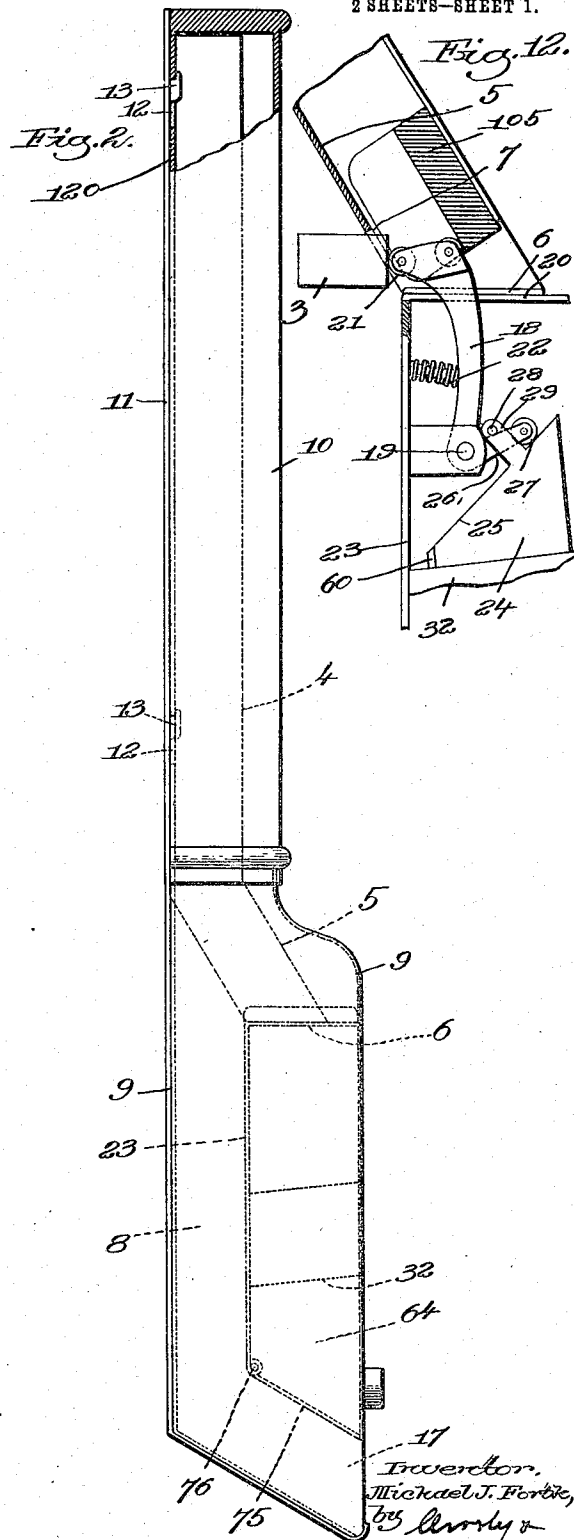
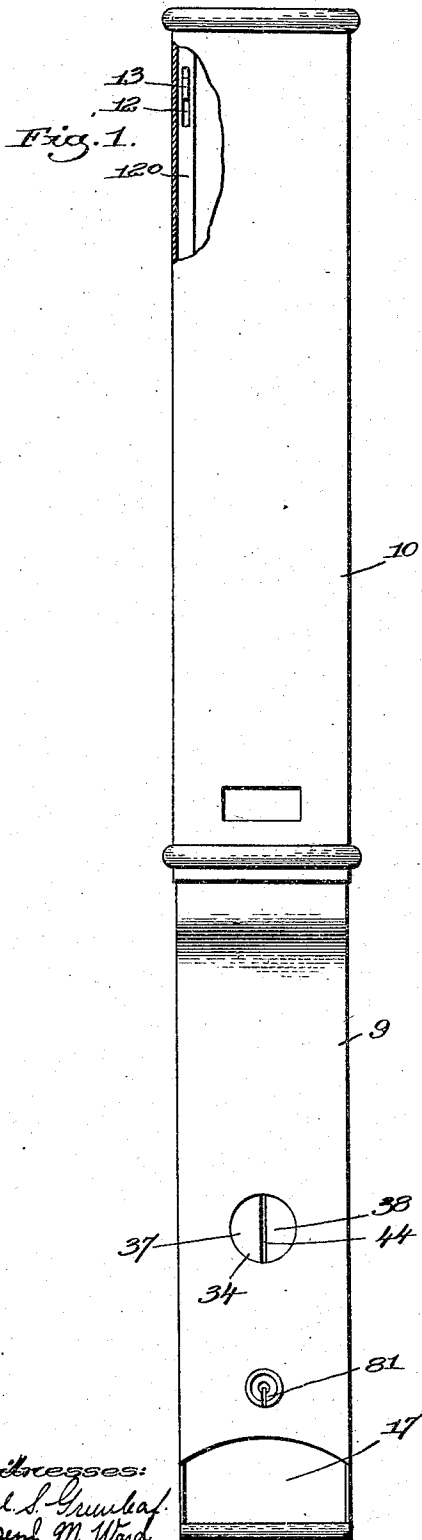


M. J. FORTH.
 COIN CONTROLLED VENDING APPARATUS.
 APPLICATION FILED NOV. 27, 1908.

942,253.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.



Witnesses:
 Fred S. Grunke,
 Joseph M. Ward.

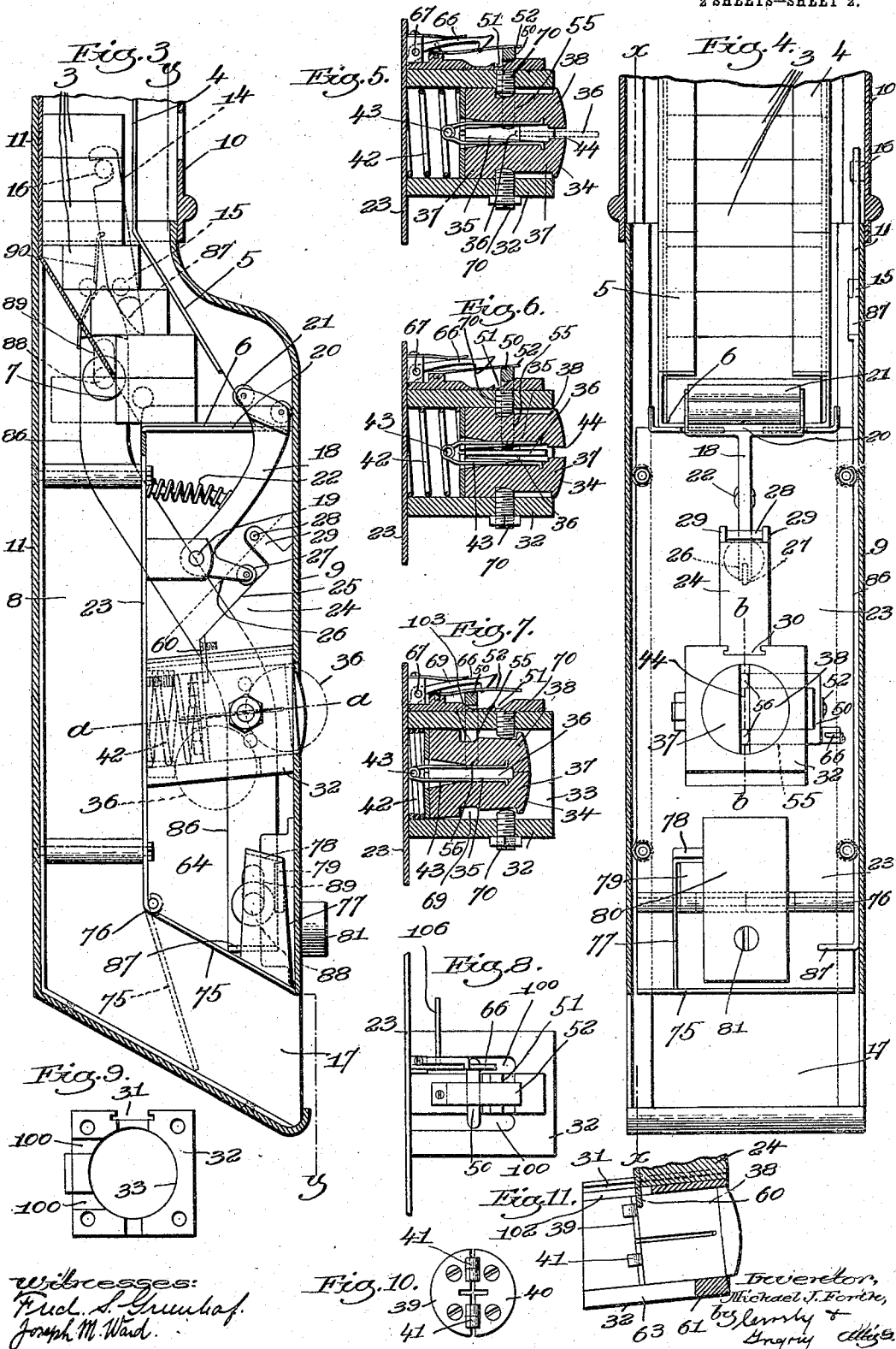
Inventor,
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

MICHAEL J. FORTH, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS,
OF ONE-HALF TO JOHN LEAKE, OF BOSTON, MASSACHUSETTS.

COIN-CONTROLLED VENDING APPARATUS.

942,253.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed November 27, 1908. Serial No. 464,633.

To all whom it may concern:

Be it known that I, MICHAEL J. FORTH, a subject of the Emperor of Austria, residing at Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Coin-Controlled Vending Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to a coin-controlled vending apparatus and has for its object to provide a novel device of this class in which the coin is deposited in a pocket in a coin-receiving plunger which is adapted to be manually moved for the purpose of causing the ejection from the machine of one of the articles to be vended. In the preferred embodiment of the invention, the coin-receiving plunger is of a size to be manipulated by a persons thumb or finger, and means are provided to prevent its movement in a direction to discharge an article except when a coin is located in the pocket. After the plunger has been forced inwardly sufficiently to cause delivery of an article to be vended, the coin is released from the pocket automatically and the plunger will then be returned to its normal position as soon as pressure is relieved therefrom. In case the coin should not be automatically discharged from the pocket after the article is vended, the plunger will be prevented from returning to its initial position and the apparatus cannot be operated until the difficulty has been corrected.

The device herein shown also embodies a device to lock the plunger from movement when all the articles have been discharged therefrom.

The invention also involves other features which will be more fully hereinafter described and then pointed out in the appended claims.

Referring to the drawings wherein one embodiment of my invention is shown, Figure 1 is a front view of an apparatus embodying the invention; Fig. 2 is a side view thereof with a portion of the casing broken out; Fig. 3 is an enlarged sectional view on substantially the line *x—x*, Fig. 4; Fig. 4 is a view on substantially the line *y—y*, Fig. 3; Figs. 5, 6 and 7 are all sections on substantially the line *a—a*, Fig. 3, showing the coin-receiving plunger in different positions; Fig.

8 is a side view of the holder for the coin-receiving plunger and the controlling mechanism therefor; Fig. 9 is an end view of the holder for the coin-receiving plunger; Fig. 10 is an inner end view of the coin-receiving plunger; Fig. 11 is a section through the coin-receiving plunger on the line *b—b*, Fig. 4; Fig. 12 is a detail showing the manner in which the plunger is locked after all the articles have been discharged from the machine.

The articles 3 to be vended are sustained in a hopper or container 4 which is adapted to receive the articles placed in a column, one on top of another. The lower end of the holder or container 4 is offset slightly, as at 5, and the bottom article in the hopper normally rests on a shelf or support 6. The hopper is provided at one side with an opening 7 through which the bottom article in the hopper may be ejected. In the present embodiment of my invention all of the operative parts are received in a casing which is herein shown as comprising a base piece 9 and a cap or cover portion 10. The back of the base piece 9 extends to the top of the device, and the cap or cover 10 is secured thereto and covers or incloses the hopper or container 4, as clearly seen in Fig. 2. The upper end of the hopper or container is open so as to permit it to be filled with articles 3 when the cover 10 is removed. Said cover or casing 10 has flanges 120 which lie parallel to the back and which are provided with openings 12 that are adapted to receive hooked projections 13 extending forwardly from the wall 11, as best seen in Figs. 1 and 2. When the cover is in position, the hooked projections 13 prevent it from being pulled forwardly from the back 11, and said cover can only be removed by first lifting it sufficiently to free the hooks 13.

The cover is normally held locked against vertical movement by means of a locking latch 14, see Fig. 3, which is pivoted to one side of the base portion 9 of the casing, as at 15, and is adapted to hook over a projection 16 extending from the side of the cover. The mechanism for releasing the latch 14 when it is desired to remove the cover 10 will be more fully hereinafter described.

As stated above, the bottom article 3 is ejected from the hopper 4 through the opening 7 whenever the apparatus is operated,

such article when thus ejected being deposited into a chute 8 formed in the base 9 of the casing and which leads to a delivery opening 17 in the front of the base 9 through which the person operating the machine may secure the vended package. The bottom article in the hopper 4 is ejected by a pusher 18 which is pivoted in the fixed support at 19, and the upper end of which is adapted to engage the bottom article 3. The pusher extends up through a slot 20 formed in the platform 6 and may conveniently be provided at its end with a roll 21 which is adapted to engage the article, although this is not essential. Said pusher is normally held in its full line position Fig. 3 by means of a spring 22, one end of which engages the pusher and the other end of which engages the back plate 23. The pusher has a movement from the full line position Fig. 3 into the dotted line position, and during this movement, it will force the bottom package or article out through the opening 7, as will be obvious.

In the present embodiment of my invention, the pusher is given its movement by means of an actuator 24 herein shown as in the form of a block having an inclined surface 25 that is adapted to act against an arm 26 formed on the lower end of the pusher, said arm preferably being provided with a roll 27 to minimize friction. The actuator 24 has a movement from the position Fig. 3 to the position shown in Fig. 13, and during such movement, the inclined surface 25 thereof acts against the end of the arm 26 and swings the pusher 18 to the left into the position shown in Fig. 13 thereby forcing the bottom article into the chute 8. The actuator 24 may be provided with a stop 28 which limits the forward movement of the pusher. This stop is in the form of a cross bar carried by two ears or projections 29, said projections being situated so that as the actuator moves backwardly into the dotted line position, the arm 26 passes in between the projection and under the cross bar 28. The actuator 24 may be guided in any suitable way and I have herein shown it as provided on its under side with a dove-tailed rib 30 which fits in a dove-tailed groove 31 formed in a holder or guide block 32 within which is sustained the coin-receiving plunger. This holder 32 is retained in position in any suitable way and may be conveniently rigidly secured to the back plate 23. This holder or guide is arranged to receive and guide the coin-receiving plunger into which the coin is deposited, and the coin-receiving plunger is connected to the actuator so that movement of the plunger gives movement to the actuator. In the present embodiment of my invention the guide or holder is provided with the cylindrical bore 33 in which the coin-receiving

plunger 34 is received. The plunger 34 is provided with a pocket 35 in which the coin 36 is adapted to be deposited. Said plunger normally comes substantially flush with the end of the holder 32 and has in its end an opening 44 through which the coin may be inserted into the pocket 35.

In the embodiment of the invention herein shown the coin-receiving plunger is made with the two halves 37 and 38 which are shaped to form the pocket 35 between them. The two parts 37 and 38 of the plunger are shown as secured to two plates 39 and 40 which are pivoted together as at 41. The plunger is backed by a spring 42 which normally holds the plunger in its outward position as shown in Figs. 5 and 6. Situated between the two parts of the plunger is a spring 43 which normally separates the parts from each other, thus presenting at the front of the plunger a slot or opening 44 of sufficient width to receive the coin 36.

In order to make it impossible to effect the discharge of an article without first inserting a coin in the pocket of the plunger, I have provided a locking means which restrains the inward movement of the plunger except when a coin is located in the pocket thereof. Said locking means is so constructed that a coin located in the pocket of the plunger holds the locking means inactive and thus permits a free movement of the plunger. This locking means is herein shown as a pawl 50 having a substantially U-shape, the arms 55 of which play in slots 100 formed in the holder 32 and extend through openings in the part 38 of the plunger. The pawl is acted upon by a suitable spring 52. The holder 32 is provided with a locking notch 51 into which the pawl is forced by the spring 52 when the plunger begins its inward movement in case there is no coin occupying the pocket 35. When the plunger is retracted as shown in Figs. 5 and 6, the pawl has engagement with a high portion of the wall of the holder 32 and is held in its backward position, in which position the inner ends of the arms 55 come substantially flush with the wall of the pocket 35. When the plunger is in normal position, therefore, the arms 55 do not form any obstruction to the insertion of a coin through the slot 44 into the pocket 35. If after the coin is in the pocket, as shown in Fig. 6, the plunger should be forced inwardly, said coin acts to hold the pawl retracted so that the pawl will not engage the notch 51, but will pass over said notch. The plunger is thus free to be moved inwardly into the position shown in Fig. 7 for the purpose of ejecting a package from the holder. If there is no coin in the pocket, however, the pawl will be forced into the notch 51 as soon as the plunger starts its inward movement, and further inward move-

ment of the plunger is therefore prevented. The movement of the plunger necessary to bring the pawl 50 into the notch 51 is insufficient to eject an article from the hopper.

5 As stated above, the plunger is connected to the actuator so that movement of the plunger moves the actuator. The connection between the plunger and actuator is herein secured by a plate 60 which is secured to the actuator and which extends
10 through a slot or opening 102 in the upper end of the holder 32, said plate being secured to the plunger in any suitable way.

In using the device the operator first drops
15 a coin into the slot 44, and this coin will move freely into the pocket owing to the fact that the plunger is situated at a slight inclination, as shown in Fig. 3, and owing to the further fact that the arms 55 are held
20 withdrawn from the pocket 35 by the engagement of the pawl with the casing, as shown in Fig. 5. After the coin is inserted into the pocket 35, the operator pushes the plunger inwardly. During the inward movement of the plunger, the coin acts as a stop
25 or abutment to prevent the pawl 50 from moving inwardly sufficiently to engage the notch 51, and therefore so long as the coin is in the pocket, the plunger can be moved
30 freely into the position shown in Fig. 7. When the plunger completes its inward movement, the pawl 50 is brought against the inclined surface 103 of the holder and is moved backwardly slightly sufficiently to
35 withdraw the ends of the arms 55 from engagement with the coin 36. The bottom 61 of the holder is provided with a discharge slot 63 which is in alinement with the pocket 35 when the plunger is in its inward position,
40 and as soon as the arms 55 are withdrawn from engagement with the coin by the surface 103, the coin drops through the slot 63 into the receptacle 64.

My device is also so made that during the
45 initial inward movement of the plunger, the two parts 37, 38 are closed together thereby to close the slot 44 and thus locking the coin in the pocket. This is accomplished by making each of the parts 37, 38 with a recess 69
50 in its side provided with an inclined face into which recess the ends of projections 70 carried by the holder are normally received when the plunger is retracted. When the
plunger is moved inwardly, however, the
55 two projections 70 force the two parts of the plunger together, as shown in Fig. 7, thus closing the slot 44. I have also provided a mechanism whereby if the coin does not drop out of the pocket 35 when the plunger
60 is in its inward position, said plunger cannot return. This is provided for by a pawl 66 pivoted at 67 and adapted to engage the pawl 50 when the plunger is in its inward position. So long as the pawl 50 is held
65 outwardly, as shown in Fig. 6, the inward

movement of the plunger will carry the pawl underneath the nose of the pawl 66. When the coin 36 drops out of the pocket 35, however, the pawl 50 is allowed to move inwardly out of engagement with the pawl 66,
70 and the plunger will then be restored to its normal position when pressure is relieved therefrom. If, however, the coin gets caught in the pocket 35 and fails to be discharged therefrom, the pawl 50 will be held in its
75 outward position and the pawl 66 will act to prevent backward movement of the plunger.

For removing the coins from the chamber
80 64 I have made the bottom 75 of said chamber movable so that it may be swung down into the dotted line position Fig. 3 so as to permit the coins to drop into the bottom of the chute 8 and to be taken out through the opening 17. The bottom 75 of the chamber
85 64 is pivoted to the plate 23 at 76 and has extending upwardly therefrom an arm 77 provided at its end with a lip or projection 78 that is adapted to be engaged by the bolt
90 79 of any suitable lock 80. The bolt 79 can be thrown to the right, Fig. 4, to be withdrawn from the lip 78 by means of a key inserted into the key opening 81. When the
bolt is thus withdrawn, the floor or bottom 75 will drop by its own weight, thus dis-
95 charging the coins which have collected in the chamber 64. I have also provided mechanism whereby when the chamber 64 is opened by lowering its floor 75, the cover 10 is disconnected or unlocked from the casing
100 9 so that the cover may be readily removed to provide for filling the hopper 4. I accomplish this by means of a locking slide 86 which is secured to one side of the base
105 portion 9 of the casing and which has at its lower end a lip 87 adapted to be engaged by the floor 75, as clearly seen in Figs. 3 and 4. The upper end of the locking slide 86 is pointed and is adapted to engage the lower tapered end 87 of the pawl 14. Said lock-
110 ing slide is guided in its vertical movement by means of pins 88 that extend through slots 89 formed in the slide. When the slide is elevated, as shown in Fig. 3, its upper end engages the lower end of the pawl 14 and
115 maintains the pawl in locking engagement with the pin 16 of the cover. When the floor 75 is dropped, however, the slide 86 will drop by its own weight out of engagement with the pawl 14, and said pawl is
120 thrown back automatically from locking engagement with the pin 16 by means of a spring 90. When this occurs the cover 10 is completely unlocked and may be readily removed thereby permitting the hopper 4 to
125 be removed or to be filled as desired. The lock 80 thus serves not only to lock the coin-receiving chamber 64, but also to control the locking of the cover.

My invention also comprehends a device 130

adapted to lock the plunger from movement when the last package has been delivered from the machine. In the preferred embodiment of my invention, this device is so arranged that it not only locks the plunger, but it locks the plunger with the slot 44 closed, as shown in Fig. 7, so that it is impossible for any person to deposit a coin into the apparatus after all the articles have been delivered therefrom. The locking of the plunger when the articles have all been delivered is accomplished herein by a member 105 which constitutes a weight that is placed on top of the packages in the hopper 4. The weight has such a shape as shown in Fig. 12 that when the last article has been ejected from the hopper and the pusher is in its inward position, said weight will drop in back of the pusher and prevent the latter from returning to its normal position. Fig. 12 shows the relation of the parts at this time. The relation between the arm 26 and the stop 28 is such that when the arm 18 is in the position shown in Fig. 12, the actuator is locked and cannot move into the position shown in Fig. 3. As a result the weight 105 operates to lock the plunger in its inward position with the slot 44 thereof closed, and after the last article has been delivered from the machine, the parts will remain in this locked condition until a fresh supply of articles 3 has been placed in the hopper.

The drawings show a single vending apparatus, but it will be obvious that devices for vending several different articles can be grouped together within the casing if desired. The device herein shown is compact and can be readily attached to a wall without taking up any room.

The pawl 66 is provided with an arm 106, see Fig. 8, by which said pawl may be released from the pawl 50. This arm 106 is not accessible except through the bottom of the chamber 64, but when the floor 75 of said chamber is in the dotted line position Fig. 3, a person can insert an implement up through the chamber and release the pawl 66 by engaging the arm 106.

The construction herein shown is the preferred embodiment of the invention and is sufficient to illustrate the principle thereof, but I would state that the invention is not limited to the exact construction shown.

While I prefer to make the coin-receiving plunger in two separate parts which are adapted to form the coin-receiving pocket between them, yet this construction is not essential.

One of the features of the invention which I regard as new and as of importance is that involving a construction in which the coin is deposited in a pocket in a plunger which is subsequently pushed inwardly to effect the release of the article to be vended.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein having an exposed end which may be engaged to force the plunger inwardly, said plunger having a pocket to receive a coin and an opening leading into the pocket through the exposed end of the plunger, locking means to restrain the plunger from inward movement, and means controlled by a coin in said pocket to hold said locking means inoperative.

2. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein having an exposed end by which it may be engaged to force it inwardly, said plunger having a pocket and an opening leading into the pocket through its exposed end, locking means to restrain the inward movement of the plunger, means controlled by a coin in said pocket to hold said locking means inactive, and means actuated by the movement of the plunger for delivering an article.

3. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein having an exposed end which may be engaged to force the plunger inwardly, said plunger having a pocket to receive a coin and an opening leading into the pocket through the exposed end of the plunger, locking means to restrain the plunger from inward movement, means controlled by a coin in said pocket to hold said locking means inoperative, and means to prevent return movement of the plunger while the coin is in the pocket.

4. In a coin-controlled apparatus, the combination with a manually-movable coin-receiving plunger having a pocket to receive a coin, of a lock for the plunger, which lock is held inoperative by a coin in said pocket, means operated by the manual inward movement of the plunger to deliver an article, and means controlled by the coin to prevent the return of the plunger while the coin is in the pocket.

5. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein having an exposed end by which it may be engaged to force it inwardly, said plunger having a pocket and a coin-receiving opening leading into the pocket through the exposed end of the plunger, a pawl normally locking the plunger from inward movement but held inoperative by a coin in the pocket, and means to restrain the plunger from return movement while the coin occupies the pocket.

6. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein having an exposed end by which it may be engaged to force it in-

wardly, said plunger having a pocket and a coin-receiving opening leading into the pocket through the exposed end of the plunger, a pawl normally locking the plunger from inward movement but held inoperative by a coin in the pocket, and means co-acting with said pawl to restrain the plunger from return movement while the coin occupies the pocket.

7. In a coin-controlled apparatus, the combination with a holder, of a coin-receiving plunger situated within the holder and having an exposed end, said plunger being movable longitudinally within the holder and provided with a coin-receiving slot which is open at its exposed end, a pawl carried by said plunger and co-acting with the holder for normally preventing inward movement of the plunger, said pawl being held in inoperative position by a coin in the slot, and means to deliver an article by inward movement of the plunger.

8. In a coin-controlled apparatus, the combination with a holder having a locking notch, of a coin-receiving plunger sustained by said holder and having an exposed end, said plunger having a coin-receiving pocket which is open at said exposed end, and a pawl carried by the plunger and adapted to engage the locking notch thereby to prevent inward movement of the plunger, said pawl being held out from the notch by a coin in the pocket.

9. In a coin-controlled apparatus, the combination with a coin-receiving plunger divided longitudinally into two separate parts which form between them a coin-receiving pocket and a slot leading to said pocket, of means normally restraining the plunger from movement, which means are held inoperative by a coin in the pocket, and means actuated by the movement of the plunger to deliver an article.

10. In a coin-controlled apparatus, the combination with a normally locked plunger, of means operated by the insertion of a coin to release the lock, an actuator having an inclined face secured to and operated by the plunger, a pivoted pusher having an arm to be engaged by the inclined face of the actuator whereby inward movement of the plunger operates the pusher to deliver an article, and means coöperating with said arm to lock the actuator from return movement while the pusher is in its inward position.

11. In a coin-controlled apparatus, the combination with a hopper to receive articles, of a cover for the hopper, means to lock the cover, a coin-controlled mechanism for delivering articles singly from the hopper, a chamber to receive the coins from the mechanism, said chamber having a movable side providing access to said chamber, a lock for said side independent from that for the cover, and means to release the lock for the cover by the opening movement of said side of the chamber.

12. In a coin-controlled apparatus, the combination with a casing, of a coin-receiving plunger therein provided with a pocket to receive a coin and having an end exposed through the casing, said exposed end having a slot leading to the pocket and provided with walls which are movable relative to each other, means actuated by the inward movement of the plunger to deliver an article, means to move the walls of the slot together thereby to close said slot as the plunger moves inwardly, and a device to lock the plunger from movement with its slot closed when the last article has been delivered.

13. In a coin-controlled apparatus, the combination with a casing, of a two-part plunger therein formed with a coin-receiving pocket between the parts and a slot leading to the pocket through the exposed end of the plunger, and means to cause the two parts of the plunger to move toward each other during inward movement of the plunger thereby to close the slot.

14. In a coin-controlled apparatus, the combination with a casing, of a two-part plunger therein formed with a coin-receiving pocket between the parts and a slot leading to the pocket through the exposed end of the plunger, means to lock the plunger normally from inward movement, said means being rendered inoperative by a coin in the pocket, and means to cause the two parts of the plunger to move toward each other thereby to close the slot as the plunger is moved inwardly.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

MICHAEL J. FORTH.

Witnesses:

LOUIS C. SMITH,
THOMAS J. DRUMMOND.