the return movement of the article removing member to the rearward end of its stroke.

As the article removing member reaches the end of its rearward stroke, the flaring ends of the clamping levers will come into contact with the arms of the releasing member 105 which will cause the clamping jaws 89 to separate and release the article 118 which they have been carrying and the article will fall into the pocket 8 into a position accessible to the purchaser. The last article in the last compartment presses against the cam 107 so that its inward movement is limited and the coin slot is uncovered by the plate 45. When the article removing member is advanced to vend the last article, the cam surface 72 moves the cam 107 away from such article so that the clamping jaws 89 can take hold of the last article. When the last article is vended the cam 107 is free to swing inwardly so that the coin slot will be closed by the plate 45. It will be seen that the article removing member after once being started in its forward movement after its release by the coin mechanism cannot be again returned to its starting position unless it has been moved sufficiently in a forward direction for the clamping jaws to pick up an article.

If the article removing member on its return movement does not carry an article then the cam lever 97 will be in its lowermost position so that the stop member 101 is in the path of the lug 84, see for example Figure 14. After the coin mechanism has been unlocked, it is automatically reset so that on the return movement of the article removing member the lug 37 on the bar 34 is in the path of the hook 75 of the stop 74 and this hook is provided with a cam face so that it will ride over the lug 37 being moved upwardly against the tension of the spring 76 and it will then drop into the position seen in Figure 3 so that it will be impossible to move the article removing member forwardly to obtain an article unless another check or coin has been deposited in the coin mechanism. The stop 99 acts as a safety stop so that if a coin has been deposited in the machine the article removing member cannot be moved rearwardly to its starting position unless it has first imparted to it its full forward stroke sufficiently to clamp an article.

The coin mechanism is released by the cam face 82 during the forward movement of the article removing member as this draws downwardly the bar 29. This as before explained effects the downward movement of the bar 34 so that as the article removing member moves forwardly after the coin mechanism has been released the roller 36 on the bar 34 will engage the cam face 80 of the cam block 79 thereby causing the bar 34 to move upwardly thus rocking the lever 33 and moving the member 39 forwardly sufficiently to cause the walls of the recess 42 to interlock with the upper arm of the bracket 41 so that the laterally extending arm 40 will close the bottom of the coin retainer 16 and the coin mechanism is reset ready for the next operation.

The bottom of the slot 18 of the coin retainer 16 is normally closed by the lip 21 and when the coin mechanism is in set position it is moved outwardly as will be understood by reference to Figure 12. When the bar 29 is moved downwardly to rock the lever 25 the lever 28 is rocked to effect the opening of the pivoted side 11 of the coin chute 10 so that any article retained in the coin chute will pass through the return chute 44 and will drop into the pocket 8 into a position accessible to the intending purchaser.

It will now be apparent that we have devised a new and useful vending machine which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while we have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that such embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described our invention what we claim as new and desire to secure by Letters Patent, is:—

1. In a vending machine, a casing having a series of article receiving compartments in which the articles to be vended are superimposed, an article removing member movable with respect to said compartments and including clamping jaws automatically controlled during the movement of said article removing member to first remove the articles from one compartment and then from the next compartment, means to lock said member in position, and means to effect the release of said member.

2. In a vending machine, a casing having a series of article receiving compartments in which the articles to be vended are superimposed, an article removing member movable with respect to said compartments and including clamping jaws automatically controlled during the movement of said article removing member to first remove the articles from one compartment and then from the next compartment, means to lock said member in position, means to effect the release of said member, and stop mechanism to prevent the return movement of said member to its starting position unless it is carrying an article.

3. In a vending machine, a casing having a series of article receiving compartments in alignment with each other, an article removing member adapted to travel into and through said compartments and having means including clamping jaws automatically controlled during the movement of said article removing member to automatically grip and clamp an article in a compartment, stop mechanism in the path of said member on its return movement to prevent the return of said member if an article is not carried by it, means actuated by an article carried by said member to effect the release of said stop mechanism and permit the full return movement of said member and means to automatically release said clamping members.

4. In a vending machine, a casing having a series of article receiving compartments, article removing means comprising a reciprocatory member having clamping members, means to cause said members to engage and clamp an article in the nearest compartment on their forward movement, and means to effect the release of said clamping mechanism on the return movement of said article removing means.

5. In a vending machine, a casing having a compartment in which the articles to be vended are superimposed, an article removing member slidably mounted and having clamping members movably mounted thereon and adapted to automatically grip opposite sides of an article, releasing means for said clamping members, means to lock said article removing member in its inoperative position, and means to effect the release of said article removing member to render it operative.

6. In a vending machine, a casing having a series of article receiving compartments in which the articles move downwardly by gravity, an article removing member comprising a single reciprocatory member slidably mounted with respect to said compartments and having means to automatically clamp the lowermost article with which it engages, means to lock said member in its inoperative position, means to render said member operative, and means to effect the release of an article from said article removing member when the latter reaches its delivery position.

7. In a vending machine, a casing having

a series of article receiving compartments and a delivery opening, an article removing member comprising a single reciprocatory member to automatically remove an article from its compartment and deliver it in proximity to said delivery opening, means to automatically cause said article removing member to release an article when it reaches delivery position, and mechanism for rendering said article removing member operative or inoperative.

8. In a vending machine, a casing having an article receiving compartment, an article removing member including a pair of independently fulcrumed clamping jaws movable into the path of an article to receive it and carry it to delivery position, and having a stop portion, a movably mounted member having a stop portion to engage the stop portion of said article removing member and prevent the latter's return if an article is not carried by it, and means operatively connected with said movably mounted member and actuated by an article being delivered by said article removing member to move the stop portion of the movably mounted member out of the path of the stop portion of the article removing member.

9. In a vending machine, a casing having a series of article receiving compartments, a reciprocatory article removing member slidable in the path of the end articles in said compartments and having means to automatically clamp an article and carry it to delivery position, means to effect the release of an article when the article removing member reaches delivery position, and mechanism for rendering said article removing member operative or inoperative to effect the removal of an article from its compartment.

10. In a vending machine, a casing having an article receiving compartment, a delivery opening, an article removing member slidable between said compartment and opening and including fulcrumed clamping levers, members arranged in said casing to move said levers into clamping position during their movement towards said compartment, and means to automatically release said clamping members when an article is to be delivered.

11. In a vending machine, a casing having an article receiving compartment, a delivery opening, an article removing member slidable between said compartment and opening and including fulcrumed clamping levers, the forward ends of said levers being rearwardly deflected to form clamping jaws, members arranged in said casing to move said levers into clamping position during their movement towards said compartment, and means to automatically release said clamping members when an article is to be delivered.

JOHN FRITSCHE.
JOSEPH C. HADIK.